
Creative collaboration
Andrew Grant
Grant Associates
6th September 2016
The Arboricultural Association's
50th National Amenity Conference
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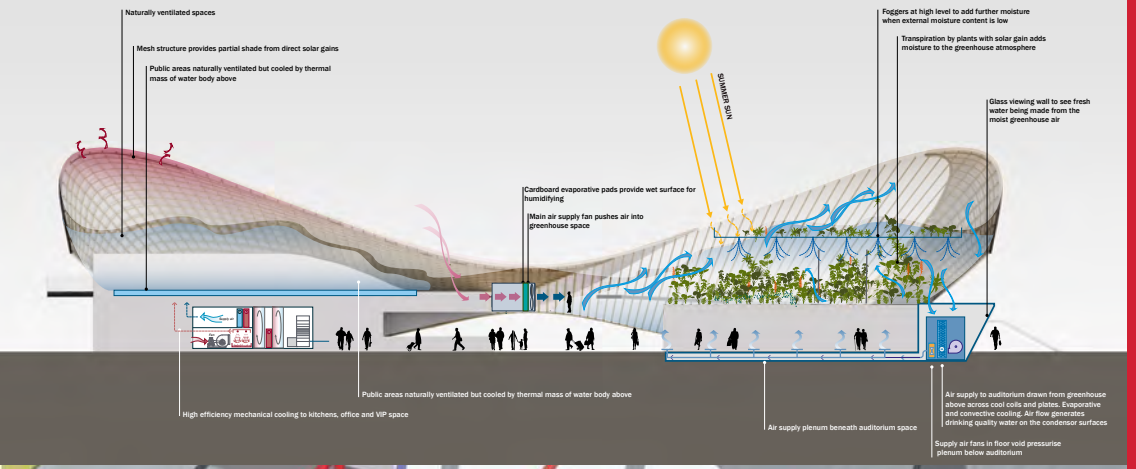

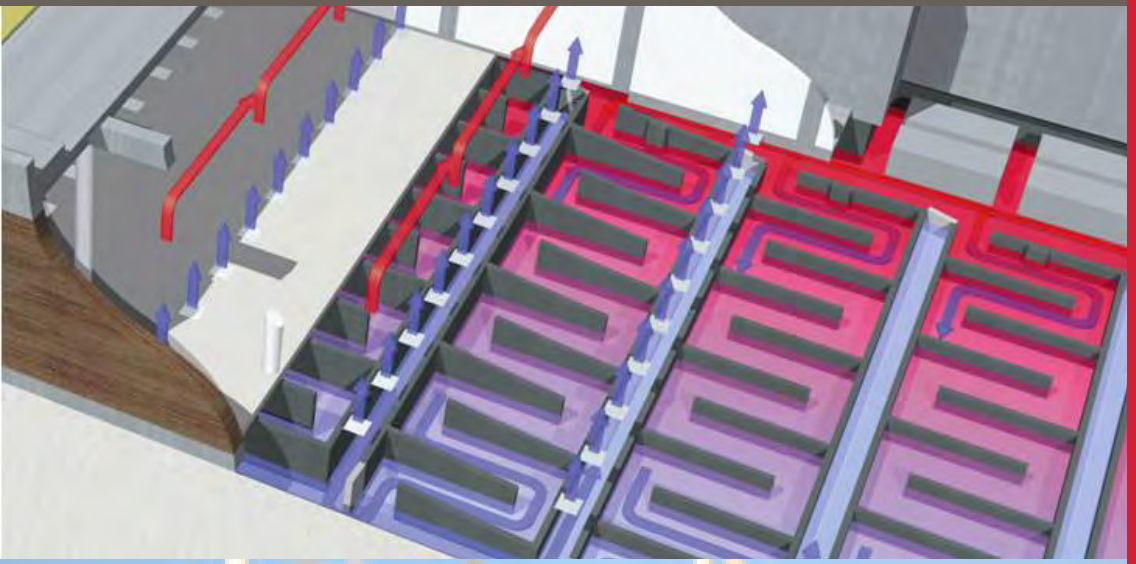

Mechanics : Life

?

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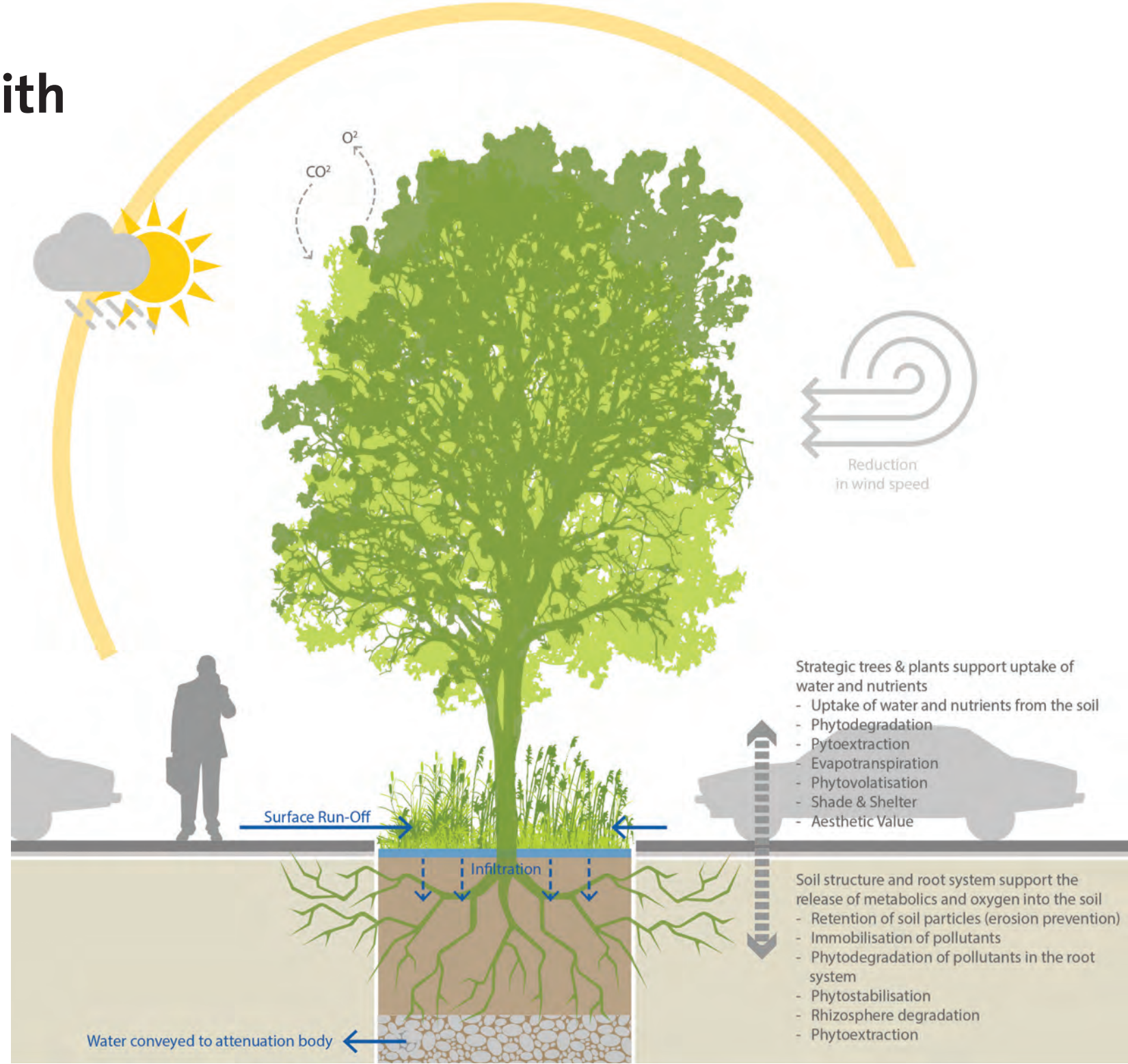
Bioretention with tree planting



