

Arboricultural Impact Assessment



Land off Wilbraham Road, Chorlton
24th November 2022



**Tyler
Grange**

TG Report No. 14807_R01b_WS_NC

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14807_R01b	24th November 2022	B	Wilson Scott BSc (Hons) FdSc TechArborA	Ryan Lloyd Lvl 4 Dip Arb, PTI, TechArborA	Ryan Lloyd Lvl 4 Dip Arb, PTI, TechArborA

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Section 1: Introduction

Table 1: Overview and Summary

Purpose of report:	This report has been prepared on behalf of Anwyl Homes ('the Applicant') in support of a full planning application at land off Wilbraham Road, Chorlton, Manchester ('the site'). Following the recommendations of the British Standard ¹ , this report includes the necessary arboricultural information to support the planning application. It demonstrates that the impact, both direct and indirect, of the proposal, has been assessed and where appropriate, mitigation and tree protection are required. This report also includes a Tree Protection Plan with an associated Arboricultural Method Statement.
Site description:	The application site extends to approximately 2.22 hectares (ha) and comprises an irregular shaped parcel of land within the administrative boundary of Manchester City Council (Grid Reference – E 382643 / N 394254). The application site comprises two distinct parcels of land, as described below. The part of the site identified for the proposed housing development comprises a roughly rectangular shaped parcel of land, which extends to 2 ha. 354 Wilbraham Road and its associated garage are the only existing buildings/structures within the site boundary. Access to the site is obtained from Wilbraham Road. The housing site is privately owned by GMYF and is secured on all boundaries by fencing and gates aside from 354 Wilbraham Road which is an occupied dwelling. The part of the site identified for ecological enhancement comprises 0.22 ha. The ecological enhancement area is owned by the St Margaret's Centre. (See Figure 1 overleaf).
Application type and description:	Full planning application proposing the erection of a residential development (Use Class C3a), with associated infrastructure, including landscaping, ecological mitigation, drainage, car parking, access from Wilbraham Road, demolition of garage to the rear of 354 Wilbraham Road and other associated works.
Report prepared on behalf of:	Anwyl Homes
Local Planning Authority (LPA):	Manchester City Council (MCC)
Planning policies relating to arboricultural features:	Policy EN9 'Green Infrastructure' of the MCCs Local Plan. Planning policy is further detailed at Appendix 1.
Report Summary:	The proposals necessitate the removal of 3no. individual trees (2no. Cat B, 1no. Cat C), 2no. groups (1no. Cat B, 1no. Cat C) and a total of c.92m² from a 2no. groups of trees (2no. Cat C). The remaining trees which form the majority of the site's tree cover will be retained as part of the development and protected during construction. This report details where tree pruning works are required along with mitigative measures for working within the rooting areas of trees where this is required. A Landscape Masterplan has been prepared and is to be submitted separately to this report in support of the application. The Masterplan proposes the introduction of 87no. new native and amenity trees and associated soft landscaping.

¹ BS5837:2012 Trees in relation to design, demolition and construction- Recommendations, London: British Standards Institute



Given the limited quantum of the trees proposed for removal whilst retaining the vast majority of principal tree cover and the new planting proposals within the site, the development proposals are acceptable in arboricultural terms and accords with local planning policy EN9 'Green Infrastructure'.

The report also includes a Tree Protection Plan with an associated Arboricultural Method Statement, which details the protective measures and specialised construction methods which require adoption to ensure the protection and subsequent longevity of the retained trees during the construction phase of the development.



Figure 1: Site Location with Approximate Boundary (Google Earth ©)

Section 2: Arboricultural Baseline

Table 2: Survey Summary

Survey approach:	The tree survey was completed by a suitably qualified Arboricultural Surveyor of Tyler Grange in April 2022, with an additional site walkover carried out in November 2022. The survey was completed in accordance with BS5837. A measured topographical survey was used to identify the location of trees and their surrounding context.
Survey findings:	Findings for each of the trees surveyed are detailed in the Tree Survey Schedule (See Appendix 3). This provides a tabulated record of the trees surveyed, including reference numbers, species composition, tree dimensions, life stage, physiological and structural condition, and the arboricultural value of each survey entry.
Survey mapping:	The distribution of the trees surveyed is illustrated on the Tree Constraints Plan (TCP) together details of their constraints to new development in accordance with BS5837, including, tree quality gradings ² , Root Protection Areas (RPAs) ³ , tree canopy spreads ⁴ and tree shading ⁵ .

Table 3: Tree related Designations

Designation Type	TG Tree Reference Number(s)
Tree Preservation Order ⁶	None
Conservation Area ⁷	None
Ancient Woodland ⁸	None
Other Woodland Habitat ⁹	None

² The arboricultural value of surveyed features under the criteria shown at Appendix 1. Allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

³ a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

⁴ Dimensions of the trees crown spread and clearance from ground level.

⁵ Shade cast by existing trees which may affect the availability of sunlight and daylight within a new development.

⁶ A Tree Preservation Order is an order made by a local planning authority in England to protect specific trees, groups of trees or woodlands in the interests of amenity. An Order prohibits the any works and damage to trees (with some exceptions) without the local planning authority's written consent. More information can be found online <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas#tree-preservation-orders--general>.

⁷ Trees in a conservation area that are not protected by an Order are protected by the provisions in section 211 of the Town and Country Planning Act 1990. These provisions require people to notify the local planning authority, using a 'section 211 notice', 6 weeks before carrying out certain work on such trees, unless an exception applies. More information can be found online <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas#tree-preservation-orders--general>.

⁸ Ancient woods are areas of woodland that have persisted since 1600 in England and Wales, and 1750 in Scotland. The Magic Maps website <https://magic.defra.gov.uk/MagicMap.aspx> has been used to search for ancient woodland on or adjacent to a site.

⁹ Spatial data of woodlands identified under the Priority Habitat Inventory (England) Published by Natural England. The Magic Maps website <https://magic.defra.gov.uk/MagicMap.aspx> has been used to search for woodland on or adjacent to a site.



Section 3: Arboricultural Impact Assessment

Tree Retention and Removal

- 3.1. Trees to be retained and removed are shown on the TRRP. Table 4 below describes the tree losses required to facilitate the development and provides recommendations for compensation.

Table 4: Trees to be Removed to Facilitate Development

Reference Number	Category Grading	Description of Loss	Compensatory Measures
T1	C	Removal of low quality Hawthorn to facilitate construction of boundary fencing as proposed.	New planting where possible throughout the site as shown on the proposed landscape plans.
T7	B	Removal of one mature Sycamore to facilitate construction of internal access road as proposed.	
T14	B	Removal of one mature Sycamore to facilitate construction of internal access road as proposed.	
G3	C	Removal of entire group to facilitate construction of vehicular access road as proposed.	
G4 (Part)	C	Removal of c.75m ² of G4 to facilitate construction of vehicular access road as proposed	
G5 (Part)	C	Removal of c.17m ² of G5 to facilitate construction of vehicular access road as proposed.	
G10	C	Removal of low quality group to facilitate construction of boundary fencing as proposed.	



Tree Pruning Works

- 3.2. Table 5 below details pruning works to retained trees to facilitate development

Table 5: Tree Pruning Works

Reference Number	Category Grading	Description of Works
G8	C	Approximately 6m ² of G8 to be pruned back to the boundary fence to facilitate construction of boundary treatments as proposed.
G11		Approximately 63m ² of G11 to be pruned back to the boundary fence to facilitate construction of boundary treatments as proposed.
H1		H1, H2 and H3 to be pruned back to boundary fence to facilitate construction of boundary fence as proposed.
H2		
H3		

New Tree Planting

- 3.3. A proposed soft-landscaping scheme has been prepared and submitted separately as part of the application. The proposal includes for new tree planting at the boundaries of the site, within the green spaces and internally within the new street scenes. 87no. new trees will be planted. Despite the proposed tree losses, it is anticipated that a net-gain in tree canopy will be achieved in the long-term, as well as improving the overall canopy cover across the site.

Retained Trees and Construction Mitigation

- 3.4. Retained trees will require physical protection during the course of the development. The TPP (See Plan 3) provides details of tree protection in accordance with BS5837:2012. This includes details of the following key items:
- Locations and specification for Tree Protection Barriers
 - Sensitive excavation works within the RPAs
 - No-Dig surfacing within RPAs
 - Arboricultural Site Supervision / Monitoring Requirements

Construction works that require a sensitive approach to mitigate impacts towards trees are detailed in **Table 6** below.

Table 6: Works within RPAs

Mitigation Measures	Trees	Description
Tree Protection Fencing	All retained trees.	Retained trees will be physically protected by robust Heras barriers. The barriers have been located to protect the tree canopy spreads or the RPA, whichever extends further. Barriers will be installed following tree works and prior to the commencement of site works. The barriers will remain in place (unless otherwise stated on the TPP) for the duration of construction phase. Given the proximity of the trees to the development, the full BS5837:2012 tree protection fence specification is stipulated in the TPP for the main development site. As palisade fencing is already in-situ along the western and northern boundaries, this will suffice as protection for the trees located off-site in neighbouring gardens.
Sensitive Excavation Within the RPAs of Trees	Tree T6	In addition to the original BS5837 survey undertaken by TG, a Tree Root Radar survey was carried out by Tree Radar UK (attached at the rear of this report) to ascertain more accurate knowledge of the rooting environment of T6, more specifically in the areas where the vehicular access point is proposed. In summary, the report identified that the quantum of rooting matter located towards the eastern extent of the RPA was significantly reduced in comparison to that of the western extent. The reasons for this are likely to be attributed to the ground compaction within these areas, in addition to the reduced capacity of available growth media due to the existing hard surfacing. With this in mind, The existing hard surface is to be removed and replaced, with the sub-base left in situ and augmented where necessary to accommodate the proposed hard surfacing. The TPP includes a methodology for the work to mitigate impacts towards tree roots potentially present.
No-dig Surfacing within the RPAs of Trees	Trees T11, T13	The entrance road footpath and an internal access driveway is located within the RPA of tree T11 and T13. These areas of the RPAs require a 'No-dig' approach utilising a structural web of cells with permeable surfacing implemented to the manufacturer's specifications. (see Appendix 5)

Long-term Tree Management and Social Proximity

- 3.5. The proximity associated with retained trees has been recognised in relation to the potential impacts of tree shading and future canopy growth towards new structures and habitable spaces.
- 3.6. The **TRRP** illustrates where shade cast by retained trees will be located for the main part of the day across the development and the distance between new built structures and the canopies of retained trees.
- 3.7. Groups G5 and G6 which align the southern boundary of the site will provide a screen from the properties located on neighbouring land. There will be a degree of shading from the groups of trees towards plot 1, however, there remains a good level of separation between the plot of the tree canopy to avoid an overbearing tree / building relationship. A degree of shading is expected when tall/mature trees are retained at the site boundaries.

- 3.8. Where shading is unavoidable, the potential adverse impact of shadowing should also be reviewed on balance with the positive aspects of retaining a degree of canopy shade. BS5837:2012 (para. 5.3.4, a) NOTE 1) states that "shading can be desirable to reduce glare or excessive solar heating, or to provide comfort during hot weather. The combination of shading, wind speed/turbulence reduction and evapotranspiration effects of trees can be utilised in conjunction with the design of buildings and spaces to provide local microclimatic benefits".

Conclusion

- 3.9. The proposals necessitate the removal of two trees of moderate quality (Category B), one tree, one group and a total of c.92m² from a further two groups of low quality (Category C). The remaining trees which form the majority of the site's tree cover will be retained as part of the development and protected during construction.
- 3.10. The layout has been suitably designed to incorporate the site's tree stock highlighted for retention, and the proposed soft-landscaping scheme will deliver arboricultural benefits through the provision of feature amenity tree and shrub planting in accordance with Policy EN9 'Green Infrastructure'.
- 3.11. A Landscape Masterplan has been prepared and is to be submitted separately to this report in support of the application. The Masterplan proposes the introduction of 87no. new native and amenity trees and associated soft landscaping. Overall, the scheme demonstrably exceeds the LPA's standard for '3 for 1' replacement planting policy.
- 3.12. Given the limited quantum of the trees proposed for removal whilst retaining the vast majority of principal tree cover and the scope to provide new planting within the site, the development proposals are acceptable in arboricultural terms and accords with local planning policy aspirations pertinent to trees and green infrastructure.
- 3.13. There are areas of new development in close proximity to retained trees and therefore protection measures are required to ensure the trees remain unaffected and form a valuable asset of the new development. Adherence to the Tree Retention and Removal Plan, Tree Protection Plan and associated Arboricultural Method Statement must therefore be implemented throughout the construction phase of the development.

Appendix 1: Planning Policy Relating to Trees

Table 7: National and Local Planning Policy Relating to Trees

Policy Document	Policy References	Policy Wording / Description
National Planning Policy Framework (NPPF)	Section 12, paragraph 131	"Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users."
	Section 15, paragraph 174	"Planning policies and decisions should contribute to and enhance the natural and local environment by:" Subsection B; "recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland."
	Section 15, paragraph 180	"When determining planning applications, local planning authorities should apply the following principles:" Subsection C; "that development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists."
Local Planning Policy - Manchester City Councils Core Strategy 2021-2027	Policy Number / Ref - Policy EN9 – Green Infrastructure	<i>"New development will be expected to maintain existing green infrastructure in terms of its quantity, quality and multiple function. Where the opportunity arises and in accordance with current Green Infrastructure Strategies the Council will encourage developers to enhance the quality and quantity of green infrastructure, improve the performance of its functions and create and improve linkages to and between areas of green infrastructure. Where the benefits of a proposed development are considered to outweigh the loss of an existing element of green infrastructure, the developer will be required to demonstrate how this loss will be mitigated in terms of quantity, quality, function and future management.</i> <i>Key features of Manchester's green infrastructure will include:</i> <i>• The continued development of a network of green spaces, water bodies, canals, paths and cycleways, with priority given to those parts of the City where there is an identified existing lack of open space. The Council will seek to protect existing street trees and promote new planting, particularly where this can enhance green links in the urban area.</i> <i>• The continued maintenance and management of the Rivers Mersey and Irwell and their tributaries, for example the River Irk, River Medlock, Chorlton Platt Gore, Gatley Brook, Moston Brook and</i>



		<i>adjoining land, with regard to their multiple functions including recreation, flood management, and biodiversity.</i> • <i>The provision of new, and improvements to the quality and accessibility of existing green infrastructure assets, to mitigate for any loss of green infrastructure as a result of development; such as the Metrolink extension programme.</i> • <i>The encouragement of green roofs, green walls, tree planting and other forms of green infrastructure to allow for the adaption to climate change in heavily urbanised areas. New green infrastructure provision should be an exemplar of best practice and innovation in terms of both its design and management."</i>
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Appendix 2: BS 5837:2012 Cascade Chart for Tree Quality Assessment

TREES FOR REMOVAL				
Category and Definition	Criteria			Identification on Plan
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of			DARK RED
	Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.			
	Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very low-quality trees suppressing adjacent trees of better quality. (NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve)			
TREES TO BE CONSIDERED FOR RETENTION				
Category and Definition	Criteria - Subcategories			Identification on Plan
	1. Mainly Arboricultural Values	2. Mainly Landscape Values	3. Mainly Cultural Values, including Conservation	
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural benefits.	MID BLUE
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or temporary/transient landscape benefit.	Trees with no material conservation or other cultural value.	GREY



Appendix 3: Tree Survey Schedule (14807/TSS01a)



Tree Number	Common Species Name	Height (m)	Trunk Diameter	Crown Spread (m)				Height of Crown Clearance (m)	Physiological Condition	Structural Condition	Age Class	BS5837 Category	Comments	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T1	Common hawthorn	8m	310	3.50	3.00	4.00	3.00	1.60	Fair	Fair	Early mature	C1	Tree located within grassy field next to steel fence. Tree is multi stemmed from base. Canopy is crowded with good vigour. Minor dead wood associated with canopy.	3.7	44
T2	Sycamore	18m	603	6.00	5.00	4.00	3.00	2.00	Fair	Good	Early mature	C1.2	Tree located within edge of grassy field. Tree is multi stemmed from base with large amounts of rubble piled at base. Tree shares a mutual canopy with neighbouring tree. Minor deadwood associated with canopy.	7.2	165
T3	Sycamore	18m	400	6.00	3.00	3.50	5.50	2.50	Fair	Good	Early mature	C1.2	Tree located within edge of grassy field. Tree has a large amount of rubble and soil piled at base. Tree shares a mutual canopy with neighbouring tree. Minor deadwood associated with canopy.	4.8	72
T4	Leyland cypress	6m	190	3.00	3.00	3.00	3.00	3.00	Fair	Fair	Semi mature	C1	Offsite tree located within garden next to site entrance road.	2.3	16
T5	Small-leaved lime	9m	430	5.00	5.00	5.00	5.00	1.30	Good	Fair	Early mature	B1	Street tree located at front of site entrance. Tree is located within grassy verge except for south side where stem is in close proximity to road. Tree canopy comes low on site side and over entrance.	5.2	84
T6	Common ash	15m	670	8.00	8.00	8.00	8.00	2.50	Fair	Fair	Mature	C1	Street tree located at front of site entrance. Tree is located within a very small planting pit with tarmac present right up to stem. Tree canopy comes low on site side and over entrance. Early signs of ash dieback present within canopy.	8.0	203
T7	Sycamore	17m	524	4.00	7.00	5.00	4.00	3.00	Fair	Fair	Mature	B1	Tree located at entrance of site. Tree is twin stemmed from base. Dense vegetation around base and ivy throughout main stem and canopy. Tree has good vigour within canopy. Forms mutual canopy with adjacent tree.	6.3	124

