WEST CAMBRIDGE

OUTLINE PLANNING APPLICATION

ENVIRONMENTAL STATEMENT ADDENDUM _ VOLUME 3

TECHNICAL APPENDICES

UNIVERSITY OF CAMBRIDGE

SEPTEMBER 2017

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Document History

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EIA Quality Mark

This Environmental Statement and the Environmental Impact Assessment (EIA) carried out to identify the significant environmental effects of the proposed development have been undertaken in line with our commitments as members of the EIA Quality Mark.

The EIA Quality Mark is a voluntary scheme operated by the Institute of Environmental Management and Assessment (IEMA) through our EIA activities are independently reviewed, on an annual basis, to ensure we continue to deliver excellence in the following areas:

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Contents

Introduction

As a result of the amended Proposed Development, a number of the appendices which formed part of the submitted ES require updating. These are listed below and are included in this volume and should replace the Appendices of the same number which were part of the submitted ES.

- Appendix 7.2 – Full historic environmental impact assessment – Built heritage only. Archaeology remains unchanged.
- Appendix 8.1 – Arboricultural impact assessment – Replaces the previously submitted Appendix 8.1.
- Appendix 8.3 – Visualisations – Replaces the previously submitted Appendix 8.3.
- Appendix 8.4 – Woodland management plan – This is a new appendix which did not form part of the submitted application.
- Appendix 9.1 – Employment calculations – Replaces the previously submitted Appendix 9.1.
- Appendix 10.1 – Construction traffic assessment – Replaces the previously submitted Appendix 10.1.
- Appendix 10.3 – Traffic flows – Replaces the previously submitted Appendix 10.3.
- Appendix 10.4 – TEMPRO growth factors for the Cambridge area – This is a new appendix which did not form part of the submitted application.
- Appendix 11.1 – Human health receptors – Replaces the previously submitted Appendix 11.1.
- Appendix 11.2 – Air quality model verification – Replaces the previously submitted Appendix 11.2.
- Appendix 11.3 – Traffic data used of the assessment – Replaces the previously submitted Appendix 11.3.
- Appendix 11.5 – Predicted concentrations of air quality emissions at baseline receptors – Replaces the previously submitted Appendix 11.5.
- Appendix 11.6 – Predicted future concentrations of air quality emissions for impact scenario (human health receptors) – Replaces the previously submitted Appendix 11.6.
- Appendix 11.7 – Predicted future concentrations of air quality emissions for impact scenario (ecological receptors) – Replaces the previously submitted Appendix 11.7.
- Appendix 11.8 – Predicted energy centre emissions concentrations – Replaces the previously submitted Appendix 11.8.
- Appendix 11.9 – Road traffic emission factors – This is a new appendix which did not form part of the submitted application.
- Appendix 12.4 – Traffic data used for noise modelling – Replaces the previously submitted Appendix 12.4.
- Appendix 12.5 – Ramboll noise survey for the Cavendish III Laboratories 2016 – This is a new appendix which did not form part of the submitted application.
- Appendix 12.6 – Max Fordham noise survey for the Civil Engineering Building 2016 – This is a new appendix which did not form part of the submitted application.
- Appendix 12.7 – Calibration certificates

Appendix 7.2 Full historic environment impact assessment

This appendix updates the built heritage parts of Appendix 7.2 which formed part of the submitted ES. Only the built heritage parts have been updated as the archaeology parts remain unchanged.

Table A7.2.1 Full historic environment impact assessment for the construction phase (built heritage only)

Baseline		**Impact assessment**				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Central Cambridge Conservation area and designated assets therein. The central conservation area covers the historic core of the city, open spaces including the college backs, Jesus Green, Midsummer Common and the Botanic Garden. The conservation area appraisal states that this 'interplay of grand college buildings and verdant landscape is perhaps the most enduring image of central Cambridge.' The central conservation area also includes some fine examples of 19th century domestic development, particularly surrounding the railway station.	High	Cambridge is located on flat, low lying land. This coupled with the tight urban grain ensures that there are relatively limited outward views from the majority of the central core, particularly at street level. Views from the principal open spaces within the urban core, such as the college quadrangles, the 'Backs' and Parker's Piece, for example, are similarly highly constrained, and will therefore not feature views of the construction. Some views westward from the upper levels or roof tops of certain buildings, such as from the St Johns and King's College Chapels, for example, may feature the tops of cranes and any other tall plant associated with the construction process in some views. However the majority of the construction process will be concealed by intervening buildings and vegetation, as well as the landform.	No mitigation is proposed	Minor	Medium distance views of construction plant and activities from some limited areas of the conservation area would have a temporary adverse effect on the setting of the conservation area	Slight **Not Significant**
Willow House (1331936). Grade II* listed. Two storey house built by George Checkley in 1932 with a later single storey extension. There are five tall symmetrically arranged windows on the first floor and window bands on the ground floor.	High	Willow house is located within densely landscaped grounds on Conduit Head Road, which is itself thickly planted with coniferous trees and shrubs. Outward views are highly constrained by this planting and the landscaping associated with Salix and the White House to the south. The construction will therefore not feature in the setting of the house.	No mitigation is proposed	Neutral	There will be no residual effect to the setting of Willow House	Neutral **Not Significant**
Shawms (1268363) Grade II* listed. Two storey house in the Modern Movement style with a single storey roof conservatory. The entrance has a projecting porch hood supported on two steel posts.	High	Shawms features extensive glazing to its south front, which faces over landscaped grounds to the Site. Views to the south are slightly filtered by mature planting and intervening buildings, however some visual intrusion, particularly from the presence of cranes and other tall plant, is likely.	No mitigation is proposed	Minor adverse	Glimpsed views of construction plant and activity will result in a temporary adverse effect to the setting of the building.	Slight Adverse **Not significant**
48 Storeys Way (1126090) Grade II* listed Two storey house built in 1913 by Ballie Scott. The building features an attic under a dramatic roofscape from which rise two tall chimney stacks with water tabling and narrow projecting caps.	High	Views in the direction of the Site are screened by the presence of Churchill College and the Moller Centre. The construction will not feature in the setting of the listed building.	No mitigation is proposed.	Neutral	There will be no residual effect to the setting of 48 Storeys Way	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
White House (1126037) Grade II listed. Two storey house with a third storey set back at the centre of the roof terrace built in 1930 by George Checkley in the International Modern style. The house has a rectangular plan with central entrance hall The facades are white painted brick and the roof is flat concrete.	Medium	The house is located within landscaped grounds adjacent to Madingley Road, immediately to the north of the Site. Views to the Site are somewhat filtered by dense boundary planting, however the presence of the plant and the construction process will constitute a change to the currently relatively tranquil setting of the asset.	No mitigation is proposed	Moderate adverse	Close views of construction plant and activity will result in a temporary adverse effect to the setting of the building.	Moderate Adverse **Significant Effect**
Salix (1227614) Grade II listed. 1 and 2 storey house built in 1934 and extended in1936 by George Checkley. Low long single storey wing of 5 windows and flat roof canopy on roof terrace. Original metal frame windows. The facades are white painted rendered brick and the roof is flat and bitumenised.	Medium	Salix is located within densely landscaped grounds on Conduit Head Road, which is itself thickly planted with coniferous trees and shrubs. Outward views are highly constrained by this planting and the landscaping associated with White House to the south. The construction will therefore not feature in the setting of the house.	No mitigation is proposed	Neutral	There will be no residual effect to the setting of Salix.	Neutral **Not Significant**
Spring House (1380900) Grade II listed The house was built in 1965-7 by Colin St John Wilson and his assistant M J Long. The construction is of pale cavity brick walls, with internal columns and partitions of timber and features a cut-away corner terrace and verandah above. The building has Concrete Roman tile monopitched roofs, with open timberwork beneath. L-shaped plan with corner angle cut away to form the terrace.	Medium	The house is located at the north end of Conduit Head Road. Views outwards are highly constrained by dense planting and intervening domestic development lining Conduit Head Road to the south. The construction will therefore not feature in the building's setting.	No mitigation is proposed	Neutral	There will be no residual effect to the setting of Spring House	Neutral **Not Significant**
The Observatory (1126156) Grade II listed Construction of the Observatory commenced in 1822.by the architect John Clement Mead. The building has two storeys, and is built from ashlar with slate and lead roofs in a Neo-Greek style. Built on a half H shaped plan with wings extending towards the North and projecting central tetrastyle portico of Doric Order to the south and front entrance. A small movable dome is located on the centre of the building.	Medium	The Observatory buildings are located at the end of an avenue of trees leading from Madingley Road, to the north of the Site. In addition to the avenue of trees the boundaries of the observatory compound are sparsely planted. There are relatively clear views to the south towards Madingley Road.	No mitigation is proposed	Minor adverse	Oblique, glimpsed views of the construction plant and activities will result in a temporary adverse effect to the setting of the Observatory.	Slight adverse **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Northumberland Dome at the Observatory (1126157) Grade II listed. The building was constructed around 1838 of white brick and a movable copper dome and is located in the grounds of the Observatory. The dome has since been reconstructed.	Medium	The construction phases, particularly the presence of tall plant such as cranes, hoardings and increased vehicle movement will feature in oblique views from the observatory group of assets, particularly in views down the entrance avenue. These will be somewhat filtered by intervening vegetation, particularly that to the boundaries of the Site and the observatory land.			Oblique, glimpsed views of the construction plant and activities will result in a temporary adverse effects to the setting of the copper Dome at the Observatory.	Slight adverse **Not significant**
Chapel, Churchill College (1331925) Grade II Listed. The college chapel was built in 1961-68 by Sheppard Robson and Partners. The building is constructed of brown brick, concrete, and has a copper roof. The building has a square plan with 'inscribed cross' and has simple, brick slab walls, separated by slit windows. The chapel was built against the wishes of the founding college fellows, particularly Francis Crick, hence its isolated position away from the main college buildings.	Medium	The chapel is located in an open expanse of lawn, and is somewhat removed from the rest of the college buildings, adjacent to the observatory complex. Elements of construction plant and activities may feature in some oblique views from the college. However these views will be substantially filtered by the presence of intervening boundary planting.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the chapel.	Neutral **Not Significant**
Research Flats, Churchill College (1331924) Grade II Listed. Two storey block of flats for researchers constructed in 1959-60 by Sheppard Robson and Partners. The buildings are constructed in a compact swastika layout from brown brick with flat roofs and have timber windows. Each flat has an outdoor terrace, secluded by storey-height walls, which continue to form the walls of the flats themselves.	Medium	Elements of construction plant and activities, particularly tall plant such as cranes, may feature in some oblique views from the building. However these views will be substantially filtered by the presence of intervening boundary planting and would not impact the building setting.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the flats.	Neutral **Not Significant**
Residential Courts at Churchill College (1227711) Grade II listed Two to three storey student residences constructed in 1961-68 by Sheppard, Robson and Partners. The building is constructed from brown brick and concrete and has varnished timber windows. The flat roofs are covered in copper. The facades are irregular with projecting brick bay windows at intervals,	Medium	The residential courts are located to the north of the Churchill college campus set in an open lawn with some scattered tree planting, and the other college buildings to the south and east. The landscape dips slightly to the north of the campus, which somewhat constrains outward views. Elements of the construction, particularly tall plant such as cranes, may feature in some oblique views from the residences. However these views will be substantially filtered by the presence of intervening boundary planting and landscaping and the gentle slope of the site and would not impact the building setting.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the residences.	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Wolfson Hall, Bracken Library and Bevin Rooms (1126008) Grade II listed. Two storey library with reading rooms and hall built in 1961-68 by Sheppard Robson and Partners. The building is constructed from brown brick and concrete. There is an external door of sculpted metal by Geoffrey Clarke.	Medium	The building is located within an irregular courtyard created by the southern residential courts (qv, 1126007) with no outward views to the surrounding landscape.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the library.	Neutral **Not Significant**
Central Buildings Churchill College (1227706) Grade II listed. Two storey college building containing dining room and kitchens, common rooms, boiler house, college offices and main entrance built in 1961- 68 by Sheppard Robson and Partners. The building is constructed in an irregular 'H' plan from brown brick and concrete, both pre-cast and board-marked. The dining hall forms the link between the two parallel ranges.	Medium	The building is located to the north of the campus. Outward views are highly constrained by the campus buildings to the south (the residentially courts and the Wolfson Hall and Library, qv) there are limited outward views to the surrounding landscape.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the college building.	Neutral **Not Significant**
Residential Courts at Churchill College (1126007) Grade II listed. Four linked residential courts of two to three storeys located due south-west of the Central Buildings of Churchill College GV II Student residences built in 1961-68 by Sheppard, Robson and Partners. The building is constructed from brown brick and concrete, and has varnished timber windows. The building has flat roofs covered in copper.		The residential courts are located to the south of the Churchill campus, immediately to the north of Madingley Road. The buildings are low lying and outward views in the direction of the Site are highly constrained by boundary landscaping and planting within the college campus. The campus site is bound by a high grassy bund and scattered tree planting, and the dense boundary planting within the Site. Tall plant, such as cranes, might be discernable above the tree line in some oblique views but this would not impact on the setting of the building.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the residential courts.	Neutral **Not Significant**
31 Madingley Road (1268371) Grade II listed. Early Modern Movement style house of two storeys rising to three storeys at the west end.	Medium	The house is set in densely landscaped grounds. Views to the Site are screened by the intervening development along Wilberforce Road and Bulstrode Gardens.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the house.	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
House and Brock Brothers Studio (1331872) Grade II listed. A house dating from the late 18th century with later 19th and 20th century additions, including a purpose-built artist's studio dating from 1908, designed by the Brock brothers for their own use. The principal elevation (north) is of three storeys and four bays. It has two flat-roofed polygonal bays to the ground and first floor with cornice detail, and contains twelve-pane vertical sash windows. The main entrance contains a late 18th century Roman Doric doorcase with fluted pilasters and pediment, and classical door with fielded panels and mouldings.	Medium	The house is located to the south of Madingley Road. Some filtered views to the Site may be possible from upper rear windows, however these will largely be constrained by intervening buildings and planting and would not impact the setting of the building.	No mitigation	Negligible	There will be no residual effect to the setting of the house.	Neutral **Not Significant**
9 Wilberforce Road (1268352) Grade II listed. Two storey Modern Movement house built in 1937 by D. Cosens. The building is constructed from whitewashed brick laid in Flemish bond with a bituminous felt roof. Rectangular plan with a recessed corner section at south-east corner.	Medium	The house is located opposite the Emmanuel College Sports Pitches, with the existing buildings on the Site visible beyond the trees lining Clerk Maxwell Road. The construction plant and activities will likely be visible from the listed building; however this will be partly screened by the intervening tree planting and the currently constructed elements of the existing masterplan.	No mitigation is proposed	Minor Adverse	Some medium range views of construction plant and activities would result in temporary adverse effects to the setting of the house.	Slight Adverse **Not Significant**
Emmanuel College Sports Pavilion, including grounds man's house and stables (1422595) Grade II listed. Sports pavilion with attached Groundsman's House and separate stable, built for Emmanuel College in 1910. Complex roofscape of steep, sweeping pitches and hipped roof surmounted by a decorative copper cupola which has a polygonal base and a weathervane.	Medium	The constructed elements of the masterplan are visible in views across the sports pitches, though they are somewhat screened by the presence of tree screening and intervening housing. The some construction activities and plant such as cranes will likely be visible from the listed building; however this will be partly screened by the intervening tree planting and the currently constructed elements of the existing masterplan.	No mitigation is proposed	Minor Adverse	Some medium range views of construction plant and activities would result in temporary adverse effects to the setting of the pavilion and house.	Slight Adverse **Not Significant**
Garden at 48 Storeys Way (1422759) Grade II Registered Park and Garden. Suburban Arts and Crafts garden laid out in 1913 to the designs of M. H. Baillie Scott. The garden forms a series of six outdoor 'apartments', as Baillie Scott called them, which change in character. They are laid out on a system of cross axes which provide vistas along the length and width of the garden.	Medium	Intervening buildings, particularly the Moller Centre and Churchill College, and the topography of the landform ensures that there are no views of the Site which could result in impacts to the setting of the garden.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the garden.	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Conduit Head Road Conservation Area The conservation area comprises 20th century residential development, built in a piecemeal fashion from approximately 1914. A number of modernist houses built in the 1930s and 1960s, are of particular note. These buildings provide a high quality and progressive architectural character to the area.	Medium	The conservation area boundary extends out into Madigley Road and includes two properties that face onto Madingley Road and the Site. Construction works and plant will be highly visible from the southern extent of the conservation area though it will be heavily screened by tree planting from the more northerly portion of the conservation area. This will be a substantial change to the currently relatively tranquil setting of the conservation area.	No mitigation is proposed	Moderate Adverse	Direct close views of construction activities and plant from the southern end of the conservation area will result in temporary adverse effects to the setting of the conservation area.	Moderate Adverse **Significant effect**
West Cambridge Conservation Area The conservation area is notable for its spacious residential streets lined with large mainly detached 19th and 20th century houses. A variety of college and university buildings are included in the conservation area. Despite the differences in the form, scale and materials between the residential and collegiate buildings the very high quality of nearly all the structures ensures that the area retains spatial cohesion. Green open spaces, including agricultural land and the college playing fields and tennis courts also contribute to the conservation area's significance.	Medium	The conservation area extends in an arc around the north east corner of the Site. The construction activities and plant will feature prominently in views to and from the west and north west of the conservation area, substantially eroding its relatively tranquil setting. The conservation area draws part of its significance from the interface between the suburban and rural at its western edge; the construction process will challenge this. However the construction will not be appreciable from many of the key areas within the conservation area, including Grange Road and the area surrounding the University Library, due to the presence of intervening buildings, mature tree planting and the low lying topography.	No Mitigation is proposed	Moderate Adverse	Direct close views of construction activities and plant from within the conservation area will result in temporary adverse effects to the setting of the conservation area.	Moderate Adverse **Significant Effect**
Storey's Way Conservation Area The special character of Storey's Way is derived from the fine detached family houses with their spacious gardens, interspersed with the collegiate grounds of Fitzwilliam and Churchill Colleges.	Medium	Some construction activities and plant may be visible from the upper read windows of some of the houses on the south side of the conservation area, these views are largely constrained by the Churchill college buildings, the adjacent Moller Centre and dense planting. The construction activities and plant will not be visible from Storey's Way in the central space of the conservation area.	No mitigation is proposed	Negligible	Some glimpsed views from limited locations within the conservation area would not result in significant effects to the setting of the conservation area.	Neutral **Not Significant**
Schlumberger Gould Research Centre Commercial research centre and office designed by Michael Hopkins and completed in 1985. The building is a tented structure suspended between a 'cat's cradle' arrangement of struts and supports. The building is both technically innovative, and a highly sculptural treatment for a late 20th century commercial building.	High	The significance of the Schlumberger Gould Research Centre lies in its position as an early and highly articulate example of a High-Tech building, by one of that style's leading British proponents. The technical innovation embodied in its design also contributes to the building's significance. Setting makes a limited contribution to the significance of the building. The construction will envelope the building on all sides, altering its currently relatively tranquil, semi-rural setting. This will hamper the appreciation of the building The architectural significance of the building will remain unaffected.	No mitigation is proposed	Minor Adverse	Construction activities will reduce the appreciation of the building by limiting existing views resulting in a temporary adverse effect.	Moderate adverse **Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Merton Hall Farmhouse Two storey farmhouse built from gault brick with a slate roof and two end stacks. Three bay, central door to ground floor with a 20th century porch. Regular fenestration, windows all four pane sashs with flat arch brick	Low	The building would be demolished during construction. Demolition of the farmhouse has already been approved as part of the existing masterplan and extant planning permission and would occur irrespective of the Proposed Development.	No mitigation is proposed	No change	Demolition of the farmhouse has already been consented as part of the existing masterplan and extant planning permission and would occur irrespective of the Proposed Development.	Neutral **Not Significant**
Whittle Laboratory Academic building by Robert Mathew Johnson Marshall and Partners, completed in 1973. The building is constructed from brown brick with vertical strip windows	Negliigible	The building would be demolished	No mitigation is proposed	Major adverse	Demolition of the building during construction would result in the building's loss. This would be a permanent adverse effect.	Slight Adverse **Not Significant**
Cavendish Laboratory Complex of interconnected laboratories and other university buildings, largely two to three storeys, with horizontal windows. Completed in 1974 to designs by Robert Mathew Johnson Marshal and Partners utilsiing the CLASP method of prefabricated concrete panels.	Negliigible	The building would be demolished	No mitigation is proposed	Major adverse	Demolition of the building during construction would result in the building's loss. This would be a permanent adverse effect.	Slight Adverse **Not Significant**
Department of Veterinary Medicine. Complex of buildings by Ian Forbes, from 1953 onwards. Largely restrained neo-Georgian, with some neo-baroque details to the end pavilions. Intended to form part of a symmetrical run of buildings through the centre of the Site: as the only constructed elements of this, they appear stranded and unrelated to their context.	Negliigible	The building would be demolished	No mitigation is proposed	Major adverse	Demolition of the building during construction would result in the building's loss. This would be a permanent adverse effect.	Slight Adverse **Not Significant**

