ARBORIST REPORT AND TREE PROTECTION PLAN

LOT 28, CONCESSION 7, TOWN OF BLUE MOUNTAINS, ONTARIO

Myriad - Greenlane Investments Inc.

Project No. 161-12260-00
November 2016
Distribution:
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November 9, 2016

Scott Paris
The Myriad Group
125 Norfinch Drive
Toronto, Ontario
L4M 1B1

Re: Lot 28, Concession 7, Town of Blue Mountains
Arborist Report and Tree Protection Plan
WSP Project Number 161-12260-00

Dear Mr. Paris:

WSP Canada Inc. (WSP) is pleased to provide you with this Arborist Report and Tree Protection Plan of the proposed subdivision at Lot 28, Concession 7, Town of Blue Mountains. The proposed development will require tree protection planning for the area to be cleared for the proposed subdivision, where approximately 51 new lots will be developed.

This report is based on the results of a point sampling inventory for trees within Ecological Land Classification (ELC) units within the proposed development. Based on the information obtained through the survey, a tree protection plan has been completed to address potential impacts to trees.

Thank you for the opportunity to complete this assignment. Please contact the undersigned with any questions or comments.

Yours truly,
WSP Canada Inc.

Dan Reeves, M.Sc, ISA Certified Arborist
Project Biologist

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TABLE OF CONTENTS

1 INTRODUCTION 1

2 STUDY METHODOLOGY 1

3 CONTACT INFORMATION 2

4 TREE INVENTORY 2

4.1 SWD7: ORGANIC DECIDUOUS SWAMP 2

4.2 FOD8-1: FRESH-MOIST POPLAR DECIDOUS FOREST 3

4.3 SWM1-1: WHITE CEDAR- HARWOOD MIXED MINERAL SWAMP/ SWM6-2: POPLAR-CONIFER ORGANIC MIXED SWAMP 3

4.4 FOM8-1: FRESH MOIST POPLAR MIXED FOREST 3

4.5 FOM8: FRESH-MOIST POPLAR- PAPER BIRCH MIXED FOREST ECOSITE 4

4.6 SWM6-2: POPLAR-CONIFER ORGANIC MIXED SWAMP 4

4.7 FOM5-2: DRY FRESH POPLAR MIXED FOREST 4

5 TREE PROTECTION AND REMOVAL PLAN 5

5.1 TREE PROTECTION AND PRESERVATION METHODS 5

5.1.1 TREES TO BE REMOVED AND NEW EDGE TREES 5

6 SUMMARY AND CONCLUSIONS 6

7 CLOSURE 6

8 LITERATURE CITED 7

DRAWINGS

FIGURE 1 ELC AND POINT COUNT LOCATIONS
FIGURE 2 TREE PROTECTION PLAN

APPENDIX

APPENDIX A TREE INVENTORY

1 INTRODUCTION

WSP Canada Inc. (WSP) was retained to complete an Arborist Report and Tree Protection Plan for the proposed residential subdivision development located at Lot 28, Concession 7, Town of Blue Mountains. This report has been prepared in addition to the Environmental Impact Study (EIS) for the proposed subdivision development being prepared under a separate cover.

The proposed development is located on an approximately 28.8 acre (11.67 ha) parcel of land adjacent to residential properties to the north and east, Georgian Bay Golf Club to the south, and a forest which borders the site to the west. There is an existing storm water management pond on site and existing roadways.

This report is based on the results of a point sampling inventory of the abundance of trees within the Ecological Land Classification (ELC) vegetation units provided in the EIS (WSP, 2016). The Town of Blue Mountains does not currently have specific arborist guidelines of their own, thus, the arborist report will follow the City of Toronto Guidelines for the Completion of an Arborist Report (2011). The report will also be prepared using the guidance provided in the Town of Blue Mountains Tree Preservation By-Law No. 2010-68 and the County of Grey Forest Management By-Law #4341-06. Due to the unavoidable encroachment into the designated tree protection zones of trees within the vicinity of the construction area, an arborist report has been completed along with the tree protection plan to address potential impacts to trees.