Tree Number	Common Species Name	Height (m)	Trunk Diameter	Crown Spread (m)				Height of Crown Clearance (m)	Physiological Condition	Structural Condition	Age Class	BS5837 Category	Comments	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T8	Sycamore	17m	457	3.50	6.00	4.00	4.00	2.00	Fair	Fair	Mature	B1	Tree located at entrance of site. Tree is multi stemmed from base. Dense vegetation around base and ivy throughout main stem and canopy. Tree has good vigour within canopy. Forms mutual canopy with adjacent tree.	5.5	95
T9	Sycamore	17m	190	4.00	3.00	4.00	4.00	5.00	Fair	Fair	Semi mature	C1	Tree located at entrance of site. Dense vegetation around base and ivy throughout main stem and canopy. Tree has good vigour within canopy. Forms mutual canopy with adjacent tree.	2.3	16
T10	Sycamore	18m	450	4.00	6.00	4.00	2.50	3.00	Fair	Fair	Early mature	B1	Tree located at entrance of site. Dense vegetation around base and ivy throughout main stem and canopy. Tree has good vigour within canopy. Forms mutual canopy with adjacent tree.	5.4	92
T11	Sycamore	18m	400	5.00	6.00	3.00	3.00	1.80	Fair	Fair	Early mature	B1	Tree located at entrance of site. Dense vegetation around base and ivy throughout main stem and canopy. Tree has good vigour within canopy. Forms mutual canopy with adjacent tree.	4.8	72
T12	Wild cherry	5m	180	4.00	4.00	2.50	2.00	0.80	Fair	Fair	Semi mature	C2	Small ornamental tree located at front of site next to larger trees. Dense vegetation around base.	2.2	15
T13	Goat willow	11m	290	4.50	4.50	4.00	3.00	1.00	Fair	Fair	Early mature	C2	Tree located at front of site within grassy field. Dense vegetation around base. Tree forms mutual canopy with adjacent tree. Dense ivy present on main stem and canopy.	3.5	38
T14	Sycamore	18m	420	6.00	4.00	4.50	6.00	3.00	Fair	Fair	Early mature	B1	Tree located at entrance of site within grassy field. Dense vegetation around base and ivy throughout main stem and canopy. Tree has good vigour within canopy. Forms mutual canopy with adjacent tree.	5.0	80
T15	Common plum	5m	270	4.00	4.00	4.00	3.00	2.00	Fair	Fair	Semi mature	C1	Part of the ornamental planting on site.	3.2	33

Tree Number	Common Species Name	Height (m)	Trunk Diameter	Crown Spread (m)				Height of Crown Clearance (m)	Physiological Condition	Structural Condition	Age Class	BS5837 Category	Comments	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T16	Common ash	9m	360	4.00	4.00	4.00	4.00	4.00	Fair	Fair	Early mature	C1	Off site tree located directly behind site boundary fence.	4.3	59
T17	Wild cherry	9m	500	4.00	4.00	4.00	4.00	4.00	Fair	Fair	Early mature	C1	Off site tree located directly behind site boundary fence.	6.0	113
T18	Wild cherry	5m	130	4.00	4.00	4.00	4.00	2.00	Fair	Fair	Semi mature	C1	Scrubby tree on edge of site boundary.	1.6	8
T19	Sycamore	9m	230	3.00	3.00	4.00	4.00	2.00	Fair	Fair	Semi mature	C1	Scrubby tree on edge of site boundary.	2.8	24
T20	Sycamore	14m	450	6.00	6.00	6.00	6.00	7.00	Fair	Fair	Early mature	C1	Off site tree located directly behind site boundary fence.	5.4	92
T21	Blue gum eucalyptus	12m	380	4.00	4.00	4.00	4.00	2.00	Fair	Fair	Early mature	C1	Off site tree located directly behind site boundary fence.	4.6	65
T22	Leyland cypress	9m	130	4.00	4.00	4.00	4.00	0.50	Fair	Fair	Early mature	C1	Off site tree located directly behind site boundary fence.	1.6	8
T23	Common hawthorn	7m	180	4.00	4.00	4.00	4.00	3.00	Fair	Fair	Early mature	C1	Off site tree located directly behind site boundary fence.	2.2	15
T24	Rowan	9m	150	4.00	4.00	4.00	4.00	4.00	Fair	Fair	Semi mature	C1	Off site tree located directly behind site boundary fence.	1.8	10
T25	Ash (Fraxinus excelsior)	12.5(1)	300,250,200(3)	2.50	2.50	2.50	2.50	1.00	Fair	Good	Semi mature	C2	Multistemmed from ground level, with tight stem unions present. Stem situated in close proximity of boundary fence and is projected to displace the fence in the short to mid term. Good foliar condition in comparison to other ash specimens present on site.	5.3	87
G1	English holly, Wild cherry	Min 3.5 - Max 17	Min 90 - Max 280	-	-	-	-	0.30	Fair	Fair	Semi mature	C2	Group located to south of site right on boundary. Group has dense ivy cover throughout. Group consists of predominantly larger cherry trees with a small understory of holly. Trees offer good screening value with adjacent residential dwellings.	3.4	-

Tree Number	Common Species Name	Height (m)	Trunk Diameter	Crown Spread (m)				Height of Crown Clearance (m)	Physiological Condition	Structural Condition	Age Class	BS5837 Category	Comments	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
G2	Lombardy poplar	Ave 23	Ave 850	-	-	-	-	4.00	Fair	Fair	Mature	C2	Offsite garden trees located directly offsite behind concrete panel wall. Dense ivy and low canopies restricting detailed assessment. No access to trees, attributes estimated.	10.2	-
G3	Common ash, Wild cherry, Yew	Ave 5	Ave 90	-	-	-	-	0.80	Fair	Fair	Semi mature	C2	Small scrubby self set trees at side of entrance to site.	1.1	-
G4	Sycamore, Common hawthorn, English holly	Ave 5	Ave 90	-	-	-	-	0.00	Fair	Fair	Semi mature	C2	Dense group of scrubby trees forming the understory to larger mature trees. Located at entrance to site.	1.1	-
G5	Sycamore, Common beech, Laburnum	Ave 12	Min 50 - Max 450	-	-	-	-	1.80	Fair	Fair	Early mature	C2	Offsite group located directly behind boundary fence line. No access to trees, attributes estimated.	5.4	-
G6	Sycamore	Min 8 - Max 18	Min 190 - Max 600	-	-	-	-	1.00	Good	Fair	Early mature	B1.2	Group of trees located at corner of site. Dense cut vegetation and rubble piled around base of trees. Trees are well established and offer good screening value with adjacent residential dwellings.	7.2	-
G7	Silver birch, Common hawthorn, Norway spruce	Min 3 - Max 12	Min 50 - Max 300	-	-	-	-	0.00	Fair	Fair	Early mature	C2	Offsite garden trees located directly offsite. Canopies encroach on site by max 4m.	3.6	-
G8	English holly	Ave 4	Ave 150	-	-	-	-	1.30	Fair	Fair	Semi mature	C2	Scrubby group on edge of site boundary.	1.8	-
G9	Sycamore, Wild cherry	Ave 7	Ave 200	-	-	-	-	2.00	Fair	Fair	Early mature	C2	Trees located directly offsite in residential gardens.	2.4	-
G10	Wild cherry	Ave 4	Ave 100	-	-	-	-	1.30	Fair	Fair	Young	C2	Scrubby group on edge of site boundary.	1.2	-
G11	Common privet	Ave 5	Ave 100	-	-	-	-	0.00	Fair	Fair	Early mature	C2	Scrubby group on edge of site boundary.	1.2	-
G12	Sycamore, Common beech, Scots pine	Min 3 - Max 13	Min 50 - Max 450	-	-	-	-	1.80	Fair	Fair	Early mature	C2	Trees located directly offsite in residential gardens. Canopies encroach on site by max 5m.	5.4	-
G13	Apple (Malus), Wild Cherry (Prunus avium)	Min 5 - Max 7	Ave 200	-	-	-	-	1.00	Fair	Fair	Semi mature	C2	Arrangement of semi mature fruit trees. Evidence of past pruning works present, with signs of regrowth. Diameter is an estimated maximum.	2.4	-

Tree Number	Common Species Name	Height (m)	Trunk Diameter	Crown Spread (m)				Height of Crown Clearance (m)	Physiological Condition	Structural Condition	Age Class	BS5837 Category	Comments	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
G14	Horse Chestnut (Aesculus hippocastanum), Holly (Ilex aquifolium)	Ave 12	Max 350	-	-	-	-	1.00	Fair	Good	Semi mature	C2	Closely spaced group of trees situated offsite and subsequently not inspected in detail. Dense ivy significantly obscured inspection. Inaccessible: diameter estimated.	4.2	-
G15	Ash (Fraxinus excelsior)	Ave 8	Max 200	-	-	-	-	1.00	Fair	Good	Semi mature	C2	Group of selfseeded Ash specimens located adjacent to the site boundary. Dense scrub understory restricted detailed inspection. Diameter is an estimated maximum.	2.4	-
G16	Hybrid Black Poplar (Populus X canadensis)	Ave 17	Max 650	-	-	-	-	2.00	Fair	Good	Early mature	B1.2	Group of trees located at corner of site. Dense cut vegetation and rubble piled around base of trees. Trees are well established and offer good screening value with adjacent residential dwellings.	7.8	-
H1	Common privet	Ave 3	Ave 90	-	-	-	-	-	Fair	Fair	Semi mature	C2	Well maintained garden hedge	1.1	-
H2	Common hawthorn	Ave 3	Ave 90	-	-	-	-	-	Fair	Fair	Semi mature	C2	Well maintained garden hedge	1.1	-
H3	Common privet	Ave 2	Ave 90	-	-	-	-	-	Fair	Fair	Semi mature	C2	Well maintained garden hedge	1.1	-

Appendix 4: Report Limitations

Limitations

- A4.1. The comments made are based on observable factors present at the time of inspection. Although the health and stability of trees in their current context is an integral part of their suitability for retention, it must be understood that this report is not a tree risk assessment and should not be construed as such. While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, it may have not been appropriate, or possible, to view all parts or all sides of every tree to fulfil the assessment criteria of a risk assessment.
- A4.2. No tree can be considered entirely safe, given the possibility that exceptionally strong winds could damage or uproot even a mechanically 'perfect' specimen. It is therefore usually accepted that hazards are only recognisable from distinct defects or from other failure-prone characteristics of the tree or the site. An assessment of the potential influence of trees upon existing buildings or other structures resulting from the effects of trees upon shrinkable load-bearing soils or the effects of incremental root or branch growth, are specifically excluded from this report.

Un-assessable Risks

- A4.3. Any alteration to the application site or development proposals could change the current circumstances and may invalidate this report and any recommendations made.
- A4.4. The Wildlife and Countryside Act (WCA) 1981 (as amended) makes it an offence to disturb nesting birds or recklessly endanger a bat or its roost. Bats are also a European protected species and are additionally protected under the Conservation (Habitats & c) Regulations 1994 and 2010 (as amended). The survey findings, constraints, opportunities and design or mitigation recommendations included within that report must be read alongside this document.

A lack of recommended work does not imply that a tree does not pose an unacceptable level of risk and likewise, it should not be implied that a tree will present an acceptable level of risk following the completion of any recommended work.



Appendix 5: TRUK 0231 354 Wilbraham Road, Manchester, M21





Tree Radar UK Ltd

Root Investigation by TreeRadar

Tree Radar

SITE

354 Wilbraham Road
Manchester
M21

CLIENT

Anwyl Construction Co Ltd

Ian Lee

MICFor MArborA BSC (Hons) Tech Cert (Arbor A)
Chartered Arboricultural Consultant

DATE: 11.08.2022

OUR REF: TRUK 0231

CONTACT DETAILS: 01622 435929
ian@treeradaruk.com

EXECUTIVE SUMMARY

This report provides information on the root spread of a single ash tree growing in a planting pit in the footpath to the front of 354 Wilbraham Road, Manchester, M21.

The scan lines do not cover the full root protection area (RPA) of the subject tree due to physical restrictions such as the live road and the boundary wall around the properties but covers the pavement and section of dropped kerb to the front of the properties and the access to the fields behind the residential plots.

The results show that the street tree is rooting in moderate density, with the density falling with increased distance from the tree to low density. This shows that although at low density, this is still a significant rooting beyond the RPA to the north west of the survey area.

The results also show that the rooting densities of the tree is much lower beneath the existing field vehicle crossing, and that soils here have seen a greater level of disturbance. This may be a result of historic use, heavier vehicles using the crossing, or compaction of the soils from vehicles previously using an unreinforced vehicle crossing.

The final design and layout of any proposed development, the depth of any excavations, along with the working methodology are not known at the time of writing this report, however, co-operative use of the results between the arboricultural consultant and the design and construction teams will minimise the impact of the development upon the subject tree and increase its chances of being successfully retained and protected within the scheme.

Contents

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3	Methodology	5
4	Results	7
5	Conclusions	10
6	TreeRadar plans TRUK0231 TR and TRUK0231 TRR Appendix 1	11
7	How to read the scan lines	12
8	Individual scan line results	14
9	Caveats & exclusions	27
10	Background and statement of methodology	28
11	My experience and qualifications	29

1. INTRODUCTION: -

- 1.1. This report provides information on the root spread of a single ash tree growing in a planting pit in the footpath to the front of 354 Wilbraham Road, Manchester, M21
- 1.2. The survey was carried out on 3rd August 2022 using TreeRadar, which identifies locations of roots with a diameter greater than 20mm along the scan lines. The scan line results show their depth and location. Determination of root diameter is difficult (other than it being above 20mm), but new software will be released shortly which will provide this detail. This report provides technical details of root locations, and the use of this in developing any designs and assessing the arboricultural impact will be carried out by the project arboricultural consultant and the wider design team.

2. CURRENT SITE DESCRIPTION: -

- 2.1 The site of the survey consists of the asphalt surfaced pavement to the front of 354 and 356 Wilbraham Road, Manchester and the section of pavement with a dropped kerb providing access to the fields to the rear of the properties. A single ash tree is located within the pavement area, with a lime tree located within the verge to the east of the survey area.
- 2.2 A tree survey was carried out by Tyler Grange as part of their ongoing arboricultural consultancy work for the site. Details of the trees have been covered within their report and the information will not be repeated within this report, as it is outside the remit of the TreeRadar survey. For ease of reference their tree numbers will be used within the TreeRadar report.

3. METHODOLOGY:-

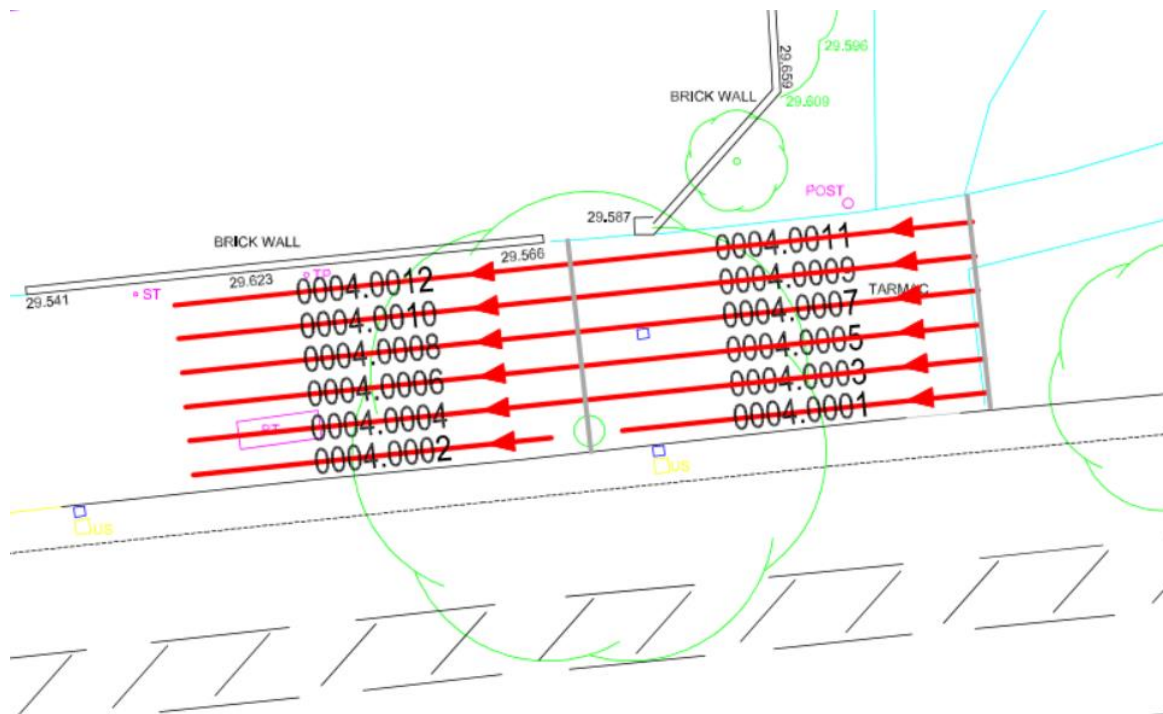
- 3.1 This report identifies locations of roots with a diameter greater than 20mm along scan lines. The TreeRadar unit is a scanning cart with a 400MHz antenna which sends a beam every 1cm down to a depth prescribed by the operator (usually between 2 - 3m, which is the maximum depth). The reflection is recorded in a field computer and then analysed by the latest software, TBA. Water and metal reflect, therefore the machine records live roots which contain moisture, and cannot detect dead dried out roots. For each scan line a 'virtual trench' is produced which shows all roots with a diameter greater than 20mm. The machine cannot determine root diameter, other than it being greater than 20mm, due to the lack of correlation between the amounts of live root tissue in a root compared to the thickness of a root. For example, a large root may have a partially desiccated or dysfunctional central core with low moisture content and so give a relatively weak radar return, while a smaller root may be filled with water molecules and give a much stronger return. An anticipated update of the software is expected to begin to address this issue.



