

307 United Living Welbourne

Open Space Maintenance & Management Plan

Notice

This document and its contents have been prepared and are intended solely for use in relation to soft and hard landscape works at the Welbourne Development, Park View Road, Tottenham Hale, Haringey, N17 9EX.

Adams & Sutherland assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

Document History

Revision	Purpose Description	Prepared by	Issue Date
P1	Discharge of planning conditions	DL	29-Jan-2024

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1 Design Strategy

- 1.1 The following management and maintenance plan is for the roof terrace and public realm areas for the development on the Welbourne Development, Park View Road, Tottenham Hale, Haringey, N17 9EX.
- 1.2 This report has been prepared in accordance with the requirements of Tottenham Hale Centre Planning Permission HGY/2018/2223 Condition 17 for its full discharge.
- 1.3 This management and maintenance plan is accompanied by the soft and hard landscape plans for ground level, podium level and the 4th floor roof level in the appendices:
 - Appendix 1 – Hardworks - Site Plan
 - Appendix 2 – Ground Level Planting Plan – Trees and all areas
 - Appendix 3 – Ground Level Planting Plan – Planting area G1
 - Appendix 4 – Ground Level Planting Plan – Planting area G2 & G3
 - Appendix 5 – Hardworks – Podium Plan
 - Appendix 6 – Podium Planting Plan – trees and all areas
 - Appendix 7 – Podium Planting Plan – Planting areas P1 & P2
 - Appendix 8 - Podium Planting Plan – Planting areas P3, P4, P5 & P6
 - Appendix 9 - Podium Planting Plan – Planting areas P7, P8, P8, P9 & P10
 - Appendix 10 – Hardworks – 4th Floor roof level plan
 - Appendix 11 – 4th Floor Roof Planting Plan
- 1.4 This document has been prepared to support the planning application for the redevelopment of the site.
- 1.5 The proposals include play space provision located at podium and 4th floor roof level, included within the play strategy.

2 General Management Objectives

- 1.1 The objective of this plan is to maintain and improve the new landscape and ecology in perpetuity. This will be achieved by implementation of this plan by the appointed management company.
- 1.2 All operations are to be carried out in accordance with the soft and hard landscape maintenance specifications included with this document.

3 General Maintenance Conditions

Introduction

- 3.1 The works consist of the maintenance and management of open spaces at ground floor level, podium level, and 4th floor roof level including new high quality amenity planting, tree pits, herbaceous and shrub planting, play spaces and hard landscaping.
- 3.2 The works shall be maintained by the responsible Landscape Contractor from practical completion for the Defects liability as follow:
- Trees **1** years from practical completion
 - Shrubs/herbaceous planting **1** years from practical completion
- Or
- Until works are signed over the appointed Estate Management Company where appropriate. At this point the responsibility will transfer to that party.

Workmanship

- 3.3 Method of Work – the method of executing any of the work in this plan, unless explicitly mentioned, is at the discretion of the Landscape Contractor and the Estate Management Company.
- 3.4 Good Practice – Where and to the extent that materials, products and workmanship are not fully specified they are to be suitable for the purposes of the works stated in or reasonably to be inferred from the contract documents and in accordance with good horticultural practice, including the relevant provisions of the current British Standards.
- 3.5 The Contractor shall keep all planting weed free, plants vigorous and healthy, and the overall landscape environment neat and tidy.

Programme of the Works

- 3.6 The Landscape Contractor shall co-ordinate with the Estate Management Company's programme then submit a detailed programme of works prior to starting work on site.
- 3.7 The Landscape Contractor shall report any potential failures to meet the specified programme to the Estate Management Company. Any changes to the agreed programme must be in writing with the Estate Management Company.

4 Maintenance

- 4.1 External spaces shall be maintained by the developer's agent during the time of implementation. Thereafter a landscape contractual agreement should be made with an Estate Management Company to ensure the maintenance of all landscaped areas on behalf of residents in communal areas at podium and 4th floor roof levels and the public realm areas around the building.

Hard Landscape

- 4.2 The Contractor shall clean all paths, hard surfaces and gullies at the same time and in addition to the general litter and refuse clearance.
- 4.3 The Contractor will be required to clear the specified areas of litter, glass, twigs, leaves, debris and similar at all times. All arisings are to be removed by the Contractor from site and disposed of at the designated disposal location.
- 4.4 The Contractor will immediately inform the Estate Management Company of any acts of vandalism that occur in these areas.
- 4.5 The Contractor will maintain areas of hard landscaping weed-free, ensuring that at no time weed growth exceeds 5% of any area. Should the contractor wish to employ any chemical methods for weed removal, written approval of these methods should be sought from the Estate Management Company.
- 4.6 The removal of moss is deemed to be included within the removal of weeds.
- 4.7 The Contractor is to inspect all grilles, gullies and covers on each site visit and thoroughly clean and clear them of any silt, dirt, debris, litter, stones, concrete etc. as necessary.
- 4.8 The Contractor shall check that gullies and drains are unobstructed and that water is running freely within them. The Contractor shall report any defects or obstructions to the Estate Management Company.
- 4.9 Upon the removal of all gratings, covers and grilles, the Contractor shall clean the rebate to ensure that it is replaced flush in the frame. All arisings are to be removed by the Contractor from site and disposed of at the designated disposal location.

Resin Bound Gravel Surfaces

- 4.10 See Appendix 14 – Bound Gravel Surface Maintenance for resin bound surface maintenance.

Concrete Paved Surfaces

- 4.11 See Appendix 15 – Concrete Paver Surfaces Maintenance for concrete paved surface maintenance.

Timber Planters and Seating

- 4.12 See Appendix 16 – Timber Planters and Seating Maintenance for outdoor timber seating and planter component maintenance.

Soft Landscape

4.13 See Appendix 13 – Soft Landscape Maintenance Plan and Appendix 16 – Welbourne Plot Soft Landscape Specification, including maintenance clauses.

Play Areas

4.14 Routine inspections to be carried out monthly:

- Remove litter and build-up of material around the equipment.
- Minor wear to play equipment to be noted and actioned if required.
- Any damaged and dangerous equipment to be fenced off and the Estate Management Company notified.
- Inspections are to be recorded by the management company.

4.15 Annual Inspections:

- Are to be carried out by a RoSPA qualified specialist.
- All parts are to be checked and repaired as necessary. Acts of vandalism, minor and major wear, including to structural elements such as ground fixings, are to be noted.
- Inspections are to be recorded by the management company.

Appendix 1

Hardworks - Site Plan

CONSTRUCTION

Rev.	Date	Note
C1	16/07/2021	ISSUED FOR CONSTRUCTION
C2	08/07/2022	GL-01 KEY AMENDED
C3	29/11/2023	GENERAL LAYOUT UPDATED TO REFLECT S278 DISCUSSIONS

KEY

Planning Boundary

Edge Treatments:

Existing retained (granite kerb - 300mm wide)

Existing retained (pre-cast concrete kerb to Fairbanks Road - 150mm wide)

Existing retained (pre-cast concrete kerb - 150mm wide)

ET-01: New raised granite kerb to match existing

ET-02: New pre-cast concrete dropped kerb to match existing

ET-03: New pre-cast concrete edging to cycle path

ET-04: Broken granite kerb to planting

ET-05: Metal edging to resin bound surfaces

ET-06: Green Blue Urban Tree Grille

ET-07: Green Tech Tree Grille

ET-XX: 25mm kerb upstand to Loading Bay

ET-XX: New pre-cast concrete flush kerb

ET-XX: New raised concrete kerb to match existing

Aco channel in front of Health Center, refer to civil engineers details

Raised Structures:

GL-02: Brick wall - brick type to match building

PS-01: Metal edged planter

CP-01: Cycle stand

GL-01: Bespoke metal railing to match architects details.

Surface Treatments:

ST-01: Pre-cast concrete pavers to LBH standards

ST-02: Concrete Block Paving, vehicular loading (charcoal)

ST-03: Concrete brick pavers - Stretcher Bond (charcoal)

ST-04: Concrete brick pavers - Stretcher Bond (curragh Gold)

ST-05: Resin bound tree pit system (permeable)

ST-09: Concrete pavers

ST-12: Cycleway Tactile Paving

ST-13: Concrete Block Paving, vehicular loading (silver grey)

ST-14: Expanded clay aggregate

Existing Tarmac

Existing tactile paving

Proposed tactile paving

Road markings to adoptable standards

Notes:

1. Do not scale from this drawing.
2. All dimensions in mm unless noted otherwise.
3. All dimensions to be checked on site and discrepancies to be notified to A&S in writing.
4. This drawing should be read in conjunction with information from all other design consultants and contractors.
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0 1 5 10m

Scale 1:250 @ A1 and 1:500 @ A3

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Client: United Living Group

Job:
Welbourne Plot

Drawing Title:
Hardworks - Site Plan

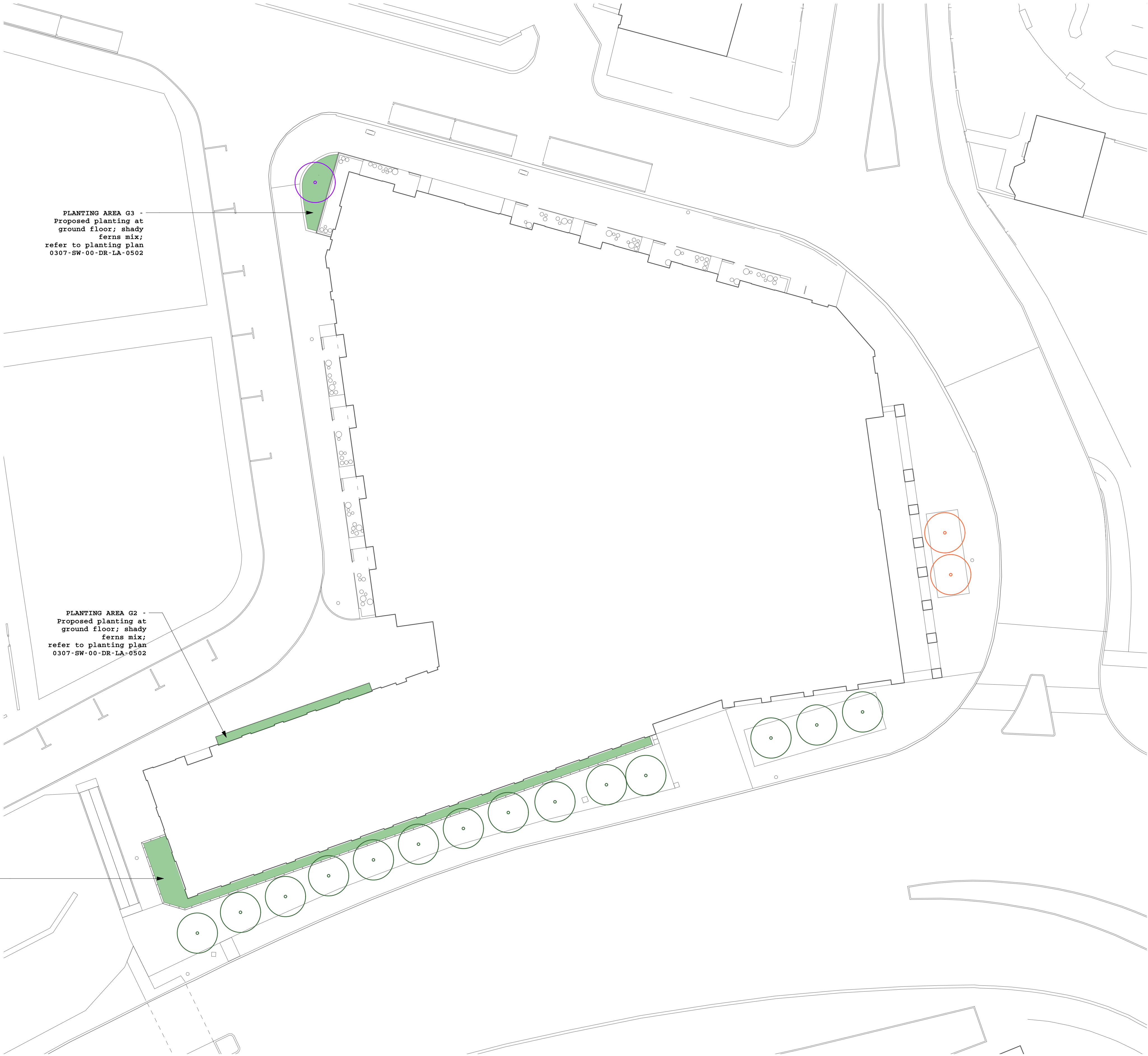
Drawn: WLG	Date: MAR.2021
Checked: WLG	Drawing No.
Approved: GS	0307-SW-00-DR-LA-0104
	Rev. C3



Area outside of red line boundary delivered as part of S278 works. See latest highways consultant information.

Appendix 2

Ground Level Planting Plan – Trees and all areas



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This drawing is for planning purposes only. Any discrepancies or queries should be brought to the attention of the authors. Dimensions are to be verified on site prior to construction.

To be read in conjunction with all relevant Architects', Services and Structural Engineers' drawings.

All existing site, tree and building information has been compiled from different sources.

Refer to current revisions of all referenced files.

Notes:

Refer to Adams & Sutherland landscape architects information for:

- Landscape layout
- Hard Landscape
- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Key:

Proposed trees:

1no. Alnus glutinosa 'Laciniata'; 20-25cm; 2m clear stem

2no. Prunus avium 'Plena'; 20-25cm; 2m clear stem

14no. Quercus robor 'Fastigiata Koster'; 20-25cm; 2m clear stem

Proposed planting at ground floor; refer to relevant planting plans for diferent areas

012345678910M

N

Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	FOR APPROVAL
C1	02.07.21	ISSUED FOR CONSTRUCTION

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Client
United Living

Project
WB093: Welbourne plot

Drawing Title
Ground level planting plan - trees and all areas

Drawing Status
Construction

Date	19.03.21	Scale	1:200 @ A1 / 1:400 @ A3
Drawing Number	0307-SW-00-DR-LA-0500	Revision	C1

Appendix 3

Ground Level Planting Plan – Planting area G1



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To be read in conjunction with all relevant Architects', Services and Structural Engineers' drawings.

All existing site, tree and building information has been compiled from different sources.

Refer to current revisions of all referenced files.

Notes:

Refer to Adams & Sutherland landscape

architects information for:

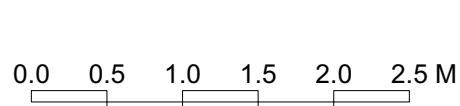
- Landscape layout

- Hard Landscape

- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Key:



Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	FOR APPROVAL
C1	02.07.21	ISSUED FOR CONSTRUCTION

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WB093: Welbourne plot

Drawing Title

**Ground level planting plan -
Planting area G1**

Drawing Status
Construction

Date 19.03.21 Scale 1:50 @ A1 / 1:100 @ A3

Drawing Number Revision

0307-SW-00-DR-LA-0501

C1

Appendix 4

Ground Level Planting Plan – Planting area G2 & G3

Planting area G2: 12 m2 in total

KEY:

Planting mix

Planting shady ferns mix (9.5m2);
7 plants/m2; 2l CG; 300mm c/c

13no. Dryopteris filix-mas (20%)
34no. Geranium phaeum 'Album' (50%)
20no. Polystichum setiferum 'Divisilobum' (30%)

Planting mix - general note:
Random mixed distribution of species
through planting mix area. To be
positioned between individual plants
shown as symbols

Individual plants - shrubs

Sh

6no. Sarcococca hookeriana var. digyna; 5l CG;
allow for 1 plant per symbol

Individual plants - herbaceous species

O

7no. Lunaria rediviva; 2l CG;
allow for 1 plant per symbol

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All existing site, tree and building information has been compiled from different sources.

Refer to current revisions of all referenced files.

Notes:

Refer to Adams & Sutherland landscape architects information for:

- Landscape layout
- Hard Landscape
- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Planting area G3: 14 m2 in total

KEY:

Planting mix

Planting shady ferns mix (9.5m2);
7 plants/m2; 2l CG; 300mm c/c

14no. Dryopteris filix-mas (20%)
35no. Geranium phaeum 'Album' (50%)
21no. Polystichum setiferum 'Divisilobum' (30%)

Planting mix - general note:
Random mixed distribution of species
through planting mix area. To be
positioned between individual plants
shown as symbols

Individual plants - shrubs

Sh

11no. Sarcococca hookeriana var. digyna; 5l CG;
allow for 1 plant per symbol

Individual plants - herbaceous species

O

7no. Lunaria rediviva; 2l CG;
allow for 1 plant per symbol

Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	FOR APPROVAL
C1	02.07.21	ISSUED FOR CONSTRUCTION

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Drawing Title

Ground level planting plan -
Planting areas G2 & G3

Drawing Status

Construction

Date

19.03.21

Scale

1:50 @ A1 / 1:100 @ A3

Drawing Number

0307-SW-00-DR-LA-0502

Revision

C1

Appendix 5

Hardworks – Podium Plan

CONSTRUCTION

Rev.	Date	Note
C3	31/01/2023	REVISED PODIUM SURFACES
C4	20/03/2023	ISSUED FOR CONSTRUCTION
C5	17/05/2023	Revisions to planters

KEY

Surface Treatments:

ST-04: Concrete brick pavers - Stretcher bond (Curragh Gold)

ST-06: Resin bound path

ST-09: Concrete pavers

Artificial Turf Surface

Edge Treatments:

ET-05: Metal edging, depth varies

Access Cover - size and final position to be confirmed with Structural engineer

Threshold drain

Raised Structures:

PS-01, PS-02 & PS-03: Metal edged planters

BN-01: Litter bin

In-situ concrete planters

Special PO-03: Bespoke privacy metal railing (screen)

Special PO-06: Tensioned stainless steel wire trellis

Special PO-07: Cantilever bench

Special PO-10: Gate to private amenity space

Special PO-11 Brick wall 923mm high - brick type to match building

LED bollard light

Bespoke play element

Precast concrete seats

Notes:

1. Do not scale from this drawing.
2. All dimensions in mm unless noted otherwise.
3. All dimensions to be checked on site and discrepancies to be notified to A&S in writing.
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Job:
Welbourne Plot
Drawing Title:

Hardworks - Podium Plan

Drawn: TO	Date: MAR.2021	Drawing No. 0307-Z1-01-DR-LA-0114	Rev. C5
Checked: WLG	Approved: GS		

Appendix 6

Podium Planting Plan – trees and all areas

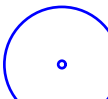
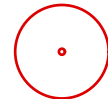
Notes:

Refer to Adams & Sutherland landscape architects information for:
- Landscape layout
- Hard Landscape
- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Key:

Proposed trees:

-  1no. Cercidiphyllum japonicum; 3.5-4m height; multistem
-  5no. Cornus kousa Chinensis; 1.5-2m height; multistem
-  Proposed planting at 1st floor podium; refer to relevant planting plans for different areas
-  Contours

0 1 2 3 4 5 M



Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	For Approval
C1	02.07.21	Issued for Construction
C2	19.06.23	Updated planting area numbers
C3	23.10.23	Podium planting area P1 updated

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Client
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Project
WB093: Welbourne plot