2 STUDY METHODOLOGY

An inventory was completed on September 23, 2016 for trees in the ELC vegetation units (please refer to EIS Report for description of each ELC unit, WSP, 2016). Point sampling surveys using a basal area factor (BAF) 2 wedge prism were done within the ELC units to tally trees based on their frequency of occurrence and tree size. The following information was obtained for trees in the ELC vegetation units:

- Type of Vegetation Unit;
- Tree species (common and scientific names – genus and species);
- Size Range Diameter at Breast Height (DBH);
- Average canopy height;
- Overall general tree condition (structure and vigour);
  - GOOD - dead branches less than 10%; signs of good compartmentalization on any wounds, no structural defects
  - FAIR – 10-30% dead branches, size or occurrence of wounds present some concerns, minor structural defects
  - POOR – more than 30% dead branches, weak compartmentalization, early leaf drop, presence of insects or disease, major structural defects.
  - DEAD – tree shows no signs of life
- Evidence of insect or fungal infection;
- Evaluation of the dripline;

- General comments including structural integrity, significant lean, etc.; and,
- A picture of the trees in vegetation unit for reference records.

The results from the tree inventory were used to create a tree protection plan (TPP), which identifies and details tree protection methodology.

3 CONTACT INFORMATION

Applicant:

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4 TREE INVENTORY

There are a total of seven (7) ELC vegetation units within the subject site which is approximately 18.63 acres (7.54 ha) that were surveyed. The relative abundance of each tree species was determined using point sampling methods using a wedge prism. The location of each point and ELC unit is shown on Figure 1 and within Appendix A.

4.1 SWD7: ORGANIC DECIDUOUS SWAMP

This unit is located on the North West corner of the Site, and is approximately 1.03 acres (0.42 ha) in size. No development is proposed within this area. The canopy is in fair condition while subcanopy is in good-fair condition. Approximate height of the canopy is 15-20 m. Details for tree abundance are within Appendix A.

The relative abundance of trees in this unit are:

- Balsam Poplar (*Populus balsamifera)* – 36%
- Black Ash (*Fraxinus nigra*) – 29%
- Eastern White Cedar (*Thuja occidentalis)* – 7%
- White Ash (*Fraxinus americana*) – 14%
- White Spruce (*Picea glauca*) – 7%
- Trembling Aspen (*Populus tremuloides*)- 7%

4.2 FOD8-1: FRESH-MOIST POPLAR DECIDOUS FOREST

This vegetation unit is location along the west edge of the Site, and is approximately 1.78 acres (0.72 ha) in size. The development requires the removal of approximately 1.21 acres (0.49 ha) of this area. The general tree condition in this unit is good. Average canopy height is 30 m with subcanopy being 15-20 m. Details for tree relative abundance are within Appendix A.

The relative abundance of trees in this unit are:

- Balsam Poplar (Populus balsamifera) – 53%
- Black Ash (*Fraxinus nigra*) – 26%
- Green Ash (*Fraxinus pennsylvanica*) – 11%
- White Elm (*Ulmus americana*) - 5%
- White Birch (*Betula papyrifera*) – 5%

4.3 SWM1-1: WHITE CEDAR- HARWOOD MIXED MINERAL SWAMP/ SWM6-2: POPLAR-CONIFER ORGANIC MIXED SWAMP

This vegetation unit is location along the southern limits of the Site, and is approximately 3.21 acres (1.3 ha) in size. The development requires the removal of approximately 1.48 acres (0.6 ha) of this area. The general tree condition in this unit is good. Average canopy height is 30-35 m with subcanopy being 20 m. Details for tree relative abundance are within Appendix A.

The relative abundance of trees in this unit are:

- Eastern White Cedar (*Thuja occidentalis)* – 45%
- White Ash (Fraxinus americana) – 18%
- Red Maple (*Acer rubrum*) – 9%
- White Elm (*Ulmus americana*) - 18%
- White Birch (*Betula papyrifera*) – 9%

4.4 FOM8-1: FRESH MOIST POPLAR MIXED FOREST

This vegetation unit is location along the southern limits of the site, and is approximately 1.24 acres (0.5 ha) in size. The development requires the removal of this area in its entirety. The general tree condition in this unit is good-fair. Average canopy height is 10 m. Details for tree relative abundance are within Appendix A.

