



Worton Grange, Reading

Biodiversity Net Gain Assessment Report

AEI2140_v5.0_20240523

Background

Applied Ecology Ltd (AEL) was appointed by Triton Property Fund to undertake Biodiversity Net Gain (BNG) calculations of a proposed development at Worton Grange, Reading (“the Site”), using the Statutory Biodiversity Metric calculator. This note provides a summary of these calculations, with the full Statutory Metric calculator provided as a standalone spreadsheet.

The location of the Site is shown in **Figure 1**. The proposed development of the Site includes demolition of the existing building and construction of a replacement building with associated hard and soft landscaping (**Appendix A**).

The Site was previously subject to a Preliminary Ecological Appraisal (PEA), including the mapping of pre-development baseline habitats in accordance with the JNCC Phase 1 habitat mapping methodology in April 2023¹.

Approach

The BNG assessment of the proposed development has been completed using DEFRA’s Statutory Biodiversity Metric Calculation Tool². The calculation tool compares the relative biodiversity value of the pre-development habitats with the proposed post-intervention habitats with the comparison including an assessment of habitat type, condition and, in the case of newly created post-intervention habitats, difficulty of creation. Linear habitat features, namely hedgerows, are assessed using a separate metric to area habitats.

The pre-development habitat baseline for the Site was derived using the Phase 1 habitat map of the Site produced by AEL in April 2023 with the Phase 1 habitat types converted into their respective UK Habitat Classification (UKHab) habitat types using professional judgement. The post-intervention habitat type and area, for use in the biodiversity metric calculator, were also informed by the Soft Landscape Plan (**Appendix A**).

The condition of baseline habitats and target conditions of created habitats were determined in line with the Statutory Biodiversity Metric condition assessment criteria³.

¹ Applied Ecology Ltd (2023) *Ecology report*. Produced for Triton Property Fund.

² Available from <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides> Accessed on 05.01.2024.

³ DEFRA (2023) *Statutory Biodiversity Metric Condition Assessments*.



Findings

Baseline habitats

The baseline habitats within the Site, as surveyed in 2023, consisted of: developed land, grassland, introduced shrub, scrub and individual trees. No hedgerows were present on-site. The on-site habitats are presented in **Figure 2**.

The area of the 42 on-site trees has been entered using the urban tree calculator within the Statutory Metric.

The grassland on-site was assessed as being modified grassland as it had abundant perennial ryegrass *Lolium perenne* and was species poor, meaning it could not be classed as other neutral grassland. The condition of the grassland was split between poor and moderate due to differences in structure and species diversity.

The pre-development baseline habitat value of the Site was calculated as **5.78 habitat units** as detailed in **Table 1** below.

Table 1: Baseline habitats.

Habitat (UKHab)	Distinctiveness (score)	Condition (score)	Area (ha)	Habitat unit value	Area lost to development (ha)
Heathland and shrub: Bramble scrub	Medium (4)	N/A (1)	0.038	0.15	0.02
Urban: Developed land, sealed surface	V. Low (0)	N/A (0)	0.983	0.00	0.98
Urban: Introduced shrub	Low (2)	N/A (1)	0.029	0.06	0.03
Grassland: Modified grassland	Low (2)	Moderate (2)	0.225	0.90	0.13
Grassland: Modified grassland	Low (2)	Poor (1)	0.105	0.21	0.11
Individual trees: Urban tree (17 small, 23 medium, one large and one very large tree)	Medium (4)	Moderate (2)	0.557	4.46	0.46
TOTAL*area total does not include area of trees			1.380	5.78	1.62

Post-intervention habitats

The post-intervention habitats, including the proposed area of developed land (buildings and hard-standing) and other newly created habitats within the Site, are presented in **Table 2 and 3** and shown in **Figure 3**.

A total of 42 on-site new individual trees have been entered using the urban tree calculator as small trees (i.e., trees that will be planted with a DBH of up to 30 cm), these have been classed as moderate condition as they are native species and will be oversailing vegetation.

The retained bramble scrub is planned to be enhanced to mixed scrub in moderate condition, this will be carried out by planting of a range of woody species with less than 5% cover of species evident of suboptimal condition such as butterfly-bush *Buddleja davidii*, non-native conifers, cherry laurel *Prunus laurocerasus* etc. The scrub should also be managed to attain a range of age classes after 30 years, including all seedlings, saplings, young shrubs and mature shrubs.



