Draft

Tree Conservation Report
424 Churchill Avenue North
Ottawa, Ontario

ARCADIS | IBI GROUP

Prepared for GSI Properties
By Arcadis IBI Group
October 14, 2022

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ORIGINATOR:	Tim McCormick
REVIEWER:	Erin Hellinga
AUTHORIZATION:	Tim McCormick
CIRCULATION LIST:	Jemmy Taing (GSI Properties), Kris Benes (Open Plan Architects Inc.)
HISTORY:	

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1 Introduction and Overview

Arcadis IBI Group (IBI) was retained by GSI Properties to prepare a Tree Conservation Report for the proposed development property at 424 Churchill Avenue located in Ottawa, Ontario.

The subject property (Study Area) has an area of approximately 0.11 ha and is currently a commercial plaza with the associated parking lot. The proposed project includes the development of the subject property with a midrise tower that includes underground parking. The property is bounded by Danforth Avenue to the north and Byron Avenue to the south.

The report and plans will become part of any and all formal *Planning Act* submissions. It is informed by and aligns with the following:

- The City of Ottawa Tree Protection By-law No. 2020-340

Tree Conservation Plan, drawings TPP-1 (dated October 7, 2022), must be read and understood in conjunction with this report.

2 Methodology

Mr. Tim McCormick, OALA, CSLA, ISA Certified Arborist ON-0899A, completed an onsite review and assessment of the trees within the subject property on May 7, 2022. Ms. Brittany Semmler, Ecologist completed an additional review on August 7, 2022. The Study Area included the subject property and adjacent private property within 5.0 m of the property boundaries. Trees within the Study Area that were 10 cm diameter at breast height (DBH) and greater were inventoried and assigned unique tree identifications.

Each tree inventoried had the following data gathered: tree species, DBH in centimetres, health condition, and dripline radius in metres. The location of each tree was total station surveyed and is included on the Tree Preservation/Enhancement Plan (TPEP Plan), drawings No. TPP-1 and TPP-2. Tree data has been compiled into Table 1 and is included in Appendix A of this document.

2.1 Definitions of Measurements for Tree Inventory Data Collection

Tree assessment includes specific measurements as part of the field review. Outlined below are measurements taken as part of the field tree inventory:

DBH: Measurement of the trunk at 1.4 m above grade. Expressed as diameter in centimetres.

Drip line: Measurement of the approximate extents of the branches as measured from the trunk of the tree. This also represents the general root zone of the tree. Expressed as a radius in metres.

2.1.1 Tree Condition Assessment

Excellent: (Healthy)
No major branch mortality: crown is reasonably normal with less than 10% branch or twig mortality; no signs of decay.

Very Good: (Healthy)
Minimal major branch mortality: crown is reasonably normal with twig dieback in 10-20% of the crown; minimal signs of decay.

Good: (Light Decline)
Branch mortality, twig dieback in 20-30% of the crown: broken branches or crown missing based on presence of old snags is less than 26%; minor evidence of decay.

Fair: (Moderate Decline)
Branch mortality, twig dieback in 40-50% of the crown: broken branches or crown area missing based on presence of old snags is 50% or less; decay evident.

Poor: (Severe Decline)
Branch mortality, twig dieback in more than 50% of the crown: broken branches or crown area missing based on presence of old snags in more than 50%; decay resulting in high hazard assessment.

Dead:
Tree is dead, either standing or down: phloem under bark has brown streaks: few epicormic shoots may be present.

3 Observations

The property at 424 Churchill Avenue North is bounded by Byron Avenue to the south and Danforth Avenue to the north, refer to Figure 1. A total of thirty-five (35) trees were inventoried within the subject property boundary and another four (4) trees located on adjacent properties or at the boundary edge that were reviewed within the overall Study Area. The trees reviewed consisted of only deciduous species. Several of the species are non-native or invasive species. There are isolated native species intermixed on the property. The trees are located primarily along north side of the property below a retaining wall that extends through the subject property.

