



CBM Caledon Pit / Quarry – Species At Risk Bat Habitat Assessment



TECHNICAL MEMORANDUM

DATE 16 September 2025

Project No. CA0037598.7018

TO MECP, Species at Risk Branch
CBM Aggregates (CBM), a division of St. Marys Cement Inc. (Canada)

CC WSP

FROM Shannon Ritchie, Daniel Eusebi (WSP);
Heather Melcher, Amber Sabourin (Conсор)

EMAIL daniel.eusebi@wsp.com

CBM CALEDON PIT / QUARRY – SPECIES AT RISK BAT HABITAT ASSESSMENT

1 INTRODUCTION

WSP Canada Inc. (WSP) and Consor Engineers, LLC (Conсор) have been retained by CBM Aggregates (CBM), a division of St. Marys Cement Inc. (Canada), to assist in the application to the Ministry of Natural Resources (MNR) for a Class A Licence (Pit and Quarry Below Water) under the *Aggregate Resources Act*. WSP is also involved in aiding CBM in seeking an Official Plan Amendment and Zoning By-law Amendment from the Town of Caledon to permit a mineral aggregate operation.

The proposed location of the aggregate Pit/Quarry (the Site) is bordered by Mississauga Road to the south, Cataract Road to the east, the property limit to the west, Regional Road 136 (Main Street) to the north and Regional Road 24 (Charleston Sideroad) running through the center.

Natural environment field investigations were conducted by WSP (formerly Golder Associates Ltd.) in the spring and summer of 2020 and in the fall of 2021, and the results have been documented in the Natural Environment Report Proposed Caledon Pit / Quarry (Golder 2022, revised 2023) (herein referred to as the NER).

Based on the results of the Natural Environment Report (NER) and the Information Gathering Form (IGF) submitted to Ministry of Environment, Conservation and Parks (MECP), the MECP (Appendix A) and Town of Caledon peer reviewer recommended conducting further bat habitat surveys for Woodlands C, G, and F, as the proposed extraction area includes the removal of these woodlands, which could lead to the loss of habitat for species-at-risk (SAR) bats.

Targeted SAR bat habitat surveys were conducted on March 27, 28 and April 4, 2025, for the following tree-roosting bats:

- Little Brown Myotis (*Myotis lucifugus*) – Endangered (Endangered Species Act [ESA], Committee on the Status of Species at Risk in Ontario [COSSARO], Species at Risk Act [SARA], Committee on the Status of Endangered Wildlife in Canada [COSEWIC])
- Northern Myotis (*Myotis septentrionalis*) – Endangered (ESA, COSSARO, SARA, COSEWIC)
- Tri-coloured Bat (*Perimyotis subflavus*) – Endangered (ESA, COSSARO, SARA, COSEWIC)

- Eastern Small-footed Myotis (*Myotis leibii*) - Endangered (ESA, COSSARO, SARA, COSEWIC) - Potential habitat for the rock-roosting bat Eastern Small-footed Myotis (*Myotis leibii*) was also reviewed when observed during the tree-roosting habitat survey.

1.1 Newly Listed Bat Species

Since the submission of the NER, three migratory tree-roosting bat species have been assessed as Endangered by COSEWIC in 2023. These species have not yet been added to the federal SARA Schedule 1 list. These species were also reviewed by COSSARO and added to the ESA list of SAR in Ontario in January 2025.

- Eastern Red Bat (*Lasiurus borealis*) – Endangered (ESA, COSSARO, COSEWIC) – Foliage roosting, prefer larger diameter/high trees
- Northern Hoary Bat (*Lasiurus cinereus*) – Endangered (ESA, COSSARO, COSEWIC) – Foliage roosting, prefer larger diameter/high trees
- Silver-haired Bat (*Lasionycteris noctivagans*) – Endangered (ESA, COSSARO, COSEWIC) – tree snag roosting

The MECP survey protocols for these additional species are still in development. As a proactive measure, a general habitat assessment has been conducted, drawing on the habitat preferences detailed in their status assessment report (ECCC 2023). While these species were not specifically identified in the NER review, they are included in this memorandum to support our commitment to compliance with the ESA.

The following are attached to this technical memorandum:

- **Figure 1:** NER Ecological Land Classification and Wildlife Survey Stations (Golder 2022, WSP revised 2023)
- **Figures 2A to C:** Woodland Bat Habitat Locations
- **Appendix A:** MECP IGF/AAF Correspondence
- **Appendix B:** Bat Maternity Tree Survey Results

This technical memorandum includes anticipated impacts, proposed mitigation measures and a discussion of ESA compliance and potential approval requirements for the above-mentioned Endangered bat species.

2 STUDY APPROACH

2.1 Bat Maternity Roost Surveys (Treed Habitats)

Surveys for snag tree features were completed on March 27, 28 and April 4, 2025, to complement bat habitat results reported in the NER (Golder 2022, revised 2023).

Three woodlands were surveyed by two WSP ecologists, including Woodland C (approximately 13.0 ha), Woodland F (approximately 2.0 ha) and Woodland G (approximately 4.0 ha).

Surveys were conducted during the leaf-off period and were completed in accordance with the MECP' Bats & Treed Habitats Maternity Roost Surveys' guidance (MECP 2022). Specifically, detailed mapping of snag/cavity trees was conducted in the three woodlands.

The method for detailed mapping of snag/cavity trees included the following:

- Surveys were completed during leaf-off
- Surveys were conducted using binoculars
- Transects 20 m apart were walked throughout the entire polygon in open woodlands with good visibility
- All snags/cavity trees/trees with leaf clusters were plotted using a GPS, and characteristics were noted

All trees ≥ 10 cm diameter at breast height (DBH) that exhibited potential roosting features for bats (i.e., cavities, cracks, crevices, knot holes, loose bark or leaf clusters) were documented. Details recorded for each tree included tree species, UTM location, DBH, height class, decay class, proximity to other snags, and potential roost features.

Potential rock-roosting bat habitat features were also recorded. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles and occasionally in buildings (Humphrey 2017).

Little Brown Myotis and Northern Myotis are known to roost in a variety of large-diameter coniferous and deciduous trees, primarily under bark, in the cavities or knotholes of trees (MNRF 2015). Little Brown Myotis are known to favour anthropogenic structures, such as barns, for maternity roosts. Tri-colored Bat is known to roost in clusters of deciduous leaves (MNRF 2015).

Based on the COSEWIC assessment and status report (ECCC 2023), Silver-haired Bat, Eastern Red Bat and Northern Hoary Bat, occupy a wide diversity of bat maternity roost habitats. They also roost in a variety of large-diameter coniferous and deciduous trees. Trees used as maternity roosts tend to be large-diameter and tall, reaching or exceeding the height of the surrounding canopy trees. They typically roost among the foliage of trees and occasionally shrubs. These species generally avoid heavily disturbed habitats.

High-quality roosting trees were defined as trees > 25 cm DBH that contained a bat habitat feature (e.g., crack, knothole, cavity), and with a decay class between 1 and 3 (MECP 2022).

High-quality bat maternity habitat is a mixed forest or deciduous forest with ≥ 10 snags (trees greater than 25 cm DBH with habitat features) / ha (MECP 2022).

3 EXISTING CONDITIONS

Existing conditions are documented in the NER (Golder 2022, WSP revised 2023) and shown on **Figure 1**. The results of the 2025 complementary bat habitat survey are shown in **Figure 2A-C**.

For the NER, passive, full-spectrum, bat detectors (model SM4BAT FS) were deployed in Woodland C, F and G in June 2020 (Golder 2022, revised 2023). In total, six bat species were identified on the Site during the acoustic surveys, including SAR: Northern Hoary Bat, Silver-haired Bat, Eastern Red Bat, Little Brown Myotis, and Eastern Small-footed Myotis, as well as the non-SAR Big Brown Bat.