Drawing Title
Podium planting plan - trees and all areas

Drawing Status
Construction

Date 19.03.21 Scale 1:100 @ A1 / 1:200 @ A3

Drawing Number
0307-Z1-01-DR-LA-0510

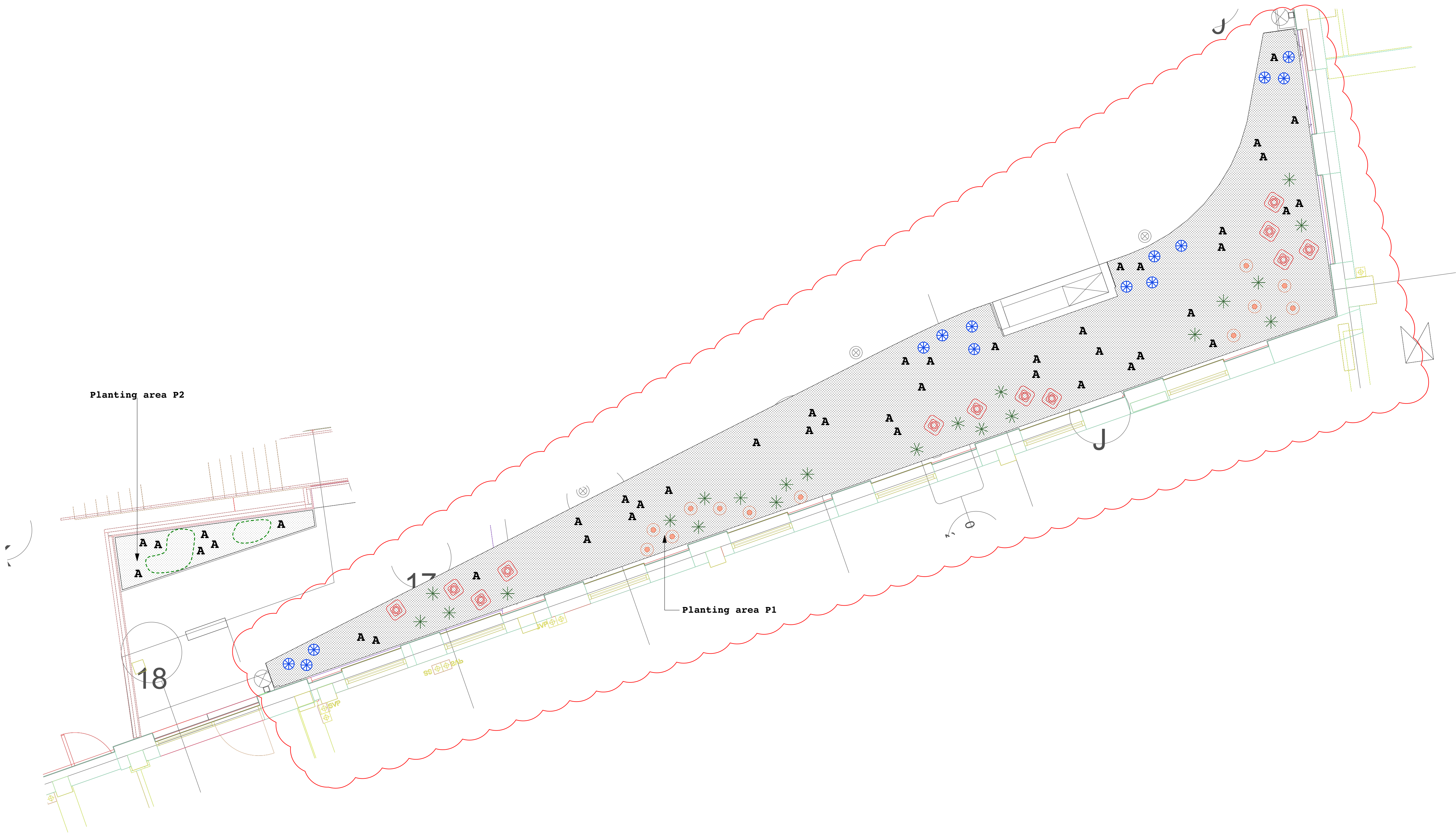
Revision

C3



Appendix 7

Podium Planting Plan – Planting areas P1 & P2



Planting area P2: 3.2 m2 in total

KEY:

Planting mix

Planting 'Ferry glade' mix (3.2 m2);
7 plants/m2; 2l CG; 300mm c/c

- 4no. Dryopteris cristata (15%)
- 4no. Geranium nodosum (15%)
- 4no. Luzula nivea(15%)
- 4no. Luzula sylvatica (15%)
- 5no. Polypodium vulgare (20%)
- 5no. Tiarella cordifolia (20%)

Planting mix - general note:
Random mixed distribution of species through planting mix area. To be positioned between individual plants shown as symbols

Individual plants - herbaceous species

- A** 7no. Anemone x hybrida 'Honorine Jobert'; 2ICG; allow for 1 plant per symbol

Bulbs & tubers (1 m2)

- 30no. Allium ursinum; allow for 30 bulbs/m2

Planting area P1: 52.4 m2 in total

KEY:

Planting mix

Planting mix (52.4 m2);
7 plants/m2; 2l CG; 300mm c/c

- 55no. Dryopteris filix-mas (15%)
- 110no. Epimedium x perralchium 'Frohneiten' (30%)
- 55no. Geranium nodosum (15%)
- 37no. Polystichum setiferum (10%)
- 110no. Tiarella cordifolia (30%)

Planting mix - general note:
Random mixed distribution of species through planting mix area. To be positioned between individual plants shown as symbols

Individual plants - Herbeaceous perennials

Allow for 1 plant per symbol

- 14no.** Asplenium scolopendrium; 2ICG
- 22no.** Luzula sylvatica; 2ICG
- 12no.** Tellima grandiflora; 2ICG
- 12no.** Actaea simplex; 2ICG
- A** 38no. Anemone x hybrida 'Honorine Jobert'; 2ICG

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To be read in conjunction with all relevant Architects', Services and Structural Engineers' drawings.

All existing site, tree and building information has been compiled from different sources.

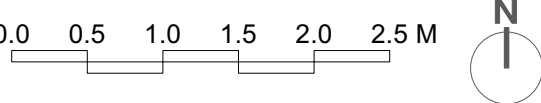
Refer to current revisions of all referenced files.

Notes:

Refer to Adams & Sutherland landscape architects information for:
- Landscape layout
- Hard Landscape
- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Key:



Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	For Approval
C1	02.07.21	Issued for Construction
C2	19.06.23	Updated planting area numbers
C3	23.10.23	Podium planting area P1 updated

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Client

United Living

Project

WB093: Welbourne plot

Drawing Title

Podium planting plans -
Planting areas P1 & P2

Drawing Status
Construction

Date 19.03.21 Scale 1:50 @ A1 / 1:100 @ A3

Drawing Number
0307-Z1-01-DR-LA-0511

Revision

C3

Appendix 8

Podium Planting Plan – Planting areas P3, P4, P5 & P6

KEY:

Planting mix

 Planting 'Ferry glade' mix (3.4 m2):
7 plants/m²; 2l CG; 300mm c/c

4no. *Dryopteris cristata* (15%)
4no. *Geranium nodosum* (15%)
4no. *Luzula nivea* (15%)
4no. *Luzula sylvatica* (15%)
5no. *Polypodium vulgare* (20%)
5no. *Tiarella cordifolia* (20%)

	1no.	Choisya ternata; 5ICG; allow for 1 plant per symbol
	2no.	Hydrangea quercifolia; 5ICG allow for 1 plant per symbol

30no. *Allium ursinum*; bulb;
allow for 30 bulbs/m²

KEY:

Planting mix

 Planting 'Ferry glade' mix (6.2 m2):
7 plants/m2; 2l CG; 300mm c/c

7no.	Dryopteris cristata (15%)
7no.	Geranium nodosum (15%)
7no.	Luzula nivea(15%)
7no.	Luzula sulcata (15%)
9no.	Polypodium vulgare (20%)
9no.	Tiarella cordifolia (20%)

△	4no.	<i>Actaea racem.</i> var. <i>cordifolia</i> ; 2ICG; allow for 1 plant per symbol
A	6no.	<i>Anemone x hybrida</i> 'Honorable Jobert'; 2ICG; allow for 1 plant per symbol
E	4no.	<i>Epimedium perralchium</i> 'Frohneleiten'; 2ICG; allow for 1 plant per symbol
●	4no.	<i>Fragaria vesca</i> var. <i>sempervirens</i> ; 2ICG; allow for 1 plant per symbol
H	2no.	<i>Hedera helix</i> 'Duckfoot'; 2ICG; allow for 1 plant per symbol
▼	2no.	<i>Polypodium vulgare</i> ; 2ICG; allow for 1 plant per symbol
▽	2no.	<i>Vinca minor</i> f. <i>alba</i> ; 2ICG; allow for 1 plant per symbol

L	3no.	Luzula sylvatica; 2ICG; allow for 1 plant per symbol
---	------	---

60no. *Allium ursinum*; bulb;
allow for 30 bulbs/m²

KEY:

Individual plants - herbaceous species

	23no. <i>Fragaria vesca</i> var. <i>sempervirens</i> ; 2ICG; allow for 1 plant per symbol
	40no. <i>Geranium nodosum</i> ; 2ICG; allow for 1 plant per symbol
	7no. <i>Hedera helix</i> 'Duckfoot'; 2CG; allow for 1 plant per symbol
	10no. <i>Helleborus argutifolius</i> ; 2ICG; allow for 1 plant per symbol
	32no. <i>Polypodium vulgare</i> ; 2ICG; allow for 1 plant per symbol
	14no. <i>Vinca minor</i> f. <i>alba</i> ; 2ICG; allow for 1 plant per symbol

X	26no. <i>Luzula nivea</i> ; 2ICG; allow for 1 plant per symbol
L	19no. <i>Luzula sylvatica</i> ; 2ICG; allow for 1 plant per symbol

KEY:

Planting mix

Planting 'Ferry glade' mix (23.4 m2);
7 plants/m2; 2l CG; 300mm c/c

35no. *Dryopteris cristata* (15%)
35no. *Geranium nodosum* (15%)
35no. *Luzula nivea* (15%)
35no. *Luzula sulvatica* (15%)
47no. *Polypodium vulgare* (20%)
47no. *Tiarella cordifolia* (20%)

Planting mix - general note:
Random mixed distribution of species through planting mix area. To be positioned between individual plants shown as symbols

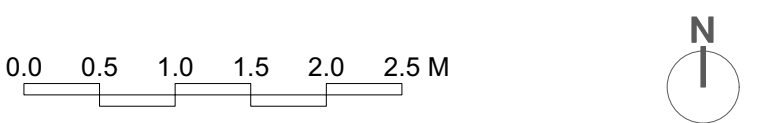
△	15no.	<i>Actaea racem.</i> var. <i>cordifolia</i> ; 2ICG; allow for 1 plant per symbol
A	18no.	<i>Anemone x hybrida</i> 'Honoring Jobert'; 2ICG; allow for 1 plant per symbol
E	9no.	<i>Epimedium perralchianum</i> 'Frohnleiten'; 2ICG; allow for 1 plant per symbol
●	11no.	<i>Fragaria vesca</i> var. <i>sempervirens</i> ; 2ICG; allow for 1 plant per symbol
H	5no.	<i>Hedera helix</i> 'Duckfoot'; 2ICG; allow for 1 plant per symbol
▼	9no.	<i>Polypodium vulgare</i> ; 2ICG; allow for 1 plant per symbol
▼	4no.	<i>Vinca minor</i> f. <i>alba</i> ; 2ICG; allow for 1 plant per symbol

L	7no.	<i>Luzula sylvatica</i> ; 2ICG; allow for 1 plant per symbol
---	------	---

165no. Allium ursinum; bulb;
allow for 30 bulbs/m²



Contours



Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	FOR APPROVAL
C1	02.07.21	ISSUED FOR CONSTRUCTION
C2.	19.06.23	Updated planting area numbers

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Client
United Living

Project
WB093: Welbourne plot

Drawing Title

Podium planting plans -
Planting areas P3,P4,P5 & P6

Drawing Status
Construction

Date	Scale
19.03.21	1:50 @ A1 / 1:100 @ A3

Drawing Number	Revision
0307-Z1-01-DR-LA-0512	C2

0307-Z1-01-DR-LA-0512 C2

Appendix 9

Podium Planting Plan – Planting areas P7, P8, P8, P9 & P10

Planting area P7: 9 m2 in total

KEY:

Planting mix

Planting 'Ferny glade' mix (8 m2);
7 plants/m2; 2l CG; 300mm c/c

9no. Dryopteris cristata (15%)
9no. Geranium nodosum (15%)
9no. Luzula nivea (15%)
9no. Luzula sylvatica (15%)
12no. Polypodium vulgare (20%)
12no. Tiarella cordifolia (20%)

Planting mix - general note:
Random mixed distribution of species
through planting mix area. To be
positioned between individual plants
shown as symbols

Individual plants - shrub species

Ch

2no. Choisya ternata; 5lCG;
allow for 1 plant per symbol

Hq

3no. Hydrangea quercifolia; 5lCG;
allow for 1 plant per symbol

Individual plants - herbaceous species

4no. Actaea racem. var. cordifolia; 2lCG;
allow for 1 plant per symbol

A

4no. Anemone x hybrida 'Honorine Jobert'; 2lCG;
allow for 1 plant per symbol

Planting area P9: 1.7 m2 in total

KEY:

Planting mix

Geranium underplanting (1.4 m2);
4 plants/each planter; 2l CG;

16no. Geranium nodosum (100%)

General note:
Even distribution of species in planter.
To be positioned between individual
plants shown as symbols

Individual plants - Climbing plants

Ca

5no. Clematis armandii; 3lCG;
allow for 1 plant per symbol

Cm

2no. Clematis montana var. grandiflora; 3lCG;
allow for 1 plant per symbol

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This drawing is for planning purposes only. Any discrepancies or queries should be brought to the attention of the authors. Dimensions are to be verified on site prior to construction.

To be read in conjunction with all relevant Architects', Services and Structural Engineers' drawings.

All existing site, tree and building information has been compiled from different sources.

Refer to current revisions of all referenced files.

Notes:

Refer to Adams & Sutherland landscape architects information for:

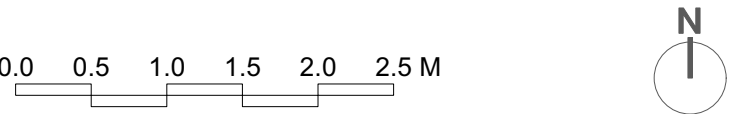
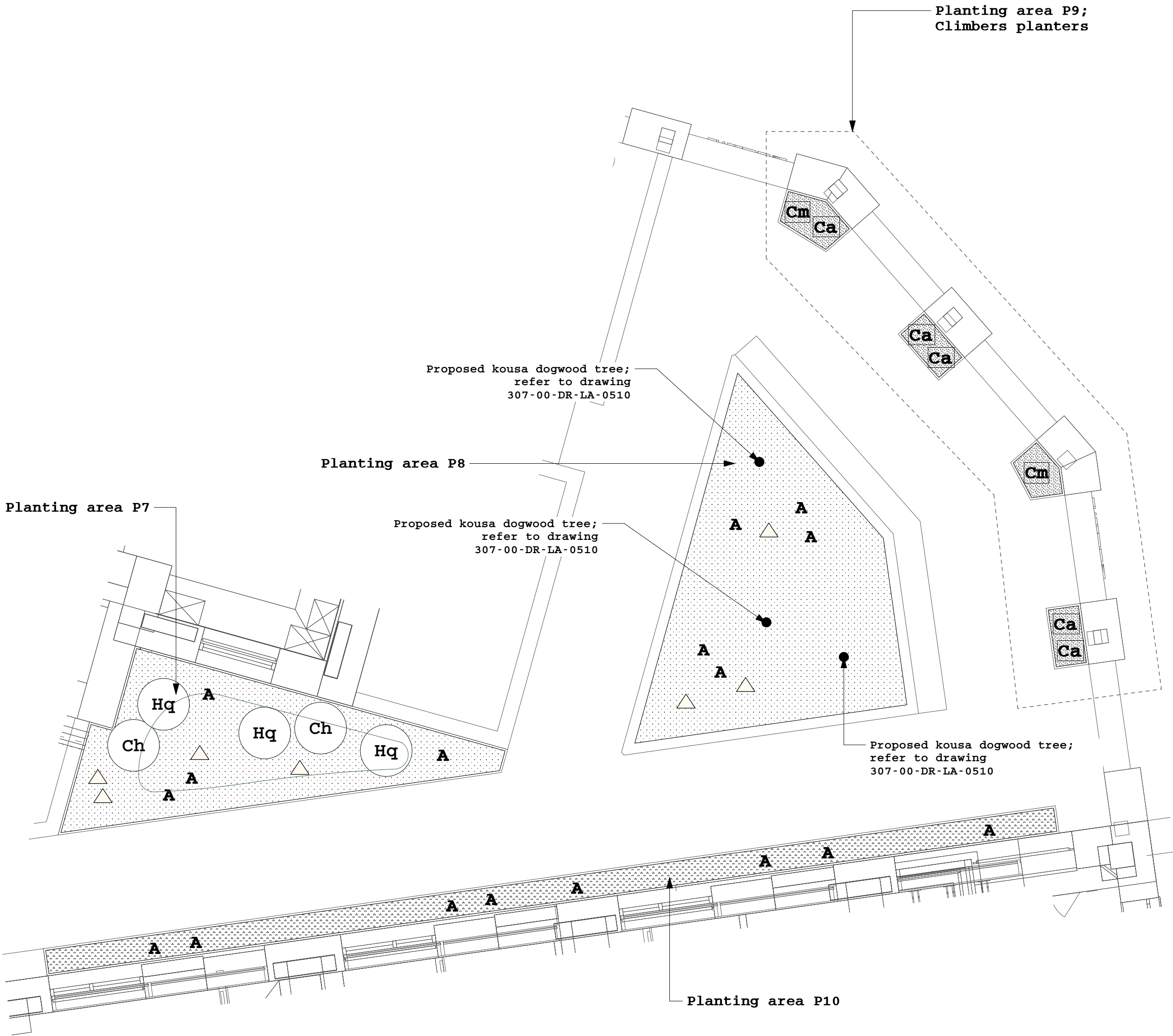
- Landscape layout
- Hard Landscape
- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Key:

- Proposed trees; for species refer to plan 0307-SW-01-DR-LA-0510

Contours



Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	FOR APPROVAL
C1	02.07.21	ISSUED FOR CONSTRUCTION

Planting area P10: 5 m2 in total

KEY:

Planting mix

Planting 'Ferny glade' mix (4.7 m2);
7 plants/m2; 2l CG; 300mm c/c

5no. Dryopteris cristata (15%)
5no. Geranium nodosum (15%)
5no. Luzula nivea (15%)
5no. Luzula sylvatica (15%)
8no. Polypodium vulgare (20%)
8no. Tiarella cordifolia (20%)

Planting mix - general note:
Random mixed distribution of species
through planting mix area. To be
positioned between individual plants
shown as symbols

Individual plants - herbaceous species

A

8no. Anemone x hybrida 'Honorine Jobert'; 2lCG;
allow for 1 plant per symbol

Planting area P8: 12.3 m2 in total

KEY:

Planting mix

Planting 'Ferny glade' mix (12 m2);
7 plants/m2; 2l CG; 300mm c/c

13no. Dryopteris cristata (15%)
13no. Geranium nodosum (15%)
13no. Luzula nivea (15%)
13no. Luzula sylvatica (15%)
17no. Polypodium vulgare (20%)
17no. Tiarella cordifolia (20%)

Planting mix - general note:
Random mixed distribution of species
through planting mix area. To be
positioned between individual plants
shown as symbols

