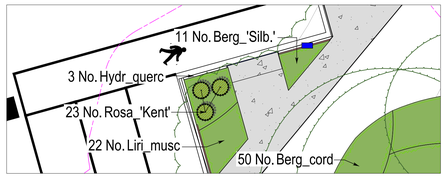
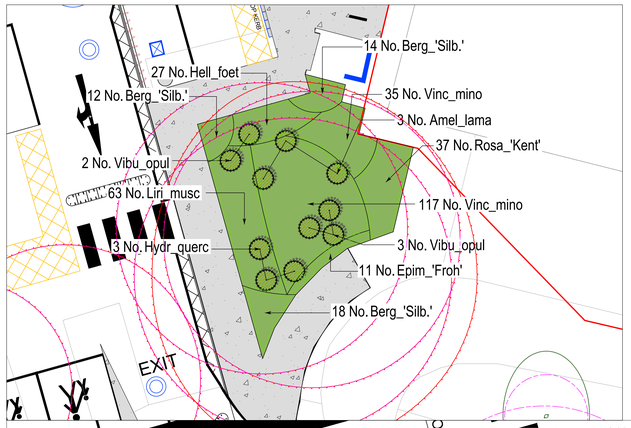


Inset plan B
Scale 1:100



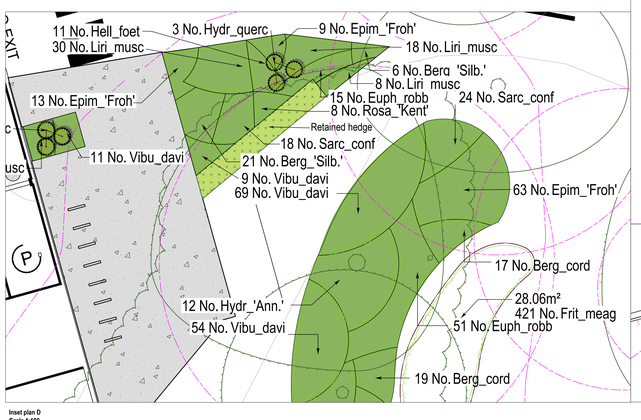
Inset plan C
Scale 1:100

Planting beneath existing trees : Excavate planting pits by

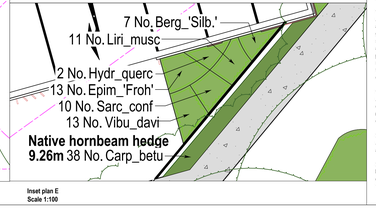
Inset plan A
Scale 1:100

Full site scale is 1:200 @ A0

Main plan
Scale 1:200



Inset plan D
Scale 1:100



Inset plan E
Scale 1:100

SPECIFICATION NOTES

1. General.
This plan to be read in conjunction with the following documents:
- Landscape Management Plan by The terra firma Consultancy
- Arboricultural report by Tim Moya Associates
- Ecology report by Tim Moya Associates

(All planting works, or other works, within Root Protection Areas are to be carried out in line with arboricultural method statement.)

2. General landscaping.
i. Existing levels to be preserved around retained existing trees and vegetation. Existing trees and vegetation to be retained are to be protected in accordance with BS5837: 2012 during construction or as detailed in Tree Protection Plan.
ii. All landscape works to be undertaken by competent persons, with appropriate training and equipment.
iii. All arisings to be removed from site at contractor's expense unless noted otherwise. (e.g. woodchip, gravel, topsoil).

3. Services.
The contractor must ascertain for himself/herself the exact location of underground services before commencing work.

4. Soil Materials Generally.
i. Purity: Soils shall be free from roots, stolons, rhizomes, propagules of perennial or invasive weeds ouch grass, bindweed, docks, Japanese knotweed, giant hogweed and horsetail/marestail (Equisetum avense).
ii. Foreign matter: On visual inspection, free from non-soil material, brick and other building materials and wastes, sharps, and any other foreign matter or material or substance that would render the soil or soil amelioriant unsuitable for use.
iii. Contamination: Do not use topsoil, subsoil, sand or compost contaminated with rubbish or other materials that are:
- Corrosive, explosive or flammable;
- Hazardous to human or animal life;
- Detrimental to healthy plant growth.

iv. Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil, subsoil, sand or compost or other planting media to be used.

5. Soil testing
Each soil source (imported and site-won subsoil and topsoil - see items 6-8 and 10 below) shall be analysed by Tim O'Hare Associates, Howbery Park, Wallingford, Oxon OX10 8BA, Tel: 01491 822653, Email: info@toha.co.uk, www.toha.co.uk (or equivalent approved).