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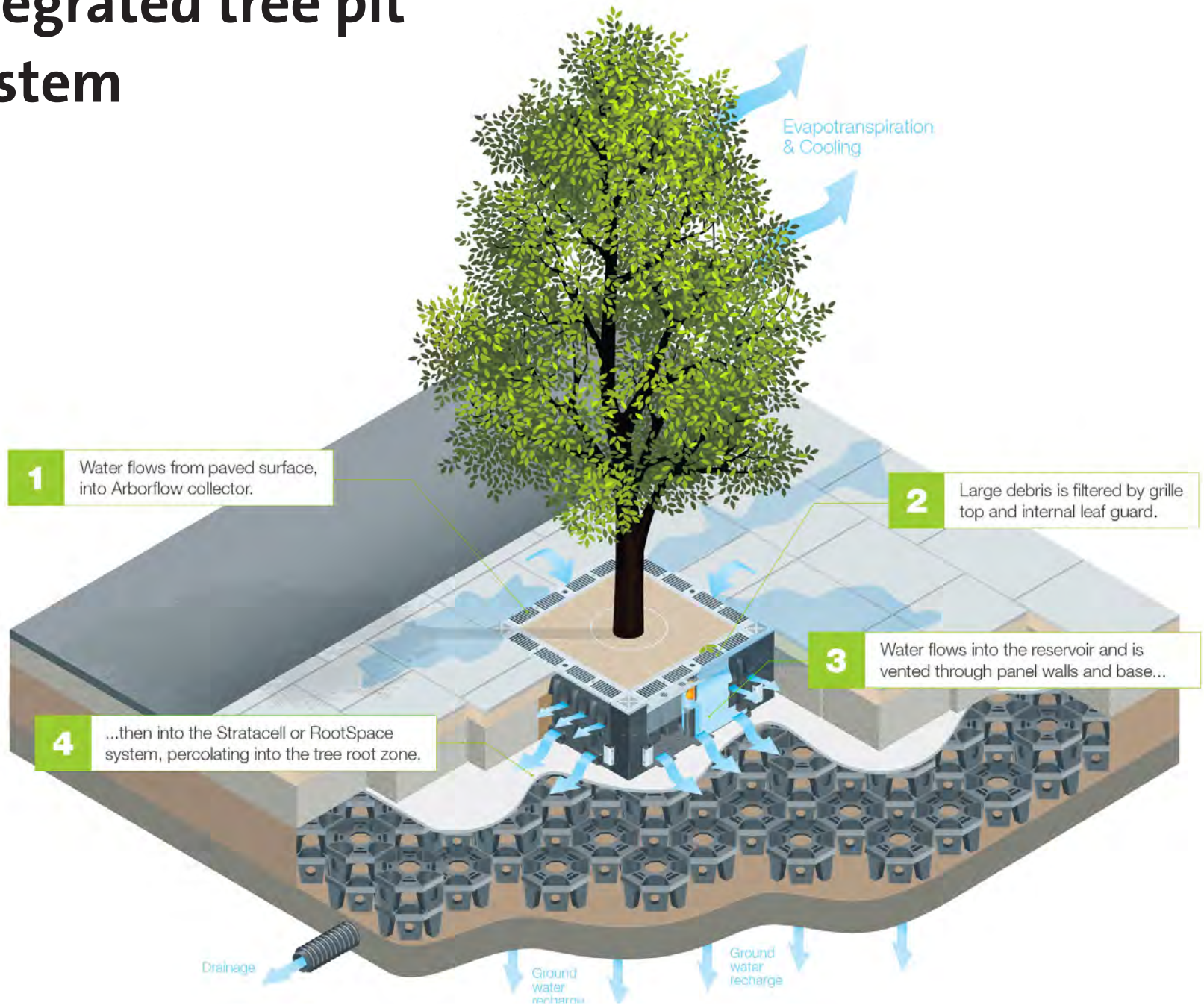
Arboflow integrated tree pit and SuDS System