Individual plants - herbaceous species

3no. Actaea racem. var. cordifolia; 2lCG;
allow for 1 plant per symbol

A

5no. Anemone x hybrida 'Honorine Jobert'; 2lCG;
allow for 1 plant per symbol

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Client
United Living

Project
WB093: Welbourne plot

Drawing Title
Podium planting plans -
Planting areas P7,P8,P9 & P10

Drawing Status
Construction

Date 19.03.21 Scale 1:50 @ A1 / 1:100 @ A3

Drawing Number Revision

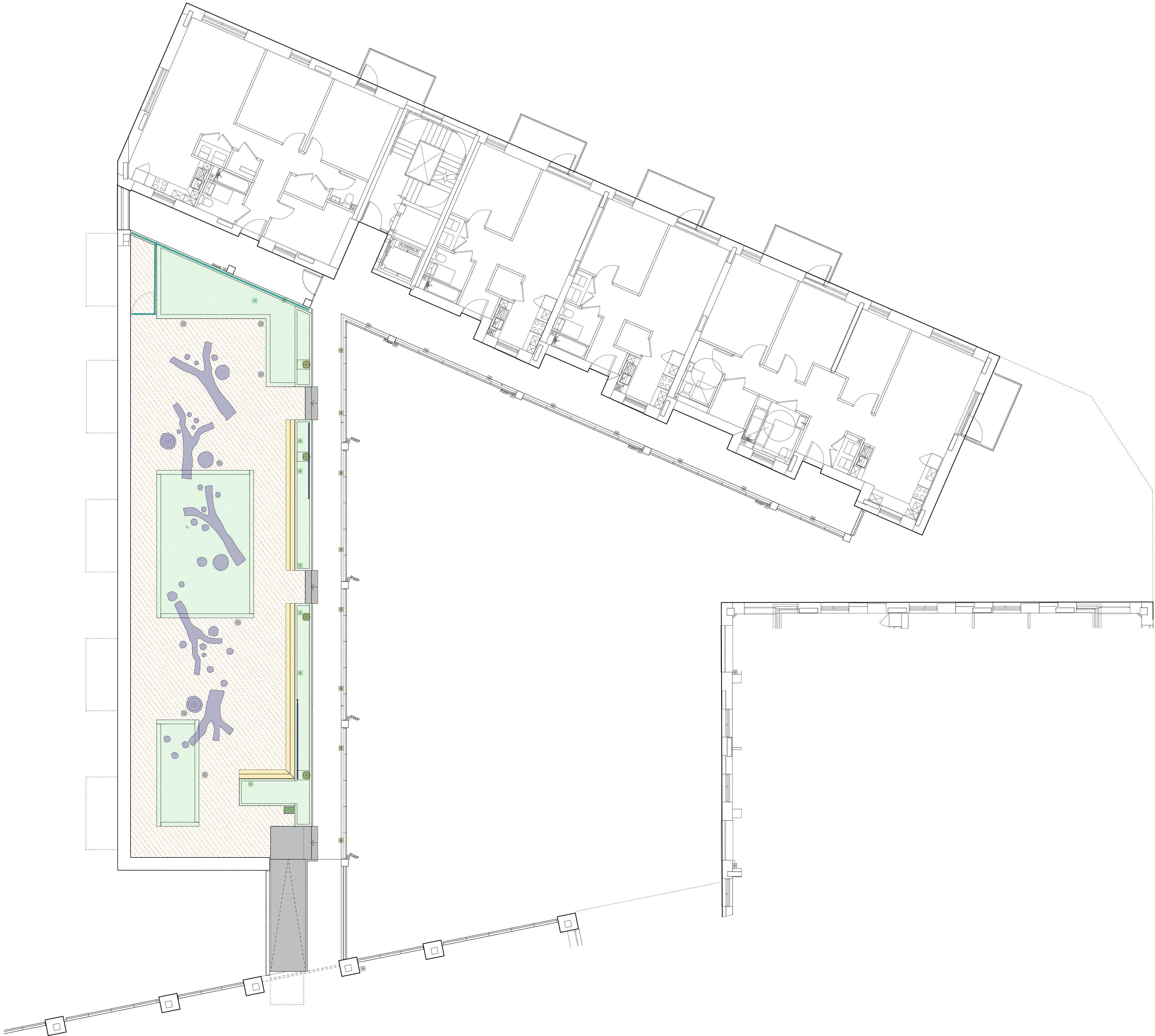
0307-Z1-01-DR-LA-0513 C1

Appendix 10

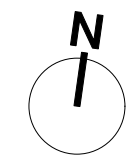
Hardworks – 4th Floor roof level plan

CONSTRUCTION

Rev.	Date	Note
C1	16/07/2021	ISSUED FOR CONSTRUCTION
C2	07/07/2022	ISSUED FOR CONSTRUCTION
C3	17/05/2023	Steps position adjusted



KEY	
Surface Treatment	
ST-06: Resin Bound Surface Treatment	
RL-01 and RL08 Precast concrete elements (steps and ramp)	
Raised Structures:	
RL-02: Bespoke raised timber sleeper planters	
RL-03: Bespoke metal plant climbing frame	
RL-04: Raised timber bench seating	
RL-05: Bespoke Play Equipment (Final design may vary dependant on natural form and detail of timber elements)	
RL-06 and RL-07: Bespoke metal railing and gate	
BN-01: Litter bin	
LED bollard light. Refer to M&E drawing and specification	
SVP. refer to M&E drawings and specification for details	
Access cover	



Notes:

1. Do not scale from this drawing.
2. All dimensions in mm unless noted otherwise.
3. All dimensions to be checked on site and discrepancies to be notified to A&S in writing.
4. This drawing should be read in conjunction with information from all other design consultants and contractors.
5. Copyright Adams & Sutherland Ltd.
6. If in doubt, ask.

Scale 1:100 @ A1 and 1:200 @ A3

Adams & Sutherland
architecture landscape urban design

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Client: United Living Group
Job: Welbourne Plot
Drawing Title: Hardworks - Roof Level Plan

Drawn: WLG	Date: MAR.2021	Rev.
Checked: WLG	Drawing No. 0307-Z1-04-DR-LA-0122	C3
Approved: GS		

Appendix 11

4th Floor Roof Planting Plan

Planting area R3: 15.8 m2 in total

KEY:			
Individual plants - shrubs			
R	6no.	Rosmarinus off. 'Sissinghurst Blue'; 5l CG; allow for 1 plant/symbol	
SB	1no.	Salix babylonica 'Tortuosa'; 10lCG; 1-1.5m height;allow for 1 plant/symbol	
Individual plants - herbaceous species			
▲	10no.	Achillea 'Moonshine'; 2lCG; allow for 1 plant per symbol	
a	14no.	Artemisia pontica; 2lCG; allow for 1 plant per symbol	
e	14no.	Echinacea pallida; 2lCG; allow for 1 plant per symbol	
l	15no.	Lavandula angust. 'Munstead'; 2lCG; allow for 1 plant per symbol	
L	15no.	Lychnis chalcadonica 'Rosea'; 2lCG; allow for 1 plant per symbol	
o	22no.	Origanum laevigatum 'Herrenhausen'; 2lCG; allow for 1 plant per symbol	
S	12no.	Salvia off. 'Purpurescens'; 2lCG; allow for 1 plant per symbol	
×	24no.	Thymus serpyllum; 2lCG; allow for 1 plant per symbol	
Individual plants - grass/sedges species			
●	17no.	Sesleria autumnalis; 2lCG; allow for 1 plant per symbol	

Planting area R2: 29 m2 in total

KEY:			
Planting mix			
	Planting mix (16.6 m2); 7 plants/m2; 2l CG; 300mm c/c		
	47no. Carex flacca (40%)		
	25no. Erigeron karvinskianus (20%)		
	47no. Sesleria autumnalis (40%)		
Individual plants - shrubs			
AU	1no.	Arbutus unedo;1.5-2m height; multistem allow for 1 plant/symbol	
SB	1no.	Salix babylonica'Tortuosa'; 10lCG; 1-1.5m height;allow for 1 plant/symbol	
Individual plants - herbaceous species			
▲	11no.	Achillea 'Cloth of Gold'; 2lCG; allow for 1 plant per symbol	
a	17no.	Artemisia pontica; 2lCG; allow for 1 plant per symbol	
e	7no.	Echinacea pallida; 2lCG; allow for 1 plant per symbol	
g	16no.	Geranium sanguineum 'Elke'; 2lCG; allow for 1 plant per symbol	
S	12no.	Salvia off. 'Purpurescens'; 2lCG; allow for 1 plant per symbol	
×	27no.	Thymus serpyllum; 2lCG; allow for 1 plant per symbol	
Individual plants - grass/sedges species			
●	22no.	Sesleria autumnalis; 2lCG; allow for 1 plant per symbol	

Planting area R1: 7.8 m2 in total

KEY:			
Planting mix			
	Planting mix (4.9 m2); 7 plants/m2; 2l CG; 300mm c/c		
	14no. Carex flacca (40%)		
	8no. Erigeron karvinskianus (20%)		
	14no. Sesleria autumnalis (40%)		
Individual plants - shrubs			
SB	1no.	Salix babylonica'Tortuosa'; 10lCG; 1-1.5m height;allow for 1 plant/symbol	
Individual plants - herbaceous species			
▲	3no.	Achillea 'Cloth of Gold'; 2lCG; allow for 1 plant per symbol	
a	4no.	Artemisia pontica; 2lCG; allow for 1 plant per symbol	
e	4no.	Echinacea pallida; 2lCG; allow for 1 plant per symbol	
g	3no.	Geranium sanguineum 'Elke'; 2lCG; allow for 1 plant per symbol	
S	3no.	Salvia off. 'Purpurescens'; 2lCG; allow for 1 plant per symbol	
×	10no.	Thymus serpyllum; 2lCG; allow for 1 plant per symbol	
Individual plants - grass/sedges species			
●	5no.	Sesleria autumnalis; 2lCG; allow for 1 plant per symbol	



Planting area R4: 2.1 m2 in total

KEY:			
Planting mix			
	Planting mix (1.5 m2); 7 plants/m2; 2l CG; 300mm c/c		
	3no. Allium schoenoprasum		
	7no. Fragaria vesca var. sempervirens (100%)		
	5no. Thymus serpyllum		
Individual plants - Climbing plants			
LB	1no.	Lonicera periclymenum 'Belgica'; 3lCG; allow for 1 plant per symbol	
LS	1no.	Lonicera periclymenum 'Serotina'; 3lCG; allow for 1 plant per symbol	

Planting area R5: 4 m2 in total

KEY:			
Planting mix			
	Planting mix (3.3 m2); 7 plants/m2; 2l CG; 300mm c/c		
	5no. Allium schoenoprasum		
	12no. Fragaria vesca var. sempervirens (100%)		
	8no. Thymus serpyllum		
Individual plants - Climbing plants			
Cm	2no.	Clematis montana var. grandiflora; 3lCG; allow for 1 plant per symbol	
LB	2no.	Lonicera periclymenum 'Belgica'; 3lCG; allow for 1 plant per symbol	
LS	2no.	Lonicera periclymenum 'Serotina'; 3lCG; allow for 1 plant per symbol	

Planting area R6: 6.1 m2 in total

KEY:			
Planting mix			
	Planting mix (5.5 m2); 7 plants/m2; 2l CG; 300mm c/c		
	8no. Allium schoenoprasum		
	19no. Fragaria vesca var. sempervirens (100%)		
	12no. Thymus serpyllum		
Individual plants - Climbing plants			
Cm	3no.	Clematis montana var. grandiflora; 3lCG; allow for 1 plant per symbol	
LB	2no.	Lonicera periclymenum 'Belgica'; 3lCG; allow for 1 plant per symbol	
LS	1no.	Lonicera periclymenum 'Serotina'; 3lCG; allow for 1 plant per symbol	

Planting area R7: 3 m2 in total

KEY:			
Individual plants - shrubs			
R	3no.	Rosmarinus off. 'Sissinghurst Blue'; 5l CG; allow for 1 plant/symbol	
Individual plants - herbaceous species			
▲	3no.	Achillea 'Moonshine'; 2lCG; allow for 1 plant per symbol	
a	1no.	Artemisia pontica; 2lCG; allow for 1 plant per symbol	
l	3no.	Lavandula angust. 'Munstead'; 2lCG; allow for 1 plant per symbol	
L	3no.	Lychnis chalcadonica 'Rosea'; 2lCG; allow for 1 plant per symbol	
o	8no.	Origanum laevigatum 'Herrenhausen'; 2lCG; allow for 1 plant per symbol	

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This drawing is for planning purposes only. Any discrepancies or queries should be brought to the attention of the authors. Dimensions are to be verified on site prior to construction.

To be read in conjunction with all relevant Architects', Services and Structural Engineers' drawings.

All existing site, tree and building information has been compiled from different sources.

Refer to current revisions of all referenced files.

Notes:

Refer to Adams & Sutherland landscape

architects information for:

- Landscape layout

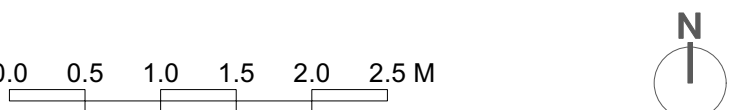
- Hard Landscape

- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Planting mix - general note:
Random mixed distribution of species through planting mix area. To be positioned between individual plants shown as symbols

Key:



Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	FOR APPROVAL
C1	02.07.21	ISSUED FOR CONSTRUCTION

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Client	United Living		
Project	WB093: Welbourne plot		
Drawing Title	4th floor roof planting plan		
Drawing Status	Construction		
Date	19.03.21	Scale	1:50 @ A1 / 1:100 @ A3
Drawing Number	0307-Z1-04-DR-LA-0520		Revision C1

Appendix 12

Planting Schedule

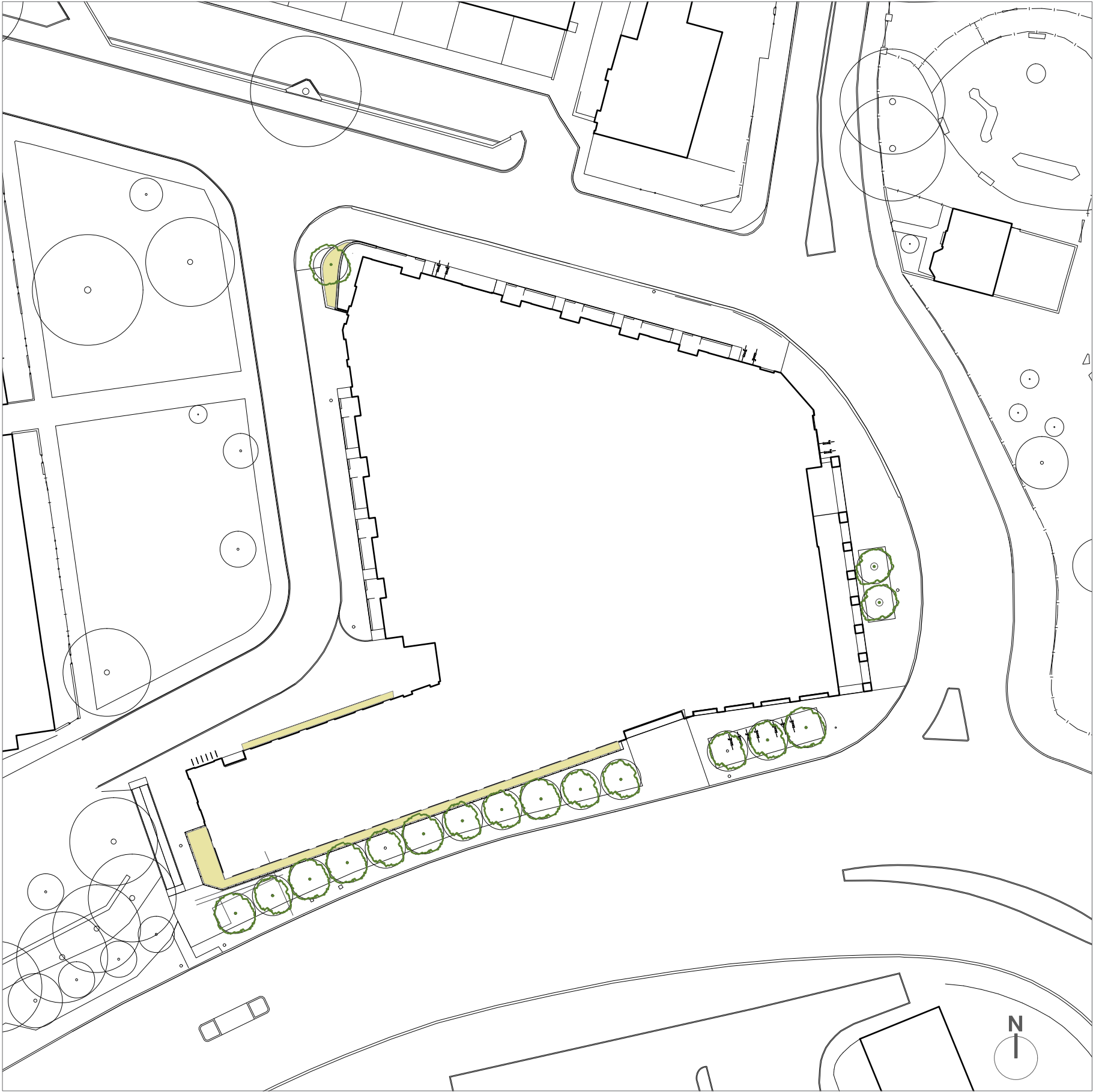
0307-SW-XX-SH-LA-0050		Revision C3
PLANTING SCHEDULE		
REVISION HISTORY P1: 19/03/2021: Preliminary P2: 10/06/2021: For Approval C1: 02/07/2021: Issued for Construction C2: 19/06/2023: Updated to suit revised planting areas C3: 23/10/2023: Podium planting area P1 updated Notes: To be read in conjunction with JCLA soft landscape planting plans and specifications <i>All trees/plants to be container grown unless otherwise stated</i>		
GROUND LEVEL TOTAL		
Species	Size	Quantity
Trees		
Alnus glutinosa 'Laciniata'	20-25cm girth; 2m clear stem height	1
Prunus avium 'Plena'	20-25cm girth; 2m clear stem height	2
Quercus robur 'Fastigiata Koster'	20-25cm girth; 2m clear stem height	14
Shrubs	Size	Qty
Sarcococca hookeriana var. digyna	5l CG	57
Herbaceous plants	Size	Qty
Dryopteris filix-mas	2l CG	27
Geranium phaeum 'Album'	2l CG	69
Geranium 'Ingwersen's variety'	2l CG	82
Eurybia divaricata	2l CG	60
Hemerocallis 'Crimson Pirate'	2l CG	13
Lunaria rediviva	2l CG	14
Lythrum salicaria	2l CG	38
Polystichum setiferum 'Divisilobum'	2l CG	41
Grasses & Sedges	Size	Qty
Deschampsia cespitosa	2l CG	75
Luzula sylvatica	2l CG	61
Bulbs & tubers, in drifts within areas shown	Density	Qty
Anemone nemorosa	40 tubers/m2	324

1ST FLOOR PODIUM TOTAL		
Species	Size	Quantity
Trees		
Cercidiphyllum japonicum	3.5-4m height; multistem	1
Cornus kousa Chinensis	1.5-2m height; multistem	5
Shrubs	Size	Qty
Choisya ternata	5l CG	3
Hydrangea quercifolia	5l CG	5
Sarcococca confusa	5l CG	14
Viburnum tinus	5l CG	7
Herbaceous plants	Size	Qty
Actaea racemosa var. cordifolia	2l CG	26
Actaea simplex	2l CG	12
Anemone x hybrida 'Honorine Jobert'	2l CG	86
Asplenium scolopendrium	2l CG	14
Dryopteris cristata	2l CG	77
Dryopteris filix-mas	2l CG	55
Epimedium x perralchium 'Frohenleiten'	2l CG	123
Fragaria vesca var. sempervirens	2l CG	38
Hedera helix 'Duckfoot'	2l CG	14
Helleborus argutifolius	2l CG	10
Geranium nodosum	2l CG	203
Polypodium vulgare	2l CG	159
Polystichum setiferum	2l CG	28
Tellima grandiflora	2l CG	12
Tiarella cordifolia	2l CG	213
Vinca minor f. alba	2l CG	20
Grasses & Sedges	Size	Qty
Luzula nivea	2l CG	94
Luzula sylvatica	2l CG	118
Bulbs & tubers, in drifts within areas shown	Density	Qty
Allium ursinum	30/m2	285
Climbing plants	Size	Qty
Clematis armandii	3l CG	5
Clematis montana var. grandiflora	3l CG	2