Although the ranges of Tri-colored Bat and Northern Myotis overlap the Site (Humphrey et al., 2019), they were not detected in the 2020 acoustic survey.

Woodlands C, F and G on the Site consist of mature deciduous tree communities with trees 25 to 50 cm DBH. Small and large deadfall and snag trees were observed during the 2020 NER field program and the 2025 bat habitat survey. See **Table 1** below for a summary of woodland communities that were surveyed in 2025.

Table 1: Vegetation Communities

Woodland #	ELC Community Series	Community Description
Woodland C	Dry-Fresh Sugar Maple – Black Cherry Deciduous Forest (FOD5-7)	Located at the north end of the Site, immediately west of Main Street. A dense canopy dominated by Sugar Maple (<i>Acer saccharum</i>), Black Cherry (<i>Prunus serotina</i>), Eastern Hemlock (<i>Tsuga canadensis</i>) and American Beech (<i>Fagus grandifolia</i>) with a sparse understory of Sugar Maple, American Elm (<i>Ulmus americana</i>), White Ash (<i>Fraxinus americana</i>) and Eastern Hemlock (<i>Tsuga canadensis</i>). Ground cover was moderate and dominated by Blue Cohosh (<i>Caulophyllum thalictroides</i>) and Wood Fern (<i>Dryopteris sp.</i>). A mature community with trees 25 to 50 cm DBH. Small and large deadfall and snag trees were observed.
Woodland F	Dry-Fresh Sugar Maple – Beech Deciduous Forest (FOD5-2)	An isolated deciduous forest located in the east-central portion of the Site, south of Charleston Sideroad. Moderate canopy cover dominated by Sugar Maple, American Beech and Black Cherry with moderate understory of the same species. Ground cover was dense and dominated by Blue Cohosh, Virginia Waterleaf (<i>Hydrophyllum virginianum</i>), White Trillium (<i>Trillium grandifolium</i>) and Broad-leaved Hellebore (<i>Epipactis helleborine</i>). The community was mature with trees 25 to 50 cm DBH. Small and large deadfall and snag trees were observed.
Woodland G	Dry-Fresh Sugar Maple – Black Cherry Deciduous Forest (FOD5-7)	Located in the south portion of the Site. The canopy was dominated almost exclusively by Sugar Maple, with associates of Black Cherry and American Beech in the sub-canopy. Sugar Maple dominated the understory. The ground cover consisted of Virginia Waterleaf, Blue Cohosh and sedges (<i>Carex sp.</i>). A mature community with trees 25 to 50 cm DBH. Small and large deadfall and snag trees were observed. A White Pine Coniferous Plantation (CUP3-2) was also observed at the woodland's southeast corner.

4 TARGETED SAR SURVEY RESULTS

The results of the 2025 targeted SAR bat habitat surveys are summarized in **Table 2**, with detailed results provided in **Appendix B**.

Potential roost trees were identified within Woodlands C, F, and G. Based on the results, both Woodland F and Woodland G meet the MECP classification for 'high-quality bat maternity habitat' (MECP 2022), as both areas exhibited a density of ≥ 10 snags/ha. Woodland G contained the highest concentration and number of high-quality roosting trees of the three woodlands, with a total of 74 trees observed at a density of approximately 19 trees/ha. These findings are consistent with the assessment in Section 5.1 of the NER, which concluded Woodlands F and G were maternity roost habitats for Little Brown Myotis (*Myotis lucifugus*) SAR bat.

In contrast, Woodland C did not qualify as a 'high-quality bat maternity habitat,' according to MECP standards, with a snag density of only five snags/ha. These findings are generally consistent with the NER assessment.

In total, 263 roost trees (i.e., ≥ 10 cm DBH with habitat feature) were identified with characteristics consistent with potential bat habitat qualities. All identified potential roost trees are anticipated to be removed, as they are located within the proposed extraction limit.

Table 2: Targeted SAR Bat Survey Results Summary

Woodland #	Survey Dates	Search Area	# Total Habitat Trees (≥ 10 cm DBH with habitat feature)	# High-Quality Roosting Trees (≥ 25 cm DBH and decay Class 1-3)	High-Quality Bat Maternity Habitat (≥ 10 SNAGS / HA)
Woodland C	March 27-28, 2025	~13 ha	116	66	No (5 per ha)
Woodland F	March 28, 2025	~2 ha	44	36	Yes (18 per ha)
Woodland G	April 4, 2025	~4 ha	103	74	Yes (19 per ha)

4.1 Other Habitat

One rock feature that has the potential to support an Eastern Small-footed Myotis roost was observed in Woodland F (**Figure 2B**). The rock was observed to contain numerous cracks and crevices in an open area of the understory. Previous surveys completed as part of the NER also identified rock piles in this woodland (Golder 2022, revised 2023).

Roosting habitats that could support Eastern Red Bat, Northern Hoary Bat and Silver-haired Bat, including a variety of large-diameter deciduous trees, which reach or exceed the height of the surrounding canopy trees, were observed in all woodlands.

5 IMPACT ASSESSMENT AND MITIGATION MEASURES

5.1 Tree Roosting SAR Bats

Woodlands F and G qualify as 'high-quality bat maternity habitat' according to the MECP guidelines, as they have a density of more than 10 snags per hectare. In contrast, Woodland C does not meet the criteria for a 'high-quality bat maternity habitat,' with only five snags per hectare. However, Woodland C does contain a high number of high-quality roosting trees. These results are consistent with the acoustic results in the NER (Golder 2022, revised 2023).

Based on acoustic monitoring results in the NER, Little Brown Myotis was assessed to use the barns on Site. Barn #4 was considered to be the primary roost and Barns #1, 2 and 3, proposed for removal, were recorded to be used to a much lesser degree, and did not represent primary roosting areas. Barn #4 is located outside of the extraction area and is not expected to be impacted as a result of the proposed extraction. Woodlands F and G are considered to be used for maternity roosting. Woodland C was assessed as not providing a maternity roost habitat for this species. Although a total of 44 passes were recorded over the 14-night survey period, none of the passes were detected within an hour of sunset when bats typically exit their roosts. Additionally, the forest was observed to have a relatively low snag density (< 10/ha) during the NER field investigations (Golder 2022, revised 2023) and 2025 survey reported herein.

The NER acoustic monitoring noted that Little Brown Myotis exhibited high activity levels at the nearby Barn #4 compared to Woodland C. Therefore, given the low number of detections at Woodland C, the timing of the recordings being outside of sunset time (when the bats leave maternity roosts), and the low density of snag trees, Little Brown Myotis were determined to be likely commuting or foraging around Woodland C and less likely using it as maternity roosting habitat (Golder 2022, revised 2023).

Woodlands C, F and G have a combined area of approximately 19 ha and contain a combined total of 263 potential roost trees (**Appendix B**). These areas are proposed to be removed as they are within the proposed extraction footprint. Impacts include the possible removal of SAR bat habitat for four tree-roosting species, including Northern Hoary Bat, Silver-haired Bat, Eastern Red Bat, and Little Brown Myotis. Consultation with MECP is on-going to confirm permitting requirements under the ESA.

Although 19 ha of woodland is proposed to be removed, the forest habitat north of the Site including Coulterville Wetland Complex and Woodland B (>100 ha), as well as extensive woodland cover along the Credit River (>130 ha) (**Figure 1**), suggests that tree-roosting bat habitat is not limiting in the local landscape. Removal of Woodlands C, F, and G are not expected to significantly affect the long-term viability of local populations due to the availability of abundant alternative habitat. Additionally, with the implementation of specific timing windows for tree removals (i.e., no removal between March 15 and November 30), installation of bat boxes on the east side of the Site, and replacement of woodland habitat in a larger amount than what is being lost, the residual, long-term impact on tree roosting SAR bats and their habitat is expected to be minimal.

