



Gatwick Airport Northern Runway Project

Environmental Statement

Appendix 8.10.1 – Tree Survey Report and Arboricultural Impact Assessment Part 3

- Clean Version

Book 5

VERSION: 2.0

DATE: APRIL 2024

Application Document Ref: 5.3

PINS Reference Number: TR020005



Key

- Red Line boundary.
- Survey boundary.
- Tree with numbered reference. Canopy spread and coloured BS5837:2012 tree quality category as shown below.
 - Tree details estimate (inaccessible tree)
 - Tree in off site location
- G1 Tree group plotted with individual stem locations and numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below.
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- W1 Woodland with numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below and dashed line to show indicative tree line.

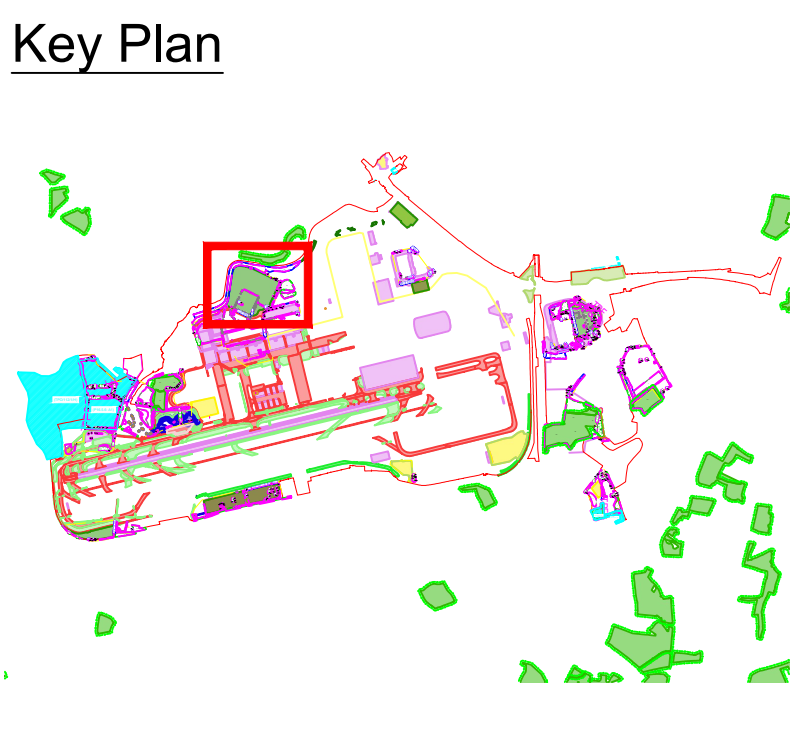
BS 5837:2012 Tree Quality Categories - Table 1

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
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DOCUMENT
Environmental Statement

DRAWING TITLE
**Airport Preliminary Tree Removal Plans
Appendix 8.10.1
Sheet 5 of 13**







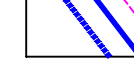






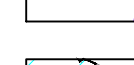


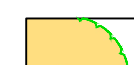
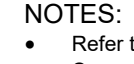
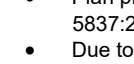
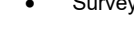
DATE
January 2024

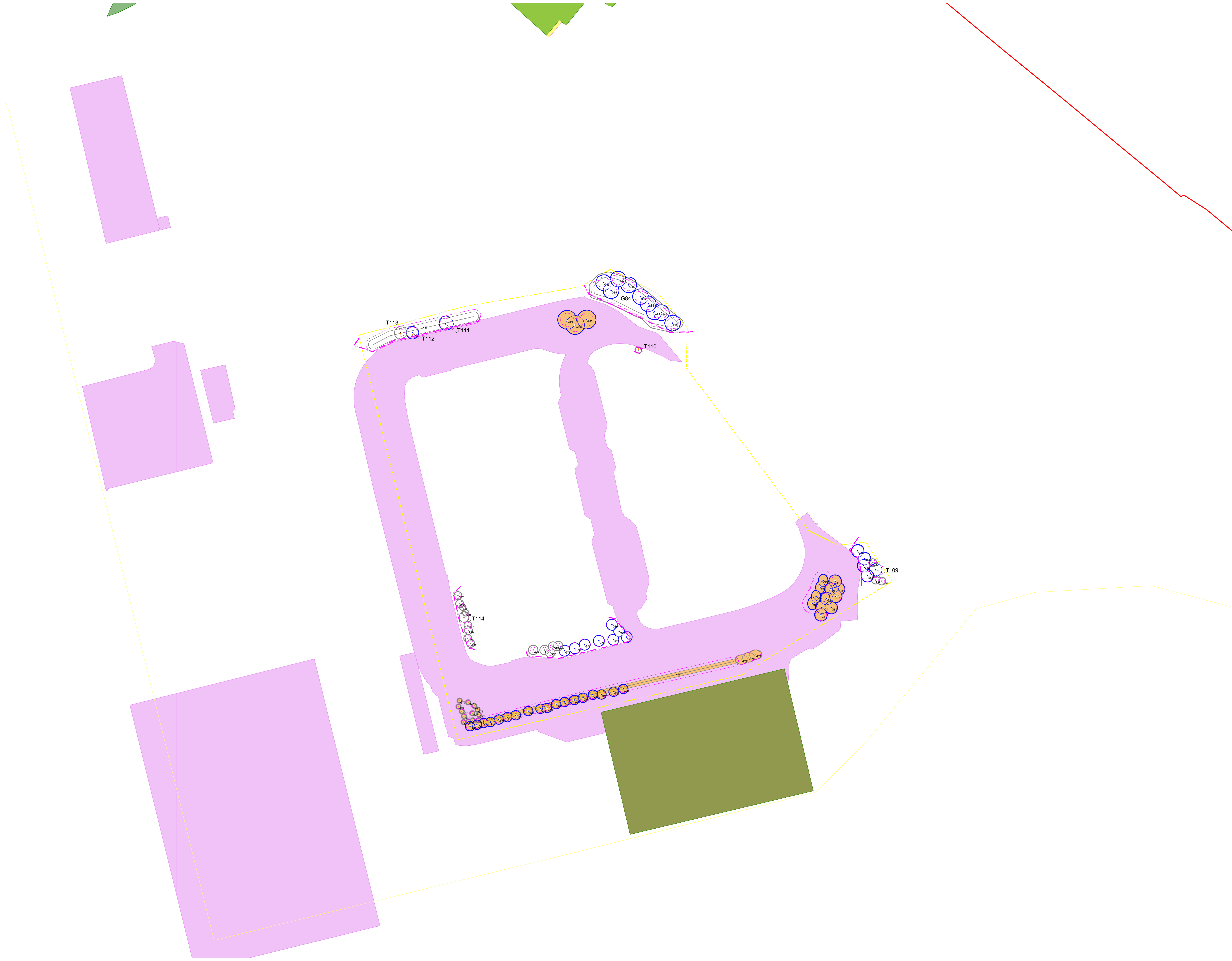
ORIENTATION N	DRAWING NO. 740	REVISION For ES Issue
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Key

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 -  Survey boundary.
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-  Direction of first significant branch
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Key Plan



DOCUMENT

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**Airport Preliminary Tree Removal Plans
Appendix 8.10.1
Sheet 6 of 13**

DATE

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ORIENTATION



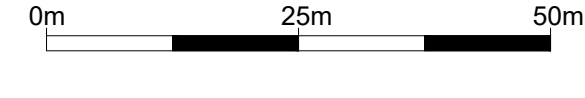
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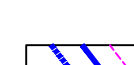






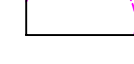
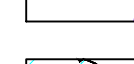


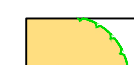

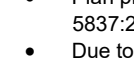
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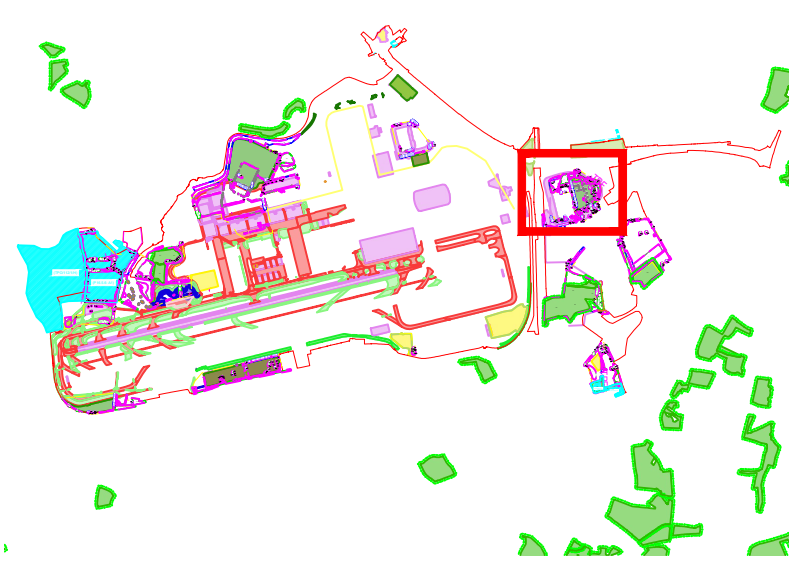
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Key Plan



DOCUMENT

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**Airport Preliminary Tree Removal Plans
Appendix 8.10.1
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DATE

January 2024

ORIENTATION



DRAWING NO.