Table A7.2.2 Full historic environment assessment for the operational phase

Baseline		**Impact assessment**				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Central Cambridge Conservation Area and designated assets within the Conservation Area boundary. The central Conservation Area covers the historic core of the city, open spaces including the college backs, Jesus Green, Midsummer Common and the Botanic Garden. The Conservation Area appraisal states that this 'interplay of grand college buildings and verdant landscape is perhaps the most enduring image of central Cambridge.' The central Conservation Area also includes some fine examples of 19th century domestic development, particularly surrounding the railway station.	High	The Proposed Development will be largely invisible from most the Conservation Area, which due to the nature of its topography and tight urban grain has constrained outward views. It will not feature in views from the Backs, for example, or from any of the college quads, which are highly significant open spaces within the Conservation Area. However, some taller elements of the Proposed Development, may be visible from limited elevated points within the Conservation Area, particularly from Castle Hill. In these views, it will appear as a distant element and very small element in views, which will be dominated by the architecture of central Cambridge, such as Kings College, Great St Mary's Church and the university library towers. The Tall Buildings Study identifies some key views of Cambridge from the south, particularly from the Gog MaGog hills. Any tall visible elements will form a very small element in the views compared with the architecture of central Cambridge. In relation to the significance of the Conservation Area as a whole, which is wide and multi-faceted, the setting impact would be negligible.	• At the eastern edge of the Building Zone, adjacent to Clerk Maxwell Road, the built form shall comply with an additional height restriction of 25m AOD. From this line, the development heights shall remain within envelope rising by 45° angle to the parameter height of 31m AOD; • Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development; • Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing; • Treatment of façades shall be sensitive in scale and the use of materials; • Woodland infill planting at the site edges shall be native trees and shrubs and shall be in accordance with the Woodland Management Plan, Appendix 8.4, Volume 3; • Rooftop plant shall be set back from the predominant building line adjacent to Clerk Maxwell Road or effectively screened.	Negligible to Minor Adverse	Some glimpsed views of the few tall elements of the Proposed Development would be visible from limited elevated points within the Conservation Area, although they would be subordinate in views to nearer and prominent buildings in the centre of Cambridge. This would result in a permanent adverse effect.	Negligible to Slight Adverse **Not significant**
Willow House (1331936). Grade II* listed. Two storey house built by George Checkley in 1932 with a later single storey extension. There are five tall symmetrically arranged windows on the first floor and window bands on the ground floor.	High	Willow house is located within densely landscaped grounds on Conduit Head Road, which is itself thickly planted with coniferous trees and shrubs. Outward views are highly constrained by this planting and the landscaping associated with Salix and the White House to the south. The Proposed Development will therefore not be an appreciable element in the setting of the house.	No mitigation is proposed	Neutral	There will be no residual effect to the setting of Willow House	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Shawms (1268363) Grade II* listed. Two storey house in the Modern Movement style with a single storey roof conservatory. The entrance has a projecting porch hood supported on two steel posts.	High	Shawms features extensive glazing to its south front, which faces over landscaped grounds to the Site. Views to the south are largely blocked by mature planting and intervening buildings. However, the Proposed Development will feature in restricted views to the south west, slightly altering the setting of the asset.	• The maximum length of an uninterrupted building frontage and/or roof line shall not exceed 50m; • Any visible frontages facing onto Madingley Road, the eastern boundary, or the southern boundary (such as at site entrances), shall have a high quality architectural treatment. Generally, the woodland buffer shall be reinforced to limit visibility into the Site; • Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development; • Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing; • Treatment of façades shall be sensitive in scale and the use of materials; • The buffer along the Madingley Road edge shall serve as a screening element for the Proposed Development. The buffer shall be supplemented where needed as set out in the Woodland Management Plan (Appendix 8.4, Volume 3); • Any gaps or setbacks in development frontages along Madingley Road shall contain landscape planting and greenery to soften the development edge. • External plant and/or storage structures (on frontage or separate structures) shall be minimised and shall not be visible from the West Cambridge and Conduit Head Road Conservation Areas, or associated listed buildings; • Rooftop plant shall not be located within the 32m AOD zone along Madingley Road.	Minor Adverse	Glimpsed views of the Proposed Development will result in a permanent adverse effect to the setting of the building.	Slight Adverse **Not significant**
48 Storeys Way (1126090) Grade II* listed Two storey house built in 1913 by Ballie Scott. The building features an attic under a dramatic roofscape from which rise two tall chimney stacks with water tabling and narrow projecting caps.	High	Views in the direction of the Site are screened by the presence of the Churchill College and the Moller Centre. The Proposed Development will not feature in the setting of the building.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of 48 Storeys Way	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
White House (1126037) Grade II listed. See Section 4.3.	Medium	Views to the Site are largely screened by boundary planting, however the Proposed Development will feature in the setting of the asset, especially in views from the roadway in front of the building. The presence of large University buildings on the West Cambridge site currently forms part of the setting of the building, with a very light boundary tree screen on the south side of Madingley Road within the views along Conduit Head Road. With the denser proposed planting buffer on the Proposed Development site boundary on Madingley Road and the new buildings closer to the Madingley Road Boundary, the new buildings would be visible above the buffer screen, so the university buildings will be more imposing within the setting than currently.	• The maximum length of an uninterrupted building frontage and/or roof line shall not exceed 50m; • Any visible frontages facing onto Madingley Road, the eastern boundary, or the southern boundary (such as at site entrances), shall have a high quality architectural treatment. Generally, the woodland buffer shall be reinforced to limit visibility into the Site; • Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development; • Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing; • Treatment of façades shall be sensitive in scale and the use of materials; • The buffer along the Madingley Road edge shall serve as a screening element for the Proposed Development. The buffer shall be supplemented where needed as set out in the Woodland Management Plan (Appendix 8.4, Volume 3); • Any gaps or setbacks in development frontages along Madingley Road shall contain landscape planting and greenery to soften the development edge; • External plant and/or storage structures (on frontage or separate structures) shall be minimised and shall not be visible from the West Cambridge and Conduit Head Road Conservation Areas, or associated listed buildings; • Rooftop plant shall not be located within the 32m AOD zone along Madingley Road; • Any rooftop plant within the 37m or 41m AOD zones along Madingley Road shall be effectively screened in views from the north, to reduce any visual impact from Madingley Road.	Moderate Adverse	Closer views of the Proposed Development will result in a permanent adverse effect to the setting of the building, which will be partly offset by the thickened planting screen.	Moderate Adverse **Significant effect**
Salix (1227614) Grade II listed. 1 and 2 storey house built in 1934 and extended in1936 by George Checkley. Low long single storey wing of 5 windows and flat roof canopy on roof terrace. Original metal frame windows. The facades are white painted rendered brick and the roof is flat and bitumenised.	Medium	Salix is located within densely landscaped grounds on Conduit Head Road, which is itself thickly planted with coniferous trees and shrubs. Outward views are highly constrained by this planting and the landscaping associated with White House to the south. The Proposed Development will therefore not feature in the setting of the house.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of Salix.	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Spring House (1380900) Grade II listed The house was built in 1965-7 by Colin St John Wilson and his assistant M J Long. The construction is of pale cavity brick walls, with internal columns and partitions of timber and features a cut-away corner terrace and verandah above. The building has Concrete Roman tile monopitched roofs, with open timberwork beneath. L-shaped plan with corner angle cut away to form the terrace.	Medium	The house is located at the north end of Conduit Head Road. Views outwards are highly constrained by dense planting and intervening domestic development lining Conduit Head Road to the south. The Proposed Development will therefore not feature in the building's setting.	No mitigation is proposed	Neutral	There will be no residual effect to the setting of Spring House	Neutral Not Significant
The Observatory (1126156) Grade II listed See Section 4.3.	Medium	The Observatory's two listed buildings are screened from view from the Proposed Development. The modern western fringe of the Observatory site has views of the Masterplan site and these contribute little to the buildings' significance. Restricted, narrow views along the access drive will largely be towards the thickened tree/planting screen in the north east corner of the site. The setting's contribution to the significance of the buildings will therefore be slightly affected	• The maximum length of an uninterrupted building frontage and/or roof line shall not exceed 50m; • Any visible frontages facing onto Madingley Road, the eastern boundary, or the southern boundary (such as at site entrances), shall have a high quality architectural treatment. Generally, the woodland buffer shall be reinforced to limit visibility into the Site; • Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development; • Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing; • Treatment of façades shall be sensitive in scale and the use of materials; • The buffer along the Madingley Road edge shall serve as a screening element for the Proposed Development. The buffer shall be supplemented where needed as set out in the Woodland Management Plan (Appendix 8.4, Volume 3); • Any gaps or setbacks in development frontages along Madingley Road shall contain landscape planting and greenery to soften the development edge; • External plant and/or storage structures (on frontage or separate structures) shall be minimised and shall not be visible from the West Cambridge and Conduit Head Road Conservation Areas, or associated listed buildings; • Rooftop plant shall not be located within the 32m AOD zone along Madingley Road; • Any rooftop plant within the 37m or 41m AOD zones along Madingley Road shall be effectively screened in views from the north, to reduce any visual impact from Madingley Road.	Minor adverse	Views along the narrow access road will be slightly altered with a permanent adverse effect to the setting of the Northumberland Dome.	Slight adverse Not significant
Northumberland Dome at the Observatory (1126157) Grade II listed. See Section 4.3.	Medium				Negligible effect, as the building has no setting relationship with the development site.	Slight adverse Not significant

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Chapel, Churchill College (1331925) Grade II Listed. The college chapel was built in 1961-68 by Sheppard Robson and Partners. The building is constructed of brown brick, concrete, and has a copper roof. The building has a square plan with 'inscribed cross' and has simple, brick slab walls, separated by slit windows. The chapel was built against the wishes of the founding college fellows, particularly Francis Crick, hence its isolated position away from the main college buildings.	Medium	The chapel is located in an open expanse of lawn, and is somewhat removed from the rest of the college buildings, adjacent to the observatory complex. Elements of the Proposed Development, particularly rooftop structures and plant, may feature in some oblique views from the college. However these views will be substantially filtered by the presence of intervening boundary planting.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the chapel.	Neutral Not significant
Research Flats, Churchill College (1331924) Grade II Listed. Two storey block of flats for researchers constructed in 1959-60 by Sheppard Robson and Partners. The buildings are constructed in a compact swastika layout from brown brick with flat roofs and have timber windows. Each flat has an outdoor terrace, secluded by storey-height walls, which continue to form the walls of the flats themselves.	Medium	Elements of the completed scheme, particularly rooftop plant and chimneys, may feature in some oblique views from the college. However these views will be substantially filtered by the presence of intervening boundary planting.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the flats.	Negligible **Not significant**
Residential Courts at Churchill College (11227711) Grade II listed Two to three storey student residences constructed in 1961-68 by Sheppard, Robson and Partners. The building is constructed from brown brick and concrete and has varnished timber windows. The flat roofs are covered in copper. The facades are irregular with projecting brick bay windows at intervals,	Medium	The residential courts are located to the north of the Churchill college campus set in an open lawn with some scattered tree planting, and the other college buildings to the south and east. The landscape dips slightly to the north of the campus, which somewhat constrains outward views. Glimpsed views of the roofscape of the Proposed Development may be possible from some upper floors of the college building.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the residences.	Neutral **Not significant**
Wolfson Hall, Bracken Library and Bevin Rooms (1126008) Grade II listed. Two storey library with reading rooms and hall built in 1961-68 by Sheppard Robson and Partners. The building is constructed from brown brick and concrete. There is an external door of sculpted metal by Geoffrey Clarke.	Medium	The building is located within an irregular courtyard created by the southern residential courts (qv, 1126007) with no outward views to the surrounding landscape.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the library.	Neutral **Not significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Central Buildings Churchill College (1227706) Grade II listed. Two storey college building containing dining room and kitchens, common rooms, boiler house, college offices and main entrance built in 1961- 68 by Sheppard Robson and Partners. The building is constructed in an irregular 'H' plan from brown brick and concrete, both pre-cast and board-marked. The dining hall forms the link between the two parallel ranges.	Medium	The building is located to the north of the campus. Outward views are highly constrained by the campus buildings to the south (the residentially courts and the Wolfson Hall and Library, qv) there are therefore limited outward views to the surrounding landscape.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the college building.	Neutral **Not Significant**
Residential Courts at Churchill College (1126007) Grade II listed. Four linked residential courts of two to three storeys located due south-west of the Central Buildings of Churchill College GV II Student residences built in 1961-68 by Sheppard, Robson and Partners. The building is constructed from brown brick and concrete, and has varnished timber windows. The building has flat roofs covered in copper.	Medium	The residential courts are located to the south of the Churchill campus, immediately to the north of Madingley Road. The buildings are low lying, and outward views in the direction of the Site are highly constrained by boundary landscaping and planting to the college campus. The campus site is bound by a high grassy bund and scattered tree planting, and the dense boundary planting to the Site. Rooftop plant and the energy centre stack, might be discernable above the tree line in some oblique views but this would not impact on the setting of the building.	No mitigation is proposed	Negligible	There will be no residual effect to the setting of the residential courts.	Neutral **Not significant**
31 Madingley Road (1268371) Grade II listed. Early Modern Movement style house of two storeys rising to three storeys at the west end.	Medium	The house is set in densely landscaped grounds. Views to the Site are screened by the intervening development along Wilberforce Road and Bulstrode Gardens.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the house.	Neutral **Not Significant**
House and Brock Brothers Studio (1331872) Grade II listed. A house dating from the late 18th century with later 19th and 20th century additions, including a purpose-built artist's studio dating from 1908, designed by the Brock brothers for their own use. The principal elevation (north) is of three storeys and four bays. It has two flat-roofed polygonal bays to the ground and first floor with cornice detail, and contains twelve-pane vertical sash windows. The main entrance contains a late 18th century Roman Doric doorcase with fluted pilasters and pediment, and classical door with fielded panels and mouldings.	Medium	The house is located to the south of Madingley Road. Some filtered views of the Proposed Development may be possible from upper rear windows, however these will largely be filtered by intervening buildings and planting and would not impact the setting of the building.	No mitigation	Negligible	There will be no residual effect to the setting of the house.	Neutral **Not significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
9 Wilberforce Road (1268352) Grade II listed. Two storey Modern Movement house built in 1937 by D. Cosens. The building is constructed from whitewashed brick laid in Flemish bond with a bituminous felt roof. Rectangular plan with a recessed corner section at south east corner.	Medium	The house is located opposite the Emmanuel College Sports Pitches, with the existing buildings on the Site visible beyond the trees lining Clerk Maxwell Road. As currently, the rooftops and taller elements of the Proposed Development will be visible, rising above the modern two storey housing in distant views to the west over the Emmanuel College sports pitches. However, the buildings will rise slightly higher than currently, slightly altering views from the asset.	• External plant and/or storage structures (on frontage or separate structures) shall be minimised and shall not be visible from the West Cambridge and Conduit Head Road Conservation Areas, or associated listed buildings; • At the eastern edge of the Building Zone, adjacent to Clerk Maxwell Road, the built form shall comply with an additional height restriction of 25m AOD. From this line, the development heights shall remain within envelope rising by 45° angle to the parameter height of 31m AOD; • Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development; • Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing; • Treatment of façades shall be sensitive in scale and the use of materials; • Woodland infill planting at the site edges shall be native trees and shrubs and shall be in accordance with the Woodland Management Plan, Appendix 8.4, Volume 3; • Rooftop plant shall be set back from the predominant building line adjacent to Clerk Maxwell Road or effectively screened.	Minor Adverse	The University Buildings rising slightly higher above the two storey housing in views to the west than at present will result in permanent adverse effects to the setting of the house.	Slight Adverse **Not Significant**
Emmanuel College Sports Pavilion, including grounds man's house and stables (1422595) Grade II listed. Sports pavilion with attached Groundsman's House and separate stable, built for Emmanuel College in 1910. Complex roofscape of steep, sweeping pitches and hipped roof surmounted by a decorative copper cupola which has a polygonal base and a weathervane.	Medium	As currently, the rooftops and taller elements of the Proposed Development will be visible, rising above the modern two storey housing in distant views to the west over the Emmanuel College sports pitches. However, the buildings will rise slightly higher than currently, slightly altering views from the asset.		Minor Adverse	The University Buildings rising slightly higher above the two storey housing in views to the west than at present will result in permanent adverse effects to the setting of the pavilion and house.	Slight Adverse **Not Significant**
Garden at 48 Storeys Way (1422759) Grade II Registered Park and Garden. Suburban Arts and Crafts garden laid out in 1913 to the designs of M. H. Baillie Scott. The garden forms a series of six outdoor 'apartments', as Baillie Scott called them, which change in character. They are laid out on a system of cross axes which provide vistas along the length and width of the garden.	Medium	Intervening buildings, particularly the Moller Centre and Churchill College, and the topography of the landform ensures that there are no views of the Site which could result in impacts to the setting of the garden.	No Mitigation is proposed	Neutral	There will be no residual effect to the setting of the garden.	Neutral **Not Significant**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Conduit Head Road Conservation Area See Section 4.3.	Medium	The presence of University buildings closer to Madingley Road than at present will impact on the views south along Conduit Head Road. However, the planting/tree screen along south side of Madingley Road will be thickened. In other respects, the screening to the south of the White House and the relative lack of sensitivity of the setting to the south and south west of the part of the Conservation Area to the east of the southern part of Conduit Head Road, means that the setting of the Conservation Area is quite robust. Also, the presence of university buildings on two sides of eth Conservation Area is part of its existing setting. There will therefore be a minor to moderate adverse change to the setting of the Conservation Area overall.	• The maximum length of an uninterrupted building frontage and/or roof line shall not exceed 50m; • Any visible frontages facing onto Madingley Road, the eastern boundary, or the southern boundary (such as at site entrances), shall have a high quality architectural treatment. Generally, the woodland buffer shall be reinforced to limit visibility into the Site; • Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development; • Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing; • Treatment of façades shall be sensitive in scale and the use of materials; • The buffer along the Madingley Road edge shall serve as a screening element for the Proposed Development. The buffer shall be supplemented where needed as set out in the Woodland Management Plan (Appendix 8.4, Volume 3); • Any gaps or setbacks in development frontages along Madingley Road shall contain landscape planting and greenery to soften the development edge. • External plant and/or storage structures (on frontage or separate structures) shall be minimised and shall not be visible from the West Cambridge and Conduit Head Road Conservation Areas, or associated listed buildings. • Rooftop plant shall not be located within the 32m AOD zone along Madingley Road; • Any rooftop plant within the 37m or 41m AOD zones along Madingley Road shall be effectively screened in views from the north, to reduce any visual impact from Madingley Road.	Minor-Moderate Adverse	Close views of the Proposed buildings from the southern end of the Conservation Area will be partly offset by the thickened planting/tree screen, but would result in permanent adverse effects to the setting of the Conservation Area.	Minor to Moderate Adverse **Significant Effect**

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
West Cambridge Conservation Area See Section 4.3.	Medium	The Proposed Development will not impact on significantly on the Conservation Area's setting in relation to the Observatory Site. The existing presence of the university buildings along the western part of the Masterplan Site in the setting of Churchill College will be accentuated, although there will be improved planting/tree screening. There will be little impact on the significance of the built up area on the west edge of the Conservation Area south of Madingley Road and north of Emmanuel College Sports Ground, due to the minor contribution of setting here and the intimate nature of this area. In relation to Emmanuel College Sports Ground and the stretch of Wilberforce Road from the north side of the sports ground to the junction with Adams Road, the new buildings will rise slightly higher behind the modern housing in the setting of the Conservation Area. This will have a minor to moderate impact locally. In relation to the Conservation Area as a whole, the West Cambridge site currently makes very little contribution the significance of the Conservation Area, and overall there will be a minor adverse impact, although in relation to Emmanuel College Sports Ground and a stretch of Wilberforce road this will be slightly elevated locally to moderate adverse. The presence of university buildings of good quality is a positive element of the character of the Conservation Area in the Conservation Area Appraisal.	• The maximum length of an uninterrupted building frontage and/or roof line shall not exceed 50m; • Any visible frontages facing onto Madingley Road, the eastern boundary, or the southern boundary (such as at site entrances), shall have a high quality architectural treatment. Generally, the woodland buffer shall be reinforced to limit visibility into the Site; • At the eastern edge of the Building Zone, adjacent to Clerk Maxwell Road, the built form shall comply with an additional height restriction of 25m AOD. From this line, the development heights shall remain within envelope rising by 45° angle to the parameter height of 31m AOD; • Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development; • Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing; • Treatment of façades shall be sensitive in scale and the use of materials; • Any gaps or setbacks in development frontages along Madingley Road shall contain landscape planting and greenery to soften the development edge. • The buffer along the Madingley Road edge shall serve as a screening element for the Proposed Development. The buffer shall be supplemented where needed as set out in the Woodland Management Plan (Appendix 8.4, Volume 3); • Woodland infill planting at the site edges shall be native trees and shrubs and shall be in accordance with the Woodland Management Plan, Appendix 8.4, Volume 3; • External plant and/or storage structures (on frontage or separate structures) shall be minimised and shall not be visible from the West Cambridge and Conduit Head Road Conservation Areas, or associated listed buildings.	Minor adverse overall	The university buildings will appear bulkier in the setting of the Conservation Area resulting in permanent adverse effects on its setting.	Minor Adverse **Not Significant**
Storey's Way Conservation Area The special character of Storey's Way is derived from the fine detached family houses with their spacious gardens, interspersed with the collegiate grounds of Fitzwilliam and Churchill Colleges.	Medium	Some elements of the Proposed Development, particularly tall roof top plant and the energy centre stack, may be visible from the upper rear windows of some of the houses on the south side of the conservation area. These views are largely constrained by the Churchill college buildings, the adjacent Moller Centre and dense planting. The Proposed Development will not be visible from Storey's Way in the central space of the conservation area.	No mitigation is proposed	Negligible	Some glimpsed views from limited locations within the conservation area would not result in significant effects to the setting of the conservation area.	Neutral Not significant

Baseline		Impact assessment				
Receptor	**Value**	**Impact**	**Mitigation measure**	**Impact magnitude**	**Residual effect**	**Significance of effect**
Schlumberger Gould Research Centre See Section 4.3.	High	The Proposed Development will result in filing the site to the east of the building, as intended by Hopkins. However, the blocks around will remain lower than the listed building and the linear open space within the masterplan means that there will remain views from the west from within the site. The architectural significances of the building will remain unaltered by the development in its setting. Although the setting will be substantially altered the contribution of the setting to the building's significance will be largely retained, as it was always meant to be part of a campus, and was intended to be a feature building, which it will remain.	• The Listed Schlumberger Research building shall remain the primary landmark for the site. New development and spaces shall work together to define a new and appropriate setting for this building; • A view corridor with a minimum 20m width will be preserved between JJ Thomson Avenue and High Cross to protect views through the Site of the Schlumberger Research Building; • On the west side of High Cross, the Listed Schlumberger Research building shall remain visible as a key site landmark; • In the central part of High Cross Avenue, a zone of lower development height shall be established to maintain the views of the Schlumberger Research building roof structure. The exact positioning of this lower zone shall be such to allow views of the roof-line (tent structure) from The Green.	Minor to moderate adverse	The setting will be altered but its contribution to the building's significance will largely be retained, as it was meant to be part of a campus.	Moderate adverse Significant Effect

Appendix 8.1 Arboriculture Impact Assessment

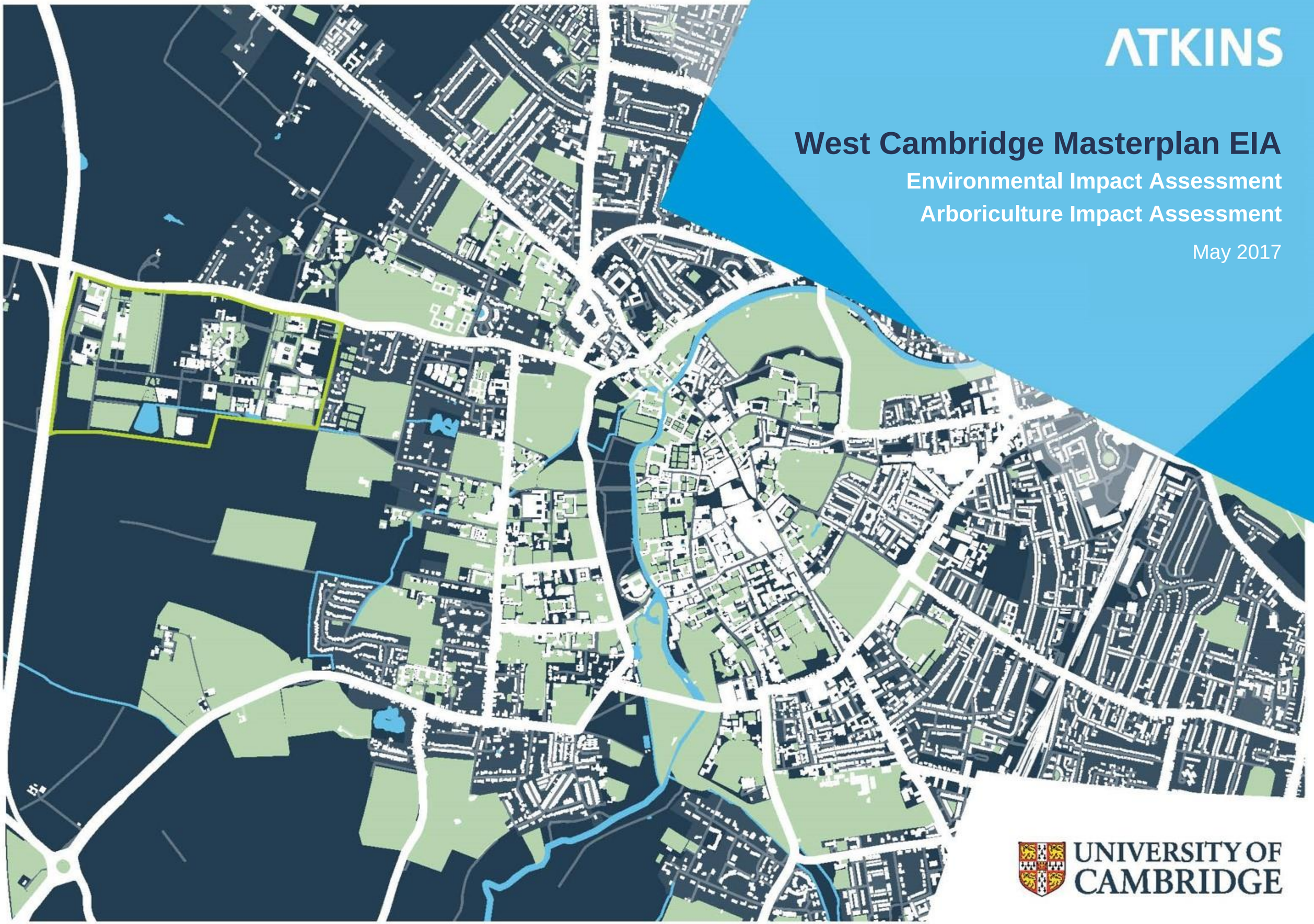
ATKINS

West Cambridge Masterplan EIA

Environmental Impact Assessment

Arboriculture Impact Assessment

May 2017



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Document History

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Rev 1.0	Draft	TD	JH	DP	PW	25/02/15
Rev 2.0	Draft	TD	JH	DP	PW	17/05/16
Rev 3.0	Draft	TD	AA	DP	PW	10/02/17
Rev 4.0	Draft	TD	AA	DP	PW	26/04/17
Rev 5.0	Final	TD	AA	DP	PW	11/05/17

EIA Quality Mark

This Environmental Statement and the Environmental Impact Assessment (EIA) carried out to identify the significant environmental effects of the proposed development have been undertaken in line with our commitments as members of the EIA Quality Mark.