There are no recommended changes to the Site Plan notes resulting from this 2025 complementary bat habitat assessment.

5.2 Rock Roosting Bats

Removal of Woodland F will remove the rock feature (**Figure 2B**) that may result in the removal of a potential Eastern Small-footed Myotis roosting habitat. Consultation with MECP is on-going to confirm permitting requirements under the ESA.

These results are consistent with the acoustic results in the NER (Golder 2022, revised 2023). Based on acoustic monitoring results in the NER, Eastern Small-footed Myotis was assessed to use barns on Site and the rock piles associated with Woodland F and G.

The NER acoustic monitoring noted that Eastern Small-footed Myotis exhibited high activity levels at the nearby barns, specifically Barn #4, which was assessed likely to be the primary maternity roost for this species. The remaining barns and rock piles in Woodland F and G were assessed to function as secondary roosts as part of a roost network (Golder 2022, revised 2023).

Barn #4 is located outside of the extraction area and is not expected to be impacted as a result of the proposed extraction. Additionally, with the implementation of specific timing windows for removal of rock piles within the woodlands (i.e., no removal between April 1 and September 30) and installation of rock piles/structures of bat on the east side of the Site, the residual, long-term impact on Eastern Small-footed Myotis and their habitat is expected to be minimal.

There are no recommended changes to the Site Plan notes resulting from this 2025 complementary bat habitat assessment.

6 CONCLUSIONS

A complementary bat habitat assessment was conducted by WSP in 2025 for the proposed Caledon Pit/Quarry. Potential roost trees for SAR bats designated endangered under the ESA were identified in Woodlands C, F, and G. Cumulatively, these woodlands comprise approximately 19 ha, which are proposed to be removed as they are located within the proposed extraction footprint.

Based on acoustic monitoring in the NER (Golder 2022, revised 2023), it was assessed that the SAR bat species recorded on the Site were using Woodlands F and G as maternity roosting habitat. Woodland C was assessed not to be maternity roost habitat. These previous results are consistent with the results of the 2025 habitat survey. Woodlands F and G qualify as 'high-quality maternity bat habitat' according to the MECP, as they have a density of more than 10 snags per hectare. Although Woodland C does contain a number of high-quality roost trees, it does not meet the criteria for a 'high-quality maternity bat habitat,' with only five snags per hectare.

The removal of woodlands on the Site, may include the possible removal of SAR bat habitat for five tree-roosting species, including Northern Hoary Bat, Silver-haired Bat, Eastern Red Bat, and Little Brown Myotis through the removal of 263 habitat trees. Additionally, Eastern Small-footed Myotis may be impacted through the removal of potential rock roosting maternity sites in Woodland F.

The forested habitat within the broader landscape of the Study Area is not considered limiting, and timing windows for tree removals will be implemented to prevent harm to roosting bats during the maternity window. Consultation with MECP is on-going to confirm permitting requirements under the ESA. There are no recommended changes to the Site Plan notes resulting from this 2025 complementary bat habitat assessment.

WSP Canada Inc.



Shannon Ritchie, MSc
Terrestrial Ecologist



Daniel Eusebi, BES, RPP, MCIP
Senior Project Manager

SR/DE/ld

Contributors

Amber Sabourin, H.B.Sc, *Senior Ecologist (Conсор)*

Heather Melcher, M.Sc., *VP, Permitting and Planning (Conсор)*

Attachments: Figure 1: NER Site Location and Plan (WSP 2023)
Figure 2A to 2C: Woodland Bat Habitat Locations
Appendix A: MECP Correspondence IGF
Appendix B: Bat Maternity Tree Survey Results

[https://wsponlinecan.sharepoint.com/sites/ca-ca0037598.0394/externalsharing/consor collaboration/bat memo/ca0037598.7018-tm-reva-vcna-cbm caledon licence_sar bat assessment _sept 2025 updated.docx](https://wsponlinecan.sharepoint.com/sites/ca-ca0037598.0394/externalsharing/consor%20collaboration/bat%20memo/ca0037598.7018-tm-reva-vcna-cbm%20caledon%20licence_sar%20bat%20assessment_sept%202025%20updated.docx)

REFERENCES

- Environment and Climate Change Canada (ECCC). 2023. Hoary Bat (*Lasiurus cinereus*) Eastern Red Bat (*Lasiurus borealis*) Silver-haired Bat (*Lasionycteris noctivagans*): COSEWIC assessment and status report 2023. Available online at: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/hoary-bat-eastern-red-bat-silver-haired-bat-2023.html>
- Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.
- Humphrey, Christy and Heather Fotherby. 2019. Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. vii + 35 pp.
- Land Information Ontario (LIO). 2019. Make-a-Map: Natural Heritage Areas. Queried March 2022. Available online at: https://www.lioapplications.lrc.gov.on.ca/Natural_Heritage/index.html?viewer=Natural_Heritage.Natural_Heritage&locale=en-CA
- Ontario Ministry of the Environment, Conservation and Parks (MECP). 2022. Bat Survey Note Standards. Guidance provided to proponents.
- Ontario Ministry of Natural Resources and Forestry (MNR). 2015. Technical Note: Species At Risk (SAR) Bats.

FIGURES

APPENDIX A

MECP Correspondence IGF

Diwan, Lekha Kundara

From: Rincon Gomez, Ana
Sent: December 9, 2024 4:27 PM
Subject: Fw: CBM Caledon Quarry IGF / AAF
Attachments: 2022_Treed Habitats - Maternity Roost Surveys.pdf; Bat Survey Standards Note 2022.pdf; SAR Bat Building Exit and Roost Survey Protocols.pdf; Red-headed Woodpecker Species Survey Guidance- Wisconsin.pdf; MECP-Response Table_IGF-AAF-NER-Review_Caledon Pit-Quarry_2024-12-09.xlsx

From: Fowler, Devon (MECP) <Devon.Fowler@ontario.ca>
Sent: December 9, 2024 4:20 PM
To: Sabourin, Amber <amber.sabourin@wsp.com>
Cc: Melcher, Heather <heather.melcher@wsp.com>; Rincon Gomez, Ana <ana.rincon-gomez@wsp.com>; David Hanratty <david.hanratty@vcimentos.com>; Mike Lebreton <mike.lebreton@vcimentos.com>; Jennifer Deleemans <jennifer.deleemans@vcimentos.com>; McAllister, Aurora (MECP) <aurora.mcallister@ontario.ca>
Subject: RE: CBM Caledon Quarry IGF / AAF

Hi Amber,

Thank you for submitting an Alternative Avoidance Form (AAF) concerning the Proposed Caledon Pit/ Quarry to the Species at Risk Branch (SARB), Ministry of the Environment, Conservation and Parks (MECP).

This file has been actioned to me and I will be the main SARB contact going forward. As part of my review, I have reviewed the IGF, AAF, ARA application (including all supplementary documents attached) and all review letters and correspondence provided to SARB from the other reviewing agencies.

Attached are SARB's comments/ recommendations that have resulted from reviewing the above-mentioned documents, specifically the IGF, AAF and the NER that was provided as a supplementary document to the ARA application.

Please reach out if you have any questions or if think a discussion would be helpful to move forward.

Sincerely,

Devon Fowler

A/Management Biologist | Permissions Section, Species at Risk Branch
Ministry of the Environment, Conservation & Parks | Ontario Public Service
705-427-2409 | devon.fowler@ontario.ca



Taking pride in strengthening Ontario, its places and its people

From: Sabourin, Amber <amber.sabourin@wsp.com>
Sent: Wednesday, July 17, 2024 11:43 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Melcher, Heather <heather.melcher@wsp.com>; Rincon Gomez, Ana <ana.rincon-gomez@wsp.com>; David

Hanratty <david.hanratty@vcimentos.com>; mike.lebreton <mike.lebreton@vcimentos.com>; Jennifer Deleemans <jennifer.deleemans@vcimentos.com>; Hynes, Katy (MECP) <Katy.Hynes@ontario.ca>
Subject: RE: CBM Caledon Quarry IGF / AAF

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good morning,

Please find attached the completed Avoidance Alternatives Form for the CBM Caledon Quarry, as requested below.