Figure 1: Aerial Imagery of Study Area (Google Earth image)

3.1 Species

Species observed in the Study Area included: Manitoba Maple (*Acer negundo),* Norway Maple (*Acer platanoides*), Black Walnut (*Juglans nigra)*, Burr Oak (*Quercus macrocarpa),* Common Buckthorn (*Rhamnus cathartica)*, Basswood (*Tilia americana*)*,* and White Elm (*Ulmus americana)*.

3.1.1 Species at Risk

There were no rare, endangered, threatened, or significant tree or shrub species observed within the subject area or adjacent residential properties.

3.1.2 Invasive Species

Present within the Study Area were two (2) non-native invasive species (Norway Maple and Common Buckthorn) and one (1) native invasive (Manitoba Maple). These invasive species are considered threats to the local ecosystem and biodiversity as they can quickly outcompete native plants. Control of these invasive species requires long-term management and one-off removals can encourage spread. As such, only those invasive species located within the active development area will be removed.

3.2 Shared Boundary Trees and Impacts to Trees on Adjacent Properties

During the field inventory it was observed that there is one (1) tree are located at or in close proximity to the property boundaries. Per Section 10(2) of *The Forestry Act*, RSO 1990, C. F.26, “Every tree whose trunk is growing on the boundary between adjoining lands is the common property of the owners of the adjoining lands.” A desktop analysis of the surveyed tree locations was completed to identify ownership and shared boundary trees. Any tree located on a property boundary or within close proximity (~0.3 m) has been assumed to be a shared boundary tree.

An additional four (4) trees located beyond the subject property boundaries may be impacted by the proposed works and development. Tree protection fencing (TPF) is recommended along the property limit where these trees are located (see Appendix A for TPF recommendations).

The location and presumed ownership information for each tree is included in Table 1 (Appendix A). Any impacts to trees on adjacent properties or shared boundary trees will require written approval from all property owners prior to initiation of any work and/or tree removals on site. Written approvals shall be appended to this report for City records prior to the City’s authorization for site demolition.

4 Analysis

4.1 Trees to be Preserved and Protected

Based on the layout of the subject property, location of the trees, and necessary site work to facilitate the construction onsite, there will be no trees preserved or protected on the subject site. Tree 1, Tree 2, Tree 5, and Tree 6 will be preserved and protected on the adjacent property. Tree preservation fencing will be erected at the property limit to protect these trees during construction.

4.2 Trees to be Removed

There are thirty-four (34) trees that will need to be removed to facilitate the construction of the proposed building and development. There is one (1) dead tree within property that will also be removed within the proposed building area.

4.3 Tree Preservation/Removal Summary

Thirty-five (35) trees were inventoried on the subject property and another four (4) on adjacent properties, for a total of thirty-nine (39) trees included in the detailed inventory and assessment.

Based on the information presented above, the following is a summary of recommendations for the proposed development of the subject property:

- Four (4) trees are recommended to be preserved and protected.
- Thirty-five (35) trees are recommended to be removed:
    - Thirty-four (34) live trees and one (1) dead tree.

5 Recommendations

5.1 Tree Protection Fencing

Tree Protection Fencing (TPF) is to be installed on site along the western property line to protect four (4) trees on the adjacent property (Appendix A). The limits of TPF have been indicated on the Tree Conservation Plan sheet TPP-1 and shall be considered to delineate the limits of work. All TPF shall conform to the City of Ottawa's current standards and Tree Protection Specification as shown on Detail 1-TPP2.

6 Construction Impact Mitigation

6.1 Potential Construction Impacts to Trees

Trees are living organisms that react to changes in their environment. Trees can be damaged during construction without showing signs of damage until some years later. Most of the impacts relate to the removal of roots that results in the slow death of the tree as a result of its inability to absorb sufficient water and nutrients. Contained within this section are descriptions of the potential impacts this project may have on the trees, and impact mitigation methods that are intended to aid in the mitigation of impact during construction.

6.1.1 Soil Compaction and Root Damage

The leading cause of construction damage to trees is compaction of the soil around the roots or within the Tree Protection Zone (TPZ). The TPZ is the area around the tree or group of trees in which no grading or construction activity may occur. Equipment entering a TPZ compresses the air pockets around the roots inhibiting the tree from absorbing nutrients and water. This damage ultimately degrades the health of the tree. Accordingly, during the removal stage, equipment use within the TPZ should be restricted to ensure that the tree's roots are not disturbed, thereby assisting in maintaining their continued health. The TPZ is protected and delineated by the TPF.