The EIA Quality Mark is a voluntary scheme operated by the Institute of Environmental Management and Assessment (IEMA) through our EIA activities are independently reviewed, on an annual basis, to ensure we continue to deliver excellence in the following areas:

EIA Management
EIA Team Capabilities
EIA Regulatory Compliance
EIA Context & Influence
EIA Content
EIA Presentation
Improving EIA practice

To find out more about the EIA Quality Mark and our registration to it please visit: www.iema.net/qmark

Contents

1. Introduction

1.1 Terms of reference

1.1.1 Atkins Limited (Atkins) has been commissioned by the University of Cambridge to undertake a tree survey in accordance with BS5837:2012 Trees in relation to design, demolition and construction – Recommendations, in support of an outline planning application (OPA) for the development of the West Cambridge site.

1.1.2 An existing masterplan for the site was approved in 1999 and reviewed in 2004 and currently forms the basis of the development on site. Accordingly, the academic and residential components have been delivered to the anticipated levels, but the commercial research and shared facilities components are below the envisaged 1999 masterplan. Policy 18 of the Draft Submission Local Plan supports the densification of the development through a revised masterplan subject to a number of conditions. It is within this context that the University of Cambridge is producing a new masterplan for the West Cambridge site which significantly increases the amount of development to approximately 423,000m^2.

1.1.3 The survey extents included all the trees within the West Cambridge Site as illustrated on the supplied topographical drawings produced by Greenhatch Group for Peter Brett Associates.

1.2 The application site

1.2.1 The West Cambridge site is located approximately 2km to the north-west of the centre of Cambridge in Cambridgeshire on the urban fringe of the city. The site is bound by Madingley Road to the north and by residential properties to the east. The M11 forms the western boundary to the site, beyond which lies agricultural land. Agricultural land bounds the site to the south.

1.2.2 The West Cambridge site is 66ha in area and comprises a mix of land uses including academic, commercial, sports, and residential. The site has undergone extensive development with completed buildings and areas under construction. These are supported by a network of roads and footpaths, car parks, formal landscaped public realm areas, and large paddocks associated with the veterinary school.

1.3 Proposed works

1.3.1 The masterplan approved in 1999 (planning application reference C/97/0961/OP) and reviewed in 2004 envisaged just under 250,000m^2 of development together with the pre-existing development on the site. The University of Cambridge is proposing densification of the development through a revised masterplan to increase the amount of development on site to approximately 423,000m^2. This is to be achieved through demolishing older existing buildings such as the Department of Veterinary Medicine Buildings and the Whittle Laboratory, and through developing areas of open space.

1.3.2 This impact assessment has been produced using the latest version (dated May 2017) of the produced parameter plans. These parameter plans have been overlaid onto the tree survey drawings to produce a set of tree protection plans.

1.4 Scope of works

1.4.1 This report presents Arboricultural information captured on 16th to 18th February 2015 by Atkins Senior Arboriculturist Tom Dale M.Arbor.A Cert Arb L6 (ABC), accompanied by Senior Landscape Architect Jonathan Hesketh on 17th to 18th February. Further site work was undertaken on 17th & 18th November 2016 by Atkins' Arboricultural Team Leader Tom Dale BSc (Hons), Cert Arb (L6 (ABC), M.Arbor.A, and Atkins' Landscape and Arboricultural Consultant Adam Atkins, BA (Hons) CMLI, TechCert (ArborA). This work being part of establishing data for the 'Woodland Management Plan'.

1.4.2 The scope of works includes the survey of trees within the site boundary and the production of an Arboricultural Impact Assessment with accompanying tree protection plans.

2. Methodology

2.1 General

2.1.1 This Arboricultural Impact Assessment has been undertaken in accordance with BS5837:2012 Trees in relation to design, demolition and construction – Recommendations. The standard gives recommendations and guidance on the relationship between trees and design, demolition and construction process, setting out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

2.2 Spatial Scope

2.2.1 The survey works spanned three days and concentrated on all the trees illustrated on the supplied topographical drawing produced by Greenhatch Group, drawing number 21144.

2.2.2 As identified in paragraph 1.4.1, further site work has been undertaken at the West Cambridge site for the purposes of establishing data for the site's 'Woodland Management Plan'. This involved capturing the locations of long lived 'canopy tree species' on the periphery of boundary tree groups.

2.3 Data Gathering

2.3.1 Data was collected in accordance with BS5837:2012, as outlined in Appendix A of this report. The purpose of the tree categorisation method applied by the Arboriculturist, being to identity the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained if development is to occur.

2.3.2 For a tree to qualify under any given category, it should fall within the scope of that category's definition as defined in Figure A2 in Appendix A (category's U, A, B, C) and, for trees in categories A to C, it should qualify under one or more of the three subcategories (1, 2, 3). Subcategories 1, 2 and 3 are intended to reflect arboricultural and landscape qualities, and cultural values, respectively.

2.3.3 Trees were recorded as individual specimens and as groups. Where trees were recorded as groups measurements were taken from the largest tree within the group for the purposes of establishing data for the tree survey drawings. This level of survey meets the requirements of BS5837:2012, which states that *'trees growing as groups or woodland should be identified and assessed as such'*. The BS defines the term group as *'trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally including for biodiversity (e.g. parkland or wood pasture).'*

2.3.4 Crown spreads of the surveyed trees were given as an average measurement or to the relevant cardinal points with regards to the site. The average measurement was taken from the cardinal point relevant to the direction of the site or any proposals. This level of survey is deemed sufficient by the Arboriculturist in order to establish the extent of the crown spread in the direction of any future proposals. All crown spread measurements should be taken from the tree survey schedules

2.3.5 The trees were assessed in line with the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994). This method is based on the axiom of uniform stress, whereby a tree will grow in response to environmental stimuli to produce a structure that bears forces evenly across its surface. As such an internal defect, such as decay, would initiate a noticeable change in the stem's shape to accommodate the physical change.

2.4 Survey

2.4.1 The locations of all the individual trees and the outlines of groups were taken from the supplied topographical data.

2.4.2 It is to be noted that trees were primarily recorded as groups based on their value being achieved through their collective landscape functions as avenues or screens, rather than trees of high arboricultural significance. Significant trees were also recorded as individual specimens. Significant trees in the context of this survey were trees of clearly identifiable cultural importance, mature specimens or dominant trees in groups.

2.4.3 The majority of trees onsite have been planted within the last ten years meaning they are still small in scale and replaceable. The survey primarily identified these trees as groups or identified significant trees within these groups where they require specific works.

2.4.4 The trees on site have been subjected to past surveys with numbered aluminium tags on the majority of trees. The ones missing likely to be a result of tree growth, as such the Arboriculturist has adopted their own number system commencing from 001 for individual trees and G001 for groups of trees. Where individual trees were recorded their tree tags were also captured in the tree survey schedules, where they were still attached. For tree groups the Arboriculturist recorded the tag number of the largest tree in the group where it was still attached.

2.4.5 The tree's captured as part of the 'Woodland Management Plan' survey have been tagged on the periphery of boundary tree groups. These trees have been captured as part of developing suitable offsets from any future proposed buildings to ensure they have sufficient space to achieve their full growth potential. The trees have been tagged from 1870-2000 and their locations plotted by an Atkins Land Survey Team, to ensure their accurate placement. In some cases the larger groups have been split into sub-groups as part of the 'Woodland Management Plan'. These sub-groups have not been recorded separately within this report as the species and other information relevant to a BS5837:2012 survey does not differ from the main group recording. It is to cover different management prescriptions as part of the 'Woodland Management Plan' and also to cover geographic location. The sub-groups relate to the following groups; W3(A&B), W4(A&C), G016(A-E) & G024(A)

2.5 Limitations to Survey

2.5.1 Trees were identified and inspected from ground level only and were not climbed. No invasive examination techniques (such as increment boring, or internal decay detection) were carried out and as such no assessment of the internal condition of the wood of these trees can be given. The tree survey undertaken is not intended to be a tree risk management survey targeting safety related issues. However, where specific hazards have been identified these have been recorded and management recommendations provided.

2.5.2 Where access permitted a Forest Ace Laser Hypsometer was used to measure tree heights and crown spreads of the tree stock.

2.5.3 BS5837: 2012 does not include arguments for or against development, or for the removal or retention of trees. Where development is to occur the standard provides guidance on how to decide which trees are appropriate for retention.

2.5.4 Validity, accuracy and findings of the tree locations will directly relate to the accuracy of information provided at the time of the survey, i.e. the supplied topographical drawing, and the accuracy of the plotted trees for the 'Woodland Management Plan'. Where tree groups have been illustrated as an outline this covers the extents of the tree group. It does not always illustrate individual trees within the groups. Where significant trees were identified in these groups they were plotted separately.

2.5.5 The report does not comment on possible effects of trees on neighbouring properties, including in relation to subsidence or heave, or with regard to possible hazards presented by trees surveyed. Neighbouring owners of trees that are identified as posing a possible risk to the property/site in question should seek their own advice as to possible effects of the recommendations given within this report.

2.5.6 Damage to, or possibility of damage to, any other structure that is not referred to within the report is not considered unless otherwise specified. This includes both neighbouring structures and any other structure on the property.

2.5.7 Trees are living organisms subject to changes outside human control. Trees and their environment alter with the seasons and it is as well to inspect trees whilst in full leaf and when out of leaf. Following harsh or unexpected weather conditions, or heavy storms it is also prudent to inspect trees. Changes to ground water conditions will affect the root growth of a tree. Such changes are not always the result of human influence and other factors may be involved.

3. Existing Site Conditions

3.1 Existing Land Use

3.1.1 The site is 66ha in area comprising a range of land uses including built infrastructure for academic, commercial and residential use divided by internal access roads, pedestrian routes and water features. There are expanses of open grassland located around the site as part of new informal and formal landscape features, as well as grazing pasture and areas of land left redundant for future development.

3.1.2 There are three main roads crossing the site in a north-south direction; JJ Thompson Avenue, High Cross Road and No Name Road. JJ Thompson Avenue and High Cross Site Road both provide access to the West Cambridge site from the A1303 Madingley Road.

3.2 Existing Tree Stock

3.2.1 The trees within the site are predominantly newly planted or young specimens planted within the past ten years as part of the developments undertaken on site. These form distinct avenues or formal lines of trees located in areas of public usage or denoting formal access routes. The repetition of species selection and planting structure is indicative of formal planting schemes with distinct lines or avenues being created. The species selection for these formal planting areas is typical for avenue features with Lime and London Plane being the species primarily used. The limited age of these trees reduces their arboricultural value at present. However, over time this will increase with their maturity.

3.2.2 The site also accommodates concentrations of newly planted or young trees within informal planting schemes located around wildlife features, (e.g. water features), and as part of reinforcing screening to views into the site from all cardinal points. These vegetative screens comprise woodland planting plots with trees and shrubs or groups of individual closely planted trees. The species selection is varied however Common Ash, Lime and English Oak dominate the climax tree species composition.

3.2.3 There are individual and groups of more mature trees located within the site, again forming distinct lines of trees or prominent standard specimens in formal and informal areas. The trees of note are the mature English Oaks forming remnants of old field boundaries in the north and south aspects of the site (tree refs 024, 037-039 & 063-068; the mature Silver Maples (tree refs 043 & G069) growing around the veterinary school; the prominent avenue of semi to early mature Lime trees (tree refs G57) leading to these facilities; the veteran Horse Chestnut within one of the north east car parks (tree ref 014); and the mature Willow specimens located sporadically around the pond area to the south of the site (tree refs 001, 013 & G37) . These trees are prominent specimens given their age, size and maturity. Their vitality and structural conditions were varied. However, the majority were in good vitality.

3.2.4 The northern and western boundaries sustain linear belts of more mature trees and shrubs that provide full or partial screening to views into the site from these locations. The tree stock again is varied in these locations including Ash and Sycamore. However, self-sown Elm trees are prevalent throughout. There are some more mature Elms that have been able to withstand Dutch Elm Disease to the east of JJ Thompson Avenue, but the majority are limited to young trees that have established from old tree stumps cut back in the past due to poor structural condition.

3.3 Site Topography

3.3.1 The site is set at grade with no significant level changes recorded throughout the site, except for localised planted earth mounds.

3.4 Soil Assessment

3.4.1 No soil assessment was carried out on site by the Arboriculturist although base line data from the British Geological Survey[1] states the site supports an area of mudstone bedrock with no superficial deposits recorded.

[1] http://www.bgs.ac.uk

4. Summary of Tree Condition

4.1 Number of Trees Recorded

4.1.1 The survey captured 76 no. individual trees, 110 no. groups and 4 no. woodlands on site as part of formal and informal groups located throughout the site.

4.2 General Condition Details

4.2.1 The survey sheets in Appendix B provide more detail on all the trees surveyed on site. In general the trees on site were showing signs of fair to good vitality with average bud formation and coverage for the tree species and locality. The trees varied in age structure with the majority being young trees.

4.2.2 The criteria for establishing tree BS Categories is detailed within the cascade chart in Appendix A of the report. This chart is taken from BS5837:2012.

4.2.3 In general BS Category A trees are high quality trees with an estimated 40+ years useful remaining life expectancy. These trees are often dominant trees in groups or ancient veteran specimens that offer high landscape amenity value or are of significant arboricultural or cultural value. The survey captured 13no. BS Category A trees as individual trees or groups.

4.2.4 In general BS Category B trees are those of moderate quality with an estimated 20+ year's useful remaining life expectancy. The trees are often downgraded due to remedial defects such as storm damage, over extended limbs, asymmetrical crowns or limited past management intervention. The survey captured 63no. BS Category B trees as individual trees or groups.

4.2.5 In general BS Category C trees are of low quality due to their young age or due to poor condition with an estimated 10+ year's useful remaining life expectancy. Whilst by definition such trees are of low quality as defined by their BS Category ratings they can still offer landscape amenity value as part of larger groups. The survey captured 108no. BS Category C trees as individual trees or groups. The majority of trees obtained a BS Category rating given their young age.

4.2.6 In general BS Category U trees are trees with serious structural defects or trees in poor physiological condition that reduces their remaining useful life expectancies below 10years. Where U trees have been recorded they may require remedial works to reduce the risk of harm to people or property that could be reasonably foreseen as coming into contact with the trees. These works should form part of tree risk management operations for the site. The survey captured 3no. BS Category U trees.

4.2.7 Preliminary management recommendations have been recorded for certain of trees surveyed on site. These works have been identified as part of managing the risk of failure or damage to people or property within proximity of the particular tree. These works should form part of the tree risk management strategy for the site and be undertaken independent of the proposals.

5. Arboricultural Impacts

5.1 General

5.1.1 This survey takes into account the tree stock deemed likely to be affected by the proposed scheme and identifies their condition and suitability for retention. The tree protection plans drawing numbers 5137998/COL/ARB/01 TO 014 Rev D illustrate the extents of the survey area, the root protection area (RPA) for each tree or trees and the current parameter plans for developing the site.

5.1.2 The British Standard relies heavily on the creation of a protected zone referred to as the RPA around each tree. This is 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. This area should be protected from disturbance "in order to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system." The recommended minimum area (m²) for each tree to avoid potentially harmful disturbance has been calculated for all of the trees on site and entered into the tree schedule and is illustrated on the tree survey drawings.

5.1.3 The RPA(s) for each tree or group of trees is illustrated as a circle or an offset from the centre of the tree group or stem. This area does not take into account pre-existing site conditions or other factors that can influence or modify the shape and disposition of tree roots. Accordingly, the Arboriculturist can make modifications or judgements on the likely extents of RPAs, where through professional judgement it is deemed likely that the root zones have been restricted in a certain direction because of limiting factors such as; topography, drainage or the presence of existing built infrastructure.

5.2 Scheme details

5.2.1 The tree protection plans incorporate the current parameters plans showing the different building zones. However, these do not include any detailed designs, they merely cover the developable areas. As such this impact assessment, has been influenced by an agreed set of 'Design Guidelines' which cover those trees that are mandatory for retention, and those that could be removed to facilitate future development within the given areas, referenced as 'non-mandatory' trees to be retained within this assessment and on other submitted material.

5.2.2 All non-mandatory trees that fall within the building zones have currently been assigned either a red cross or red hatch on the tree protection plans. Their removal in the majority of cases is unavoidable. However, designers should use this impact assessment and accompanying tree protection plans to create detailed layouts that allow for the retention of some trees classed as non-mandatory for retention, especially mature trees or groups that offer high landscape amenity value. All non-mandatory trees to be retained that fall outside of the building zones have not been assigned a red cross, these are to be retained unless absolutely necessary.

5.2.3 Through consultation with the Local Authority specific offsets from any future buildings have been established from certain trees and groups in order to provide sufficient space for the trees to grow to their full potential without vertical and radial restriction. These have been entered into table 5.1 and also are illustrated on the TPPs where appropriate. It must be noted that these buffer zones vary depending on tree species, landscape function and likely future management. It ranges from 5m through to 15m. These zones often fall outside of the current RPAs of trees, however, this is due largely to the majority of the trees being relatively young in age and their existing constraints being limited as a result, i.e. crown spreads and stem diameters. These buffer zones are to inform any future proposals and in that regard they relate to buildings and subsequently development in the form of soft landscaping or lower level built infrastructure such as access roads or paths could be permitted in these zones.

5.2.4 As part of the 'Woodland Management Plan' for the site, legacy trees are to be established in specific boundary groups. The pertinent groups are referenced within Table 5.1. These legacy trees have not been selected at present, and relate to a specific number of chosen specimens within larger boundary groups that are to receive specific management to enable them to develop to large specimen trees. The exact trees are to be identified and recorded on site. Where these are recorded they are to receive a 15m buffer zone from any future proposed buildings in order to permit unrestricted radial spread of their crowns. Any future development will need to take this into account.

5.2.5 As no construction methodologies are known and detailed designs for each development zone are not included within the scope of this outline planning application the location of any specific mitigation measures to facilitate future proposals, including the location of protective barriers, ground protection and facilitation pruning, will have to be defined within either a scheme specific Arboricultural Impact Assessments or within an Arboricultural Method Statement (AMS) for the relevant development and there locations illustrated on updated TPPs, where required.

5.3 Arboricultural Impacts

5.3.1 The table below outlines the impacts of the proposals on the tree stock on site and likely mitigation measures required to facilitate the works.

Table 5.1 Tree stock and works

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
001(0626)	Crack Willow	C1	X	N/A	Tree located within a building zone, non-mandatory for retention. Tree of low quality as defined by BS Category.
G001(0625)	Limex4	C2	N/A	N/A	Trees located on edge of a building zone. Trees mandatory for retention as defined within the West Cambridge Design Guidelines.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G002	Elmx14, Sycamorex1, Hawthorn, Elder	B2	N/A	N/A	Trees outside of building zones. Tree group mandatory for retention as defined within the West Cambridge Design Guidelines.
G003	Elm, Elder, Hawthorn	C2	N/A	N/A	Trees outside of building zones. Tree group mandatory for retention as defined within the West Cambridge Design Guidelines.
G003A	Common Ash, Norway Maple, Sycamore,	B2	N/A	N/A	Trees outside of building zones. Tree group mandatory for retention as defined within the West Cambridge Design Guidelines.
G004(0571)	Lime	B2	N/A	N/A	Trees outside of building zones. Tree group mandatory for retention as defined within the West Cambridge Design Guidelines. 10m buffer zone to be adopted.
G005(0619)	Lime	B2	N/A	N/A	Trees outside of building zones. Tree group mandatory for retention as defined within the West Cambridge Design Guidelines. 10m buffer zone to be adopted.
G006(0629)	Common Ash	C2	X-11	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G007	Hazel, Blackthorn	C2	X-13	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G008(0866)	Common Ash	C2	X-13	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G009(0857)	Common Ash	C2	N/A	N/A	Trees outside of building zones. 10m buffer zone to be adopted.
002	Silver Birch	C1	N/A	N/A	Tree outside of building zones.
G010(0851)	English Oak "fastigata"	C2	X-5	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
003(0822)	Turkey Oak	B2	N/A	N/A	Tree outside of building zones.
004(0821)	Turkey Oak	B2	N/A	N/A	Tree outside of building zones.
005(0820)	Turkey Oak	B2	N/A	N/A	Tree outside of building zones.
G011(0702)	Common Alder	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G012(0694)	Cherry	B2	X-18	N/A	Trees located within a building zone. Trees of moderate quality as defined by BS Category.
G013	Liquid Amber x5	C2	X-5	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G014	Common Ash, Field Maple	B2	X-704m^2	N/A	Trees located within a building zone. Trees of moderate quality as defined by BS Category.
G015(1760)	Callery Pear	C2	X-50	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G016 G016A(1969-1985) G016B(1986-1992) G016C(1993-2000) G016D(1897-1900) G016E(1888-1896 G116(1965-1968)	Common Ash, Lime, English Oak, Cherry, Hazel	C2	N/A	N/A	Trees outside of building zones. Tree groups mandatory for retention as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
006	Leyland Cypress	B2	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
007	Lombardy Poplar	C2	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G017	Field Maplex3	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G018 (008-011)	Common Ash, Norway Maple	B2	N/A	N/A	Trees outside of building zones. Tree group mandatory for retention as defined within the West Cambridge Design Guideline.
G019(1686)	English Oak, Beech, Lime, Horse Chestnut	B2, U	X-7	X-1	Trees outside of building zones. Fell 1691- horse chestnut in decline due to Bleeding canker and honey fungus on surface roots & on stems. 7no. south trees non-mandatory for retention. Remaining trees mandatory for retention as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
012(1704)	Common Ash	B1/2	X	N/A	Tree outside of building zones. Tree non-mandatory for retention as defined within the West Cambridge Design Guidelines.
G020(1703)	English Oak, Beech, Lime	C2	X-7	N/A	Trees outside of building zones. Trees non-mandatory for retention as defined within the West Cambridge Design Guidelines.
G021(1706)	English Oak, Chery, Horse Chestnut Beech, Lime	C2	N/A	N/A	Trees outside of building zones. Tree mandatory for retention as defined within the west Cambridge Design Guidelines.
013(1718)	Weeping Willow	B1/2	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
014	Horse Chestnut	B3	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
G022A	Grey Poplarx4	B2	N/A	N/A	Trees outside of building zones.
G022	Field Maple, Common Ash, Cherry, Hazel	C2	N/A	N/A	Trees outside of building zones.
015	Sycamore	B2	N/A	N/A	Tree outside of building zones.
016	Sycamore	B2	N/A	N/A	Tree outside of building zones.
017	Hawthorn	C2	N/A	N/A	Tree outside of building zones.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G023(0661)	Common Ash	C2	X-22	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G024 G024A(1887-1870)	Grey Poplar, Common Ash, Cherry, Silver Birch, Hawthorn, Lime, English Oak	B2	X-PART	N/A	Part of tree group located within a building zone. Trees of moderate quality as defined by BS Category. Majority of tree group mandatory for retention as defined within the West Cambridge Design Guideline. Sections non-mandatory as illustrated on the TPPs. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
G025(0719)	Lime	C2	X-13	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G026(0725)	Cherry	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
018(0728)	Himalayan birch	C2	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G027	Common Ash	C2	X-9	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
019(0807)	Horse Chestnut	C2	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G028	Flowering Cherry, Cockspur thorn	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G029	Himalayan birch	C2	X-16	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G030(0803)	Weeping Ashx3	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G031	Not Identified	C2	X	N/A	Tree located within a building zone.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G032(0796)	White beamx3	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
020(0800)	Whitebeam	B1	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
G033(0784)	Whitebeam, Crab Apple	C2	N/A	N/A	Trees outside of building zones.
G034(0776)	Silver Birch	B2	N/A	N/A	Trees outside of building zones.
021	Flowering Cherry	B1/3	N/A	N/A	Tree outside of building zones.
G035(0760)	Alderx3	B2	N/A	N/A	Trees outside of building zones.
G036(0759)	Willow leaved Pearx4	B2	N/A	N/A	Trees outside of building zones.
G037(0756)	Weeping Willowx8	B2	N/A	N/A	Trees outside of building zones. Trees must be retained as defined within the West Cambridge Design Guidelines.
022(0753)	Field Maple	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G038(0740)	Horse Chestnut	B2	N/A	N/A	Trees outside of building zones. Trees mandatory for retention as defined within the West Cambridge Design Guidelines.
G039(0747)	Alderx3	C2	N/A	N/A	Trees outside of building zones. Trees mandatory for retention as defined within the West Cambridge Design Guidelines
023(0744)	White Willow	C2	N/A	N/A	Tree outside of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines
G040	Cherry, English Oak, Lime	C2	N/A	N/A	Trees outside of building zones. Trees mandatory for retention as defined within the West Cambridge Design Guidelines

