

WITNESS STATEMENT

BRIAN HINDLEY, BSC., MSC.

ONTARIO MUNICIPAL BOARD HEARING

(APRIL 20, 2009)

1281216 ONTARIO INC. (INTRACORP)

CITY OF BRAMPTON

OMB FILE NO. PL081174

March 30, 2009.

A. Qualifications

1. I am a watershed studies specialist and aquatic/systems ecologist with 30 years of experience in aquatic ecology, water resources management, fluvial geomorphology, environmental planning, impact assessment and watershed management. I am a senior project manager with Aquafor Beech Limited.

My experience includes senior watershed and water resources policy/planning positions with Ontario Hydro, the Ministry of Natural Resources, the Toronto Region Conservation Authority and Beak International.

I have worked extensively in the GTA/Golden Horseshoe, specifically the watersheds and Lake Ontario waterfront coordinating waterfront environmental monitoring programs, watershed studies, environmental assessments, and specialized fisheries and water quality studies. I have co-managed numerous watershed and subwatershed studies including the West Humber, Credit headwaters, Highland, Rouge, as well as nearby watersheds such as Harmony Creek and Eramosa – Blue Springs Creek. I have also provided specialist expertise in environmental planning for many MESP's, stormwater management plans, secondary plans and site plans, and prepared Fisheries Act authorizations for numerous stream rehabilitation projects. I also developed water quality, fisheries, and terrestrial resources management targets used for the City of Toronto's Wet Weather Flow Management Strategy for the Etobicoke, Mimico, Humber, Don, Highland and Rouge watersheds. I have worked extensively on the design of stream restoration projects with multidisciplinary project teams and I have a good understanding of stream processes, having taken supplementary courses in fluvial geomorphology.

My Curriculum Vitae is included as Appendix A to this Witness Statement

B. Retainer

1. I was retained by 1281216 Ontario Inc. (Intracorp) in April 2007, to complete an Environmental Impact Study, to assess the impacts of the proposed Residential

Subdivision on the existing natural features within part of the residentially designated tablelands of the Castlemore Golf and Country Club lands. The Subdivision site is generally located south of Countryside Drive and west of Goreway Drive in the City of Brampton.

2. In this capacity I have reviewed a number of background reports and documents including:
 - a. West. Humber River Subwatershed Study 1998
 - b. Draft Humber River Fisheries Management Plan 2005
 - c. Terrestrial Resources Management Strategy. TRCA 2007
 - d. TRCA / CVC Headwater Drainage Feature Assessment Protocol 2008
 - e. Ridgecore Environmental Impact Study. LGL 2007
 - f. TRCA Valley and Stream Corridor Management Program. 1994
3. I prepared a report entitled Environmental Impact Study (EIS), Intracorp Subdivision Phases V and VI, Vales of Castlemore dated dated September, 2007 which was subsequently updated in March 2008 to incorporate changes to the Draft Plan (see Appendix "B"). In response to comments received from Toronto & Region Conservation (letter dated September 15th 2008) and the Peer Review letter by Dillon Consulting dated August 15th 2008, I prepared an Addendum (EIS Addendum) in November, 2008 (see Appendix "C"). I have also visited the site and surrounding area. In March, 2009, I co-authored a fluvial geomorphology technical memorandum. I have also visited the site and surrounding area.
4. Over the past 18 months, I have worked with a multi-disciplinary consultant team including municipal engineers, urban designers, landscape architects, traffic engineers, acoustical engineers, planners and various environmental consultants. I have reviewed all consultant reports, City reports, agency comments, public comments, and other witness statements. I will be relying on technical evidence of the consultant team including Mr. Diarmuid Horgan, Consulting Engineer; Mr. David Butler, Planner; Ms. Sarah Mainguy, Environmental Biologist, and Mr. Steven Wimmer, Architect and Urban Designer.
5. I have also consulted with Ms. Christine Tu, Fisheries Biologist, TRCA and Mr. Alan Dextrase, Species At Risk Biologist, MNR and Chair of the Draft Redside Dace Recovery Strategy Committee.