The relative abundance of trees in this unit are:

- Green Ash (Fraxinus pennsylvanica) – 68%
- Eastern White Cedar (*Thuja occidentalis)* – 14%
- Balsam Poplar (*Populus balsamifera)* – 18%

4.5 FOM8: FRESH-MOIST POPLAR- PAPER BIRCH MIXED FOREST ECOSITE

This vegetation unit is located in the central portion of the site surrounding the open meadow, and is approximately 3.95 acres (1.6 ha) in size. The development requires the removal of approximately 3.34 acres (1.35 ha) of this area. The general tree condition in this unit is good-fair. Average canopy height is 20-30 m while subcanopy is 20 m. Details for tree relative abundance are within Appendix A.

The relative abundance of trees in this unit are:

- Eastern White Cedar (*Thuja occidentalis)* – 11%
- Balsam Poplar (*Populus balsamifera)* – 31%
- Green Ash (*Fraxinus pennsylvanica*) – 4%
- White Ash (*Fraxinus americana*) – 5%
- Trembling Aspen *(Populus tremuloides)* – 48%
- Sugar Maple (*Acer saccharum*) – 1%

4.6 SWM6-2: POPLAR-CONIFER ORGANIC MIXED SWAMP

This vegetation unit is location along the southern limits of the site, and is approximately 2.22 acres (0.9 ha) in size. The development requires the removal of approximately 0.12 acres (0.05 ha) of this area. The general tree condition in this unit is good-fair. Average canopy height is 10m. Details for tree relative abundance are within Appendix A.

The relative abundance of trees in this unit are:

- Eastern White Cedar (*Thuja occidentalis)* – 42%
- Black Ash (*Fraxinus nigra)* – 11%
- Green Ash (*Fraxinus pennsylvanica*) – 25%
- White Ash (*Fraxinus americana*) – 3%
- White Elm *(Ulmus americana)* – 3%
- White Birch (*Betula papyrifera*) – 3%
- Red Maple (*Acer rubrum*) – 8%
- Basswood (*Tilia americana*) – 6%

4.7 FOM5-2: DRY FRESH POPLAR MIXED FOREST

This vegetation unit is location along the southern limits of the site, and is approximately 5.19 acres (2.1 ha) in size. The development requires the removal of approximately 3.71 acres (1.5 ha) of this area. The general tree condition in this unit is good. Average canopy height is 25-30 m while subcanopy is 15 m. Details for tree relative abundance are within Appendix A.

The relative abundance of trees in this unit are:

- Eastern White Cedar (*Thuja occidentalis)* – 73%
- Trembling Aspen *(Populus tremuloides)* – 24%
- White Birch (*Betula papyrifera*) – 4%

5 TREE PROTECTION AND REMOVAL PLAN

5.1 TREE PROTECTION AND PRESERVATION METHODS

For the proposed development to occur, approximately 11.09 acres (4.49 ha) of the total 18.63 acres (7.54 ha) of tree cover will need to be removed, representing 60% of the total tree cover. Removing the trees within the above-noted ELC units will create new tree edges that will need to be protected from the disturbances associated with the proposed development.

5.1.1 TREES TO BE REMOVED AND NEW EDGE TREES

Removal of trees within the wooded ELC units would create new tree edges and thus increase the environmental effects on these new edge trees in terms of wind exposure, sunlight, dust and road salt and grading/fill placement along treed edges can impact root systems of retained trees. Tree protection and preservation methods are described on Figure 2 and follow the best management practices as outlined in the City of Toronto Tree Protection Policy and Specifications for Construction Around Trees (2016). In addition to the measures indicated on the Figures, the following should be implemented:

- Tree protection fencing should be erected as indicated on Figure 2 and should be 1.2 m tall orange snowfencing on 2” x 4” braces around trees that are identified during the clearing process and construction as preservation.
- To avoid soil compaction, machinery operation is to stay within the work area and avoid the areas delineated by the tree protection fencing. The drawings describe activities not permitted within the TPZs and tree protection fencing. When not actively engaged in excavation, equipment passage should enter and exit work area from the south.
- To avoid interference with the eggs, nests or young of birds protected under the federal migratory birds convention act (Government of Canada, 1994), Tree removal should be completed outside of the migratory bird nesting season from May 1 to July 31. Removals may take place during this restricted time only if a qualified avian biologist should conduct a thorough survey immediately prior to the desired tree removal date to confirm presence or absence of protected species. If protected species are present, removal cannot occur without a permit from the Canadian Wildlife.
- A variety of native tree and shrub species should be planted within the openings and the new tree edges to replace the function of the edges in protecting against environmental effects.
- Plantings should be done by hand to reduce mechanical compaction of soils and damage to existing vegetation. Hydro seeding is acceptable for ground cover. Planting should be performed by a qualified and knowledgeable landscaper to ensure plantings are spaced appropriately and placed in suitable sun exposures and moisture regimes.

→ A monitoring plan should be implemented to manage remaining trees, newly planted trees/shrubs and to confirm that the restoration efforts have been successful.

6 SUMMARY AND CONCLUSIONS

The impacts of construction of the proposed subdivision development will result in the removal of approximately 11.09 acres (4.49 ha), of the total 18.63 acres (7.54 ha) tree cover on the Site, representing a cover loss of approximately 60%. This Tree Protection Plan was guided by the Town of Blue Mountains Tree Preservation By-Law No. 2010-68 and The County of Grey County of Grey Forest Management By-Law #4341-06. The majority of the tree removal will create new tree edges which will be susceptible to environmental effects. Measures for protecting trees to be retained have been listed so that the impact of construction related activities will be minimized. Planting is recommended within the new tree edges to maintain and enhance all function within the remaining tree areas.

7 CLOSURE

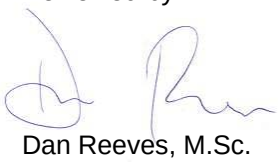
This report has been prepared by WSP Canada Inc. The assessment represents the conditions at the Site only at the time of the assessment, and is based on the information referenced and contained in this report. WSP Canada Inc. attests that to the best of our knowledge, the information presented in this report is accurate. The use of this report for other projects without written permission of the Client and WSP Canada Inc. is solely at the user's own risk. This report must be reviewed and approved by the relevant regulating agencies prior to being relied upon for planning and/or construction purposes.

Thank you for the opportunity to complete this report. We trust that this information is satisfactory for your current requirements. Please contact us if we can be of further assistance.

Report Prepared by:
WSP Canada Inc.

Whitney Black, B.Sc.(Hons),
Ecologist, ISA Certified Arborist

Reviewed by:



Dan Reeves, M.Sc.
Project Biologist, ISA Certified Arborist

8 LITERATURE CITED

- City of Toronto. 2016. Tree Protection Policy and Specifications for Construction Near Trees. 18 pp.
- City of Toronto. 2011. Guidelines for Completion of an Arborist Report. 5 pp
- County of Grey. 2006. By-law #4341-06. Forest Management By-Law. 9 pp
- Town of Blue Mountains. 2010. Bylaw No. 2010-68 Tree Preservation. 3 pp
- WSP. 2016. Environmental Impact Study for Lot 28, Concession 7, Town of Blue Mountains.