Please let us know if you have any questions.

Thank you,
Amber



Amber Sabourin

Lead Ecologist

She/her

Please note I am currently working Tues-Thurs only

T+ 1 905 567-6100 x1819

C+ 1 416-779-5711

From: Species at Risk (MECP) <SAROntario@ontario.ca>

Sent: Tuesday, July 11, 2023 10:28 AM

To: Melcher, Heather <Heather_Melcher@golder.com>

Subject: Re: CBM Caledon Quarry IGF

EXTERNAL EMAIL

Good Morning Heather,

I am the Management Biologist with MECP that has been assigned to this file for the CBM Caledon Quarry. I apologize for the delay in response as we are working through a backlog of files. I have reviewed the IGF that was submitted for this project and have a few questions:

1. The licensed area for the project was identified as 261h, however the final extraction area will be smaller than the licensed area. At this time, has an estimate of the extraction area been made? Is there a possibility of keeping any of the maternity roosting areas intact within the licensed area but outside of the final extraction area?
2. Within the IGF, it is stated that "*There are extensive forested areas and other structures/barns within CBM lands, immediately adjacent to the licence area that will be retained. There are also numerous similar barn structures and abundant forest habitat off-site within the local landscape.*" Are any of these areas or features mapped at all for review? Is there any estimated distance from the project boundaries that can be provided?

To continue the review of this project, could I please ask you to complete and submit the Avoidance Alternatives Form. The completion of this form will further assist in determining if the proposed activities can move forward without contravening the ESA.

The form and guide can be accessed here: [Avoidance Alternatives Form for activities that may require an overall benefit permit under clause 17\(2\)\(c\) of the Endangered Species Act - Forms - Central Forms Repository \(CFR\) \(gov.on.ca\)](#)

Once completed, it can be submitted directly back to SAROntario@ontario.ca for me to review. Please let me know if you have any questions.

Thank you,

Katy Hynes



Katy Hynes, M.BEMA, BScH.
Management Biologist
Permissions Section | Species at Risk Branch
Ministry of the Environment, Conservation and Parks

Phone: 705-772-5851
Email: katy.hynes@ontario.ca
Web: Species at risk | ontario.ca

From: McAllister, Aurora (MECP)
Sent: June 6, 2022 2:59 PM
To: 'Heather_Melcher@golder.com' <Heather_Melcher@golder.com>
Subject: FW: CBM Caledon Quarry IGF

Hello Heather,

I am confirming receipt of the IGF and by way of this email I am forwarding it to our general email account SAROntario@ontario.ca where it will be triaged and assigned to a biologist for review.

Kind regards,

Aurora McAllister
Management Biologist – Species at Risk
Permissions Section | Species at Risk Branch
Ministry of the Environment, Conservation & Parks

From: Melcher, Heather <Heather_Melcher@golder.com>
Sent: June 1, 2022 4:42 PM
To: McAllister, Aurora (MECP) <Aurora.McAllister@ontario.ca>
Cc: David Hanratty (David.Hanratty@vcimentos.com) <david.hanratty@vcimentos.com>; Jennifer Deleemans <jennifer.deleemans@vcimentos.com>; Lebreton Mike (Mike.Lebreton@vcimentos.com) <mike.lebreton@vcimentos.com>; Sabourin, Amber <Amber_Sabourin@golder.com>; McGillicuddy, Kevin <Kevin_McGillicuddy@golder.com>
Subject: CBM Caledon Quarry IGF

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon Aurora,

Please see attached, an information gathering form for bats at the proposed CBM Caledon Quarry. We would welcome a call to discuss any questions that you may have.