4TH FLOOR ROOF TOTAL		
Species	Size	Quantity
Shrubs	Size	Qty
Arbutus unedo	1.5-2m height; multistem	1
Rosmarinus off. 'Sissinghurst Blue'	5l CG	9
Salix babylonica 'Tortuosa'	10l CG	3
Herbaceous plants	Size	Qty
Achillea 'Cloth of Gold'	2l CG	10
Achillea 'Moonshine'	2l CG	17
Allium schoenoprasum	2l CG	16
Artemisia pontica	2l CG	36
Echinacea pallida	2l CG	25
Erigeron karvinskianus	2l CG	33
Fragaria vesca var. sempervirens	2l CG	38
Geranium sanguineum 'Elke'	2l CG	19
Lavandula angustifolia 'Munstead'	2l CG	18
Lychnis chalcedonica 'Rosea'	2l CG	18
Origanum laevigatum 'Herrenhausen'	2l CG	30
Salvia officinalis 'Purpurescens'	2l CG	27
Thymus serpyllum	2l CG	86
Grasses & Sedges	Size	Qty
Carex flacca	2l CG	61
Sesleria autumnalis	2l CG	105
Climbing plants	Size	Qty
Clematis montana var. grandiflora	3l CG	5
Lonicera periclymenum 'Belgica'	3l CG	5
Lonicera periclymenum 'Serotina'	3l CG	4

Appendix 13

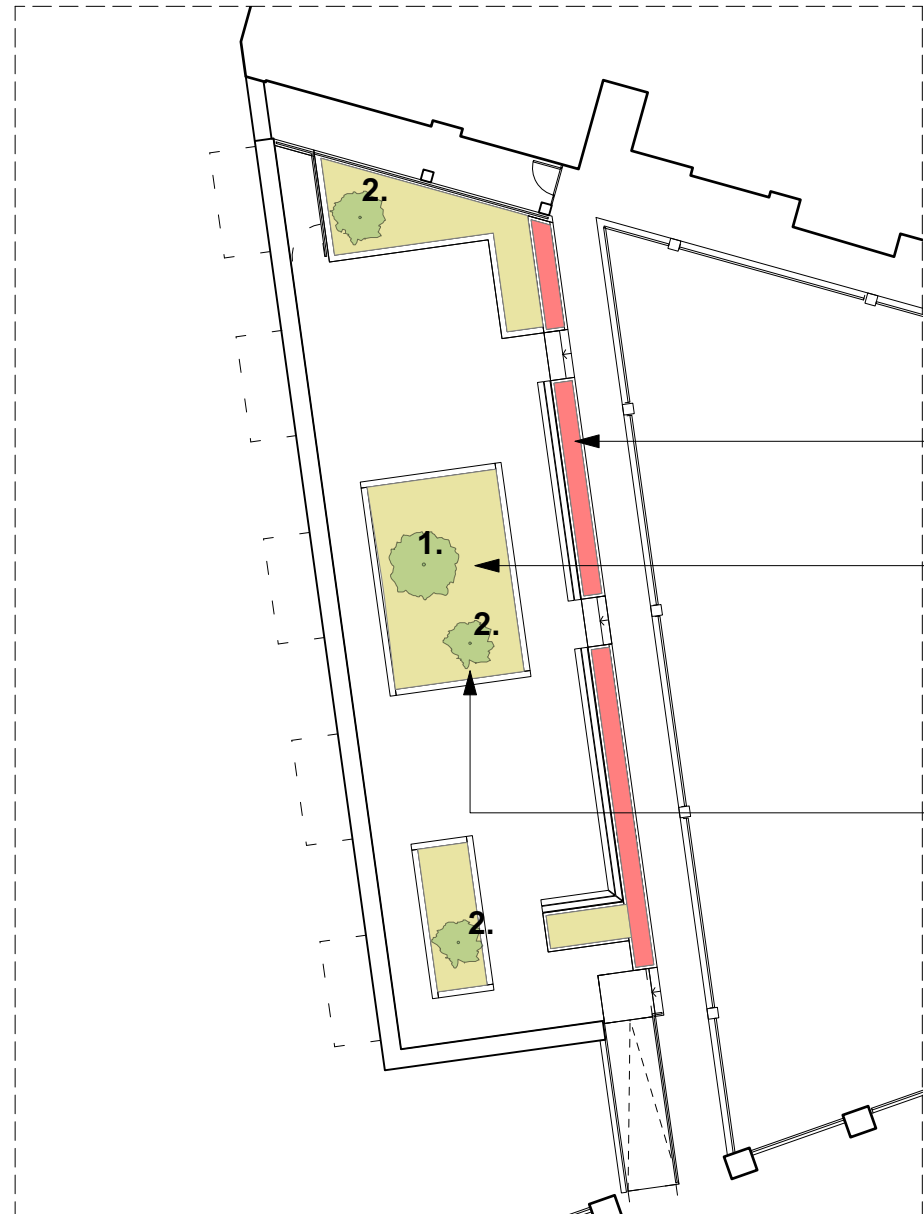
Soft Landscape Maintenance Plan



Soft Maintenance Key Plan: Ground
1:500



Soft Maintenance Key Plan: Podium
1:250



Soft Maintenance Key Plan: Terrace L04
1:250

SOFT MAINTENANCE	Year 1 - Establishment (DLP)												Year 2 onwards													
	J	F	M	A	M	J	JY	A	S	O	N	D	Frequency	J	F	M	A	M	J	JY	A	S	O	N	D	Frequency
Trees																										
- Species appropriate pruning to maintain desired form and/or specified clear stem height, and to ensure no conflict with sightlines/traffic; conforming to BS 3998 2010 British Standard for Tree Work and completed by suitably qualified persons. Collect, remove and recycle arisings.													1x year													1x year
- Regular check for health and performance; removal of dead and/or damaged/ill limbs, conforming to 7.3.2 of BS 3998 2010.													4x year													1x year
- Check tree ties and stakes if used (to be removed at the end of the 2nd year, unless still required to support the tree). Replace if required.													2x year													2x year
- Check tree surround for effectiveness/potential blockages etc, if required.													2x year													2x year
- Watering as required to ensure successful establishment and growth (100L/visit).													As required													As required
- Regular litter clearance, including fallen leaves.													As required													As required
Shrubs & low-growing trees																										
- Species appropriate pruning to maintain desired form. Collect, remove and recycle arisings. NOTE: Pruning times appropriate to species, e.g. after flowering.													1x year if required													1x year if required
- Regular check for health and performance; removal of dead and/or damaged/ill limbs or plants. Replacement planting if necessary on next visit.													4x year													2x year
- Annual cut/removals according to species; collect, remove and recycle arisings. Evergreen: remove dead leaves/limbs by combing or raking out gently. Deciduous species: annual cut to reduce by one-third.													1x year													1x year
- Check visit in Spring for any additional cutting required, before new shoots emerge.													1x year													1x year
- Check ties and supporting stakes if used (to be removed at the end of the 2nd year, unless still required to support the tree). Replace if required.													2x year													2x year
- Weeding as required to remove any invasive species including saplings, by hand only. Collect, remove and recycle arisings.													1x month													4x year
- Watering as required to ensure successful establishment and growth.													As required													As required
- Apply organic, slow-release fertiliser to topsoil.													1x year													1x year
- Top-up mulch: compost/bark mulch as specified, to specified depth.													1x year													1x year
- Regular litter clearance, including fallen leaves.													As required													As required
Herbaceous perennial / grass mix planting																										
- Formative pruning if necessary eg. if plants growing to obstruct path. NOTE: Pruning times appropriate to species, e.g. after flowering.													2x year													1x year
- Regular check for health and performance; removal of dead and/or damaged/ill limbs or plants. Replacement planting if necessary on next visit.													4x year													2x year
- Annual cut/removals according to species; collect, remove and recycle arisings. Evergreen: remove dead leaves/limbs by combing or raking out gently. Deciduous species: annual cut to reduce by one-third.													1x year													1x year
- Check visit in Spring for any additional cutting required, before new shoots emerge.													1x year													1x year
- Weeding as required to remove any invasive species including saplings, by hand only. Collect, remove and recycle arisings.													1x month													4x year
- Watering as required to ensure successful establishment and growth.													As required													As required
- Apply organic, slow-release fertiliser to topsoil.													1x year													1x year
- Top-up mulch: compost/bark mulch as specified, to specified depth.													1x year													1x year
- Regular litter clearance, including fallen leaves.													As required													As required
Climbers																										
- Regular check for health and performance; removal of dead and/or damaged/ill limbs or plants. Replacement planting if necessary on next visit. Ensure climbers are growing properly and evenly on supports provided; train and adjust if required.													4x year													2x year
- Annual cut/removals according to species; collect, remove and recycle arisings. Evergreen: remove dead leaves/limbs by combing or raking out gently. Deciduous species: annual cut to reduce by one-third.													1x year													1x year
- Check visit in Spring for any additional cutting required, before new shoots emerge.													1x year													1x year
- Weeding as required to remove any invasive species including saplings, by hand only. Collect, remove and recycle arisings.													1x month													4x year
- Watering as required to ensure successful establishment and growth.													As required													As required
- Apply organic, slow-release fertiliser to topsoil.													1x year													1x year
- Top-up mulch: compost/bark mulch as specified, to specified depth.													1x year													1x year
- Regular litter clearance, including fallen leaves.													As required													As required

Climber planting with herbaceous understorey

Low, trampoline mix:
Refer additionally to maintenance clause Q35/590

Shrubs within herbaceous planting

Species specific pruning:

1. Arbutus unedo:
Maintain at max. 2.5m height with good overall form and character

2. Salix babylonica:
Maintain at max. 2m height with good overall form and character

Note:
Most on-going maintenance (Year 2 onwards) should be achievable with maintenance operative visit 2x year (every 6 months); processes should be timed and combined accordingly. However, this does not include watering, weeding or litter clearance, which should be done as required on a more frequent basis.

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This drawing is for planning purposes only. Any discrepancies or queries should be brought to the attention of the authors. Dimensions are to be verified on site prior to construction.

To be read in conjunction with all relevant Architects', Services and Structural Engineers' drawings.

All existing site, tree and building information has been compiled from different sources.

Refer to current revisions of all referenced files.

Notes:

Refer to Adams & Sutherland landscape architects information for:
- Landscape layout
- Hard Landscape
- Assembly drawings

Refer also to Soft landscape specification, including maintenance clauses; current JCLA document 0307-XX-SP-LA-0005

Key:

Rev	Date	Description
P1	19.03.21	First issue
P2	10.06.21	For Approval
C1	02.07.21	Issued for Construction
C2	19.06.23	Updated planting area numbers
C3	23.10.23	Podium planting area P1 updated

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Client
United Living

Project
WB093: Welbourne plot

Drawing Title
Soft Landscape Maintenance Plan

Drawing Status
Construction

Date
19.03.21

Drawing Number
0307-SW-XX-SH-LA-0060

Scale
1:250 @ A1 / 1:500 @ A3

Revision
C3

Appendix 14

Bound Gravel Surface Maintenance

BOUND GRAVEL INSPECTION AND MAINTENANCE SCHEDULE

Bound Gravel is a low maintenance product. However, it should undergo routine and operational inspection and maintenance to keep it in optimum condition.

Resin bound surfaces are intended to be used by normal pedestrian or vehicular traffic for which they have been designed. Protection should be provided wherever possible against abnormal damage. Heavy objects, such as waste skips, should not be dragged across the surface and protection should be provided during building and construction work to avoid unsightly contamination from oil, grease, cement and dirt. Spillage of solvents should be avoided as these will soften and damage the resin binder.

INSPECTION & MAINTENANCE SCHEDULE

A routine visual inspection is recommended. The surface should also be regularly swept clean with a stiff broom and hosed with clean water.

Leaves

- All debris should be removed from the surface. It is important to prevent organic matter from building up. Letting it accumulate will affect drainage and also encourage weed growth.

☐

Weeds

- Due to its construction, the Resin bound surfaces are very resistant to weeds. However, no matter how much care is taken, weeds may occasionally appear on any surface, usually as a result of windblown seeds. Small numbers of weeds can be removed by hand without damaging the surface. If the weeds are removed by hand, it is important to ensure that the full root of the weed is extracted, not broken off. Some weeds are more prolific if they are simply cut off at surface level. If the weeds are deep rooted, it is advisable to kill them off with an appropriate weed killer. Localised areas of weed seeding infestation can be treated with domestic weed killers without causing damage to the surface.

☐

Moss and Algae Growth

- Periodical application of a proprietary moss and algae killer, such as "algon", in accordance with the manufacturer's instructions will remove and prevent any regrowth. Ingrained algal growth can be removed and the colour of the original surface restored by the application of a strong bleach solution. This should be used in accordance with the manufacturer's guidelines and local environmental constraints. After application, the surface should be well rinsed with clean water.

☐

Chewing gum removal

- Removal of individual pieces of chewing gum can be carried out by treating each piece with a freezing spray and then scraping off the hardened gum with a wall/paint scraper.

☐

Washing

- Washing can be carried out using a portable pressure washer (up to 150 bar rating) to remove dirt, grime and moss, providing care is taken not to damage the surface with excessive pressure. Only cold water should be used and the water lance must be kept at least 200mm from the surface. A fan type jet should be used.

☐

Cement or concrete marks

- Cement or concrete marks can be removed with careful use of diluted hydrochloric acid or a proprietary cement remover, immediately followed by a thorough rinsing with clean water. (Please note that if a lime based aggregate is used, the acid will tend to dissolve this as well).

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Appendix 15

Concrete Paver Surfaces Maintenance



Cleaning & Maintenance Guidelines for Commercial Installations



Marshalls

Creating Better Spaces

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Introduction

All paving require some basic maintenance to keep them looking their best, even if it’s just a wash with soap and water. Cleaning is usually easy and even the most neglected paving can often be rejuvenated with a little effort.

Over the years, a number of procedures and products have been developed for removing stains and growths from concrete and natural stone. Although these are generally successful, it can sometimes be difficult to remove stains completely. As a consequence, it is usually preferable to take precautions to avoid staining rather than rely on cleaning.

The difficulties which arise are largely due to three factors:

- Concrete is porous, so both stains and cleaning solutions tend to become absorbed in the surface layers.
- Concrete is chemically reactive and dissolves some cleaning solutions more readily than the chemicals causing the stain.
- Concrete surfaces are often left ‘as cast’ and any locally applied treatment may alter the texture or colour sufficiently to cause a blemish.

Health & Safety

Some of the methods described in this document employ chemicals and other materials which could be dangerous in inexperienced or careless hands.

It would be impracticable to describe in detail precautions for every conceivable situation and so it is advised that any safety warnings issued by the suppliers of materials should be carefully read and enforced.

In general, the following precautions should be taken:

- When using chemicals, protective clothing such as gloves, goggles, boots and overalls should be worn.
- Adequate ventilation is required when using chemicals in confined spaces.
- When using flammable materials; cigarettes, naked flames and other sources of ignition should be carefully controlled.
- When diluting acids, ALWAYS add acid to water and not water to acid.

In general there are two approaches to eliminating stains from concrete surfaces:

- Techniques exist which can remove stains without affecting the concrete. These are based on chemicals which either react with or dissolve the stain. These techniques, while attractive in theory, sometimes have the disadvantages of being slow and inconvenient and may not always eliminate all traces of the stain.
- Where the stain has not soaked deeply into the concrete, the surface layer of concrete containing the stain can be removed to expose fresh unstained concrete. Unfortunately, the degree of surface removal required may unacceptably affect the appearance of the concrete.

- Any clothing that is contaminated with chemicals should be disposed of safely.
- When using any chemicals, care must be taken not to damage, contaminate or stain any adjoining materials, landscaping or finishes.
- Care must be taken to protect personnel operating in the area of the cleaning from any injury or hazard created by the cleaning. The appropriate First Aid must be available.

Before undertaking any cleaning operation, a trial should be carried out on a small, preferably inconspicuous area, to determine the effect of the chemicals before treating a large area.

General Maintenance of Paving

Early Trafficking of Areas of Flexibly Laid Paving

Once the flexibly laid surface is complete (including complete filling of all the unit joints), generally it can be opened to traffic. If the underlying bedding sand has been saturated by heavy rainfall, either during or immediately after compaction of the paving, trafficking should be delayed.

If saturation has occurred, the paving should not be trafficked until the laying course sand has been allowed to drain.

Initial Maintenance

During the very early life of flexibly laid pavements, the joints between the units will be relatively porous. The ingress of water can consolidate jointing sand and it is important that the joints are regularly ‘topped up’ to replace the sand consolidated by rainwater or removed by other factors.

The joints will soon become semi-impervious as the build-up of surface detritus seals the joints. Until this has occurred, the paving should only be brushed by hand. Mechanical sweepers and in particular, sweepers with high suction forces, should not be used as there is a real risk of further loss of jointing sand.

Winter Maintenance

Normal de-icing salts (rock salt) can be applied to most of Marshalls’ Concrete and Natural Stone products without risk of damage to the pavement. Once the pavement has dried out after any thaw, the paving may be temporarily discoloured by the salt material, as for any paved area. Normal weathering should soon remove such discoloration.

If there is concern to avoid temporary discoloration of a paved area, then other de-icing materials should be used.

NOTE: De-icing salts must not be used on Marshalls’ wet cast concrete products.

De-icing Products

Rock salt (Sodium Chloride) is the most commonly used de-icer. Rock salt is the cheapest and most readily available; however, purer marine salt is also available. It is non-toxic, however, it is corrosive to steel and aluminium, harmful to vegetation and can leave a white residue on the paving.

Urea or Carbamide is a solid, white product with a mild ammonia odour. It is non corrosive to metals and surfacing materials; however, it may release ammonia and nitrates into water courses and is more expensive than rock salt. “Magic Ice Melt” and “Ice-Thaw Granules” are products containing Urea which are available in the marketplace.

General Dirt & Detritus

To remove general dirt and detritus, regular brushing is recommended. If the colour of the paving becomes masked it may be re-established by scrubbing with soap and warm water, either by hand or by using a jet wash cleaner.

The simplest way is to scrub the area with hot, soapy water.

- Use washing-up liquid or an acid-free, soap based floor cleaning product.
- The soapy water is swilled onto the surface of the paving and then brushed with a bristle brush to loosen the surface detritus.
- Wash off the loosened dirt with clean water, ensuring all the soap has been thoroughly washed from the surface. Carefully channel the resulting run-off to either drainage points or containers where it can be safely disposed of.
- If a power hose is used, then care must be taken to avoid the removal of the jointing material (sand or mortar). After completion, the pavement should be inspected and the jointing material replaced as required.

Weed Control

Weeds are simply plants that grow in inconvenient places. There are two common myths regarding weeds and paving.

- Certain types of paving/surfacing are “weed-free”.
- Weeds grow up through block paving.

Firstly, there is no such thing as a weed-free surface. If detritus is allowed to accumulate on a surface, it will only be a matter of time before weeds or other plants germinate. Secondly, when properly constructed, weeds do NOT grow through block paving. Weeds will grow into paving by colonising the sand-filled joints or settling onto accumulated detritus but it is very rare for weeds to grow through 200mm or so of pavement structure.

Removal of Weeds

Weeds can usually be pulled off the surface of most paving, or scraped off using a hoe or similar tool. Where roots have been sent down into the jointing, removal of the weed often brings away some of the sand, and this should be replaced as soon as the surface is clean. Partially filled or empty joints are detrimental to pavement performance.

Keeping Weeds at Bay

Once a paved surface has been cleared of weeds, it makes sense to keep it weed-free for the future. Regular trafficking by foot or by wheels will limit the ability of the weeds to re-colonise an area but for those areas with little or no traffic, there are a

number of anti-weed strategies available:

- Regular brushing disturbs any newly emerging weeds and removes them before they can establish themselves.
- Weed killers, when used with care, can be very effective at killing existing weeds and deterring re-colonisation for a period of weeks or even months.