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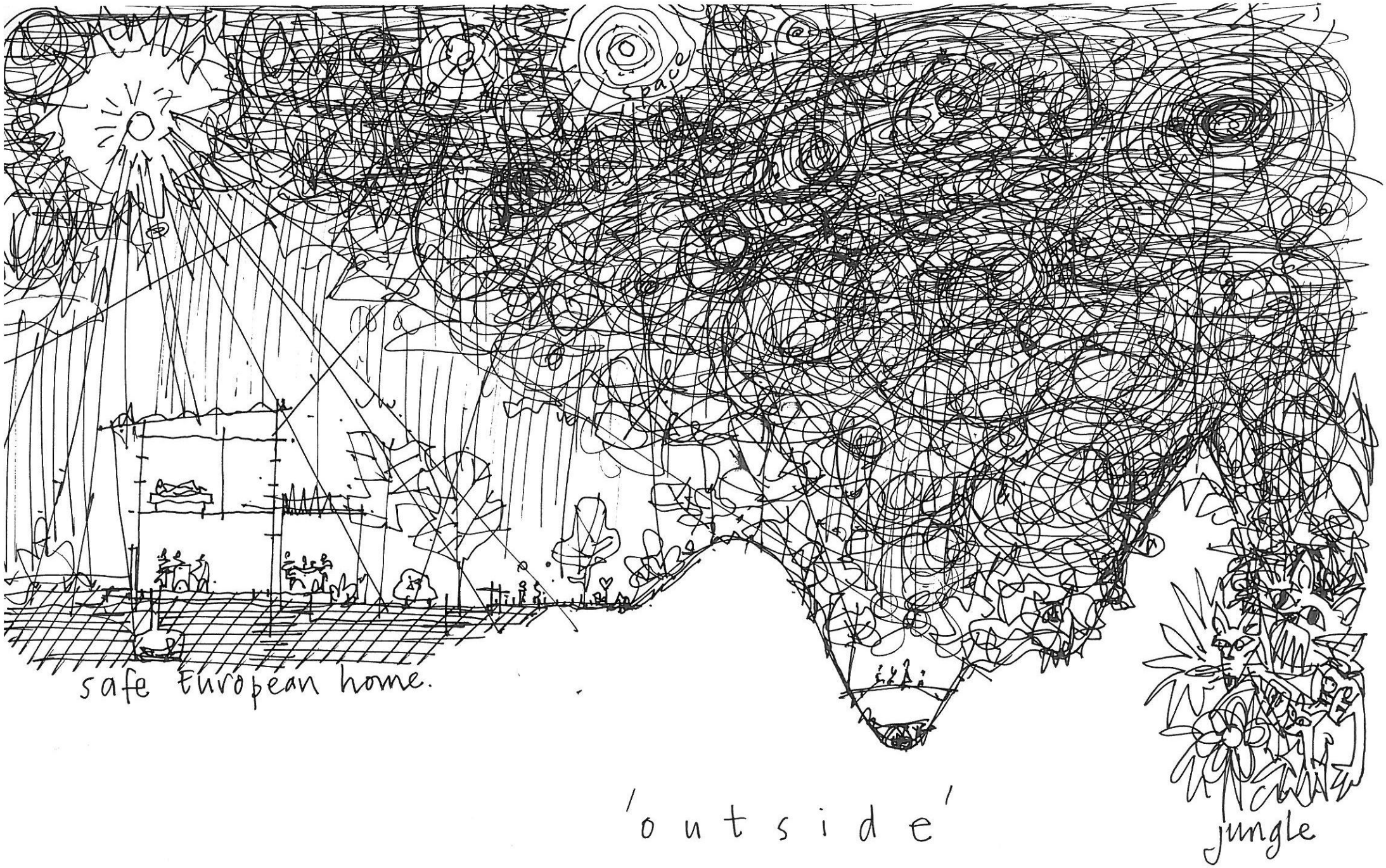
...imagine England without
...OAK TREES

“Imagination

is more important than knowledge.”

Albert Einstein



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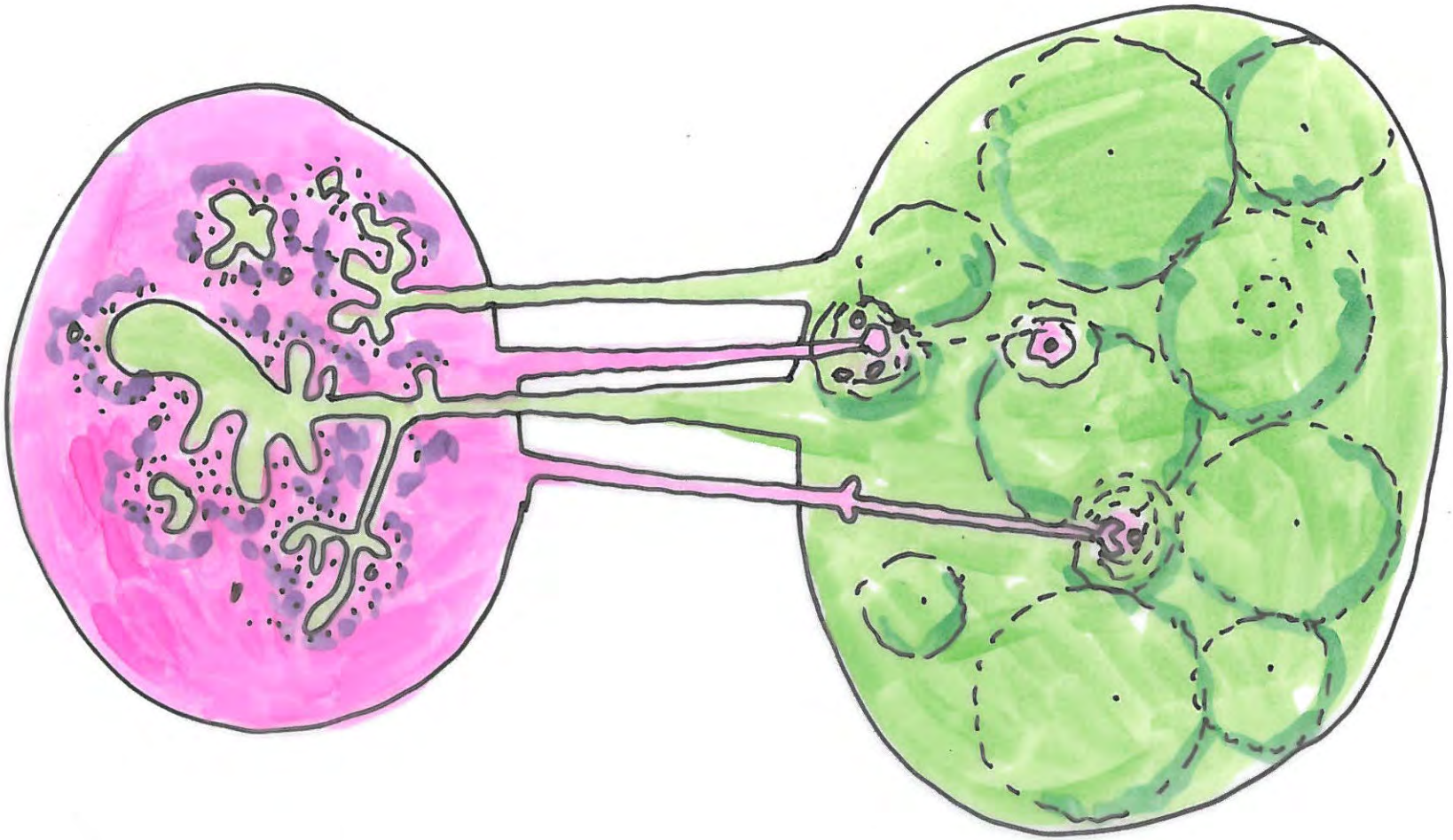
CITY
WILD LAND