Thank you,
Heather

Heather Melcher, MSc

Director, Ecology - Ontario Earth and Environment

T: +1 905 567 4444

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APPENDIX B

Bat Maternity Tree Survey Results

Appendix B: Woodland C- Detailed Bat Maternity Tree Survey Results

Reference Number	Waypoint Longitude (WSG84)	Waypoint Latitude (WSG84)	Quality Habitat Tree	Tree Species Code	DBH (cm)	Decay Class	Height Class	Other suitable roost tree within 10m:	Roost Feature Description	Loose Bark ≥10m high above ground	Loose Bark ≤10m high above ground	Total # Cavities	# ≥10m high above ground (Cavity)	# <10m high above ground (Cavity)	Total # Cracks	# ≥10m high above ground Crack	# <10m high above ground Crack	Total # Knot holes	# ≥10m high above ground (Knot hole)	# <10m high above ground (Knot hole)	Total # Leaf clusters
104	-80.036547	43.8362791	Yes	TILIAME	32	2	2	Yes	Crack,Loose_bark	No	Yes				1	0	1				
105	-80.036494	43.8361948	Yes	TSUGCAN	55	1	2	Yes	Cavity,Crack				3	0	3	1	0	1			
106	-80.036155	43.8360602		POPU_SP	20	2	1	Yes	Cavity				1	1							
107	-80.036089	43.8358884		TSUGCAN	50	5	4	Yes	Cavity				9	0	9						
108	-80.035893	43.8359002	Yes	PRUNSER	65	3	1	Yes	Cavity,Crack				2	0	2	1	0	1			
109	-80.035799	43.8358332	Yes	PRUNSER	60	3	2	Yes	Loose_bark,Knot_hole	Yes	Yes							1	0	1	
110	-80.03569	43.8355912	Yes	TSUGCAN	66	1	1	Yes	Cavity			10	9	1							
111	-80.035321	43.8354123		ACERSAC	25	6	4	Yes	Cavity			2	0	2							
112	-80.037064	43.8352432		FAGUGRA	80	4	4	No	Cavity,Knot_hole,Crack			6	0	6	1	0	1	8	0	8	
113	-80.036595	43.8347582		ACERSAC	50	4	3	Yes	Cavity,Crack			8	0	8	1	0	1				
114	-80.036601	43.8345505		ACERSAC	90	5	1	Yes	Crack,Knot_hole,Cavity			2	1	1	1	0	1	2	1	1	
115	-80.037286	43.8338141	Yes	TSUGCAN	35	1	1	Yes	Cavity			11	0	11							
116	-80.037485	43.8337725	Yes	TILIAME	50	2	1	Yes	Cavity			2	0	2							
117	-80.037467	43.8333934	Yes	FAGUGRA	55	2	1	Yes	Knot_hole									4	2	2	
118	-80.037532	43.8332939	Yes	BETUALL	25	2	2	Yes	Cavity			16	0	16							
119	-80.036945	43.8331708		ACERSAC	20	3	3	Yes	Cavity			1	0	1							
120	-80.036302	43.8328705	Yes	ACERSAC	70	3	2	Yes	Cavity			1	0	1							
121	-80.034332	43.8301759	Yes	ACERSAC	30	2	1	Yes	Cavity			1	0	1							
122	-80.034695	43.8303146	Yes	FAGUGRA	65	3	3	Yes	Knot_hole,Crack,Cavity			2	0	2	2	0	2	2	0	2	
123	-80.03512	43.8308661	Yes	POPU_SP	25	2	2	No	Cavity			1	0	1							
124	-80.035579	43.8310682	Yes	PRUNSER	25	2	1	Yes	Cavity,Knot_hole			3	0	3				2	0	2	
125	-80.035566	43.8311333		PRUNSER	20	2	3	Yes	Cavity			15	0	15							
126	-80.035963	43.8308975	Yes	PRUNSER	40	3	2	Yes	Cavity			7	0	7							
127	-80.035921	43.8310402		FAGUGRA	40	4	3	Yes	Cavity			3	0	3							
128	-80.035989	43.8311501	Yes	FAGUGRA	35	3	2	Yes	Cavity,Crack			4	0	4	1		1				
129	-80.036151	43.8313558		FAGUGRA	50	4	3	Yes	Cavity,Loose_bark	Yes	Yes	8	4	4							
130	-80.036372	43.8313386	Yes	PRUNSER	60	2	1	Yes	Cavity			3	0	3							
131	-80.036301	43.8315128	Yes	ACERSAC	30	2	1	Yes	Knot_hole									2	1	1	
132	-80.036489	43.8317179		FAGUGRA	65	4	2	Yes	Loose_bark,Cavity,Knot_hole	Yes	Yes	13	13	0				3	0	3	
133	-80.036663	43.8318504		ACERSAC	20	2	2	Yes	Cavity			1	1	0							
134	-80.036612	43.8319583	Yes	TSUGCAN	40	1	1	Yes	Cavity			6	1	2							
135	-80.03701	43.8320209	Yes	TSUGCAN	30	2	1	Yes	Cavity,Crack			13	0	13	1	0	1				
136	-80.037106	43.8325332	Yes	PRUNSER	25	2	2	Yes	Knot_hole									1	0	1	
137	-80.038119	43.8331803	Yes	PRUNSER	40	3	3	No	Loose_bark,Cavity	No	Yes	1	0	1							
138	-80.037933	43.8330804		FAGUGRA	45	6	3	Yes	Cavity,Crack,Knot_hole			1	1	0	1	1	1	3	0	3	
139	-80.034748	43.8349328		ACERSAC	45	6	3	Yes	Cavity,Crack,Knot_hole			5	0	5	2	0	2	7	0	7	
140	-80.034675	43.8348943	Yes	ACERSAC	75	2	1	Yes	Knot_hole									1	0	1	
141	-80.034828	43.8348297		FAGUGRA	50	5	4	Yes	Cavity,Crack,Knot_hole			8	0	8	1	0	1	1	0	1	
142	-80.034721	43.8347917		FAGUGRA	50	5	4	Yes	Cavity,Knot_hole,Loose_bark	No	Yes	5	0	5				6	0	6	
143	-80.034533	43.8348042		ULMU_SP	50	5	4	Yes	Cavity,Loose_bark	No	Yes	1	0	1							
144	-80.034637	43.8342784		FAGUGRA	70	4	3	Yes	Knot_hole,Loose_bark	No	Yes							3	0	3	
145	-80.035443	43.8347926		ACERSAC	50	4	2	Yes	Loose_bark	No	Yes										
146	-80.035881	43.8346654		FAGUGRA	55	5	3	Yes	Cavity,Crack,Knot_hole			8	0	8	1	0	1	3	0	3	
147	-80.035984	43.8349304	Yes	ACERSAC	65	2	2	Yes	Knot_hole,Loose_bark	Yes	No							3	3	0	
148	-80.036754	43.8353426	Yes	ACERSAC	80	2	1	Yes	Knot_hole									2	0	2	
149	-80.036883	43.8355856	Yes	TSUGCAN	85	2	2	Yes	Cavity			9	0	9							
150	-80.0368	43.8357384		FAGUGRA	50	6	3	Yes	Cavity,Crack			2	0	2	1	0	1				
151	-80.037029	43.8357483		FAGUGRA	52	4	2	Yes	Cavity,Crack,Knot_hole			8	8	0	1	0	1	4	1	3	
152	-80.032443	43.8198548	Yes	ACERSAC	55	3	2	Yes	Cavity			3	0	3							
153	-80.031908	43.8199715		ACERSAC	21	1	2	Yes	Cavity			1	0	1							
154	-80.031928	43.82031	Yes	ACERSAC	38	1	2	Yes	Cavity			1	1	0							
155	-80.031761	43.820091	Yes	ACERSAC	45	1	2	Yes	Cavity,Loose_bark,Crack	No	Yes	2	0	2	1	0	1				
156	-80.031596	43.8200978	Yes	ACERSAC	38	1	1	Yes	Cavity			1	1	0							

