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Dear Gary,

RE: A628 Dodworth Road Crossroads Improvement Scheme off Dodworth Road/Pogmoor Road

This letter is intended to inform all interested parties of the results of the surveys undertaken so far at the above site. The survey work was commissioned by Gary Jones on behalf of Barnsley Metropolitan Borough Council.

Methods

Table 1 Survey Schedule below details the planned and completed surveys for the site. This is followed by survey methods in the subsequent sections.

Table 1 Survey Schedule

Survey	Survey Element	Complete
Potential Roost Feature Survey (PRF)	PRF Aerial Tree Survey Visit 1	✓
	PRF Aerial Tree Survey Visit 2	
	PRF Aerial Tree Survey Visit 3	
Bat activity	May Transect and Static Monitoring Survey	✓
	July Transect and Static Monitoring Survey	
	September Transect and Static Monitoring Survey	

Survey	Survey Element	Complete
Bat Nocturnal Roost Survey*	Dusk Emergence Survey	✓
	Dawn Return Survey	
* Further survey may be required depending on results of future visits.		

Potential Roost Feature Aerial Assessment

Trees T10, T11, T06, T07, T13, T07a, T14, T08, T08a and T09 were climbed and assessed using ropes and harnesses on the 29th May 2018. Please refer to *Figure 1* for a plan showing the location of the trees assessed. Trees T01, T02, and T03 were not assessed as part of this survey investigation, however these tree are planned to be assessed during the second PRF survey visit. Any potential roost features (PRF) were assessed with the aid of torches and endoscopes. The PRF (e.g. cavity, split/crack, loose bark) was searched for evidence of roosting bats (droppings, scratch marks, urine staining) and classified depending on its suitability to support roosting bats (i.e. Low, Moderate, High and Roost Present).

All works procedures incorporate safe systems of working and form part of the internal quality control. These include the Arboricultural & Forestry Advisory Group (AFAG) guidelines published by the HSE and the Guide to Good Climbing Practice and Guide to use of MEWPS in Arboriculture published by the Arboricultural Association.

Bat Activity Survey

Transect surveys

The transect routes show were walked using Peersonic RPA3 detectors and Garmin GPS64s or GPS62s GPS units. Twelve sample points were sampled at 5-minute intervals along each transect route. Transects began at sunset and finished after a minimum of 2 hours. The sound files collect were analyzed using Bat Explorer 2.0.2.0 (2.0.6711.18781) using the parameters set out in Russ (2012).

The weather conditions were suitable for typical bat activity, with temperature averaging 11- 13° C, wind ranging between Beaufort 2 and 3, with 90% cloud cover, low humidity and no rain recorded.

Static Monitoring Survey

Batlogger automated static monitoring units were place on site and set to record for 5 consecutive nights. The data collected was then analyzed using Bat Explorer Version 2.0 (Elekon, 2018) software using the parameters set out in Russ (2012).

The data output was than further analyzed in Excel 2013 (Microsoft, 2013) and R Version 2.12 (R Core Team, 2012) with the aid of JGR – Java GUI (Helbig, et al., 2011)

Dusk Emergence Survey

A presence and absence survey was be undertaken to search for further evidence of roosting bats. Six experienced surveyors were positioned with broadband bat detectors with a clear view of the trees confirmed to offer suitability for roosting bats. The survey was be undertaken in suitable weather conditions for typical

summer bat activity (i.e. =>10°C, little or no rain or wind). The survey was carried out following current good practice guidance (Collins, 2016) and comprised of a dusk emergence survey commencing at least 15 minutes before sunset.

Results

PRF Aerial Tree Survey

Please refer to *Table 2* for the trees included in the Aerial PRF Assessment and *Table 3* for the details of the individual PRF.