Cities : Wildspace

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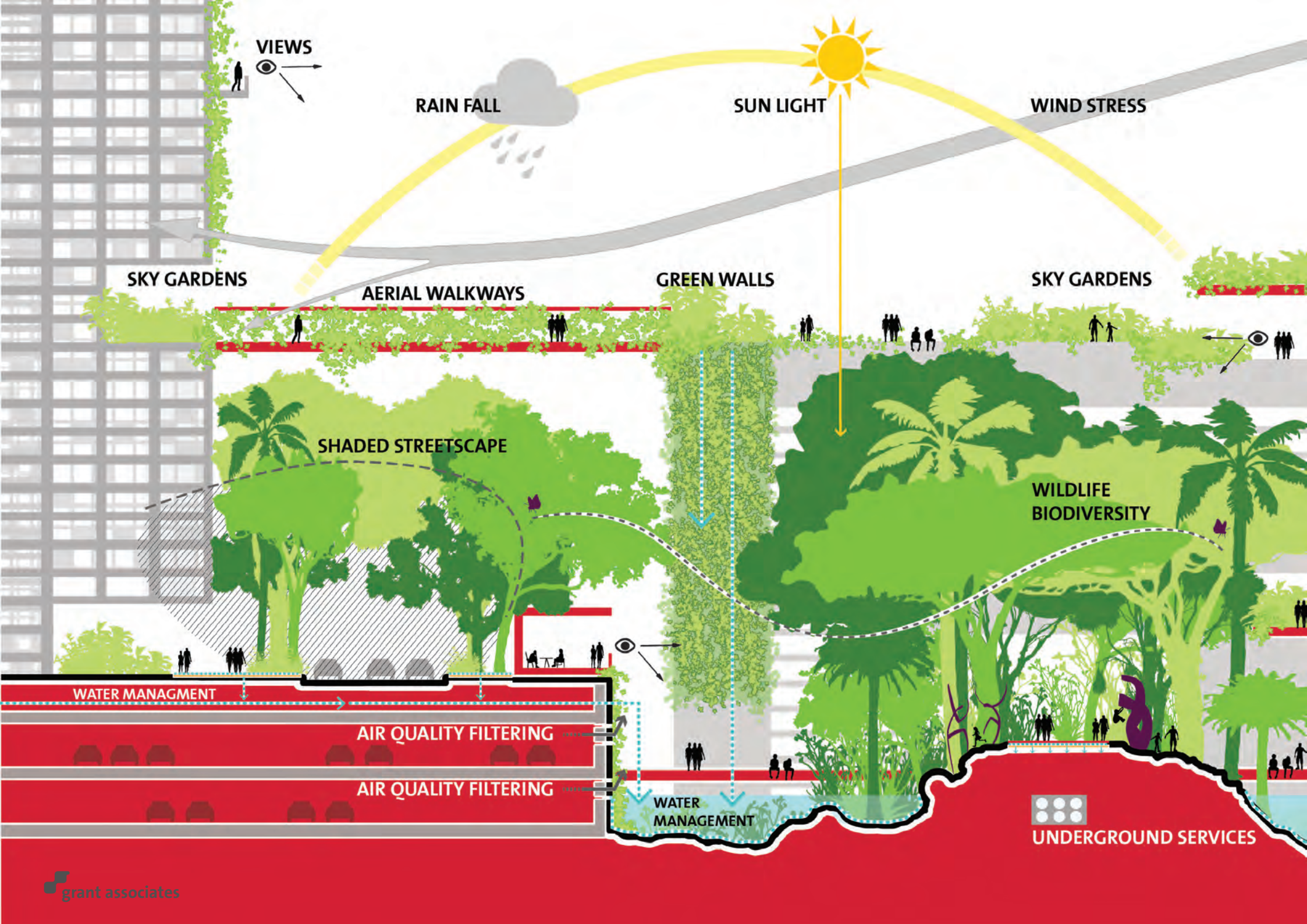
VIEWS
RAIN FALL
SUN LIGHT
WIND STRESS
SKY GARDENS
AERIAL WALKWAYS
GREEN WALLS
SKY GARDENS
SHADED STREETSCAPE
WILDLIFE
BIODIVERSITY
WATER MANAGMENT
AIR QUALITY FILTERING
AIR QUALITY FILTERING
WATER
MANAGEMENT
UNDERGROUND SERVICES
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Big Trees & lots of them

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How many trees do we need to maintain a sustainable environment?

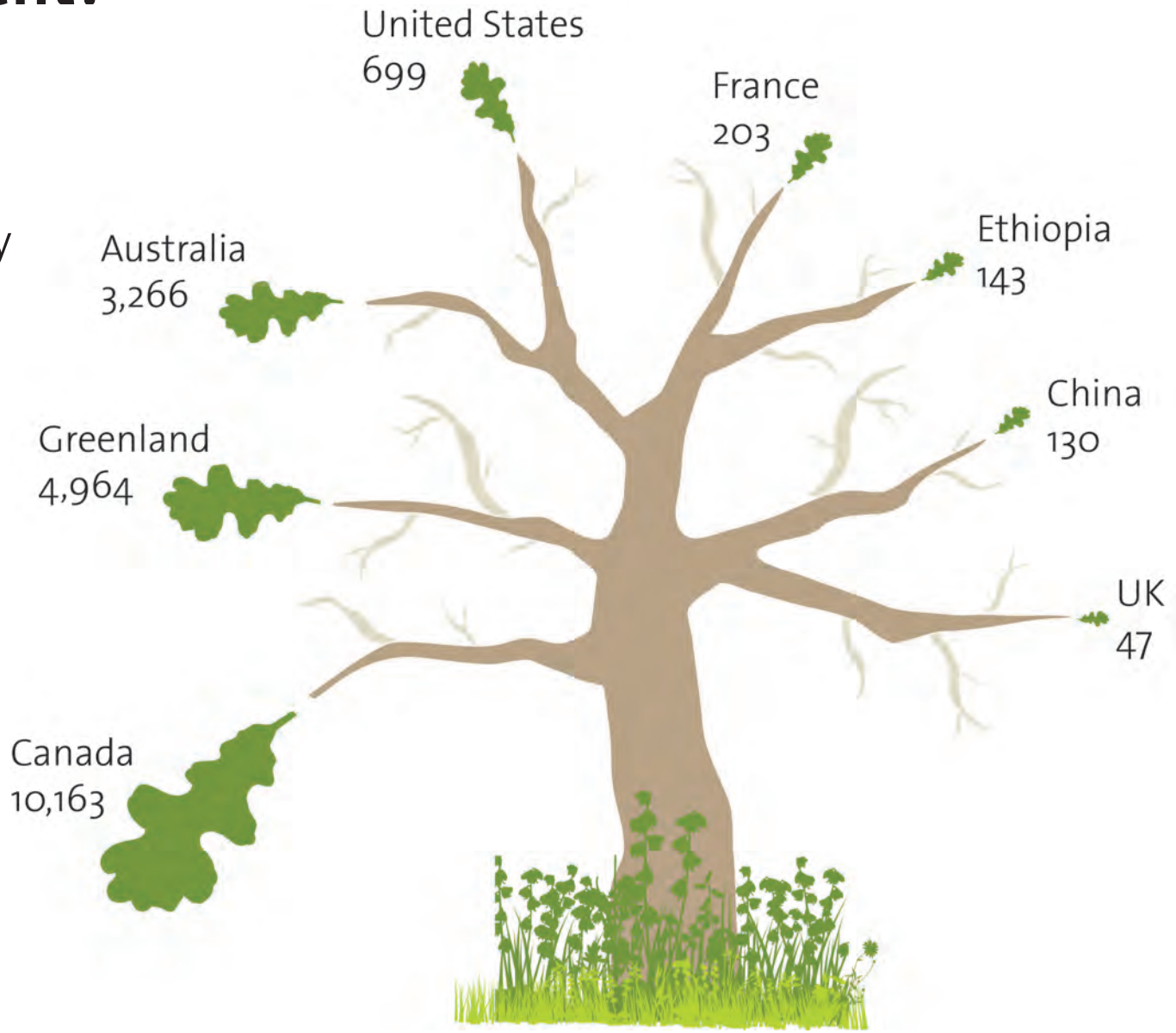
Global context

- 3 trillion trees in the world today
- 400 trees per person average
- 15 billion trees lost each year
- 5 billion trees planted each year