The retained grassland is planned to be enhanced to other neutral grassland in moderate condition. This will be carried out by scarifying the surface and overseeding with a wildflower seed mix to support over eight species per square metre. It should be managed to achieve less than 5% cover of bare ground, scrub and species indicative of sub-optimal condition such as common nettle *Urtica dioica*, broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, and creeping buttercup *Ranunculus repens*.

Developed land and introduced shrubs both have mandatory conditions assigned so do not require their conditions to be assessed.

The post-intervention habitats score a value of **2.96 habitat units** and **0.78 hedgerow units**.

Table 2: Post-intervention habitats.

Habitats (UKHab)	Distinctiveness (score)	Condition (score)	Area (ha)	Habitat units value
Retained habitats				
Individual trees: Urban tree (one very large, one small and six medium trees)	Medium (4)	Moderate (2)	0.178	1.42
Enhanced habitats				
Heathland and shrub: Bramble scrub to Mixed scrub	Medium (4)	Low (1) to Moderate (2)	0.018	0.13
Grassland: Modified grassland to Other neutral grassland	Low (2) to Medium (4)	Moderate (2)	0.126	0.86
New habitats				
Urban: Developed land, sealed surface	V. Low (0)	N/A (0)	1.255	0.00
Urban: Introduced shrub	Low (2)	N/A (1)	0.010	0.02
Individual trees: Urban tree (42x small trees)	Medium (4)	Moderate (2)	0.171	0.52
TOTAL*area total does not include area of trees			0.380	2.96

Table 3: Post-intervention hedgerow.

Habitats (UKHab)	Distinctiveness (score)	Condition (score)	Length (km)	Habitat units value
New habitats				
Species-rich native hedgerow	Medium (4)	Moderate (2)	0.096	0.64
Native hedgerow	Low (2)	Moderate (2)	0.041	0.14
TOTAL			0.137	0.78

Conclusion

The BNG assessment for the development at Worton Grange, Reading, results in a net loss of **-2.82 habitat units, equivalent to a net loss of -48.84%**. The development also delivers a net gain of **0.78 hedgerow units**, which cannot be calculated as a percentage due to the base line of 0.00 units.

As the proposed development is currently assessed to secure a biodiversity net loss, further ecological consideration may be required to satisfy the corresponding planning authority and additionally be in accordance with section 15 paragraph 174d of the National Planning Policy Framework.



The development is associated with trading issues, where specific habitat types are not adequately compensated for in the post-intervention plan, for 'heathland and shrub' (-0.02 units) and 'individual trees' (-2.51 units).

To resolve the trading losses, 2.51 units of 'individual trees' (or higher distinctiveness habitat) should be created along with 0.02 units of 'heathland and shrub' (or higher distinctiveness habitat) off-site. An additional 0.3 units (of any other habitat type) would be required to achieve a net gain. If it is not possible to create these habitats, the same number of units can be purchased from an off-site unit provider to make up for the shortfall.





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AEL2140_01-04-01_UKHab_20230717 A4 05/01/2024

Worton Grange, Reading

UKHab/Metric baseline habitat map

- Site boundary
- developed land sealed surface (buildings)(n/a)
- developed land sealed surface (hardstanding)(n/a)
- bramble scrub (n/a)
- introduced shrubs (n/a)
- modified grassland (poor)
- modified grassland (moderate)
- Individual tree - urban tree (no. 42)(moderate)

Figure 2

Map Scale @ A4: 1:1,000

Surveyed by: RH, AH

Survey date: 26 April 2023

Drawn by: NB

Checked by: DP

Status: Final



Worton Grange, Reading

Post-intervention habitat map

-  Site boundary
-  new - developed land; sealed surface (building)(n/a)
-  new - developed land; sealed surface (hard-standing)(n/a)
-  new - introduced shrub (n/a)
-  retained/enhanced - mixed scrub (moderate)
-  retained/enhanced - other neutral grassland (moderate)
-  new - native hedgerow (moderate)
-  new - native speices-rich hedgerow (moderate)
-  new - small urban tree (moderate)
-  retained - small urban tree (moderate)
-  retained - medium urban tree (moderate)
-  retained - very large urban tree (moderate)