Table 2 Surveyed Trees

Tree ID	Species	Climber	Recorder	Grid reference	Bat Suitability	Notes
T06	Poplar	Paul Liptrot	Adele Harrison	SE3278206338	Moderate	Large tree with multiple features within canopy offering shelter opportunities for small number of bats. Low split offers greater suitability
T10	Poplar	Paul Liptrot	Adele Harrison	SE3274606344	Moderate	
T07	Poplar	Paul Liptrot	Adele Harrison	SE3273306350	High	Potential bat droppings seen on endoscope in bat box. Bat box is sealed so sampling the droppings for DNA was not possible
T7a	Poplar	Paul Liptrot	Adele Harrison	SE3272306362	Low	Bird nest in upper canopy. PRF visible from ground level
T08	Poplar	Paul Liptrot	Adele Harrison	SE3272206376	Moderate	
T11	Poplar	Adele Harrison	Paul Liptrot	SE3270706367	Moderate	
T08	Poplar	Paul Liptrot	Adele Harrison	SE3272206376	Moderate	
T09	Willow	Paul Liptrot	Adele Harrison	SE3268806374	Moderate	

Bat Activity Survey and Nocturnal Survey

It was not possible to analyze all the data collected during the static monitoring and transect survey in time for the publication of this letter. A sub-set of the data collected by one of the static units has been analyzed. This detector recorded activity from common pipistrelle *Pipistrellus pipistrellus* from within the site. The activity

started within the typical emergence time for the common pipistrelle (with 20 minutes of sunset) which suggests that there is a roost of unknown size and status on or within close proximity to the survey site. Likewise, the data analysis for the nocturnal surveys was not completed in time for the publication of this letter. However, 3 common pipistrelle bats were recorded commuting into/on the site from the north, close to sunset, which further confirms this statement.

Interpretation

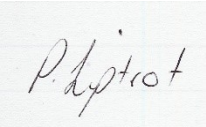
Further nocturnal presence and absence surveys of the high to moderate potential trees and additional PRF inspections are scheduled for later within the summer and autumn of 2018. Likewise, two more bat activity visits are to be undertaken to assess the site's suitability for roosting, foraging and commuting bats.

Currently we have recorded activity from the common pipistrelle on site during the static monitoring and nocturnal survey. No roosts have been confirmed on site, however evidence and features suitable for roosting bats have been noted with multiple trees. Suspected bat droppings were recorded within the bat box on Tree 07 but it was not possible to access the box to take a sample due to the design of the box.

If roosting bats are confirmed to be on site, a European Protected Species Mitigation License will be required if the scheme is to result in the loss or direct impact to the identified roost. This license application, if required, can take up to 8 weeks for Natural England to process and will require the results of all the recommended surveys as well as a mitigation and compensation strategy which will be determined by the type and conservation status of the roost to be lost.

Further information will be available once the remaining surveys are complete. We trust this meets your requirements, however please do not hesitate to contact me if you need any further information.

Sincerely,



Ecologist

P.liptrot@wildSheffield.com

Table 3 PRF Details

Grid Reference	Tree ID	PRF ID	PRF Type	PRF Height	PRF -PRF Aspect	PRF -Bat Species	More than 1 Entrance	PRF Entrance Height (cm)	PRF Entrance Width (cm)	PRF Internal Height (cm)	PRF Internal Width (cm)	DPH (cm)	Internal Substrate	Internal Humidity	Apex Shape	Competitors	Notes
SE3278206338	T06	6.1	Subsidence	10	South East	Absent	No	5	15	3	10	25	Rough Clean	Dry	Peak wedge	No competitors visible	
SE3278206338	T06	6.2	Subsidence	6	East	Absent	No	3	7	2	4	20	Smooth Clean	Dry	Peak Wedge	No competitors visible	Split limb with potential cover/shelter opportunities at top (sheared piece of timber) and small crack/fissure at base.
SE3278206338	T06	6.3	Hazard beam	10	East	Absent	Yes	5	25	12	8	25	Smooth Clean	Dry	Peak Wedge Flat	No competitors visible	Big enough for two bats no evidence but suitable summer day or transition roost
SE3278206338	T06	6.4	Subsidence	6	West	Absent	No	4	30	15	25	40	Smooth Dirty	Dry	Peak Wedge	Woodlice Spider Web	Long spilt Moderate to High suitability
SE3274606344	T10	10.1	Subsidence	45	South	Absent	No	8	7	6	5	30	Smooth Clean	Dry	Peak Wedge	Woodlice	Crack/cavity at fork of limb 4.5m above ground
SE3274606344	T10	10.2	Tear Out	4	North	Absent	Yes	5	5	20	8	55	Rough Blacken Dirty	Wet	Peak wedge Chambered	Woodlice	Large split with internal face producing 2 voids
SE3273306350	T07	7.1	Bat box	45	South	Absent	No	2	12	15	12	90	Smooth	Dry	Flat	Bird Nest	Bar box some bird feathers potential droppings in upper corner
SE3273306350	T07	7.2	Subsidence	6	North	Absent	No	3	3	5	3	25	Smooth Dirty Sludgy	Damp	Dome	No competitors visible	
SE3272306362	T07a	7a	Subsidence	65	North	Absent	No	10	1	3	3	25	Smooth Dirty Sludgy	Damp	Peak Wedge	Woodlice	Low to moderate
SE3272206376	T08	8.1	Tear Out	3	North	Absent	No	10	6	25	6	90	Bumpy Dirty	Dry	Peak wedge	Woodlice Slugs	