Appendix B: Woodland C- Detailed Bat Maternity Tree Survey Results

Reference Number	Waypoint Longitude (WSG84)	Waypoint Latitude (WSG84)	Quality Habitat	Tree Species Code	DBH (cm)	Decay Class	Height Class	Other suitable roost tree within 10m:	Roost Feature Description	Loose Bark ≥10m high above ground	Loose Bark ≤10m high above ground	Total # Cavities	# ≥10m high above ground (Cavity)	# <10m high above ground (Cavity)	Total # Cracks	# ≥10m high above ground Crack	# <10m high above ground Crack	Total # Knot holes	# ≥10m high above ground (Knot hole)	# <10m high above ground (Knot hole)	Total # Leaf clusters
157	-80.031515	43.8203715	Yes	ACERSAC	47	1	2	Yes	Cavity				1	1	0						
158	-80.031337	43.82042	Yes	ACERSAC	54	2	2	Yes	Cavity,Crack				2	0	2	1	0	1			
159	-80.031349	43.8204624	Yes	ACERSAC	52	1	2	Yes	Cavity,Crack				1	1	0	1	0	1			
160	-80.03122	43.8204367	Yes	ACERSAC	38	1	2	Yes	Cavity				1	0	1						
161	-80.031103	43.8204992	Yes	ACERSAC	43	1	2	Yes	Cavity				1	0	1						
162	-80.030993	43.8204898		FAGUGRA	49	5	3	Yes	Loose_bark,Cavity	Yes	Yes		3	2	1						
163	-80.031003	43.8205466		FAGUGRA	47	5	3	Yes	Loose_bark,Cavity	Yes	Yes		2	0	2						
164	-80.031043	43.8206872	Yes	PRUNSER	85	2	1	Yes	Cavity,Loose_bark	Yes	Yes		1	0	1						
165	-80.03096	43.8206929	Yes	ACERSAC	38	2	2	Yes	Cavity				3	2	1						
166	-80.030963	43.8207286		ACERSAC	23	5	4	Yes	Loose_bark	No	Yes										
167	-80.030684	43.8206419	Yes	ACERSAC	38	2	2	Yes	Cavity,Loose_bark	Yes	Yes		4	1	3						
168	-80.030852	43.8209331		FAGUGRA	43	5	4	Yes	Cavity,Loose_bark	No	Yes		2	0	2						
169	-80.030801	43.821006	Yes	ACERSAC	25	3	2	Yes	Cavity				2	2	0						
170	-80.030667	43.8209281	Yes	ACERSAC	59	1	2	Yes	Cavity,Loose_bark	No	Yes		2	1	1						
171	-80.036547	43.8362791	Yes	TILIAME	32	2	2	Yes	Crack,Loose_bark	No	Yes					1	0	1			
172	-80.036494	43.8361948	Yes	TSUGCAN	55	1	2	Yes	Cavity,Crack				3	0	3	1	0	1			
173	-80.036155	43.8360602		POPU_SP	20	2	1	Yes	Cavity				1	1							
174	-80.036089	43.8358884		TSUGCAN	50	5	4	Yes	Cavity				9	0	9						
175	-80.035893	43.8359002	Yes	PRUNSER	65	3	1	Yes	Cavity,Crack				2	0	2	1	0	1			
176	-80.035799	43.8358332	Yes	PRUNSER	60	3	2	Yes	Loose_bark,Knot_hole	Yes	Yes							1	0	1	
177	-80.03569	43.8355912	Yes	TSUGCAN	66	1	1	Yes	Cavity				10	9	1						
178	-80.035321	43.8354123		ACERSAC	25	6	4	Yes	Cavity				2	0	2						
179	-80.037064	43.8352432		FAGUGRA	80	4	4	No	Cavity,Knot_hole,Crack				6	0	6	1	0	1	8	0	8
180	-80.036595	43.8347582		ACERSAC	50	4	3	Yes	Cavity,Crack				8	0	8	1	0	1			
181	-80.036601	43.8345505		ACERSAC	90	5	1	Yes	Crack,Knot_hole,Cavity				2	1	1	1	0	1	2	1	1
182	-80.037286	43.8338141	Yes	TSUGCAN	35	1	1	Yes	Cavity				11	0	11						
183	-80.037485	43.8337725	Yes	TILIAME	50	2	1	Yes	Cavity				2	0	2						
184	-80.037467	43.8333934	Yes	FAGUGRA	55	2	1	Yes	Knot_hole									4	2	2	
185	-80.037532	43.8332939	Yes	BETUALL	25	2	2	Yes	Cavity				16	0	16						
186	-80.036945	43.8331708		ACERSAC	20	3	3	Yes	Cavity				1	0	1						
187	-80.036302	43.8328705	Yes	ACERSAC	70	3	2	Yes	Cavity				1	0	1						
188	-80.034332	43.8301759	Yes	ACERSAC	30	2	1	Yes	Cavity				1	0	1						
189	-80.034695	43.8303146	Yes	FAGUGRA	65	3	3	Yes	Knot_hole,Crack,Cavity				2	0	2	2	0	2	2	0	2
190	-80.03512	43.8308661	Yes	POPU_SP	25	2	2	No	Cavity				1	0	1						
191	-80.035579	43.8310682	Yes	PRUNSER	25	2	1	Yes	Cavity,Knot_hole				3	0	3			2	0	2	
192	-80.035566	43.8311333		PRUNSER	20	2	3	Yes	Cavity				15	0	15						
193	-80.035963	43.8308975	Yes	PRUNSER	40	3	2	Yes	Cavity				7	0	7						
194	-80.035921	43.8310402		FAGUGRA	40	4	3	Yes	Cavity				3	0	3						
195	-80.035989	43.8311501	Yes	FAGUGRA	35	3	2	Yes	Cavity,Crack				4	0	4	1		1			
196	-80.036151	43.8313558		FAGUGRA	50	4	3	Yes	Cavity,Loose_bark	Yes	Yes		8	4	4						
197	-80.036372	43.8313386	Yes	PRUNSER	60	2	1	Yes	Cavity				3	0	3						
198	-80.036301	43.8315128	Yes	ACERSAC	30	2	1	Yes	Knot_hole									2	1	1	
199	-80.036489	43.8317179		FAGUGRA	65	4	2	Yes	Loose_bark,Cavity,Knot_hole	Yes	Yes		13	13	0			3	0	3	
200	-80.036663	43.8318504		ACERSAC	20	2	2	Yes	Cavity				1	1	0						
201	-80.036612	43.8319583	Yes	TSUGCAN	40	1	1	Yes	Cavity				6	1	2						
202	-80.03701	43.8320209	Yes	TSUGCAN	30	2	1	Yes	Cavity,Crack				13	0	13	1	0	1			
203	-80.037106	43.8325332	Yes	PRUNSER	25	2	2	Yes	Knot_hole									1	0	1	
204	-80.038119	43.8331803	Yes	PRUNSER	40	3	3	No	Loose_bark,Cavity	No	Yes		1	0	1						
205	-80.037933	43.8330804		FAGUGRA	45	6	3	Yes	Cavity,Crack,Knot_hole				1	1	0	1	1	1	3	0	3
206	-80.034748	43.8349328		ACERSAC	45	6	3	Yes	Cavity,Crack,Knot_hole				5	0	5	2	0	2	7	0	7
207	-80.034675	43.8348943	Yes	ACERSAC	75	2	1	Yes	Knot_hole									1	0	1	
208	-80.034828	43.8348297		FAGUGRA	50	5	4	Yes	Cavity,Crack,Knot_hole				8	0	8	1	0	1	1	0	1
209	-80.034721	43.8347917		FAGUGRA	50	5	4	Yes	Cavity,Knot_hole,Loose_bark	No	Yes		5	0	5			6	0	6	

Appendix B: Woodland F- Detailed Bat Maternity Tree Survey Results

Reference Number	Waypoint Longitude (WSG84)	Waypoint Latitude (WSG84)	Quality Habitat	Tree Species	DBH (cm)	Decay Class	Height Class	Other suitable roost tree within 10m	Roost Feature Description	Loose Bark ≥10m high above ground	Loose Bark ≤10m high above ground	Total # Cavities	# ≥10m high above ground (Cavity)	# <10m high above ground (Cavity)	Total # Cracks	# ≥10m high above ground Crack	# <10m high above ground Crack	Total # Knot holes	# ≥10m high above ground (Knot hole)	# <10m high above ground (Knot hole)	Total # Leaf clusters	# ≥10m high above ground (Leaf cluster(s))	# <10m high above ground (Leaf cluster(s))
240	-80.030932	43.8245869		ACERSAC	22	6	4	Yes	Cavity				6	0	6								
241	-80.030862	43.8246584	Yes	PRUNSER	40	3	2	Yes	Cavity,Knot_hole,Loose_bark	Yes	No		2	1	1			1	0	1			
242	-80.030747	43.8246748	Yes	ACERSAC	25	3	1	Yes	Loose_bark	Yes	Yes												
243	-80.030629	43.8247553	Yes	ACERSAC	75	2	2	Yes	Cavity,Knot_hole				1	0	1			1	0	1			
244	-80.0305	43.8248483	Yes	ACERSAC	70	1	2	Yes	Knot_hole									2	1	1			
245	-80.030462	43.8247948	Yes	ACERSAC	35	2	2	Yes	Knot_hole									2	1	1			
246	-80.028561	43.8254035	Yes	ACERSAC	82	2	1	Yes	Crack,Knot_hole						1	0	1	3	0	3			
247	-80.028806	43.8254268	Yes	ACERSAC	48	2	2	Yes	Knot_hole									1	0	1			
248	-80.028936	43.8253113	Yes	TSUGCAN	44	2	2	Yes	Cavity,Crack				6	0	6	1	0	1					
250	-80.029089	43.8252968	Yes	FAGUGRA	33	2	2	Yes	Leaf_clusters											1	1	0	
251	-80.029127	43.825245	Yes	ACERSAC	71	2	2	Yes	Knot_hole									2	0	2			
252	-80.029321	43.825138	Yes	ACERSAC	55	2	2	Yes	Knot_hole									1	0	1			
253	-80.029674	43.8250533	Yes	FAGUGRA	37	3	2	Yes	Cavity				8	0	8								
254	-80.029724	43.8250285	Yes	ULMU_SP	41	2	1	Yes	Cavity				1	0	1								
255	-80.030309	43.8246486	Yes	TILIAME	31	2	3	Yes	Cavity				3	0	3								
256	-80.03023	43.8247882	Yes	TILIAME	62	2	2	Yes	Cavity				2	0	2								
257	-80.030272	43.8248554	Yes	TSUGCAN	40	3	2	Yes	Cavity				4	4									
259	-80.029417	43.8255249	Yes	ACERSAC	30	3	2	Yes	Cavity,Knot_hole				3	0	3			1	0	1			
260	-80.029269	43.8254028	Yes	FAGUGRA	35	2	2	Yes	Cavity,Loose_bark	Yes	No		3	3	0								
263	-80.030862	43.8246584	Yes	PRUNSER	40	3	2	Yes	Cavity,Knot_hole,Loose_bark	Yes	No		2	1	1			1	0	1			
264	-80.030747	43.8246748	Yes	ACERSAC	25	3	1	Yes	Loose_bark	Yes	Yes												
265	-80.030629	43.8247553	Yes	ACERSAC	75	2	2	Yes	Cavity,Knot_hole				1	0	1			1	0	1			
266	-80.0305	43.8248483	Yes	ACERSAC	70	1	2	Yes	Knot_hole									2	1	1			
267	-80.030462	43.8247948	Yes	ACERSAC	35	2	2	Yes	Knot_hole									2	1	1			
268	-80.028561	43.8254035	Yes	ACERSAC	82	2	1	Yes	Crack,Knot_hole						1	0	1	3	0	3			
269	-80.028806	43.8254268	Yes	ACERSAC	48	2	2	Yes	Knot_hole									1	0	1			
270	-80.028936	43.8253113	Yes	TSUGCAN	44	2	2	Yes	Cavity,Crack				6	0	6	1	0	1					
272	-80.029089	43.8252968	Yes	FAGUGRA	33	2	2	Yes	Leaf_clusters											1	1	0	
273	-80.029127	43.825245	Yes	ACERSAC	71	2	2	Yes	Knot_hole									2	0	2			
274	-80.029321	43.825138	Yes	ACERSAC	55	2	2	Yes	Knot_hole									1	0	1			
275	-80.029674	43.8250533	Yes	FAGUGRA	37	3	2	Yes	Cavity				8	0	8								
276	-80.029724	43.8250285	Yes	ULMU_SP	41	2	1	Yes	Cavity				1	0	1								
277	-80.030309	43.8246486	Yes	TILIAME	31	2	3	Yes	Cavity				3	0	3								
278	-80.03023	43.8247882	Yes	TILIAME	62	2	2	Yes	Cavity				2	0	2								
279	-80.030272	43.8248554	Yes	TSUGCAN	40	3	2	Yes	Cavity				4	4									
281	-80.029417	43.8255249	Yes	ACERSAC	30	3	2	Yes	Cavity,Knot_hole				3	0	3			1	0	1			
282	-80.029269	43.8254028	Yes	FAGUGRA	35	2	2	Yes	Cavity,Loose_bark	Yes	No		3	3	0								