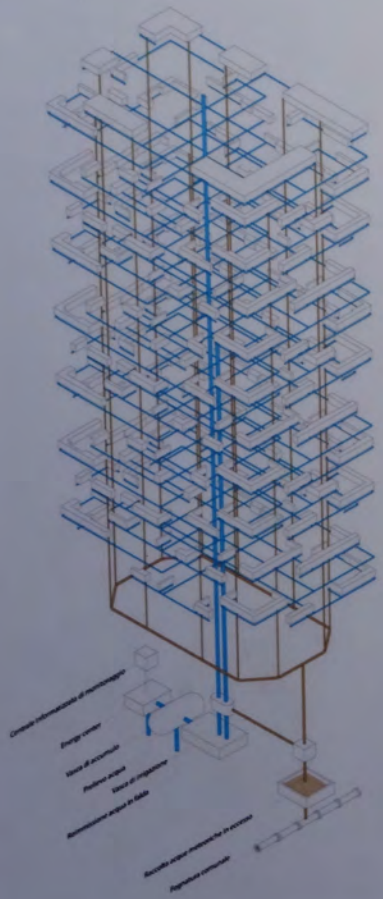
UK context

- 3 billion trees in the UK
- 47 trees per person average

[Figures from Nature - September 2015, Volume 525, Issue 7568]



[trees per person]



SISTEMA IDRICO

WATER SYSTEM

VEGETAZIONE

VEGETATION

BOSCO VERTICALE

BIODIVERSITA' | BIODIVERSITY

SPECIE DI ALBERI
TREE SPECIES

SPECIE DI PIANTE
PLANT SPECIES

SPECIE DI SEMPREVERDI
EVERGREEN SPECIES

RAMPICANTI E PIANTE PERENNI
VINES AND PERENNIAL PLANTS

RATIO PER ABITANTE I RATIO PER RESIDENT

2
ALBERI
TREES

8
ARBUSTI
SHRUBS

40
PIANTE
PLANTS

Progetto architettonico I Architectural project:
Boeri Studio (Stefano Boeri, Gianandrea Barreca, Giovanni La Varra)

Landscape design:
Emanuela Borio, Laura Gatti

Progetto degli interni I Interior planning:
COIMA Image con I with Dolce Vita Homes

Developer: Hines Italia SGR e COIMA

Investitore I Investor: Quatar Investment Authority

PORTA NUOVA SMART COMMUNITY IS ON FACEBOOK & INSTAGRAM!

www.pnsc.it **#pnsc #boscoverticale**

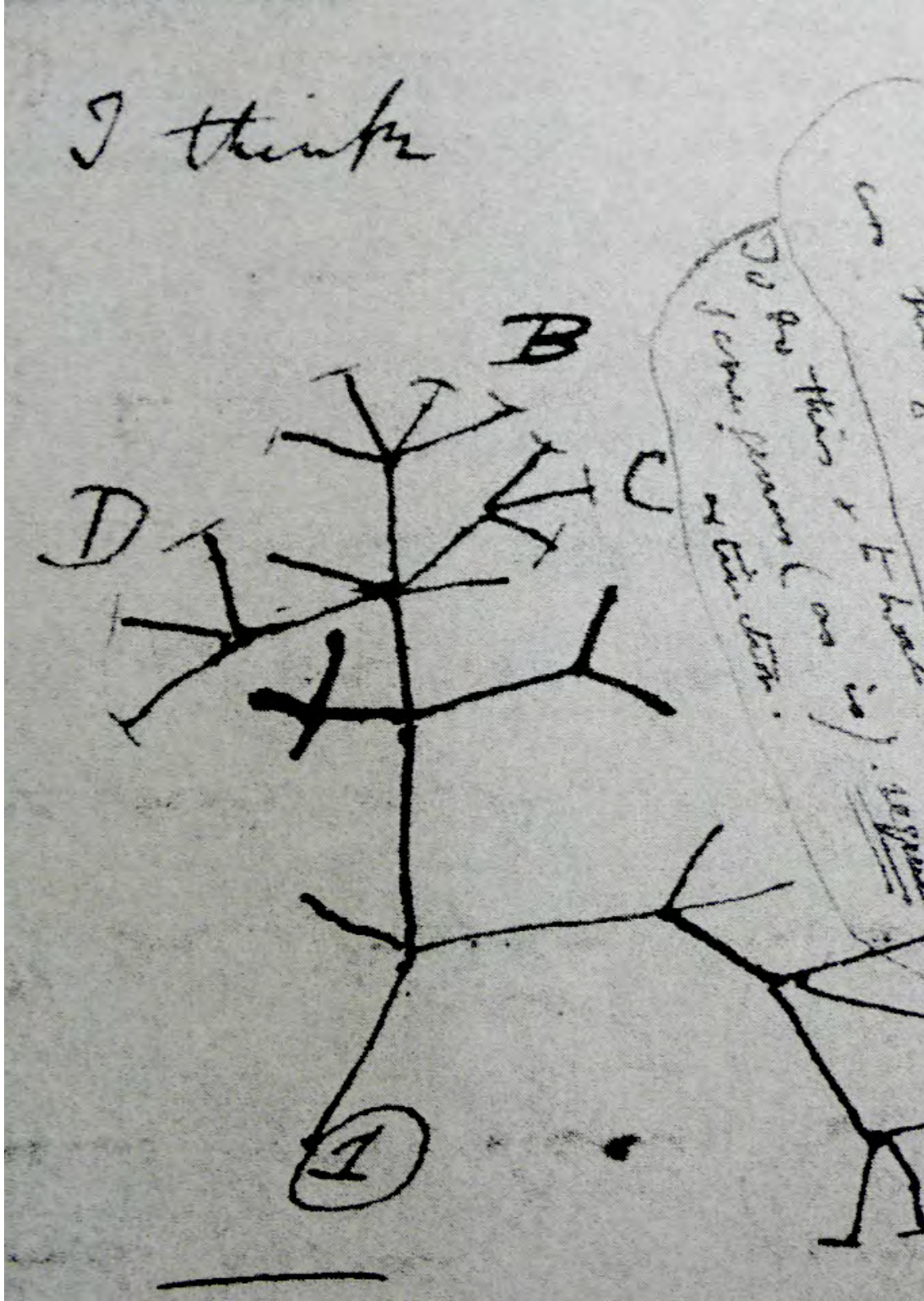
'...in the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed'