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G041	Field Maple, Elm, Alder, Hazel, Hawthorn,	C2	N/A	N/A	Trees outside of building zones. Trees mandatory for retention as defined within the West Cambridge Design Guidelines. 5m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
024(1562)	English Oak	A1/2/3	N/A	N/A	Tree outside of building zones. Trees mandatory for retention as defined within the West Cambridge Design Guidelines
G042	Weeping Willow	C2	N/A	N/A	Trees outside of building zones. Trees mandatory for retention as defined within the West Cambridge Design Guidelines
G043	Crack Willow	C3	N/A	N/A	Trees outside of building zones. Trees mandatory for retention as defined within the West Cambridge Design Guidelines
G044	Cherry	U	X	X-1	Trees within building zone. Fell west tree due to poor structural form.
G045	Crab Apple	C2	X-4	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
025(0787)	Silver Maple	B1	N/A	N/A	Tree outside of building zones.
G046(0789)	Silver Maple	C2	X-6	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G047(0895)	London Plane	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G048(1030)	Hornbeam	C2	X-90	N/A	Trees part located within a building zone. Trees of low quality as defined by BS Category.
G049(1565)	Golden Ash	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
026	Liquid Amber	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
027(1564)	Tulip Tree	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G050	Apple, Silver Birch, Willow	C2	X-29	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G051(1397)	Norway Maple	B2	X-3	N/A	3 no. trees located within a building zone. 1 no. tree mandatory for retention as defined within the West Cambridge Design Guidelines 10m offset to be adopted for any future buildings to provide sufficient space to grow to full potential. .
G052	Snowy mespilus, Pear	C2	N/A	N/A	Trees located within a building zone. Trees mandatory for retention as defined within the West Cambridge Design Guidelines Trees of low quality as defined by BS Category.
G053	Snowy mespilus, Pear	C2	N/A	N/A	Trees located within a building zone. Trees mandatory for retention as defined within the West Cambridge Design Guidelines Trees of low quality as defined by BS Category.
G054	London Plane	B2	N/A	N/A	Trees within a building zone. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G055(1547)	Lime	B2	N/A	N/A	Trees outside of a building zone. Trees of moderate quality as defined by BS Category. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
G056(1541)	Lime	B2	X-7	N/A	7 no. trees located within a building zone. Trees of moderate quality as defined by BS Category. Remaining trees mandatory for retention as defined within the West Cambridge Design Guidelines
028(1493)	Norway Maple	B1*	N/A	N/A	Tree outside of building zones. Tree must be retained as defined within the West Cambridge Design Guidelines.
029(1532)	Apple	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
030(1530)	Lawson Cypress	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G057(1529)	Lime	A2	N/A	N/A	Trees outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
G058(1519)	Lime	C2	X-9	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
031(1854)	Luscomb Oak	A1	X	N/A	Tree located within a building zone. Tree of high quality as defined by BS Category.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
032	Common Ash	B2	N/A	N/A	Tree on periphery of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines
033	Sycamore	B2	N/A	N/A	Tree on periphery of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines
034(1897)	Field Maple	B2	N/A	N/A	Tree on periphery of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines
035(1896)	Field Maple	B1	N/A	N/A	Tree on periphery of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines
036(1895)	English Oak	A1	N/A	N/A	Tree on periphery of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines
G059(1508)	Common Beech	A2	N/A	N/A	Trees outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
037	English Oak	A1	N/A	N/A	Tree outside of building zones. Tree must be retained as defined within the West Cambridge Design Guidelines.
038(1892)	English Oak	A1	N/A	N/A	Tree on periphery of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines
039(1891)	English Oak	A1	N/A	N/A	Tree on periphery of building zones. Tree mandatory for retention as defined within the West Cambridge Design Guidelines

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G060	Cherry, Elder, Hazel, Sycamore, Lawson Cypress, Common Ash	C2	X-2	N/A	2 no. tree located within a building zone. Tree of low quality as defined by BS Category. Remaining trees mandatory for retention as defined within the West Cambridge Design Guidelines
040	Hybrid Black Poplar	C1/2	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
041(1494)	English Oak	B1/2	N/A	N/A	Tree located within a building zone. Mandatory tree to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space to grow to full potential.
042	Blue Atlantic Cedar	B2	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
043(1497)	Silver Maple	B2	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
044(1398)	Norway Maple	B2	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
G061(1448)	Silver Birch	C2	X-19	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G062(1445)	Norway Maple	B2	X-2	N/A	Trees located within a building zone. Trees of moderate quality as defined by BS Category.
045(1440)	Cappadocian Maple	C2	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G063	Leyland cypress	C2	X-200m^2	N/A	Tree group located within a building zone. Trees of low quality as defined by BS Category.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
046(1426)	Cappadocian Maple	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G064(1423)	Flowering Cherry	B2	N/A	N/A	Trees within a building zone. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree's to grow to their full potential.
047	Elder	C1	X	N/A	Tree within building zones.
048(1420)	Black Mulberry	B1	N/A	N/A	Tree outside of building zones. Mandatory tree to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
049(1419)	Flowering Cherry	B1	N/A	N/A	Tree outside of a building zone. Mandatory tree to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G065(1470)	Cherry	C2	N/A	N/A	Trees outside of building zone. Trees of low quality as defined by BS Category.
G066(1461)	Silver Birch	B2	N/A	N/A	Trees outside of building zone. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G067(1474)	Lime	B2	N/A	N/A	Trees outside of building zone. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
050(1475)	Sweet Gum	C1	N/A	N/A	Tree outside of building zones.
051(1476)	Norway Maple	C1	N/A	N/A	Tree outside of building zones.
G068(1456)	Norway Maple	B2	N/A	N/A	Trees outside of building zone. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G069(1452)	Silver Maple	B2	N/A	N/A	Trees outside of building zone. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G070(1450)	Crab Apple	B2	N/A	N/A	Trees outside of building zone. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
052(1449)	Crab Apple	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G071(1409)	Whitebeam	B2	N/A	N/A	Trees located within a building zone. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
053	Elder	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G072(1401)	Norway Maple	U, C2	X-6	N/A	Trees located within a building zone. Trees of low or poor quality as defined by BS Category.
054	Silver Birch	U	X	X	Tree located within a building zone. Tree also recommended for removal due to its poor condition.
G073(1392)	Hornbeam	C2	X	N/A	Part of group located within a building zone. Trees of moderate quality as defined by BS Category.
055(1477)	Hornbeam "fastigata'	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G074	Silver Birch	B2	X-2	N/A	Trees located within a building zone. Tree of moderate quality as defined by BS Category.
056	Sycamore	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G075	Elder, Silver Birch, Alder,	C2	X-10	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
057	Silver Birch	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
058(1490)	Silver Maple	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
059	Crab Apple	C1	X	N/A	Trees outside of building zone. Mandatory tree to be retained as defined within the West Cambridge Design Guidelines.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G076	London Plane	B2	N/A	N/A	Trees outside of building zones. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 8m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G077(1370)	Lime	B2	X-4	N/A	Trees located within a building zone. Trees of moderate quality as defined by BS Category.
060	Horse Chestnut	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
061	Field Maple	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G078	Field Maple, Black thorn	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G079	Hornbeam	C2	X-31	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G080	London Plane	C2	N/A	N/A	Trees outside of building zones.
G081	London Plane	C2	N/A	N/A	Trees outside of building zones. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 8m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G082	Hornbeam	C2	X-23	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
062(1084)	Apple	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G083	Sorbus spp	C2	X-12	N/A	Part of group located within a building zone. Trees of low quality as defined by BS Category.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G084	London Plane	C2	N/A	N/A	Trees outside of building zones. Mandatory trees to be retained as defined within the West Cambridge Design Guidelines. 8m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G085	Hornbeam	C2	X-85	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G086	Various	C2	N/A	N/A	Trees outside of building zones.
W1 1937-1950	Ash, Field Maple, English Oak, Hawthorn, Hazel	C2	N/A	N/A	Trees outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential. 3 no. legacy trees to be identified and 15m offsets provide from any future buildings.
W2 1926-1936	Ash, Field Maple, English Oak, Hawthorn, Hazel	C2	N/A	N/A	Trees outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 5m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential. 3 no. legacy trees to be identified and 15m offsets provide from any future buildings.
063	English Oak	A1/2/3	N/A	N/A	Tree within a building zone. However, trees must be retained as defined within the West Cambridge Design Guidelines. 15m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
064	English Oak	A1/2/3	N/A	N/A	Tree within a building zone. However, trees must be retained as defined within the West Cambridge Design Guidelines. 15m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
065	English Oak	A1/2/3	N/A	N/A	Tree within a building zone. However, trees must be retained as defined within the West Cambridge Design Guidelines. 15m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
066(1839)	English Oak	A1/2/3	N/A	N/A	Tree within a building zone. However, trees must be retained as defined within the West Cambridge Design Guidelines. 15m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
067(1829)	English Oak	A1/2/3	N/A	N/A	Tree within a building zone. However, trees must be retained as defined within the West Cambridge Design Guidelines. 15m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
068(1826)	English Oak	B1/2/3	N/A	N/A	Tree within a building zone. However, trees must be retained as defined within the West Cambridge Design Guidelines. 15m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.
G087	English Oakx2	B1/2/3	N/A	N/A	Trees outside of building zones. Trees must be retained as defined within the West Cambridge Design Guidelines 15m offset to be adopted for any future buildings to provide sufficient space for tree to grow to full potential.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G088(1820)	Common Ash	C2	X-4	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
W3 W3A (1901-1913) W3B (1914-1925)	Field Maple, Common Ash, Elder, Blackthorn, English Oak, Scots Pine	B2	N/A	N/A	Trees outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential for plot 3A, 5m for 3B. 3 no. legacy trees to be identified and 15m offsets provide from any future buildings within plots 3A and 3B
W4 W4A(1951-1953) W4B(1954-1960) W4C(1961-1963)	Field Maple, Common Ash, Elder, Blackthorn, Sycamore	B2	N/A	N/A	Trees outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 5m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
G089	Beechx2	C2	X-2	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G090	Crab Apple, Hawthorn, Elder	C2	X	N/A	Part of group located within a building zone. Trees of low quality as defined by BS Category. Remaining group to be retained as defined within the West Cambridge Design Guidelines. 5m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
069	Common Ash	C1	N/A	N/A	Tree outside ofa building zone. Tree of low quality as defined by BS Category.
G091	Hornbeam, Hawthorn	C2	X-9	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
070(1579)	Service tree	B2/3	X	N/A	Tree located within a building zone.
G092(1170)	Sorbus sp	C2	X-4	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G093(1169)	Hornbeam 'fastigata'	B2	X-1	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
071	Honey locust	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G094(1151)	Silver Birch x2	C2	X-2	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G095(1153)	Hornbeamx3, Silver Birchx1, Alder x3	C2	X-7	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
072(1156)	Alder	B1	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
G096	Mixed	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G097(1185)	Mixed	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
073(1184)	Honey locust	C1	N/A	N/A	Tree outside of building zones.
G098(1181)	Weeping birchx6	C2	N/A	N/A	Trees outside of building zones.
074	Blue Atlantic Cedar	B1	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.

Group/ Tree No.	Species	Cat	Removal permitted		Details of how proposed build affects trees
			Dev	Cond	
G099(0216)	Scots Pine, Whitebeam Silver Birch, Cherry, Elder, Alder, Lawson's Cypress, Goat Willow, Field Maple,	C2	X-37	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
075	Alder	B1	X	N/A	Tree located within a building zone. Tree of moderate quality as defined by BS Category.
G100	Pearx4	C2	X-4	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
076	Lawson's cypress	C1	X	N/A	Tree located within a building zone. Tree of low quality as defined by BS Category.
G101(1234)	Silver Birch	B2	X-6	N/A	Trees located within a building zone. Trees of moderate quality as defined by BS Category.
G102(1250)	Norway Maple	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G103	Silver Birchx3	C2	X-4	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G104(1223)	Norway Maple x3, Scots Pine x1	C2	X-3	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G105	Silver Birch, Hawthorn Scots Pine, Lime, Whitebeam.	B2	N/A	N/A	Tree outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
G106(1341)	Horse chestnutx2, Limex1	C2	N/A	N/A	Tree outside of building zones.
G107(1346)	Cherry	B2	X-6	N/A	Trees located within a building zone. Trees of moderate quality as defined by BS Category. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
G108	Common Ash, Whitebeam	C2	X-34	N/A	Trees located within a building zone. Trees of low quality as defined by BS Category.
G109(1358)	Cherry, Lime	C2	N/A	N/A	Trees outside of building zones. Mandatory tree group to be retained as defined within the West Cambridge Design Guidelines. 10m offset to be adopted for any future buildings to provide sufficient space for long lived tree's to grow to their full potential.
G110	Various	C2	N/A	N/A	Trees outside of building zones.

5.3.2 The impacts of the building zones have been quantified as accurately as possible given the information available at this time. Where trees fall within the building zones and are not mandatory for retention they have been assigned a red cross or a red hatch for groups.

5.3.3 When assessing the tree removal it is clear that a considerable number of trees will have to be removed to facilitate the development of the site. However, this does not take into account the potential to retain trees within the different development plots. The designers should consider a sympathetic approach to the layout of any development to incorporate the retention of trees, especially those trees that have been assigned BS Categories of B and A as these are highly desirable for retention. In terms of tree removal justification for any proposals BS Category C trees should generally not hinder development given their low quality either as young trees or trees with limited useful remaining life expectancy. Certain trees have also been shown as 'must be retained' within the West Cambridge Design Guidelines, this details has been reflected in the table. The guidelines also identify trees that should be retained and the designers should use these guidelines to retain as many trees as possible.

5.3.4 This report and accompanying plans should be utilised by the designers to inform the layout of the detailed proposals to retain trees where appropriate. Once the finalised layout of the proposals has been determine the impacts on the trees will need to be quantified by an Arboriculturist. In order to provide details on the trees to be removed and any requirements for facilitation pruning and mitigation measures.

5.3.5 Designers may take into account that trees will tolerate a degree of root zone infringement depending on the works proposed and if they require any excavations, similarly, other factors to consider are species tolerance and the remaining un-surfaced RPA that can be retained. The BS5837 makes reference to 20% as a general rule in determining the amount of RPA infringement that could be achievable, but any such infringement into the RPA will have to follow consultation with and approval from the project arboriculturist. Where infringement of the RPA is considered acceptable at ground level further consideration will need to be given to any impact on the tree's canopy.

5.4 Preliminary Management Recommendations

5.4.1 Preliminary management recommendations have been recorded for some of the trees surveyed on site. These works have been identified as part of managing the risk of failure or to benefit the long term potential of the tree group to maximise their wildlife and screening potential.

5.5 Preliminary Mitigation Measures

5.5.1 At present no reference has been made to protective barriers. Once the designs in the different development plots has been finalised the location of mitigation measures shall have to be determined by an Arboriculturist. Protective barriers will be required to create construction exclusion zones (CEZ's) in order to protect the remaining RPA's of trees affected by the proposed works. The CEZ's will be defined as all the areas behind the fencing. Site operations not permitted in the CEZ without consultation with an Arboriculturist include storage of plant, equipment or materials, vehicular or plant access, washing down of vehicles or machinery, handling, discharge or spillage of any substances, including cement washings, actions likely to cause localised water-logging, no mechanical digging, scraping or excavation shall be permitted in the CEZ and no earthworks or changes in the finished ground levels other than those agreed by an Arboriculturist.

5.5.2 The locations of protective barriers will have to be determined at detailed design phase and once construction methodologies are readily known and should be detailed within an Arboricultural Method Statement (AMS). The protective barriers will need to be installed prior to any works commencing. The barriers are to be erected to exclude construction activity in the RPAs of retained trees and are to conform to figure 3b of BS5837:2012 (page 21), a heras type fencing.

5.5.3 The AMS would also identity any further mitigation measures to protect retained trees including the provision of ground protection or hand excavations to reduce the potential of damaging tree root zones.

6. Arboricultural Method Statement

6.1 Heads of Terms

6.1.1 A site specific Arboricultural Method Statement (AMS) will address some or all of the following:

- Removal of existing structures and hard surfacing;
- Installation of temporary ground protection;
- Excavations;
- Installation of new hard surfacing – materials, design constraints and implications for levels;
- Tree works schedule;
- Tree protective barriers;
- A schedule of specific events requiring input or arboricultural supervision.

Appendix A. Key & BS5837:2012 survey table

Tree No: Sequential reference number given to the tree or group of trees as shown on the tree survey drawings.

Species: This is the common name given to the tree. The botanical name is sometimes given.

Height (Ht): tree height from the base of the tree to its heights stem, measured in metres (m). Measurements are taken to the nearest half metre.

Stem diameter (mm): measured in accordance with figure A1 below. Measurements rounded to the nearest 10mm.

Branch spread (m): measurement of crown spread to the four cardinal points, if the crown is balanced a single measurement is given. Crown spread plotted on the tree survey drawings. Measurements are taken to the nearest half metre.

1st significant branch and direction of growth (m): measurement of the height of the first significant branch above ground level, given in metres and direction of growth e.g. 2.4-N

Canopy height (m): height of the canopy above ground level. Measurements are taken to the nearest half metre.

Life stage: The following abbreviations are used:

Y = Young trees <1/5 life expectancy.

SM = Semi-Mature trees 1/5 – 2/5 life expectancy.

EM = Early Mature trees 2/5 – 3/5 life expectancy.

M = Mature trees 3/5 – 4/5 life expectancy

OM= Over-Mature trees >4/5 life expectancy

General observations, particularly of structural and/or physiological condition: e.g. observations of the any decay and physical defect.

Preliminary management recommendations: any identified preliminary management to rectify defects recorded in general observations. These may include the need for further detailed inspection, or works to address immediate hazard to life or property.

Estimated remaining contribution, in years:

<10

10+

20+

40+

Category grading: As per BS5837:2012 chart in accordance with figure A2 below.

A – Illustrated as light green (RGB code 000-255-000)

B – Illustrated as Mid blue (RGB code 000-000-255)

C – Illustrated as Grey (RGB code 091-091-091)

U – Illustrated as Dark red (RGB code 127-000-000)

Root Protection Area (m^2): plotted around each of the category A, B and C trees on relevant drawings, and illustrates 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 paramount.

(Note: Red hash tag '#' will denote that a measurement is estimated)

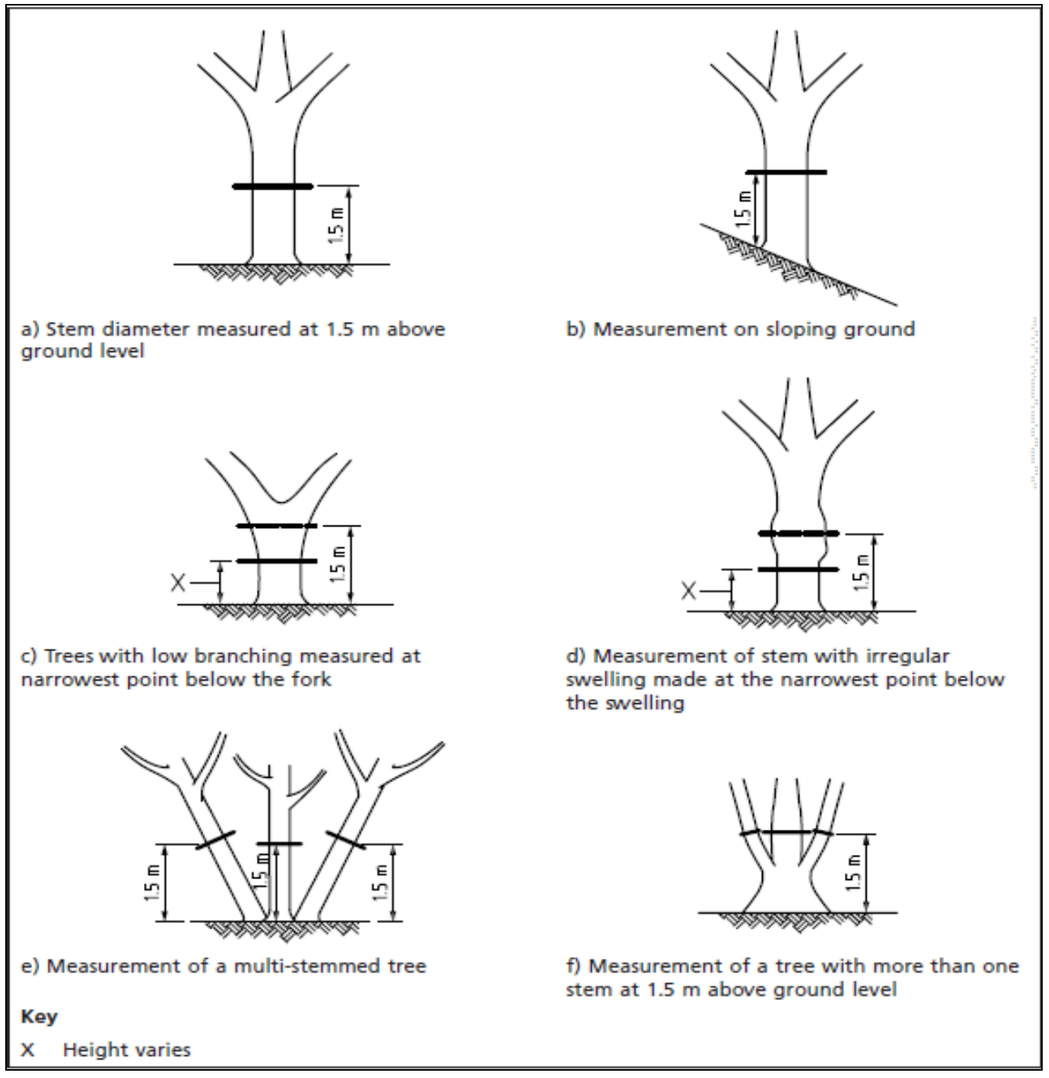

Figure A.1 Measurement of tree stems dependant on tree form

Table A.1 Cascade chart for tree quality assessment from BS5837:2012

Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see Note)			
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 other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • 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; see 4.5.7.*		
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**
Trees to be considered for retention			
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)
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 remediable 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 designation	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 value
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 150 mm	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 only temporary/transient landscape benefits	Trees with no material conservation or other cultural value