6.1.2 Mechanical Damage

Equipment can physically damage the trees through striking the trunk, limbs, and/or roots. Felled trees can also cause damage during the tree removal stage of construction. Some damage is unavoidable due to the proximity of adjacent trees; however, by using proper equipment and best management practices the damage can be minimized. The Contractor should be held responsible for all avoidable damage to the trees during all stages of development. Note: trees shall always be felled away from adjacent trees to be retained.

6.1.3 Root Damage

The success of tree preservation is dependent not only on protecting the root zone from compaction and damage, it is also contingent upon the ability to ensure that the structural roots within the root plate are not disturbed. Impacts to this area may result in the structural failure of these trees. Excavating soil 1 m outside a tree's drip line, or within a drip line can damage roots by tearing and splitting back to the stem. This damage can later lead to rot that can kill the tree. All work within the drip line of an existing tree shall be approved by an Arborist. When excavating the top 30-60 cm of soil adjacent to trees, care must be taken. Excavation should cleanly sever the roots prior to stripping and removal of soil. Exposed roots with a diameter greater than 2.5 cm (1 inch) shall be pruned back to the soil face to prevent damage to the tree.

6.2 Protecting and Managing Trees During Construction

The following recommendations are presented to provide appropriate tree protection and management during the future development and construction of this project:

1. Tree Protection Fencing (TPF) should be installed to protect all trees identified for preservation. TPF should conform to City of Ottawa standards and the locations indicated on the TPP (Appendix A). Upon installation of the TPF, the Contractor should contact the Project Arborist to review and approve the fencing and its location prior to commencement of any site work. This should be coordinated with City staff for approval. The TPF should remain intact throughout the entire construction period, as specified on the plans. The TPF should be inspected monthly and repaired as required and should be removed at the completion of all site works.
2. Upon receiving the necessary project approvals and prior to the commencement of tree removals, all trees designated for preservation must be flagged in the field. All designated preservation areas must be left standing and undamaged during site works. Removals are to be completed outside the window of April 1 to August 31. This window offers protection through the main migratory bird nesting and bat maternity roosting season. If removals occur within the restricted activity period, due diligence measures, including pre-clearing nest and roost sweeps will be employed to reduce risk to nesting birds protected under the *Migratory Birds Convention Act, 1994* and Species at Risk Bats under the *Endangered Species Act, 2007*, and all applicable regulations. These surveys are required to be completed by a qualified biologist experienced in bird and bat identification and monitoring.
3. The TPZ is the area around a retained tree that is to be protected by TPF. The TPZ is not to be used for any type of storage (e.g., storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the TPZ. Construction equipment shall not be allowed to idle or exhaust within the TPZ.
4. Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Further, no contaminants shall be dumped or flushed where they may come into contact

with the feeder roots of the trees. In the event that roots from retained trees are exposed, or if it is necessary to remove limbs or portions of trees after construction has commenced, the Project Arborist shall be informed and the proper actions conforming to City Policies and By-laws shall be carried out.

5. Upon completion of the tree removals, all felled trees are to be removed from the subject property. No lumber or brush from the clearing is to be stored onsite. Any chipping, cutting or brush clean-up is to be completed outside the bird nesting season (i.e., *not* between April 1 and August 31). If these activities are to occur within the restricted activity period, due diligence measures, including pre-clearing nest sweeps will be employed to reduce risk to nesting birds protected under the *Migratory Birds Convention Act, 1994* and *Migratory Birds Regulations*. These surveys will be completed by a qualified biologist.
6. Excavation adjacent to trees to be preserved must be completed with due care and attention. Excavation should cleanly sever the roots prior to stripping and removal of soil. Should roots be encountered during excavation all exposed roots with a diameter greater than 2.5 cm (1 inch) shall be pruned back to the soil face to prevent damage to the tree. Roots smaller than 2.5m (1 inch) should be cleanly cut using a sharpened spade or bypass pruners at the limits of excavation.