Grid Reference	Tree ID	PRF ID	PRF Type	PRF Height	PRF -PRF Aspect	PRF -Bat Species	More than 1 Entrance	PRF Entrance Height (cm)	PRF Entrance Width (cm)	PRF Internal Height (cm)	PRF Internal Width (cm)	DPH (cm)	Internal Substrate	Internal Humidity	Apex Shape	Competitors	Notes
SE3270706367	T11	11.1	Hazard beam	6	North	Absent	Yes	17	1	10	10	15	Smooth	Dry	Flat	Woodlice	Entrance is facing ground and sky not North Bat logger tree-moderate up to 2 bats
SE3271206379	T08a	8a	Tear Out	3	North	Absent	No	90	6	28	5	75	Smooth Blacken Dirty	Damp	Dome	Woodlice Slug	
SE3268806374	T09	9.1	Woodpecker hole	2	Northeast	Absent	No	6	5	25	8	40	Smooth Dirty	Dry	Dome	Bird nest	Moss and other nesting material Moderate to High
SE3268806374	T09	9.2	Wound	3	South	Absent	Yes	35	6	90	6	20	Bumpy Dusty	Dry	Tube	Spider no Web	Dead limb with rot hole at top and tear out at base

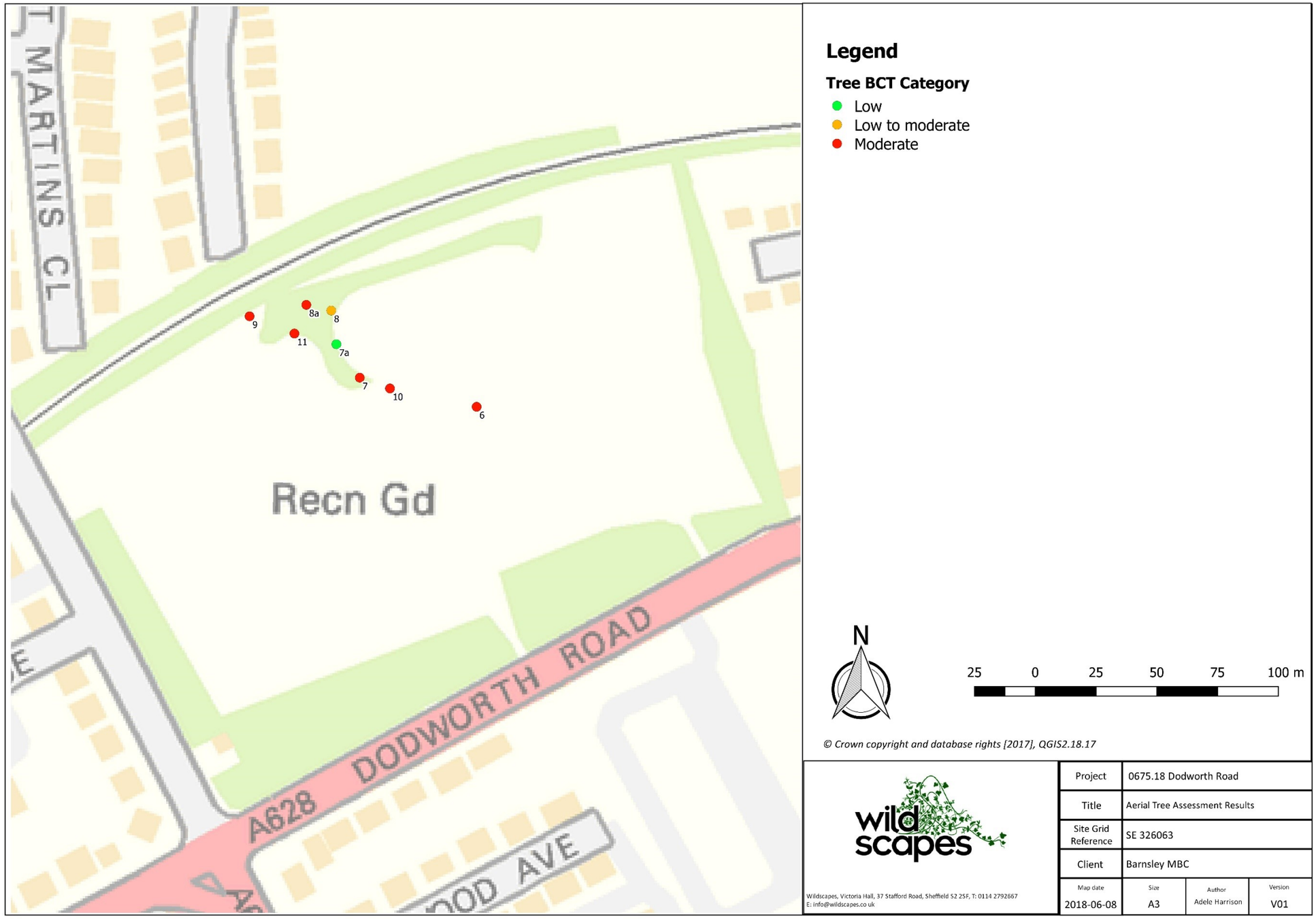


Figure 1 PRF Aerial inspection Results



Photo 1 T06.1



Photo 2 T06.1 Close up of PRF



Photo 3 T06.1



Photo 4 T06.2 from east to west



Photo 5 T06.2 from west to east showing internal area



Photo 6 T06.2 from west to east from a distance



Photo 7 T06.3 upper split



Photo 8 T06.3 lower split



Photo 9 T06.4 Close up



Photo 10 T06.4 Close up 2



Photo 11 T06.4 From ground level



Photo 12 T10.1 External from above



Photo 13 T10.1 Internal



Photo 14 T10.2 Upper portion of PRF

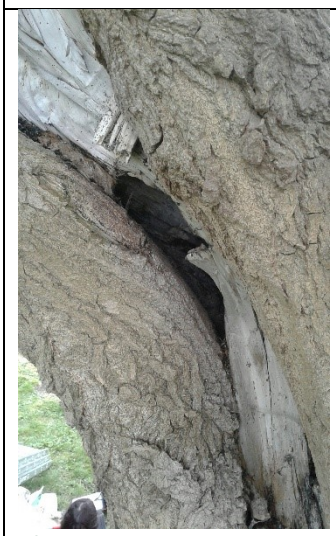


Photo 15 T10.2



Photo 16 T10.2



Photo 17 T10.2

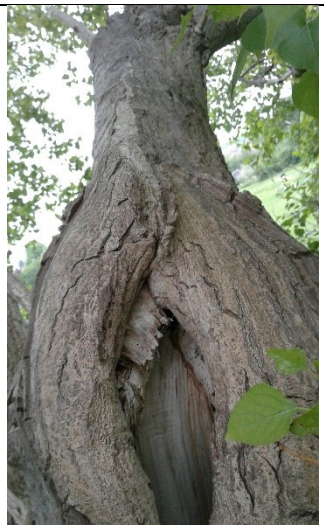


Photo 18 T07.1