Appendix B. Tree survey schedules

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
001(0626)	Crack Willow	10	1250	6	3-SW	1.8	OM	Fair vitality. Crown topped at 7m. Rapid regenerated stems at pruning wounds. Onset of decay visible at pruning points with deadwood and Un-occluded wounds.	Manage as reduced tree	10+	C1	15.0
G001(0625)	Limex4	To 7	220	To 3.5	n/a	1.8	Y	Line of 4 trees. Good vitality throughout. Some tight forks in canopies. Not significant at present. No apparent significant structural defects recorded	No works presently required	40+	C2	2.6
G002	Elmx14, Sycamorex1, Hawthorn, Elder	To 20	250-700	To S-8	n/a	GL	Y-M	Small informal group. Occasional elder & hawthorn. Predominantly elm. Ivy clad stems, including dead ivy. Mutual crown suppression. Drawn forms on younger trees. Some failed stems at ground level. Small diameter deadwood in crowns. No visible signs of Dutch elm disease. Fair to good vitality throughout.	Sever regenerated ivy.	20+	B2	8.4
G003	Elm, Elder, Hawthorn	To 6	To 250	To N-4	n/a	GL	Y-EM	Informal linear group of predominantly self-sown elm, forming old field boundary hedgerow in places. Stumps of dead elms in sporadically located throughout group. Dead elm management evident with felled stems. Remaining live tree previously cut to 1m. Hawthorn & elder within group as well. Heavy ivy encroachment on stems, suppression of crowns - small diameter deadwood present. Fair vitality.	Sever ivy on stems, fell dead elms. Cut back over extended branches towards footpath.	10+	C2	3.0
G003A	Common Ash, Norway Maple, Sycamore,	To 16	To 300x2	To S-8	n/a	GL	SM-EM	Part of boundary vegetation. Intermittent trees. Single & multi stem forms suggesting past coppice management or self-sown. Heavy ivy encroachment on stems & dead ivy in places where it has been severed. Fair vitality throughout, deadwood in crowns and sections of dieback from ivy shading and competition for light. Leans and drawn stems	Sever ivy, remove deadwood overhanging footpath	20+	B2	5.1
G004(0571)	Lime	To 7	To 290	To 4	n/a	1.8	Y	Linear planting forming an avenue. Pruning wounds in crowns from crown lifting. Good vitality throughout. Some tight forks in crowns, synonymous of species and not significant at present.	No works presently required	40+	B2	3.5

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G005(0619)	Lime	To 7	To 230	To 4	n/a	1.8	Y	Linear planting forming an avenue. Pruning wounds in crowns from crown lifting. Mistletoe in crown tree-0599, not significant. Good vitality throughout. Some tight forks in crowns, synonymous of species and not significant at present.	No works presently required	40+	B2	2.8
G006(0629)	Common Ash	To 7	To 190	To 3.5	n/a	1.8	Y	Linear planting forming an avenue feature. Good vitality throughout. No signs of ash dieback. Rabbit wire on main stems of northern line. Potential to restrict main stem growth. No apparent significant structural defects recorded	Remove or loosen rabbit wire	20+	C2	2.3
G007	Hazel, Blackthorn	To 4	To 100	To 2	n/a	GL	Y	Linear plot of shrubs. Good vitality. Screening function. No apparent significant structural defects recorded	No works presently required	20+	C2	1.2
G008(0866)	Common Ash	To 7	To 110	To 2	n/a	1.8	Y	Line of trees set within a beech hedgerow. Good vitality. No apparent significant structural defects recorded	Remove ivy from stems	20+	C2	1.3
G009(0857)	Common Ash	To 8	To 180	To 3	n/a	1.8	Y	Line of trees growing in grassed surface. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	C2	2.2
002	Silver Birch	5	110	2	0.8-E	0.2	Y	Single tree. Good vitality. Crown will obstruct camera over time. Ivy at base	No works presently required	20+	C1	1.3
G010(0851)	English Oak "fastigata"	To 8	To 170	To 1.5	n/a	0.1	Y	Linear planting forming an avenue. Fastigate form. Good vitality throughout. Southern line within building site, bases not inspected.	No works presently required	20+	C2	2.0
003(0822)	Turkey Oak	12	420	S-6.5, 6	2-S	2	SM	Growing on top of slopped grass bank. Good vitality. Crown break at 1.9m. Merged limbs in southern crown extents. Not significant at present. Bird or mammal nest in upper canopy.	No works presently required	40+	B2	5.0
004(0821)	Turkey Oak	12	380	6, E-4	2-S	1	SM	Growing on top of slopped grass bank. Single stem to 8m, co-dominant stems from 8m. Fair to good vitality, small diameter deadwood in crown - considered to be due to competition for light.	No works presently required	40+	B2	4.6
005(0820)	Turkey Oak	12	340	W-2, 6	2-S	1.4	SM	Growing on top of slopped grass bank. Good vitality. Crown break at 2m. Single stem to 5m. No apparent significant structural defects recorded	No works presently required	40+	B2	4.1

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G011(0702)	Common Alder	To 10	To 175	N-4, S-3, E&W-3	n/a	1.8	Y	Line of 3xtrees. Planting pits covered by metal tree grilles. Good vitality. No surface root activity recorded.	No works presently required	40+	C2	2.1
G012(0694)	Cherry	To 8	To 230	To 5.5	n/a	1.8	SM	Formal group planting. Mix of planting environments including pea gravel and part of planted plots with shrubs. Good vitality throughout. Occasional sap bleeds at old branch wounds, not significant at present.	No works presently required	40+	B2	2.8
G013	Liquid Amber x5	To 6.5	To 130	To 2	n/a	1.6	Y	Formal planting. Planting pits covered in decorative gravel. Fair vitality throughout, sparse crowns in places, loss of apical dominance on central southern tree.	No works presently required	20+	C2	1.6
G014	Common Ash, Field Maple	To 10	To 220	To 4	n/a	GL	Y-SM	Linear plot of trees & shrubs. Good vitality throughout. Drawn stems on Field Maples. No apparent significant structural defects recorded. Landscape merit	No works presently required	40+	B2	2.6
G015(1760)	Callery Pear'	To 4.5	To 120	To 2	n/a	1.8	Y	Formal planting set in hard surfaces. Tree pits protect by metal grilles. Surface roots displacing grilles in places. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	1.4
G016 G116	Common Ash, Lime, English Oak, Cherry, Hazel	To 10	To 200	To 2.5	n/a	GL	Y	Boundary screen planted plots, mix of trees & shrubs. Good vitality throughout, small diameter deadwood in crowns from competition for light. No apparent significant structural defects recorded.	Selective thinning to promote establishment of English Oak	40+	C2	2.4
006	Leyland Cypress	22	1000	To 4.5	n/a	0.2	EM	Prominent boundary tree. Good vitality. Pronounced buttress roots. No evidence of root plate movement. Dense crown. Structural defects potentially obscured.	No works presently required	20+	B2	12.0
007	Lombardy Poplar	14	300x2	4	0.5-S	GL	SM	Boundary tree. Co-dominant stems at 0.3m. Good vitality. Surface roots displacing block paving to south east.	No works presently required	10+	C2	5.1
G017	Field Maplex3	To 7	To 200	To 3.5	n/a	GL	Y	Trees growing on top of slopped grass bank. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	2.4

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G018 (008-011)	Common Ash, Norway Maple	To 16	011-300x2, 500	To S-9.5	n/a	3-S	SM-M	Part of boundary vegetation. Fair to good vitality throughout. 008-Common Ash, co-dominant stems at 3m, union not visible. Ivy encroachment on stems to 8m. 009-Norway Maple, co-dominant stems at 0.5m, tight union with included bark junction. Not significant at present. Ivy encroachment on stems. 010-Sycamore, co dominant stems at 2m, not visible. Ivy encroachment on stems. 011-Common Ash, 3xstems from 1m. Open crown. dead ivy in canopy	Sever ivy throughout group to facilitate ongoing condition related inspections	20+	B2	6.0
G019(1686)	English Oak, Beech, Lime, Horse Chestnut	To 7	To 290	To 3.5	n/a	1.8	Y	Informal planted plot, grass at bases. Good vitality throughout. No apparent significant structural defects recorded	Fell 1691- horse chestnut in decline due to Bleeding canker and honey fungus on surface roots & on stems.	40+	B2, 1691-U	3.5
012(1704)	Common Ash	16	540, 500	9	2-W	2	M	Boundary tree. Growing in grassed sunken area. Co dominant stems at 1m, union not included. Stems split into further co dominant unions at 2m. East stem included bark junction at split, abrupt angles on limbs beyond 3m. Suggests past crown reductions. Not significant at present.	No works presently required	20+	B1/2	8.8
G020(1703)	English Oak, Beech, Lime	To 7	To 250	To 3.5	n/a	2	Y	Informal planted plot growing on top of slopped grass bank. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	3.0
G021(1706)	English Oak, Chery, Horse Chestnut Beech, Lime	To 8	To 250	To 3.5	n/a	2	Y-SM	Informal planted plot growing on top of slopped grass bank. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	3.0
013(1718)	Weeping Willow	14	900	6	1.8-N	2	M	Growing on boundary in sunken grass area. Old pollard. Cavities and areas of decay visible at old pruning wounds. Rapid regenerated stems at points. Main stem multi stem form at 2m. Ground lights installed in root zone	Maintain as reduced tree.	40+	B1/2	10.8
014	Horse Chestnut	6	1250	3	n/a	1	OM	Bespoke engineered solution around root zone to mitigate for change in ground levels. Metal grid system. Tree topped at 6m. Epicormic growth on main stem & branches-limited. Crown break at 3m into 6xstems. Veteran tree.	No works presently required	10+	B3	15.0

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G022A	Grey Poplarx4	To 18	To 550	To W-10	n/a	3	EM	Line of 4 trees. Growing on east boundary adjacent to footpath. Good vitality throughout. Leans on trees, southern tree on 30degree lean-no root plate movement recorded. Surface roots displacing asphalt footpath to west.	No works presently required	20+	B2	6.6
G022	Field Maple, Common Ash, Cherry, Hazel	To 10	To 200	To W-4	n/a	GL	Y-SM	Linear belt of trees & shrubs. Drawn stems throughout. Fair vitality given competition for light & ivy encroachment on stems shading canopies.	Selective coppice	20+	C2	2.4
015	Sycamore	15	500@200	W-7	1-W	2	EM	Growing adjacent to footpath. Tree splits into 4xstems at 1m. Unions appear sound. Small diameter deadwood in crown. Fair vitality.	Remove deadwood overhanging footpath	20+	B2	6.0
016	Sycamore	15	350, 370	W-5	3-N	3	EM	Growing adjacent to footpath. 2xstems from ground level. Slight lean on stems to north. Fair vitality with small diameter deadwood in crown.	Remove deadwood overhanging footpath	20+	B2	6.1
017	Hawthorn	5	300@200	W-4	0.5-W	2	EM	Growing adjacent to footpath. Multi stem form at 0.5m. Crown suppressed to north. Fair vitality with small diameter deadwood in crown.	No works presently required	20+	C2	3.6
G023(0661)	Common Ash	To 7	To 200	To 3	n/a	1.8	Y	Formal planting. Trees in car park. Good vitality throughout, no apparent significant structural defects recorded	No works presently required	20+	C2	2.4
G024	Grey Poplar, Common Ash, Cherry, Silver Birch, Hawthorn, Lime, English Oak	To 10	To 200	To W-4	n/a	GL	Y-SM	Planted earth mound. Screening function. Good vitality throughout. Mutual crown suppression. No apparent significant structural defects recorded	Selective thinning	40+	B2	2.4
G025(0719)	Lime	5	To 150	To 2	n/a	1.8	Y	Formal linear planting. Beech hedgerow underneath. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	C2	1.8
G026(0725)	Cherry	4	To 160	To 2	n/a	1.8	Y	3xcherry. Set in grassed area. Good vitality. Crowns toped at 4m.	No works presently required	20+	C2	1.9
018(0728)	Himalayan birch	5	120	2	1.8-N	1.8	Y	Growing in grassed area. Good vitality. No apparent significant structural defects recorded	No works presently required	20+	C2	1.4
G027	Common Ash	6	To 145	To 2	n/a	1.8	Y	Linear planting, shrubs underneath. Good vitality throughout, no apparent significant structural defects recorded	No works presently required	20+	C2	1.7

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
019(0807)	Horse Chestnut	6	300	5	1.8-N	2	SM	Growing in grassed area. Footpath to north. Good vitality. Crown break at 1.8. No apparent significant structural defects recorded	No works presently required	20+	C2	3.6
G028	Flowering Cherry, Cockspur thorn	4	To 140	To 2	n/a	1	Y	3xtrees growing in grassed area. Good vitality throughout. Graft point for cherry at base. No apparent significant structural defects recorded	No works presently required	20+	C2	1.7
G029	Himalayan birch	To 5	To 80	1.5	n/a	1.5	Y	Group planting, shrubs underneath. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	C2	1.0
G030(0803)	Weeping Ashx3	To 5.5	To 250	To 4.5	n/a	1.8	Y	Growing in grassed area. Weeping habits, crown breaks at 1.8m. Small diameter deadwood in crowns. Fair vitality throughout	No works presently required	20+	C2	3.0
G031	Not identified	To 3	To 90	To2.5	n/a	GL	Y	3xshrubs. Corner planted plot. Fair vitality throughout	No works presently required	10+	C2	1.1
G032(0796)	White beamx3	To 4.5	To 180	To 3	n/a	1.7	Y	Growing in grassed area. Good vitality throughout. Suckering growth on central tree. Decay entry points on stems at old branch wounds, not significant at present	Remove suckering growth	10+	C2	2.2
020(0800)	Whitebeam	8	To 240	3	2-E	1.8	SM	Growing in courtyard area. Crown break at 2m into 3xstems. Birds nest in crown. Ground compaction at base.	No works presently required	20+	B1	2.9
G033(0784)	Whitebeam, Crab Apple	To 8	To 250	To 3.3	n/a	1	Y	Growing in grassed area. Decay entry points on mains, at old branch wounds. Fair to good vitality throughout. Small diameter deadwood in crowns.	0785-elongated cavity on south side of main st. No works presently required	20+	C2	3.0
G034(0776)	Silver Birch	To 12	To 270	To 4.5	n/a	1.8	SM	Growing on grassed mound. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	B2	3.2
021	Flowering Cherry	4	190	1	n/a	1	SM	Good vitality. Graft point at ground level.	No works presently required	20+	B1/3	2.3
G035(0760)	Alderx3	To 12	To 400	To N-5	n/a	1.8	Y-SM	Growing on banks of pond. Single stems & co-dominant leaders. Good vitality throughout. Abrupt angles on branches and minor crown suppression. No apparent significant structural defects recorded	No works presently required	20+	B2	4.8
G036(0759)	Weeping Silver Pearx4	To 3.5	To 230	To 3	n/a	1.5	SM	Growing on banks of pond. Crowns lifted to 1.8m. Congested crowns, typical of species. Good vitality throughout	No works presently required	20+	B2	2.8

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G037(0756)	Weeping Willowx8	To 17	To 700	To N, W-9	n/a	1.5	EM	Group of 8 trees. Fair to good vitality throughout. Deadwood in crowns, competition for light & crown shading. Past crown reductions visible on 2xtrees with multi stem regenerated stems at pruning wounds. Remaining trees unmanaged. Kinked stem, slight leans. Hazard beams in crowns due to weighted tips on branches leading to horizontal cracks.	Crown reductions by 5m on trees not currently under a reduction programme.	20+	B2/3	8.4
022(0753)	Field Maple	10	200	N-5, S-2	1.8-N	1.5	SM	Growing in grassed area. Crown suppression to south. Small diameter deadwood in crown. Fair vitality	No works presently required	10+	C1	2.4
G038(0740)	Horse Chestnut	To 10	490	To 5.5	n/a	1.8	SM	Trees growing on earth mound. Mutual crown suppression. Small diameter deadwood in crowns given competition for light. Fair to good vitality. No apparent significant structural defects recorded	No works presently required	20+	B2	5.9
G039(0747)	Alderx3	16	280	To 4	n/a	1	SM	Trees growing on pond. Good vitality. Self-sown. Leans on stems. No apparent significant structural defects recorded	No works presently required	20+	C2	3.4
023(0744)	White Willow	14	480	4	2-S	1.8	SM	Tree growing on top of slopped grass bank. Good vitality throughout. Crown break at 2m. Upright habit.	No works presently required	20+	C2	5.8
G040	Cherry, English Oak, Lime	6	To 150	3	n/a	1.8	Y	Line of trees. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	C2	1.8
G041	Field Maple, Elm, Alder, Hazel, Hawthorn,	To 10	To 200	To 3	n/a	GL	Y-SM	Boundary hedgerow & occasional trees. Predominantly self-set elm. Southside cut back for cycle way clearance. Fair vitality, deadwood in crowns. Gaps in line.	No works presently required	20+	C2	2.4
024(1562)	English Oak	19	1000	9.5	4-N	4	M	Trees growing on southern boundary. Prominent tree given size and scale. Good vitality. Minor ivy encroachment. Ditch directly north, restricts root zone in this direction.	No works presently required	40+	A1/2/3	12.0
G042	Weeping Willow	To 16	To 650*	To 8*	n/a	GL	EM	Trees growing on southern bank of pond. Crowns collapsed in places, tear outs at old branch wounds. No targets beneath trees, leave as deadwood habitat	No works presently required	20+	C2/3	7.8

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM /EM/ M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20 +/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G043	Crack Willow	To 14	700	4	n/a	2	EM	Trees topped at 8m. Onset of decay at pruning wounds and multi stem regeneration at pruning wounds. Elongated cavities extending down from topping points with wood decay fungi and extensive heartwood decay evident. Bat boxes in crowns & ivy clad stems.	Maintain as reduced trees given weakened structural condition.	10+	C3	8.4
G044	Cherry	To 8	To 350	To 4	n/a	0.5	Y-SM	Growing on top of earth mound. West tree large split in main stem below crown break. No long term potential. East tree sap bleeds on stems and suppressed crown, not significant.	Fell west tree	<10	U	4.2
G045	Crab Apple	To 5.5	150	To 3	n/a	1.8	NP-Y	Good vitality. Tree stakes on 2xtrees. No apparent significant structural defects recorded	No works presently required	20+	C2	1.8
025(0787)	Silver Maple	14	650*	8, W-3	3-E	2	M	Ivy at base hindering full assessment. Crown break at 2m. Ivy encroachment on stem to 3m. Root zone restricted to north by existing hard surfaces.	No works presently required	20+	B1	7.8
G046(0789)	Silver Maple	12	320	To 4.5	n/a	2	Y-SM	Trees growing in island plots. Fair vitality, small diameter deadwood in crowns. Ivy encroachment on stems. Decay entry points at old branch wounds.	No works presently required	10+	C2	3.8
G047(0895)	London Plane	To 7	To 100	To 2	n/a	2	Y	Linear planting forming an avenue. Tree pits protected by grilles. Fair to good vitality.	No works presently required	40+	C2	1.2
G048(1030)	Hornbeam	To 5.5	To 140	To 2	n/a	2	Y	Car park planting. Good vitality throughout. Some clipped into square crowns. No apparent significant structural defects recorded	No works presently required	40+	C2	1.7
G049(1565)	Golden Ash	To 5.5	To 100	To 2	n/a	2	Y	Trees growing in courtyard, breathing gravel at base. Good vitality	No works presently required	40+	C2	1.2
026	Liquid Amber	7	130	3	2-S	2	Y	Growing in border. Fair vitality, relatively sparse crown	No works presently required	10+	C1	1.6
027(1564)	Tulip Tree	8	160	3	n/a	2	Y	Growing in breathing gravel. good vitality, no apparent significant structural defects recorded	No works presently required	40+	C1	1.9
G050	Apple, Silver Birch, Willow	To 4	To 75	To 2	n/a	2	NP	Various newly planted trees. Good vitality throughout.	No works presently required	40+	C2	0.9

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G051(1397)	Norway Maple	To 8	To 330	To 5	n/a	2	SM	Trees growing in grassed area. Good vitality throughout. Ground levels appear raised at bases, no buttress roots visible. Crown breaks at 2m. Pruning wounds in crowns. Tight forks.	clear soil from bases	20+	B2	4.0
G052	Snowy mespilus, Pear	To 8	To 180	To 4	n/a	GL	Y	Trees growing in grassed courtyard. Good vitality	No works presently required	40+	C2	2.2
G053	Snowy mespilus, Pear	To 8	To 180	To 4	n/a	GL	Y	Trees growing in grassed courtyard. Good vitality	No works presently required	40+	C2	2.2
G054	London Plane	To 9	To 200	To 4	n/a	1.8	Y	Linear planting. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	B2	2.4
G055(1547)	Lime	To 9	To 350	To 4.5	n/a	1.8	SM	Line of trees. Good vitality throughout. Grassed area at base, car park to west. Surface root damage in places from mower activity. Crowns lifted and reduced. Stubs of deadwood in crowns.	No works presently required	40+	B2	4.2
G056(1541)	Lime	To 7	To 250	To 3.5	n/a	1.8	Y	Crescent planting. Grassed area at bases. Good vitality throughout, no apparent significant structural defects recorded	No works presently required	40+	B2	3.0
028(1493)	Norway Maple	12	620	7	2-E	2	M	Prominent tree. Grass area at base. Fair vitality, small diameter deadwood in crown. Crown break at 2m into multi stems, dieback on central leader. Seams of reaction wood extending down from union, potential reaction wood to internal crack.	PiCUS sonic tomograph to determine internal condition of main stem beneath multi-stem union.	20+	B1*	7.4
029(1532)	Apple	5	160	3	1-S	1.5	Y	Growing in grassed area. Mower damage base. Crown break at 1m, good vitality	No works presently required	10+	C1	1.9
030(1530)	Lawson Cypress	9	260	3	n/a	0.5	SM	Growing in grassed area. Crown suppressed to west. Fair vitality	No works presently required	10+	C1	3.1
G057(1529)	Lime	To 14	To 400	To 6	n/a	2	EM	Avenue feature. Good vitality throughout. Occasional tight forks in canopies, not significant at present. Crowns lifted to 2m. No apparent significant structural defects recorded	No works presently required	40+	A2	4.8
G058(1519)	Lime	To 7	To 130	2	n/a	1.5	Y	Line of trees. Grass at bases, fair vitality throughout. Snapped branches in crowns, remaining wounds frayed.	Formative prune	20+	C2	1.6
031(1854)	Luscomb Oak	16	750	9	2.5-E	2	EM	Growing in grassed area. Good vitality. Crown break at 2.5m. Balanced form. No apparent significant structural defects recorded	No works presently required	40+	A1	9.0

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM /EM/ M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20 +/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
032	Common Ash	18	500, 650	S-9.5	5-E	3	M	Growing on bank of ditch on northern boundary. Heavy ivy encroachment on stems to 16m, obscuring full assessment. Dead branches on ground and hung-up in canopy. Fair vitality	Sever ivy at base, remove deadwood overhanging footpath	20+	B2	9.8
033	Sycamore	18	700x3*	S-9	6-S	2	M	Growing on bank of ditch on northern boundary of site. Fair vitality, heavy ivy encroachment on stems obscuring full assessment of crown condition. 3xstems at base. Garden debris piled at base, not accessible.	Sever ivy at base, remove deadwood overhanging footpath. Remove garden debris at base to facilitate ongoing tree condition assessments.	20+	B2	14.9
034(1897)	Field Maple	14	500	8, N-4	3-E	3	EM	Good vitality. Crown suppressed to north. Bat box in crown. No apparent significant structural defects recorded. Animal grazing at base	No works presently required	40+	B2	6.0
035(1896)	Field Maple	14	330	N&W-1.5, 6,	2-W	2	SM	Fair vitality. Crown suppressed to north & west. Bark removed in places on main stem from grazing cattle. Small diameter deadwood in crown	No works presently required	10+	C1	4.0
036(1895)	English Oak	18	860	S-9, W-8, E-6, N-5	2-S	1	M	Good vitality. Crown break at 2m. Rubbing branches in crown. Minor suppression to north & west. No apparent significant structural defects recorded	No works presently required	40+	A1	10.3
G059(1508)	Common Beech	To 18	530	To 7.5	n/a	2	SM-EM	Positioned at end of lime avenue. Good vitality. Single stems to 5-9m before co-dominant leaders. No apparent significant structural defects recorded	No works presently required	40+	A2	6.4
037	English Oak	14	1100	13, W-7	1-S	1	EM	Growing in grassed area. Low crown height, crown break at 1m. Squat form. Large diameter deadwood in crown to west. Drainage channel to west. Loss of apical dominant leader. Fair to good vitality	No works presently required	40+	A1	13.2
038(1892)	English Oak	20	990	13	2-W	1.5	M	Growing in grassed area. Good vitality. Central leader splits into multi stem form at 7m. Prominent tree.	No works presently required	40+	A1	11.9
039(1891)	English Oak	17	890	11, N-8	2-E	2	EM	Growing in grassed area. Good vitality. Small diameter deadwood in crown. Crown break at 2m. No apparent significant structural defects recorded	No works presently required	40+	A1	10.7