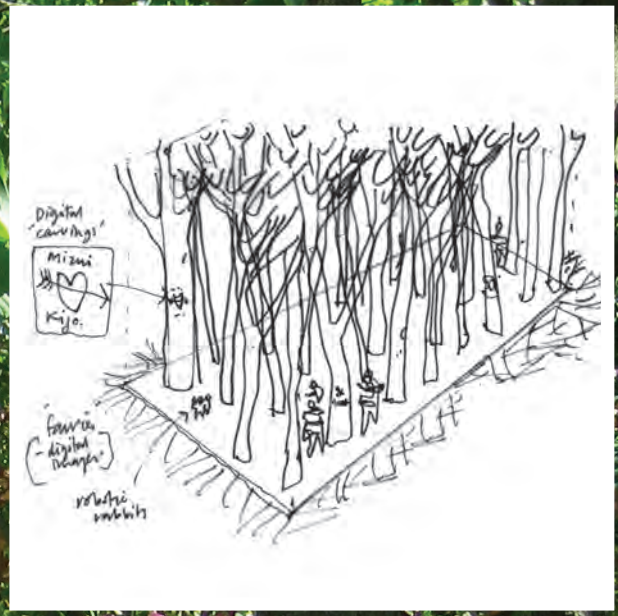
Charles Darwin

Creative collaborators

- client
- landscape architect
- arboricultural consultant
- planning/tree officer
- soil scientist
- civil engineer
- product manufacturer
- tree nursery
- planting contractor
- maintenance contractor
- architect
- artist
- lighting designer

[Darwin's branch sketch from the 'Origins of Species']





Japan Expo Garden

Inspired by the wild British woodland

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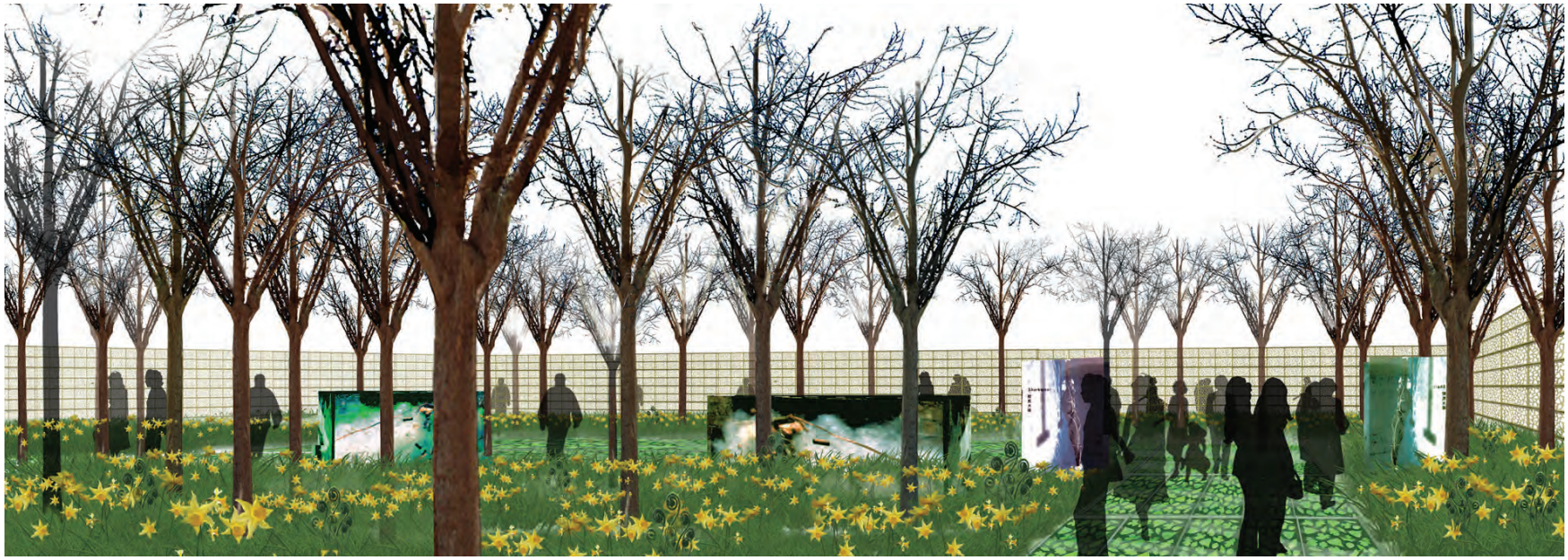
Japan Expo 2005

A Wild British Woodland



... seasonal change

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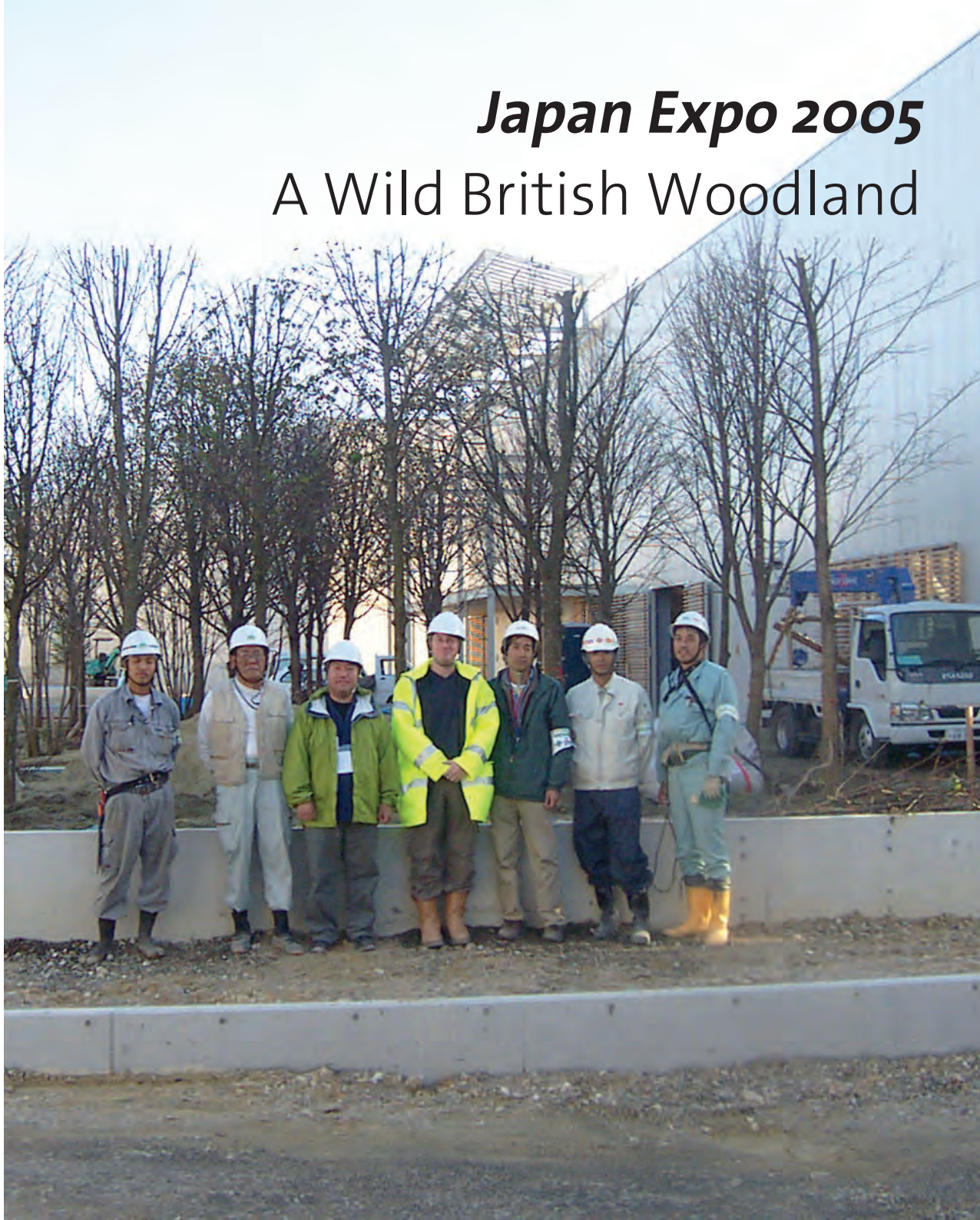
Japan Expo 2005