6. Subsoil for general planting areas (sample of site-won and/or imported subsoil to be sent for testing to check compliance with parameters below)
Provide subsoil as necessary to make up deficiency on site. Natural or manufactured subsoil (from approved source) will be acceptable (within parameters given below). Subsoil to be tested to determine suitability for proposed use for planting; test report to be submitted for approval and to enable amelioration recommendations. Subsoil should be free from commonly tested contaminants, including asbestos. Subsoil parameters to be within the following:

Parameter	Unit	Lower Limit	Upper Limit
Clay (<0.002mm)	%	5	35
Silt (0.002-0.06mm)	%	0	35
Sand (0.05-2.0mm) of which at least 40% shall fall into fine to medium sand range	%	50	90
Stones (2-50mm)	%DW	–	50
Stones (>50mm)	%DW	–	0
pH Value	Unit	5.5	8.5*
Electrical Conductivity (1:2.5 water extract)	µS/cm	–	1500
Electrical Conductivity (CaSO4 extract)	µS/cm	–	2800
Exchangeable Sodium Percentage	%	–	15
Organic Matter	%	–	1.5

*IF AN ACIDIC SITE RANGE SHOULD BE 4.5-6.5 IF ALKALINE 7.5-8.5

7. Subsoil for tree pits (sample of site-won and/or imported subsoil to be sent for testing to check compliance with parameters below)
Provide subsoil as necessary to make up deficiency on site. Natural or manufactured subsoil (from approved source) will be acceptable (within parameters given below). Subsoil to be tested to determine suitability for proposed use; test report to be submitted for approval and to enable amelioration recommendations. Subsoil should be free from commonly tested contaminants, including asbestos. Subsoil parameters to be within the following:

Parameter	Unit	Lower Limit	Upper Limit
Clay (<0.002mm)	%	5	18
Silt (0.002-0.06mm)	%	0	25
Sand (0.05-2.0mm) of which at least 40% shall fall into fine to medium sand range	%	60	90
Stones (2-50mm)	% dry wt.	–	50
Stones (>50mm)	% dry wt.	–	0
pH Value	Unit	5.5	8.5 *
Electrical Conductivity (1:2.5 water extract)	µS/cm	–	1500
Electrical Conductivity (CaSO4 extract)	µS/cm	–	2800
Exchangeable Sodium Percentage	%	–	15
Organic Matter	%	–	1.5

*IF AN ACIDIC SITE RANGE SHOULD BE 4.5-6.5 IF ALKALINE 7.5-8.5

8. Topsoil for general landscapes (sample of site-won and/or imported topsoil to be sent for testing to check compliance with parameters below and to inform any necessary amelioration - see 10. below)
Existing topsoil to be stripped and re-used, provided soil is within parameters given below when analysed. Imported topsoil to be good quality sandy loam or manufactured topsoil (from approved source, meeting parameters given below). Topsoil (site-won or imported) is to be tested to determine suitability for proposed use and should be free from commonly tested contaminants, including asbestos; test report to be submitted to Landscape Architect for approval and to enable amelioration recommendations to be made:

Parameter	Unit	Lower Limit	Upper Limit
Clay (<0.002mm)	%	5	18
Silt (0.002-0.06mm)	%	0	35
Sand (0.05-2.0mm) of which at least 40% shall fall into fine to medium sand range	%	50	85
Stones (2-20mm)	% dry wt.	0	20
Stones (20-50mm)	% dry wt.	0	15
Stones (>50mm)	% dry wt.	0	0
pH Value	Unit	5.5	8.5 *
Electrical Conductivity (1:2.5 water extract)	µS/cm	–	1500
Electrical Conductivity (CaSO4 extract)	µS/cm	–	2800
Exchangeable Sodium Percentage	%	–	15
Organic Matter	%	4.0	8.0
Total Nitrogen	%	0.15	–
Carbon: Nitrogen Ratio	–	–	20:1
Extractable Phosphorus	mg/l	26	100
Extractable Potassium	mg/l	240	1200
Extractable Magnesium	mg/l	50	600

*IF AN ACIDIC SITE RANGE SHOULD BE 4.5-6.5 IF ALKALINE 7.5-8.

9. Ameliorant: fertilizer and compost (contractor is responsible for submitting a sample of imported or site-won topsoil (to inform requirements).
Topsoil amelioration to be determined by analysis. Once amelioration requirements ascertained as required, approved (peat free) composts to PAS100 and/or fertilizers to be incorporated during cultivation at required rate to full depth of growing medium.