Figure 3

Map Scale @ A4: 1:1,000

Surveyed by: n/a

Survey date: n/a

Drawn by: NB

Checked by: DP

Status: Final



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Appendix A

Soft Landscape Plan



Planting Schedule

Trees

Number	Species	Girth	Height	Specification
1	Acer campestre	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
1	Acer platanoides 'Princeton Gold'	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
2	Alnus glutinosa	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
1	Betula pendula	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
2	Betula pendula 'Fastigiata'	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
2	Carpinus betulus	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
7	Carpinus betulus 'Frans Fontaine'	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
5	Crataegus laevigata 'Paul's Scarlet'	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
1	Malus sylvestris	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
2	Parrotia persica 'Vanessa'	12-14cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
3	Paulownia fortunei 'Fast Blue'	12-14cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
1	Prunus 'Amanogawa'	12-14cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 100-150 :5 brks
4	Pyrus calleryana 'Chanticleer'	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
1	Quercus robur	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
3	Quercus robur fastigiata	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
4	Sorbus 'Joseph Rock'	12-14cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :5 brks
2	Ulmus 'New Horizon'	14-16cm	350-425cm	RB :3x :Heavy Standard :Clear Stem 175-200 :3/5 brks
Total :42				

Shrubs

Number	Species	Height	Specification	Density
64	Acer campestre	60-90cm	BR	0.3Ctr Double Staggered at 0.3m offset
122	Carpinus betulus	60-80cm	BR :1+1	0.3Ctr
32	Carpinus betulus	60-90cm	BR	0.3Ctr Double Staggered at 0.3m offset
64	Corylus avellana	60-90cm	BR	0.3Ctr Double Staggered at 0.3m offset
256	Crataegus monogyna	60-90cm	BR	0.3Ctr Double Staggered at 0.3m offset
32	Euonymus europaeus	60-90cm	C	0.3Ctr Double Staggered at 0.3m offset
39	Euonymus fortunei 'Emerald Gaiety'		C :Bushy :7 brks	4/m²
39	Hebe 'White Gem'	30-40cm	C :Bushy :5 brks	4/m²
32	Ilex aquifolium	60-90cm	C	0.3Ctr Double Staggered at 0.3m offset
21	Lavandula angustifolia 'Hidcote'	20-30cm	C :Bushy :5 brks	5/m²
32	Ligustrum vulgare	60-90cm	C	0.3Ctr Double Staggered at 0.3m offset
39	Lonicera nitida 'May Green'		C :Bushy :6 brks	4/m²
96	Prunus spinosa	60-90cm	BR	0.3Ctr Double Staggered at 0.3m offset
32	Rosa canina	60-90cm	BR	0.3Ctr Double Staggered at 0.3m offset
39	Sarcococca humilis	20-30cm	C :Bushy :6 brks	4/m²
39	Viburnum davidii	20-30cm	C :Bushy :3 brks	4/m²

Climbers

Number	Species	Pot Size	Specification	Density
66	Hedera helix	2L	Several Shoots :3/4 brks	5/m²