742

REVISION

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RC

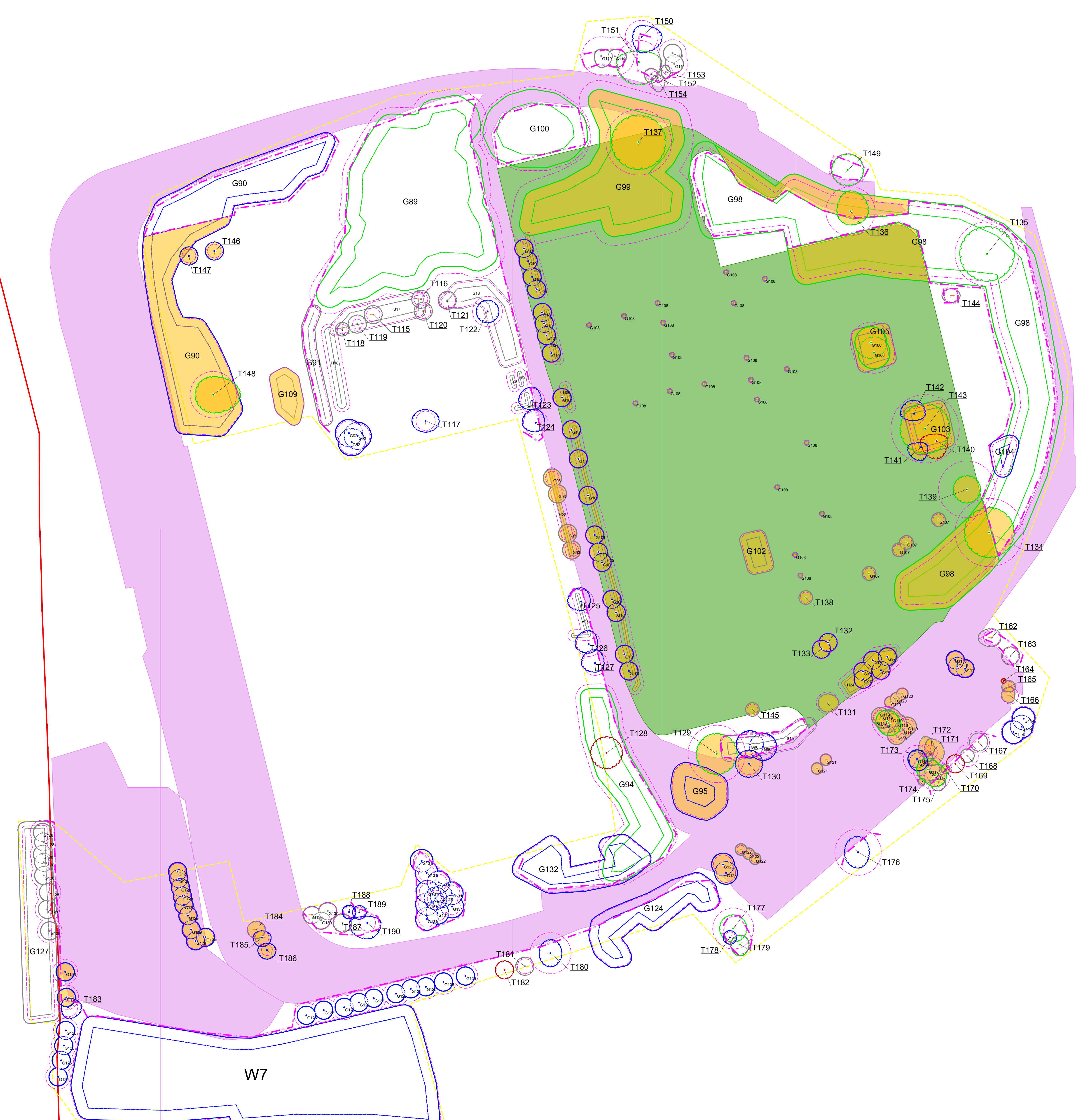
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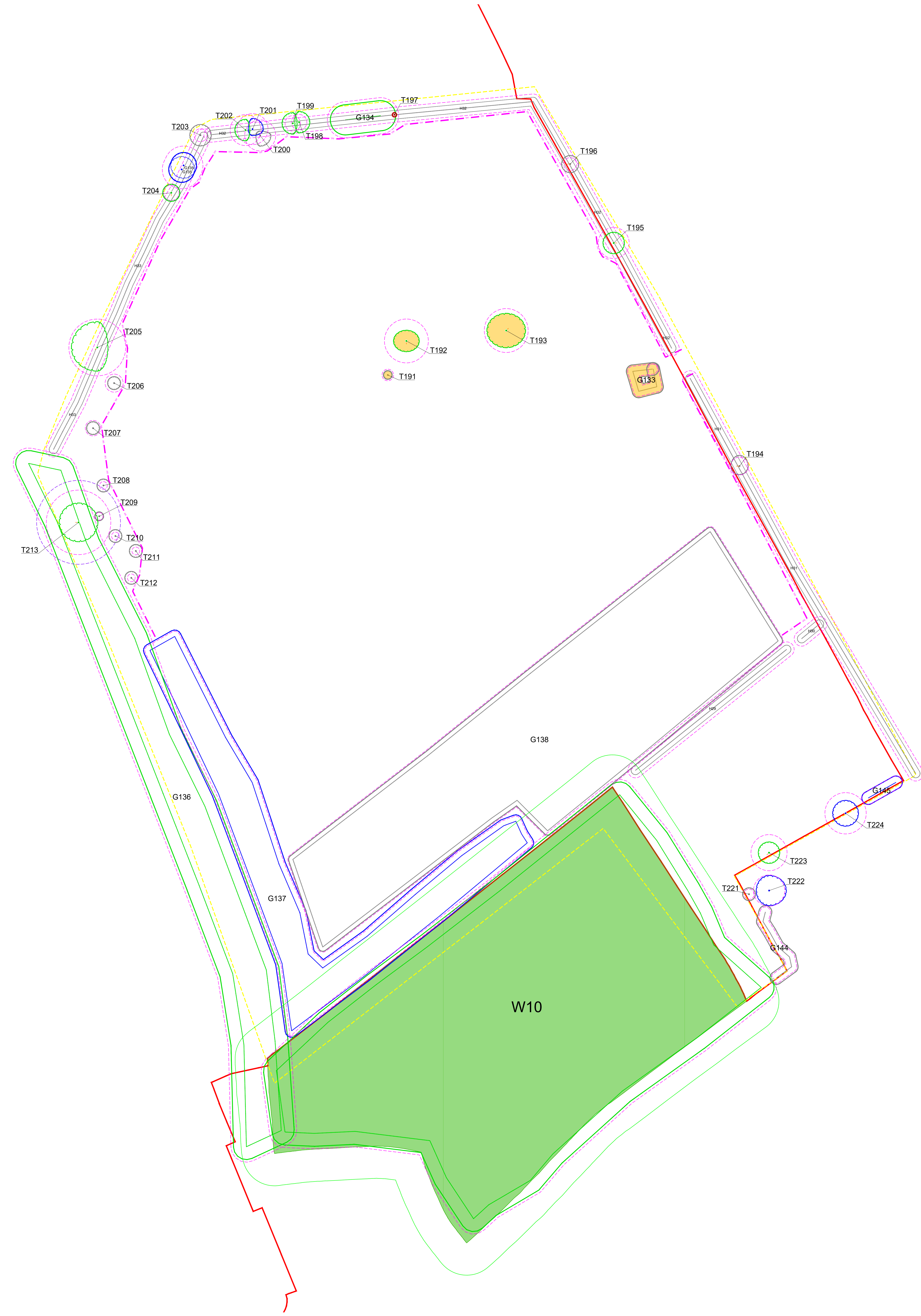
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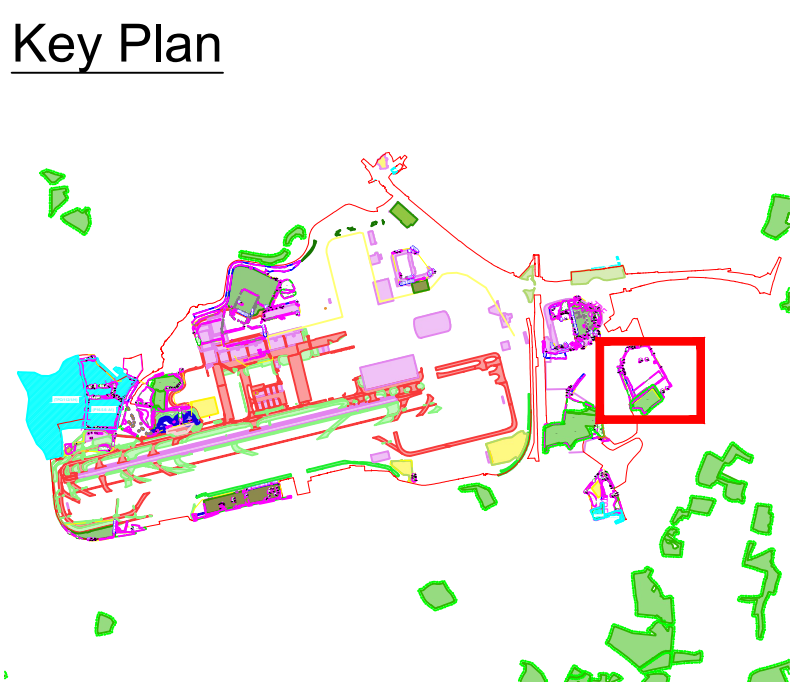
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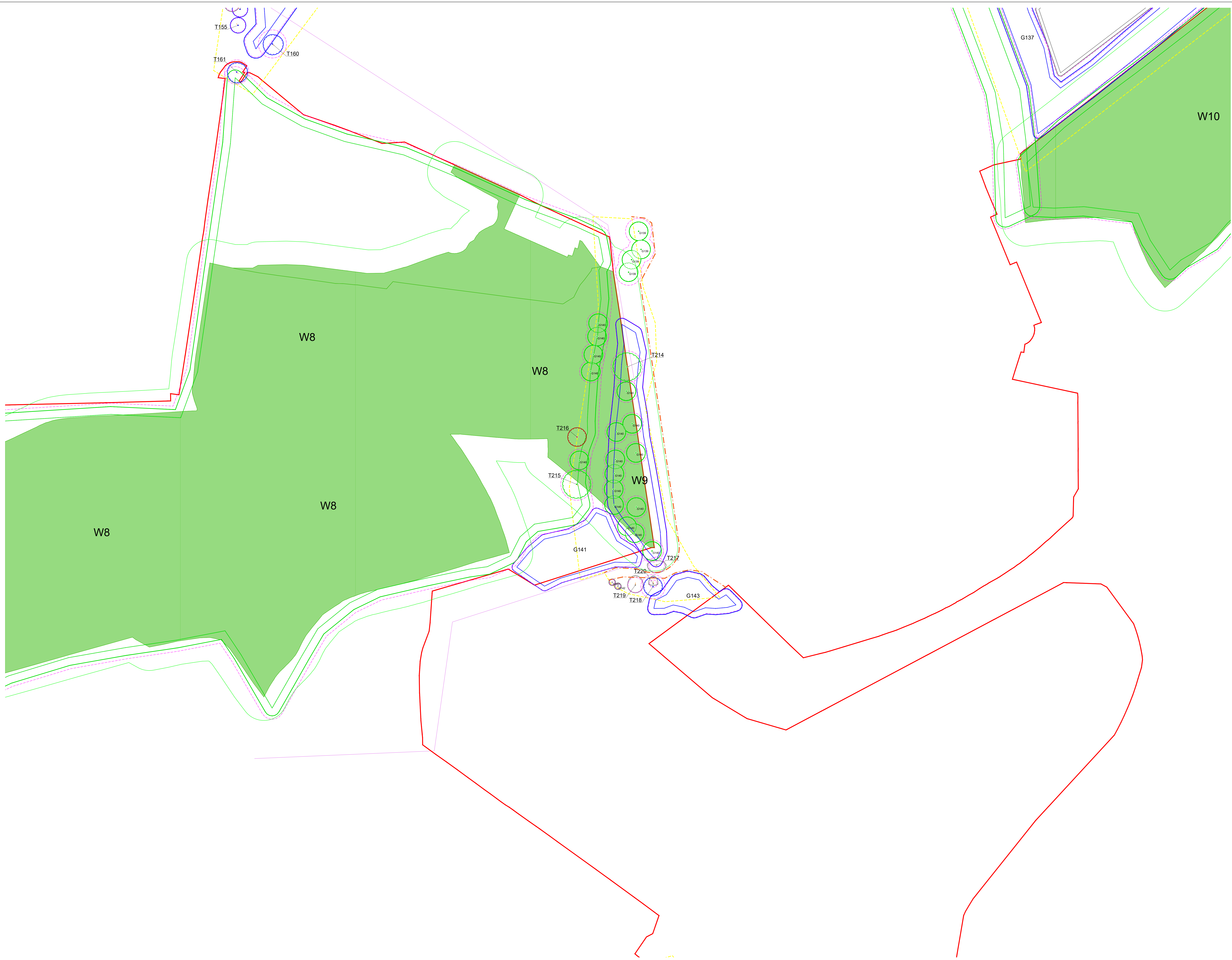
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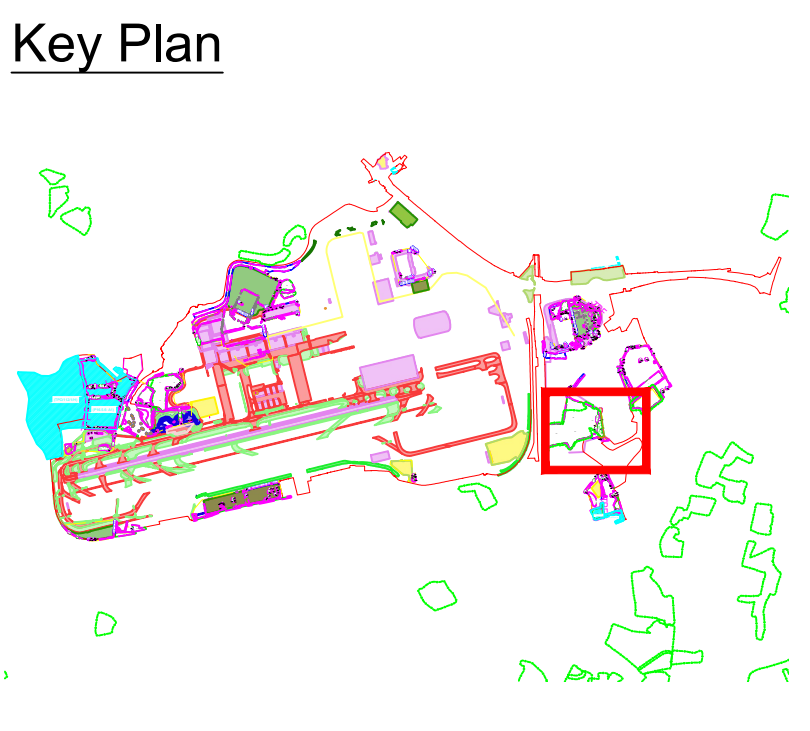
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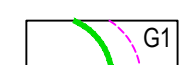