7 Disclaimer

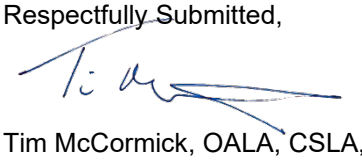
The assessment of the trees presented within this report has been prepared using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree for structural defects, scars, external indications of decay, evidence of insect presence, discoloured foliage, the general condition if the trees and the surrounding site, as well as the proximity of property and people. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees or any part of them will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree or group of trees in all circumstances. Inevitably a standing tree will always pose some risk. Most trees have the potential for failure provided with the necessary combinations of stresses and elements. This risk can only be eliminated if the tree is removed.

Although every effort has been made to ensure that this assessment is reasonably accurate the trees should be re-assessed periodically. The assessment presented in this report is valid at the time of inspection.

Respectfully Submitted,



Tim McCormick, OALA, CSLA, ISA Certified Arborist ON-0899A
Associate Director

ARCADIS IBI GROUP
410 Albert Street, Suite 101
Waterloo, ON N2L 3V3 Canada
tel + 1 519 585 2255 ext 63258
Email: tim.mccormick@ibigroup.com

Appendix A

Tree Conservation Plan
TPP-1 and TPP-2

37 R
36 R
35 R
34 R
31 R
38 R
39 R
29 R
27 R
26 R
25 R
21 R
33 R
32 R
22 R
30 R
18 R
24 R
17 R
28 R
23 R
12 R
20 R
13 R
19 R
16 R
11 R
15 R
14 R
4 R
10 R
5 P
9 R
2 P
8 R
1 P
7 R
3 R
6 P

TREE PROTECTION FENCE ,
SEE DETAIL 1 AND 2 ON SHEET TPP-2

SUBJECT LANDS

LEGEND

- EXISTING DECIDUOUS TREE
- TEMPORARY TREE PROTECTION FENCING
- PROJECT SITE BOUNDARY

TREE IDENTIFICATION TAGS

- 000 P — TREE TO BE PRESERVED
- 000 R — TREE TO BE REMOVED

1 0 1 2 4
1:100 (m)

True North | Project North

CLIENT

GSI PROPERTIES

OTTAWA, ONTARIO

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	2022-10-07

SITE PLAN NUMBER

PRIME CONSULTANT

IBI GROUP
Suite 101 - 410 Albert Street
Waterloo ON N2L 3V3 Canada
tel 519 585 2255
ibigroup.com