Photo of the TreeRadar cart (in a different setting)

- 3.2 Scanning conditions were relatively straight forward, though sections of the site contain a very large number of metals and non-root reflectors found within the results, which were filtered out of the data as far as was reasonably practical. This may slightly affect the accuracy of the results, but we are experienced at looking at data in these situations. The scan lines do not cover the full root protection area (RPA) of the subject tree due to physical restrictions such as the live road and the boundary wall around the properties but covers the pavement and section of dropped kerb to the front of the properties and the access to the fields behind the residential plots.

- 3.3 The locations of the scan lines are found at Appendix 1 on the TreeRadar plan (reference *TRUK 0231 TR*, extract below), and the results super-imposed on the base plan (*TRUK 0231 TRR*). Top-down views for the roots at various depths, along with the cross sections for each scan line are found at section 8. Details of how to read the results are found at section 7.

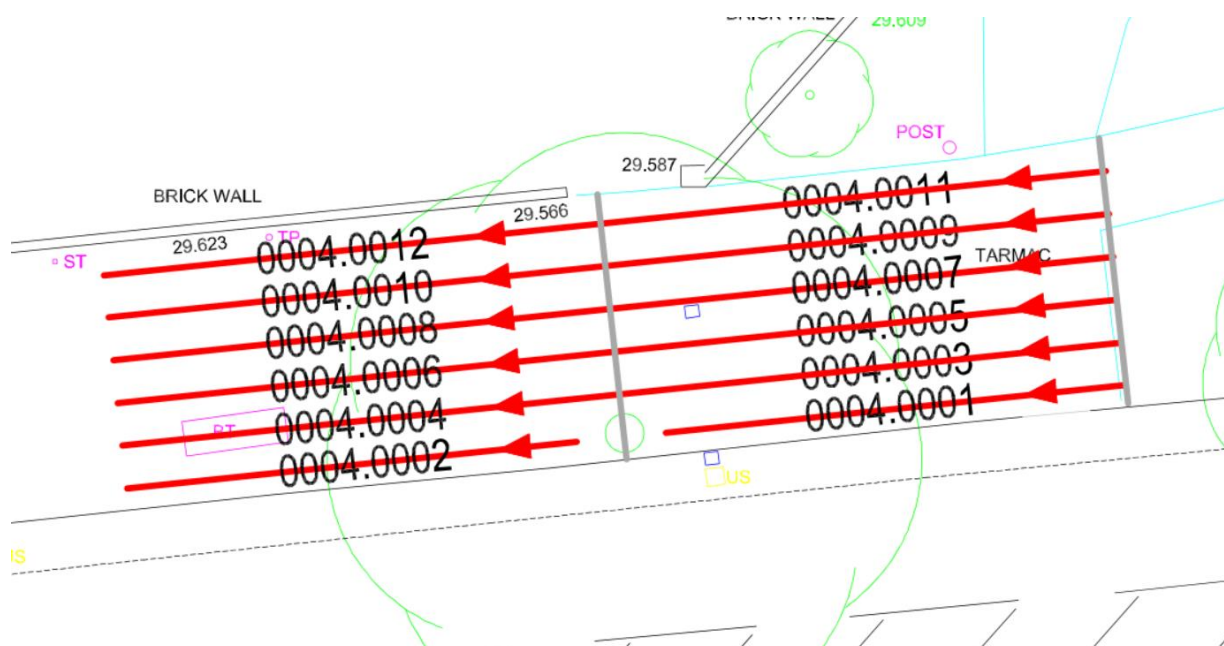


Plan 1 – extract from TRUK 0231 TR showing the survey area. Do not scale.

Red lines are the scan lines.

4. RESULTS:-

4.1. Scan lines 0004.0001-0012 – Scan lines 0004.0001-0012 form pairs of parallel lines running approximately east to west, parallel to the southern kerb line. Scan line 0004.0001 is located 0.5m from the kerb line and runs parallel to it, starting at the edge of the grass verge and running west to end 0.7m from the trunk of the subject ash tree. Scan line 0004.0002 starts 0.7m west of the trunk of the subject tree and forms a continuation of 0004.0001, ending 11.5m west of the trunk of the ash tree. Scan lines 0004.0003-00012 form pairs of lines running parallel to the kerb line, with the odd numbered lines starting level with the edge of the grass verge before stopping level with the trunk of the subject tree, before being continued by the next even numbered line, which start level with the tree and end after 11.5m. Scan lines 0004.0003-0004 are located 1.5m from the kerb, with each subsequent line located an additional 1m to the north in turn. An extract from the tree radar plan *TRUK 0231 TR* below shows the locations of the scan lines.



Plan 2. Extract from TreeRadar plan TRUK 0231 TR showing location of scan lines 0004.0001-0012. Do not scale.



Photo 2. Survey area for the odd numbered lines.



Photo 3. Survey area for the even numbered lines.

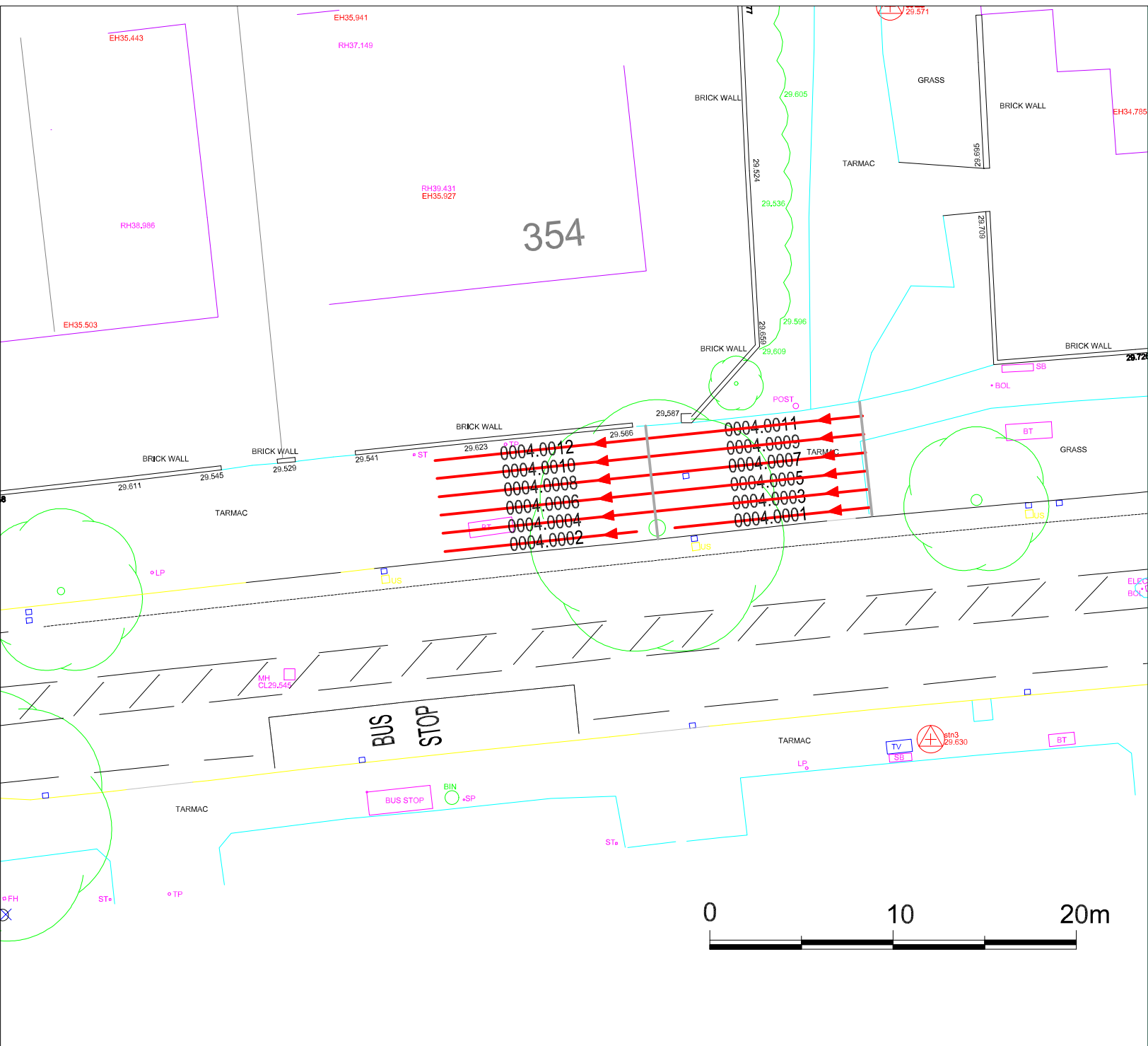
4.1.1. **Results:** Roots are initially found in moderate densities, with the density slowly falling to moderate/low and low with increased distance from the tree. The density is not uniform across the length of the scan lines, with very low density beneath the existing vehicle crossing to the field behind the properties, though this pattern is not repeated in the dropped kerb for the residential properties. Soils in this area are very different to the other soils beneath the footpath, showing a greater level of disturbance and non-root reflectors.

4.1.2. The roots are predominantly found in an unevenly distributed band between 30-140cm deep, though there are some shallower root detections, on the underside of the hard surfacing. This may be clusters of fine roots rather than individual detections, which together have sufficient mass to be detected. Such roots often grow on the underside of hard surfacing to exploit the condensation layer which forms there.

5. CONCLUSIONS:-

- 5.1. The TreeRadar unit picks up roots with a diameter greater than 20mm but does not detect smaller roots. However, where a large clump or mat of roots creates sufficient mass, this may be detected. The radar unit is also unable to determine which tree the roots are associated with, and it is the experience of the operator and arboricultural consultant to determine the most likely source.
- 5.2. The scan lines do not cover the full root protection area (RPA) of the subject tree due to physical restrictions such as the live road and the boundary wall around the properties but covers the pavement and section of dropped kerb to the front of the properties and the access to the fields behind the residential plots. This was the area highlighted as being of interest during the quotation process.
- 5.3. Within the survey data a large number of metals and non-root reflectors were found, with poorly defined soil horizons. This indicates that the soils have been significantly disturbed over time, typical of sites which may have been in use for a long period, dug up or levelled multiple times over the years, typical of the highway environment. Non-root reflectors within the data can initially provide false positives within the results, which are identified and removed by the operator during the analysis process as far as possible. This can leave false positives within the data, but not false negatives. These false positives may consist of building materials such as clay bricks and clinker or clay nodules, which are porous and retain water at higher densities than the surrounding soils. This retained water has the same radar signature as the water held within tree roots and so cannot all be disregarded.
- 5.4. The results show that the street tree is rooting in moderate density, with the density falling with increased distance from the tree to low density. This shows that although at low density, this is still a significant rooting beyond the RPA to the north west of the survey area.
- 5.5. The results also show that the rooting densities of the tree is much lower beneath the existing field vehicle crossing, and that soils here have seen a greater level of disturbance. The effect of this on the root distribution is best shown on the root density plan in section 6. This effect may be a result of historic use, heavier vehicles using the crossing, or compaction of the soils from vehicles previously using an unreinforced vehicle crossing.
- 5.6. The final design and layout of any proposed development, the depth of any excavations, along with the working methodology are not known at the time of writing this report, however, co-operative use of the results between the arboricultural consultant and the design and construction teams will minimise the impact of the development upon the subject tree and increase its chances of being successfully retained and protected within the scheme.

6. APPENDIX 1 – TREE RADAR PLAN TRUK 0231 TR AND TREERADAR RESULTS PLAN TRUK 0231 TRR



Please refer to full arboricultural report for details

0006.0001

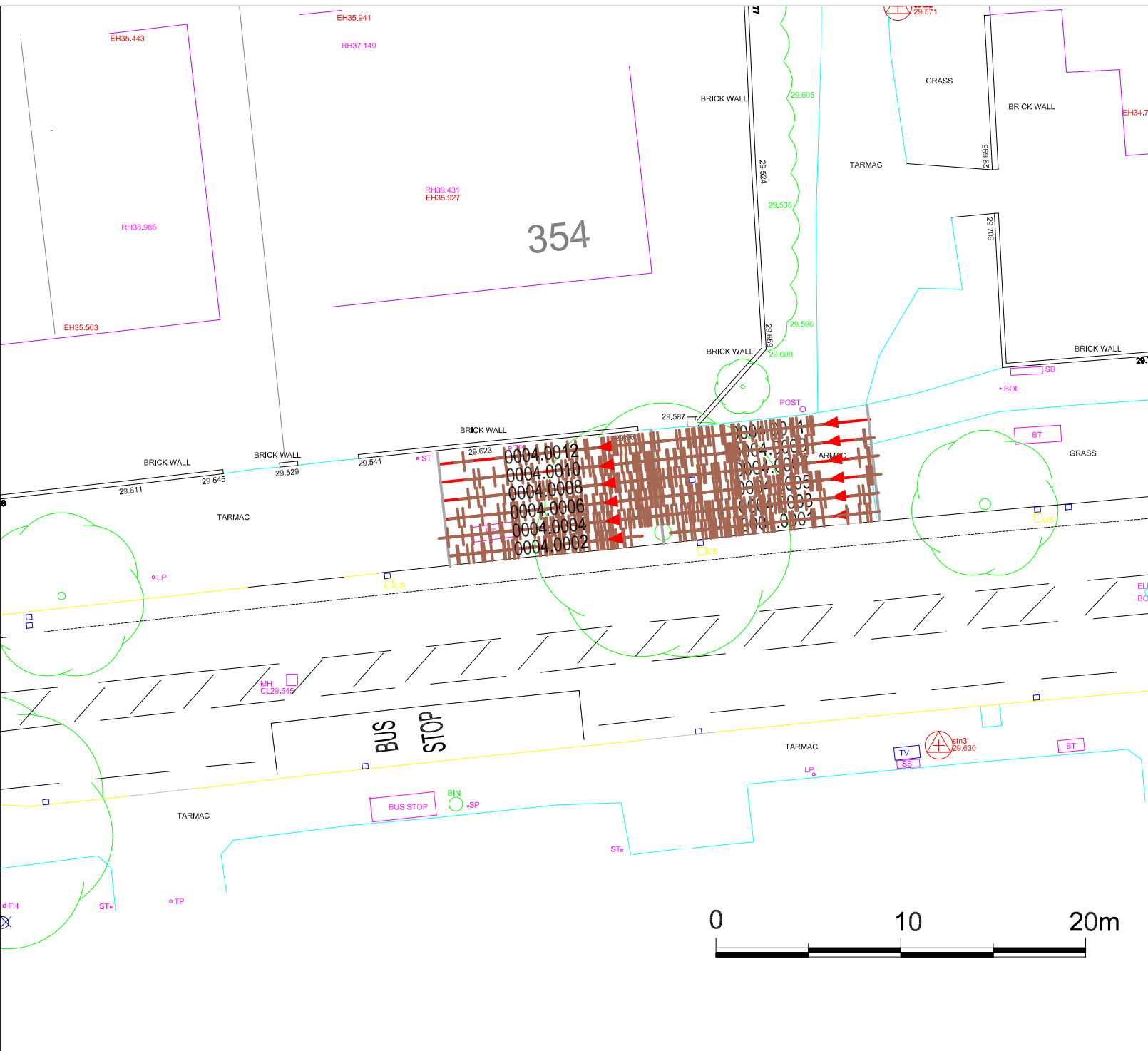
▶ Scan lines and direction
 — Scan line start and end

Rev :	Description :	Authorized :



Tree Radar UK Ltd
 t: 01622 435929
 www.treeradaruk.com

Client	Orientation	Drawn	Authorized
Anwyl Construction Co Ltd	IL	KL	
Site Address	Drawing Number	Scale	Drawing Status
354 Wilbraham Road, Manchester, M21	TRUK0231 TR	1:200@A3	For Issue
Drawing Title	Date		
Tree Radar Plan	09.08.2022		



Please refer to full arboricultural report for details

0006.0001

- Scan lines and direction
- Scan line start and end
- Detected roots with a diameter greater than 20mm

Rev : Description : Authorized :