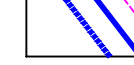


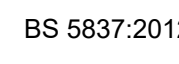

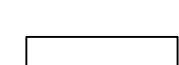
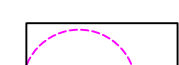
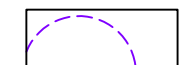


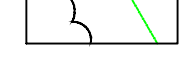
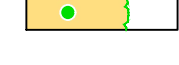
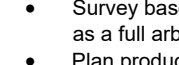
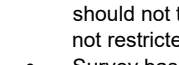
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	RC	DC

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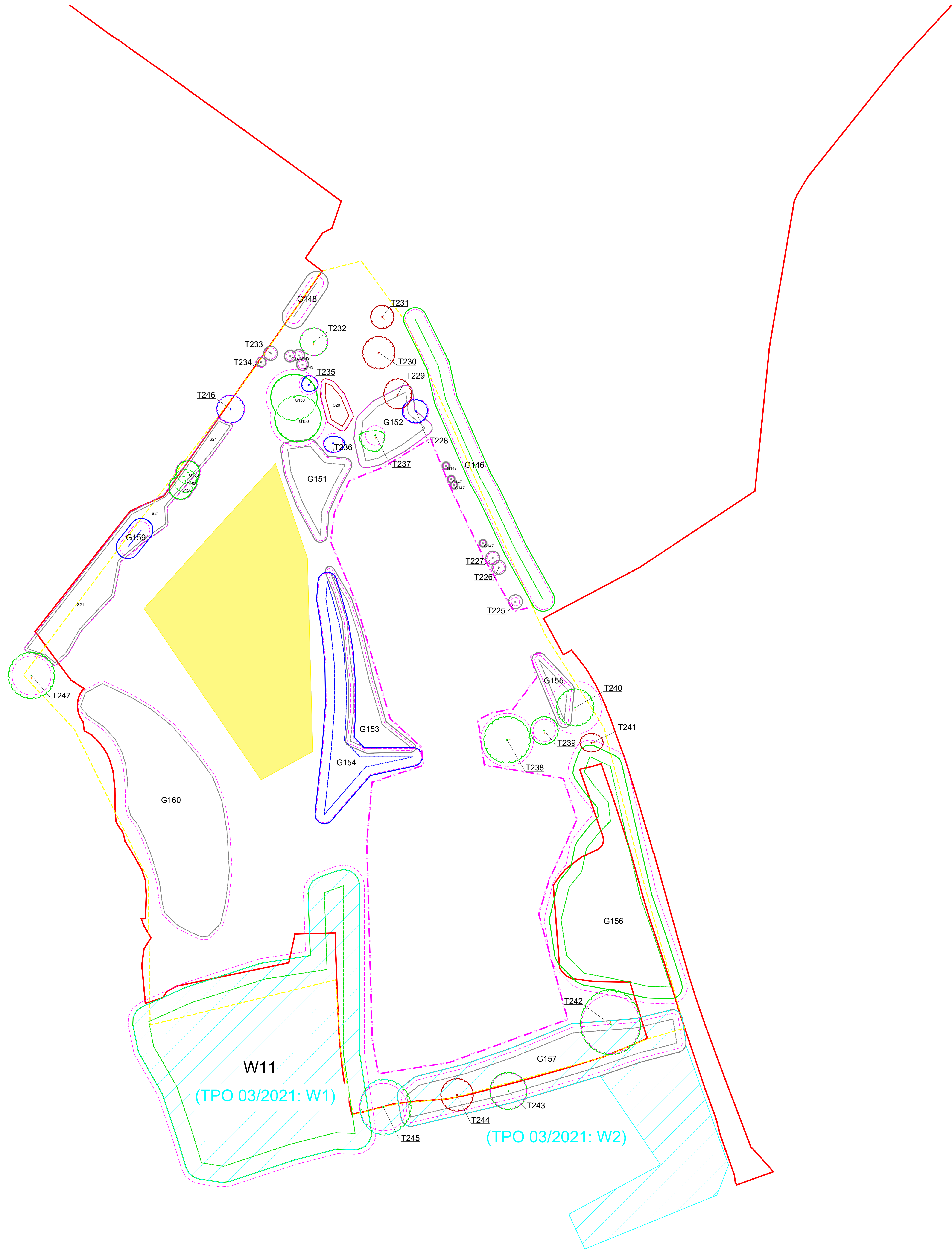
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DOCUMENT

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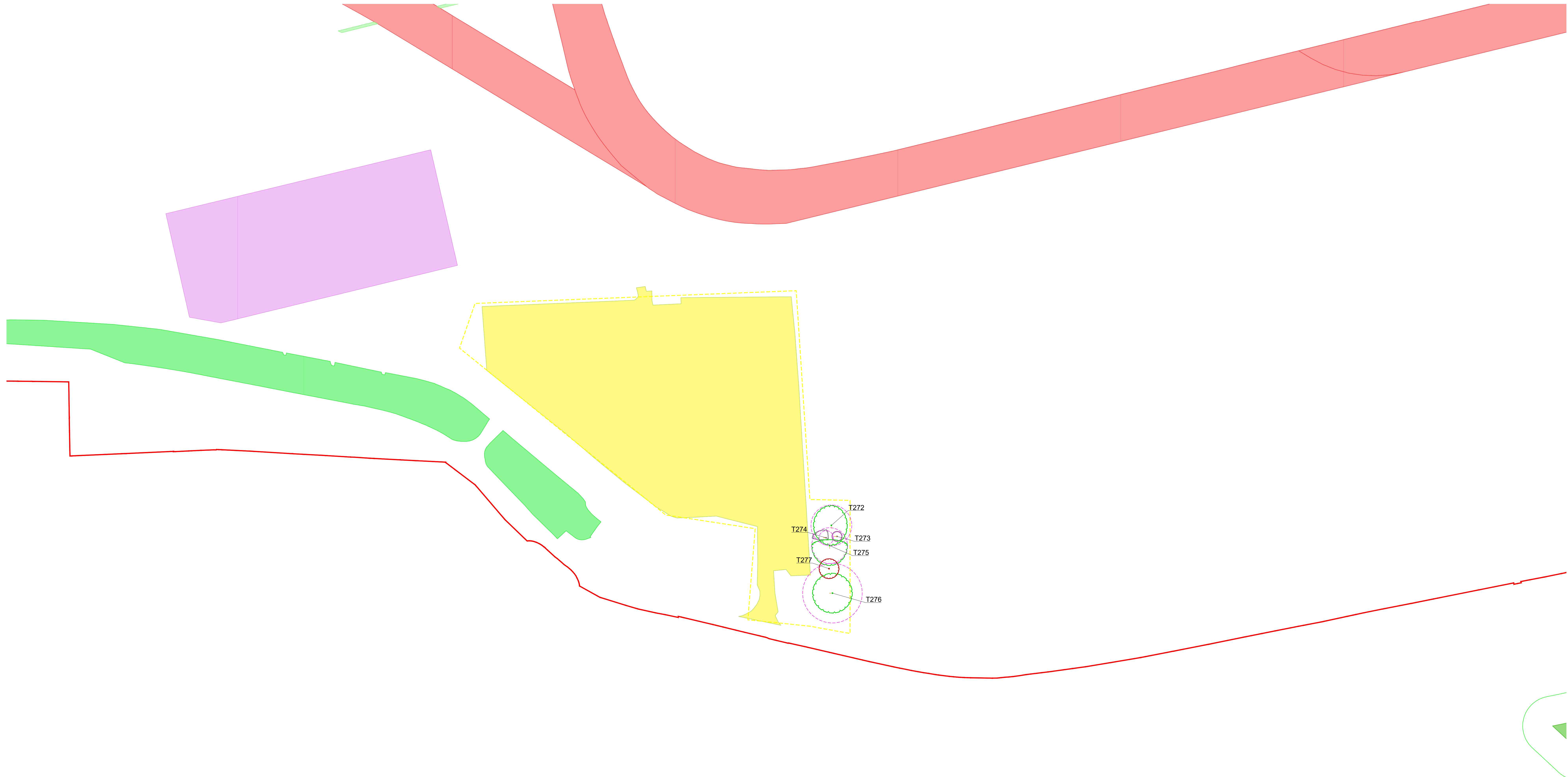
**Airport Preliminary Tree Removal Plans
Appendix 8.10.1
Sheet 10 of 13**

DATE
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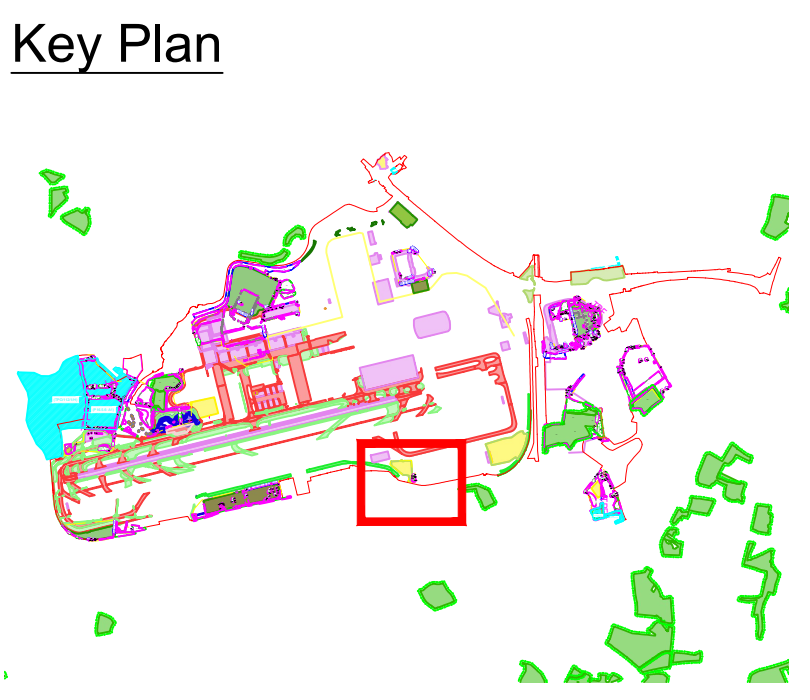
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DATE

January 2024





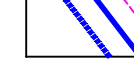


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	746	For ES Issue
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	RC	DC




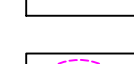
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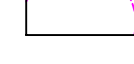
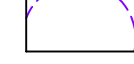