PROJECT

424 CHURCHILL

OTTAWA, ONTARIO

PROJECT NO: 139413	SCALE: 1:100
DRAWN BY: R.S/E.L	CHECKED BY: T.M
PROJECT MGR: T.M.	APPROVED BY: T.M

SHEET TITLE

TREE CONSERVATION PLAN

SHEET NUMBER TPP-1 | ISSUE 1

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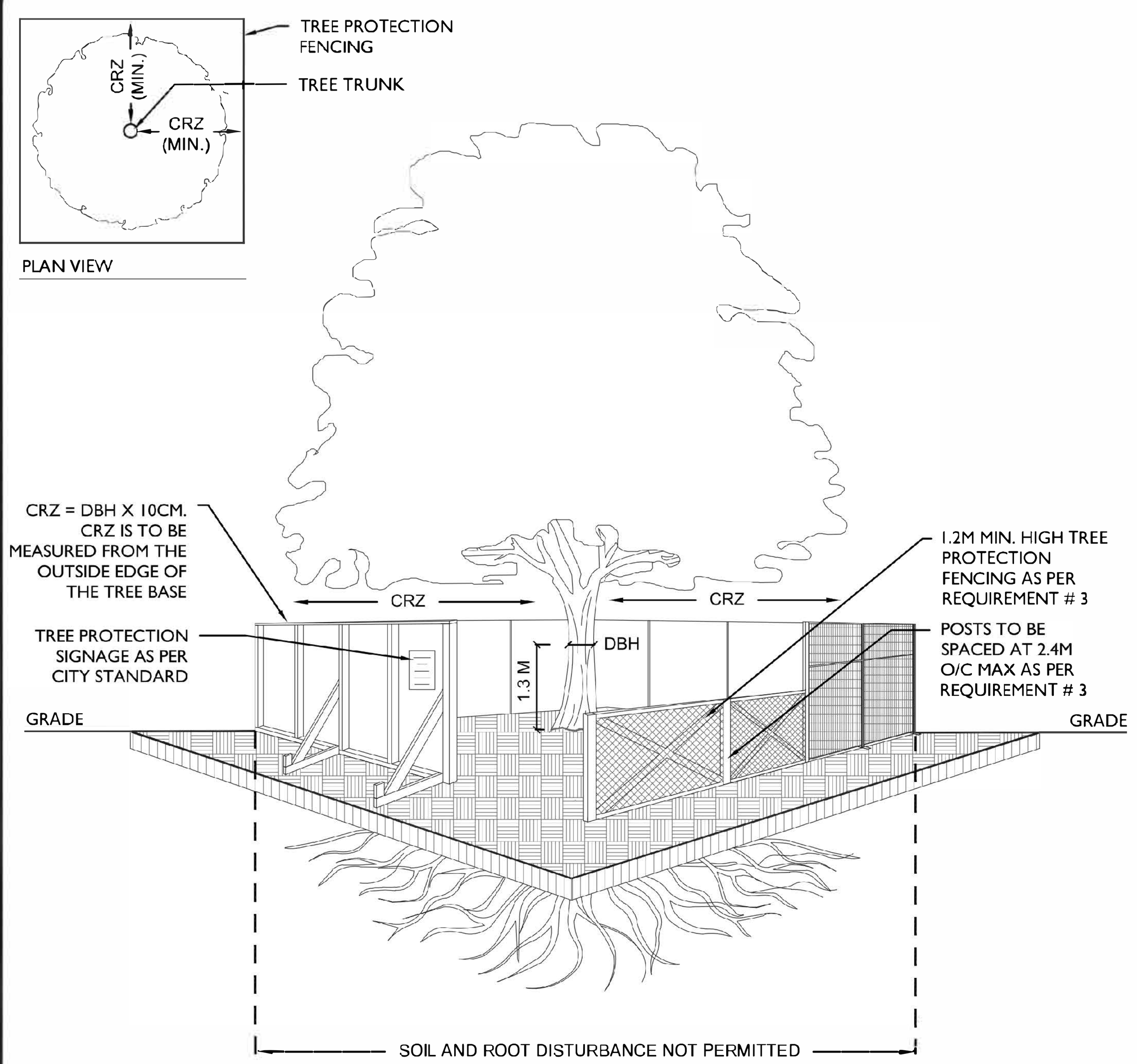

TREE PROTECTION REQUIREMENTS:

1. PRIOR TO ANY WORK ACTIVITY WITHIN THE CRITICAL ROOT ZONE (CRZ = 10 X DIAMETER) OF A TREE, TREE PROTECTION FENCING MUST BE INSTALLED SURROUNDING THE CRITICAL ROOT ZONE, AND REMAIN IN PLACE UNTIL THE WORK IS COMPLETE.
2. UNLESS PLANS ARE APPROVED BY CITY FORESTRY STAFF, FOR WORK WITHIN THE CRZ:
   - DO NOT PLACE ANY MATERIAL OR EQUIPMENT - INCLUDING OUTHOUSES;
   - DO NOT ATTACH ANY SIGNS, NOTICES OR POSTERS TO ANY TREE;
   - DO NOT RAISE OR LOWER THE EXISTING GRADE;
   - TUNNEL OR BORE WHEN DIGGING;
   - DO NOT DAMAGE THE ROOT SYSTEM, TRUNK, OR BRANCHES OR ANY TREE;
   - ENSURE THAT EXHAUST FUMES FROM ALL EQUIPMENT ARE NOT DIRECTED TOWARD ANY TREE CANOPY.
   - DO NOT EXTEND HARD SURFACE OR SIGNIFICANTLY CHANGE LANDSCAPING
3. TREE PROTECTION FENCING MUST BE AT LEAST 1.2M IN HEIGHT, AND CONSTRUCTED OF RIGID OR FRAMED MATERIALS (E.G. MODULOC - STEEL, PLYWOOD HOARDING, OR SNOW FENCE ON A 2"X4" WOOD FRAME) WITH POSTS 2.4M APART, SUCH THAT THE FENCE LOCATION CANNOT BE ALTERED. ALL SUPPORTS AND BRACING MUST BE PLACED OUTSIDE OF THE CRZ, AND INSTALLATION MUST MINIMISE DAMAGE TO EXISTING ROOTS. (SEE DETAIL)
4. THE LOCATION OF THE TREE PROTECTION FENCING MUST BE DETERMINED BY AN ARBORIST AND DETAILED ON ANY ASSOCIATED PLANS FOR THE SITE (E.G. TREE CONSERVATION REPORT, TREE INFORMATION REPORT, ETC). THE PLAN AND CONSTRUCTED FENCING MUST BE APPROVED BY CITY FORESTRY STAFF PRIOR TO THE COMMENCEMENT OF WORK.
5. IF THE FENCED TREE PROTECTION AREA MUST BE REDUCED TO FACILITATE CONSTRUCTION, MITIGATION MEASURES MUST BE PRESCRIBED BY AN ARBORIST AND APPROVED BY CITY FORESTRY STAFF. THESE MAY INCLUDE THE PLACEMENT OF PLYWOOD, WOOD CHIPS, OR STEEL PLATING OVER THE ROOTS FOR PROTECTION OR THE PROPER PRUNING AND CARE OF ROOTS WHERE ENCOUNTERED.

THE CITY'S TREE PROTECTION BY-LAW, 2020-340 PROTECTS BOTH CITY-OWNED TREES, CITY-WIDE, AND PRIVATELY-OWNED TREES WITHIN THE URBAN AREA. PLEASE REFER TO WWW.OTTAWA.CA/TREEBYLAW FOR MORE INFORMATION ON HOW THE TREE BY-LAW APPLIES.

ACCESSIBLE FORMATS AND COMMUNICATION SUPPORTS ARE AVAILABLE, UPON REQUEST

Ottawa

TREE PROTECTION SPECIFICATION

TO BE IMPLEMENTED FOR RETAINED TREES, BOTH ON SITE AND ON ADJACENT SITES, PRIOR TO ANY TREE REMOVAL OR SITE WORKS AND MAINTAINED FOR THE DURATION OF WORK ACTIVITIES ON SITE.