Look for products which have been specifically developed for use with paving or in gardens, rather than general herbicides which kill everything. Contact weed killers work by coming into contact with the weed and are suitable for rapid killing of simple surface weeds. A systemic weed killer takes longer to kill the weed but it is absorbed and taken into the whole plant and not just the above-ground leaves and stems.

Always follow the manufacturer’s instructions and avoid washing-off into any planted areas.

Power Washing

Power Washers have now achieved the status of being a standard cleaning appliance. When used correctly they can help to keep paving in good condition, when used in excess they can damage the paved area and shorten its service life.

When using any form of power washer the following guidelines should be strictly adhered to:

- Sweep the area with a stiff bristle brush to remove any loose material. Protect or move any vulnerable items.
- The power washer should be used on a setting which is sufficient to remove the dirt without causing any further distress. A low-pressure setting is recommended.
- Do not direct the power lance directly down on to the paving, as this can result in loss of jointing material and cause damage to the surface of the unit.
- Ideally, a spraying movement should be adopted holding the power lance at a shallow angle, not greater than 30º across the diagonal (i.e. not parallel to joints).
- Certain high-pressure jetting machines have been known to mark or damage the surface of certain wet cast paving material. It is, therefore, prudent to carry out a small test area before commencing on a larger area.
- The area should be inspected after cleaning to ensure that joints are full.

Power-washing is effective at removing moss and algae that can thrive on certain types of paving. The addition of “Jeyes Fluid” may inhibit the return of the vegetation for a short period of time.

Acid Washing

Stubborn and persistent stains that will not generally weather away naturally will require the application of a specific acid cleaning treatment to remove them.

Prior to any acid cleaner being applied, the surface must be thoroughly wetted with clean water to prevent the acid being absorbed directly into the paving. A dilution of up to 10% of Hydrochloric Acid should then be prepared and applied to the affected area.

As the staining begins to dissolve, some frothing may be apparent, which should be followed by agitation of the surface using a stiff bristle brush to completely remove all trace of the stain.

Once this process is complete, the whole surface should be rinsed thoroughly with clean water, taking care to dispose of the run off safely. In the vast majority of cases, one treatment will be sufficient; however, in some cases re-treatment may be required.

When using any form of chemical treatment, the following guidelines should be strictly adhered to:

- With deeper stains, the degree of acid treatment may result in an acid etched appearance.
- Protective clothing (gloves, boots, goggles etc.) should be worn at all times when using chemicals and the appropriate First Aid measures must be available on site.
- Take care to ensure that surrounding materials and landscaping are protected. Soft landscaping and exposed metals can be severely affected by chemical treatments.
- It is better to treat several times with the correct dilution than to use concentrated acid, which may damage the surface of the unit.
- Extreme care must be taken when using chemical cleaners on wet cast concrete products as these are less resistant to such treatments.
- When diluting acids, ALWAYS add acid to water and not water to acid.

Hydrochloric Acid is normally used and can be obtained as an industrial chemical or in the form of a proprietary concrete cleaner. Light staining can often be removed without markedly affecting the texture and appearance of the concrete. With deeper stains, the degree of acid treatment required to remove the stain usually results in an obvious acid-etched appearance to the concrete. In all but the most exceptional of cases, less than 1mm of the concrete skin is removed.

Where possible, initial trials should be carried out on inconspicuous areas to evaluate the final appearance of the concrete and optimize the concentration and number of applications of acid.

General Maintenance of Paving

Stone Paving

All stones vary and each one should be looked at on an individual basis. Many are slightly alkali so acid cleaners should be avoided. A small, inconspicuous area should always be tested first.

Limestones and Marbles should not be cleaned with acid-based cleaners. Limestone and Marbles are dissolved by Hydrochloric Acid, so this type of cleaner should be avoided.

For more specialist stains, a good stone cleaning product can be obtained from Casdron - 01962 732126 www.casdron.co.uk

Mechanical Cleaning

The following recommendations deal with vehicles and associated equipment and their use in sweeping and washing flagged pedestrian areas and roads.

Equipment should be purpose designed to sweep a particular area. If there is any doubt about suitability, the vehicle manufacturer should be consulted.

- Where possible, low pressure tyres should be fitted to reduce the risk of breaking or cracking flags.
- Tyres should be inflated according to the manufacturer's recommendations, again to ensure minimum weight per unit area.
- Polypropylene, rather than wire brushes should be used.
- Sweeping brush pressures should be set to the minimum required to suit the particular task, i.e. surfaces swept regularly will require a lower setting than those swept infrequently or covered with heavy deposits.
- Tyre and brush pressures should be regularly checked.
- When sweeping, engine speed should be set at the minimum required to maintain vacuum (suction) pressure.
- Operators, including reliefs, should be trained to operate machinery in accordance with manufacturer's recommendations.
- When equipment is stationary or left unattended, suction, brush rotation and water jetting equipment should be switched off to avoid the risk of damage to the paved area below the stationary equipment.
- For conventional block pavements or flag pavements in new or re-laid areas, agreement should be reached with the local highway authority on a period of manual cleaning to allow flags and block paving to become established and the joints to seal with detritus. This period may be reduced by using either a water based bonding agent or elastomeric prepolymer sealant, and by agreement with the cleansing authority, on an appropriate sweeping and sealant replacement regime.

- When water jetting equipment is used to wash areas, the jets or hand held lance should be directed at the surface at an angle not greater than 30° to the horizontal and diagonally across the joints (i.e. not parallel) using a high concentrate detergent solution. The area should be inspected after cleaning to ensure that joints remain full with any required jointing material replacement carried out after the pavement is dry.

Efflorescence

White patches appearing on the surface of concrete paving naturally cause concern. However, such concern is rarely justified in the long term, as the appearance is normally the result of 'Efflorescence'.

Forms of Efflorescence

The term 'Efflorescence' is also frequently used to describe whitish deposits or stains on building materials. However, there are many forms of Efflorescence, which have little in common, other than the fact that they result in a white discolouration.

Efflorescence, as generally found on concrete paving products, is known as 'Lime Bloom.' It is a surface deposit on the concrete, seen either in the form of white patches or as a more general lightening in colour. When the latter effect is seen, it is often misinterpreted as a fading or 'washing out' of the colour of pigmented concrete.

Formation of Lime Bloom

Lime bloom, when it occurs, is a natural phenomenon brought about by the normal chemical reaction between cement and water. A product of this reaction is Calcium Hydroxide, which is slightly soluble in water. Under certain conditions it can migrate through damp concrete to the surface where it in turn reacts with atmospheric Carbon Dioxide to produce a deposit of Calcium Carbonate crystals.

This deposit gives rise to the white patches or the overall lightening referred to earlier. It is normally extremely thin, and when wetted, the deposit becomes transparent and seems to disappear.

Occurrence

The occurrence of lime bloom on the surface of concrete paving products is a spasmodic and unpredictable phenomenon not associated with poor quality manufacture. The weather is a significant factor, with lime bloom forming more readily when concrete becomes wet and dries slowly; therefore, occurrences are more frequent in winter months. Generally, it only occurs in the early life of concrete paving products and materials which have been in place for a year or more without experiencing lime bloom, are unlikely to be affected. The phenomenon is

temporary and superficial and will generally disappear in time without affecting concrete strength or durability.

Removal of Lime Bloom

Lime bloom can generally be expected to disappear over a period of time, depending on the environment to which the paving is subjected. Rainwater, being slightly acidic, dissolves the surface deposit. Where paving is fully exposed to the weather, any efflorescence would normally be expected to disappear within the first year or two, although it might be longer for a sheltered site.

Removal would be accelerated by abrasion caused by foot or vehicular trafficking.

Treatment

The following minimum equipment is required:

- Protective gloves and goggles.
- Appropriate footwear.
- Brush with soft bristles.
- Plastic watering can for application.
- Supply of clean water.

Proprietary cleaners can be used for more immediate removal of lime bloom. Most proprietary cleaning treatments contain acids and detergents, so it is important to ensure that the manufacturer's instructions and all relevant environmental regulations are followed. Incorrect or careless cleaning may result in injury or damage and discolouration to the surface of the concrete paving.

It is advisable to carry out a test on a small and inconspicuous area of paving before undertaking cleaning over the complete area.

The procedure is best carried out in cool conditions. When the paving is hot, rapid evaporation may lead to recurrence of deposits. Care should be taken when applying acid based cleaners to concrete. Acid attacks concrete and over application may alter the appearance of the paving.

Wash off the residue and inspect the paving. In the case of stubborn or heavy deposits repeat the application as necessary.

After final application of the cleaner, wash off any residue with plenty of water to prevent staining, taking care to dispose of the run-off safely. Allow the paving to dry and then inspect the surface and joints. Re-sand/replace mortar to the joints as necessary.

Long term experience suggests that it is unlikely that lime bloom will recur after removal with acid based treatments. It is not possible, however, to give a guarantee against recurrence.

Sealants

Proprietary sealing agents may be used on paved surfaces to reduce moisture penetration of the laying course material and minimise staining from spillages. It is generally not required for paving installed in an external application; however, it is particularly important for materials installed in an internal application.

The paving surface must be completely dry and clean before any sealer is applied with the manufacturer's instructions adhered to at all times. Whilst such products may offer certain advantages, careful consideration must be given to the suitability of the sealant and any subsequent effect on the colour, appearance and slip/skid resistance of the paving. Application of a sealant will require on-going maintenance during the life of the paving.

Stains

Oil Stains

Oil can penetrate readily into hard surfacing materials (particularly lubricating or fuel oil) but it should not stain if any spillages are removed promptly with an absorbent material, e.g. paper towels, cloth or absorbing granules.

Do not attempt to wipe the stain as this will drive the oil into the surface of the units and spread it over a wider area.

If the stain persists then an emulsifying degreaser should be employed (e.g. Gunk engine degreaser). Brush the cleaner onto the affected area, leave for a period of time according to the manufacturer's instructions and then wash the emulsified oil away with plenty of clean water.

Alternatively the surface can be scrubbed with a detergent and hot water, taking care to ensure that the strength of the detergent is not detrimental to the appearance of the paving. However, for persistent oil staining,steamcleaning may have to be considered.

If the stain is proving impossible to shift, consider replacing the contaminated area of paving.

Rust Stains

Rust (Iron Oxide) stains can be difficult to remove. Many dyes used to colour concrete products are based on iron oxides, so many chemical cleaning agents may affect both the rust and the dyes.

Initially, action must be taken to eliminate the sources of staining. Iron rust stains are recognisable by their characteristic rust red/brown colour and their proximity to steel or iron, in or on the concrete.

There is also a danger of accidental staining when weed and moss killers containing Ferrous Sulphate are applied to areas next to the paving.

To remove the rust stain, the surface should be wetted and the affected area treated with an acid based concrete cleaner (no stronger than an equivalent of up to 10% Hydrochloric Acid solution or similar).

It must be noted that the acid in cleaners attack concrete. It may leave a slightly roughened surface or leach out some of the pigment from the concrete, so care must be taken when using acid based cleaners. After application of the cleaner, any residue should be washed off the surface of the concrete with copious quantities of water to avoid staining. Care should be taken to dispose of the run-off safely. All manufacturer's instructions must be strictly followed and after cleaning is completed, any chemical residue should be disposed of carefully.

Rust stains do not affect the structural integrity of the paving; it can be unsightly and detract from the aesthetics of the paving.

Algae, Lichen & Mosses

Moss, lichen and algae can be prevalent on hard surfacing where the area is heavily shaded, under trees or is not laid to an adequate fall. If such growths do occur and are considered undesirable then the area should be treated with a proprietary weed or moss killer used in accordance with the manufacturers' instructions.

If rapid removal of the dead growths is required, this can be achieved using a high-velocity jet of water.

Some toxic washes leave a residue which discourages subsequent growth, but even under favourable circumstances, the residual effect is unlikely to last for more than two or three years.

NOTE: Products containing Ferrous Sulphate can chemically react with concrete products resulting in a brown stain to the surface. Please check with the manufacturers of the weed or moss treatment for further advice on this matter.

Beverage Stains

Beverage stains can normally be removed by scrubbing the stain with detergent and hot water. If the stain is persistent, carefully apply a mild household bleach solution (Sodium Hypochlorite or Sodium Perborate) and then rinse the area with clean water taking care to dispose of the run-off safely.

Berries & Fruit

Berries, drupes and other soft fruit can stain paving when they are dropped onto the surface of paving. When allowed to dry, the resulting stain can prove difficult to remove.

A recommendation is to use a mix of liquid Sodium Hypochlorite (NaClO), obtained from swimming pool maintenance suppliers and a non-oxidising shampoo (e.g. baby shampoo). Dilute 1.5 litres of Sodium Hypochlorite with 4.5 litres of water and add 100ml of baby shampoo. If possible, the mixture should be applied via a pump spray and the whole area treated not just individual spots.

Pre-wet the whole area with clean water and spray the cleaning fluid over the surface. Gently scrub the area with a stiff bristle brush. After 15 minutes wash the pavement down with clean water making sure that the residue does not run onto any vegetation. Repeat if necessary. It has been suggested that for heavy staining, a domestic laundry pre-wash product (e.g. OxiClean) may be used.

NOTE: Sodium Hypochlorite is dangerous. It is corrosive, an irritant and will burn skin, so it is essential that full protective gloves, goggles and clothing are worn at all times when using the product. The liquid will also burn or kill plants and vegetation.

Blood Stains

Wet the stain with water and cover with a thin layer of Sodium Peroxide powder. Care should be taken not to breathe any of the peroxide dust nor allow it to come into contact with the skin. Sprinkle with water or apply a water-saturated cloth and allow to stand for a few minutes. Wash with water and scrub vigorously. Alternatively, a Hydrogen Peroxide or Sodium Perborate solution may be effective.

Chewing Gum

Chewing gum is a particularly difficult substance to remove from hard surfaces.

Newly discarded gum can be scraped off by using a mechanical scraper but hardened gum can only be removed by both freezing the gum and chiselling it from the surface of the paving or utilising a hot water/steam cleaner. There are contract cleaning companies who specialise in this type of cleaning, and it is recommended that they be contacted directly for further details.

Cement Mortar & Concrete Staining

These types of staining can occur on paved surfaces, usually as a result of contamination from other sources, such as concrete furniture or the use of on-site mortars and concrete.

Cement and lime deposits are generally insoluble and, therefore, require treatment by a suitable acid cleaner to fully remove them. These cleaners may be obtained from good DIY stores and builders merchants.

Paint, Ink & Graffiti Stains

Both paint and graffiti are difficult to remove from most hard surfacing materials.

Fresh wet paint should be soaked up with an absorbent material without wiping the paint, as this will spread the stain. It should then be treated with a suitable solvent such as diluted white spirit and then the area washed with a de-greasing agent taking care in the disposal of the run-off material.

Dried paint should be scraped off as far as possible and then an appropriate paint remover applied.

Paint manufacturers may often be able to give more detailed advice on the removal of paint and graffiti. Therefore, they should be consulted directly for specific recommendations.

Colour which has penetrated the surface can be removed by acid-washing but this may affect the surface appearance. Sometimes old paint films can be burnt off using a blow-torch and the final traces removed by scrubbing and scouring.

Paint and ink are the normal tools of the graffiti-artist. Several manufacturers produce products specially formulated for graffiti removal.

There are various types of ink with different chemical compositions, so removal of ink stains may require some trial and error.

Indelible inks can often be removed by the method using Sodium Perborate. In some cases it may be necessary also to treat with an Ammonium Hydroxide solution (or household cleaner containing ammonia). Proprietary 'ink eradicators', available from hardware stores, can also be used.

It is often difficult to eliminate completely all traces of graffiti from concrete and in situations where it is likely to be a problem, the concrete should be treated with an anti-graffiti coating.

Such coatings seal the surface of the concrete, preventing penetration of ink or paint, and any subsequent graffiti can easily be removed.

Scuff Marks from Vehicle Tyres

These can normally be removed by steam cleaning, or by scrubbing the area with detergent and hot water.

Bitumen Stains

Fresh bitumen should be allowed to cool down before removing it with a paint scraper or similar. If it is particularly resistant, the use of ice to make the bitumen brittle may be required prior to scraping it from the paving. Any residue should be removed with an abrasive powder (e.g. household scouring powder) and finally the whole area rinsed with clean water. Certain proprietary cleaning agents are available to remove bitumen but these should be tested on an inconspicuous area of paving first.

Emulsified bitumen consists of very small drops dispersed in water and penetrates only slightly into concrete. It can be removed in the same way as molten bitumen, although rather less easily. Do not use solvents as these will increase the penetration of the stain into the surface.

Stains

Smoke, Fire & Tobacco Stains

Normally such stains can be removed by scrubbing with detergent and hot water. Where the stains persist, a mixture of scouring powder and household bleach can be used. It is important the bleach is washed from the area with clean water once cleaning is completed and the run-off carefully disposed of.

Bleach is detrimental to plant life so care should be taken to protect adjacent lawns and borders.

Epoxy & Polyester Stains

Areas of solidified epoxy or polyester resin can be removed by carefully burning off with a blowtorch. Care must be taken not to inhale any fumes given off or to overheat the concrete sufficient to cause explosive fracture of the coarse aggregate. If black stains remain after burning, this can be removed by scrubbing with soap and water.

For larger areas, grit blasting may also have to be considered. This will not affect the durability of the material but may affect the micro-texture of the surface. It is advisable to test a small area before any large scale operation is undertaken.

Copper, Bronze & Aluminium Stains

Copper and Bronze stains are usually green, although in some cases they are brown. To remove them, mix together in the dry form, 1 part of Ammonium Chloride (sal ammoniac) and 4 parts of whiting (powdered gypsum or chalk). Add Ammonium Hydroxide (household ammonia) to form a thick paste. Apply over the stain and leave to dry. Repeat as necessary.

Aluminium stains appear as a white deposit which can be removed by washing with diluted acid.

Useful Contacts

There are a number of sealant suppliers however Marshalls have been involved with the following manufacturers:

Resiblock	01268 273344 www.resiblock.com
Lithofin	01962 732126 www.casdron.co.uk

Other Useful Contacts

Jeyes Group Church & Dwight UK Ltd Karcher UK	www.jeyes.co.uk www.oxiclean.com www.karcher.co.uk
Magic Ice Melt	Available from DIY stores & Builders Merchants www.pitchcare.com
Ice-Thaw Granules	Available from DIY stores & Builders Merchants www.cpd-direct.co.uk
Weedol Pathclear Roundup	www.miraclegro.com www.miraclegro.com www.miraclegro.com

How to contact Marshalls

(Calls may be monitored or recorded)

The Marshalls Technical Advisory Service is here to help customers and installers with all aspects of installation technical advice 0370 411 2233

customeradvice@marshalls.co.uk

The Marshalls website is a comprehensive source of ideas, product information, and much, much more.

www.marshalls.co.uk/commercial

Landscape House, Premier Way,
Lowfields Business Park, Elland HX5 9HT

[marshalls.co.uk/](https://www.marshalls.co.uk/)

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[Marshall'sTV](https://www.youtube.com/MarshallsTV)



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Appendix 16

Timber Planter and Seating Maintenance



Caring for Woodscape products

All products for outdoor use require regular maintenance. To keep maintenance costs to a minimum, Woodscape's primary material of choice for Street Furniture products is Naturally Very Durable Hardwood. (Please refer to our document entitled "Why Hardwood?" for more information on the Characteristics of NVDH)

Storage

Best stored in cool, damp conditions.

In **wet weather**, out in the open, components are best kept wrapped. In **dry weather**, keep components wrapped all around in polythene sheeting or a tarpaulin, and out of direct sunlight.

Air circulation or wind will cause rapid drying of NVDH surface fibres, unless accompanied by a high humidity. Rapid drying may be harmful to components that are relatively new and yet to acclimatise.

To give a measure of pre-installation protection against soiling most components are finished with one coat of Sadolin Industrial 94 Mais (or suitable alternative). The coating will gradually fade away to allow timber to weather naturally. If desired, one or more coats of pigmented stain may be applied at any time.