C. Applications

6. The applications before the OMB include applications for rezoning (OMB File No. PL081113), subdivision (OMB File No. PL081174), and Official Plan Amendment (OMB File No. PL081175).
7. The applications for rezoning and subdivision were first filed with the City of Brampton on November 7, 2005, and proposed development of 201 single detached residential dwelling units, parks and open space. The rezoning proposed was from Recreational Commercial (RC), Flood Plain (F) and Agricultural Section 1520 (A) to Residential, Flood Plain and Open Space.
8. A statutory public meeting was held on December 5th, 2005 and based on City comments a revised Draft Plan was submitted to the City on October 16, 2006. On May 7, 2007, a further statutory public meeting was held.
9. An application for an Official Plan Amendment was also filed on December 16th 2006, which proposes to redesignate the subject lands from Upscale Executive Housing Special Policy Area, Low Density, and Low Density 1 to Executive Residential, Valley Land and Parkette. Amendments to the Plan of Subdivision were filed in March 20, 2008, which among other matters reduced the total number of lots to 188 and addressed various environmental issues raised by the TRCA.

E – Summary of Evidence

I would refer you to Figure 2 of my EIS report, which generally shows the existing features on the site, consisting of the West Branch of the West Humber River, two minor tributaries of Salt Creek, called the Westerly and Easterly Tributaries, and several ponds located both within and in the vicinity of the subject lands.

In addition to my work on the site, my review of relevant documents listed above and discussions with TRCA and MNR, I took the opportunity to review some historical airphotos of the site dated 1960, 1988, 2002 and 2005/6. The 1960 photograph shows the two tributaries, the westerly and easterly tributaries as they cross the landscape in a southerly direction, crossing Countryside Drive, Goreway Drive and discharge into Salt Creek, a major tributary of the West Humber River. Also visible to the west, is the West Branch of the West Humber River, which crosses Airport Road and countryside Drive. Although the photo is grainy, several conclusions can be drawn:

- There is no evidence of any of the current pond features in the airphoto, including Ponds A and B which are on-line ponds. There does appear to be an online pond on the Easterly Tributary near the farmstead, which no longer exists

- The two Salt Creek tributaries drain through cultivated agricultural fields, and it is clear that while the features are evident, there is no indication of riparian vegetation, such as trees or shrubs.
- With the exception of some sparsely distributed trees in the Salt Creek and West Branch valleys and some fence hedgerows, there is no forested or woodland habitat of any size. The landscape consists of open, cultivated agricultural with generally open valleys and only a few patches of forest habitat.

The 1988 photograph shows the drainage features and ponds within the subject property essentially as they are today, however it is noted that the Tortoise Court residences are not yet all developed. Also note that at this time the small online pond (Pond B) within the Tortoise Court residential area was not yet constructed. In addition, landscaping of the golfcourse has substantially added to the density of trees across the entire golfcourse, however, the patches of forest habitat evident in the 1960 photo have not changed substantially.

The 2002 photo is useful in that it provides better resolution of the predevelopment condition of the two Salt Creek tributaries north of Countryside. Both of these features are evident on the landscape and appear to have sufficient definition to have been left uncultivated. They would appear to be better defined as drainage features north of Countryside, than on the subject lands.

Finally, the 2005/6 Photo provides evidence that the Westerly Feature has been altered within the Tortoise Court residential community. As noted above, the small online pond (Pond B) was likely constructed sometime around 1988, and this 2005/6 Photo clearly shows that a substantial amount of fill has been placed within the floodplain of the drainage feature.

Based on this review of historical airphotos, I conclude the following:

- All of the pond features on the subject lands or within the Tortoise Court Residential Community are manmade and constructed for golf course or aesthetic purposes
- Since the 1960's, the two Salt Creek tributaries have been surrounded by open agricultural lands and more recently golfcourse and urban land uses with only sparse patches of forest, no woodlots and little, if any, evidence of streamside or riparian vegetation, similar to their character today.
- In looking at more recent photographs, there is little to distinguish between the reaches of these tributaries where they formerly existed north of Countryside Drive and where they cross the subject lands
- The two features have been modified over time by agricultural practices, golf course and urban development. This includes the construction of ponds and fairways within the

golfcourse and also an online pond (Pond B) and filling within the floodplain of the Westerly Feature within the Tortoise Court Residential Community

- Since the 1960's, with the exception of some sparsely distributed trees in the Salt Creek and West Branch valleys and some fence hedgerows, there is no forested or woodland habitat of any size. The landscape consisted of open, cultivated agricultural with generally open valleys and only a few patches of forest habitat. There has been little change in the size and distribution of these natural habitats up to the present time, with perhaps a modest increase in trees within the golfcourse

The existing natural heritage system consists of the following components:

- Two intermittent (seasonally flowing) drainage features that are tributary to Salt Creek. These features do not extend north of Countryside Drive, although they receive drainage from roadside ditches and a stormwater management pond serving the area north of Countryside Drive. There are some small pockets of wetland vegetation along these features, but the streamside or riparian vegetation is primarily golfcourse fairways. A portion of these features is also piped under the fairways. These features represent indirect fish habitat; in other words they contribute flows, modify water quality and contribute food sources to direct fish habitat located downstream within the Ridgecore Development and in Salt Creek. Although they provide indirect fish habitat, the quality of this support function to downstream habitat is poor for the following reasons:
 - There is little if any natural streamside or riparian vegetation adjacent to these features, and adjacent landuses extend up to and through them. Without this riparian vegetation, these features do not contribute to improving water quality draining to them or downstream, and in fact, may degrade water quality downstream through nutrient enrichment and contaminant loading
 - Portions of these features are piped, there is very little wetland habitat along these features and there is very little stream side vegetation present, all of which indicate that these features are limited in their ability to contribute nutrients, natural food sources to downstream fish habitat
 - Although the aquatic habitats of the online ponds provide a natural food source to downstream fish habitat, they also contribute to warming of stream temperatures.
 - Because there is no base flow or even prolonged periods of seasonal flow in these tributaries, they serve only to convey flows from the adjacent lands and upstream

- Direct fish habitat, or aquatic habitat that fish are able to frequent on a permanent or seasonal basis, exists in the West Branch, Salt Creek and possibly the lower reaches of the Westerly Tributary within the approved Ridgecore Development and in the Easterly Tributary, from just upstream of Goreway Drive to its confluence with Salt Creek
- A number of small ponds were created for golfcourse uses, two of which are located on the westerly drainage feature. The online features contain fish and are considered to be fish habitat, however the other features which serve irrigation purposes are not considered fish habitat. At the same time, these online ponds also represent a barrier to any potential for fish to utilize portions of the Westerly Tributary, and contribute to increased stream temperatures in downstream fish habitat. The online features provide habitat for common species of frogs and also turtles and provide some habitat for common bird and mammal species. There is also an online pond within the Tortoise Creek Residential Community that is direct fish habitat.
- A number of isolated groupings of trees and shrubs planted for golf course uses or hedgerows as well as some golfcourse roughs
- Other golfcourse features, including manicured fairways, greens, sand traps and tees
- Offsite, and receiving drainage from the subject lands, is Salt Creek to the east and the West Branch of the West Humber River to the west. These features join the West Humber River in the vicinity of Castlemore Road (Salt Creek) and Queen Street (West Branch). These two major tributaries of the West Humber River and their associated valleys also harbour the only larger patches of natural heritage features in the vicinity of the subject property.

The natural heritage features on the subject property are generally highly disturbed, isolated and function primarily to support downstream fish communities. While there are some wildlife species that may also frequent the golfcourse features on the subject property, the primary habitat and migration pathways for these species are the Salt Creek and West Branch valley systems.

I estimated the amount of fish habitat within the subject lands as follows:

- 200 m of indirect fish habitat along the Westerly Tributary. I estimate that the total natural or functional riparian area associated with this drainage feature is in the order of 5 m wide, representing an area of 0.01 ha

- 150 m of indirect fish habitat along the Easterly Tributary, although about 80 m is contained within 2 15-18 inch diameter, corrugated steel culverts. Similarly I estimate the total functional riparian area along this feature to be about 0.008 ha
- 35 m of direct fish habitat along the Easterly Tributary, downstream of the Tortoise Court Residential Community
- 0.25 ha of direct fish habitat in Pond A

In considering habitat restoration and enhancement opportunities for the site, I reviewed the Humber River Fisheries Management Plan (TRCA 2005), the West Humber Subwatershed Study (Aquafor Beech 1998), the Terrestrial Resources Strategy (TRCA 2005) and also the approved natural channel design for the Ridgecore Development on the Westerly Tributary. Based on my review, I concluded the following:

- In the Fisheries Plan, the two Salt Creek tributaries are considered intermittent features that provide indirect fish habitat, except the lower section of the westerly tributary which is considered to be a small riverine warmwater fish community. The Fisheries Plan identifies the target fish communities in Salt Creek to be darter species and both darters and reddsides in the West Branch. The Fisheries Plan recommends the following types of habitats would be consistent with protection and enhancement targets for these species
 - Mitigate the effects of online ponds on fish migration and thermal warming
 - Encourage the protection of fish habitat in ponds where they exist
 - Promote the use of native species for stocking purposes
 - Avoid the transfer of non-indigenous fish species from ponds into watercourses
- I also assessed these features according to the TRCA/CVC Headwaters Assessment Protocol and concluded that the recommended treatment based on this protocol was to “Conserve the function in a form that provides flow conveyance and contributes directly to fish habitat, i.e., direct connection to watercourse and/or wetland, etc., – this can be achieved by enhanced lot level conveyance measures, including well-vegetated swales which incorporate herbaceous, shrub and tree material to mimic online wet vegetation pockets.”
- The Terrestrial Strategy identifies both Salt Creek and the West Branch as areas of existing or potential natural cover, however there is no similar designation for either of the tributary features or any of the remainder of the subject lands.

- The approved Ridgecore Natural Channel design includes eliminating an existing online pond to promote fish movement and reduce downstream thermal effects on Salt Creek. The natural channel design also recommended a 15 m base width for the stream meander pattern.

In response to technical comments on the EIS and Addendum provided by TRCA (letter dated March 16-, 2009), I visited the site with Mariette Pushkar, a fluvial geomorphologist, on March 24, 2009, to collect additional information on channel dimensions and observe evidence of physical processes within the westerly and easterly tributaries. Based on this field visit, and in consultation with Ms. Pushkar, I made the following observations:

- The location of both tributaries appear to be highly influenced by local topography. It is clear that both tributaries have been modified in terms of their physical characteristics, including slope, adjacent vegetation and also either partially enclosed within culverts (the East Tributary) or removed to construct an online pond (the West Tributary). In addition, the surrounding topography has been significantly changed as part of the golf course design, including modifying topography immediately adjacent to both drainage features.
- The general characteristics of the westerly tributary are as follows:
 - Currently only a relatively short section (165 m) of channel is free flowing. Within the remainder of the subject property, flows are directed through on-line ponds (i.e., 180 m).
 - While much of this channels was vegetatively controlled (the erosion effects of flows were controlled by vegetation), there were examples of isolated scouring of the vegetation (scour pockets) and some planform or channel development. Where this occurred, the channel ranged from 0.25 – 2.2 m wide with a lateral planform extent of about 6.5 m
 - Despite some evidence of channel development, we concluded that the feature was predominantly vegetation controlled, or to some extent transitional between a vegetative and meandering channel
- The general characteristics of the easterly tributary are as follows:
 - The channel appears to have been previously straightened and lacks sinuosity.
 - Grasses have been manicured through the drainage feature.
 - About 50% of the channel length is currently conveyed through 15 – 18 inch diameter steel culverts

- While there was no evidence of any scour or channel development, subsequent analysis of the channel characteristics, suggested that the channel could support a meandering versus a vegetative planform or stream pattern. The projected dimension of this meander planform is in the order of 6 – 7 m.
- Based on our field work and preliminary analysis, I conclude the following:
 - It would appear that both channels are vegetatively controlled or perhaps transitional between a vegetatively controlled and meandering stream type. Given the short sections of channel that could be assessed, it is not clear whether they are truly reflective of existing conditions. Further, it is not clear whether the vegetative treatments that exist within the drainage features (and particularly for the east tributary) are representative of natural vegetated systems, which would generally be more resistant to channel forming processes. Accordingly, it is my opinion that the final form of the restored channels and corridors should be governed by the most appropriate design that can meet the stated objectives for these channels, specifically:
 - Replicate headwater channel form and functions, recognizing that Peel plain headwater systems typically originate as vegetatively controlled swale-type features that transition into meandering pool:riffle alluvial features as drainage area increases
 - Create seasonal fish habitat where only support habitat currently exists
 - Enhance refuge habitat for fish and re-create some of the pond/pool-like characteristics of the pond in some pool/wetland features within the created channel
 - Enhance wetland habitat overall, by increasing the amount of online and offline wetland features as much as is feasible
 - Provide for good transition areas from flows entering the subject lands and for flows leaving the subject lands. These transition areas are best designed as pool/wetland features
 - Increase food production in the form of aquatic organisms in a seasonal environment to support downstream fish habitat. This is best accomplished, in seasonally flowing headwater features, through the creation of pool/wetland features that retain water during periods of no flow to support survival of aquatic food organisms.