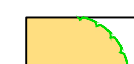
0m 25m 50m

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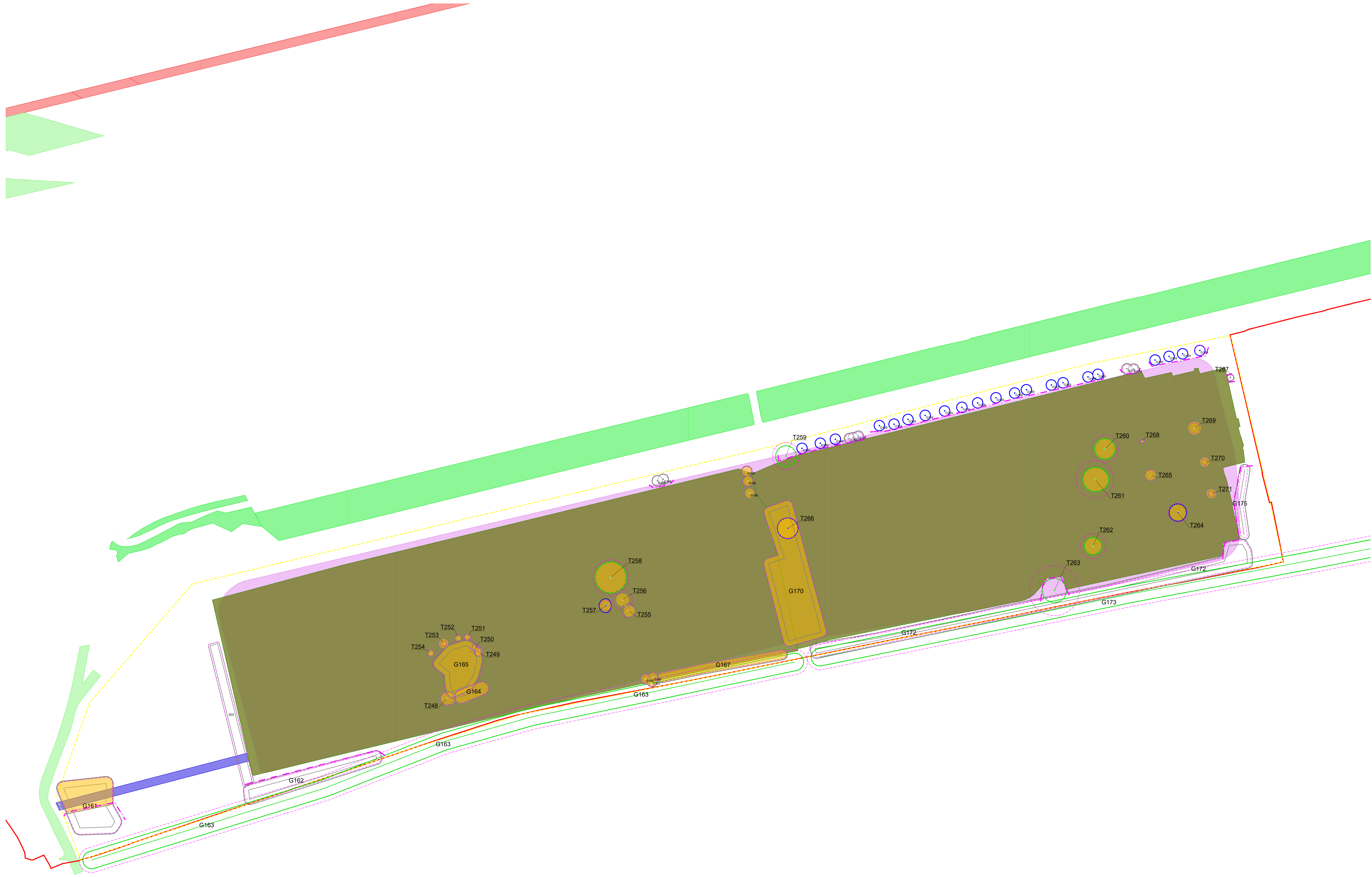
Key

-  Red Line boundary.
-  Survey boundary.
-  Tree with numbered reference. Canopy spread and coloured BS5837:2012 tree quality category as shown below.
 - = Tree details estimate (inaccessible tree)
 - = Tree in off site location
-  Tree group plotted with individual stem locations and numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below.
-  Tree or Vegetation group with numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below and dashed line to show indicative stem line.
-  Hedge with numbered reference. Canopy extents and coloured BS5837:2012 tree quality category as shown below and dashed line to show hedge centerline.
-  Woodland with numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below and dashed line to show indicative tree line.

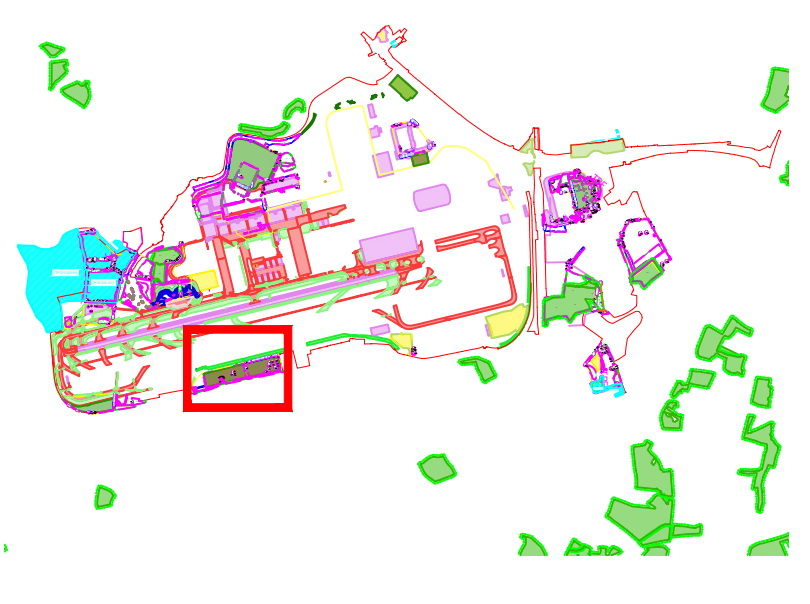
- BS 5837:2012 Tree Quality Categories - Table 1**
-  Category A - High quality
 -  Category B - Moderate quality
 -  Category C - Low quality
 -  Category U - Unsuitable for retention

-  Direction of first significant branch
-  Root protection area (RPA). Calculated in accordance with Section 4.6 - BS5837:2012
-  Veteran tree buffer (15 x stem Ø) (as per standing advice produced by Forestry England and Natural England)
-  Tree protected by Tree Preservation Order. Bracketed number reference relates to the TPO Schedule.
-  Designated Ancient Woodland (as per Natural England ancient woodland inventory, via open data publication)
-  Ancient Woodland tree buffer (15m offset) (as per standing advice produced by Forestry England and Natural England)
-  Tree to be removed with numbered reference. Canopy spread and BS5837:2012 tree quality category.

- NOTES:**
- Refer to RPS Tree Survey Report & Schedule for further details.
 - Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
 - Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
 - Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
 - Survey based upon Aerial Photography and trees located by eye.



Key Plan



DOCUMENT

Environmental Statement

DRAWING TITLE

**Airport Preliminary Tree Removal Plans
Appendix 8.10.1
Sheet 12 of 13**

DATE

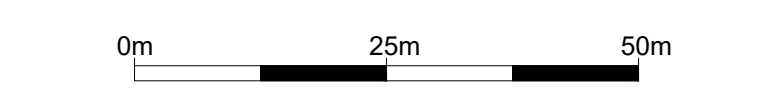
January 2024

ORIENTATION







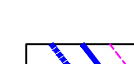


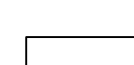
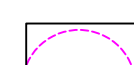



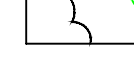

DRAWING NO.	REVISION
747	For ES Issue
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RC	DC

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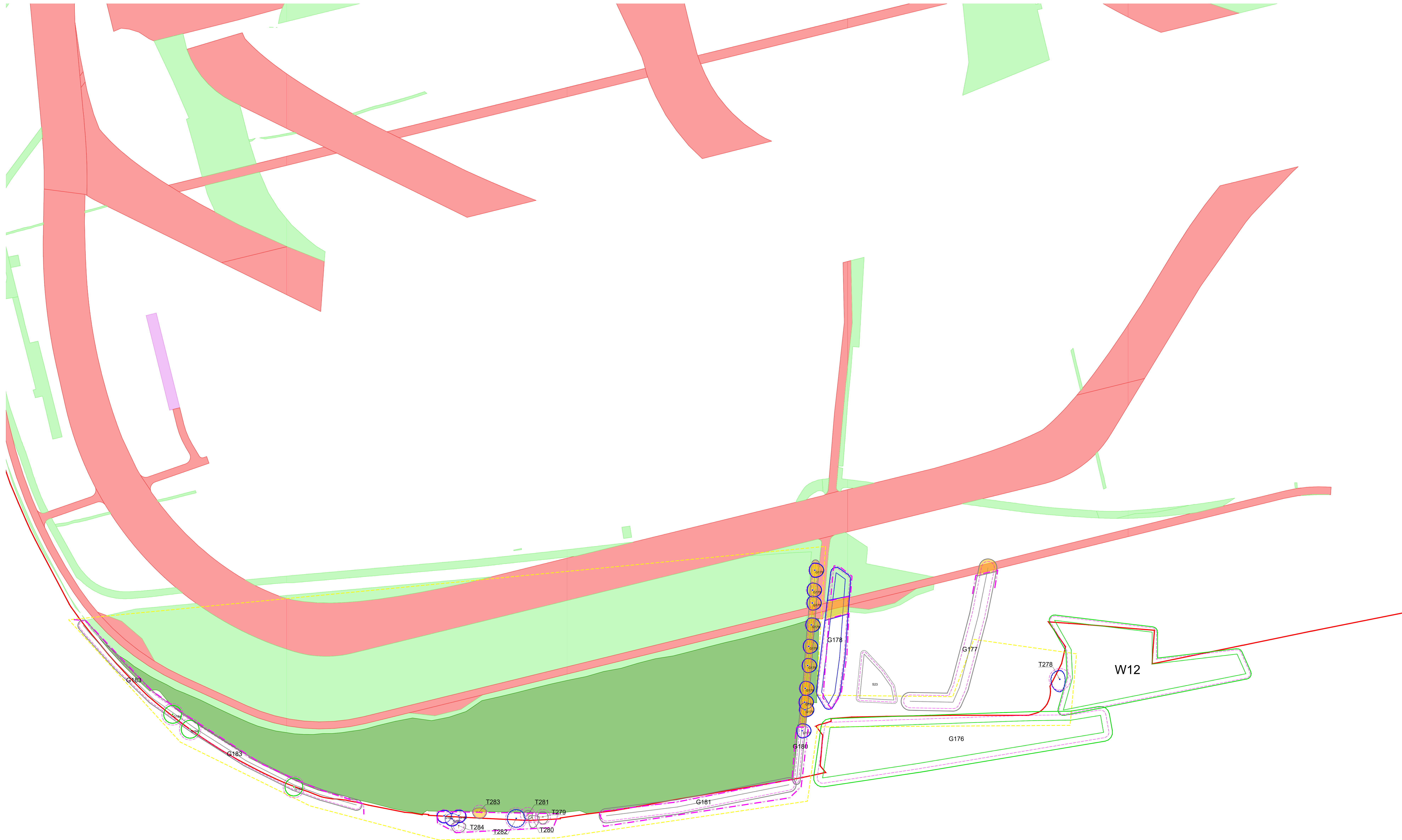


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Key Plan



DOCUMENT

Environmental Statement

DRAWING TITLE

**Airport Preliminary Tree Removal Plans
Appendix 8.10.1
Sheet 13 of 13**

DATE

January 2024

ORIENTATION



DRAWING NO.

748

REVISION

For ES Issue

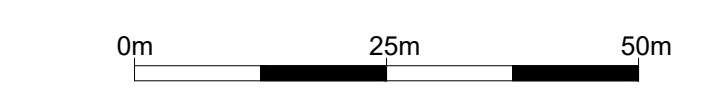
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TECHNICAL NOTE:

Tree Loss and Replanting Calculation Methodology

1 Introduction

- 1.1 This technical note provides a summary of how tree loss and replanting figures for the part of the Gatwick NRP Project which lies within Crawley Borough Council were calculated in accordance with Crawley Borough Council Local Plan Policy CH6: “Tree Planting and Replacement Standards”.
- 1.2 The technical elements which contribute to this note are: -
- 1) JSL3287_700-715 - M23 & A23 Tree Survey Plans
 - 2) JSL3287_720-733 - Airport Tree Constraints Plans
 - 3) JSL3287_750 - M23 & A23 Tree Survey Schedule
 - 4) JSL3287_751 - Airport Tree Survey Schedule
 - 5) JSL3287_755 - Replanting Calculation Tables

2 Replanting Requirement

- 2.1 Policy CH6: “Tree Planting and Replacement Standards” states:

“Where development proposals would result in the loss of trees, applicants must identify which trees are to be removed and replaced in order to mitigate for the visual impact resulting from the loss of the tree canopies. Proposals must demonstrate that the number of replacements accords with the following requirements:

Trunk diameter of each tree (measured in cms at 1.5m above ground level) to be removed, and number of replacement trees:

- *Less than 19.9cm = 1 replacement tree*
- *20-29.9cm = 2 replacement trees*
- *30-39.9cm = 3 replacement trees*
- *40-49.9cm = 4 replacement trees*
- *50-59.9cm = 5 replacement trees*
- *60-69.9cm = 6 replacement trees*
- *70-79.9cm = 7 replacement trees*
- *80 plus cm = 8 replacement trees”*

3 Survey Data Collection

3.1 Between May 2023 and January 2024 RPS have carried out two tree surveys to BS5837:2012 Standards for the Gatwick Genesis project. One for the Airport and one for its approach roads (mainly the M23 & A23). The information collected during these surveys is summarised in Appendix A.

3.2 As part of the BS5837:2012 survey methodology, the number and diameter at breast height (DBH) of individual trees has been recorded. However, due to the scope and extent of the survey a large number of the trees surveyed have been recorded as “Groups” in line with BS5837:2012:

“4.4.2.3 Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition).