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G060	Cherry, Elder, Hazel, Sycamore, Lawson Cypress, Common Ash		280	To 5	n/a	GL	Y-EM	Corner plot. Informal group of self-sown & planted trees growing around cottage. Heavy ivy encroachment on stems in places, heavy clematis growth on some conifers. Drawn stems. Fair vitality. deadwood in crowns. Limited targets around trees.	No works presently required	20+	C2	3.4
040	Hybrid Black Poplar	20	910	8	3-S	2	M	Growing within G060. Ivy encroachment on main stem to 5m. Open crown form. Seams of reaction wood on main stem indicative of adaptive wood to compensate for an internal cracks. Not significant at present	No works presently required	20+	C1/2	10.9
041(1494)	English Oak	15	460	7, N-4	2-S	2	SM	Part of avenue, suppression to north. Good vitality. Co-dominant leaders at 5m, union appears sound. No apparent significant structural defects recorded	No works presently required	40+	B1/2	5.5
042	Blue Atlantic Cedar	10	330	5	1-S	1.5	SM	Growing in grassed area. Good vitality. No apparent significant structural defects recorded	No works presently required	40+	B2	4.0
043(1497)	Silver Maple	16	910	17, N-9.5, S-11	2-S	2	M	Growing in grassed area. Crown break at 2m. Open crown form. Pronounced buttress roots to east & west. Crown tip pruned. Good vitality.	No works presently required	20+	B2	10.9
044(1398)	Norway Maple	5	540	8	2-S	1.8	EM	Growing in grassed area. Good vitality. Crown break at 2m. No apparent significant structural defects recorded	No works presently required	20+	B2	6.5
G061(1448)	Silver Birch	To 13	To 330	To 7	n/a	2	Y-SM	Growing in grassed area & field boundary. Line of trees. Fair to good vitality throughout, with small diameter deadwood in crowns. Cavities on main stems at old branch wounds or animal grazing damage. Leans on stems. Dieback on branches. 1436-elongated cavity on south side of main stem.	No works presently required	20+	C2	4.0
G062(1445)	Norway Maple	13	To 390	To 6	n/a	2	SM	Growing in grassed area. Good vitality throughout. Mutual crown suppression. No apparent significant structural defects recorded	No works presently required	20+	B2	4.7
045(1440)	Cappadocian Maple	12	440	S-3, 8	2-S	2	SM	Part of line of trees. Dense suckering growth at base. Elongated cavity on westside of main stem from animal grazing. White rot present. Good vitality	No works presently required	20+	C2	5.3
G063	Leyland cypress	10	To 450	To 4	n/a	0.5	SM-EM	Hedgerow planting. Topped at 5m. Fair to good vitality throughout.	No works presently required	10+	C2	5.4

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
046(1426)	Cappadocian Maple	6	350	4.5, E-4	2-N	2	SM	Growing in grassed area, aggregate in root zone to east. Good vitality. Suckering growth cut down. No apparent significant structural defects recorded	No works presently required	20+	C1	4.2
G064(1423)	Flowering Cherry	To 4.5	To 350	To 4.5	n/a	1.6	SM-EM	Informal group growing in grassed area. Grafted trees, graft points at bases. Good vitality throughout. occluding pruning wounds in crowns,	No works presently required	20+	B2	4.2
047	Elder	4	80x5	W-3	n/a	GL	SM	Self-sown tree, growing immediately adjacent to building. Fair vitality. No long term potential	No works presently required	<10	C1	2.1
048(1420)	Black Mulberry	5	360	N-7, 5	1.6-N	1.8	SM	Growing in grassed area. Good vitality. Crown break at 1.6m into 5xstems. Crown reduced to south & east for building clearance.	No works presently required	20+	B1	4.3
049(1419)	Flowering Cherry	7	360	5.5	2-NE	2	EM	Growing in grassed area. Services to south. Grafted tree. Good vitality. Co-dominant leaders at 2m. No apparent significant structural defects recorded	No works presently required	20+	B1	4.3
G065(1470)	Cherry	To 7	To 355	To E-5.5	n/a	2	SM-EM	Growing in line in grassed area. Mutual crown suppression. Fair to good vitality with small diameter deadwood in crowns. Crown breaks at 1.6m. 1470-elongated cavities on south & west stems from unions with main stem to 400mm. Heartwood decay evident, reaction wood on periphery of wounds. Not significant at present	1470-cavity extends to full branch extents. Reduce to 1m.	10+	C2	4.3
G066(1461)	Silver Birch	To 14	To 390	To 7	n/a	2	SM-EM	Line of trees, grassed area at bases. Mutual crown suppression throughout. Localised dieback of shaded limbs. Stubs of small diameter deadwood. Decay entry points at old branch wounds. Not significant at present.	No works presently required	20+	B2	4.7
G067(1474)	Lime	To 14	To 360	To 5.5	n/a	2	SM-EM	3xtrees. Grassed area at bases. Crown breaks at 2m. Crossing & rubbing branches throughout. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	B2	4.3
050(1475)	Sweet Gum	4.5	160	2	n/a	2	Y	Good vitality, no apparent significant structural defects recorded	No works presently required	20+	C1	1.9
051(1476)	Norway Maple	4	150	2	n/a	2	Y	Good vitality, no apparent significant structural defects recorded	No works presently required	20+	C1	1.8

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G068(1456)	Norway Maple	To 14	To 545	To 6.5	n/a	2	SM-EM	Informal group, growing in grassed area. Good vitality throughout, mutual crown suppression. Small diameter deadwood in crowns through shading. Crown breaks at 1.5m into multi stem forms. Crossing & rubbing branches in crowns , not significant at present	No works presently required	20+	B2	6.5
G069(1452)	Silver Maple	To 16	To 740	To 14	n/a	2	EM-M	Informal group growing in grassed area. Good vitality throughout. Crown breaks at 2m into multi stem forms. Large broad open crowns. Branches tip pruned in the past away from built infrastructure. Exposed surface roots, scalped in places by mower activity.	No works presently required	20+	B2	8.9
G070(1450)	Crab Apple	To 7	370	To 7	n/a	1.8	EM	Growing in grassed area. Fair to good vitality. Small diameter deadwood in crowns. 1450-leans to east, no root heave visible, not significant at present	No works presently required	20+	B2	4.4
052(1449)	Crab Apple	2.5	180	2.5	1.5-W	1.5	Y	Grafted tree. Good vitality. Dense canopy at 1.5m.	No works presently required	20+	C1	2.2
G071(1409)	Whitebeam	To 10	To 450	To 6	n/a	1.8	EM	Line of trees. Crown breaks at 2m into multi stem forms. Small diameter deadwood in crowns, slight leans on stems. Crowns directionally pruned away from built infrastructure.	1413-Ganoderma fungal brackets at base-fell	20+	B2	5.4
053	Elder	6	230	3.5, S-0	n/a	0.5	SM	Tree growing immediately adjacent to building. Fair vitality.	No works presently required	10+	C1	2.8
G072(1401)	Norway Maple	To 11	To 340	To 4.5	n/a	2	SM	Line of trees growing in grassed area. Fair vitality. Deadwood in crowns-small & large diameter. 1405, 1406-extensive dieback in crowns, within falling distance of target areas.	Remove deadwood in crowns. Fell 1405 &1406	<10	U, C2	4.1
054	Silver Birch	7	240	4	n/a	1	SM	Sparse crown. Loss of apical dominant leader. Cavities on main stem, deadwood at base.	fell on the grounds of safety & sound arboricultural management	<10	U	2.9
G073(1392)	Hornbeam	To 5.5	To 140	To 2	n/a	2	Y	Car park planting. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	1.7
055(1477)	Hornbeam "fastigata'	6	280	4	n/a	1.5	Y	Good vitality. Growing in grassed area. No apparent significant structural defects recorded	No works presently required	40+	C1	3.4

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G074	Silver Birch	To 14	To 330	To 5.5	n/a	1.5	SM-EM	Growing in garden area. Good vitality throughout. Mutual crown suppression. No apparent significant structural defects recorded	No works presently required	20+	B2	4.0
056	Sycamore	9	80<10	To 4.5	n/a	0.5	SM	Multi stem form, past coppice management. Good vitality, drawn stems	No works presently required	10+	C1	3.0
G075	Elder, Silver Birch, Alder,	To 6	To 180	To 3.5	n/a	0.5	NP-Y	Part of garden border. Mix of trees and shrubs. Good vitality, no apparent significant structural defects recorded	No works presently required	40+	C2	2.2
057	Silver Birch	9	330	5	2-S	2	SM	Fair vitality, small diameter deadwood in crown. Mechanical disturbance in root zone from levelling and grass seeding. No surface roots visible. Minor ivy encroachment on stem.	No works presently required	10+	C1	4.0
058(1490)	Silver Maple	7	250	3	2-S	2	Y	Growing in grassed area in car park. Good vitality, slight lean to east.	No works presently required	20+	C1	3.0
059	Crab Apple	4	120	2	n/a	1.8	Y	Growing in nursery area, good vitality	No works presently required	20+	C1	1.4
G076	London Plane	To 8	To 160	To 3	n/a	1.8	Y	Avenue feature. Metal grilles at bases. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	B2	1.9
G077(1370)	Lime	To 10	To 450	To 6	n/a	1.8	Y-SM	Line of trees. Grassed area at bases. 2xyoung & 2xsemi-mature. Good vitality throughout. Girdling roots snapped. Small diameter deadwood in crowns. Crowns lifted for car park clearance.	No works presently required	40+	B2	5.4
060	Horse Chestnut	6	210*	4, W-0	1-S	0.5	Y	Tree not accessible, within building site. Good vitality. Mechanical disturbance in root plate	No works presently required	10+	C1	2.5
061	Field Maple	8	500	5, E-3	1-S	0.5	SM	Tree not accessible, within building site. Good vitality. Mechanical disturbance in root plate	No works presently required	10+	C1	6.0
G078	Field Maple, Black thorn	To 7	To 400	To 4.5	n/a	GL	SM-EM	Old field boundary hedgerow. Limited trees remaining. Multi stem forms, suggesting past topping. Building welfare facilities to north. Fair vitality	No works presently required	10+	C2	4.8
G079	Hornbeam	To 5.5	To 140	To 2	n/a	2	Y	Car park planting. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	1.7
G080	London Plane	To 6	To 100	To 2.5	n/a	2	Y	Avenue feature. Good vitality throughout. Metal grilles at bases.	No works presently required	40+	C2	1.2

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G081	London Plane	To 6	To 100	To 2.5	n/a	2	Y	Avenue feature. Good vitality throughout. Metal grilles at bases.	No works presently required	40+	C2	1.2
G082	Hornbeam	To 5.5	To 140	To 2	n/a	2	Y	Car park planting. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	1.7
062(1084)	Apple	6	160	3	n/a	1.8	Y	Good vitality. Growing in raised border. Snapped branch in crown	Formative prune	20+	C1	1.9
G083	Sorbus spp	To 6	To 100	To 2.5	n/a	1.8	Y	Good vitality, no apparent significant structural defects recorded	No works presently required	40+	C2	1.2
G084	London Plane	To 6	To 100	To 2.5	n/a	2	Y	Avenue feature. Good vitality throughout. Metal grilles at bases.	No works presently required	40+	C2	1.2
G085	Hornbeam	To 5.5	To 140	To 2	n/a	2	Y	Car park planting. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	40+	C2	1.7
G086	Various	To 6	To 100	To 2.5	n/a	2	Y	Avenue feature. Good vitality throughout. Metal grilles at bases.	No works presently required	40+	C2	1.2
W1	Ash, Field Maple, English Oak, Hawthorn, Hazel	To 6	To 200	To 3	n/a	GL	Y-SM	Screen planting on earth mound. 3m centre spacing. Fair to good vitality throughout. New planting to front. No apparent significant structural defects recorded	No works presently required	40+	C2	2.4
W2	Ash, Field Maple, English Oak, Hawthorn, Hazel	To 6	To 200	To 3	n/a	GL	Y-SM	Screen planting on earth mound. 3m centres spacing. Fair to good vitality throughout. New planting to front. No apparent significant structural defects recorded	No works presently required	40+	C2	2.4
063	English Oak	16	1100	9	3-E	1	M	Prominent tree. Old field boundary tree. Dead ivy throughout crown. Co-dominant leaders at 3m. Good vitality. Ditch to north. No apparent significant structural defects recorded	No works presently required	40+	A1/2/3	13.2
064	English Oak	16	1050	7, N&S-9	3-W	3	M	Prominent tree. Old field boundary tree. Crown break at 3m into multi stem form, suggesting old pollard. Good vitality. Ditch to north. No apparent significant structural defects recorded	No works presently required	40+	A1/2/3	12.6
065	English Oak	18	1000	7, N&S-10	5-N	1.5	M	Prominent tree growing on ditch. Old field boundary tree. Crown break at 5m. Good vitality, small & moderate size deadwood in crown. Good habitat value.	No works presently required	40+	A1/2/3	12.0

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
066(1839)	English Oak	18	1200	8	2-E	1	M	Prominent tree growing close to water feature. Old field boundary tree. Dead ivy throughout crown. Good vitality small diameter deadwood in crown. No apparent significant structural defects recorded	No works presently required	40+	A1/2/3	14.4
067(1829)	English Oak	14	900	7.5	3-S	1	M	Prominent tree growing immediately adjacent to water feature. Old field boundary tree. Crown break at 4m into 3xstems. Slight lean on stems, correcting at 6m. Good vitality. No apparent significant structural defects recorded	No works presently required	40+	A1/2/3	10.8
068(1826)	English Oak	14	520, 460	7	2-S	1	M	Old field boundary tree. Co-dominant leaders at 1m. Old branch wound at base to south east, decay at wound-not significant at present. Kinked main stems. Relatively sparse crown, small diameter deadwood in crown.	Apply liquid fertiliser to base to improve vitality.	40+	B1/2/3	8.3
G087	English Oakx2	To 14	To 580	To 6.5	n/a	2	SM	Part of old field boundary. Good vitality. 2xtrees. Co-dominant leaders and multi stem forms from 2m. Small diameter deadwood in crowns.	No works presently required	40+	B1/2/3	7.0
G088(1820)	Common Ash	To 12	To 410	To 6	n/a	GL	SM	Line of trees. Ground disturbance at bases. Fair vitality throughout, deadwood in crowns. Bark wounds on stems. Basal limbs. Frayed branch wounds.	Crown clean	20+	C2	4.9
W3	Field Maple, Common Ash, Elder, Blackthorn, English Oak, Scots Pine	To 16	To 300	To 6	n/a	GL	SM	Woodland block. Diagonal rows, 3m centres. Screening function. No active management visible. Woodland edge to west. Fair to good vitality throughout.	Selective thinning	40+	B2	3.6
W4	Field Maple, Common Ash, Elder, Blackthorn, Sycamore	To 10	To 300	To 6	n/a	GL	SM	Woodland block. Screening to M11, 3m centres. Screening function. No active management visible. Fair to good vitality throughout.	Selective thinning	40+	B2	3.6
G089	Beechx2	To 5	To 180	To 3	n/a	GL	Y	Growing on corner of field. Good vitality throughout, no apparent significant structural defects recorded	No works presently required	20+	C2	2.2
G090	Crab Apple, Hawthorn, Elder	To 8	To 400	To 4	n/a	GL	SM	Old field boundary hedgerow. 5xindividual crab apple trees-crown lifted to 3m. Hedgerow topped at 2m. Decay entry points, old branch wounds. Fair to good vitality. Western extents not topped. Gaps in places. Ivy clad stems.	No works presently required	20+	C2	4.8

Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
069	Common Ash	8	260	5	2-NE	2	Y	Fair vitality. Bark stripped at buttress roots. Rabbit damage. Ground disturbance at base	No works presently required	10+	C1	3.1
G091	Hornbeam, Hawthorn	To 7	To 300	To 6	n/a	GL	SM	Old field boundary hedgerow. Gaps in places. No recent management. Multi stem forms at ground level or at 2m. Past coppice or topping. Fair to good vitality throughout	No works presently required	20+	C2	3.6
070(1579)	Service tree	14	750	8	4-S	3	M	Growing on west boundary. Adjacent to footpath. Small to moderate deadwood in crown. Frayed old branch wounds. Dieback in upper canopy. Fair vitality	Remove deadwood in crown overhanging footpath	20+	B2/3	9.0
G092(1170)	Sorbus spp	To 6	To 150	To 2.5	n/a	2	Y	Good vitality. No apparent significant structural defects recorded	No works presently required	20+	C2	1.8
G093(1169)	Hornbeam 'fastigata'	To 14	To 470	To 5	n/a	1	SM-EM	Intermittent trees in car park area. Good vitality. Upright growth habit. No apparent significant structural defects recorded	Crowns lifted for car park clearance No works presently required	20+	B2	5.6
071	Honey locust	9	550	5, E&W-3	1.5-SE	2	SM	Growing in planted border. Fair vitality, crown thinned. Small diameter deadwood in crown. Relatively sparse crown.	Clear shrubs to 1m radius around tree to improve vitality, remove deadwood in crown overhanging car park	10+	C1	6.6
G094(1151)	Silver Birch x2	To 10	To 280	To 4	n/a	1.5	Y-SM	Growing in car park. Good vitality. Mutual crown suppression. No apparent significant structural defects recorded	No works presently required	20+	C2	3.4
G095(1153)	Hornbeamx3, Silver Birchx1, Alder x3	To 9	To 260	To 3.5	n/a	1.5	Y-SM	Growing in car park. Good vitality. No apparent significant structural defects recorded. Crowns lifted for car park clearance	No works presently required	20+	C2	3.1
072(1156)	Alder	14	360	5	3-W	1.5	SM	Growing in car park. Slight lean on main stem. Good vitality. No apparent significant structural defects recorded. Crown lifted for car park clearance.	No works presently required	20+	B1	4.3
G096	Mixed	To 3.5	To 120	To 2	n/a	1.5	Y	Mixed trees growing in car park area. Fair to good vitality throughout	No works presently required	20+	C2	1.4
G097(1185)	Mixed	To 7	To 220	To 3.5	n/a	1.5	Y	Growing in grassed area. Good vitality throughout. Small diameter deadwood in crowns. No apparent significant structural defects recorded. Fair vitality. Dieback in crowns	No works presently required	20+	C2	2.6
073(1184)	Honey locust	8	360, 470	S-6, 4.5	2-N	2	SM	Growing in planted border. Co-dominant leaders at base. Crown thinned. Pruning wounds present. Stubs of small diameter deadwood in crown and localised dieback.	Remove deadwood in crown overhanging target areas.	10+	C1	7.1

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G098(1181)	Weeping birchx6	5	To 220	To 4.5	n/a	1.5	Y-SM	Informal group growing in grassed area. Pendulous habit from 2-3m. Fair vitality throughout. Contorted stems & small diameter deadwood in crowns.	No works presently required	20+	C2	2.6
074	Blue Atlantic Cedar	12	450	6	1-SE	1	SM	Good vitality. Growing in grassed area. Crown break at 1.8m. No apparent significant structural defects recorded	No works presently required	20+	B1	5.4
G099(0216)	Scots Pine, White Beam, Silver Birch, Cherry, Elder, Alder, Lawson's Cypress, Goat Willow, Field Maple,	To 7	To 250	To 3.5	n/a	0.5	Y-SM	Part of car park planting. Fair to good vitality throughout. Multi stem & single stems. No apparent significant structural defects recorded	No works presently required	20+	C2	3.0
075	Alder	10	300	N-4	2-N	0.5	SM	Part of car park area. Lean on main stem to north. Correcting at 2m. Good vitality, single leader.	No works presently required	20+	B1	3.6
G100	Callery Pearx4	To 6	To 200	To 2.5	n/a	1.5	SM	Part of garden area. Good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	C2	2.4
076	Lawson's cypress	2.5	190	1.5	n/a	0.5	Y	Tree topped at 2M. Part if car park area. Fair vitality	No works presently required	10+	C1	2.3
G101(1234)	Silver Birch	To 14	To 340	To 5	n/a	3	Y-SM	Informal group of trees. Grassed area at bases. Crowns lifted to 3m, un-occluded pruning wounds on stems. Mutual crown suppression, small diameter deadwood in crowns. Fair to good vitality throughout.	No works presently required	20+	B2	4.1
G102(1250)	Norway Maple	To 10	To 350	To 6	n/a	4	Y-SM	Line of trees in car park area. Crowns lifted for car park clearance. Un-occluded pruning wounds on stems. Fair vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	C2	4.2
G103	Silver Birchx3	5	80	2	n/a	1	Y	Good vitality. Growing in grassed planted border	No works presently required	20+	C2	1.0
G104(1223)	Norway Maple x3, Scots Pine x1	To 10	To 160	To 4	n/a	1	Y	Good vitality. Growing in grassed planted border	No works presently required	20+	C2	1.9
G105	Silver Birch, Hawthorn Scots Pine, Lime, Whitebeam.	To 14	To 360	To 5	n/a	1	Y-SM	Boundary tree planting. Excavation works to north. Mutual crown suppression throughout. Drawn stems. Fair to good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	B2	4.3

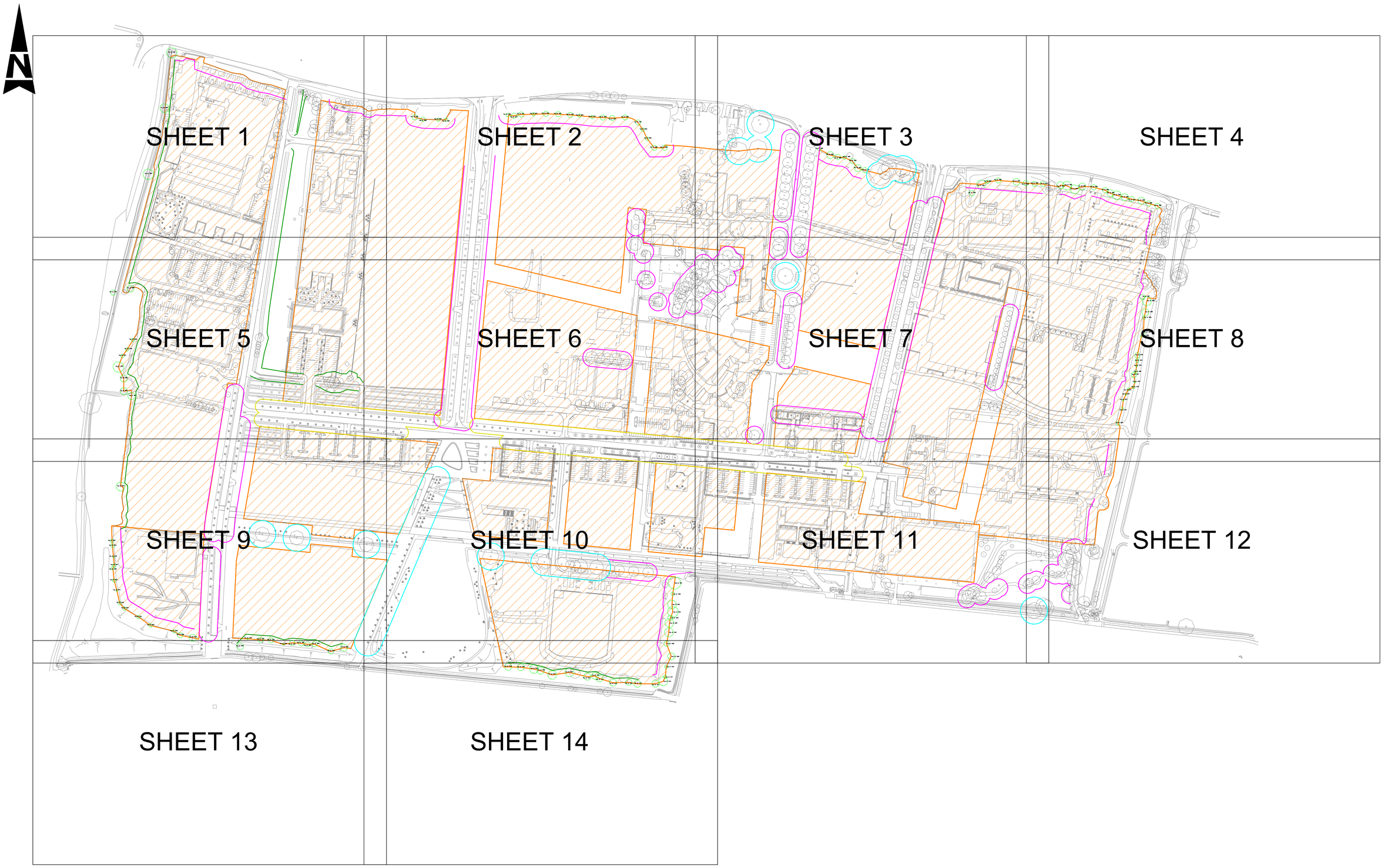
Tree no.	Species in group	Ht (m)	Stem diameter (mm)	Branch spread (m) N/E/S/W	1st major branch height (m) & direction N/E/S/W	Canopy height (m)	Life stage Y/SM/EM/M/OM	General observations structural and/or physiological condition	Preliminary management recommendations	Estimated Remaining contribution (years) <10/10+/20+/40+	Category grading A/B/C/U 1/2/3	Root Protection Area Radius (m)
G106(1341)	Horse chestnutx2, Limex1	To 7	To 200	To 4	n/a	1	Y	Growing in grassed area on northern boundary. Good vitality throughout, no apparent significant structural defects recorded	No works presently required	20+	C2	2.4
G107(1346)	Cherry	To 7	To 260	To 4.5	n/a	2	SM	Line of trees. Crowns lifted to 2m. Good vitality throughout, sap bleeds on stems, not significant. No apparent significant structural defects recorded	No works presently required	20+	B2	3.1
G108	Common Ash, Whitebeam	To 8	To 230, 140	To 5	n/a	1.5	Y	Existing & planted trees around pond. Drawn stems. Fair vitality throughout. Poor structural condition on Whitebeams, limited long-term potential. Stripped bark and extensive wounds on stems.	No works presently required given limited access to trees.	20+	C2	3.2
G109(1358)	Cherry, Lime	To 8	To 260	To 6	n/a	1.5	Y	Lines of trees on boundary & extending south into site. Excavation works to north of boundary trees. Fair to good vitality throughout. No apparent significant structural defects recorded	No works presently required	20+	C2	3.1
G110	Various	T05	To 150	To 2	n/a	1.5	NP	Various newly planted trees within landscape areas and along highway infrastructure. Good vitality throughout	No works presently required	40+	C2	1.8