All components are supplied PHND (Pin Hole No Defect), RND (Resin No Defect), TND (Tannin No Defect) and SND (Stain No Defect).

For a few months after installation, especially during warm/dry weather, **regular wetting** is advisable to assist gradual acclimatisation.

Maintenance & Repair

While Woodscape products can be used without a maintenance routine, some inspection and maintenance may prolong their life.

Timber components should be inspected every 6 months, more in exposed locations, and cleaned to prevent dirt or moss build up.

Hardwood can be cleaned with a Molecular Nano (MN) cleaning product and treated with an MN sealant (a non-film forming hardwood treatment that slows down greying, and protects against dirt and other factors that impact the quality of the wood).

This is a good time to check for any damage or splintering that may require repair. Splinters, sharp edges or graffiti can be removed through light sanding.

Resin or gum exudation may occasionally occur on the finished surface of timber, especially during periods of warm weather. The condition generally will diminish with the passage of time. Should excesses of resin remain on the surface, these may be removed using a sharp blade. **Care should be taken to work with the grain and to avoid marking the surface.**

Should you wish to maintain surface colouring, Sadolin Industrial Mais is a suitable base coat for any further staining or specialist treatments you wish to apply on site.

If left in the natural state the long life expectancy of Naturally Very Durable Hardwood is not significantly impaired.

Polished Stainless Steel components should be cleaned using stainless steel polish and a lint free cloth.

Light damage (surface scratches etc.) can be removed using an emery pad (240 grit) and freeing oil such as 'WD40'. Care should be taken to follow the direction of the brushing grain. It is recommended that a trial repair be carried out on an unimportant surface first. No corrosive cleaners or other abrasives should be used. Any contamination, particularly carbon steel scuffs from vehicles, should be quickly removed to avoid corrosion.

Powder-coated steel should be cleaned annually with water and possibly a mild detergent. Care should be taken to avoid scratching, which may limit the materials lifespan, and any deep scratches found should be repaired immediately.

Galvanised steel may have a shiny surface initially, but this will quickly dull off to an expected matt grey finish, that requires little regular cleaning if the components are exposed to rain (or cleaning with a low pressure hose), and offers high levels of protection against scratching. Can be cleaned annually with water and possibly a mild detergent, be aware that cleaning with stronger substances for graffiti removal will effect the lifespan of the steel.

Heavy damage to any product should be reported to Woodscape for specific advice on possible repairs.

ALL Maintenance, Repair & Cleaning procedures should be documented, as this information may be requested should you ask Woodscape to inspect or repair an installed product.

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Appendix 17

Welbourn Plot Soft Landscape Specification

JCLA

REVISION C1: 02.07.21 - ISSUED FOR CONSTRUCTION

Document Number 0307-SW-XX-SP-LA-0005	
Revision	C1
Issued for Construction	
Mr Rehman Jamal - United Living Jul 23, 2021, 12:45 PM GMT+1:00	

Welbourne Plot

Soft Landscape

02-07-2021

Spec document title: 0307-SW-XX-SP-LA-0005

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D20

Excavating and filling

To be read with preliminaries/general conditions

2A To be read with preliminaries/general conditions

1. refer to engineer's specification, except as below:

Generally/the site - Not Used

Clearance/excavating

165 Tree roots

1. Protected area: Do not cut roots within precautionary protection area.
 - 1.1. Size of area: To BS Tree Root Protection Area
2. Excavation in protected area
 - 2.1. Method: By hand
 - 2.2. Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
4. Cutting
 - 4.1. Make clean smooth cuts with no ragged edges.
 - 4.2. Pare cut surfaces smooth with a sharp knife.
 - 4.3. Treatment of cut roots: If roots have been unintentionally severed, contact the Contract Administrator and form a new clean cut slightly nearer the trunk
5. Backfill: Cover with original topsoil as work proceeds

166 Tree root barriers

1. Trench: Sever all roots.
 - 1.1. Depth: Refer to Landscape Architect's details
2. Root barrier: Refer to Landscape Architect's details
3. Cutting roots: As clause 164.
4. Root barrier installation: Full depth of excavation. Fit closely to trench wall nearest the tree.
5. Backfill material: As dug material excavated from trench.
6. Backfilling: Lay and compact thoroughly in layers not more than 300 mm thick.

168 Site clearance

1. Timing: Before topsoil stripping, if any.
2. General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
3. Treatment: Apply a suitable non-residual herbicide to areas to receive planting

170 Removing small trees, shrubs, hedges and roots

1. Identification: Clearly mark trees to be removed.
2. Small trees, shrubs and hedges: Cut down
3. Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas
4. Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.

175 Felling large trees

1. **Definition:** Girth over 600 mm.
2. **Identification:** Clearly mark trees to be removed.
3. **Safety:** Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.
4. **Felling:** As close to the ground as possible.
5. **Stumps:** Remove by stump grinding
6. **Work near retained trees:** Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

220 Stripping topsoil

1. **General:** Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
2. **Depth**
 - 2.1. Remove to an average depth of 150 mm.
 - 2.2. Give notice where the depth of topsoil is difficult to determine.
3. **Handling:** Handle topsoil for reuse or sale in accordance with clause 225.
4. **Around trees:** Do not remove topsoil from below the spread of trees to be retained.
5. **Site storage:** Keep separate from excavated sub-soil

221 Treating topsoil

1. **Treatment:** Apply a suitable translocated nonresidual herbicide.
2. **Timing:** Not less than two weeks before excavating topsoil.

225 Handling topsoil

1. **Standard:** To BS 3882.
2. **Aggressive weeds**
 - 2.1. **Species:** Included in the Weeds Act, section 2 or the appropriate Wildlife and Countryside Act for the relevant jurisdiction.
 - 2.2. **Give notice:** Obtain instructions before moving topsoil.
3. **Contamination:** Do not mix topsoil with:
 - 3.1. Subsoil, stone, hardcore, rubbish or material from demolition work.
 - 3.2. Other soil or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.
 - 3.3. Oil, fuel, cement or other substances harmful to plant growth.
 - 3.4. Other classifications of topsoil.
4. **Multiple handling:** Keep to a minimum. Use topsoil immediately after stripping.

Disposal of materials

410 Excavated topsoil storage

1. **Storage:** Stockpile in temporary storage heaps: on site

415 Excavated topsoil removal

1. **General:** Remove from site.

420 Topsoil storage heaps

1. Location: To be agreed with client/ Contract Administrator
2. Standard: To BS 3882.
3. Height (maximum): 1m
4. Protection
 - 4.1. Do not place any other material on top of storage heaps.
 - 4.2. Do not allow construction plant to pass over storage heaps.
 - 4.3. Prevent compaction and contamination.

421 Topsoil storage heap treatment

1. Treatment: Apply a suitable herbicide at appropriate times to prevent seeding of weeds

441 Surplus subsoil

1. Excavated material: Stockpile in temporary storage heaps.
2. Retained material: None assumed
 - 2.1. Locations: To be agreed with client/ Contract Administrator
 - 2.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.
3. Remaining material: Remove from site.

Filling - Not Used

Bioremediation - Not Used

'specification for highway works: earthworks specification' appendices - Not Used

Ω End of Section

Q28

Topsoil and soil ameliorants

Clauses

2 To be read with preliminaries/ general conditions.

System outline

105A Container planting growing media system

1. Description: For external container planting: podium & roof terrace planters
2. Composition
 - 2.1. Soil: Imported topsoil to BS 3882
 - 2.2. Multipurpose, submit sample for review and analysis.
 - 2.3. Ameliorants: Organic materials and Sanitized and stabilized composted materials
 - 2.4. Accessories: Gel irrigation system

135A Planting bed soil system

1. Description: For external planting
2. Composition
 - 2.1. Topsoil: Imported topsoil to BS 3882
 - 2.2. Multipurpose, submit sample for review and analysis.
 - 2.3. Ameliorants: Organic materials and Sanitized and stabilized composted materials
 - 2.4. Accessories: None

145 Plant pit backfilling soil system

1. Description: For tree pits
2. Composition
 - 2.1. Topsoil: UPPER HORIZON: Imported topsoil to BS 3882. LOWER HORIZON: Imported subsoil to BS 8601. For both topsoil and subsoil, submit sample for review and analysis
 - 2.2. Ameliorants: UPPER HORIZON ONLY: Organic materials and Sanitized and stabilized composted materials
 - 2.3. Accessories: None

155 Mulching and top dressing system

1. Description: For all external planting
2. Composition
 - 2.1. Material: Bark mulch as clause 355 and Q31/485

200 Grading subsoil

1. General: Grade to smooth, flowing contours to achieve specified finished levels of topsoil.
2. Areas of thicker topsoil: Excavate locally.

250 Subsoil surface preparation

1. General: Excavate and/or place fill to required profiles and levels, as section D20.
2. Loosening:

- 2.1. Light and non-cohesive subsoils; when ground conditions are reasonably dry, loosen thoroughly to a depth of 350mm.
- 2.2. Stiff clay and cohesive subsoils; when ground conditions are reasonably dry, loosen thoroughly to a depth of 450mm.
- 2.3. Rock and chalk sub-grades; lightly scarify to promote free drainage.
3. **Stones:** Immediately before spreading topsoil, remove stones larger than 50mm.
4. **Remove:** Arisings that appear during cultivation; these are to include builders rubble, household waste and severed tree roots. Dispose off-site to an approved disposal site.

260 Inspecting formations

1. **Give notice:** Before spreading topsoil for all areas.
2. **Notice period:** 5 days.

Products

300 Preparation materials generally

1. **Purity:** Free of pests and disease.
2. **Foreign matter:** On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
3. **Contamination:** Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - 3.1. Corrosive, explosive or flammable.
 - 3.2. Hazardous to human or animal life.
 - 3.3. Detrimental to healthy plant growth.
4. **Subsoil:** In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
5. **Objectionable odour:** None.
6. **Give notice:** If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

310 Materials not permitted

1. **Materials:** Peat and Products containing peat

316 Imported topsoil to BS 3882

1. **Description:** As specified
2. **Quantity:** Provide as directed to all planting areas.
3. **Standard:** To BS 3882.
4. **Classification:** Multipurpose
 - 4.1. **Soil textural class** to BS 3882, Figure 1: Sandy loam
5. **Source:** To approval of Contract Administrator
 - 5.1. **Product reference:** Submit proposals
6. **Submit:** Declaration of analysis including information detailing each of the relevant parameters given in BS 3882, as clause 610.

340 Imported subsoil for tree pits (lower horizon)

1. **Quantity:** Provide as directed to lower horizon of tree pits.
2. **Standard:** To BS 8601.

3. **Submit:** Declaration of analysis including information detailing each of the relevant parameters given in BS 8601, as clause 611.

345 Aggregates

1. **Description:** For gravel drainage layer to tree pits/container planting
2. **Source:** Refer to Civil engineer's details
 - 2.1. **Product reference:** Refer to Civil engineer's details
3. **Reference, description and grading**
 - 3.1. **Sand:** Not required
 - 3.2. **Grit:** Not required
 - 3.3. **Crushed materials:** Not required
 - 3.4. **Other aggregates or particles:** Refer to Civil engineer's details
4. **Recycled content:** Refer to Civil engineer's details

355 Organic materials

1. **Description:** For bark mulch to all planted areas
2. **Type:** Bark
3. **Source:** Melcourt Industries Ltd (www.melcourt.co.uk), or equal approved
 - 3.1. **Product reference:** Melcourt 'Pine Mini Chips', 3-18mm

356 Organic materials

1. **Description:** For all planted areas
2. **Type:** Seaweed soil ameliorant/ conditioner
3. **Source:** Quickcrop (www.quickcrop.co.uk), or equal approved
 - 3.1. **Product reference:** Seafeed Organic Seaweed Meal soil and plant feed
4. **Application:** Spread evenly and in accordance with manufacturer's instructions/recommendations.
5. **Timing:** Apply prior to cultivation.

360 Sanitized and stabilized composted materials certified to PAS 100

1. **Description:** For all planted areas
2. **Standard:** In accordance with PAS 100.
3. **Source:** Submit proposals
 - 3.1. **Product reference:** Submit proposals
4. **Horticultural parameters**
 - 4.1. **pH (1:5 water extract):** 7.0-8.7.
 - 4.2. **Electrical conductivity (maximum, 1:5 water extract):** 200 mS/m.
 - 4.3. **Moisture content (m/m of fresh weight):** 35-55%.
 - 4.4. **Organic matter content (minimum):** 25%.
 - 4.5. **Grading (air dried samples):** 99% passing 25 mm screen, and 90% passing: 10 mm screen mesh aperture
 - 4.6. **Carbon:Nitrogen ratio (maximum):** 20:1.
5. **Texture:** Friable.
6. **Objectionable odour:** None.
7. **Compost Certification Scheme certification:** Required
8. **Declaration of analysis:** Submit.
9. **Additional analyses:** Not required

10. **Samples:** Supply 5kg sample and submit details of recent chemical and physical analysis before ordering

380 Mycorrhizal inoculant

1. **Description:** For any severed tree roots
2. **Manufacturer:** Rootgrow (www.rootgrow.co.uk)
 - 2.1. **Product reference:** Rootgrow Professional

385 Water retention gels

1. **Description:** For external container planting
2. **Type:** Buried gel irrigation system
3. **Manufacturer:** Agricultural Polymers Ltd, or equal approved
 - 3.1. **Product reference:** Broadleaf P4
4. **Accessories:** None

Execution

605 Site investigation

1. **Report:** See section D20 / refer to engineer's information.

610 Topsoil analysis

1. **Soil to be analysed:** Imported topsoil
2. **Soil analyst:** To be approved by Contract Administrator
3. **Samples:** Collect in accordance with BS 3882.
4. **Submit**
 - 4.1. **Declaration of analysis:** In accordance with BS 3882, clause 6 and Table 1.
 - 4.2. **Additional analysis:** Chemical contaminants and Potentially toxic elements (PTEs)
 - 4.3. **Report detailing soil analyst's recommendations.**

611 Subsoil analysis

1. **Soil to be analysed:** Imported subsoil
2. **Soil analyst:** To be approved by Contract Administrator
3. **Samples:** Collect in accordance with BS 8601.
4. **Submit**
 - 4.1. **Declaration of analysis:** In accordance with BS 8601.
 - 4.2. **Additional analysis:** Chemical contaminants and Potentially toxic elements (PTEs)
 - 4.3. **Report detailing soil analyst's recommendations.**

620 Importing topsoil

1. **Give notice:** Before stripping topsoil for transfer to site.
 - 1.1. **Notice period:** 5 days

625 Sample loads

1. **Description:** For imported topsoil
2. **Deliver to site a sample load:** of 5 kg
3. **Give notice:** Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.

- 3.1. Notice period: 5 days

630 Documentation for imported topsoil

1. Description: For all areas
2. Timing: Submit at handover.
3. Contents
 - 3.1. Full description of all soil components.
 - 3.2. Record of source for all soil components.
 - 3.3. Record drawings showing the location and depth of all soils by type and grade.
 - 3.4. Declaration of analysis: in accordance with BS 3882, clause 6 and Table 1.
4. Number of copies: One

635 Documentation for compost and composted materials

1. Description: For imported soil improvers
2. Timing: Submit at handover.
3. Contents
 - 3.1. Full description of all compost components.
 - 3.2. Record of source for all compost components.
 - 3.3. Analyst's report for each test carried out.
 - 3.4. Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
 - 3.5. Quality Compost Protocol certification: Required
4. Number of copies: One

640 Documentation for preparation materials

1. Description: For imported soil improvers
2. Timing: Submit at handover.
3. Contents
 - 3.1. Full description of all components.
 - 3.2. Record of source for all components.
 - 3.3. Analyst's report for each test carried out.
 - 3.4. Supplier's declaration of compliance with BSI PD CR 13456.
4. Number of copies: One

650 Notice

1. Give notice before
 - 1.1. Setting out.
 - 1.2. Spreading topsoil.
 - 1.3. Applying herbicide.
 - 1.4. Applying fertilizer.
 - 1.5. Visiting site during maintenance period.
2. Period of notice: 1 week

655 Mechanical tools

1. Restrictions: Do not use within 100 mm of tree and plant stems.

657 Preparation of severely compacted areas

1. **Method:** Soil to be aerated and de-compacted using hand operated 'Terravent' system and injected with 'Plant Health MycorTree TM Tree Saver Injectable', all strictly according to manufacturer's instructions/recommendations.
2. **General:** Prepare areas to receive soft landscaping as necessary to ensure that the topsoil is in a suitable state for cultivation operations as specified in sections Q30 and/or Q31.

660 Grading subsoil for:

1. **Description:** External planting beds
2. **Standard:** In accordance with BS 8601.
3. **General:** Grade to smooth flowing contours to achieve specified finished levels of topsoil.
4. **Areas of thicker topsoil:** Excavate locally.
5. **Avoid compaction.**
6. **Excess subsoil:** Remove.

665 Subsoil surface preparation for:

1. **Description:** External planting beds
2. **Standard:** In accordance with BS 3882.
3. **General:** Excavate and/ or place fill to required profiles and levels, as section D20.
4. **Loosening**
 - 4.1. When ground conditions are sufficiently dry to allow breaking up of soils, loosen thoroughly to specified depth
 - 4.1.1. Light and noncohesive subsoils: 300 mm
 - 4.1.2. Stiff clay and cohesive subsoils: 450 mm
 - 4.1.3. Rock and chalk subgrades: Lightly scarify to promote free drainage.
 - 4.2. **Wet conditions:** Do not loosen subsoils.
5. **Stones:** Immediately before spreading topsoil, remove stones larger than 50 mm.
6. **Remove from site:** Arisings, contaminants and debris and Builders rubble

670 Inspecting formations

1. **Give notice:** Before spreading topsoil for planting beds.
2. **Notice period:** 7 days

676 Preparation of undisturbed topsoil

1. **Standard:** In accordance with BS 4428.
 - 1.1. **Grading and cultivation:** To suit cultivation operations specified in Q30/Q31
2. **Hard ground:** Break up thoroughly.
3. **Clearing:** Remove visible roots and large stones with a diameter greater than 50 mm.
4. **Areas covered with turf or thick sward:** Plough or dig over to full depth of topsoil.
5. **Fallow period (minimum):** One month
 - 5.1. **Weed control:** At appropriate times treat with a suitable translocated nonresidual herbicide and recultivate 2 weeks prior to use.
6. **Areas underneath existing trees:** Undertake all works by hand.
 - 6.1. Levels within tree root protection areas (RPAs) to be maintained as existing.

685 Surplus materials to be removed

1. Topsoil removal from site: Topsoil remaining after completion of all landscaping work
2. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

690 Topsoil storage heaps

1. Location: To be identified within working site area upon establishment of site compound
2. Height (maximum): 1.0 m
3. Width (maximum): 5.0 m
 - 3.1. Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
4. Protection
 - 4.1. Do not place any other material on top of storage heaps.
 - 4.2. Do not allow construction plant to pass over storage heaps.
 - 4.3. Prevent compaction and contamination, by fencing and covering as appropriate.

701 Grading of topsoil

1. Topsoil condition: Reasonably dry and workable.
2. Contours: Smooth and flowing, with falls for adequate drainage.
 - 2.1. Hollows and ridges: Not permitted.
 - 2.2. Blade grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than specified.
3. Give notice: If required levels cannot be achieved by movement of existing soil.