Tree Radar UK Ltd
t: 01622 435929
www.treeradaruk.com

Client

Anwyl Construction Co Ltd

Site Address

354 Wilbraham Road,
Manchester, M21

Drawing Title
Tree Radar
Results Plan



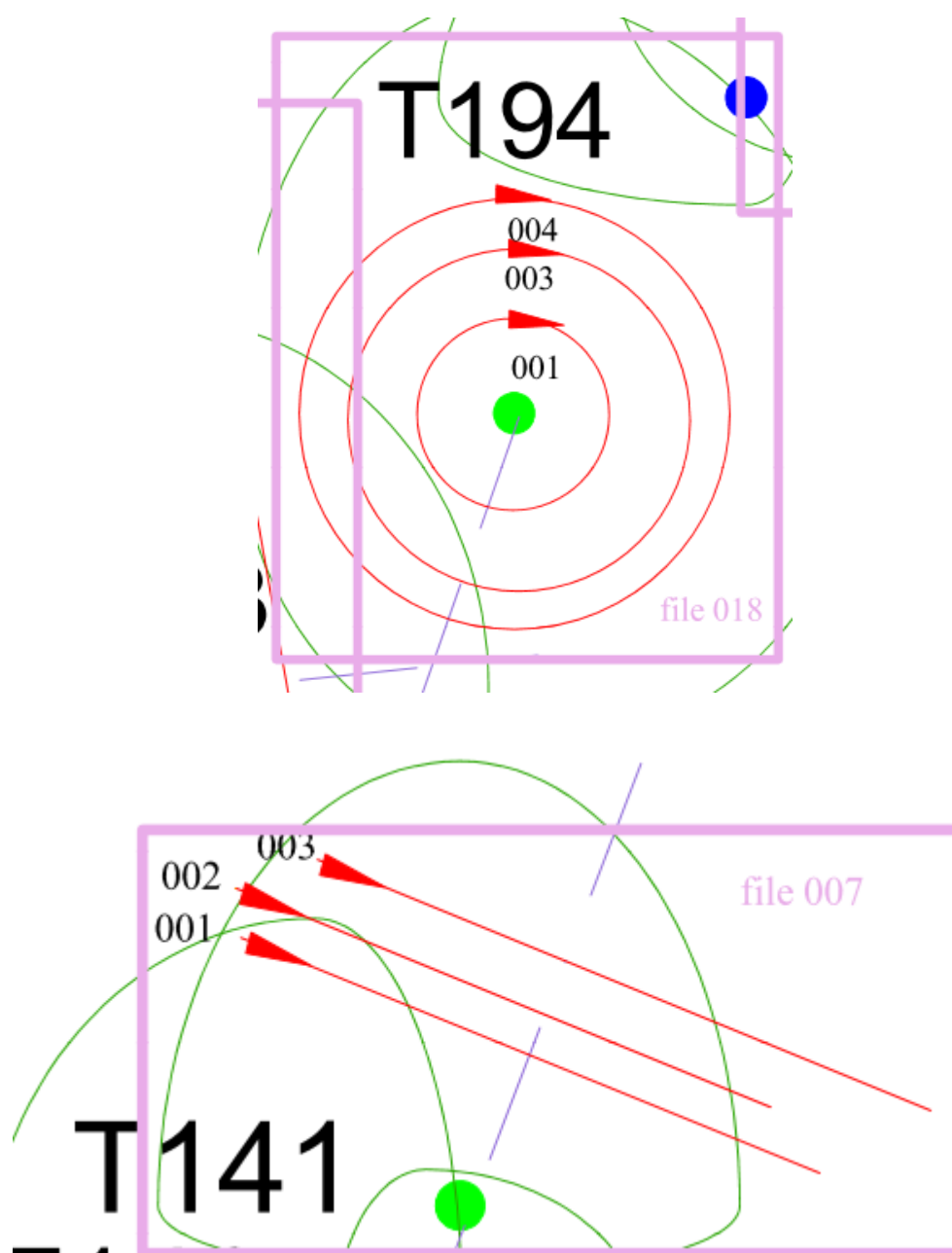
Drawn
IL
Authorized
KL

Date
09.08.2022
Drawing Number
TRUK0231 TRR
Scale
1:200@A3
Drawing Status
For Issue

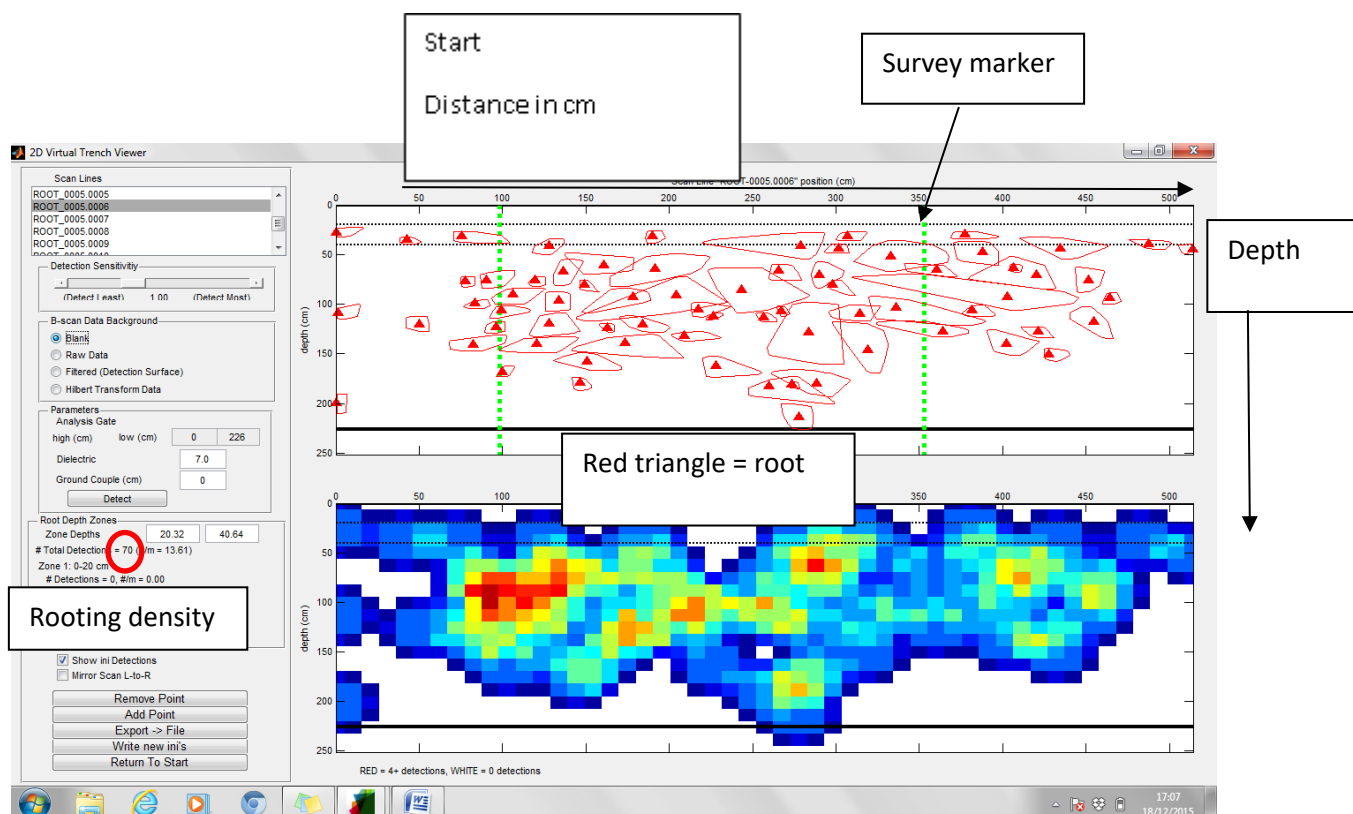
7. HOW TO READ THE SCAN LINES

The results are shown as a top-down view (plan), and a cross section of each scan line. This is an extract of the plan, a scaled copy of which is found at appendix 1. The plan extracts in appendix 7 are not to scale. The locations of the scan lines are based on the plotting from the survey, and the length of the line on the plan by the exact length of the scan. Circular scans are clockwise, starting on the northern side of the tree and are at 1m intervals unless otherwise shown.

Scan lines are shown red, with the direction by red arrows. Each scan line has a scan number. An example from a different site is shown below.



The cross section of each scan line shows where the roots are in relation to depth and distance. The coloured splodges are root density (relative to the scan area). An example is shown below:

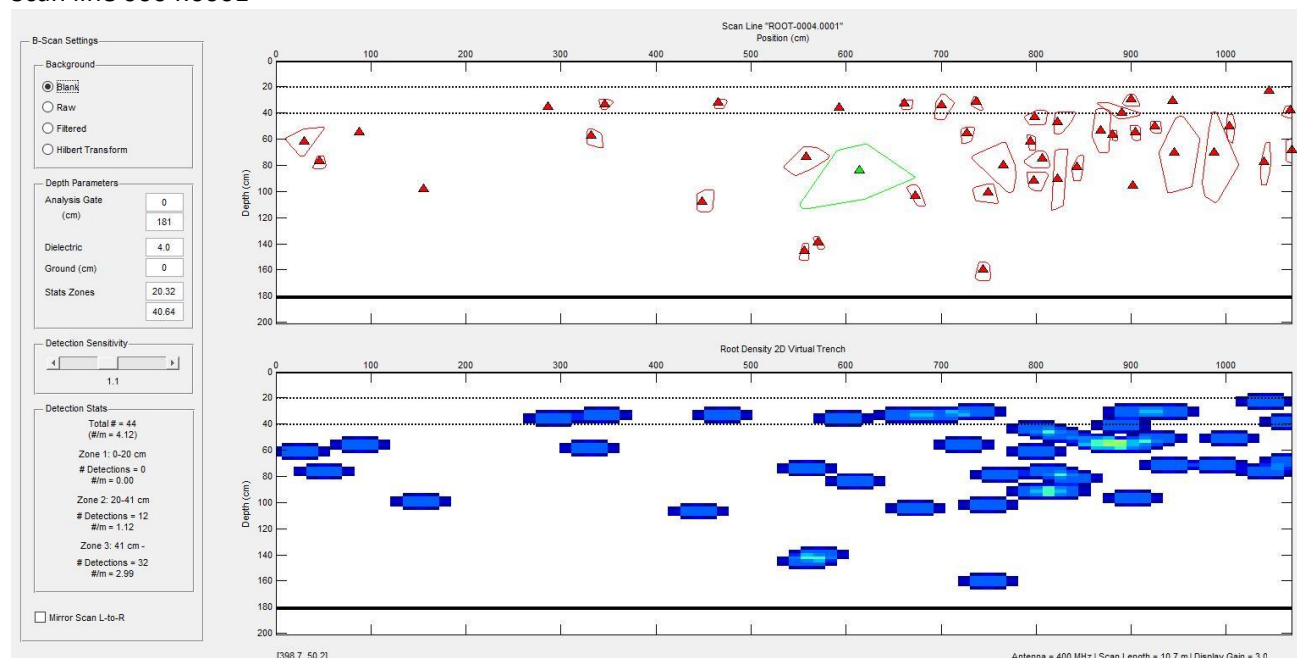


Polygons around the root detections are early attempts at root diameter, however, these are not particularly accurate currently as they can be influenced by the angle at which the scan crosses the root as well as smaller roots adjacent to the larger detection. Blue polygons are regions of very high mass detections such as very large roots or large regions of rooting activity.