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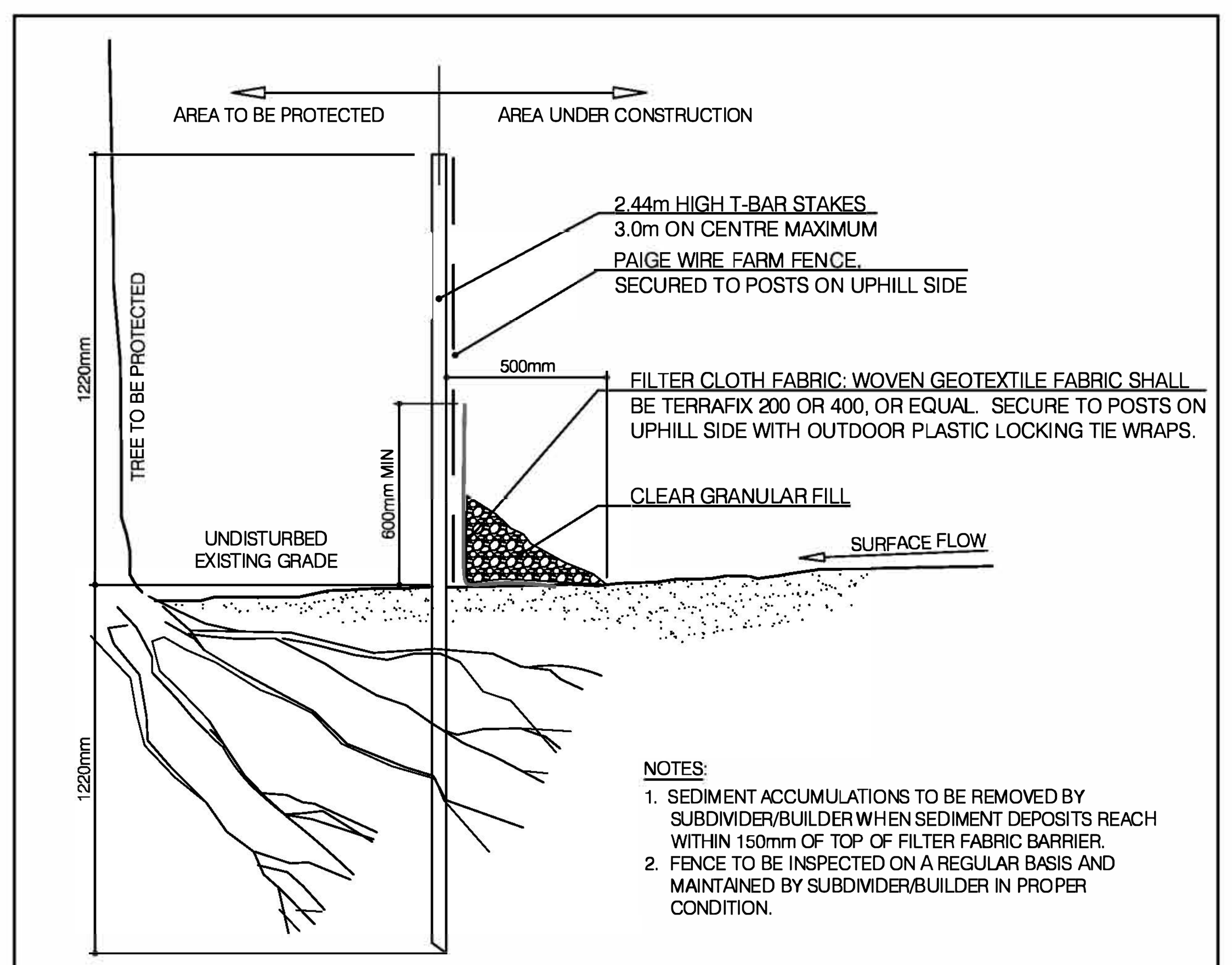
DATE: MARCH 2021
DRAWING NO.: 1 of 1