NOTE The term “group” is intended to identify 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), in respect of each of the three subcategories (see 4.5).”

3.3 Trees within these groups that have the most common (mean) DBH of the group are recorded, but the exact DBH of each tree and the number of trees in each group are not always recorded.

3.4 Trees in smaller groups, where trees are all of a similar size, are sometimes plotted as individual trees, and an average DBH recorded. Where this is the case, we have counted how many trees in the group are to be removed and used the groups average DBH for each tree within our calculations.

3.5 However, for larger groups or those with a mixed range of sizes within the group, the average DBH is recorded but the number of trees is not recorded. Instead, the approximate canopy area is plotted on plans. For this reason the following methodology has been applied to calculate the approximate number of trees in these groups to inform tree removal and replacement calculations.

4 Replanting Calculation Methodology

4.1 To calculate the number of trees to be removed in each group, in an approximate but fair way, the following method has been applied:

Assumptions

1. That the density of each group is uniform.
2. That 50% of trees within each group will be within the average size range (stem diameter) of trees within the group.
3. That 25% of trees will have a smaller stem diameter than the average tree in the group and that 25% will be larger.

Additional Data Collection

4.2 To calculate the range of tree sizes within each group an additional walkover survey was carried out to collect the following data for each group, or part of group, to be removed:

1. Approximate size of smallest trees within group, ignoring outliers (Lowest DBH).
2. The most common size of tree within each group (Mode DBH).
3. Approximate size of largest trees within group, ignoring outliers (Highest DBH).
4. Approximate spacing of trees within each group (Centres)

4.3 Additionally, the canopy area of groups, or the parts of groups, to be removed was measured in AutoCAD and recorded.

Tree Removal Calculations

4.4 To estimate the approximate number of trees being removed within each group the following calculation was applied, and the result recorded:

$$\text{Tree Number} = \frac{\text{Area of Group}}{\text{Centres}^2}$$

4.5 This figure was then divided up into three, with the following calculations:

1. Upper 25% (Small Trees) = (Tree number/100) x25
2. Middle 50% (Average Trees) = (Tree number/100) x50
3. Lower 25% (Larger Trees) = (Tree number/100) x25

Environmental Statement: April 2024

Appendix 8.10.1: Appendix J Tree Loss and Replanting Calculation Methodology

Average Size Calculations

4.6 To estimate the approximate average DBH for each of the above three tree size categories within each removed group, the following calculations were made:

1. Upper 25% Average= (Lowest DBH + Middle 50% Average) / 2
2. Middle 50% Average= (Lowest DBH + Highest DBH + Mode DBH2) / 4
3. Lower 25% Average= (Highest DBH + Middle 50% Average) / 2

Replanting Figures

4.7 When the average DBH had been calculated for the three categories within each group they were compared to the DBH listed in the Crawley BC Local Plan Policy CH6 replanting requirement (see section 1.2). This identifies how many trees are needed to replace each of those within each size range:

Example:

1. Lower 25% Average= 150mm, Policy CH6 States: Less than 19.9cm = 1 replacement tree
2. Middle 50% Average= 300mm, Policy CH6 States: 30-39.9cm = 3 replacement trees
3. Higher 25% Average= 450mm, Policy CH6 States: 30-39.9cm = 40-49.9cm = 4 replacement trees

4.8 These numbers are multiplied by the tree removal number for each size category and added together to give a total replanting figure for the group:

Example:

1. Lower 25% Tree Number = 10 x 1 replacement trees = 10 Trees
2. Middle 50% Tree Number = 20 x 3 replacement trees = 60 Trees
3. Higher 25% Tree Number = 10 x 4 replacement trees = 40 Trees
4. Total Replacement Figure for Group = 110 Trees

6 Replanting Requirement Figures

6.1 The data in this report has been collated in the Replanting Calculation Tables that form part of Appendix J within Appendix 8.10.1 of the Environmental Statement (ES) and used to calculate tree replanting figures using this methodology. The total estimated tree removal and replanting figures for trees within Crawley Borough Council are as follows;

Trees Removed within CBC (Estimated)	Calculated CBC Replanting Requirement
10,882	33,129

7 Comparison With Current Replanting figures

7.1 The table below shows proposed replanting figures, within Crawley Borough Council, based upon data from the Biodiversity Net Gain Statement that forms Appendix 9.9.2 of the Environmental Statement:

Proposed Planting within Crawley Borough Council (Taken from BNG)				
Type	(Ha)	Centres	Trees Per Ha	Total Trees
Scrub	9.28	1.00	10,000	92,794
Woodland	6.29	1.50	4,444	27,946
Individual trees	0.27	5.00	400	109
Totals	15.84	-	-	120,849

7.2 Current landscape replanting figures show that new Woodland/ Individual trees amount to 28,056 trees currently proposed, within Crawley Borough. This is a net gain of 17,174 trees; however, it is still 5,073 trees short of the calculated required tree replanting. This is summarised in the table below:

Estimated Tree Removal	Proposed trees	Net Gain	Crawley Tree Requirement	Difference
10,882	28,056	17,174	33,129	-5,073
(Groups + Individual)	(Woodland + Individual)	(Net Gain)		(Trees short of target)

7.3 Current landscape replanting figures show that 92,794 new plants are proposed within Crawley Borough in new areas of scrub. If only 5.5% of these are tree species, which they will be, then the target of 33,129 replanted trees will be met

Proposed Scrub	% needed to be trees
92,794	5.47

- 7.4 Typical planting schedules in annex 3 of the oLEMP include a native scrub mix of which 30% are tree species.
- 7.5 Therefore, the mitigation replanting proposed will be sufficient to meet the requirements laid out in Crawley Local Plan Policy CH6: “Tree Planting and Replacement Standards”.

Appendix 1: Tree characteristics recorded during survey

Tree Ref No:	Sequential reference number of trees or groups of trees. Avenues, woodlands and hedgerows were also recorded on the tree constraints plan. # - denotes inaccessible trees (best estimates are made about the location, physical dimensions and characteristics.)																	
Species	Species listed by common name, with scientific names (<i>italic lettering</i>).																	
Height (m)	Estimated height of canopy to nearest metre.																	
Branch Spread	branch spread, taken as a minimum at the four cardinal points, to derive an accurate representation of the crown																	
Stem diameter @ 1.5 m (m)	Estimated diameter of trunk at 1.5 m above ground level in metres unless otherwise indicated, multi-stemmed trees being measured in accordance with Annex C: BS5837																	
Existing height above ground level	To inform on ground clearance, crown/stem ratio and shading the estimated height of the first significant branch and direction of growth and canopy above ground level.																	
Stem No.	Number of stems (if necessary) of individual tree.																	
Life Stage	Expressed as:-	<table border="0"> <tr> <td>Y</td> <td>(Young)</td> <td>OM</td> <td>(Over-mature)</td> </tr> <tr> <td>SM</td> <td>(Semi-mature)</td> <td>V</td> <td>(Veteran)</td> </tr> <tr> <td>EM</td> <td>(Early-mature)</td> <td>D</td> <td>(Dead)</td> </tr> <tr> <td>M</td> <td>(Mature)</td> <td></td> <td></td> </tr> </table>	Y	(Young)	OM	(Over-mature)	SM	(Semi-mature)	V	(Veteran)	EM	(Early-mature)	D	(Dead)	M	(Mature)		
Y	(Young)	OM	(Over-mature)															
SM	(Semi-mature)	V	(Veteran)															
EM	(Early-mature)	D	(Dead)															
M	(Mature)																	
Physical Condition	Apparent condition expressed as the following categories, based upon a brief visual inspection from the ground only:-	<table border="0"> <tr> <td>Good</td> </tr> <tr> <td>Fair</td> </tr> <tr> <td>Poor</td> </tr> <tr> <td>Dead</td> </tr> </table>	Good	Fair	Poor	Dead												
Good																		
Fair																		
Poor																		
Dead																		
Comments / Management Recommendations	General observations, particularly of structural and/or physiological condition (e.g. the presence of any decay and physical defect), and/or preliminary management recommendations and potential for wildlife habitats (not exhaustive).																	
Estimated remaining contribution (years)	Estimated remaining contribution, in years (<10, 10+,20+,40+)																	
Tree Quality Assessment Value: <u>Category</u>	Criteria grading with regards to Table 1: BS 5837:2012, expressed as:-	A (Trees/Vegetation of high quality and value) B (Vegetation of moderate quality and value) C (Trees/Vegetation of low quality and value) 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)																
	* Category U trees can have existing or potential conservation value which might be desirable to preserve.																	
Tree Quality Assessment Value: <u>Sub - Category</u>	Criteria grading with regards to Table 1: BS 5837:2012, expressed as:-	1 (Trees with mainly <i>arboricultural</i> value) 2 (Trees with mainly <i>landscape</i> value) 3 (Trees with mainly <i>cultural / conservation</i> value)																

TREE REPLANTING CALCULATION

Site: Gatwick - M23 & A23
 Project Schedule Ref: JSL3287_755.1
 Drawing Reference: JSL3287_801- 808 - Tree Removal Plans
 Survey date: 16.05.2022 / 24.05.2022 / 14.06.22 /
 16.06.22 / 30.06.22

Surveyor: D. Cox
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T1	400	1	
T2	700	1	
T3	400		1
T4	200	1	
T5	800	1	
T6	200	1	
T7	750	1	
T8	600	1	
T9	600	1	
T10	200	1	
T11	400	3	
T12	300	7	
T13	250	7	
T14	350	3	
T15	300	1	
T16	400	1	
T17	400	1	
T18	400		1
T19	700		3
T20	700	7	
T21	700	1	
T20a	300	1	
T21a	150	1	
T22	800	1	
T23	550		1
T24	900	2	
T25	1100	4	
T26	150	1	
T27	400	5	
T28	200	1	
T29	250	1	
T30	300	7	
T31	300	2	
T32	200	1	
T33	300	1	
T34	400	1	
T35	200	2	
T36	300	2	
T37	400	1	
T38	350	1	
T39	600	2	
T39a	600	1	
T40	500	2	
T41	700		5
T42	450	2	
T43	1100	1	
T44	950	1	
T45	900	1	
T46	800	2	1

Tree Replanting Numbers			
Count	DBH	Replacement Trees	Total
51	<199	1	51
95	200-299	2	190
48	300-399	3	144
27	400-499	4	108
24	500-599	5	120
12	600-699	6	72
18	700-799	7	126
17	>800	8	136
292	Total trees	Total Replacement Trees	947

Note: This survey is based on a brief visual inspection from the ground.
 It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Signifigant Branch.

TREE REPLANTING CALCULATION

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 16.06.22 / 30.06.22

Surveyor: D. Cox
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T47	600	4	
T48	200	11	4
T49	500	20	
T50	900	1	
T51	850	1	
T52	350	2	
T53	600	1	
T54	750	1	6
T55	650		1
T56	1100		1
T57	1100		1
T58	650	1	
T59	700	4	
T60	150	2	
T61	700		1
T62	200	1	
T63	250		1
T64	500		1
T65	400		1
T66	350		1
T67	400		1
T68	300		1
T69	800	1	
T70	500	1	
T71	900	1	
T72	400	1	
T73	400		2
T74	300		1
T75#	1000		2
T76	100	16	
T77	200	1	
T78	200	1	
T79	200	16	
T80	200	2	
T81	150	2	
T82	300	2	6
T83	150	13	
T84	200	2	11
T85	200	7	
T86	300	4	
T87	300		2
T88#	200		3
T89	300	11	
T90	250	23	
T91	200	3	3
T92	200		9
T93	500		1
T94	100	2	2
T95	200	2	

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16.06.22 / 30.06.22

Surveyor: D. Cox
Status: For Planning
Revision: -
Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T96	200	2	
T97	100		1
T98	400	2	
T99	300	1	
T100	300	3	
T101	200	5	
T102	650		1
T103	350		1
T104	250	1	
T105	600		8
T106	500		1
T107	500	1	
T108	350		1
T109	300		1
T110	200		3
T111	300		1
T112	900		1
T113	350		1
T114	400		6
T115	150	14	10
T116	400	9	
T117	700	1	
T118	300		1
T119	800		1
T120	500		19
T121	800		1
T122	450		3
T123	300		5
T124	700	2	8
T125	200	3	24
T126	600	1	
	Total	292	172

Note: This survey is based on a brief visual inspection from the ground.