Appendix C. Glossary of terms

Term	Description
Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Adaptive Growth	The process whereby wood formation is influenced both in quantity and in quality by the action of gravitational force and mechanical stresses on the cambial zone
Amenity Value	The environmental and landscape benefits of trees as opposed to their commercial value for timber
Ancient Woodland	Sites which have been wooded since at least 1600, as defined by English Nature and recognised as being of high nature conservation value, whether managed or not. They may be semi-natural or replanted.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculture	The study and care of trees and other woody vegetation
Arboriculturist	A person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Cavity	An open wound, characterised by the presence of decay and resulting in a hollow
Co-dominant stems	Where a trees main stem splits into two leaders, can also be called twin-stemmed.
Competent person	A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	The area based on the root protection area from which access is prohibited for the duration of a project.
Coppice	A traditional method of woodland management in which young tree stems are repeatedly cut down to near ground level. In subsequent growth years, many new shoots will emerge, and, after a number of years the coppiced tree, or *stool*, is ready to be harvested, and the cycle begins again
Crown clearance	This is the removal of all dead, dying and diseased branches; in addition branches that are cleared away from a specific hazard e.g. live railway line.
Crown lifting	The removal of lower branches to provide a desired amount of clearance above ground level. This can be achieved either by the complete removal of a branch or only parts of which extend below the desired height
Crown reduction	The overall reduction of both the height and spread of the crown.
Decay	Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.
Deadwood	Deadwood is often present within the crown or on the stems of trees. In some instances is may be an indication of ill health, however, it may also indicate natural growth processes. If a target is present beneath the tree, deadwood may fall and cause injury or damage and should be removed, otherwise deadwood can remain intact for conservation purposes (insects, fungi, birds etc.).
Epicormic growth	A secondary growth from dormant adventitious buds on the stem or main braches.
Failure	In connection with tree hazards, apartail or total fracture within woody tissue or loss of cohesion between roots and soil.
Hazard beam	An branch that has over extended in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).
Hung-up limb	Dead or fallen branch from within the crown or from another tree's crown that has failed and been caught up by, and resting on, branches of a tree
Included Bark Junction	Pattern of development at branch junctions where bark is turned inward rather than pushed out. Potential weakness due to a lack of a woody union.
Ivy Growth	Ivy growth may ascend into the tree's crown, increasing wind resistance, concealing potential defects and reducing the tree's photosynthetic capacity. Ivy growth is often acceptable in woodland areas as a conservation benefit.
Monolith	A large bulk of standing dead wood. Usually the truck of the tree or the truck with the base of the branch frame work. These should be retained for wildlife habitat when the risk is appropriate for the location.
Pollarding	This involves the removal of whole branches to leave only the main trunk. In species such as willows and poplars such as significant pruning is acceptable with new branches developing from the pollard heads. Secondary pruning of the new wood can help form a new canopy to the tree several years after the initial pollard
Reaction Wood	Specialised secondary xylem, which develops in response to a lean or similar mechanical stress, attempting to restore the stem to the vertical.
Root Protection Area (RPA)	The 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.
Service	Any above or below ground structure or apparatus required for utility provision.
Stem	The principal above-ground structural component(s) of a tree that supports its branches.
Structure	A manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Structural Defect	Internal or external points of weakness, which reduce the stability of the tree
Sub-dominant stem	A branch within the crown that is not the dominant leader
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.

Term	Description
TPO	A Tree Preservation Order is an order made by Local Planning Authority which in general makes it an offence to cut down, lop, top, uproot, wilfully damage or wilfully destroy a tree without first getting permission from us. Tree Preservation Orders are usually made to protect trees that make a significant contribution to the amenity of an area. They may particularly be made when it is felt that a tree may be under threat.
Tree Constraints Plan	Abbreviated to TCP. Plans showing specific tree constraints including Root Protection Areas and Crown spread.
Tree Protection Plan	Abbreviated to TPP. Scaled drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Veteran Tree	A tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.
Visual Tree Assessment	A non-invasive method of examining the health and structural condition of trees. Developed by Claus Mattheck and David Breloer 1994
Wound	Any injury, which induces a compartmentalisation response
Wound Wood	Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound as opposed to the ambiguous term "callus."

Appendix D. Drawings



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Project: WEST CAMBRIDGE MASTERPLAN (EIA)

Title: TREE PROTECTION PLAN KEY

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
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Status	Drawing Number	Rev
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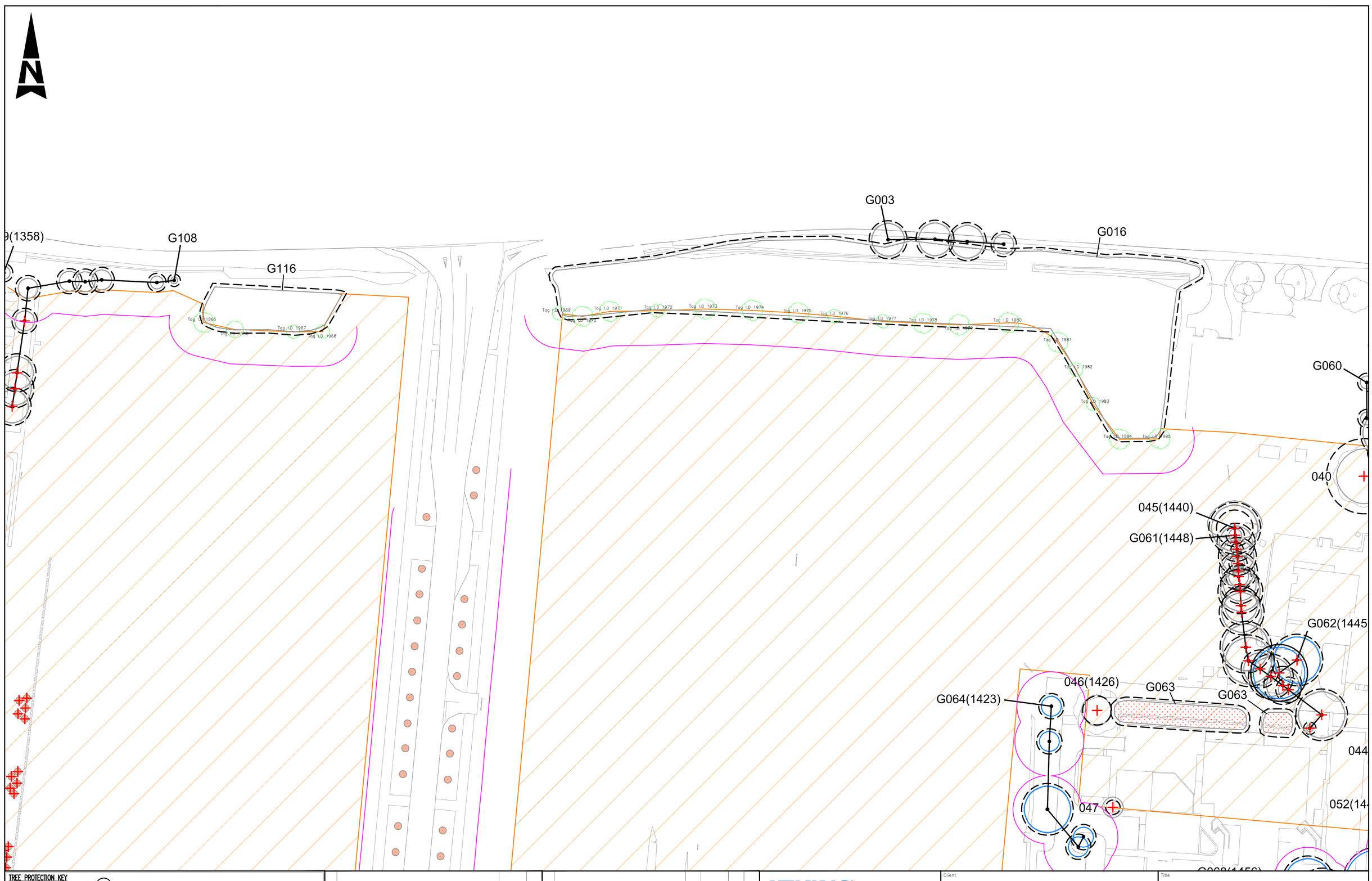

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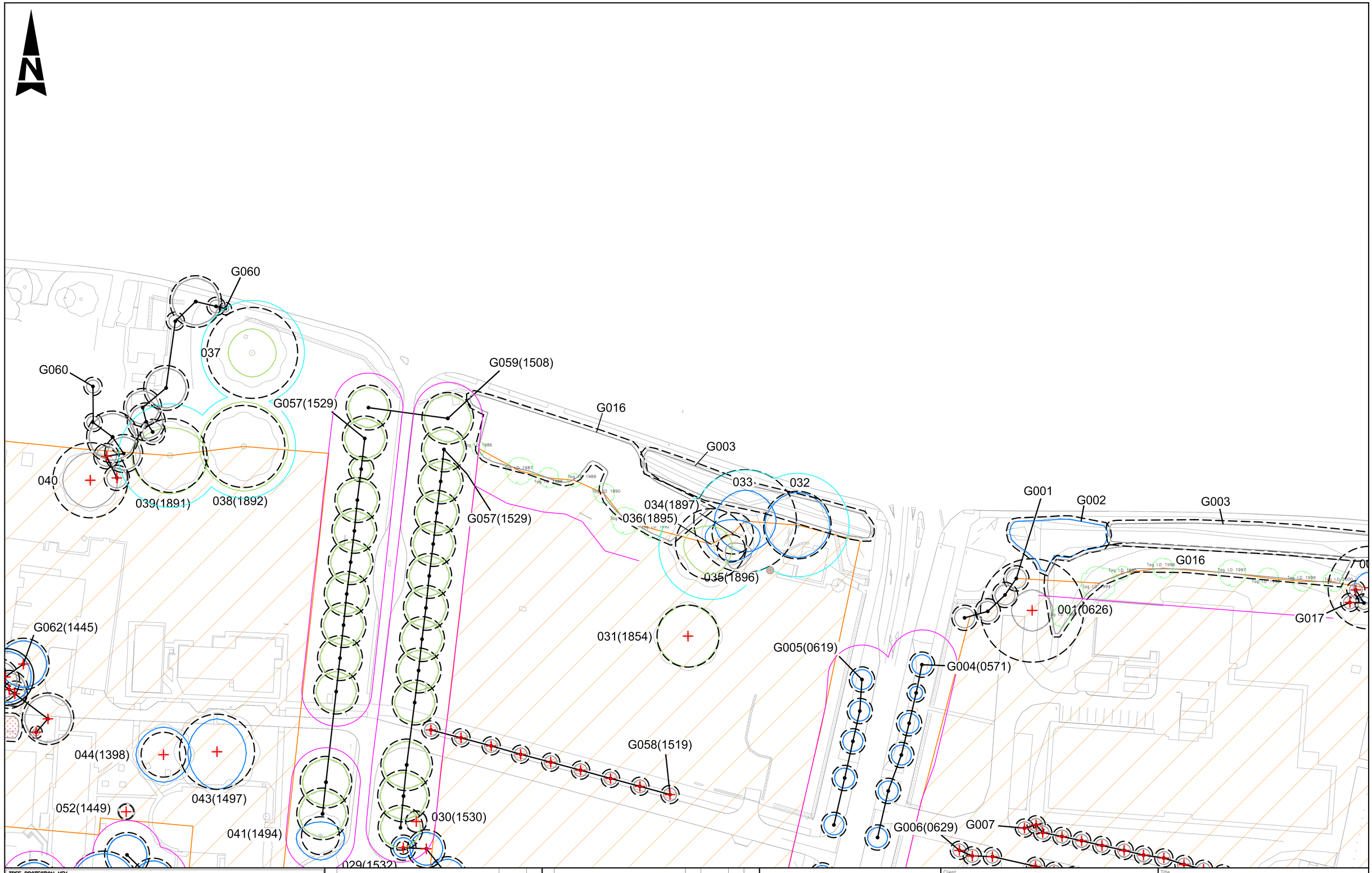

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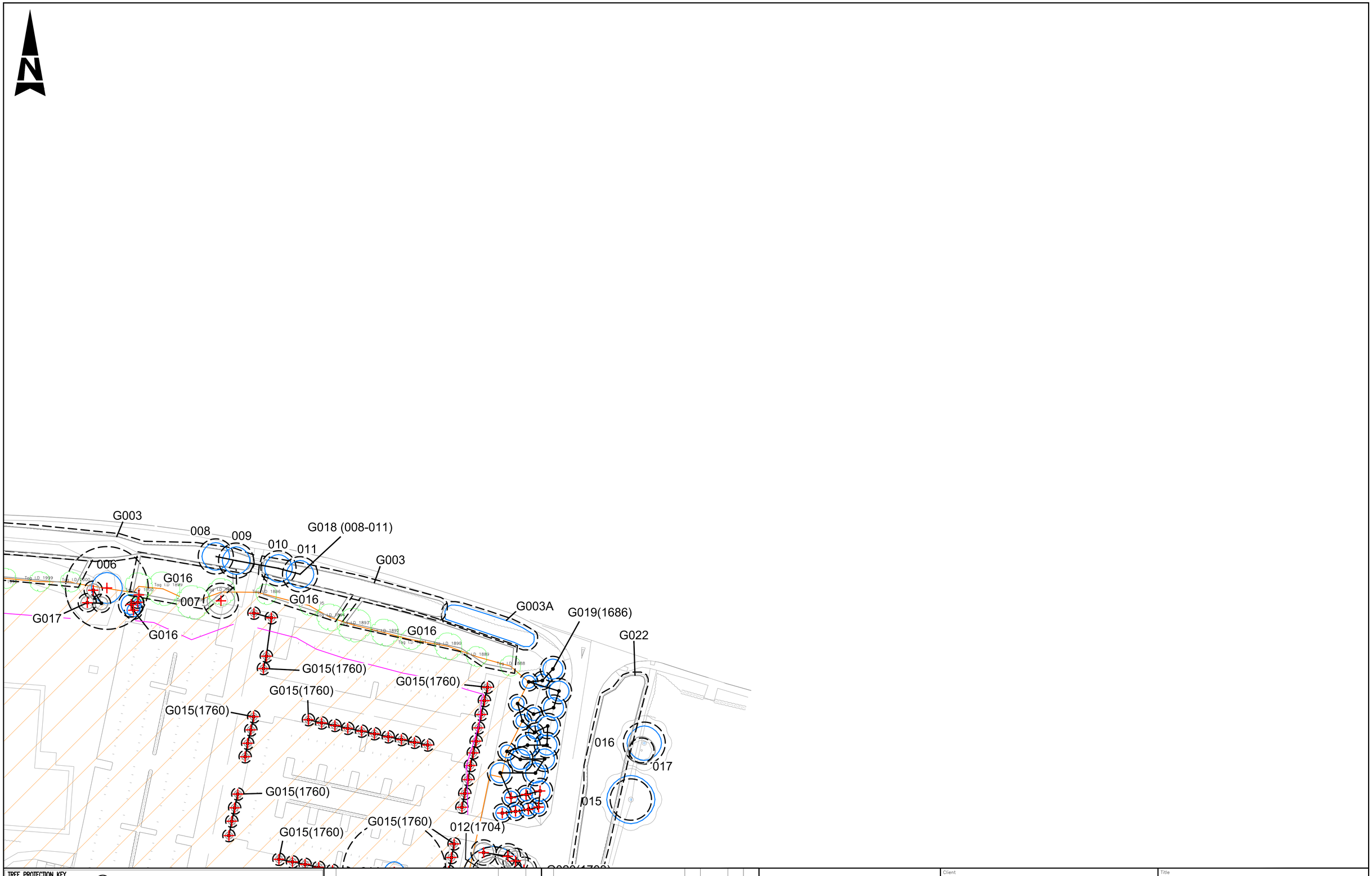

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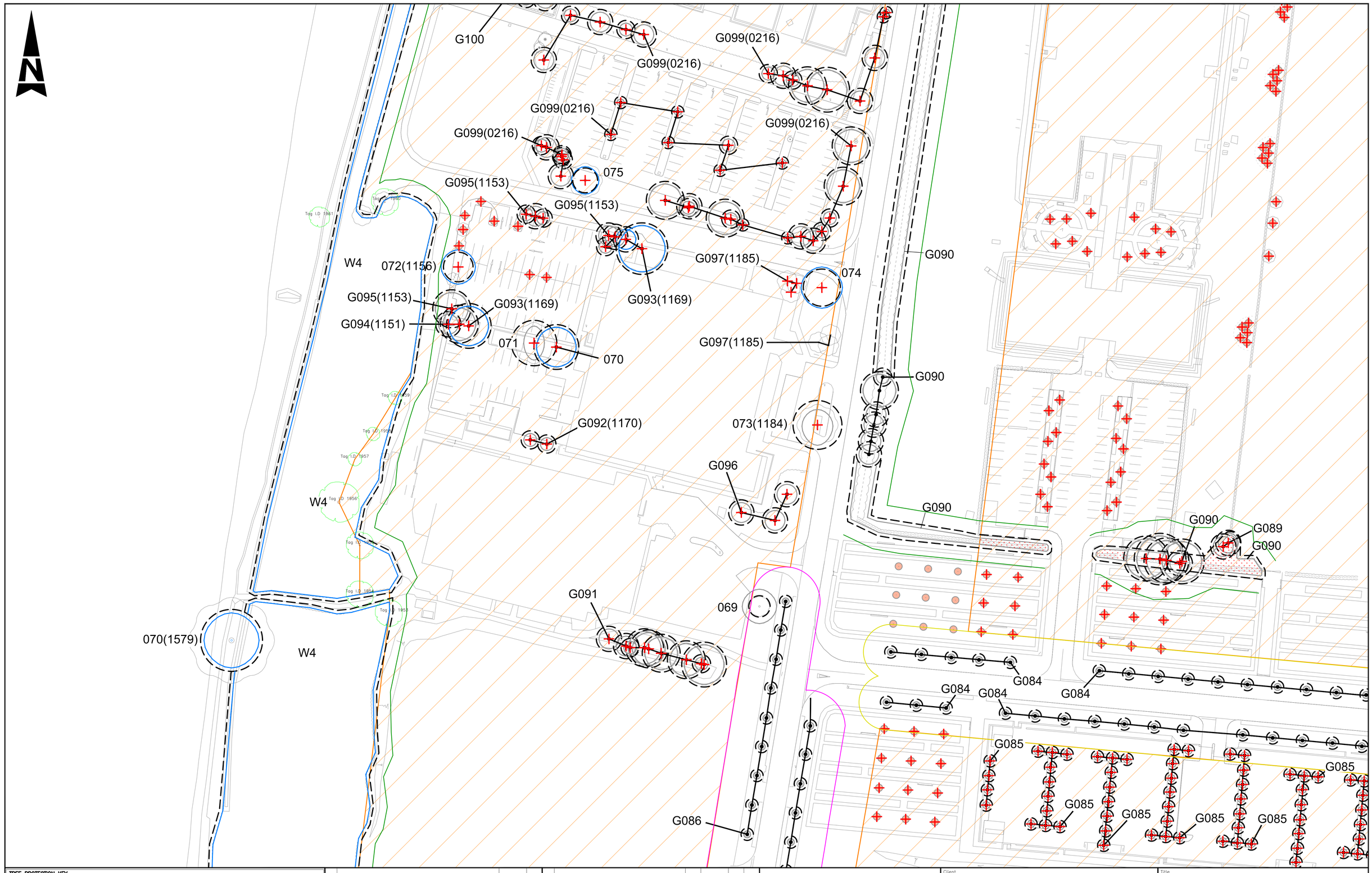

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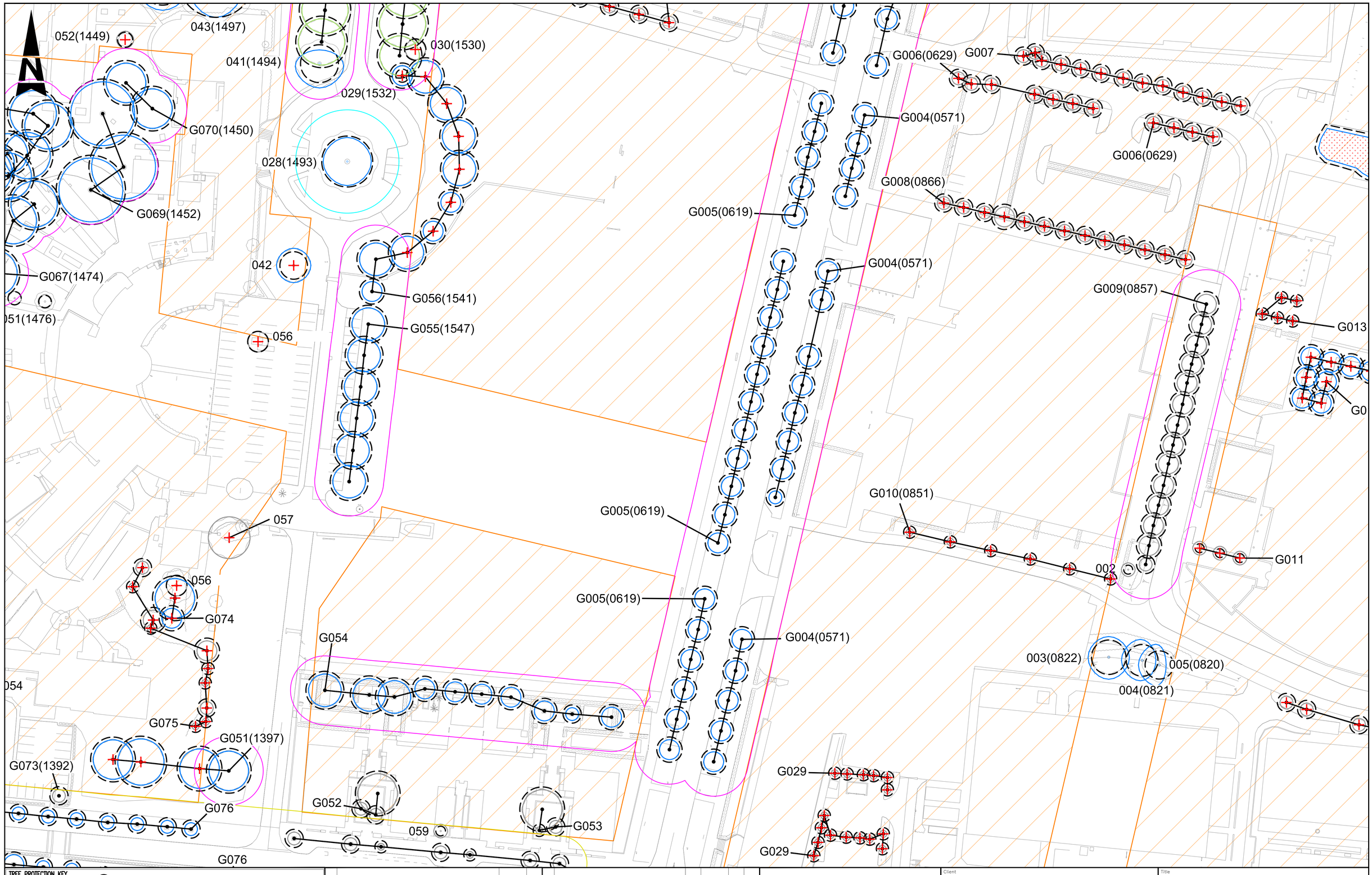