10. Soil handling and depths.
Management of soils to be in accordance with the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites
i. Topsoil and subsoil to be handled (i.e. excavated and/or imported, stored, spread, cultivated) in accordance with method agreed in writing by Landscape Architect prior to work commencing. All topsoil and subsoil areas shall be thoroughly cultivated by hand or suitable machinery to the full depth of the topsoil layer, incorporating ameliorants as required. If compaction is suspected in sub-grade, subsoil or topsoil surfaces, these should be ripped as necessary to decompact and ensure adequate drainage.
ii. Hand cultivations shall be carried out to achieve the required finish on areas where machine cultivation is impossible ie adjacent to kerbs, manholes and footpath junctions, around retained trees etc. Surplus plant matter, rubbish and surface stones having any dimension greater than 25 mm shall be collected and removed from the site. Topsoil and subsoil is to be stored in heaps, maximum of 2m in height, providing soil is reasonable dry and friable during stripping and handling - using a tracked excavator. To protect from wet weather once final height is achieved, an excavator should regrade the sides and top of stockpile to firm surface by tracking across it to form a smooth gradient.
iii. Final topsoil depth (allowing for settlement) to be 300mm for tree pits and general planting areas and 150mm for grass. Finished soil levels to be 25mm above/below adjoining paving or kerbs: not less than 150mm below dpc of adjoining buildings; shrub areas to be higher than adjoining grass areas by 25 mm. Topsoil to be spread in lightly compacted layers, max. 150mm depth, gently firm each layer before spreading the next.

12. Plant handling and establishment.
Plant handling shall be in accordance with 'Handling and establishing landscape plants', published by the CPSE through the JCLI. (http://www.ezhelios.co.uk/cpshandling_establishment.aspx). The contractor shall comply with Part 3: Recommendations for plant handling from delivery to site to ensure successful establishment.

13. General planting notes.
Details for tree, hedge and general planting to be finalised once final site conditions are known (i.e compaction and permeability of ground). General plant stock to conform to BS 3936, advanced nursery stock to BS 8545, and planting to BS 4428. Plants shall be first class examples of their species or variety, free from all pests and diseases, with good fibrous root systems and materially undamaged. All planting operations to be in general compliance with BS4428: 'Code of Practice for general landscape operations'.
Only carry out all planting while soil and weather conditions are suitable;
- Do not plant during periods of frost or strong winds. Plant only during the following periods
- Deciduous and conifer trees: Late October to late March (rootball and bare root)
- Container-grown plants: At any time if ground and weather conditions are favourable. Ensure that adequate watering is provided

Setting out to be in line with plans; contractor to check with Landscape Architect if setting out is be approved prior to planting. Ensure that plant beds are neatly defined, and rise from adjacent paved areas as specified above.

14. Bulb planting.
All bulbs to be planted at the rate given in the schedule, in random mixed drifts of single species in areas indicated on the plan, minimum 15 bulbs per drift of single species. For planting, naturalize bulb positions by dropping bulbs from waist height. Neatly remove a plug of turf and replace after planting. Plant so that the top of the bulb is at a depth of approximately twice its height with base in contact with bottom of hole. Bulbs should be no closer together than approximately twice the width of a single bulb.

15. Mixed native hedge.
Species to be randomly mixed for natural effect, and planted in groups of 3-5 plants of any one species (with the exception of Holly (Ilex) which is to be planted individually). Depth of planting trench to be same as root system, overall width space 150mm wider than root system (75mm min. from root system edge to sides of trench). Trench to be backfilled with 300mm depth of specified topsoil over subsoil as per spec. Provide and install each plant with an appropriate sized recyclable staked green shrub shelter (available from Tubex Ltd, phone 01621 874201 or similar approved). Position shelter stake on windward side of plant, drive vertically into bottom of pit before planting, to a min. depth of 300mm and consolidate backfill material around stake; attach shelter to stake with a minimum of two ties. 50mm depth mulch to base of hedge. Central post and wire support to be installed between staggered rows with two line wires, and plants tied in. On planting trim hedge to a neat shape - eventual height of 2m.

16. Hornbeam hedges.
Depth of planting trench to be same as root system, overall width space 150mm wider than root system (75mm min. from root system edge to sides of trench). Trench to be backfilled with 300mm depth of specified topsoil over subsoil as per spec. Provide and install each plant with an appropriate sized recyclable stakes green shrub shelter (available from Tubex Ltd, phone 01621 874201 or similar approved). Position shelter stake on windward side of plant, drive vertically into bottom of pit before planting, to a min. depth of 300mm and consolidate backfill material around stake; attach shelter to stake with a minimum of two ties. 50mm depth mulch to base of hedge. Central post and wire support to be installed between staggered rows with two line wires, and plants tied in. On planting trim hedge to a neat shape - eventual height of 1.2m.