It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Signifigant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick NRP - M23 & A23 Groups
 Project Schedule Ref: JSL3287_755.2
 Drawing Reference: JSL3287_801- 808 - Tree Removal Plans
 Survey date: 16.05.2022 / 24.05.2022 / 14.06.22 / 16.06.22 / 30.06.22

Trees Removed	Area Removed (Ha)	Groups Replanting Total
8418	12.02	28039

Surveyor: D. Cox
 Status: For Planning
 Revision: -
 Notes: -



Calculation input					
Ref. no	Area to be Removed (Square Meters)	Approx Centres (m)	Lowest DBH (mm)	Mode DBH (mm)	Highest DBH (mm)
G1	1159	2.0	150	200	400
G2	861	2.0	150	250	450
G4	49	4.0	150	155	280
G5	685	2.3	150	180	300
G6	75	2.0	150	175	300
G7	90	3.0	150	180	280
G8	2502	2.5	150	200	290
G9	905	2.0	150	210	250
G11	820	9.0	150	200	250
G12	1333	20.0	150	150	180
G13	1407	2.8	150	180	280
G14	351	2.5	165	180	800
G15	2418	3.5	165	165	290
G16	1299	3.0	160	180	600
G17	592	2.8	160	180	800
G18	1220	2.5	225	300	850
G19	385	3.5	190	320	850
G21	110	6.0	450	450	550
G22	1224	5.0	200	500	1200
G23	459	5.0	200	1000	1200
G24	12320	6.0	200	500	1100
G25	893	7.0	150	400	1000
G26	618	7.0	150	200	400
G27	4500	7.0	150	400	1300
G28	6966	7.0	150	450	700
G29	13086	5.5	150	350	700
G30	4648	4.0	150	350	600
G31	2785	3.0	150	375	800
G31a	778	6.0	150	150	1000
G32	1862	6.0	150	250	700
G33	780	5.0	150	300	1000

Tree Numbers			
Total Trees	Lower 25%	Mid 50%	Upper 25%
290	72.4	144.9	72.4
215	53.8	107.6	53.8
3	0.8	1.5	0.8
135	33.8	67.7	33.8
19	4.7	9.4	4.7
10	2.5	5.0	2.5
400	100.1	200.2	100.1
226	56.6	113.1	56.6
10	2.5	5.1	2.5
3	0.8	1.7	0.8
186	46.5	93.0	46.5
56	14.0	28.1	14.0
197	49.3	98.7	49.3
144	36.1	72.2	36.1
78	19.6	39.1	19.6
195	48.8	97.6	48.8
31	7.9	15.7	7.9
3	0.8	1.5	0.8
49	12.2	24.5	12.2
18	4.6	9.2	4.6
342	85.6	171.1	85.6
18	4.6	9.1	4.6
13	3.2	6.3	3.2
92	23.0	45.9	23.0
142	35.5	71.1	35.5
433	108.1	216.3	108.1
291	72.6	145.3	72.6
309	77.4	154.7	77.4
22	5.4	10.8	5.4
52	12.9	25.9	12.9
31	7.8	15.6	7.8

Mean Diameters (mm)		
Lower 25%	Mid 50%	Upper 25%
194	238	319
213	275	363
168	185	233
176	203	251
175	200	250
174	198	239
180	210	250
178	205	228
175	200	225
154	158	169
174	198	239
248	331	566
181	196	243
220	280	440
245	330	565
322	419	634
305	420	635
463	475	513
400	600	900
525	850	1025
388	575	838
319	488	744
194	238	319
356	563	931
294	438	569
269	388	544
256	363	481
288	425	613
256	363	681
244	338	519
294	438	719

Replanting Numbers			
Lower 25%	Mid 50%	Upper 25%	Total
72	290	217	580
108	215	161	484
1	2	2	4
34	135	68	237
5	19	9	33
3	5	5	13
100	400	200	701
57	226	113	396
3	10	5	18
1	2	1	3
47	93	93	233
28	84	70	183
49	99	99	247
72	144	144	361
39	117	98	254
146	390	293	830
24	63	47	134
3	6	4	13
49	147	98	294
23	73	37	133
257	856	684	1797
14	36	32	82
3	13	9	25
69	230	184	482
71	284	178	533
216	649	541	1406
145	436	291	872
155	619	464	1238
11	32	32	76
26	78	65	168
16	62	55	133

Note: This survey is based on a brief visual inspection from the ground. It is not intended as a full arboricultural inspection.
 # - indicates estimated/offsite tree. * - indicates off site tree. FSB - First Significant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick NRP - M23 & A23 Groups
 Project Schedule Ref: JSL3287_755.2
 Drawing Reference: JSL3287_801- 808 - Tree Removal Plans
 Survey date: 16.05.2022 / 24.05.2022 / 14.06.22 / 16.06.22 / 30.06.22

Trees Removed	Area Removed (Ha)	Groups Replanting Total
8418	12.02	28039

Surveyor: D. Cox
 Status: For Planning
 Revision: -
 Notes: -



Calculation input					
Ref. no	Area to be Removed (Square Meters)	Approx Centres (m)	Lowest DBH (mm)	Mode DBH (mm)	Highest DBH (mm)
G34	3617	7.0	150	300	600
G35	1712	4.0	150	450	1250
G36	2644	6.0	150	300	1250
G37a	485	5.0	200	550	700
G38	894	6.0	300	600	1250
G39	957	4.0	250	600	1000
G40	4720	5.0	250	600	700
G41	2705	4.0	200	600	1250
G42	178	2.0	150	500	1000
G43	275	2.5	200	400	1000
G45	2530	4.0	150	500	1250
G47	84	5.0	150	450	1500
G49	346	4.0	150	450	500
G50	Trees Counted		150	150	300
G50A	333	8.0	150	160	250
G52	115	2.0	200	220	450
G54	16	0.0	200	200	200
G55	807	4.5	200	220	1000
G56	661	2.5	200	220	550
G57	576	4.0	175	225	800
G58	1940	4.0	200	450	800
G59	352	3.8	180	290	300
G60	83	5.0	350	450	500
G61	143	4.5	350	350	550
G66	256	4.5	150	300	400
G67	398	4.5	200	300	350
G69	95	5.0	350	350	400
G70	557	1.5	150	225	650
G71	349	9.5	300	300	500
G75	Trees Counted		270	270	270
G75A	2188	10.0	150	200	400

Tree Numbers			
Total Trees	Lower 25%	Mid 50%	Upper 25%
74	18.5	36.9	18.5
107	26.8	53.5	26.8
73	18.4	36.7	18.4
19	4.9	9.7	4.9
25	6.2	12.4	6.2
60	15.0	29.9	15.0
189	47.2	94.4	47.2
169	42.3	84.5	42.3
45	11.1	22.3	11.1
44	11.0	22.0	11.0
158	39.5	79.1	39.5
3	0.8	1.7	0.8
22	5.4	10.8	5.4
6	1.5	3.0	1.5
5	1.3	2.6	1.3
29	7.2	14.4	7.2
1	0.3	0.5	0.3
40	10.0	19.9	10.0
106	26.4	52.9	26.4
36	9.0	18.0	9.0
121	30.3	60.6	30.3
25	6.3	12.5	6.3
3	0.8	1.7	0.8
7	1.8	3.5	1.8
13	3.2	6.3	3.2
20	4.9	9.8	4.9
4	1.0	1.9	1.0
248	61.9	123.8	61.9
4	1.0	1.9	1.0
2	0.5	1.0	0.5
22	5.5	10.9	5.5

Mean Diameters (mm)		
Lower 25%	Mid 50%	Upper 25%
244	338	469
363	575	913
325	500	875
350	500	600
494	688	969
431	613	806
394	538	619
431	663	956
344	538	769
350	500	750
375	600	925
394	638	1069
269	388	444
169	188	244
165	180	215
236	273	361
200	200	200
305	410	705
249	298	424
266	356	578
338	475	638
223	265	283
394	438	469
375	400	475
219	288	344
244	288	319
356	363	381
231	313	481
325	350	425
270	270	270
194	238	319

Replanting Numbers			
Lower 25%	Mid 50%	Upper 25%	Total
37	111	74	221
80	268	214	562
55	184	147	386
15	49	29	92
25	74	50	149
60	179	120	359
142	472	283	897
169	507	338	1014
33	111	78	223
33	110	77	220
119	474	316	909
3	10	7	19
11	32	22	65
2	3	3	8
1	3	3	7
14	29	22	65
1	1	1	2
30	80	70	179
53	106	106	264
18	54	45	117
91	243	182	515
13	25	13	50
2	7	3	12
5	14	7	26
6	13	9	28
10	20	15	44
3	6	3	11
124	371	248	743
3	6	4	13
1	2	1	4
5	22	16	44

Note: This survey is based on a brief visual inspection from the ground. It is not intended as a full arboricultural inspection.
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TREE REPLANTING CALCULATION

Site: Gatwick NRP - M23 & A23 Groups
 Project Schedule Ref: JSL3287_755.2
 Drawing Reference: JSL3287_801- 808 - Tree Removal Plans
 Survey date: 16.05.2022 / 24.05.2022 / 14.06.22 / 16.06.22 / 30.06.22

Trees Removed	Area Removed (Ha)	Groups Replanting Total
8418	12.02	28039

Surveyor: D. Cox
 Status: For Planning
 Revision: -
 Notes: -



Calculation Input					
Ref. no	Area to be Removed (Square Meters)	Approx Centres (m)	Lowest DBH (mm)	Mode DBH (mm)	Highest DBH (mm)
G76	Trees Counted		200	450	500
G76A	8048	4.0	200	400	1250
G77	916	5.0	200	300	400
G78	178	5.0	150	300	450
G78A	1901	2.7	150	210	310
G81	1298	1.5	150	270	500
G83	Trees Counted		170	170	270
G86	421	4.0	150	650	750
G87	84	3.0	150	650	750
G88	3265	5.0	150	200	1250
G89	1077	6.0	150	300	450
G90	661	6.0	250	500	700
W2	1985	3.5	150	320	650
W4	1355	2.5	200	350	900
W5	1797	2.0	200	350	850

Tree Numbers			
Total Trees	Lower 25%	Mid 50%	Upper 25%
3	0.8	1.5	0.8
503	125.8	251.5	125.8
37	9.2	18.3	9.2
7	1.8	3.6	1.8
261	65.2	130.4	65.2
577	144.2	288.4	144.2
2	0.5	1.0	0.5
26	6.6	13.2	6.6
9	2.3	4.7	2.3
131	32.7	65.3	32.7
30	7.5	15.0	7.5
18	4.6	9.2	4.6
162	40.5	81.0	40.5
217	54.2	108.4	54.2
449	112.3	224.6	112.3

Mean Diameters (mm)		
Lower 25%	Mid 50%	Upper 25%
300	400	450
381	563	906
250	300	350
225	300	375
185	220	265
224	298	399
183	195	233
350	550	650
350	550	650
300	450	850
225	300	375
369	488	594
255	360	505
325	450	675
319	438	644

Replanting Numbers			
Lower 25%	Mid 50%	Upper 25%	Total
2	6	3	11
377	1258	1006	2641
18	55	27	101
4	11	5	20
65	261	130	456
288	577	433	1298
1	1	1	3
20	66	39	125
7	23	14	44
98	261	261	620
15	45	22	82
14	37	23	73
81	243	203	527
163	434	325	921
337	899	674	1909

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 It is not intended as a full arboricultural inspection.
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TREE REPLANTING CALCULATION

Site: Gatwick Airport
 Project Schedule Ref: JSL3287_755.3
 Drawing Reference: JSL3287_736-748 - Tree Removal Plans
 Survey date: October 2023 - December 2023

Surveyor: Ross Carthew
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T1	389	1	
T2	650		1
T3	150	1	
T4	150	1	
T5	150	1	
T6	358	1	
T7	150	1	
T8	173	1	
T9	800	1	
T10	600	1	
T11	800		1
T12	650		1
T13	247		1
T14	800		1
T15	300		1
T16	800		1
T17	460		1
T18	707		1
T19	450		1
T20	141		1
T21	800		1
T22	800		1
T23	250		1
T24	250		1
T25	900		1
T26	650		1
T27	950		1
T28	550		1
T29	672		1
T30	1150		1
T31	750		1
T32	750		1
T33	750		1
T34	700		1
T35	1300		1
T36	850		1
T37	600		1
T38	950		1
T39	950		1
T40	1050		1
T41	1050		1
T42	650		1
T43	500		1
T44	800		1
T45	1000		1
T46	500		1
T47	500		1

Tree Replanting Numbers			
Count	DBH	Replacement Trees	Total
18	<199	1	18
19	200-299	2	38
12	300-399	3	36
6	400-499	4	24
1	500-599	5	5
4	600-699	6	24
0	700-799	7	0
10	>800	8	80
70	Total trees	Total Replacement Trees	225

Note: This survey is based on a brief visual inspection from the ground.