Appendix B: Woodland G- Detailed Bat Maternity Tree Survey Results

Reference Number	Waypoint Longitude (WSG84)	Waypoint Latitude (WSG84)	Quality Habitat Tree	Tree Species Code	DBH (cm)	Decay Class	Height Class	Other suitable roost tree within 10m	Roost Feature Description	Loose Bark ≥10m high above ground	Loose Bark ≤10m high above ground	Total # Cavities	# ≥10m high above ground (Cavity)	# <10m high above ground (Cavity)	Total # Cracks	# ≥10m high above ground Crack	# <10m high above ground Crack	Total # Knot holes	# ≥10m high above ground (Knot hole)	# <10m high above ground (Knot hole)	Total # Leaf clusters	# ≥10m high above ground (Leaf cluster(s))	# <10m high above ground (Leaf cluster(s))
1	-80.03109	43.821211	Yes	ACERSAC	31	2	2	Yes	Cavity,Loose_bark	Yes	Yes		2	1	1								
2	-80.03115	43.821206	Yes	ACERSAC	31	2	2	Yes	Crack							2	2	0					
3	-80.03113	43.821171	Yes	ACERSAC	27	1	2	Yes	Cavity,Knot_hole				3	2	1				2	0	2		
4	-80.0312	43.821064	Yes	ACERSAC	65	1	1	Yes	Cavity,Crack				1	0	1	1	1	0					
5	-80.03132	43.821091	Yes	ACERSAC	40	2	2	Yes	Cavity				1	1	0								
6	-80.0314	43.821052		ACERSAC	61	4	3	Yes	Cavity,Loose_bark	No	Yes		4	2	3								
7	-80.03139	43.821011	Yes	ACERSAC	53	1	1	Yes	Loose_bark	Yes	Yes												
8	-80.03134	43.820948	Yes	ACERSAC	49	2	2	Yes	Cavity,Loose_bark,Crack	No	Yes		1	0	1	1	1	0					
9	-80.03148	43.820813	Yes	ACERSAC	55	1	2	Yes	Cavity,Loose_bark	No	Yes		1		1								
10	-80.03176	43.820629	Yes	ACERSAC	55	1	2	Yes	Cavity				1	0	1								
11	-80.03172	43.820654	Yes	ACERSAC	27	2	3	Yes	Cavity,Crack				2	1	1	1	1	0					
12	-80.0319	43.820704	Yes	ACERSAC	46	1	2	Yes	Leaf_clusters												1	1	0
13	-80.03197	43.820368	Yes	ACERSAC	50	1	2	Yes	Cavity				1	1	0								
14	-80.03218	43.820513	Yes	ACERSAC	61	2	2	Yes	Cavity,Knot_hole				2	0	2				1	1	0		
15	-80.03231	43.820488		FAGUGRA	43	5	3	Yes	Loose_bark	No	Yes												
16	-80.03237	43.820414		ACERSAC	80	6	3	Yes	Cavity,Loose_bark	No	Yes		4	0	4								
17	-80.03223	43.820382	Yes	ACERSAC	40	1	2	Yes	Cavity				1	1	0								
18	-80.03221	43.820249	Yes	ACERSAC	45	2	2	Yes	Loose_bark	Yes	No												
19	-80.0325	43.820192	Yes	ACERSAC	44	1	2	Yes	Cavity				1	0	1								
20	-80.03246	43.820191	Yes	ACERSAC	66	2	1	Yes	Cavity,Crack				3	1	2	1	0	1					
21	-80.03244	43.819855	Yes	ACERSAC	55	3	2	Yes	Cavity				3	0	3								
22	-80.03191	43.819972		ACERSAC	21	1	2	Yes	Cavity				1	0	1								
23	-80.03193	43.82031	Yes	ACERSAC	38	1	2	Yes	Cavity				1	1	0								
24	-80.03176	43.820091	Yes	ACERSAC	45	1	2	Yes	Cavity,Loose_bark,Crack	No	Yes		2	0	2	1	0	1					
25	-80.0316	43.820098	Yes	ACERSAC	38	1	1	Yes	Cavity				1	1	0								
26	-80.03152	43.820372	Yes	ACERSAC	47	1	2	Yes	Cavity				1	1	0								
27	-80.03134	43.82042	Yes	ACERSAC	54	2	2	Yes	Cavity,Crack				2	0	2	1	0	1					
28	-80.03135	43.820462	Yes	ACERSAC	52	1	2	Yes	Cavity,Crack				1	1	0	1	0	1					
29	-80.03122	43.820437	Yes	ACERSAC	38	1	2	Yes	Cavity				1	1	0								
30	-80.0311	43.820499	Yes	ACERSAC	43	1	2	Yes	Cavity				1	0	1								
31	-80.03099	43.82049		FAGUGRA	49	5	3	Yes	Loose_bark,Cavity	Yes	Yes		3	2	1								
32	-80.031	43.820547		FAGUGRA	47	5	3	Yes	Loose_bark,Cavity	Yes	Yes		2	0	2								
33	-80.03104	43.820687	Yes	PRUNSER	85	2	1	Yes	Cavity,Loose_bark	Yes	Yes		1	0	1								
34	-80.03096	43.820693	Yes	ACERSAC	38	2	2	Yes	Cavity				3	2	1								
35	-80.03096	43.820729		ACERSAC	23	5	4	Yes	Loose_bark	No	Yes												
36	-80.03068	43.820642	Yes	ACERSAC	38	2	2	Yes	Cavity,Loose_bark	Yes	Yes		4	1	3								
37	-80.03085	43.820933		FAGUGRA	43	5	4	Yes	Cavity,Loose_bark	No	Yes		2	0	2								
38	-80.0308	43.821006	Yes	ACERSAC	25	3	2	Yes	Cavity				2	2	0								
39	-80.03067	43.820928	Yes	ACERSAC	59	1	2	Yes	Cavity,Loose_bark	No	Yes		2	1	1								
40	-80.03012	43.820452	Yes	ACERSAC	45	1	2	Yes	Cavity				1	0	1								
41	-80.03015	43.820452	Yes	ACERSAC	35	1	2	Yes	Cavity				1	0	1								
42	-80.03029	43.820434		Unknown	24	5	3	Yes	Cavity,Loose_bark	No	Yes		3	0	3								
43	-80.03063	43.820354	Yes	ACERSAC	26	2	2	Yes	Loose_bark	Yes	No												
44	-80.03059	43.820167	Yes	ACERSAC	33	1	2	Yes	Cavity				1	0	1								
45	-80.03066	43.820083	Yes	ACERSAC	39	1	2	Yes	Cavity				2	2	0								
46	-80.0309	43.819803	Yes	ACERSAC	44	1	2	Yes	Cavity				1	1	0								
47	-80.03092	43.819761	Yes	ACERSAC	52	1	1	Yes	Cavity				2	0	2								
48	-80.03119	43.819597	Yes	PRUNSER	36	2	2	Yes	Cavity				1	0	1								
49	-80.03139	43.819644	Yes	ACERSAC	49	1	2	Yes	Leaf_clusters,Crack							1	0	1			1	1	0
50	-80.03147	43.819544		ULMU_SP	32	4	2	Yes	Loose_bark	Yes	Yes												
51	-80.03163	43.819515	Yes	ACERSAC	61	2	1	Yes	Cavity				2	1	1								
54	-80.03158	43.821262	Yes	PRUNSER	75	2	3	Yes	Knot_hole										2		2		
55	-80.03159	43.82116	Yes	ACERSAC	49	2	2	Yes	Cavity				8		8								
56	-80.03156	43.82108	Yes	ACERSAC	40	1	2	Yes	Knot_hole										1		1		