17. Grass.
Turfing and seeding shall be carried out only during appropriate seasons and while soil and weather conditions are suitable for the relevant operations. Only machinery and tools suitable for the site conditions and the work to be carried out shall be used. Hand tools shall be used around trees, plants and in confined spaces where it is impractical to use machinery. The soil shall be weed free prior to turfing and seeding. Contact herbicide as specified should be applied to all areas of weed growth 4-6 weeks before grassing and repeated if necessary to maintain a weed free bed. Where deep rooted weeds are present (docks, thistles etc.) approved Glyphosate-based herbicide should be applied as a spot treatment. Turf or seed shall be laid on prepared, levelled soil (minimum 150mm depth) in the areas indicated on the drawings in accordance with BS 4428:1989 'Code of practice for general landscape operations'. All grass areas to be approved landscape quality turf for general amenity areas or lawn turf for garden areas, or equivalent seed.

18. Native shrub mix
All plants to be planted in cultivated planting beds with species randomly mixed for natural effect, and planted in groups of 3-5 plants of any one species. Plants to be notch- or pit-planted. Plant on grid at spacing given in schedule. Provide and install each plant with an appropriate sized recyclable staked green tree or shrub shelter (available from Tubex Ltd phone 01621 874201 or similar approved). Position shelter stake on windward side of plant, drive vertically into bottom of pit before planting, to a min. depth of 300mm and consolidate backfill material around stake; attach shelter to stake with a minimum of two ties. Planting of native shrubs is within close proximity to existing trees therefore care must be taken to avoid damaging existing roots: excavate carefully by hand to avoid damage to roots greater than 25mm or masses of smaller roots.

19. Shrub and Ground Cover Planting.
All plants to be planted into cultivated planting beds (with 300mm depth specified topsoil) at densities shown in plant schedule, backfilled with same topsoil. Fertiliser to be incorporated as required to ensure establishment and continued thriving of plants - type and application rate to be determined by analysis.

20. Mulch.
All planting beds, including beneath new trees and hedges, to be mulched with 75mm depth approved bark mulch after planting.

21. Maintenance.
Establishment maintenance for all planting for 5 years from Practical Completion to include weed control, watering and replacement of failures to original specification in the planting season following failure.
i. All plant material to receive annual pruning and hedges and groundcover to be trained and edged with minimum 2 trims per year

Planting Schedule

Native Shrubs

Abbreviation	Species	Height	Specification	Density	% Mix	Qty
Acer_camp	Acer campestre	40-60cm	1+1: Transplant; BR	0.5Cfr	10%	369 No.
Cory_avel	Corylus avellana	60-80cm	1+2: 3 breaks; BR	0.5Cfr	15%	403 No.
Crat_mono	Crataegus monogyna	60-80cm	1+1: 4 breaks; BR	0.5Cfr	15%	403 No.
Ilex_aqui	Ilex aquifolium	40-60cm	2L; Leader with laterals	0.5Cfr	20%	538 No.
Ligu_vulg	Ligustrum vulgare	60-80cm	1+1; 2 breaks; BR	0.5Cfr	30%	806 No.
Prun_spin	Prunus spinosa	60-80cm	1+1; 2 breaks; BR	0.5Cfr	10%	269 No.

Mixed Native Hedges

Abbreviation	Species	Specification	Density	Qty
Acer_camp	Acer campestre	80-100cm ht; 1+1: Transplant - seed raised; BR	0.5Cfr Double Staggered at 0.25m offset	51 No.
Cory_avel	Corylus avellana	80-100cm ht; 1+1: Transplant - seed raised; BR	0.5Cfr Double Staggered at 0.25m offset	34 No.
Crat_mono	Crataegus monogyna	80-100cm ht; 1+1: Transplant - seed raised; BR	0.5Cfr Double Staggered at 0.25m offset	134 No.
Ilex_aqui	Ilex aquifolium	80-100cm ht; 1+1: Transplant - seed raised; BR	0.5Cfr Double Staggered at 0.25m offset	51 No.
Ligu_vulg	Ligustrum vulgare	80-100cm ht; 1+1: Transplant - seed raised; BR	0.5Cfr Double Staggered at 0.25m offset	51 No.
Vibu_opul	Viburnum opulus	80-100cm ht; 1+1: Transplant - seed raised; BR	0.5Cfr Double Staggered at 0.25m offset	17 No.