Based on the above enhancement targets and previously approved works downstream, the following enhancements were recommended (see Figure 3 of the EIR):

- Removal of Pond A to reduce thermal effects downstream in Salt Creek and the lower part of the Westerly Tributary and to promote fish movement
- Relocate the two Salt Creek tributaries through the subject property and enhance them as follows:
 - Replace 200 m of indirect fish habitat in the Westerly Tributary with 350 m of direct, seasonal fish habitat
 - Replace 150 m of indirect fish habitat in the Easterly Tributary, 50% of which is enclosed within culverts, with 135 m of direct fish habitat
 - Increase the amount of riparian habitat in the Westerly Tributary from 0.01 ha to 0.88 ha consisting of woody riparian vegetation and riparian wetlands
 - Increase the amount of riparian habitat in the Easterly Tributary from 0.008 ha to 0.2 ha consisting of woody riparian vegetation and riparian wetlands
 - Leave the 35 m of direct habitat in the Easterly Tributary untouched.
 - On an area basis, including the area of the Pond A, these enhancements will increase the amount of existing natural area on the subject lands from about 0.268 ha to 1.08. This does not include any habitat that may be created in association with the proposed stormwater management ponds
 - In addition to the benefits resulting from the net gain in natural habitat on the subject lands, several stormwater management practices are also being implemented that will enhance aquatic habitats within these newly created features and also downstream in Salt Creek and the West Branch, as follows:
 - The stormwater management facilities are designed to moderate hydrologic fluctuations and maintain the existing hydrology of the two tributaries
 - These ponds will capture storm flows and provide an extend period of low flow augmentation into the tributaries to improve low flows here and in Salt Creek
 - The use of LID measures in a portion of the proposed subdivision will provide a source of cool baseflows to the West Branch

To illustrate what these restored drainage features will look like, I have provided photographs (as an appendix)[NTD: as an appendix?] of a similar, though somewhat larger natural channel

design that was recently completed in West Brampton in the headwaters of Fletcher's Creek. These photos show a meandering, riparian wetland channel design that is characterized by a series of variable sized wetland/pond features interspersed with rocky riffles within a naturally vegetated corridor. This design is well suited to provide seasonal fish habitat, in that the wetland/pond features provide refuge during extend periods when there is no stream flow. In addition some of these features can be quite large or off line and offer habitat for a wide variety of wildlife including amphibians, frogs and turtles.

In conclusion, it is my opinion that a net environmental gain has been in the design of the subject Subdivision that is also consistent with the general natural heritage and fisheries objectives of TRCA. The result is a net increase in riparian wetland and seasonal fish habitat from 0.268 ha to 1.08 ha.

I – Issues to be Addressed – Environmental

1. What are the appropriate limits of development having regard to the environmental features and constraints on the subject lands which may include the natural heritage systems, features, functions, and areas, and to the site biodiversity consisting of fish, endangered and threatened species and other wildlife?

Based on my work on the site, my review of relevant documents listed above and discussions with staff at TRCA and MNR, not only have the appropriate development limits been established to protect natural heritage features, functions and areas, but the existing functions have been substantially enhanced.

The existing natural heritage system consists of the following components:

- Two intermittent drainage features that are tributary to Salt Creek. These features do not extend north of Countryside Drive, although they receive drainage from roadside ditches and a stormwater management pond serving the area north of Countryside Drive. There are some small pockets of wetland vegetation along these features, but the streamside vegetation is primarily golfcourse fairways. A portion of these features is also piped under the fairways. These features represent indirect fish habitat; in other words they contribute flows, water quality parameters and contribute food sources to fish habitat located downstream within the Ridgecore Development and in Salt Creek.

- A number of small ponds created for golfcourse uses, two of which are located on the westerly drainage feature, one within the bounds of the existing application and the other part of the approved Ridgecore Development. The online features contain fish and are considered to be fish habitat, however the other features which serve irrigation purposes are not considered fish habitat. The online features provide habitat for common species of frogs and also a snapping turtle and provide some habitat for common bird and mammal species.
- A number of isolated groupings of trees and shrubs planted for golf course uses or hedgerows as well as some golfcourse roughs
- Other golfcourse features, including manicured fairways, greens, sand pits and tees
- Offsite and receiving drainage from the subject lands is Salt Creek to the east and the West Branch of the West Humber River to the west. These features join the West Humber River in the vicinity of Castlemore Road (Salt Creek) and Queen Street (West Branch). These two major tributaries of the West Humber River and their associated valleys also represent the only large blocks of natural heritage features in the vicinity of the subject property.