Figures

LEGEND

- Site Limits
- Proposed Development
- Survey Point

Ecological Land Classification

- **SWD7:** Organic Deciduous Swamp
- **FOD8-1:** Fresh-Moist Poplar Deciduous Forest
- **SWM1-1:** White Cedar- Harwood Mixed Swamp
- **SWM6-2:** Poplar-Conifer Organic Mixed Swamp
- **FOM8-1:** Fresh-Moist Poplar Mixed Forest
- **FOM8:** Fresh-Moist Poplar -Paper Birch Mixed Forest
- **FOM5-2:** Dry-Fresh Poplar Mixed Forest

Client: The Myriad Group		**Project No.:** 161-12260-00	**Figure:** 1
Drawn: WB	**Approved:** DR	**Title:** ELC AND SURVEY POINT LOCATION	
Date: November 2016	**Scale:** As Shown	**Project:** ARBORIST AND TREE PROTECTION PLAN LOT 28, CONCESSION 7, TOWN OF BLUE MOUNTAINS, ONTARIO	
Origional Size: Tabloid	**Rev:** 0	WSP	

GENERAL NOTES:

- PRIOR TO COMMENCEMENT OF ANY SITE ACTIVITY THE TREE PROTECTION BARRIERS SPECIFIED ON THIS PLAN MUST BE INSTALLED.
- TREE PROTECTION BARRIERS MUST REMAIN IN EFFECTIVE CONDITION UNTIL ALL SITE ACTIVITIES INCLUDING LANDSCAPING ARE COMPLETE.

TREE PRESERVATION AND PROTECTION RECOMMENDATIONS

TREE PROTECTION AND FENCING:

- FENCING SHOULD BE INSTALLED BETWEEN THE AREAS OF PROPOSED DEVELOPMENT AND NEW TREE EDGE BOUNDARIES, AS INDICATED ON THE TREE PROTECTION PLAN, TO REDUCE THE POTENTIAL FOR PHYSICAL DAMAGE TO THE TREES AND THEIR ROOT SYSTEMS.
- INSTALLATION SHOULD FOLLOW DETAILS AND SPECIFICATIONS AS APPROVED BY THE TOWN OF BLUE MOUNTAINS, OR AS OUTLINED IN THE CITY OF TORONTO TREE PROTECTION POLICY AND SPECIFICATIONS FOR CONSTRUCTION NEAR TREES (2016).
- TREE PROTECTION FENCING SHOULD BE INSTALLED BEFORE WORK ON THE SITE BEGINS AND INSPECTED REGULARLY TO ENSURE IT IS PERFORMING ITS INTENDED FUNCTION. IF ANY SECTION IS FOUND TO BE DAMAGED OR NON-FUNCTIONAL IT SHOULD BE REPLACED IMMEDIATELY.
- THE FOLLOWING ACTIVITIES ARE PROHIBITED WITHIN THE TREE PROTECTION AREAS:
  - CONSTRUCTION;
  - ALTERING OF GRADE BY ADDING FILL, EXCAVATING, TRENCHING OR DISTURBANCE OF ANY KIND;
  - STORAGE OR STOCKPILING OF MATERIALS, EQUIPMENT, SOIL, CONSTRUCTION WASTE OR DEBRIS;
  - DISPOSAL OF ANY LIQUIDS;
  - MOVEMENT OF VEHICLES, EQUIPMENT, OR PEDESTRIANS;
  - PARKING OF VEHICLES OR MACHINERY;
- SHOULD ANY WORK BE REQUIRED WITHIN THE TREE PROTECTION FENCING, THE CONTRACTOR AND THE CONSULTING ARBORIST SHALL CONTACT THE TOWN OF BLUE MOUNTAINS.
- IF ANY DAMAGE TO TREES , INCLUDING BROKEN LIMBS, DAMAGE TO ROOTS, OR WOUNDS TO THE MAIN TRUNK MUST BE REPORTED TO THE CONSULTING ARBORIST IMMEDIATELY SO THAT MITIGATION MEASURES CAN BE PROMPTLY IMPLEMENTED.
- AREAS FOR STOCKPILING EQUIPMENT AND MATERIALS SHOULD BE WELL OUTSIDE THE REMAINING VEGETATION AREAS, AND CONFINED TO ROAD AREAS.
- TO AVOID SOIL COMPACTION, MACHINERAY OPERATION IS TO STAY WITHIN THE WORK AREA AND AVOID THE AREA DELINEATED BY THE TREE PROTECTION FENCING.
- IN THE EVENT THAT IT IS NECESSARY TO REMOVE ADDITIONAL LIMBS OR PORTIONS OF TREES IN DESIGNATED PROTECTION AREAS, AFTER CONSTRUCTION HAS COMMENCED, TO ACCOMMODATE CONSTRUCTION, THE CONSULTING ARBORIST OR PROJECT ADMINSTRATOR.