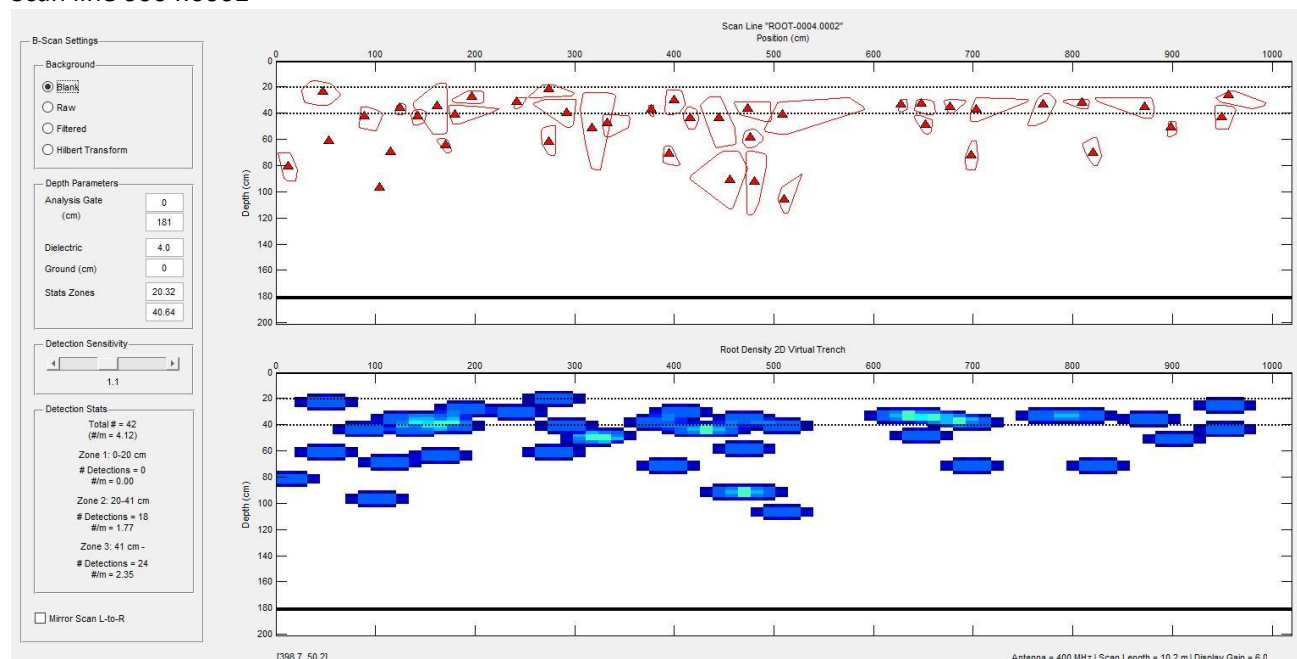
8. INDIVIDUAL SCAN LINE RESULTS

SCAN LINES 0004.0001-0012

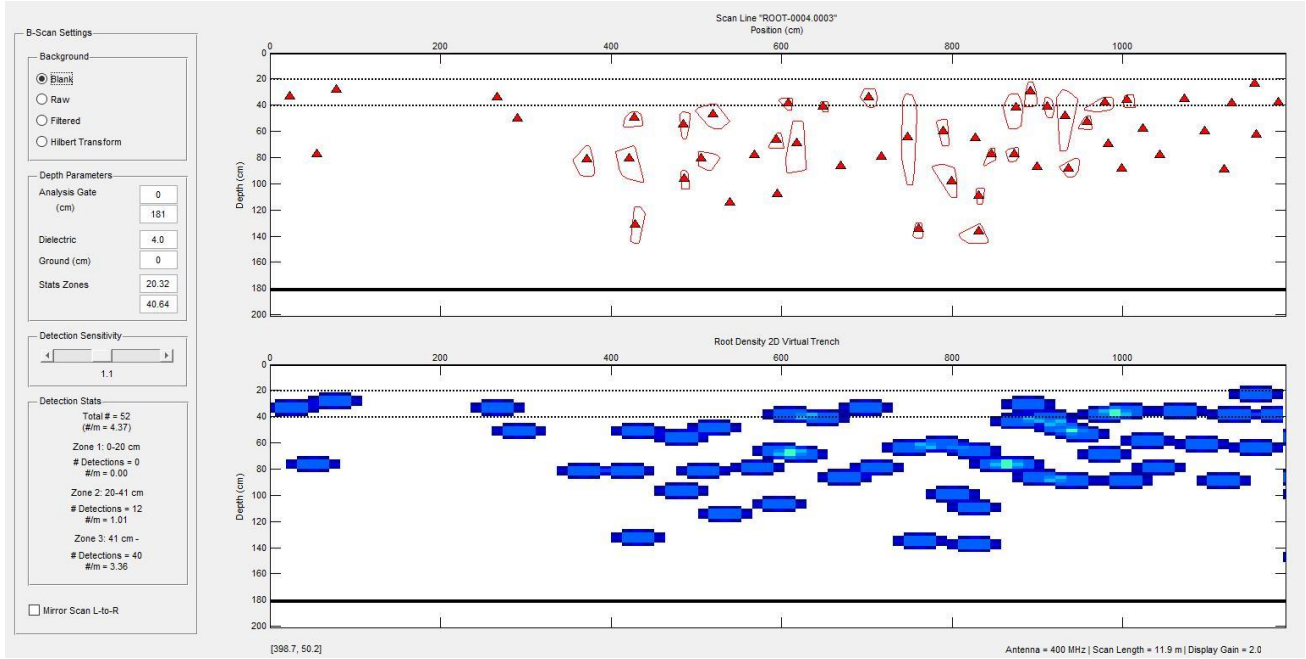
Scan line 0004.0001



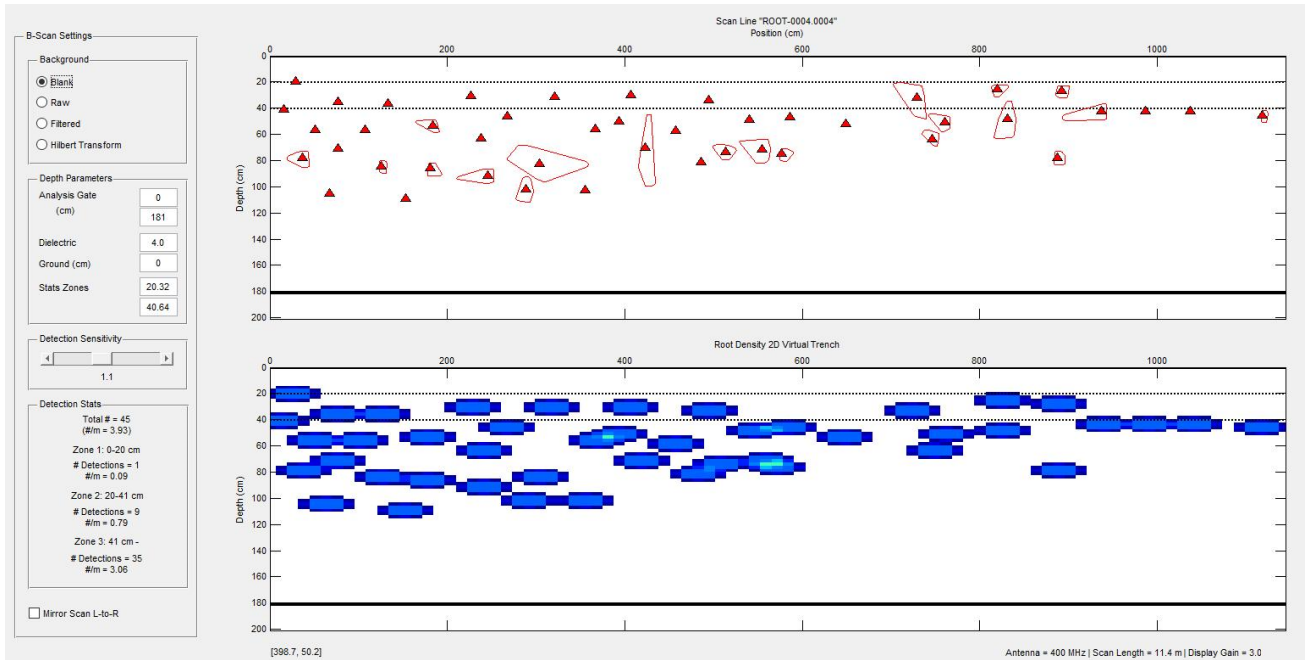
Scan line 0004.0002



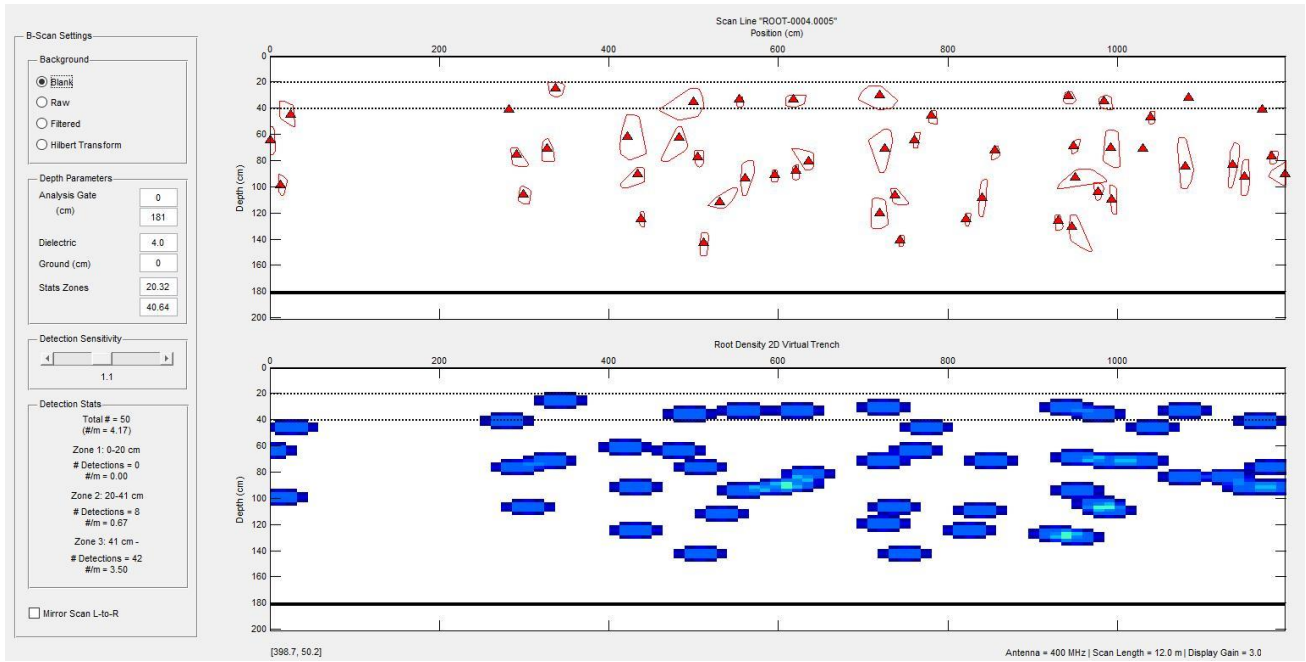
Scan line 0004.0003



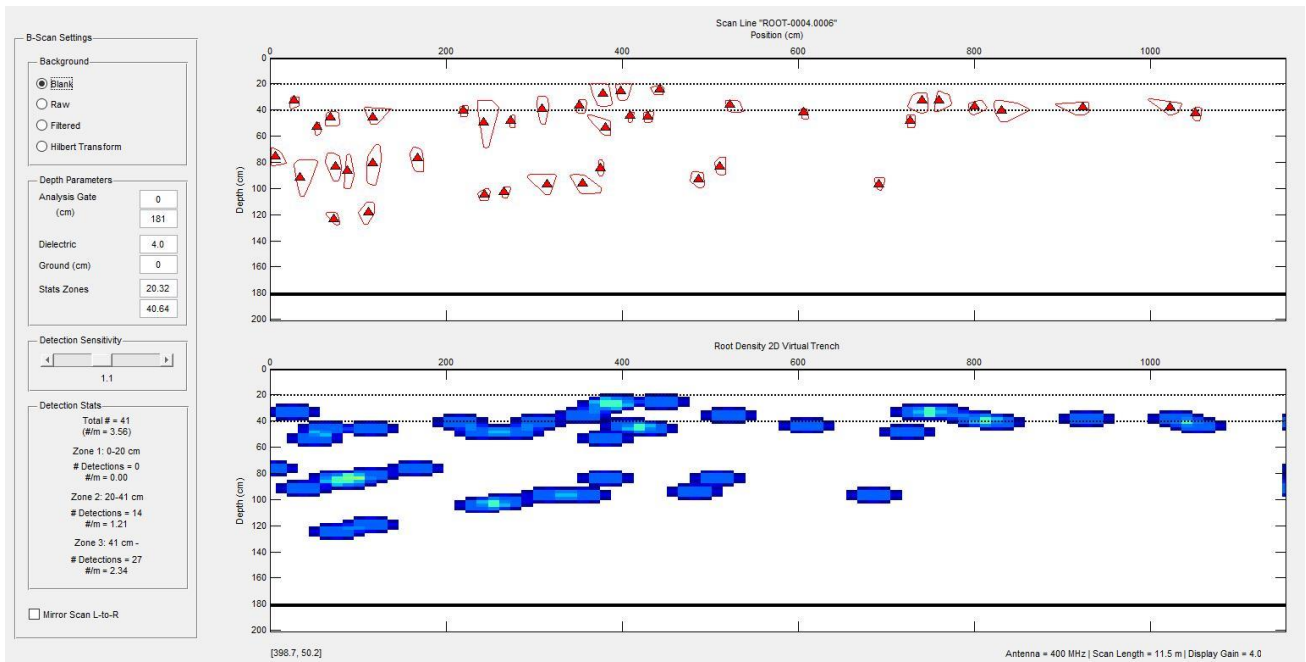
Scan line 0004.0004



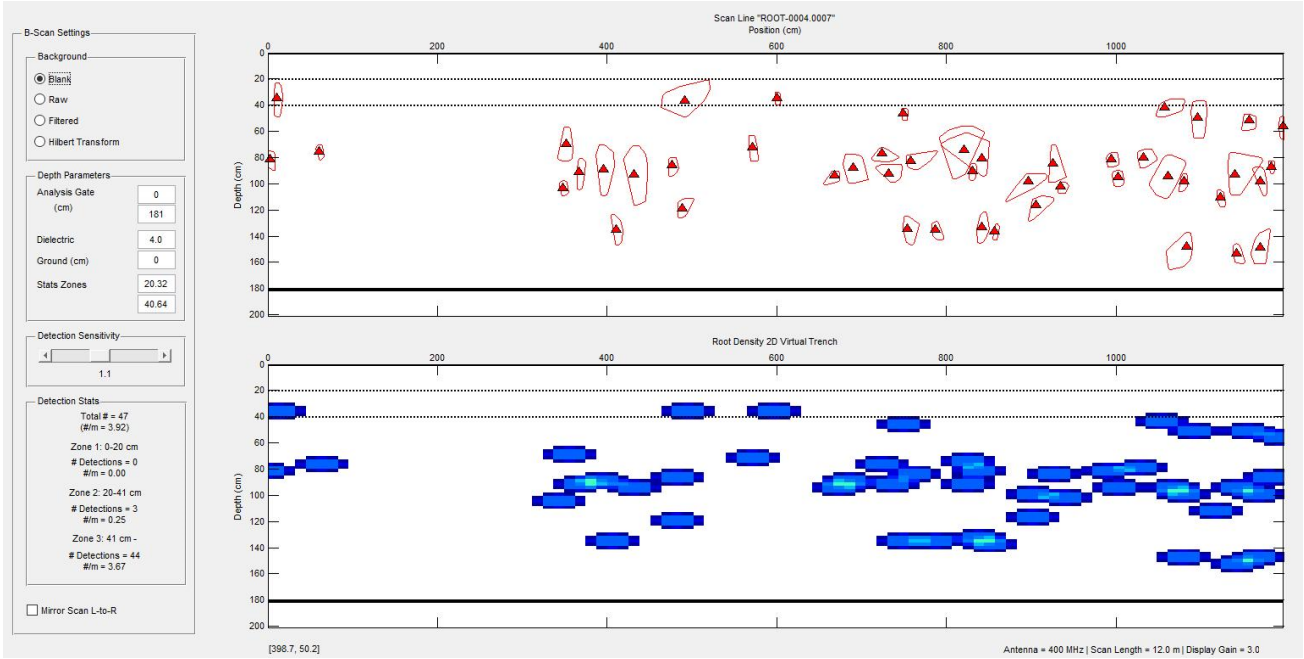
Scan line 0004.0005



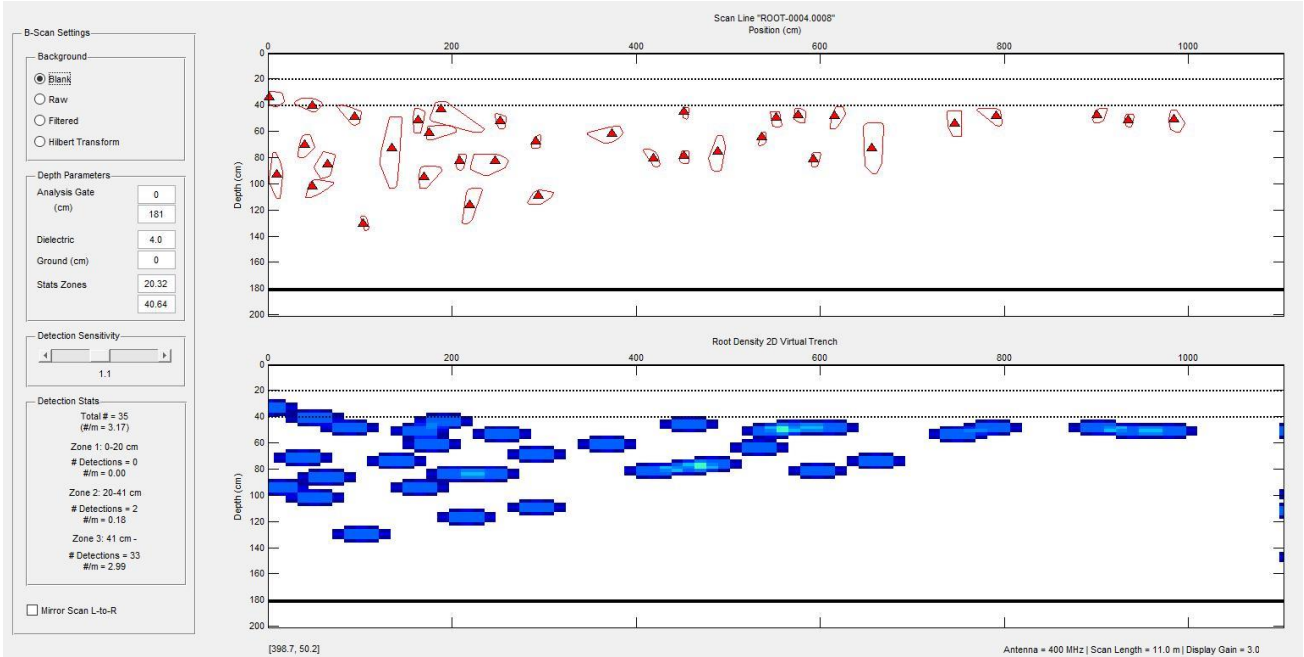
Scan line 0004.0006



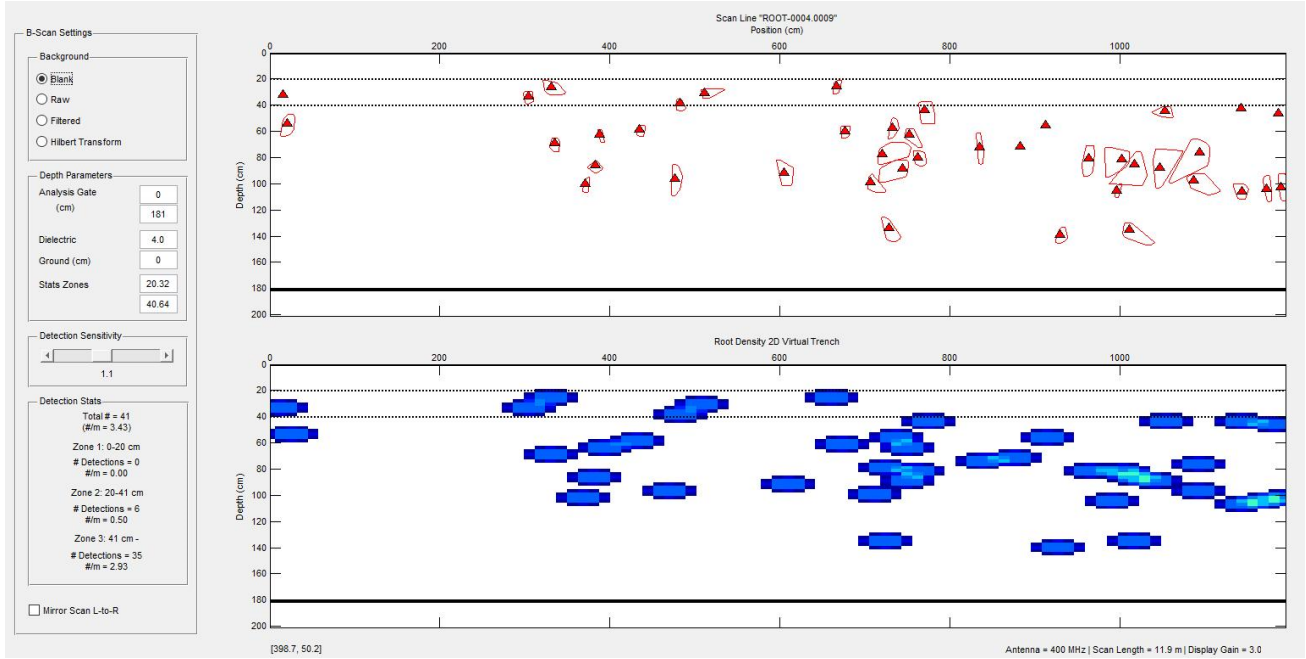