The natural heritage features on the subject property are generally highly disturbed, isolated and function primarily to support downstream fish communities. While there are some wildlife species that may also frequent the golfcourse features on the subject property, the primary habitat and migration pathways for these species are the Salt Creek and West Branch valley systems. As part of the proposed development, the two drainage features have been enhanced to provide seasonal fish habitat and act as a minor corridor through the property improving linkages to Salt Creek. The removal of online ponds is consistent with the objectives of the Humber River Fish Plan and the enhancement of the features to provide seasonal fish habitat, improve water quality and enhance baseflows to Salt Creek are also consistent with the Fish Plan. These enhancements will also contribute to the any planned recovery strategy for redbreasted dace in Salt Creek and in the West Branch.

Based on these observations, the limits of development are appropriate to protect and enhance the natural heritage features in and adjacent to the site

2. Is all of the development that is currently proposed located outside of the Regulatory Floodplain, consistent with Section 3 of the Provincial Policy Statement?

Yes, the proposed development is outside of the regulatory floodplain, as indicated in the Functional Servicing report.

3. Has the development application adequately identified the natural heritage systems, features and functions of the subject property and any necessary connections with the adjacent lands?

As identified above, the natural heritage system has been adequately defined and substantial enhancements have been proposed, consistent with the environmental objectives of the City of Brampton Official Plan and TRCA's policies. More specifically, it is my opinion, that the proposed corridor widths for the easterly and westerly tributaries and the proposed vegetative, riparian wetland channel feature is consistent with the wording and intent of the TRCA's Valley and Stream Corridor Management Program (1994). This TRCA policy document is also included as the defining policy for the City of Brampton's policies concerning watercourses.

4. Does the proposed development meet policy requirements of the City's applicable Official Plan to maintain, protect and enhance the natural heritage systems, and represent a net environmental gain as per the objectives of the 2006 Official Plan?

As noted in my Summary of Evidence, there has been a net increase in riparian wetland and seasonal fish habitat from 0.268 ha to 1.08 ha. More specifically, it is my opinion, that the proposed corridor widths for the easterly and westerly tributaries and the proposed vegetative, riparian wetland channel feature is consistent with the wording and intent of the TRCA's Valley and Stream Corridor Management Program (1994). This TRCA policy document is also included as the defining policy for the City of Brampton's policies concerning watercourses.

5. Do the proposed reconstructed ponds and features represent an enhancement of the environmental features and functions of the City's applicable Official Plan and a net environmental gain as per the objectives of the 2006 Official Plan?

I have reviewed a 1960 air photo of the site that clearly shows that none of the ponds existed at that time and I conclude therefore that all of these features were constructed for golf course purposes. The removal of online ponds is consistent with TRCA's fisheries objectives. The enhancement of fish habitat to create seasonal habitat where only indirect habitat previously existed and the stormwater management measures represent a substantial enhancement to the features on the site and also improve conditions downstream in Salt Creek and the West Branch. The wetland features in the enhanced drainage features will also provide wetland habitat for amphibians and reptiles and also create a corridor through the development connecting to Salt Creek

6. Is the proposed application consistent with the Natural Heritage Policy 2.1 of the PPS?

Yes, it is consistent in that the proposed stream corridors for the easterly and westerly tributaries represent a net environmental gain and also protect and improve the ecological, physical and hydrologic functions of these features.

7. Are there any environmentally hazardous and/or ecologically sensitive lands, [and/or natural heritage systems] that should be dedicated to the City? If so, does the Board have jurisdiction to order such dedication?

Based on my work, there are no ecologically sensitive lands or natural heritage features that need to be dedicated to the City, beyond the restored corridors for the easterly and westerly tributaries. In my opinion, it would be beneficial for the City to assume ownership of the restored tributary features on the property.

8. Does the proposed development implement storm water management best practices? Do the stormwater management ponds offset the loss of natural features and functions and represent an environmental enhancement and net environmental gain of fisheries and wildlife habitat as per the City's applicable Official Plan the Region of Peel Official Plan and TRCA storm water management policies and guidelines?

Yes, in my opinion, the proposed stormwater management system does offset the removal of the pond and represents a net environmental gain and appropriate and feasible implementation of stormwater best management practices.