705 Handling topsoil

1. Standard: In accordance with BS 3882.
2. Aggressive weeds: Give notice and obtain instructions before moving topsoil.
3. Plant: Select and use plant to minimize disturbance, trafficking and compaction.
4. Contamination: Do not mix topsoil with:
 - 4.1. Subsoil, stone, hardcore, rubbish or material from demolition work.
 - 4.2. Other grades of topsoil.
5. Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
6. Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit: less 3%, to BS 1377-2

710 Spreading topsoil on:

1. Description: External planting areas
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers
 - 4.1. Depth (maximum): 150 mm.
 - 4.2. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: refer to Landscape Architect's details
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 Loose tipping of topsoil

1. **Standard:** In accordance with BS 3882.
2. **General:** Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

718 Final cultivation

1. **Description:** For planting beds
2. **Compacted topsoil:** Break up to full depth.
3. **Tilth:** Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
4. **Depth:** To depth of topsoil
5. **Particle size (maximum):** 10 mm
6. **Timing:** Within a few days before planting
7. **Weather and ground conditions:** Suitably dry.
8. **Surface:** Leave regular and even.
9. **Levels:** as details, and 25 mm above adjoining paving or kerbs
10. **Undesirable material brought to the surface**
 - 10.1. Remove visible weeds.
 - 10.2. Remove roots and large stones with any dimension exceeding 50 mm.

721 Finished levels of topsoil after settlement

1. **In relation to adjoining paving, kerbs or hard surfaces:** 25 mm above
2. **In relation to dpc of adjoining buildings:** Not less than 150 mm below - refer to architect's details where this occurs.
3. **In relation to adjacent grass areas:** 25 mm above
4. **Seeded areas:** Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
5. **Sportsfields:** To even levels and within the following permitted deviations:
 - 5.1. From levels or gradients shown on drawings: ± 75 mm.
 - 5.2. From line between boning rods 30 m apart: ± 25 mm.
6. **Within root spread of existing trees and shrubs to be retained:** Do not dig or cultivate.
7. **Adjoining soil areas:** Marry in.
8. **Thickness of turf or mulch:** Included.
9. **NOTE:** All areas subject to trafficking or other activities that have compacted the grounds **MUST** be thoroughly decompacted and brought back to levels, to the approval of the Contract Administrator/Landscape Architect **BEFORE** any planting is undertaken. All haul roads, paths used for contractor's access and the like must be left in a healthy and viable state after the close of the contract.

805 Applying soil ameliorant

1. **Description:** Where specified
2. **Type:** Minerals and Organic materials
3. **Locations:** All planting areas
4. **Fully incorporate into topsoil to a depth of full depth of planting bed, or as manufacturer's instructions.**
5. **Application:** Spread evenly.
 - 5.1. **Timing:** Apply prior to cultivation.
 - 5.2. **Rate:** 1kg/10m²

6. Timing: Prior to cultivation.
7. Other requirements: None

810 Applying compost

1. Description: Where specified
2. Application rate for trees and shrubs: 10% by volume
 - 2.1. Timing: Apply prior to cultivation.
3. Application rate for grass: 10% by volume
 - 3.1. Timing: Apply prior to cultivation.
4. Application rate for planters: 10% by volume
 - 4.1. Timing: Apply prior to cultivation.
5. Other requirements: spread evenly

820 Applying general fertilizer

1. Description: Osmocote Exact Standard - slow release fertiliser (12-14 months) or equal approved
2. Application: Spread evenly, carefully incorporating below mulch materials.
 - 2.1. Timing: At the end of maintenance period
 - 2.2. Application rate: as per manufacturer's recommendation
 - 2.3. Other requirements: as per manufacturer's recommendation

835 Applying buried gel irrigation system

1. Description: To container planting
2. Depth: To manufacturer's/ supplier's recommendations

840 Applying mycorrhizal inoculant

1. Description: Rootgrow to severed tree roots as clause 380
2. Depth: To manufacturer's/ supplier's recommendations

845 Applying loose mulch

1. Description: For all planting areas and tree pits
2. Timing: Immediately after planting
3. Preparation: Water soil thoroughly
4. Coverage of mulch (minimum)
 - 4.1. Planting beds (depth): 50 mm depth
 - 4.2. Trees: In a circular area of 500 mm radius measured from the tree stem, 75mm depth, for trees in soft landscape
 - 4.3. Container planting: 50 mm depth
5. Finished level of mulch: as detailed

Completion

905 Applying maintenance fertilizer to soil

1. Description: To planting beds
2. Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
3. Time of year: March or April
4. Application: Evenly spread, carefully incorporating below mulch materials.

5. **Rate:** To manufacturer's recommendations

920 Applying mulch

1. **Timing:** At end of the maintenance period
2. **Watering:** Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
3. **Planting beds:** Re-mulch.
 - 3.1. **Depth (minimum):** 50 mm
4. **Trees:** Remulch.
 - 4.1. **Depth (minimum):** 75 mm
5. **Container planting:** Remulch.
 - 5.1. **Depth (minimum):** 50 mm

Ω End of Section

Q31 External planting

Clauses

2 To be read with preliminaries/general conditions.

General information/ requirements

112 Site clearance generally

1. **General:** Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
2. **Stones:** Remove those with any dimension exceeding 50 mm.
3. **Contamination:** Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
4. **Vegetation:** Clear scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings
5. **Large roots:** Grub up and dispose of without undue disturbance of soil and adjacent areas.
6. **Additional requirements:** Refer to landscape architect's information

118 Soil conditions

1. **Soil for cultivating and planting:** Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
2. **Frozen or snow covered soil:** Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

120 Climatic conditions

1. **General:** Carry out the work while soil and weather conditions are suitable.
 - 1.1. **Strong winds:** Do not plant.

125 Times of year for planting

1. **Deciduous trees and shrubs:** Late October to late March.
2. **Conifers and evergreens:** September/ October or April/ May.
3. **Herbaceous plants (including marginal):** September/ October or March/ April.
4. **Container grown plants:** At any time if ground and weather conditions are favourable.
 - 4.1. **Watering and weed control:** Provide as necessary.
5. **Dried bulbs, corms and tubers:** September/ October.
6. **Green bulbs:** After flowering in spring.
7. **Wildflower plugs:** Late August to mid November or March/ April.
8. **Aquatic plants:** May/ June or September/ October.

130 Mechanical tools

1. **Restrictions:** Do not use within 100 mm of tree and plant stems.

145 Watering

1. **Quantity:** Wet full depth of topsoil.
2. **Application:** Even and without damaging or displacing plants or soil.
3. **Frequency:** As necessary to ensure establishment and continued thriving of planting.

150 Water restrictions

1. **General:** If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.

160 Notice

1. Give notice before
 - 1.1. Setting out.
 - 1.2. Applying herbicide.
 - 1.3. Applying fertilizer.
 - 1.4. Delivery of plants/ trees.
 - 1.5. Planting shrubs.
 - 1.6. Planting trees into previously dug pits.
 - 1.7. Watering.
 - 1.8. Visiting site during maintenance period.
2. **Period of notice:** Two weeks

165 Preparation, mulching and planting materials

1. **General:** Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
2. **Submit:** Certification of source, analysis, suitability for purpose and absence of harmful substances for:
 - 2.1. Certified materials, mulches
 - 2.2. Give notice before ordering or using.

170 Soil requirements

1. Type
 - 1.1. **Planted beds:** Planting bed soil system, as section Q28
 - 1.2. **Tree pits, shrub pits and other backfilling:** Plant pit backfilling soil system, as section Q28
 - 1.3. **External container planting:** Container planting growing media system, as section Q28
 - 1.4. **Mulch applied after planting:** Mulching and top dressing system, as section Q28

200 Plants/ Trees – general

1. **Condition:** Materially undamaged, sturdy, healthy and vigorous.
2. **Appearance:** Of good shape and without elongated shoots.
3. **Hardiness:** Grown in a suitable environment and hardened off.
4. **Health:** Free from pests, diseases, discoloration, weeds and physiological disorders.
5. **Budded or grafted plants:** Bottom worked.
6. **Root system and condition:** Balanced with branch system.
 - 6.1. **Standard:** The National Plant Specification
7. **Species:** True to name.
8. **Origin/ Provenance:** Grown in the United Kingdom for at least one growing season, unless otherwise approved
9. **Definition:** Origin and Provenance have the meaning given in the National Plant Specification.

215 Plants/ Trees – specification criteria

1. **Name, forms, dimensions, provenance and other criteria:** As scheduled and defined in the National Plant Specification (available on CS Design Software Limited's website).

216 Plants/ Trees – specification criteria

1. **Name, forms, dimensions and other criteria:** To the relevant part of BS 3936.

225 Bulbs/ Corms/ Tubers

1. **Condition:** Firm, entire, not dried out or shrivelled.
2. **Health:** Free from pests, diseases and fungus.
3. **Handling:** Remove from packaging immediately.
4. **Storage:** Permitted only when necessary.
 - 4.1. **Location:** Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
 - 4.2. **Duration:** Minimum period.
 - 4.3. **Temperature:** 18-21°C.

235 Container grown plants/ Trees

1. **Growing medium:** With adequate nutrients for plants to thrive until permanently planted.
2. **Plants:** Centred in containers, firmed and well watered.
3. **Root growth:** Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
4. **Hardiness:** Grown in the open for at least two months before being supplied.
5. **Containers:** With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

245 Labelling and information

1. **General:** Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
 - 1.1. Full botanical name.
 - 1.2. Total number.
 - 1.3. Number of bundles.
 - 1.4. Part bundles.
 - 1.5. Supplier's name.
 - 1.6. Employer's name and project reference.
 - 1.7. Plant specification, in accordance with scheduled National Plant Specification categories.
2. **Additional information:** Submit on request: Country of origin and Date supplied and consignment details or reference.

246 Labelling and information

1. **Standard:** To BS 3936.

256A Trees/ shrubs reserved at supplier's premises

1. **Types/ Species:** All proposed trees and shrubs, as plant schedule
2. **Predelivery inspection:** Give notice of at least 2 weeks; allow for Landscape Architect attendance to nursery visit to view proposed trees/shrubs. Landscape Architect to confirm selection before ordering

3. **Labelling:** Identify inspected plants/ trees as reserved for use on this project.

256B Plants reserved at supplier's premises

1. **Types/ Species:** As plant schedule
2. **Predelivery inspection:** To be approved by Landscape Architect through submission of photographs (electronically) of intended plants. Landscape Architect to confirm selection before ordering
3. **Labelling:** Identify inspected plants/ trees as reserved for use on this project.

261 Plant/ tree substitution

1. Substitution will only be considered after it is apparent that the contractor has made every effort to source the correct plant at the desired specification.
2. **Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering:** Submit alternatives, stating:
 - 2.1. Price.
 - 2.2. Difference from specified plants/ trees, including specimen photographs where possible.
3. **Approval:** Obtain before making any substitution.
4. **Further alternatives:** Proposed substitutions may not be acceptable and submission of further alternatives may be required.

265 Plant handling, storage transport and planting

1. **Standard:** To CPSE 'Handling and establishing landscape plants'.
2. **Frost:** Protect plants from frost.
3. **Handling:** Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
4. **Plant packaging:** Coextruded polyethylene bags with black interior and white exterior
5. **Packaging of bulk quantities:** Pallets or bins sealed with polyethylene and shrink wrapped
6. **Planting:** Upright or well balanced with best side to front.

280 Treatment of tree wounds

1. **Cutting:** Keep wounds as small as possible.
 - 1.1. Cut cleanly back to sound wood using sharp, clean tools.
 - 1.2. Leave branch collars. Do not cut flush with stem or trunk.
 - 1.3. Set cuts so that water will not collect on cut area.
2. **Fungicide/ Sealant:** Do not apply unless instructed.

285 Protection of existing grass

1. **General:** Protect areas affected by planting operations using boards/ tarpaulins.
 - 1.1. **Excavated or imported material:** Do not place directly on grass.
 - 1.2. **Duration:** Minimum period.

290 Surplus material

1. **Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings:** Remove.

Plant containers

293 External plant containers

1. Refer to Landscape Architect's details for plant containers.

Preparation of planting beds/ planting materials

300 Herbicide

1. **Description:** To clear existing vegetation
2. **Locations:** For use in controlling weeds that might colonise bare topsoil before planting; as identified on site by Contract Administrator (or identified by the Contractor and agreed by the Contract Administrator)
3. **Type:** Suitable for suppressing perennial weeds.
4. **Timing:** Allow fallow period before cultivation.
 - 4.1. **Duration (minimum):** As manufacturer's recommendation

305 Weed control

1. **Description:** For invasive non-native weeds
2. **Locations:** All planting areas
3. **General:** Prevent weeds from seeding and perennial weeds from becoming established, by treating pernicious weeds with selective translocated, contact herbicide as agreed. Confirm with Contract Administrator the timing and appropriateness of applying herbicide in areas intended for trees, shrubs and/or herbaceous perennials.

375 Cultivation

1. **Compacted topsoil:** Break up to full depth.
2. **Cultivation:** Loosen, aerate and break up soil into particles of 2-8mm.
 - 2.1. **Depth:** Top 350mm of planting beds
 - 2.2. **Timing:** Within a few days before planting begins
 - 2.3. **Weather and ground conditions:** Suitably dry
 - 2.4. **Surface:** Leave regular and even.
3. **Levels:** Unless otherwise instructed, centre of beds to be set at a minimum of 100mm above surrounding levels - allow for formation of cut edge to 50mm below existing surrounding levels. Bed to form a convex form, rising to specified height at centre.
4. **Undesirable material brought to surface:** Remove visible weeds, roots and large stones with any dimension exceeding 50mm.
5. **Soil within root spread of existing trees to be retained:** Do not dig or cultivate.

Planting shrubs/ herbaceous plants/ bulbs

400 Random plant layout

1. **Description:** To planted areas - refer to planting plans
2. **Spacing:** refer to planting plans
3. **Density:** refer to planting plans

401 Regular plant layout

1. **Description:** To planted areas - refer to planting plans
2. **Spacing:** refer to planting plans

3. **Density:** refer to planting plans

406 Shrub planting pits

1. **Timing:** Excavate 1-2 days (maximum) before planting.
2. **Sizes:** 150 mm wider than roots when fully spread and 200 mm deep
 - 2.1. Increase dimensions where necessary to ensure that pits are at least 75mm deeper than root system of shrub to be planted, and wide enough to accommodate roots when fully spread. Ensure that the rootball of each plant is thoroughly wet before planting.
3. **Pit bottom improvement** Break up to a depth of 150 mm.
4. **NOTE:** If the base of the pit is not free-draining, excavate at least a further 300mm or until reaching a free-draining subsoil. Incorporate at least 300mm depth aggregate layer (clean gravel or broken stones with no fines, graded 4-20mm) domed in the middle to 50mm height.

415 Antidesiccant for conifers/ Evergreens

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
2. **Application:** Dip before delivering to site. Spray soon after planting.
 - 2.1. Do not apply in wet or frosty weather.
 - 2.2. Ensure full coverage of underside of foliage.

417 Mycorrhizal inoculant to be used for severed tree roots

1. **Manufacturer:** Rootgrow (www.rootgrow.co.uk)
2. **Product reference:** Rootgrow Professional
3. **Application:** To be applied if established tree has its roots unintentionally severed during works. Such roots should be pared to smooth surface, covered with original topsoil and treated as below.
4. **Application:** Apply within area of drip zone and up to 1m beyond, or as described in manufacturer's information.

420 Climbing plants

1. **Planting:** 150 mm clear of supporting structure (e.g. wall/ fence) with roots spread outward.
 - 1.1. **Branches:** Lightly secured to supports.
2. **Climber supports:** refer to Landscape Architects details
 - 2.1. **Base height:** refer to details
 - 2.2. **Extent:** refer to details
 - 2.3. **Centres:** refer to details
 - 2.4. **Distance from wall:** refer to details
3. **Fixings:** refer to details
 - 3.1. **Centres:** refer to details

435 Climbing plants used as ground cover

1. **Planting**
 - 1.1. **Canes or other supports:** Remove.
 - 1.2. **Arrangement:** Spread stems.
2. **Fixing:** Pinned to ground to ensure good contact.

445 Planting bulbs/ Corms/ Tubers

1. **Depth:** Top of bulb/ corm/ tuber at a depth of approximately twice its height, base in contact with bottom of hole.
2. **Backfilling:** Finely broken soil. Lightly firm to existing ground level.
3. **Naturalized planting in existing grassed areas**
 - 3.1. **Scattering:** Random. Plant bulbs/ corms/ tubers where they fall.
 - 3.2. **Planting:** Neatly remove a plug of turf and replace after planting.

480 After planting

1. **Watering:** Immediately after planting, thoroughly and without damaging or displacing plants or soil.
2. **Firming:** Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
3. **Top dressing:** Mulching and top dressing system, as section Q28
 - 3.1. **Depth:** 50 mm

485 Mulching planting beds (bark)

1. As q28/355
2. **Material:** Bark mulch
3. **Manufacturer:** Melcourt Industries Ltd (www.melcourt.co.uk)
4. **Product reference:** Melcourt 'Pine Mini Chips', 3-18mm
5. **Application:** Only after planting and a thorough watering of the beds
6. **Purity:** Free from pests, diseases, fungus and weeds
7. **Preparation:** Clear all weeds and water soil thoroughly
8. **Coverage:** 50mm depth, unless otherwise directed
9. **Finished level of mulch:** Ensure that a layer of not less than 50mm is maintained throughout the maintenance period.

Planting trees

500 Tree planting

1. **Standard:** Prepare trees and transplant in accordance with BS 8545

502 Antidesiccant for conifers/ Evergreens

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals
2. **Application:** Dip or thoroughly spray before delivering to site. Spray again soon after planting.
 - 2.1. Do not apply in wet or frosty weather.
 - 2.2. Ensure full coverage of underside of foliage.

506 Tree pits

1. **Sizes:** Refer to Landscape Architect's details
2. **Sloping ground:** Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
3. **Excavated material:** TBC, pending any suitable material for re-use; allow for removing all arisings
4. **Pit bottoms:** Excavate with slightly raised centre: Break up base to a depth of 200 mm.
 - 4.1. **Treatment:** Not required

5. Pit sides: Scarify.
6. Backfilling material: Gravel drainage layer, Subsoil, Topsoil, as section Q28
 - 6.1. Refer to Landscape Architect's tree pit details
 - 6.2. Topsoil in upper horizon (400mm) to be mixed with compost, soil improver as section Q28, incorporating an organic, slow-release fertiliser (OSMOCOTE Exact Standard 12-14 months) in accordance with manufacturer's instructions UNLESS the nursery supplier has recently applied a slow-release fertiliser to the rootball/compost, in which case omit.
 - 6.3. Subsoil to lower horizon without additives.
 - 6.4. Any compost incorporated into the tree pit of a lime-hating plant must have a pH value lower than 6.5.
 - 6.5. Ensure the bottom of the rootball is in full contact with good topsoil, without additional compost.
 - 6.6. Backfill in layers 150mm deep. At each stage the filling should be firmly consolidated to eliminate air pockets under and around the rootball. Final layer of backfilling should not be consolidated. If necessary, thorough watering should be carried out before completion of backfilling; excess water must be left to drain away before filling is completed.

510 Tree pit root barriers

1. Locations: Refer to Landscape Architect's details
2. Manufacturer: Refer to details
 - 2.1. Product reference: Refer to details
3. Thickness: Refer to details
4. Barrier depth: Refer to details
5. Foil liner: Refer to details
6. Top of root barrier in relation to finished topsoil level: Refer to details
7. Installation: With sides vertical. Remove all sharp objects adjacent to barrier.

512 Tree pit irrigation and ventilation accessories

1. Locations: Refer to Landscape Architect's details
2. Manufacturer: Refer to details
 - 2.1. Product reference: Refer to details
3. Type: Refer to details
4. Pipe diameter: Refer to details
5. Ring diameter: Refer to details
6. Inlet: Refer to details
7. Installation
 - 7.1. Pipe: Lay in loop above root ball with slight fall away from inlet pipe. Trim length to ensure a close fit in the tree pit. Connect both ends of pipe securely into plastics tee junction on inlet.
 - 7.2. Top cap of inlet: Protruding slightly above finished surround level.
 - 7.3. Backfill material: Carefully compact in layers.