Scan line 0004.0007



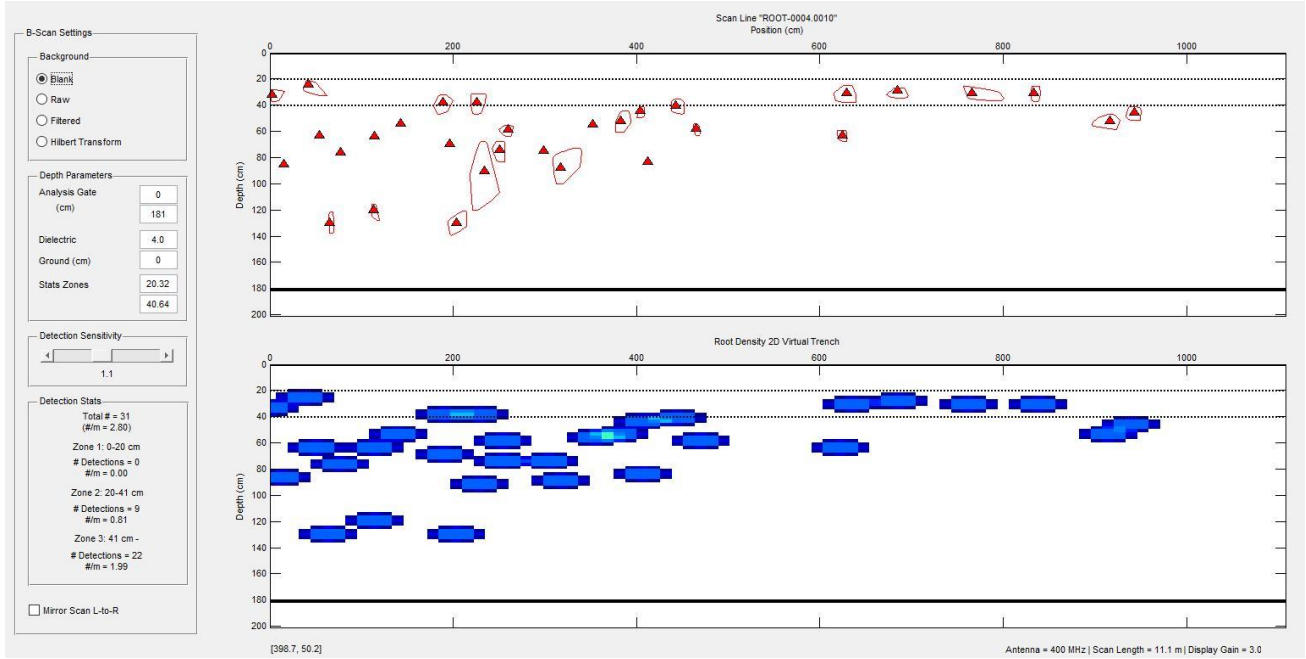
Scan line 0004.0008



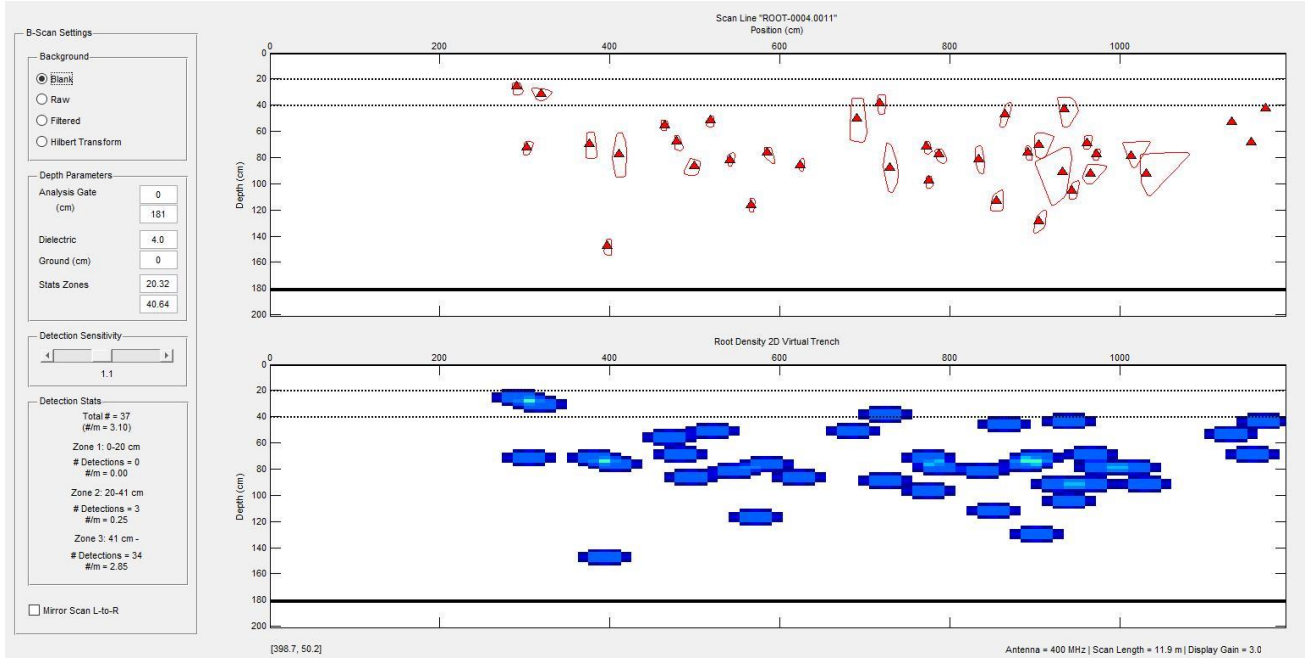
Scan line 0004.0009



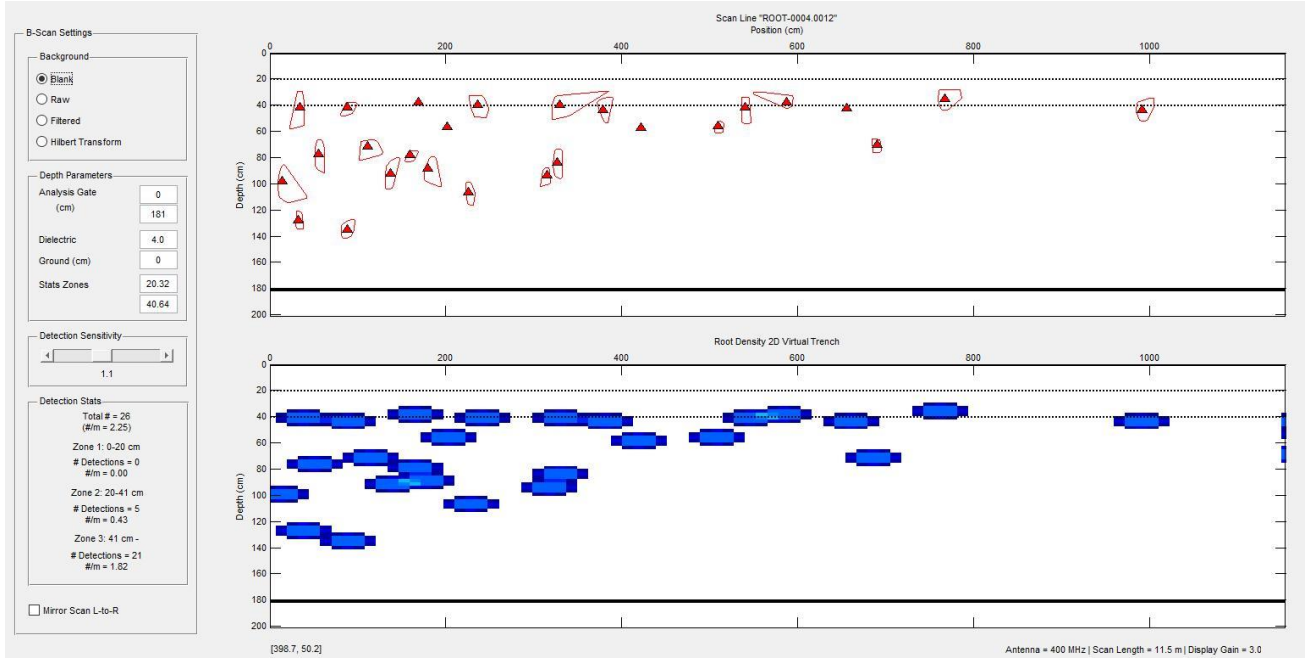
Scan line 0004.0010



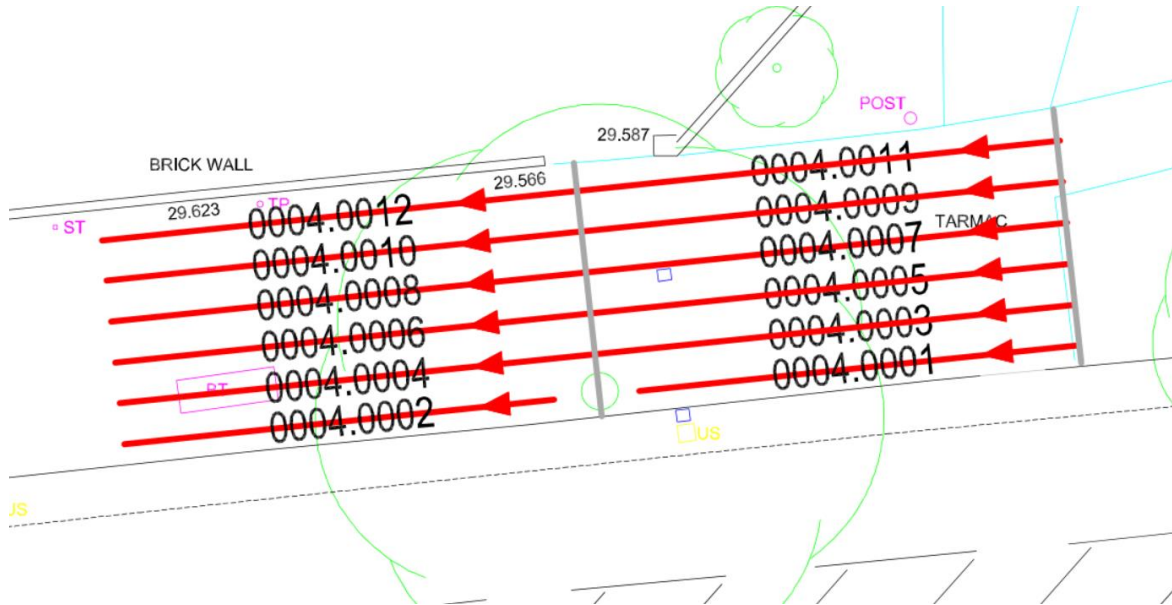
Scan line 0004.0011



Scan line 0004.0012

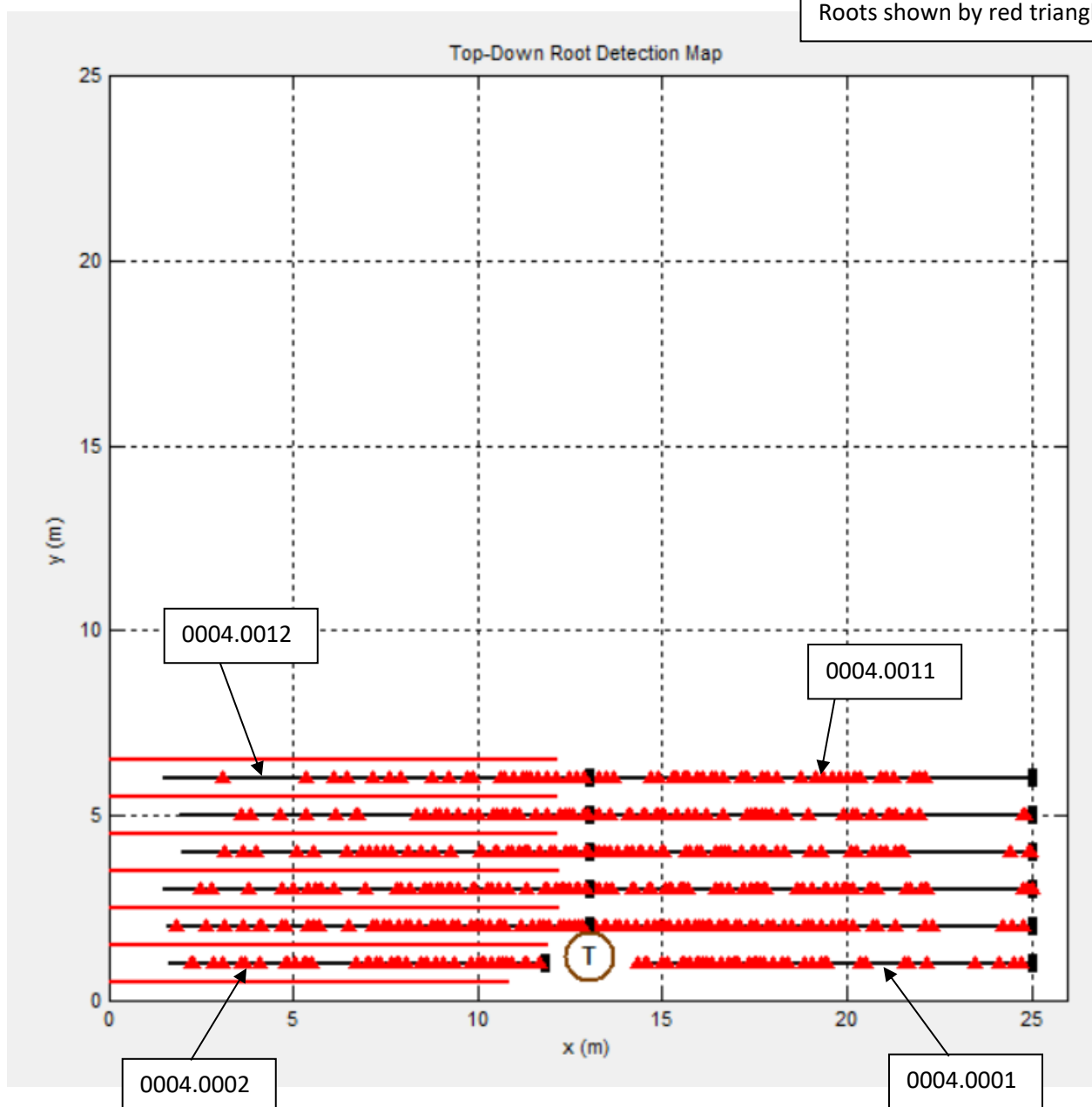


SCAN LINES 0004.0001-0012 – LOCATIONS (DO NOT SCALE)



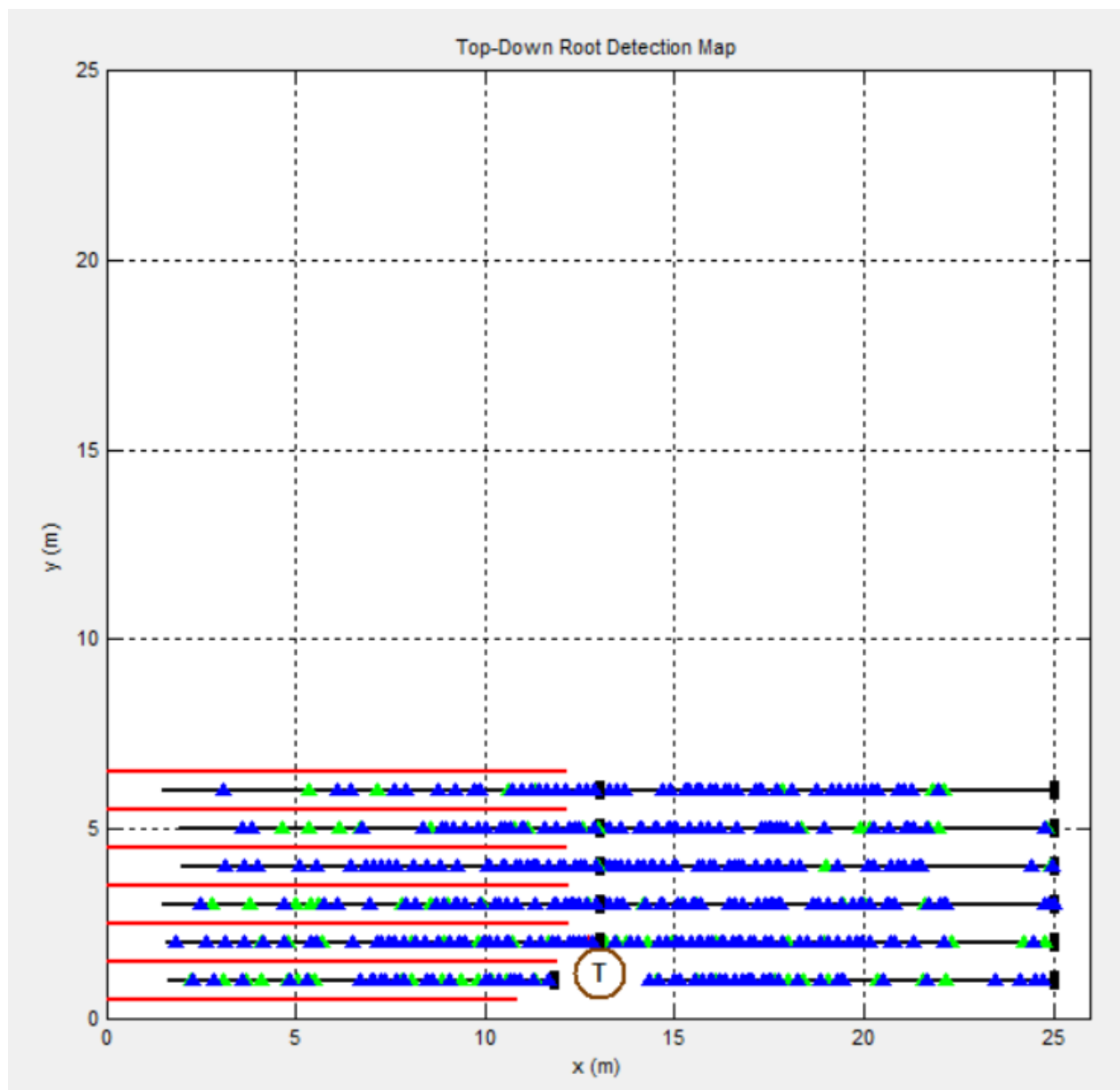
SCAN LINES 0004.0001-0012 – ROOTS (WITH A DIAMETER GREATER THAN 20MM) AT ALL DEPTHS