10. Does the proposed development conform with City's Official Plan policies at the date of application with regards to buffers and setbacks? How much weight should be given to the proposed development's consistency with the objectives of the City's 2006 Official Plan policies with regards to buffers and setbacks and good planning principles? Does the proposed buffer achieve the environmental policies and objectives of the 2006 Official Plan and represent environmental enhancement or net environmental gain?

This will be addressed in part by others. It is my opinion, that the proposed corridor widths for the easterly and westerly tributaries and the proposed vegetative, riparian wetland channel feature is consistent with the wording and intent of the TRCA's Valley and Stream Corridor Management Program (1994). This TRCA policy document is also included as the defining policy for the City of Brampton's policies concerning watercourses. In addition, the proposed channels and corridor represents a net gain of fish habitat consistent with the Department of Fisheries and Oceans Fish Habitat Policy. This policy is reflected in the policies of TRCA and the City of Brampton Official plan.

11. Will the proposed development give rise to negative impacts to the Salt Creek and West Humber River Tributaries as a result of the proposed foundation drain collectors that are designed to redirect water to the West Humber River? Are these impacts consistent with the policies and objectives in the City's applicable Official Plan and those of the TRCA?

In my opinion, the proposed measures and environmental enhancements implemented onsite will provide a substantial improvement to both the Salt Creek tributaries through and downstream of the site, as well as in Salt Creek and the West Branch. The enhancements proposed are consistent with TRCA's fisheries objectives, the DFO's No Net Loss of Fish Habitat Policy, and based on my discussions with TRCA and MNR staff, also consistent with the current draft of the redbreasted dace recovery strategy, which includes Salt Creek and the West Branch, to which this property drains.

J. Conclusions

I conclude that a net environmental gain has been achieved with the environmental and stormwater management measures proposed for the subject lands as follows:

- Removal of Pond A to reduce thermal effects downstream in Salt Creek and the lower part of the Westerly Tributary and to promote fish movement
- Relocate the two Salt Creek tributaries through the subject property and enhance them as follows:
 - Replace 200 m of indirect fish habitat in the Westerly Tributary with 350 m of direct, seasonal fish habitat
 - Replace 150 m of indirect fish habitat, 50% of which is enclosed in culverts, in the Easterly Tributary with 135 m of direct fish habitat
 - Increase the amount of riparian habitat in the Westerly Tributary from 0.01 ha to 0.88 ha consisting of woody riparian vegetation and riparian wetlands
 - Increase the amount of riparian habitat in the Easterly Tributary from 0.008 ha to 0.2 ha consisting of woody riparian vegetation and riparian wetlands
 - Leave the 35 m of direct habitat in the Easterly Tributary untouched.
 - On an area basis, including the area of the Pond A, these enhancements will increase the amount of existing natural area on the subject lands from about 0.268 ha to

1.08. This does not include any habitat that may be created in association with the proposed stormwater management ponds

- In addition to the benefits resulting from the net gain in natural habitat on the subject lands, several stormwater management practices are also being implemented that will enhance aquatic habitats within these newly created features and also downstream in Salt Creek and the West Branch, as follows:
 - The stormwater management facilities are designed to moderate hydrologic fluctuations and maintain the existing hydrology of the two tributaries
 - These ponds will capture storm flows and provide an extend period of low flow augmentation into the tributaries to improve low flows here and in Salt Creek
 - The use of LID measures in a portion of the proposed subdivision will provide a source of cool baseflows to the West Branch

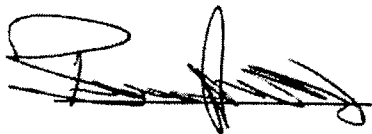
In conclusion, it is my opinion that a net environmental gain has been achieved on the subject properties, that is also consistent with the general natural heritage and fisheries objectives of TRCA, the fisheries policies of DFO and MNR and the City of Brampton's Official Plan. The result is a net increase in riparian wetland and seasonal fish habitat from 0.268 ha to 1.08 ha. These measures will benefit fish and wildlife and improve the function of the local natural heritage system both within and downstream of the subject property.

K. Recommendations

54. It is my recommendation that the Board should approve the subject applications.

55. An addendum to this Witness Statement may be required as a result of my review of the other professional witness statements and/or exhibits. Furthermore, additional new evidence may arise throughout the course of the Hearing that I may wish to comment on.

Respectfully submitted



Brian Hindley



Date