Wildflowers

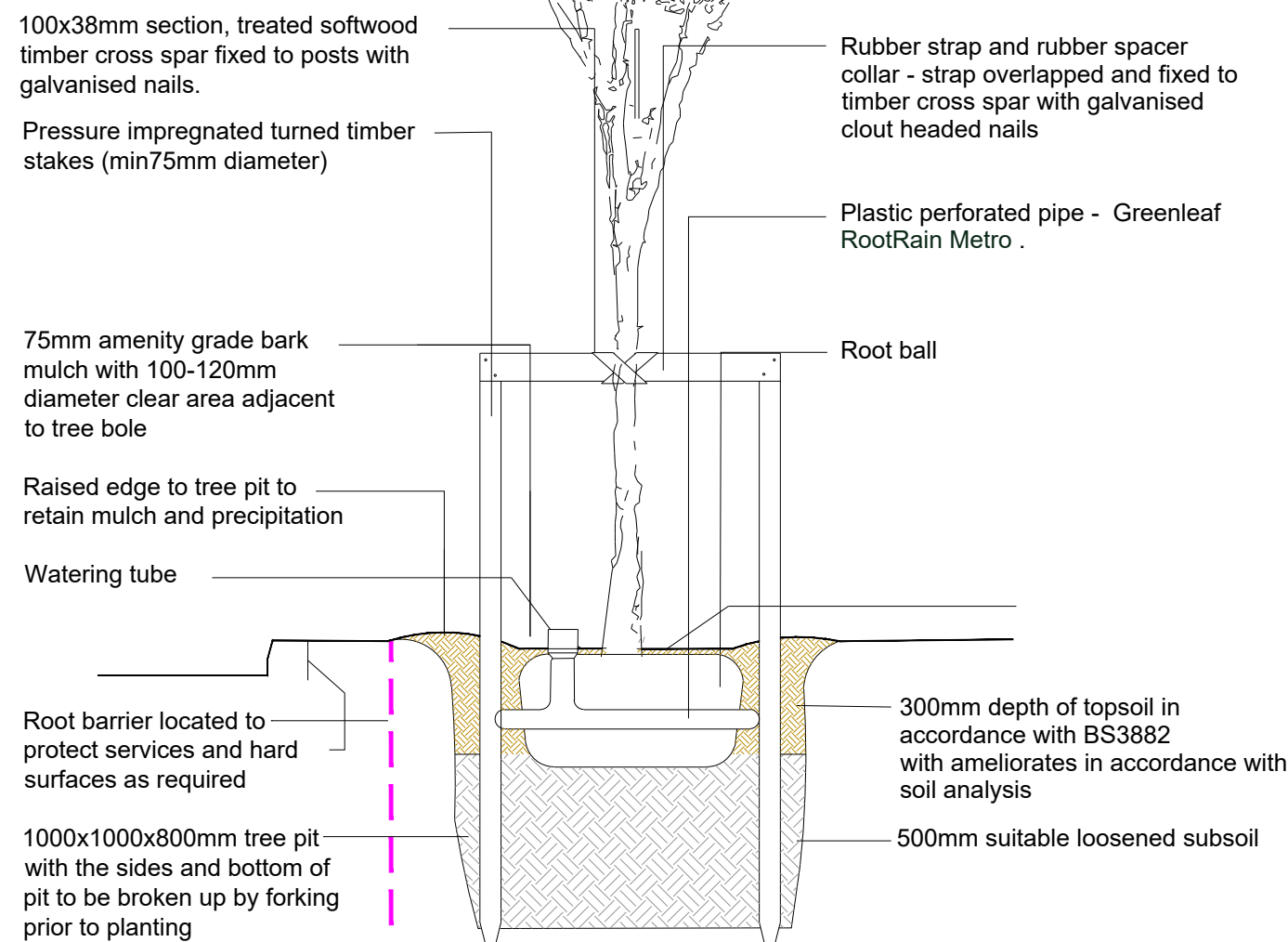
Number	Species	Specification	Density
131	Hyacinthoides non-scripta	B	5/m²
131	Primula veris	Full Pot	5/m²