It is not intended as a full arboricultural inspection.

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TREE REPLANTING CALCULATION

Site: Gatwick Airport
 Project Schedule Ref: JSL3287_755.3
 Drawing Reference: JSL3287_736-748 - Tree Removal Plans
 Survey date: October 2023 - December 2023

Surveyor: Ross Carthew
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T48	500		1
T49	500		1
T50	700		1
T51	300		1
T52	650		1
T53	850		1
T54	600		1
T55	700		1
T56	850		1
T57	750		1
T58	1200		1
#T59	1000		1
T60	450		1
T61	808		1
T62	950		1
T63	1100		1
T64	550		1
T65	550		1
T66	750		1
T67	600		1
T68	950		1
T69	1200		1
T70	397	1	
T71	100	1	
T72	335		1
T73	397	1	
#T74	700		1
T75	800		1
T76	800		1
T77	250		1
T78	250		1
T79	250		1
T80	250		1
T81	250		1
T82	250		1
T83	250		1
T84	250		1
T85	400		1
T86	400		1
T87	350		1
T88	250		1
T89	250		1
T90	141	1	
T91	1000		1
T92	212	1	
T93	100	1	
T94	577	1	

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TREE REPLANTING CALCULATION

Site: Gatwick Airport
 Project Schedule Ref: JSL3287_755.3
 Drawing Reference: JSL3287_736-748 - Tree Removal Plans
 Survey date: October 2023 - December 2023

Surveyor: Ross Carthew
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T95	100	1	
T96	250		1
T97	250		1
T98	150	1	
#T99	450		1
T100	200		1
T101	200		1
T102	150		1
T103	250		1
T104	300		1
T105	250		1
T106	550		1
#T107	750		1
T108	212		1
T109	400		1
T110	150		1
T111	300		1
T112	300		1
T113	200		1
T114	250		1
T115	250		1
T116	250		1
T117	354		1
T118	173		1
T119	177		1
T120	260		1
T121	300		1
T122	548		1
T123	450		1
T124	450		1
T125	450		1
T126	450		1
T127	450		1
T128	500		1
T129	1050	1	
T130	400	1	
T131	400	1	
T132	350	1	
T133	350	1	
T134	1443	1	
T135	1167		1
T136	900	1	
T137	1200	1	
T138	200	1	
T139	1039	1	
T140	600	1	
T141	300	1	

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TREE REPLANTING CALCULATION

Site: Gatwick Airport
 Project Schedule Ref: JSL3287_755.3
 Drawing Reference: JSL3287_736-748 - Tree Removal Plans
 Survey date: October 2023 - December 2023

Surveyor: Ross Carthew
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T142	400	1	
T143	1250	1	
T144	250		1
T145	200	1	
T146	250	1	
T147	250	1	
T148	850	1	
T149	600		1
T150	600		1
T151	800		1
T152	200		1
T153	250		1
T154	354		1
T155	400		1
T156	400		1
T157	380		1
T158	400		1
T159	550		1
T160	750		1
T161	650		1
T162	300		1
T163	300		1
T164	100	1	
T165	212	1	
T166	300	1	
T167	400		1
T168	400		1
T169	650		1
T170	225	1	
T171	225	1	
T172	250	1	
T173	200	1	
T174	200	1	
T175	200	1	
T176	850		1
T177	750		1
T178	200		1
T179	350		1
T180	751		1
T181	268		1
T182	260		1
T183	350		1
T184	316	1	
T185	250	1	
T186	200	1	
T187	350		1
T188	200		1

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TREE REPLANTING CALCULATION

Site: Gatwick Airport
 Project Schedule Ref: JSL3287_755.3
 Drawing Reference: JSL3287_736-748 - Tree Removal Plans
 Survey date: October 2023 - December 2023

Surveyor: Ross Carthew
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T189	200		1
T190	300		1
T191	224		1
T192	850		1
T193	850		1
T194	346		1
T195	600		1
T196	250		1
T197	600		1
T198	300		1
T199	300		1
T200	600		1
T201	600		1
T202	600		1
T203	250		1
T204	300		1
#T205	1100		1
T206	350		1
T207	300		1
T208	150		1
T209	150		1
T210	150		1
T211	150		1
T212	150		1
T213	1300		1
T214	850		1
T215	850		1
T216	600		1
T217	404		1
T218	650		1
T219	389		1
T220	200		1
T221	200		1
#T222	592		1
*T223	700		1
*T224	800		1
T225	150		1
#T226	200		1
#T227	200		1
T228	450		1
T229	550		1
T230	550		1
T231	250		1
T232	500		1
T233	200		1
T234	200		1
T235	346		1

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TREE REPLANTING CALCULATION

Site: Gatwick Airport
 Project Schedule Ref: JSL3287_755.3
 Drawing Reference: JSL3287_736-748 - Tree Removal Plans
 Survey date: October 2023 - December 2023

Surveyor: Ross Carthew
 Status: For Planning
 Revision: -
 Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T236	350		1
T237	350		1
T238	950		1
T239	400		1
T240	950		1
T241	500		1
T242	1050		1
T243	650		1
T244	650		1
T245	850		1
T246	500		1
T247	700		1
T248	300	1	
T249	200	1	
T250	200	1	
T251	150	1	
T252	150	1	
T253	150	1	
T254	150	1	
T255	325	1	
T256	470	1	
T257	250	1	
T258	850	1	
T259	650		1
T260	650	1	
T261	900	1	
T262	600	1	
T263	1200		1
T264	447	1	
T265	250	1	
T266	491	1	
T267	150		1
T268	100	1	
T269	250	1	
T270	150	1	
T271	150	1	
#T272	837		1
#T273	200		1
#T274	300		1
#T275	750		1
#T276	1204		1
#T277	433		1
T278	500		1
T279	350		1
T280	250		1
T281	350		1
T282	495		1

Note: This survey is based on a brief visual inspection from the ground.

It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Significant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick Airport
Project Schedule Ref: JSL3287_755.3
Drawing Reference: JSL3287_736-748 - Tree Removal Plans
Survey date: October 2023 - December 2023

Surveyor: Ross Carthew
Status: For Planning
Revision: -
Notes: -



Tree removals			
Ref. no	Average DBH	Trees felled	Trees Retained
T283	300	1	
T284	247		1
	Total	70	214

Note: This survey is based on a brief visual inspection from the ground.
It is not intended as a full arboricultural inspection.
- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Significant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick NRP - Airport Groups
 Project Schedule: JSL3287_755.4
 Ref:

Drawing Reference: JSL3287_736-748 - Tree Removal Plans

Survey date: October 2023 - December 2023

Trees Removed	Area Removed (Ha)	Groups Replanting Total
2102	3.13	3918

Surveyor: Ross Carthew
 Status: For Planning

Revision: -
 Notes: -



Calculation input					
Ref. no	Area to be Removed (Square Meters)	Approx Centres (m)	Lowest DBH (mm)	Mode DBH (mm)	Highest DBH (mm)
G1	Trees Counted		500	500	500
G2	291	2.0	100	100	150
G4	1057	5.0	100	200	300
G5	246	6.0	150	150	150
G6	Trees Counted		550	550	550
G7	359	5.0	100	100	150
G24	750	5.0	100	150	200
G25	439	8.0	400	450	500
G26	84	5.0	150	200	200
G27	Trees Counted		500	500	500
G28	81	4.0	100	100	150
G29	84	5.0	100	150	150
G30	Trees Counted		150	150	150
G31	1536	7.0	400	500	600
G33	909	6.0	100	150	150
G40	982	6.0	150	200	250
G41	143	3.0	150	200	200
G42	297	5.0	150	150	200
G43	Trees Counted		300	300	300
G44	Trees Counted		100	100	100
G45	Trees Counted		150	150	150
G46	Trees Counted		150	150	150
G47	257	5.0	100	150	150
G48	Trees Counted		200	200	200
G49	356	4.0	150	200	200
G50	Trees Counted		350	350	350

Tree Numbers			
Total Trees	Lower 25%	Mid 50%	Upper 25%
4	1.0	2.0	1.0
73	18.2	36.4	18.2
42	10.6	21.1	10.6
7	1.7	3.4	1.7
8	2.0	4.0	2.0
14	3.6	7.2	3.6
30	7.5	15.0	7.5
7	1.7	3.4	1.7
3	0.8	1.7	0.8
5	1.3	2.5	1.3
5	1.3	2.5	1.3
3	0.8	1.7	0.8
5	1.3	2.5	1.3
31	7.8	15.7	7.8
2	0.5	1.0	0.5
27	6.8	13.6	6.8
16	4.0	7.9	4.0
12	3.0	5.9	3.0
3	0.8	1.5	0.8
57	14.3	28.5	14.3
3	0.8	1.5	0.8
15	3.8	7.5	3.8
10	2.6	5.1	2.6
3	0.8	1.5	0.8
22	5.6	11.1	5.6
3	0.8	1.5	0.8

Mean Diameters (mm)		
Lower 25%	Mid 50%	Upper 25%
500	500	500
106	113	131
150	200	250
150	150	150
550	550	550
106	113	131
125	150	175
425	450	475
169	188	194
500	500	500
106	113	131
119	138	144
150	150	150
450	500	550
119	138	144
175	200	225
169	188	194
156	163	181
300	300	300
100	100	100
150	150	150
150	150	150
119	138	144
200	200	200
169	188	194
350	350	350

Replanting Numbers			
Lower 25%	Mid 50%	Upper 25%	Total
5	10	5	20
18	36	18	73
11	42	21	74
2	3	2	7
10	20	10	40
4	7	4	14
8	15	8	30
7	14	7	27
1	2	1	3
6	13	6	25
1	3	1	5
1	2	1	3
1	3	1	5
31	78	39	149
1	1	1	2
7	27	14	48
4	8	4	16
3	6	3	12
2	5	2	9
14	29	14	57
1	2	1	3
4	8	4	15
3	5	3	10
2	3	2	6
6	11	6	22
2	5	2	9

Note: This survey is based on a brief visual inspection from the ground.
 It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Significant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick NRP - Airport Groups

Project Schedule JSL3287_755.4

Ref: JSL3287_755.4

Drawing Reference: JSL3287_736-748 - Tree Removal Plans

Survey date: October 2023 - December 2023

Trees Removed	Area Removed (Ha)	Groups Replanting Total
2102	3.13	3918

Surveyor: Ross Carthew

Status: For Planning

Revision: -

Notes: -



Calculation input					
Ref. no	Area to be Removed (Square Meters)	Approx Centres (m)	Lowest DBH (mm)	Mode DBH (mm)	Highest DBH (mm)
G51	95	5.0	150	200	200
G52	Trees Counted		300	300	300
G58	Trees Counted		600	600	600
G59	85	3.0	100	150	150
G60	917	3.0	75	100	150
G61	Trees Counted		200	200	200
G62	Trees Counted		200	200	200
G64	86	4.5	200	200	200
G65	437	4.0	200	200	200
G66	3484	3.0	100	200	250
G67	502	3.0	100	150	200
G68	155	3.0	100	100	100
G69	653	3.0	100	100	150
G70	733	6.0	100	150	200
G77	Trees Counted		100	100	100
G78	Trees Counted		200	200	200
G79	Trees Counted		150	150	150
G80	Trees Counted		300	300	300
G81	Trees Counted		300	300	300
G86	Trees Counted		350	350	350
G90	2146	5.0	150	300	600
G93	Trees Counted		250	250	250
G95	495	8.0	400	450	500
G96	Trees Counted		450	450	450
G97	Trees Counted		350	350	350
G98	3044	5.0	200	300	700