515 Tree pit drainage

1. Locations: To all tree pits
2. Depth of excavation: Increase from specified size to allow for aggregate layer
3. Aggregate layer: Clean gravel or broken stone, with no fines, graded 40 to 20 mm.
 - 3.1. Depth: Refer to Civil engineer's details
4. Drainage pipes

- 4.1. Type: Refer to details
- 4.2. Diameter: Refer to details
- 4.3. Position: Lay around perimeter of pit within aggregate layer.
- 4.4. Discharge: Refer to details
5. Geotextile filter
 - 5.1. Manufacturer: Refer to details
 - 5.1.1. Product reference: Refer to details
 - 5.2. Position: Lay over aggregate before installing tree or backfill.
6. Completed pits: Test for free drainage before planting.

526 Underground guying for:

1. Description: All trees
2. Manufacturer: Refer to Landscape Architect's details
 - 2.1. Product reference: Refer to details
3. Anchoring system: Refer to details
4. Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

580 Tree pit surfacing – bound aggregate

1. Surfacing material: Refer to Landscape Architect's details
2. Area: Refer to details
3. Collar: Install protective tree collar around base of tree prior to installing surfacing. Allow clearance for tree growth.
4. Collar infill: Refer to details

Woodland/ matrix/ buffer zone planting

617 Removing trees and hedges

1. Identification: Clearly mark trees and hedges to be removed.
2. Work near retained trees: Where canopies overlap, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
3. Arisings: Remove.
4. Tree stumps: Remove mechanically to a minimum depth of 300 mm below ground level

Protecting/ maintaining/ making good defects

710 Maintenance

1. Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
2. Frequency of maintenance visits: In accordance with the agreed maintenance schedule, and as necessary to fulfill the requirements of this specification

720 Failures of planting

1. Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
 - 1.1. Exclusions: Theft or malicious damage after completion.
 - 1.2. Rectification: Replace with equivalent plants/ trees/ shrubs.

2. **Replacements:** To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
3. **Timing of making good:** In accordance with an agreed defects rectification programme

731 Protective fencing

1. **Fencing type:** Cleft chestnut pale fencing; Aproximate spacing of pales 75mm
2. **Manufacturer/product:** Jacksons or equal approved
3. **Standard:** To BS 1722-4, type CW90.
4. **Height:** 900mm.
5. **Location:** To all planting areas at ground level as shown in drawing 0307-SW-00-DR-LA-0500 ; Set within planting beds immediately adjacent to leading edge.
6. **Posts and struts:**
 - 6.1. **Straining posts:** 70m in straight runs and at all ends, corners, changes of direction and acute variations in level.
 - 6.2. **Intermediate posts:** 75mm dia; Every 2.5m.
 - 6.3. **Method of setting:** As per manufacturer's recommendation
7. **Alignment:** Straight lines or smoothly flowing curves.
8. **Fixings:** Tighten all components on erection of fencing.
9. **Erection:** On completion of planting.
10. **Removal:** After planting is well established
11. **Cleaning:** Leave the works in a clean and tidy condition, immediately before handover.

740 Cleanliness

1. **Soil and arisings:** Remove from hard surfaces and grassed areas.
2. **General:** Leave the works in a clean tidy condition at completion and after any maintenance operations.

750 Planting maintenance generally

1. **Weed control:** Maintain weed free area around each tree and shrub.
 - 1.1. **Diameter (minimum):** The larger of 1 m or the surface of original planting pit.
 - 1.2. **Keep planting beds clear of weeds:** By hoeing and maintaining mulch
2. **Planted areas:** Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
3. **Precautions:** Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
4. **Firming up:** Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
5. **Trees:** Spray crown when in leaf during warm weather.
 - 5.1. **Timing:** After dusk.
6. **Tree accessories:** Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
 - 6.1. **Broken or missing items:** Replace.
 - 6.2. **Loose stakes:** Re-firm in the ground or replace as necessary to provide support to the tree.
 - 6.3. **Loose guys:** Re-firm anchor points and adjust as necessary to provide support to the tree.
 - 6.4. **Ties:** Adjust to accommodate growth and prevent constriction or abrasion.
 - 6.5. **Damage to bark:** Cut back neatly with sharp knife. Prevent further damage.
 - 6.6. **Frequency of checks:** Every month

7. **Watering:** As required for healthy establishment, depending on weather conditions. Establishment watering is to continue as necessary throughout the maintenance period and according to seasonal requirements

760 Planting maintenance – pruning

1. **General:** Prune to promote healthy growth and natural shape.
 - 1.1. **Dead, dying, diseased wood and suckers:** Remove.
 - 1.2. **Timing:** As appropriate to the species
 - 1.3. **Trees:** Favour a single central leading shoot.
2. **Arisings:** Remove.

780 Maintenance instructions

1. **General:** Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide a schedule of any ongoing maintenance problems experienced during the rectification period.

790 Final mulching

1. **Timing:** At end of the maintenance period.
2. **Watering:** Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
3. **Planting beds:** Remulch.
4. **Depth (minimum):** 50 mm
5. **Trees:** Remulch.
6. **Depth (minimum):** 75 mm

Ω End of Section

Q35 Landscape maintenance

Clauses

2 To be read with preliminaries/ general conditions.

899 Hard landscape areas

1. Hard landscape:: For all hard landscape, refer to information by others.

Generally

105 Maintenance objectives

1. Location: All soft landscape areas
 - 1.1. Duration: 1 year following practical completion, forming the maintenance period. On-going maintenance supplied thereafter
2. Aims: Ensure successful establishment of planting
3. Restrictions: As described in the landscape maintenance plans and O+M manual
4. Results: Successful establishment of planting

110 Notice

1. Give notice before
 - 1.1. Application of herbicide.
 - 1.2. Application of fertilizer.
 - 1.3. Watering.
 - 1.4. Each site maintenance visit.
2. Period of notice: 7 days

111 Climatic conditions

1. Carry out the work during appropriate seasons and while soil and weather conditions are suitable for the relevant operations.

112 Machines and tools

1. Use only machinery and tools suitable for the site conditions and the work to be carried out. Use hand tools around trees, plants and in confined spaces where it is impractical to use machinery.

130 Reinstatement

1. Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: Reinstatement to original condition.

145 Control of invasive animal species

1. Specialist firms: Submit proposals
2. Species: Brown rat, others TBC
3. Location: Whole site
4. Method: Submit proposals, to be agreed by Contract Administrator

155A Watering

1. Supply: Obtain approval before using any supply other than non-potable mains water

2. **Quantity:** Wet full depth of topsoil
3. **Application:** Do not damage or loosen plants. Use a fine rose or low pressure hose to avoid damaging or loosening plants.
4. **Compacted soil:** Loosen or scoop out, to direct water to rootzone.
5. **Frequency:** As necessary for the continued thriving of all planting.

158 Watering points

1. Ensure that the positions of all watering points on site are known. Provide materials to ensure the proper watering of all contract areas from any or all of these points.

160 Water restrictions

1. **General:** If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

170 Disposal of arisings

1. **General:** Unless specified otherwise, dispose of arisings as follows:
 - 1.1. **Biodegradable arisings:** Remove to recycling facility
 - 1.2. **Grass cuttings:** Remove to recycling facility
 - 1.3. **Tree roots and stumps:** Remove from site
 - 1.4. **Shrub and tree prunings:** Remove to recycling facility
 - 1.5. **Litter and nonbiodegradable arisings:** Remove from site

180 Chipping or shredding

1. **General:** Not permitted on site.

181 Mechanical equipment

1. **General:** Minimize.
2. **Prohibited equipment:** Client to verify; to be approved by Contract Administrator
3. **Timing:** Client to verify; to be approved by Contract Administrator

190 Litter

1. **Extraneous rubbish not arising from the contract work:** Collect and remove from site.

195 Protection of existing grass

1. **General:** Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

197 Cleanliness

1. **Soil and arisings:** Remove from hard surfaces.
2. **General:** Leave the works in a clean, tidy condition at completion and after any maintenance operations.

198 Chemicals generally

1. Use only where specified and approved, and then only products on the current list of the Agricultural Chemicals Approval Scheme.
2. Observe all precautions recommended by the manufacturer and remove containers from site immediately after they have been emptied or are no longer required.

Grassed areas - Not Used

Flower beds/ seasonal beddings

461 Beds of perennials or perennials and annuals

1. Plant supports: Stake and tie plants using Not required.
 - 1.1. Remove any canes or supports from plants when planting out.
2. Gaps in planting: Refill by replanting.
3. Watering
 - 3.1. New plants: Before and after planting out.
 - 3.2. Ongoing: As necessary for the continued thriving of all planting.
4. Operations at end of growing season
 - 4.1. Trim: Older flowering stems of herbaceous perennials.
 - 4.2. Strim in late winter, before new growth appears.
 - 4.3. Remove: Litter, debris and arisings.
 - 4.4. Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
 - 4.5. Top dress: Apply mulch as Q28/355.

Shrubs/trees/hedges

500 Establishment of new planting

1. Duration: 1 year, or until planting is well established
2. Weed control
 - 2.1. Method: Keep planting beds clear of weeds by hoeing and screefing and maintaining mulch thickness.
 - 2.2. Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
3. Soil condition: Keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
4. Watering: as required to ensure successful establishment and growth

503 Establishment of new planting - fertilizer

1. Time of year: March or April, depending on weather conditions.
2. Type: Organic, slow-release
3. Spreading: Spread evenly. Carefully lift and replace any mulch materials.
 - 3.1. Application rate: As manufacturer's recommendations

520 Refirming of trees and shrubs

1. Timing: After strong winds, frost heave and other disturbances.
2. Refirming: Tread around the base until firmly bedded.
3. Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

537 Nesting wild birds

1. Survey: Before starting hedge or tree work during the period of February to August (inclusive), carry out a survey by a qualified ecologist and submit report
2. Accidental disturbance: Report immediately.

540 Pruning generally

1. **Pruning:** In accordance with good horticultural and arboricultural practice.
 - 1.1. **Removing branches:** Do not damage or tear the stem or bark.
 - 1.2. **Wounds:** Keep as small as possible and cut cleanly back to sound wood.
 - 1.3. **Cutting:** Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
 - 1.4. **Larger branches:** Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
2. **Appearance:** Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
3. **Tools:** Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
4. **Disease or infection:** Give notice if detected.
5. **Growth retardants, fungicide or pruning sealant:** Do not use unless instructed.

545 Pruning of excessive overhang

1. **Timing:** Annually
2. **Operations:** Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
3. **Special requirements:** None

550 Pruning of excessive height

1. **Timing:** Annually
2. **Operations:** Remove excessive height As instructed.

555 Pruning trees and shrubs

1. **Standard:** To BS 7370-4.
2. **Special requirements:** Growth retardants not permitted

570 Formative pruning of young trees

1. **Standard:** Type and timing of pruning operations to suit the plant species.
2. **Time of year:** Do not prune during the late winter/ early spring sap flow period.
3. **Young trees up to 4 m high**
 - 3.1. **Crown prune** by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
 - 3.2. **Remove duplicated branches** and potentially weak or tight forks. In each case cut back to live wood.
4. **Whips or feathered trees:** Do not prune.
5. **Operatives:** Approved specialist contractor and Member of the Arboricultural Association

575 Pruning ornamental shrubs

1. **General:** Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
2. **Suckers:** Remove by cutting back level with the source stem or root.

580 Pruning flowering species of shrubs and roses

1. **Time of year**

- 1.1. Winter flowering shrubs: Spring.
- 1.2. Shrubs flowering between March and July: Immediately after the flowering period.
- 1.3. Shrubs flowering between July and October: Back to old wood in winter.
- 1.4. Rose bushes: Early spring to encourage basal growths and a balanced, compact habit.

590A Pruning particular species

1. Shrubs and low-growing trees on terrace
2. Species to be pruned to separate specific instructions:
 - 2.1. *Arbutus unedo*: Maintain at max. 2.5m height, with a good overall shape and form.
 - 2.2. *Salix babylonica* 'Tortuosa': Maintain at max. 2m height, with a good overall shape and form.

590B Pruning particular species

1. Low, trampable mix on terrace
2. Species to be pruned to separate specific instructions:
 - 2.1. *Carex flacca*, *Sesleria autumnalis*: Annual cut (trim) once a year in Autumn.
 - 2.2. Ensure good ground coverage of plants throughout the year, with replanting as necessary to maintain a full, even cover.

620 Removal of dead plant material

1. Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.

625 Climbing plants

1. Pruning: Remove excess growth, to ensure that signs, light fittings, doors and windows are kept clear at all times.
2. Insecure growth: Attach to supporting wires or structures using horticultural string.
3. Supporting structures: Check and repair as necessary.

630 Dead and diseased plants

1. Removal: As soon as possible
2. Replacement: In the next suitable planting season

635 Reinstatement of shrub/ Herbaceous areas

1. Dead and damaged plants: Remove.
2. Mulch/ matting materials
 - 2.1. Carefully move to one side and dig over the soil, leaving it fit for replanting.
3. Do not disturb roots of adjacent plants.
4. Replacement plants
 - 4.1. Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - 4.2. Additional requirements: None
5. Dressing: Slow release fertilizer:
 - 5.1. Type: Organic
 - 5.2. Application rate: As manufacturer's recommendations

645 Weed control generally

1. Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high

2. Adjacent plants, trees and grass: Do not damage.

650 Hand weeding

1. General: Remove weeds entirely, including roots.
2. Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
3. Completion: Rake area to a neat, clean condition.
4. Mulch: Reinstate to original depth.

657 Herbicide to kill regrowth

1. Type: Suitable foliar acting herbicide to kill regrowth.
2. Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

665 Weed control with winter herbicide

1. Type: Suitable residual soil acting herbicide.
2. Time of year: Unless otherwise agreed, complete before end of March.
3. Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

670 Weed control with summer herbicide

1. Type: Suitable foliar acting herbicide.
2. Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

680 Soil aeration

1. Compacted soil surfaces
 - 1.1. Prick up: To aerate the soil of root areas and break surface crust.
 - 1.2. Size of lumps: Reduce to crumb and level off.
 - 1.3. Damage: Do not damage plants and their roots.

685 Soil level adjustment

1. Level of soil/mulch at edges of beds: Reduce to 50 mm below adjacent grass or hard surface.
 - 1.1. Arisings (if any): Spread evenly over the bed.

690 Maintenance of loose mulch

1. Thickness (minimum): 50 mm
 - 1.1. Top up: Annually, in December or January
2. Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
3. Weeding: Remove weeds growing on or in mulch by hand weeding.

695 Fertilizing established trees and shrubs

1. Time of year: During February or March
2. Type of fertilizer: Organic, slow release
3. Application: Spread evenly.
 - 3.1. Rate: As manufacturer's recommendations

700 Snow removal from shrubs/ Trees

1. Standard: To BS 7370-4.
2. Plants subject to snow removal: All evergreens

3. **Timing:** Within 24 hours of snowfall

705 Winter leaf removal

1. **Operations:** Take down temporary leaf fences. Collect accumulations of drifted leaves from the vicinity and from planting beds.
2. **Arisings:** Remove to recycling facility

Tree work

810 Tree work generally

1. **Identification:** Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
2. **Protection:** Avoid damage to neighbouring trees, plants and property
3. **Standards:** To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
4. **Removing branches:** Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
5. **Appearance:** Leave trees with a well balanced natural appearance.
6. **Chain saw work:** Operatives must hold a Certificate of Competence.
7. **Tree work:** To be carried out by an approved member of the Arboricultural Association.

815 Additional work

1. **Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention:** Give notice if detected.

820 Prevention of wound bleeding

1. **Standard:** To BS 3998.

825 Prevention of disease transmission

1. **Standard:** To BS 3998.

830 Cleaning out and deadwooding

1. **Remove**
 - 1.1. Dead, dying, or diseased wood, broken branches and stubs.
 - 1.2. Fungal growths and fruiting bodies.
 - 1.3. Rubbish, windblown or accumulated in branch forks.
 - 1.4. Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
 - 1.5. Other unwanted objects, e.g. tree houses, swings.
 - 1.6. Climbing plants seek approval if removal is required.

835 Cutting and pruning generally

1. **Tools:** Appropriate, well maintained and sharp.
2. **Final pruning cuts**
 - 2.1. **Chainsaws:** Do not use on branches of less than 50 mm diameter.
 - 2.2. **Hand saws:** Form a smooth cut surface.
 - 2.3. **Anvil type secateurs:** Do not use.
3. **Removing branches:** Do not damage or tear the stem.

4. **Wounds:** Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
5. **Cutting:** Cut at a fork or at the main stem to avoid stumps wherever possible.
6. **Large branches:** Remove only with prior approval
 - 6.1. Remove in small sections and lower to ground with ropes and slings.
7. **Dead branches and stubs:** When removing, do not cut into live wood.
8. **Unsafe branches:** Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
9. **Disease or fungus:** Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 Crown reduction/ Shaping

1. **General:** Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.
2. **Operations:** To be agreed with council Tree Officer and approved by the Contract Administrator

845 Crown lifting

1. **Clearances:** Remove branch systems to give clearance.
 - 1.1. Height: min. 2m above footpaths
2. **Removing branches:** Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps.

850 Crown thinning

1. **Removing branches:** Remove inward growing, crossing, rubbing, dead and damaged branches.
2. **Thinning:** Selectively remove secondary and small live branch growth evenly throughout the crown.
 - 2.1. Quantity: To be agreed with council Tree Officer and approved by the Contract Administrator
3. **Cutting:** Make no cuts of more than 50 mm diameter, TBC.
 - 3.1. Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.
4. **Appearance:** Leave a uniform and well balanced structure of branches and foliage.

855 Cutting tree roots

1. **Excavating:** Use hand tools only.
2. **Protected area:** Do not cut roots within an area which is the larger of:
 - 2.1. The branch spread of the tree.
 - 2.2. An area with a radius of half the tree's height, measured from the trunk.
3. **Outside protected area:** Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
4. **Cutting**
 - 4.1. Cutting: Make clean smooth cuts with a hand saw.
 - 4.2. Wounds: Minimize. Avoid ragged edges.
 - 4.3. Finishing: Pare cut surfaces smooth with a sharp knife.
5. **Backfilling**
 - 5.1. Protection: Cover cut roots with clean sharp sand.
 - 5.2. Material: Backfill with original topsoil.

860 Removing trees, shrubs and hedges

1. **Standards:** To BS 3998 and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
2. **Existing services:** Check for below and above ground services. Give notice if they may be affected.
3. **Shrubs and smaller trees:** Cut down and grub up roots.
4. **Tree stumps**
 - 4.1. **Treatment:** Remove mechanically to a minimum depth of 300 mm below ground level
 - 4.2. **Removal by winching:** Give notice. Do not use other trees as supports or anchors.
5. **Protection:** Avoid damage to neighbouring trees, plants and property
6. **Work near retained trees:** Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
7. **Filling holes**
 - 7.1. **Material:** Use as-dug material and/ or imported soil as required.
 - 7.2. **Finishing:** Consolidate and grade to marry in with surrounding ground level.

865 Bark damage

1. **Wounds**
 - 1.1. Do not attempt to stop sap bleeding.
 - 1.2. **Bark:** Remove ragged edges using a sharp knife.
 - 1.3. **Wood:** Remove splintered wood from deep wounds.
 - 1.4. **Size:** Keep wounds as small as possible.
2. **Liquid or flux oozing from apparently healthy bark:** Give notice.

870 Cavities in trees

1. **Investigation:** Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.
2. **Water filled cavities:** Do not drain.
3. **Sound wood inside cavities:** Do not remove.
4. **Cavity openings:** Do not cover

Water areas - Not Used

Hard landscape areas/fencing - Not Used

Refer to landscape architects information for all hard landscape maintenance

900 Snow clearance

1. **Clearance:** Refer to Landscape Architects information
2. **Deicing:** Refer to LA info
 - 2.1. **Material:** Do not contaminate trees and planting areas with salts
 - 2.2. **Timing:** refer to LA info
 - 2.3. **Application rate:** Spread evenly at a rate of: refer to LA info

Ω End of Section



Specification created using NBS Chorus