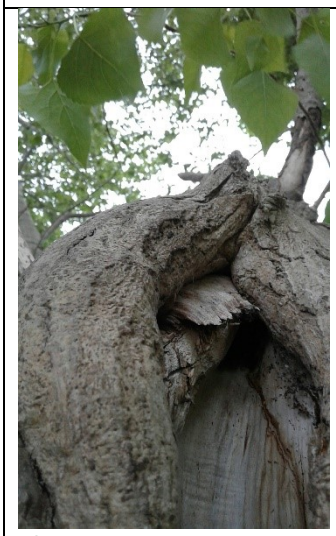


Photo 19 T07.2



Photo 20 T07.2



Photo 21 T07.1



Photo 22 T07.1 with suspect bat dropping stain



Photo 23 Internal area of bat box with suspected bat droppings

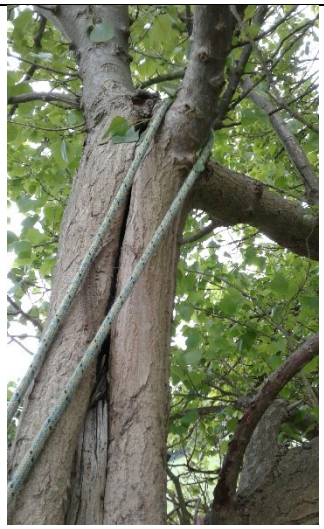


Photo 24 T07a Close up of PRF

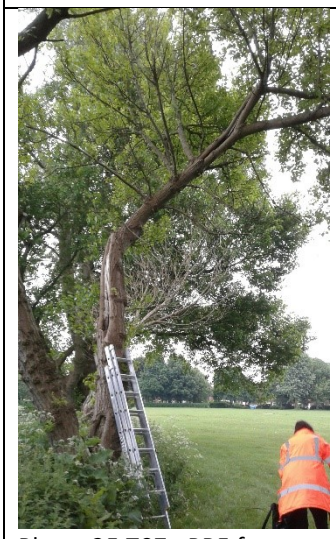


Photo 25 T07a PRF from ground level



Photo 26 T11.1 Upper entrance

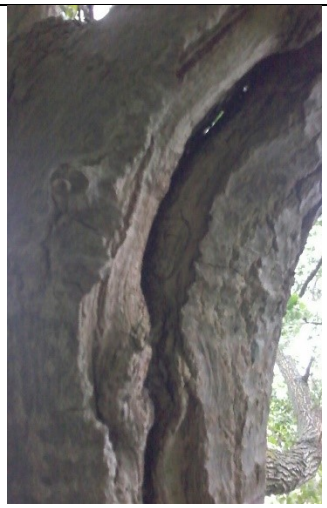


Photo 27 T11.1 Lower entrance

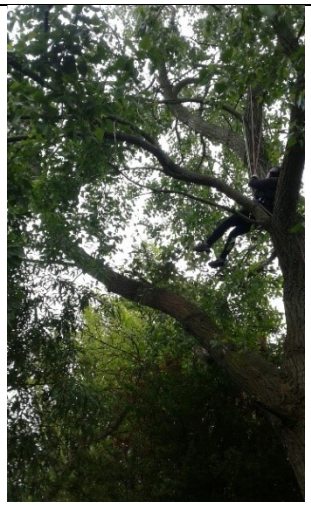


Photo 28 T11.1 PRF from ground level

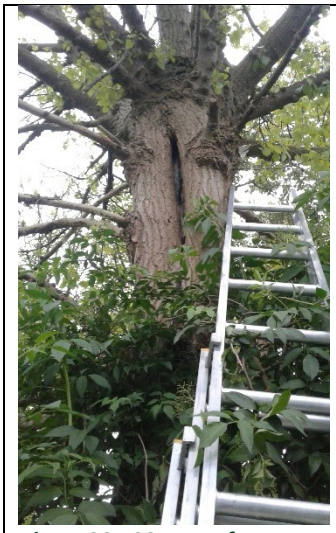


Photo 29 T08.1 PRF from ground level

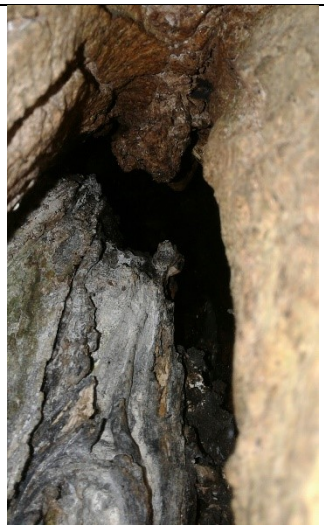


Photo 30 T08.1 Internal

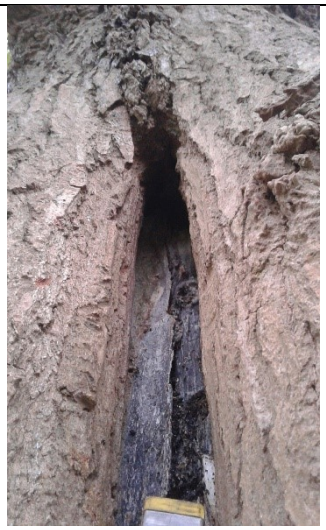


Photo 31 T08.1 Close up



Photo 32 T08.1 from ground level