Bulbs

Number	Species	Specification	Density
66	Galanthus nivalis	Grade 5/6	5/m²

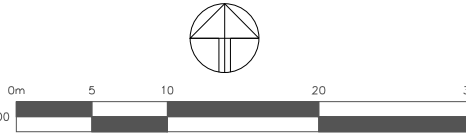
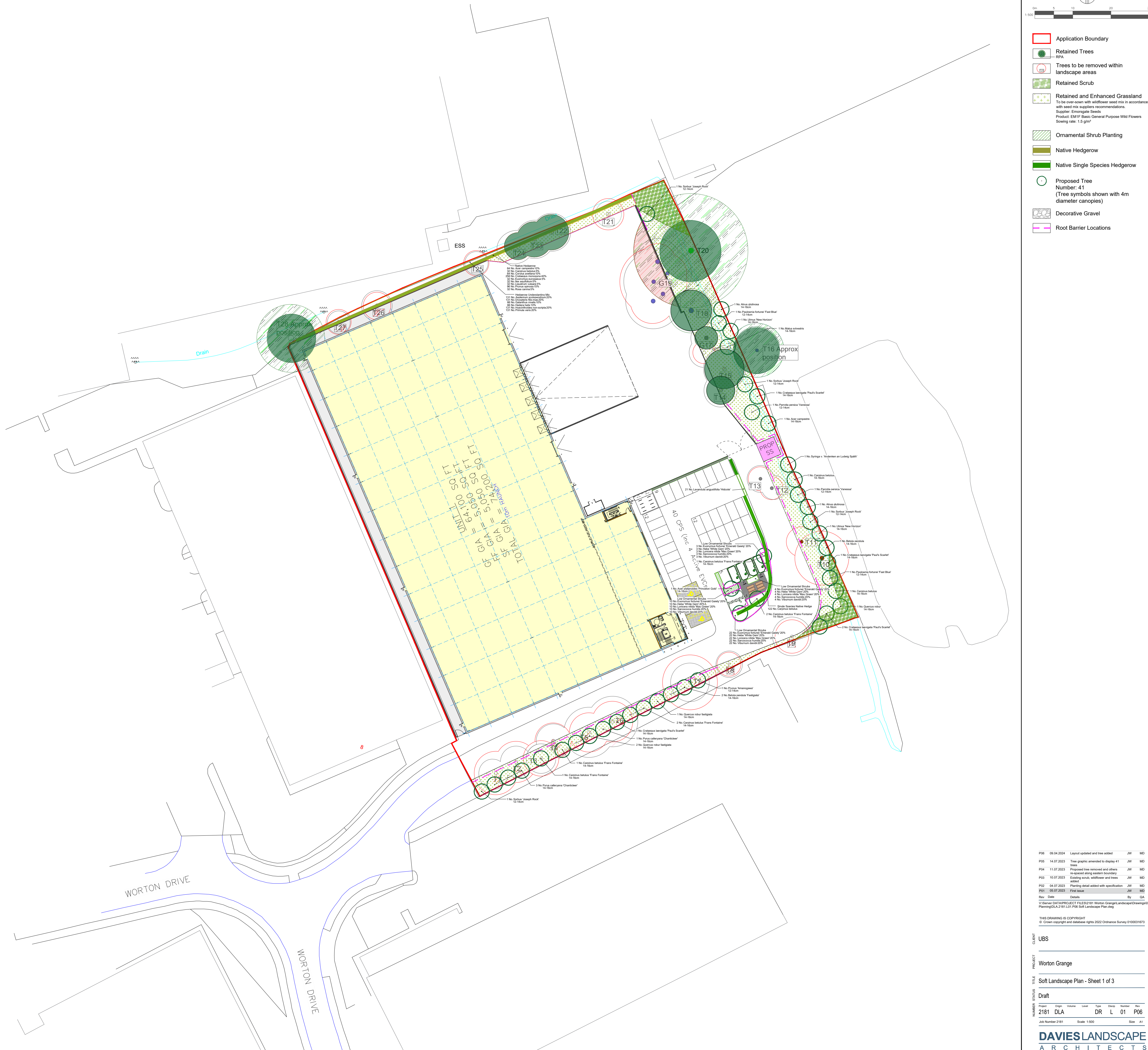
Ferns

Number	Species	Pot Size	Specification	Density
131	Asplenium scolopendrium	3L	Full Pot	5/m²
131	Dryopteris filix-mas	3L	Full Pot	5/m²



STANDARD TREE - PLANTING DETAIL
SCALE - 1:20

0 25 50 1m



- Application Boundary
- Retained Trees
RPA
- Trees to be removed within landscape areas
- Retained Scrub
- Retained and Enhanced Grassland
To be over-sown with wildflower seed mix in accordance with seed mix suppliers recommendations.
Supplier: Ecovagile Seeds
Product: EMIT Basic General Purpose Wild Flowers
Sowing rate: 1.5 g/m²
- Ornamental Shrub Planting
- Native Hedgerow
- Native Single Species Hedgerow
- Proposed Tree
Number: 41
(Tree symbols shown with 4m diameter canopies)
- Decorative Gravel
- Root Barrier Locations

Rev	Date	Details	By	CA
P06	03.04.2024	Layout updated and tree added	JW	MD
P05	14.07.2023	Tree graphics amended to display 41 trees	JW	MD
P04	11.07.2023	Proposed tree removed and others re-added along eastern boundary	JW	MD
P03	05.07.2023	Existing scrub, wildflower and trees added	JW	MD
P02	04.07.2023	Planting detail added with specification	JW	MD
P01	05.07.2023	Final issue	JW	MD

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