1 TPP-2 TREE PROTECTION SPECIFICATIOM
N.T.S.



2 TPP-2 EROSION CONTROL AND SEDIMENTATION FENCING
N.T.S

424 Churchill, Ottawa, Ontario

Project #: 139413

Tag #	Species	Common Name	Diameter at Breast Height (DBH) cm or range (cm)	Drip Line Radius (cm)	Multistem Tree	Overall Condition	Recommended Action	Notes
1	*Acer negundo*	Manitoba Maple	10	480	---	Good	Preserve and Protect	Hard lean to south
2	*Ulmus americana*	American Elm	22	280	---	Fair	Preserve and Protect	Lean to south
3	*Acer platanoides*	Norway Maple	11	250	---	Poor	Remove	
4	*Acer platanoides*	Norway Maple	11	200	---	Good	Remove	
5	*Malus spp.*	Apple spp.	11	200	---	Good	Preserve and Protect	
6	*Juglans nigra*	Black Walnut	26	500	---	Good	Preserve and Protect	
7	*Acer negundo*	Manitoba Maple	11	350	---	Fair	Remove	
8	*Ulmus americana*	American Elm	25	350	---	Poor	Remove	
9	*Acer platanoides*	Norway Maple	13	490	---	Very Good	Remove	
10	*Acer negundo*	Manitoba Maple	11	370	---	Good	Remove	
11	*Acer negundo*	Manitoba Maple	37	850	---	Very Good	Remove	
12	*Acer platanoides*	Norway Maple	17	360	---	Very Good	Remove	
13	*Acer negundo*	Manitoba Maple	12	280	---	Poor	Remove	
14	*Ulmus americana*	American Elm	15	50	---	Poor	Remove	
15	*Acer negundo*	Manitoba Maple	19	440	---	Poor	Remove	
16	*Unknown*	Unknown	19	240	---	Dead	Remove	
17	*Acer platanoides*	Norway Maple	19	580	---	Very Good	Remove	
18	*Rhamnus cathartica*	Common Buckthorn	10	730	---	Good	Remove	Hard lean north
19	*Acer negundo*	Manitoba Maple	25	1220	---	Very Good	Remove	
20	*Acer negundo*	Manitoba Maple	35	640	---	Good	Remove	
21	*Tilia americana*	Basswood	11	520	Yes	Poor	Remove	
22	*Tilia americana*	Basswood	12	540	Yes	Good	Remove	
23	*Acer platanoides*	Norway Maple	15	360	---	Very Good	Remove	
24	*Acer negundo*	Manitoba Maple	35	1090	Yes	Poor	Remove	
25	*Ulmus americana*	American Elm	20	470	---	Good	Remove	
26	*Ulmus americana*	American Elm	16	440	---	Good	Remove	
27	*Juglans nigra*	Black Walnut	20	1040	---	Good	Remove	
28	*Tilia americana*	Basswood	14	0	---	Dead	Remove	
29	*Acer negundo*	Manitoba Maple	18	710	---	Good	Remove	
30	*Acer negundo*	Manitoba Maple	19	350	---	Very Good	Remove	
31	*Acer negundo*	Manitoba Maple	15	410	---	Good	Remove	
32	*Acer negundo*	Manitoba Maple	11	0	---	Dead	Remove	
33	*Rhamnus cathartica*	Common Buckthorn	11	810	---	Very Good	Remove	
34	*Tilia americana*	Basswood	28	430	---	Poor	Remove	
35	*Acer negundo*	Manitoba Maple	12	0	---	Dead	Remove	
36	*Acer platanoides*	Norway Maple	11	30	---	Very Good	Remove	
37	*Acer negundo*	Manitoba Maple	27	810	Yes	Poor	Remove	
38	*Acer negundo*	Manitoba Maple	14	450	Yes	Very Good	Remove	
39	*Quercus macrocarpa*	Burr Oak	22	220	Yes	Very Good	Remove	

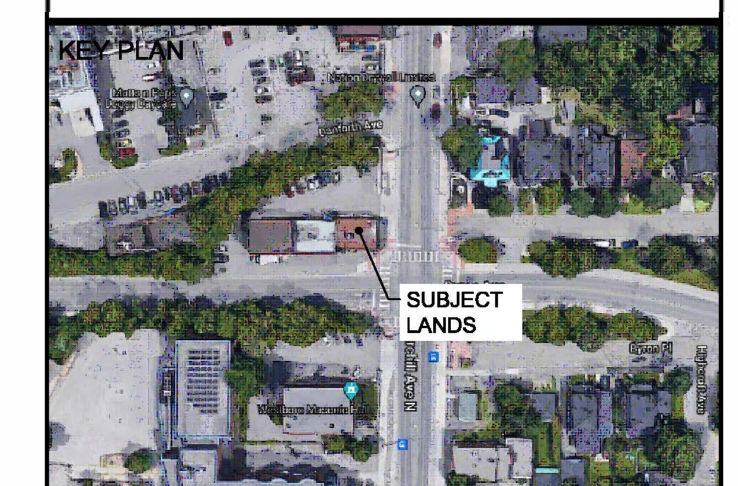
CLIENT

GSI PROPERTIES

OTTAWA, ONTARIO

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	2022-10-07



SITE PLAN NUMBER

PRIME CONSULTANT

IBI GROUP
Suite 101 - 410 Albert Street
Waterloo ON N2L 3V3 Canada
tel 519 585 2255
ibigroup.com

PROJECT
424 CHURCHILL
OTTAWA, ONTARIO

PROJECT NO: 139413	SCALE:
DRAWN BY: R.S/E.L	CHECKED BY: T.M
PROJECT MGR: T.M.	APPROVED BY: T.M

SHEET TITLE
TREE CONSERVATION PLAN

SHEET NUMBER: TPP-2
ISSUE: 1

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