Hornbeam Hedge

Abbreviation	Species	Specification	Density	Qty
Carp_betu	Carpinus betulus	80-100cm ht; 1+1: Transplant - seed raised; BR	0.5Cfr Double Staggered at 0.25m offset	254 No.

Shrubs

Abbreviation	Species	Specification	Density	Qty.
Amel_lama	Amelanchier lamarckii	25L; CG	Counted	4 No.
Berg_cord	Bergenia cordifolia	2L; CG	5/m²	131 No.
Hydr_'Ann.'	Hydrangea arborescens 'Annabelle'	10L; CG	1/m²	178 No.
Hydr_querc	Hydrangea quercifolia	10L; CG	Counted	12 No.
Hydr_querc	Hydrangea quercifolia	10L; CG	1/m²	2 No.
Rosa_'Kent'	Rosa 'Kent'	2L; CG	5/m²	68 No.
Sarc_conf	Sarcococca confusa	3L; CG	5/m²	86 No.
Vibu_davi	Viburnum davidii	10L; CG	5/m²	224 No.
Vibu_opul	Viburnum opulus	10L; CG	Counted	5 No.
Vinc_mino	Vinca minor	2L; CG	5/m²	188 No.

Herbaceous

Abbreviation	Species	Specification	Density	Qty.
Berg_'Silb.'	Bergenia 'Silberlicht'	2L; CG	5/m²	89 No.
Epim_'Froh'	Epimedium x perralchicum 'Frohnleiten'	2L; CG	5/m²	157 No.
Euph_robb	Euphorbia amygdaloides robbiae	2L; CG	5/m²	105 No.
Hell_foet	Helleborus foetidus	2L; CG	5/m²	38 No.
Liri_musc	Liriope muscari	2L; CG	5/m²	163 No.

Bulbs

Abbreviation	Species	Bulb Size	Density	Qty.
Frit_meag	Fritillaria meleagris	5/6	15/m²	799 No.
Narc_pseu	Narcissus pseudonarcissus	10/11	15/m²	1254 No.

0m 5m 10m north

- All dimensions in millimetres unless otherwise indicated. All levels in metres relative to Ordnance Datum and are positive (AOD) unless otherwise indicated.
- Figure dimensions only to be taken from this drawing, do not scale. Dimensions to be checked on site.
- For civil and structural matters including existing and proposed services, sub base construction and site structures (including retaining walls over 900mm height) refer to information by others.
- The original version of this drawing was produced in colour - monochrome copies should not be relied upon to accurately reflect all drawing elements.
- This drawing has been prepared for planning purposes only and should not be used for quantification, tender or construction.

- Site boundary
- Existing tree to be retained and protected in accordance with BS 5837:2012 and Tree Protection Plan by Tim Moya
- Existing tree to be removed - refer to Tree Removals Plan by Tim Moya
- Shrubs and groundcover
- Native shrub understorey planting
- Specimen shrubs
- Hornbeam hedge
- Mixed native hedge
- Macadam pedestrian path
- Sheffield style cycle rack
- Insect block (to be mounted to tree) (2 No.)
- Insect tower (to be mounted to tree) (4 No.)
- 2F Schwegler Bat Box (4 No.) Mounted south facing at 4-6m ht. ; not lit by external light
- 1SP Schwegler Sparrow Terrace (4 No.) Mounted at 1.5m and 5.5m ht. ; avoiding areas exposed to strong light or prevailing winds
- 1B Schwegler Nest Box (2 No.) Mounted at least 1.5m ht. ; ideally facing north-east

- For wider site view refer to terra firma drawing 2166-TFC-00-00-DR-L-1002

rev.	date	by	chk	notes
09	08.02.22	DP	AG	Habitat locations added; key amended to match; hedge hatching adjusted; amendments to planting layout and schedule updated; Planting bed sizes revised
08	29.03.21	DB	AG	Planting schedule and key updated re native shrub mix
07	05.11.20	DP	AG	Amendments to planting following new site layout
06	04.09.20	JA	AG	Amendments to planting beds following new site layout
05	22.07.20	LC	AG	Planting bed added; Schedule updated;
04	10.07.20	DP	AG	Amendments following new site layout
03	10.06.20	DP	AG	Amendments following new site layout
02	29.05.20	DP	AG	Amendments following new site layout
01	23.06.20	DP	AG	First issue

project	Campus West MSCP
title	Landscape proposals plan
status	Planning - for comment
scale @ A0	as shown
dwg no	2166-TFC-00-00-DR-L-1001
references	18221_OS Existing .and Welwyn Campus_Master_2020.08.27

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