Roots shown by red triangles



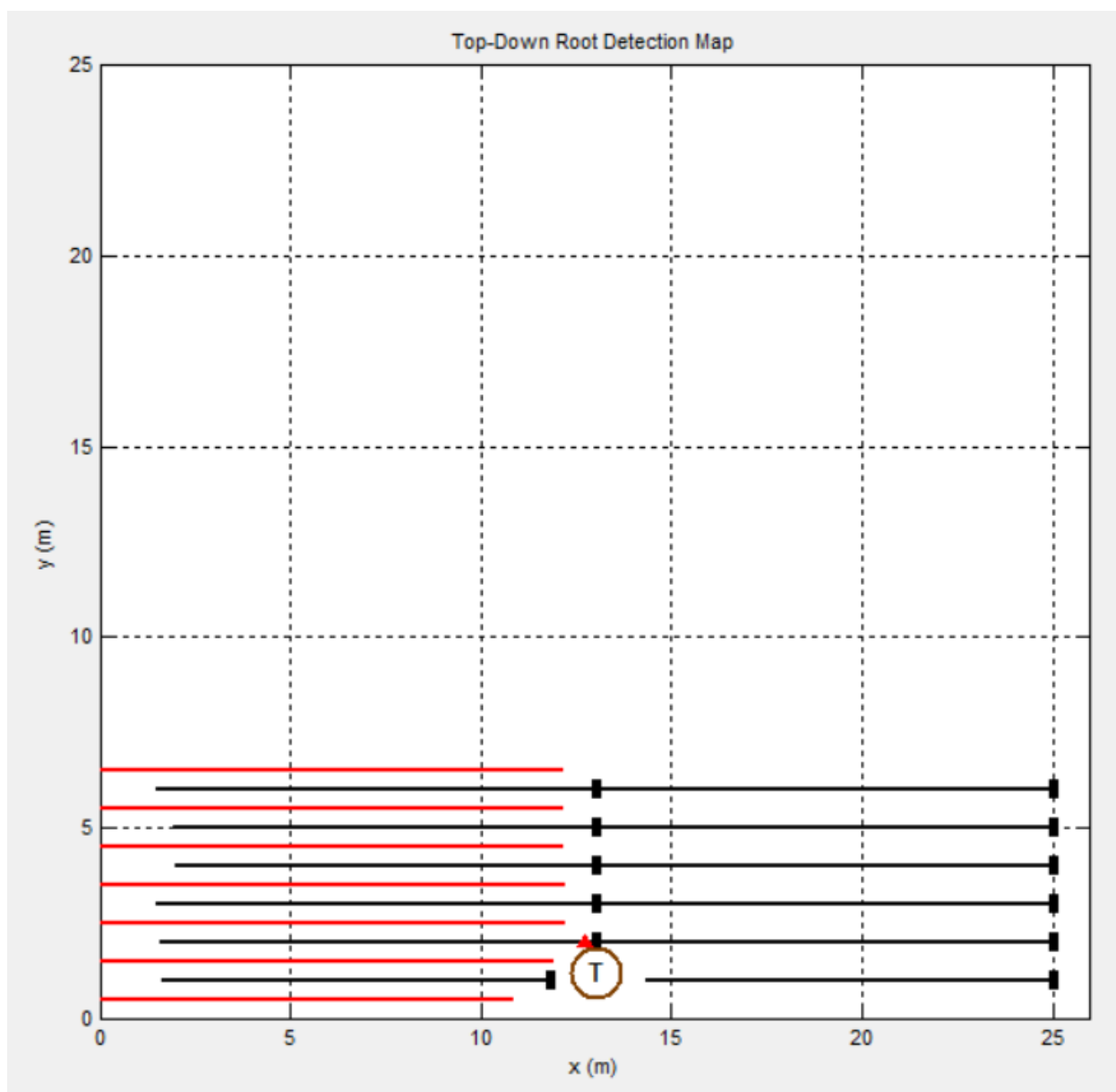
SCAN LINES 0004.0001-0012 – ROOTS (WITH A DIAMETER GREATER THAN 20MM) AT ALL DEPTHS

RED = 0-20cm GREEN = 20-40cm BLUE = 40-250cm



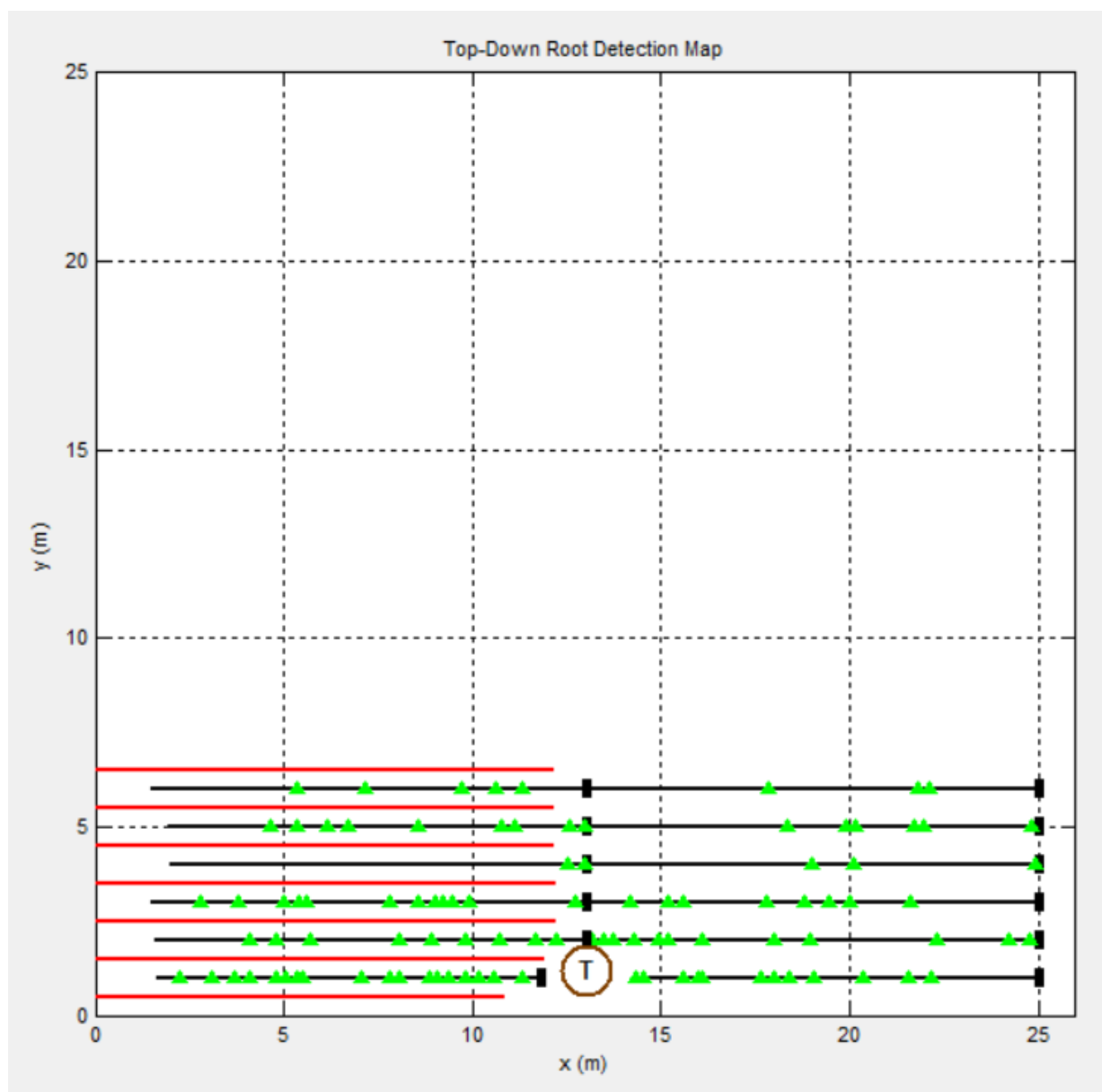
SCAN LINES 0004.0001-0012 – ROOTS (WITH A DIAMETER GREATER THAN 20MM) AT DEPTHS

RED = 0-20CM



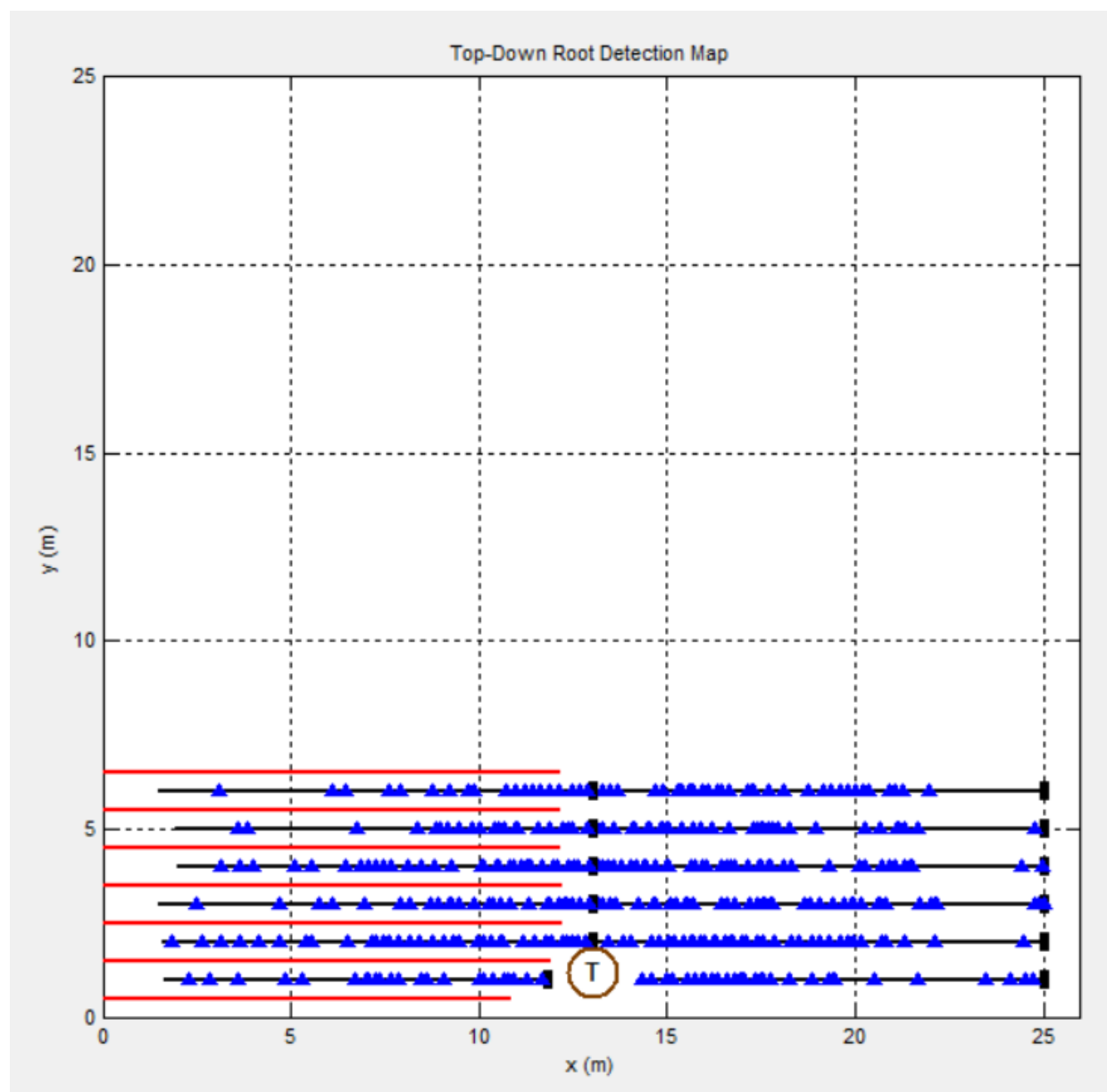
SCAN LINES 0004.0001-0012 – ROOTS (WITH A DIAMETER GREATER THAN 20MM) AT DEPTHS

GREEN = 20-40cm



SCAN LINES 0004.0001-0012 – ROOTS (WITH A DIAMETER GREATER THAN 20MM) AT DEPTHS

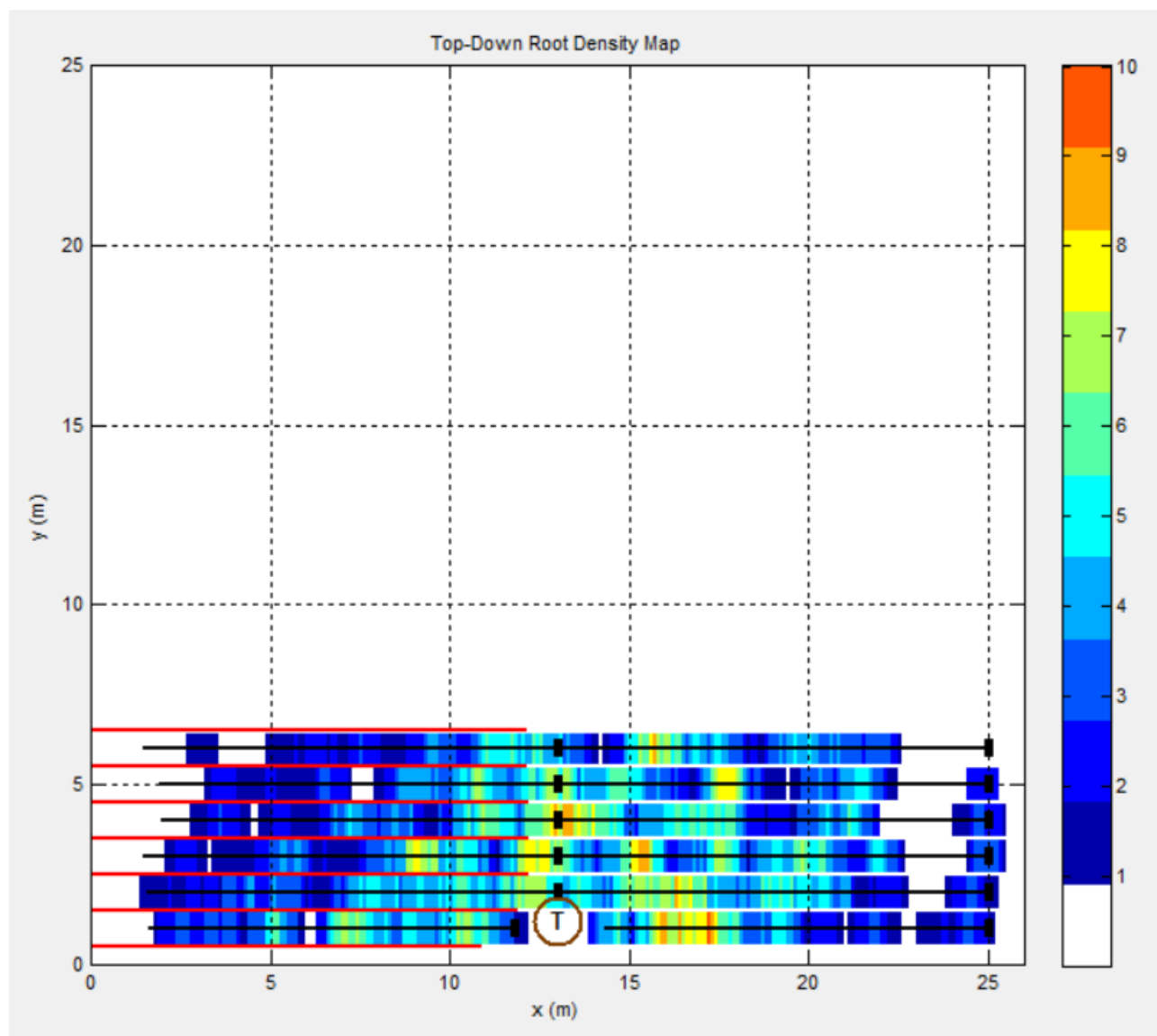
BLUE = 40-250cm



SCAN LINES 0004.0001-0012 – ROOTS (WITH A DIAMETER GREATER THAN 20MM) AT ALL

DEPTHS - DIAGRAMMATIC REPRESENTATION OF ROOT DENSITY.

RED = RELATIVELY HIGH, BLUE = RELATIVELY LOW



9. CAVEATS & EXCLUSIONS: -

Specific report caveats

1. The survey is concerned solely with TreeRadar.
2. Any changes in ground level, or excavations near to tree roots not discussed within this report may change the stability and condition of the trees and a further examination would be required.
3. As trees are a dynamic living organism this report is only valid for a period of 12 months, in respect to their health and condition.
4. Only the trees and areas listed in this report have been examined by TreeRadar.
5. All arboricultural issues other than tree roots in the area covered specifically within this report are outside the remit of this report and should be assessed by the project arboricultural consultant.
6. Scanning conditions were relatively straight forward, with few obstructions. In much of the site there were a large number of non-root reflectors and metal found within the results, which were filtered out of the data as far as was reasonably practical. This may slightly affect the accuracy of the results, but we are experienced at looking at data in these situations.

10. BACKGROUND and STATEMENT OF METHODOLOGY

A TreeRadar investigation was carried out by Ian Lee on 3rd August 2022. The locations of the scan lines are found at appendix one, drawing reference *TRUK 0231 TR*, and the results are found in the report at section 4. The location of the scan area was identified by Jack Jewell of Tyler Grange during the initial quoting process.

The individual scan lines were measured from the tree and/or other fixed points. Photographs were taken and the lines plotted on a plan and described in survey tables. Each group or individual tree (as appropriate) has a unique file number (e.g., 0005) and each scan within that file has a unique reference number (e.g., 0002). The lines are shown on a digital plan.

The TreeRadar unit is a scanning cart with a 400MHz antenna which sends a beam every 1cm down to a depth prescribed by the operator (usually between 2 - 3m, which is the maximum depth). The reflection is recorded in a field computer and then analysed by the latest software, TBA. Water and metal reflect, therefore the machine records live roots which contain moisture, and cannot detect dead, dried out roots. For each scan line a 'virtual trench' is produced which shows all roots with a diameter greater than 20mm. The machine cannot determine root diameter, other than it being greater than 20mm, due to the lack of correlation between the amounts of live root tissue in a root compared to the thickness of a roots. For example, a large root may only have a live central core.