Appendix B: Woodland G- Detailed Bat Maternity Tree Survey Results

Reference Number	Waypoint Longitude (WSG84)	Waypoint Latititude (WSG84)	Quality Habitat Tree	Tree Species Code	DBH (cm)	Decay Class	Height Class	Other suitable roost tree within 10m	Roost Feature Description	Loose Bark ≥10m high above ground	Loose Bark ≤10m high above ground	Total # Cavities	# ≥10m high above ground (Cavity)	# <10m high above ground (Cavity)	Total # Cracks	# ≥10m high above ground Crack	# <10m high above ground Crack	Total # Knot holes	# ≥10m high above ground (Knot hole)	# <10m high above ground (Knot hole)	Total # Leaf clusters	# ≥10m high above ground (Leaf cluster(s))	# <10m high above ground (Leaf cluster(s))
	57	-80.0316	43.821082	Yes	ACERSAC	30	1	2	Yes	Knot_hole									1		1		
	58	-80.03163	43.820935	Yes	ACERSAC	50	1	2	Yes	Cavity,Knot_hole			1		1				1		1		
	59	-80.03163	43.820898	Yes	ACERSAC	86	2	1	Yes	Knot_hole,Other,Loose_bark	Yes	No							2		2		
	60	-80.03172	43.820795	Yes	ACERSAC	44	2	2	Yes	Cavity			4		4								
	61	-80.03198	43.82081	Yes	ACERSAC	41, 43	2	2	Yes	Knot_hole									1		1		
	62	-80.03196	43.820715	Yes	ACERSAC	48	2	2	Yes	Cavity			5		5								
	63	-80.03223	43.820672	Yes	ACERSAC	100	2	2	Yes	Cavity,Knot_hole			1		1				1		1		
	64	-80.03235	43.820508		ACERSAC	24	5	4	Yes	Cavity,Knot_hole			5		5				1		1		
	65	-80.03259	43.82019	Yes	OSTRVIR	34	2	3	Yes	Knot_hole									1		1		
	66	-80.03223	43.819873		ACERSAC	43	5	4	Yes	Cavity			5		5								
	67	-80.03214	43.819688	Yes	ACERSAC	45	3	2	Yes	Cavity			1		1								
	68	-80.03198	43.819841		ACERSAC	20	5	3	Yes	Cavity			2	2									
	69	-80.03187	43.819869	Yes	ACERSAC	58	3	2	Yes	Cavity			4		4								
	70	-80.03193	43.819991	Yes	ACERSAC	34	2	2	Yes	Knot_hole									1		1		
	71	-80.03182	43.819952		ACERSAC	38	5	4	Yes	Cavity			5		5								
	72	-80.0317	43.819956		ACERSAC	23	1	2	Yes	Cavity			2		2								
	73	-80.0317	43.82008	Yes	ACERSAC	48	2	2	Yes	Cavity			3	3									
	74	-80.03115	43.820333	Yes	ACERSAC	49	2	2	Yes	Knot_hole									1		1		
	75	-80.03106	43.820326	Yes	ACERSAC	38	2	2	Yes	Knot_hole									1	1			
	76	-80.03109	43.820472	Yes	ACERSAC	30	3	2	Yes	Crack,Loose_bark	Yes	Yes			1		1						
	77	-80.03066	43.820473		ACERSAC	20	5	4	Yes	Cavity			1		1								
	78	-80.03071	43.820674	Yes	ACERSAC	34	2	2	Yes	Knot_hole									1	1			
	79	-80.03062	43.820696		ACERSAC	23	2	2	Yes	Cavity			2		2								
	82	-80.03157	43.818715	Yes	TILIAME	49	2	2	Yes	Cavity			3	0	3								
	83	-80.03153	43.818725	Yes	ACERSAC	67	1	2	Yes	Knot_hole									1	0	1		
	84	-80.03141	43.818906		ACERSAC	29	5	4	Yes	Cavity			3	0	3								
	85	-80.03056	43.81965	Yes	ACERSAC	30	3	2	Yes	Cavity,Knot_hole			2	0	2				1	0	1		
	86	-80.03055	43.819657		ACERSAC	24	5	4	Yes	Cavity			1	0	1								
	87	-80.03029	43.819882	Yes	ACERSAC	31	3	2	Yes	Cavity			8	0	8								
	88	-80.03028	43.819871	Yes	ACERSAC	38	3	2	Yes	Cavity,Knot_hole			5	5	0				1	0	1		
	89	-80.03007	43.820077	Yes	ACERSAC	75	2	2	Yes	Crack,Knot_hole					1	0	1	2	0	2			
	90	-80.03009	43.820162		ACERSAC	38	5	4	Yes	Cavity			4	0	4								
	91	-80.03007	43.820172	Yes	ACERSAC	38	2	2	Yes	Cavity,Leaf_clusters			3	0	3						1	1	0
	92	-80.02997	43.820136	Yes	ACERSAC	38	3	2	Yes	Crack					1	0	1						
	93	-80.02998	43.820254	Yes	ACERSAC	32	3	2	Yes	Loose_bark	No	Yes											
	94	-80.02988	43.820276		ACERSAC	31	5	3	Yes	Cavity			6	0	6								
	96	-80.03035	43.820685	Yes	ACERSAC	62	1	2	Yes	Knot_hole									1	0	1		
	97	-80.03044	43.820702	Yes	ACERSAC	47	3	2	Yes	Knot_hole									1	0	1		
	98	-80.03031	43.820557	Yes	ACERSAC	40	2	2	Yes	Cavity,Knot_hole			1	0	1				1	0	1		
	99	-80.03093	43.820091	Yes	ACERSAC	26	2	3	Yes	Cavity			2	2	0								
	100	-80.03101	43.819855		ACERSAC	22	5	4	Yes	Cavity			6	0	6								
	101	-80.03177	43.819713		ACERSAC	24	2	2	Yes	Knot_hole									1	0	1		
	102	-80.03188	43.819653		ACERSAC	19	1	3	Yes	Knot_hole									1	0	1		
	103	-80.03194	43.819704	Yes	ACERSAC	85	2	1	Yes	Knot_hole,Other									4	3	1		