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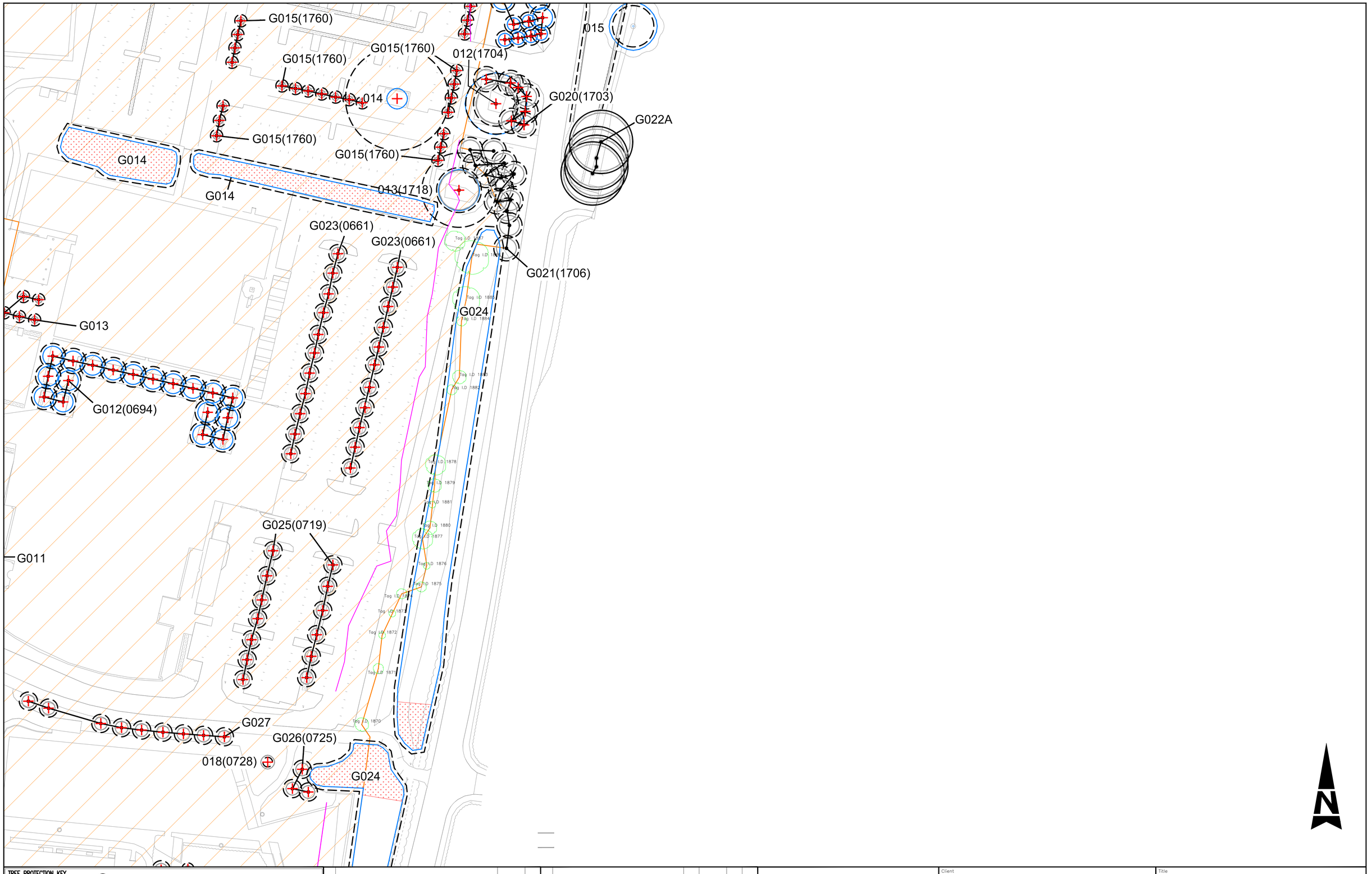
Status	Drawing Number	Rev
P	5137998_COL_ARB_07	E



TREE PROTECTION KEY

- 000 CATEGORY A TREE + TREE REF.
- 000 CATEGORY B TREE + TREE REF.
- 000 CATEGORY C TREE + TREE REF.
- 000 CATEGORY U TREE + TREE REF.
- G1 TREE GROUP REFERENCE (COLOUR RELATES TO BS CATEGORIES AS FOR INDIVIDUAL TREES AS SHOWN ABOVE)
- W1 WOODLAND GROUP REFERENCE (COLOUR RELATES TO BS CATEGORIES AS FOR INDIVIDUAL TREES AS SHOWN ABOVE)
- ROOT PROTECTION AREA
- REFER TO GROUP G110
- BUILDING ZONES
- NON-MANDATORY TREE TO BE RETAINED WHERE POSSIBLE
- NON-MANDATORY TREE GROUP TO BE RETAINED WHERE POSSIBLE
- 5M BUFFER FROM TREE STEM TO BUILDING EDGE
- 8M BUFFER FROM TREE STEM TO BUILDING EDGE
- 10M BUFFER FROM TREE STEM TO BUILDING EDGE
- 15M BUFFER FROM TREE STEM TO BUILDING EDGE

Stat	Purpose of Issue	Date	Auth
P	PLANNING	12/04/16	TD

Rev	Description	By	Date	Chk'd	Auth
E	MINOR AMENDMENT TO KEY	BC	13/06/17	TD	TD
D	AMENDMENT OF TREES SHOWN TO BE REMOVED	BC	12/05/17	TD	TD
C	VARIOUS AMENDMENTS	BC	26/04/17	TD	TD
B	AMENDED DEVELOPMENT ZONES	AA	07/02/17	TD	TD
A	RETENTION OF TREE GROUP G064	BC	17/05/16	TD	TD
–	ORIGINAL PLANNING ISSUE	BC	12/04/16	TD	TD

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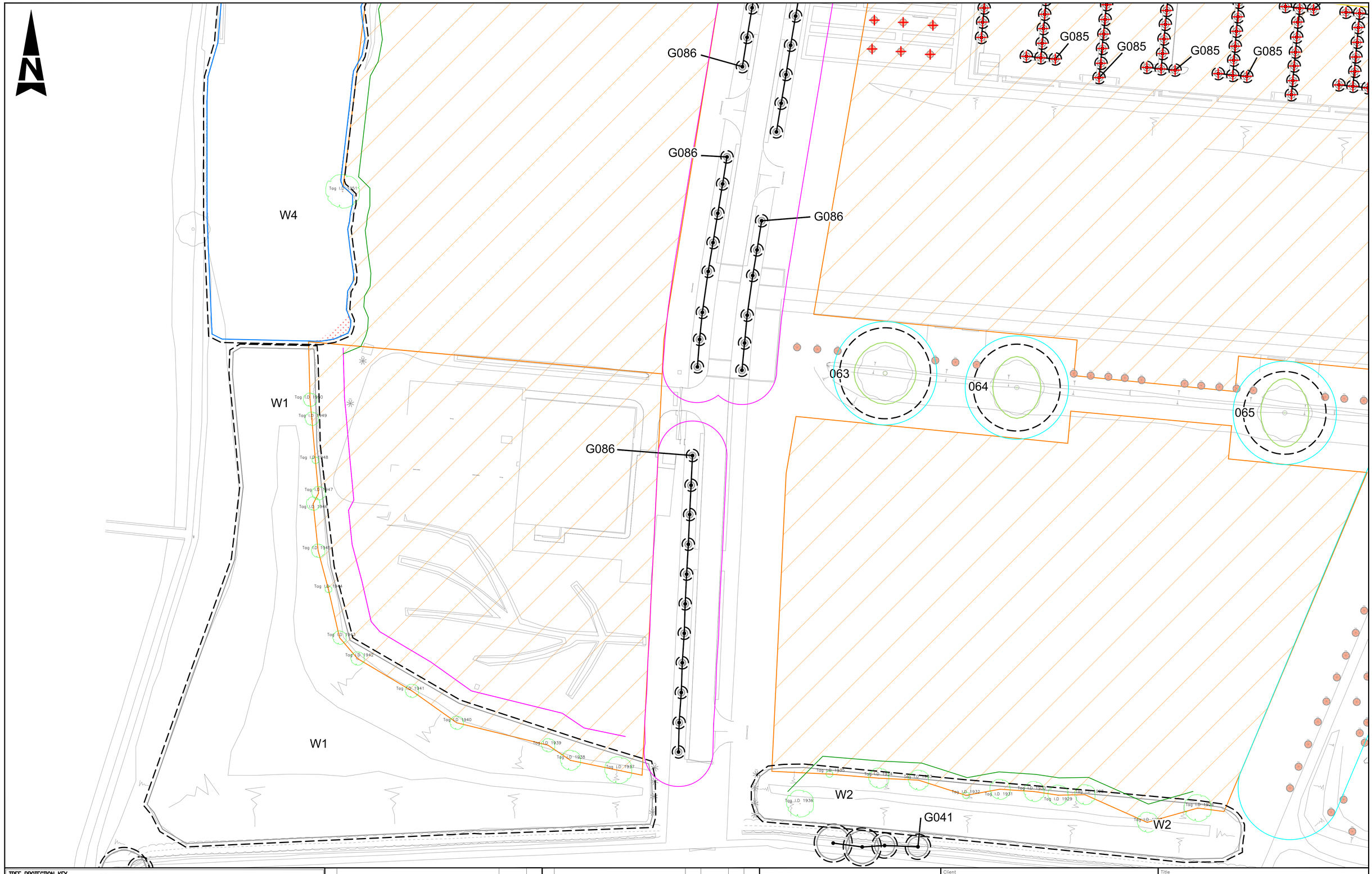
Project: WEST CAMBRIDGE MASTERPLAN (EIA)

Title: TREE PROTECTION PLAN SHEET 8

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	1:500	BC Date 07/02/17	TD Date 07/02/17	TD Date 07/02/17

Status	Drawing Number	Rev
P	5137998_COL_ARB_08	E



TREE PROTECTION KEY

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B	AMENDED DEVELOPMENT ZONES	AA	07/02/17	TD	TD
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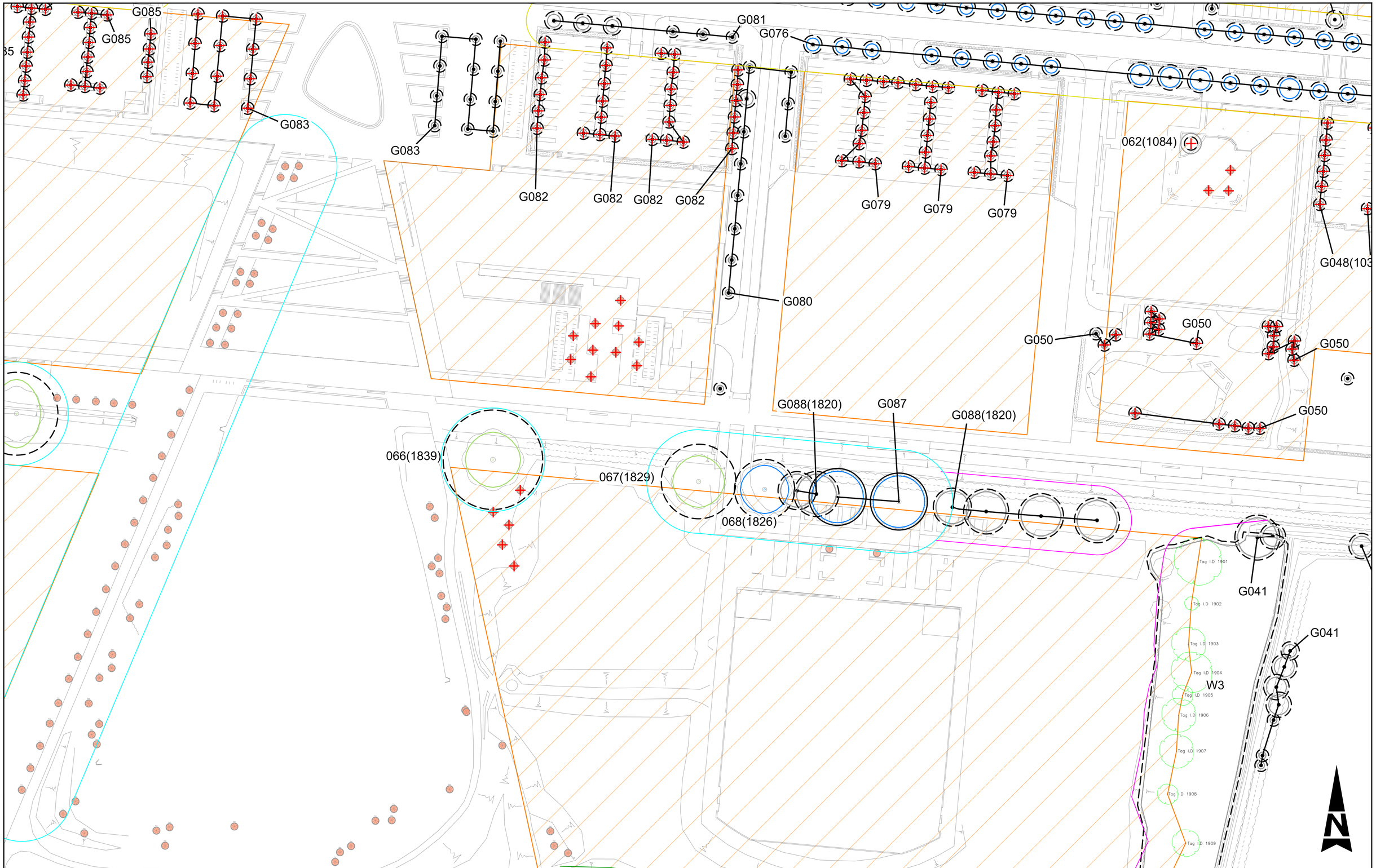
Title: TREE PROTECTION PLAN SHEET 9

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	1:500	BC Date 07/02/17	TD Date 07/02/17	TD Date 07/02/17

Status	Drawing Number	Rev
P	5137998_COL_ARB_09	E



TREE PROTECTION KEY

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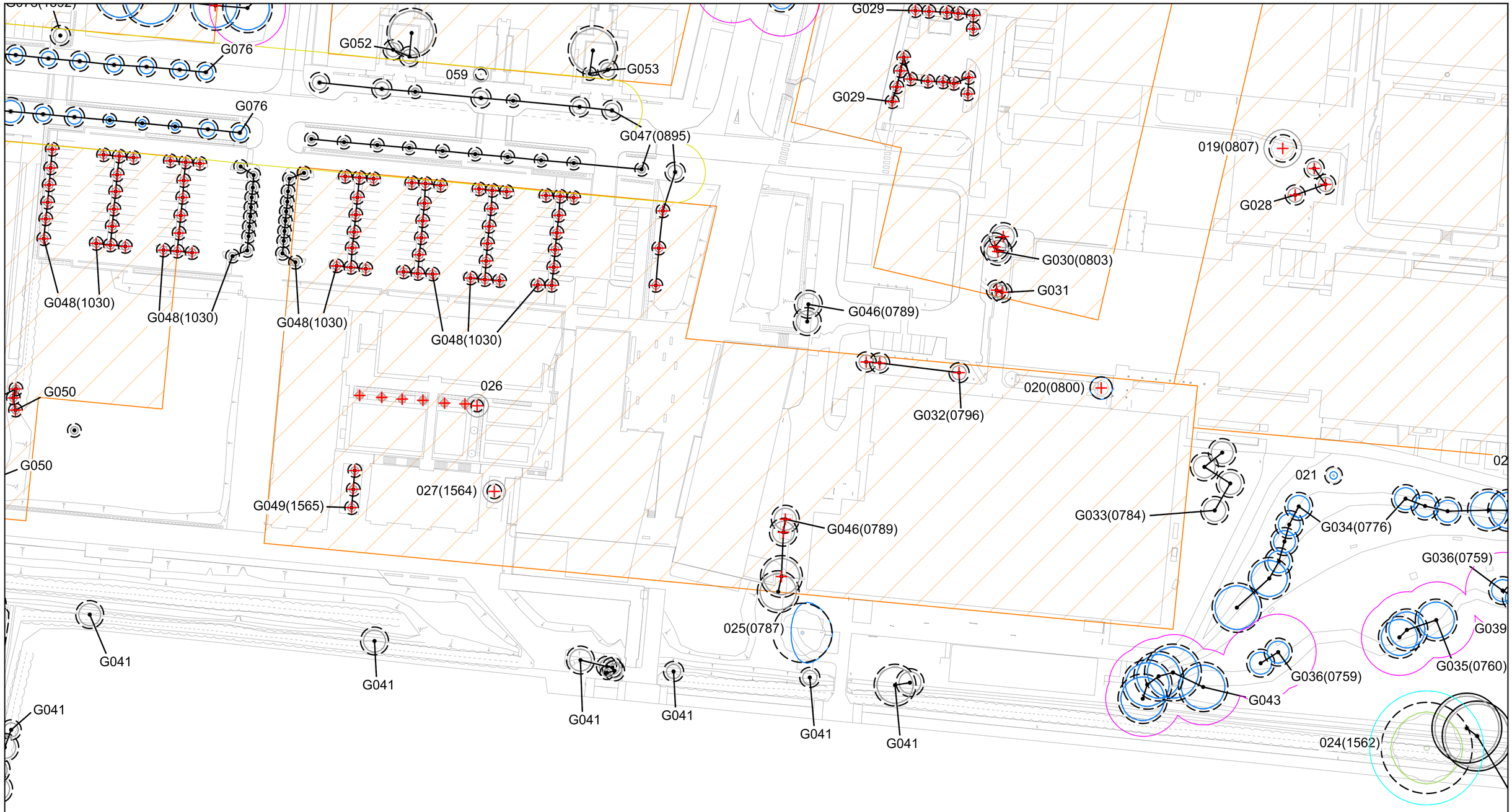
Title: TREE PROTECTION PLAN SHEET 10

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	1:500	BC Date 07/02/17	TD Date 07/02/17	TD Date 07/02/17

Status	Drawing Number	Rev
P	5137998_COL_ARB_10	E



TREE PROTECTION KEY

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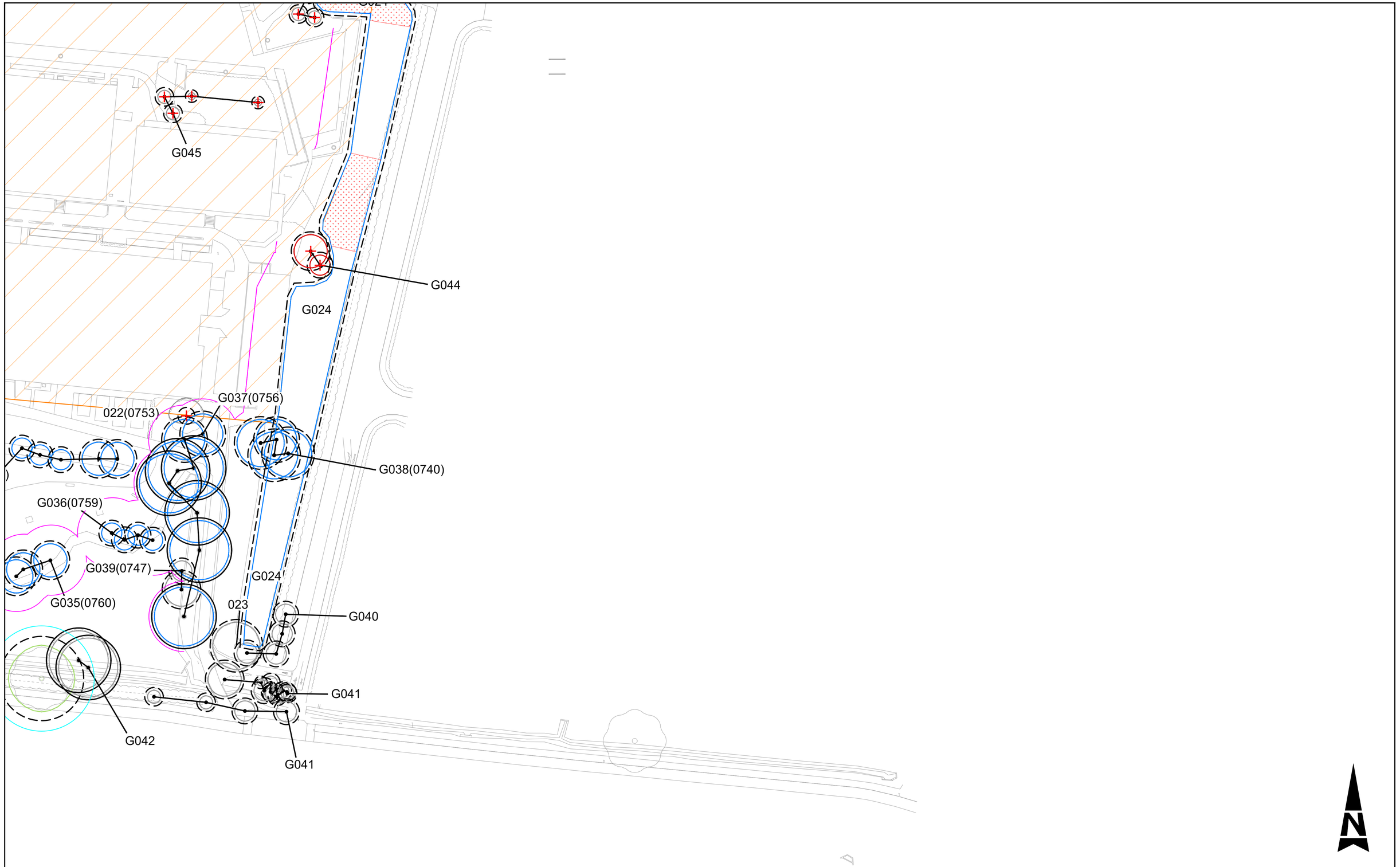
Title: TREE PROTECTION PLAN SHEET 11

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	1:500	BC Date 07/02/17	TD Date 07/02/17	TD Date 07/02/17

Status	Drawing Number	Rev
P	5137998_COL_ARB_11	E



TREE PROTECTION KEY

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Rev	Description	By	Date	Chk'd	Auth
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Title: TREE PROTECTION PLAN SHEET 12

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	1:500	BC Date 07/02/17	TD Date 07/02/17	TD Date 07/02/17

Status	Drawing Number	Rev
P	5137998_COL_ARB_12	E