For each group of roots, the scans are organized into a 'top down' root morphology plan which is to scale.

Documents received

- S22-205 Topographical Survey 2D

11. MY EXPERIENCE & QUALIFICATIONS: -



PROFILE: **Ian Lee**

MICFor MArborA BSC (Hons) Tech Cert (Arbor A)

Ian has sixteen years' experience as an arboricultural consultant in the private and public sector. Ian is a professional member of the Arboricultural Association and has a degree in Forestry. Ian has considerable expertise in problem solving in relation to trees and the planning process and complex construction issues.

Ian has a deep understanding and knowledge on the operation and interpretation of TreeRadar © and has carried out two research and development visits with Sharon Hosegood Associates in 2016. This research is to be continued with international colleagues when travel restrictions allow.

Ian has managed a team delivering volume tree surveys and has produced woodland management plans.

Specialities

- Trees in relation to development, including appeals and planning hearings
- Tree root investigations, including TreeRadar©
- Tree hazard evaluation
- Tree preservation orders
- Manager of volume tree surveys

Professional bodies:

- Chartered member of the Institute of Chartered Foresters (ICF)
- Professional member of the Arboricultural Association

Qualifications:

- Arboricultural Associations Technicians Certificate
- BSc (Hons) Forestry and Forest Products
- Lantra Visual Tree Assessment



Tree Radar UK Ltd

Root Investigation by TreeRadar

SITE

354 Wilbraham Road

Manchester

M21

CLIENT

Anwyl Construction Co Ltd

Ian Lee

MICFor MARborA BSC (Hons) Tech Cert (Arbor A)
Chartered Arboricultural Consultant

DATE: 11.08.2022

OUR REF: TRUK 0231

CONTACT DETAILS: 01622 435929

ian@treeradaruk.com

Tree Radar UK Ltd
www.treeradaruk.com

Appendix 6: Proposed Site Plan





Proposed Colour Layout

Detailed Planning Application

Drawing Number : APD/AH158/PL01
Revision : F
Date : 13/10/2022
Scale/Sheet Size : 1:500/A1

URBAN
DESIGN
GROUP

ANWYL
thoughtful homes



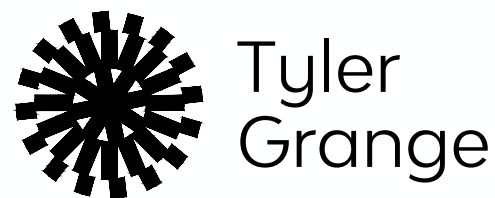
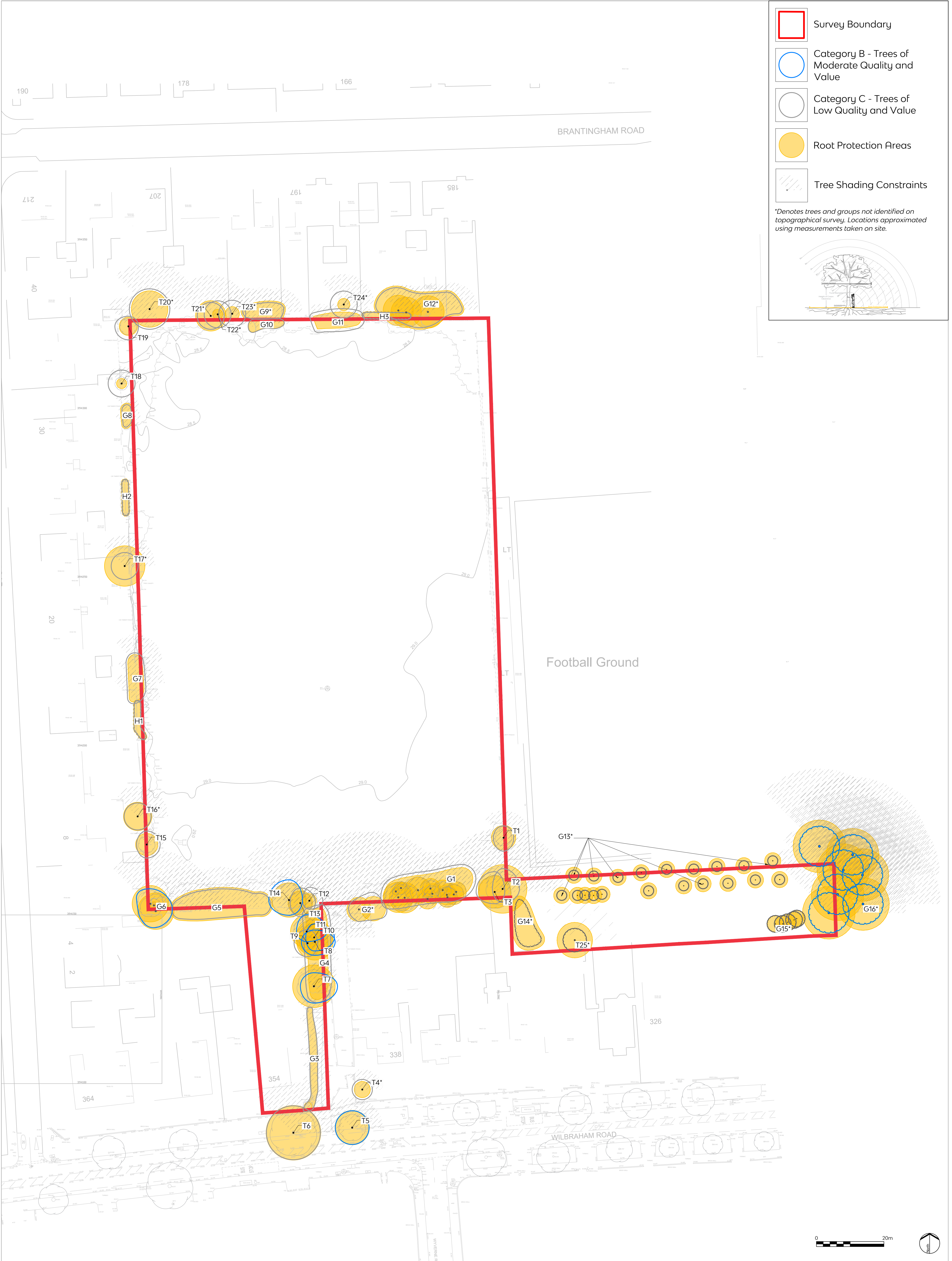
Plans:

Plan 1: Tree Constraints Plan (TCP), (14807/P01a)

Plan 2: Tree Retention and Removal Plan (TRRP), (14807/P03b)

Plan 3: Tree Protection Plan (TPP), (14807/P04a)





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Cirencester, Gloucestershire GL7 7EX
E: info@tylergrange.co.uk
W: www.tylergrange.co.uk

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A Rev Site Boundary Update
Description

13/10/2022
Date

Project title
Land off Wilbraham Road, Chorlton

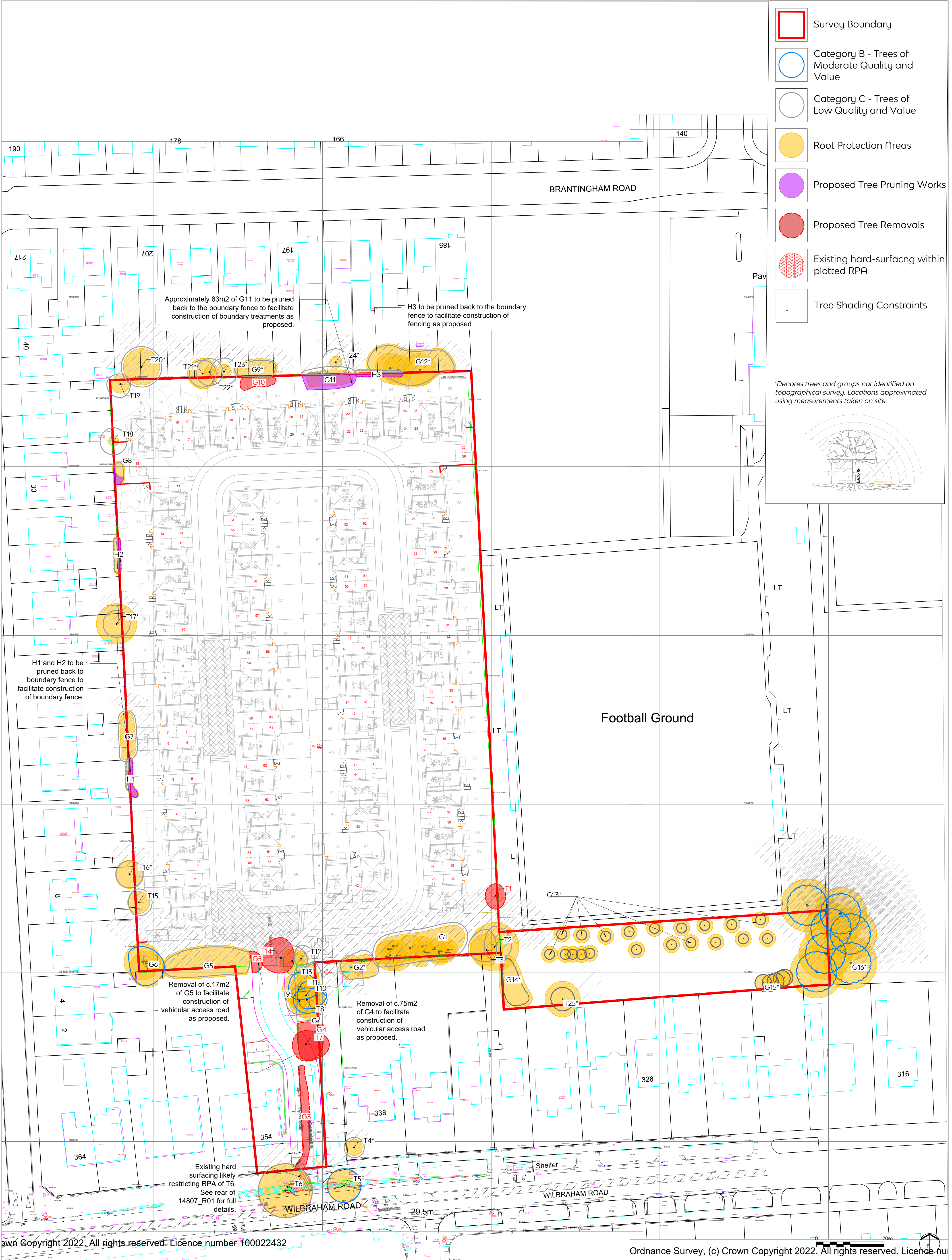
Drawing title
Tree Constraints Plan

Scale Date
1:500 @ A1
04.04.2022

Drawing number
14807_P01

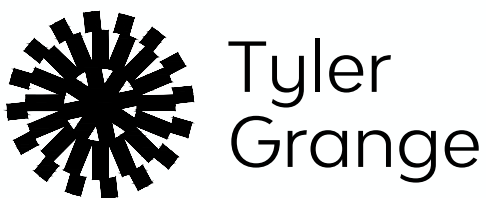
Drawn Checked
SH/LB
JJ

Revision
A



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B Rev Access Changes
Description

24.11.2022
Date

Project title
Land off Wilbraham Road, Chorlton

Drawing title
Tree Retention and Removal Plan

Scale Date 1:500 @ A1
08.10.2022

Drawing number
14807_P03

Drawn Checked WS
LB

Revision
b

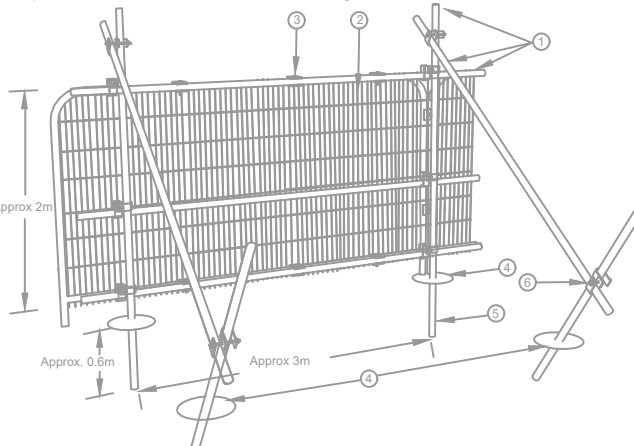
 TREES AND HEDGEROWS TO BE RETAINED AND PROTECTED

-  **ROOT PROTECTION AREAS (RPAs):**
- Signifies the area to be protected from damage / disturbance during the course of construction works

FULL TREE PROTECTION FENCING:

- 7. FULL TREE PROTECTION FENCING:**
- Tree protection barriers will be installed to prohibit access into areas around the tree, that require protection from construction activity, such as trees, trunks and branches.
- Tree protection barriers will be fully installed before the arrival of any ground or demolition/construction activity on-site. Except where stated in this ARS, tree protection barriers will remain in place for the duration of the development.
- The locations of tree protection fencing is shown on the Tree Protection Plan.
- Tree protection fencing will consist of the default specification recommended within BS5837:2012, comprising a scaffold framework, well braced to resist impacts, with vertical tubes spaced at a maximum of 2m and 1.8m high.
- Special attention is essential in maintaining the protective barriers during the development, ensuring that it remains rigid and complete as well as for the purpose intended. To avoid disturbances to the protective barriers once installed, they will be inspected frequently. Repairs shall be made immediately where required.
- Tree protection barriers will be marked with words such as Construction Exclusion Zone - No Access
- Temporary repositioning of tree protection fencing will be required to access construction works within the RPAs as illustrated below. The repositioning of barriers must only take place once the works are imminent. Following completion of the works within the RPAs, the barriers will be placed by to their original position. Barriers do not need to be repositioned back to their original location following completion of the works.

Specification for Full Tree Protection Fencing



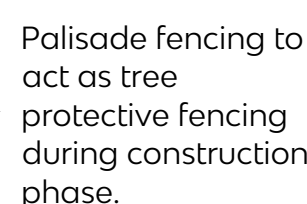
- ① Standard scaffold poles
- ② Heavy gauge 2m tall galvanized tube and welded mesh infill panels
- ③ Panels secured to uprights and cross-members with wire ties
- ④ Ground level
- ⑤ Uprights driven into the ground until secure (minimum depth 0.8m)
- ⑥ Standard scaffold clamps

NO-DIG SURFACING WITHIN RPA8

- A no-dig surface is required within the RPA's of Tires T11 and T13. A no-dig solution will require that only turf layers and other vegetation need to be removed from the surface as the system does not require minimal excavation into the soil, therefore avoiding damage to tree roots.
- Construction will need to be undertaken by hand and with care so as not to disrupt the ground condition within the RPA.
- Tree protection barriers will be installed to facilitate access for the construction work.
- Ground protection will be laid to protect any exposed area of RPA which are to remain unsurpassed.
- The surface will still use a "no-dig" method in accordance within the manufacturers specifications (see example below).
- A separate fabric Geotextile fabric will be laid directly onto the ground as a separation and filtration layer. The fabric will also act as a pollution control layer to protect the soils beneath. Angular stone will be laid over the fabric to provide a firm surface for the vehicle. The subsoil construction system will then be laid to the required load bearing specification (typically between 75mm to 200mm - strictly as per the manufacturer's specification) and fitted with the same stone as infill to provide a load-bearing and permeable structure suitable for vehicular or pedestrian use.
- The surface will be created using a porous material and granular wear course/sub-base system, retained by non-invasive edging.

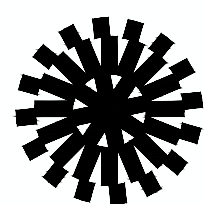
SENSITIVE EXCAVATION WITHIN RPAS:

- POSITIVE EXCAVATION WITH RPAS:**
- Excavation within the RPAs will be carried out using hand-held tools or by compressed air displacement / vacuum;
 - All works must be carried out under direct supervision of an appropriately qualified Arboriculturalist;
 - A light weight machine will only be used where practical and at the discretion of the supervising Arboriculturalist (typically for the displacement hard surfacing and imbedded rocks/tumble);
 - For trench excavations, the RPAs will be clearly pruned back using a suitable sharp hand tool;
 - For light excavations, roots will be retained by spanning the trench with services fed beneath where practicable;
 - Roots found over 25mm and where occurring as bumps will not be immediately pruned back, the appointed supervising Arboriculturalist will record the size and nature of the root, determine its clearance to free health, and implement the appropriate pruning procedures accordingly;
 - Exposed roots will be covered with top soil or a hessian sack to avoid root desiccation;
 - Exposed roots to be retained as part of the construction will be supported by sharp sand;
 - Due to the highly alkaline leachate produced during the curing of wet concrete, concrete should not be poured within the RPA unless an impermeable liner has been installed. Holes must therefore



Sewer records indicate existing drainage, and it has been indicated on the records that it is abandoned, it is advised that more investigation be done to identify exactly what it is and if it is redundant or not.

Existing hard surface to be removed and replaced - sub base to be left in situ and augmented where required



Tyler
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Project title
Land off Wilbraham Road, Chorlton

Drawing title
Tree Protection Plan

Scale	1:500 @ A1
Date	10.11.2022

Drawing number
14807_P04

Drawn	WS
Checked	XXX

Revision
a

a	Access Changes	24.11.2022
Rev	Description	Date



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