Tree Numbers			
Total Trees	Lower 25%	Mid 50%	Upper 25%
4	1.0	1.9	1.0
1	0.3	0.5	0.3
7	1.8	3.5	1.8
9	2.4	4.7	2.4
102	25.5	50.9	25.5
11	2.8	5.5	2.8
3	0.8	1.5	0.8
4	1.1	2.1	1.1
27	6.8	13.7	6.8
387	96.8	193.6	96.8
56	13.9	27.9	13.9
17	4.3	8.6	4.3
73	18.1	36.3	18.1
20	5.1	10.2	5.1
13	3.3	6.5	3.3
18	4.5	9.0	4.5
3	0.8	1.5	0.8
4	1.0	2.0	1.0
8	2.0	4.0	2.0
3	0.8	1.5	0.8
86	21.5	42.9	21.5
4	1.0	2.0	1.0
8	1.9	3.9	1.9
1	0.3	0.5	0.3
5	1.3	2.5	1.3
122	30.4	60.9	30.4

Mean Diameters (mm)		
Lower 25%	Mid 50%	Upper 25%
169	188	194
300	300	300
600	600	600
119	138	144
91	106	128
200	200	200
200	200	200
200	200	200
200	200	200
144	188	219
125	150	175
100	100	100
106	113	131
125	150	175
100	100	100
200	200	200
150	150	150
300	300	300
300	300	300
350	350	350
244	338	469
250	250	250
425	450	475
450	450	450
350	350	350
288	375	538

Replanting Numbers			
Lower 25%	Mid 50%	Upper 25%	Total
1	2	1	4
1	2	1	3
11	21	11	42
2	5	2	9
25	51	25	102
6	11	6	22
2	3	2	6
2	4	2	8
14	27	14	55
97	194	194	484
14	28	14	56
4	9	4	17
18	36	18	73
5	10	5	20
3	7	3	13
9	18	9	36
1	2	1	3
3	6	3	12
6	12	6	24
2	5	2	9
43	129	86	258
2	4	2	8
8	15	8	31
1	2	1	4
4	8	4	15
61	183	152	396

Note: This survey is based on a brief visual inspection from the ground. It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Significant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick NRP - Airport Groups

Project Schedule JSL3287_755.4

Ref: JSL3287_755.4

Drawing Reference: JSL3287_736-748 - Tree Removal Plans

Survey date: October 2023 - December 2023

Trees Removed	Area Removed (Ha)	Groups Replanting Total
2102	3.13	3918

Surveyor: Ross Carthew

Status: For Planning

Revision: -

Notes: -



Calculation input					
Ref. no	Area to be Removed (Square Meters)	Approx Centres (m)	Lowest DBH (mm)	Mode DBH (mm)	Highest DBH (mm)
G99	2819	5.0	250	450	750
G101	Trees Counted		350	350	350
G102	212	3.0	150	200	250
G103	396	6.0	150	200	250
G105	322	6.0	200	250	250
G106	Trees Counted		750	750	750
G107	Trees Counted		200	200	200
G108	Trees Counted		100	100	100
G109	276	4.0	150	200	250
G115	Trees Counted		300	300	300
G116	Trees Counted		500	500	500
G117	Trees Counted		550	550	550
G118	Trees Counted		550	550	550
G119	Trees Counted		250	250	250
G120	Trees Counted		200	200	200
G121	Trees Counted		200	200	200
G122	Trees Counted		150	150	150
G123	Trees Counted		350	350	350
G126	Trees Counted		450	450	450
G129	Trees Counted		300	300	300
G133	219	3.0	150	200	200
G164	155	5.0	250	300	300
G165	608	8.0	100	100	150
G166	Trees Counted		200	200	200
G167	450	4.0	150	200	200
G168	Trees Counted		250	250	250

Tree Numbers			
Total Trees	Lower 25%	Mid 50%	Upper 25%
113	28.2	56.4	28.2
19	4.8	9.5	4.8
24	5.9	11.8	5.9
11	2.8	5.5	2.8
9	2.2	4.5	2.2
2	0.5	1.0	0.5
4	1.0	2.0	1.0
20	5.0	10.0	5.0
17	4.3	8.6	4.3
3	0.8	1.5	0.8
2	0.5	1.0	0.5
3	0.8	1.5	0.8
2	0.5	1.0	0.5
7	1.8	3.5	1.8
3	0.8	1.5	0.8
2	0.5	1.0	0.5
3	0.8	1.5	0.8
2	0.5	1.0	0.5
9	2.3	4.5	2.3
24	6.1	12.2	6.1
6	1.6	3.1	1.6
10	2.4	4.8	2.4
3	0.8	1.5	0.8
28	7.0	14.1	7.0
3	0.8	1.5	0.8

Mean Diameters (mm)		
Lower 25%	Mid 50%	Upper 25%
363	475	613
350	350	350
175	200	225
175	200	225
219	238	244
750	750	750
200	200	200
100	100	100
175	200	225
300	300	300
500	500	500
550	550	550
550	550	550
250	250	250
200	200	200
200	200	200
150	150	150
350	350	350
450	450	450
300	300	300
169	188	194
269	288	294
106	113	131
200	200	200
169	188	194
250	250	250

Replanting Numbers			
Lower 25%	Mid 50%	Upper 25%	Total
85	226	169	479
14	29	14	57
6	24	12	41
3	11	6	19
4	9	4	18
4	7	4	14
2	4	2	8
5	10	5	20
4	17	9	30
2	5	2	9
3	5	3	10
4	8	4	15
3	5	3	10
4	7	4	14
2	3	2	6
1	2	1	4
1	2	1	3
2	3	2	6
2	4	2	8
7	14	7	27
6	12	6	24
3	6	3	12
2	5	2	10
2	3	2	6
7	14	7	28
2	3	2	6

Note: This survey is based on a brief visual inspection from the ground. It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Significant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick NRP - Airport Groups

Project Schedule Ref: JSL3287_755.4

Drawing Reference: JSL3287_736-748 - Tree Removal Plans

Survey date: October 2023 - December 2023

Trees Removed	Area Removed (Ha)	Groups Replanting Total
2102	3.13	3918

Surveyor: Ross Carthew

Status: For Planning

Revision: -

Notes: -



Calculation input					
Ref. no	Area to be Removed (Square Meters)	Approx Centres (m)	Lowest DBH (mm)	Mode DBH (mm)	Highest DBH (mm)
G170	1774	8.0	200	250	300
G177	74	3.0	200	300	350
G178	132	6.0	150	200	250
G179	Trees Counted		300	300	300
G180	242	2.0	50	50	75
W1	2502	4.0	150	250	400
W4	448	4.0	150	500	800

Tree Numbers			
Total Trees	Lower 25%	Mid 50%	Upper 25%
28	6.9	13.9	6.9
8	2.1	4.1	2.1
4	0.9	1.8	0.9
9	2.3	4.5	2.3
61	15.1	30.3	15.1
156	39.1	78.2	39.1
28	7.0	14.0	7.0

Mean Diameters (mm)		
Lower 25%	Mid 50%	Upper 25%
225	250	275
244	288	319
175	200	225
300	300	300
53	56	66
206	263	331
319	488	644

Replanting Numbers			
Lower 25%	Mid 50%	Upper 25%	Total
14	28	14	55
4	8	6	19
1	4	2	6
7	14	7	27
15	30	15	61
78	156	117	352
21	56	42	119

Note: This survey is based on a brief visual inspection from the ground. It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Significant Branch.

TREE REPLANTING CALCULATION

Site: Gatwick Airport
Project Schedule Ref: JSL3287_755.5



Proposed Planting within Crawley Borough Council (Taken from BNG)				
Type	(Ha)	Centers	Trees Per Ha	Total Trees
Scrub	9.28	1.00	10,000	92,794
Woodland	6.29	1.50	4,444	27,946
Individual trees	0.27	5.00	400	109
Totals	15.84	-	-	120,849

Estimated Tree Removal	Proposed trees	Difference	Crawley Tree Requirement	Difference
10,882	28,056	17,174	33,129	-5,073
(Groups + Individual)	(Woodland + Individual)	(Net Gain)		(trees under target)

Proposed Scrub	% needed to be trees	(what % of planted scrub need counting as trees to hit target)
92,794	5.47	

Appendix K Arboricultural Glossary

Age-class - A general classification of the tree into either - young, semi-mature, early mature, mature, over-mature, or veteran.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Arboreal - In connection with, or in relation to, trees.

Arboriculturist – Person who has, through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Arboricultural Implications Assessment (AIA) – Study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in the loss of or damage to a tree. Note The AMS is likely to include details of an on-site tree protection monitoring regime.

Asymmetric crown- Crowns that have a morphological bias in a particular direction. This can give the tree an aesthetically unfavourable appearance but can also subject the tree to uneven wind- loading forces and potentially result in failure.

Basal – Referring to the bottom part of a tree's stem.

Basifugal mortality – A natural process seen in trees in an advanced life stage whereby the trees extremities die back, and the inner crown expresses new growth, in order to conserve energy reserves.

Bifurcated - A growth characteristic, where two stems of similar size grow from the same point. Can create an inherent weakness.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Brown Rot- Decay caused by certain species of fungus which results in the affected wood becoming brittle and liable to suddenly 'break out', especially if in key structural areas.

Buttress flares – Extensions of the basal stem of a tree that provide additional structural support. See reaction wood.

Bifurcated- A growth characteristic, where two or more stems of similar size grow from the same point. Can create an inherent weakness.

Cable braces – Cable braces used to support the crown of a tree, reduce impacts caused by wind- throw oscillation.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Central leader- See apical dominance.

Chalara ash dieback- A disease affecting ash trees caused by the fungus *Hymenoscyphus fraxineus*. Usually fatal, the disease causes leaf loss and crown dieback in infected trees. It was first confirmed in Britain in 2012.

Chlorosis- yellowing of leaves which can be caused by a range of factors, often an indicator of nutrient deficiency.

Compaction - The compressing & hardening of soil around tree root systems, due to vehicular/pedestrian use etc. Loss of pore space between soil granules limits water movement and gaseous exchange and inhibits root growth.

Companion shelter- Shelter provided by neighbouring trees in groups to one another, factors such as wind throw are reduced due to supporting branches and interlocking root systems. Removing individual trees on the peripheries of such groups can expose neighbouring trees to environmental factors they have not previously been subjected to and can lead to individual failure.

Competent person – Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached

Note 1 A competent person understands the hazards and the methods to be implemented to eliminate or reduce the risks that can arise. For example, when on site, a competent person is able to recognise at all times whether it is safe to proceed.

Note 2 A competent person is able to advise on the best means by which the recommendations of this British Standard may be implemented.

Condition – Assessment based on a visual and professional view giving consideration to many factors such as tree health, structural integrity and suitability of its position.

Conservation dead- wooding- Removal of deadwood using 'coronet cuts' that mimic the way a branch would naturally break off, maximising deadwood habitat availability for invertebrates.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a tree's branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

D.B.H. - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic growth - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Form - A general assessment of the shape and position of the tree within its environment.

Hanger – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Included bark – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a structural weakness.

Invertebrate tower – Pollarding of a (usually dead) tree to a safe height that leaves part of the main stem as a deadwood habitat for invertebrate species.

Occlusion/Occluded – Normally used to describe the overgrowth of a wound. Also, immovable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen - An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

Phototropic growth – Growth responding to a light stimulus i.e. the sun. This can influence the form of a tree, particularly where other factors e.g. buildings or other trees, affect the amount/ direction light is received.

Pollard – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as cavities.

Rhizosphere - The rhizosphere is the narrow region of soil that is directly influenced by root secretions and associated soil microorganisms. In particular, mycorrhizal fungi form a symbiotic relationship with trees and assist in the assimilation of phosphates essential to the tree's health.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Scaffold limbs - The main structural branches within the crown.

Tree Removal & Protection Plan – scale drawing prepared by an arboriculturist showing the finalised layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

U.L.E – 'Useful Life Expectancy' is an estimate based on currently known factors of the possible remaining life of the tree as an asset. AKA 'Estimated remaining contribution'.

Veteran tree – 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.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species.

White Rot - A type of decay caused by certain species of fungi which results in the affected wood becoming flexible with little compressive strength.