TREE REMOVAL:

- TREES ARE TO BE FELLED INTO THE CONSTRUCTION AREA SO AS TO REDUCE THE POTENTIAL FOR INJURY/DAMAGE TO PROTECTED AREAS.
- TO AVOID INTERFERENCE WITH THE EGGS, NESTS OR YOUNG OF BIRDS PROTECTED UNDER THE FEDERAL MIGRATORY BIRDS CONVENTION ACT (GOVERNMENT OF CANADA, 1994), REMOVALS SHOULD NOT OCCUR FROM MAY 1 TO JULY 31 OF ANY GIVEN YEAR. IDEALLY, REMOVAL SHOULD OCCUR FROM AUGUST THROUGH DECEMBER TO AVOID INTERFERENCE WITH ALL NESTING BIRDS. SHOULD REMOVAL BE REQUIRED WITHIN THE APRIL 1 TO AUGUST 1 BREEDING PERIOD, A QUALIFIED AVIAN BIOLOGIST SHOULD CONDUCT A THOROUGH SURVEY IMMEDIATELY PRIOR TO THE DESIRED TREE REMOVAL DATE TO CONFIRM PRESENCE OR ABSENCE OF PROTECTED SPECIES. IF PROTECTED SPECIES ARE PRESENT, REMOVAL CANNOT OCCUR WITHOUT A PERMIT FROM THE CANADIAN WILDLIFE SERVICE.
- NO BRANCHES OR BRUSH FROM CLEARING IS TO BE STORED ON THE SITE. THE CUTTING, BRUSH AND CHIPPING CLEANUP ARE TO BE COMPLETED OUTSIDE OF THE MIGRATORY BIRD NESTING SEASON.

LEGEND

- SITE LIMITS
- PROPOSED DEVELOPMENT
- TREE PROTECTION FENCING

Data Source: Ministry of Natural Resources, Ontario Base Mapping, March 2014. Imagery, Grey County, 2015.

0 40 80 m

N

TREE PROTECTION PLAN

TREE PROTECTION PLAN
Part of Lot 28, Concession 7
Town of The Blue Mountains
Grey County, Ontario

DATE: NOVEMBER 2016	SCALE: 1:2600
PROJECT: 161-12260-00 124	FILE. NO.:161-12260-00 124 F2

WSP

FIGURE 2

Appendices

Appendix A

TREE INVENTORY

Tree Inventory

ELC Unit	Area (ha)	Prism Points	Relative Abundance												Area to be removed (ha)
			Balsam Poplar (*Populus balsamifera*)	Eastern White Cedar (*Thuja occidentalis*)	Black Ash (*Fraxinus nigra*)	White Ash (*Fraxinus americana*)	White Spruce (*Picea glauca*)	Trembling Aspen (*Populus tremuloides*)	White Elm (*Ulmus americana*)	White Birch (*Betula papyrifera*)	Green Ash (*Fraxinus pennsylvanica*)	Red Maple (*Acer rubrum*)	Sugar Maple (Acer saccharum)	Basswood (*Tilia americana*)	
SWD7	0.42	1,2	36%	7%	29%	14%	7%	7%							-
FOD8-1	0.72	3,5	53%		26%				5%	5%	11%				0.49
SWM6-2/SWM1-1	1.3	19		45%		18%			18%	9%		9%			0.6
FOM8-1	0.5	4, 11	18%	14%							68%				0.5
FOM8	1.6	6,7,8,9,10,16	31%	11%		5%		48%			4%		1%		1.35
SWM6-2	0.9	14, 18		42%	11%	3%			3%	3%	25%	8%		6%	0.05
FOM5-2	2.1	12,13,15, 17		73%				24%		4%					1.5