A Wild British Woodland

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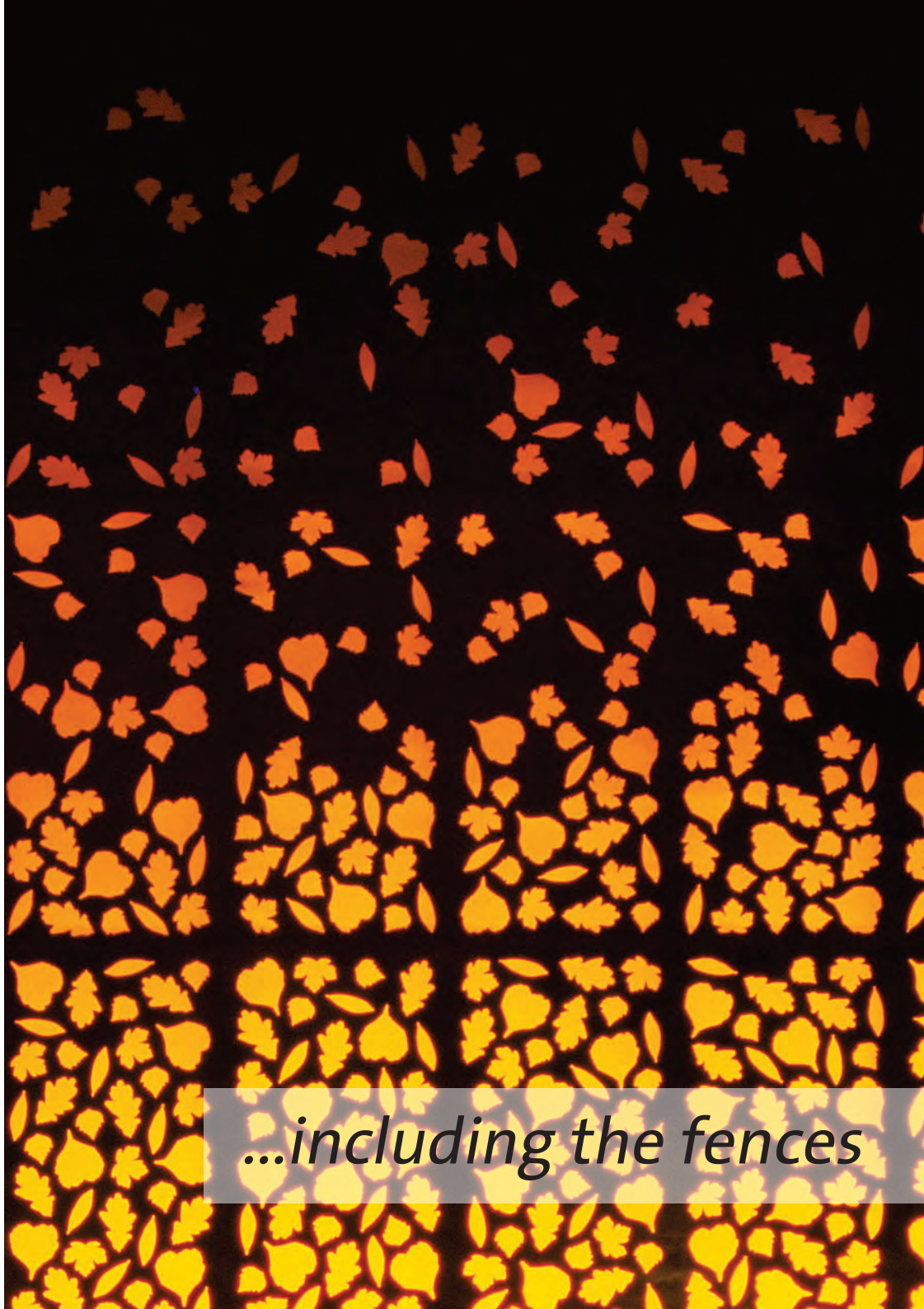
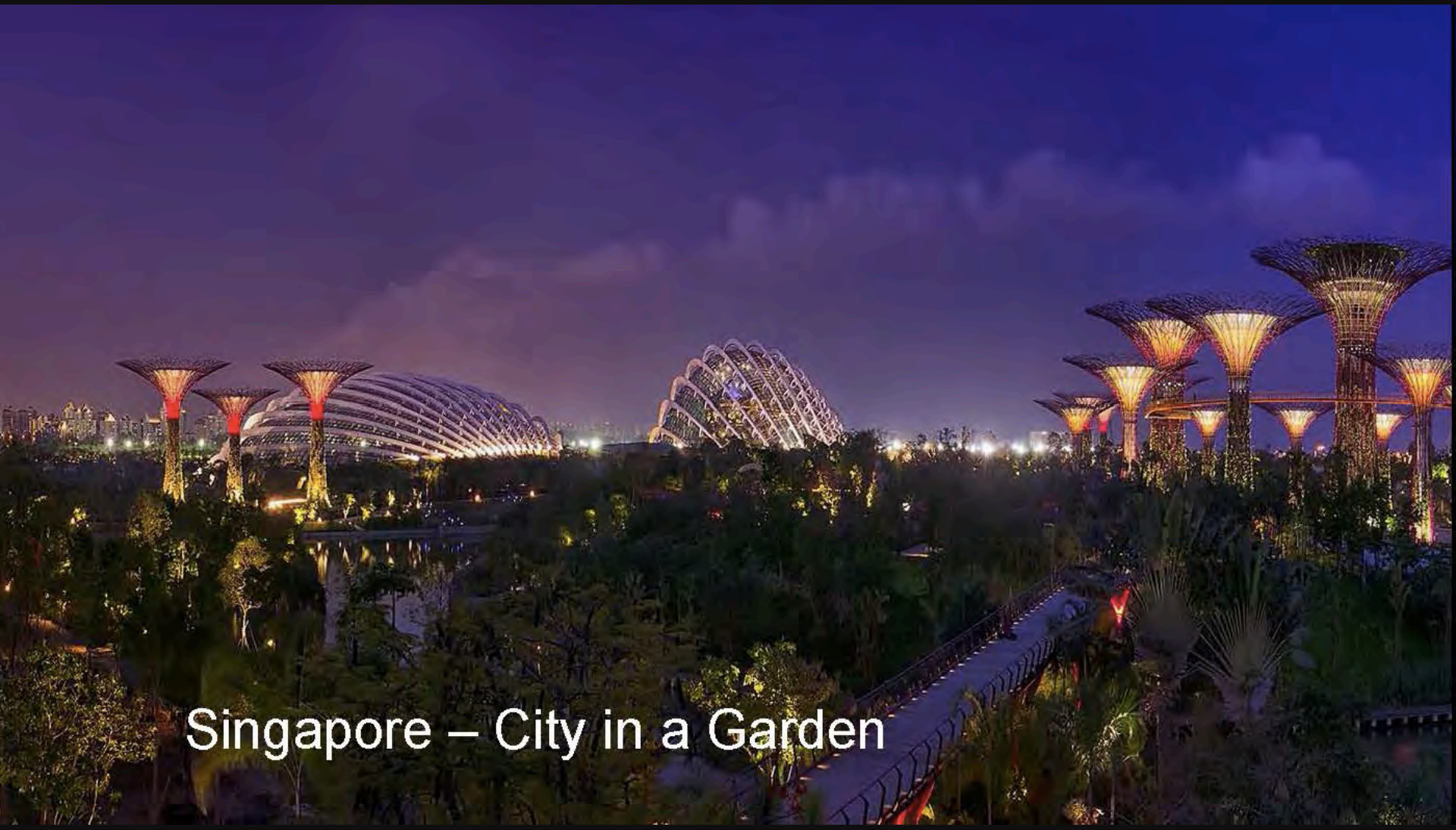
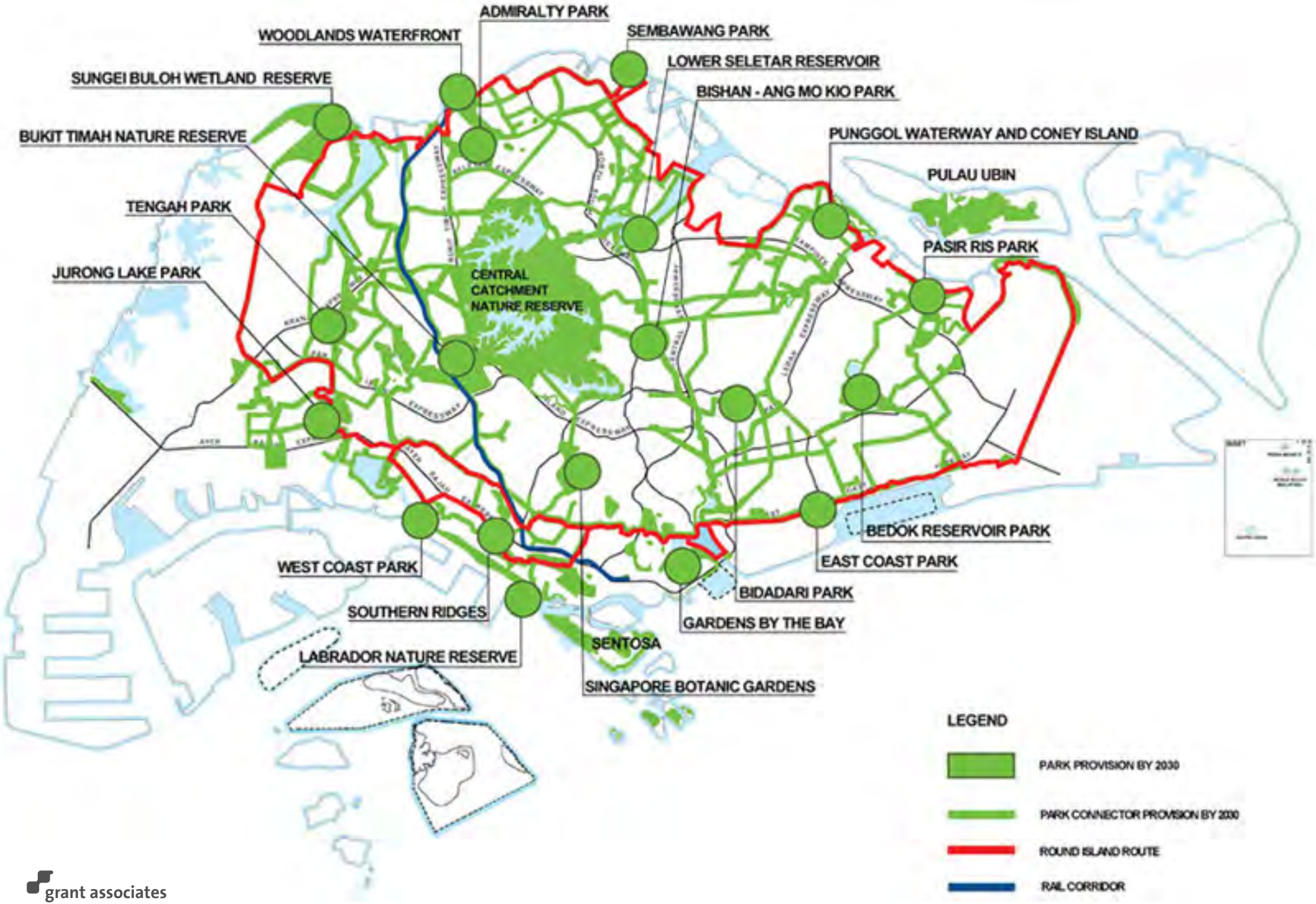

...including the fences


Singapore – City in a Garden



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Thrust 5 Enhance competencies of our landscape and horticultural industry

CUGE®

Centre for Urban Greenery and Ecology

EXISTING LITERATURE

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Targets for 2030

	Indicator	2013 Levels	Targets for 2030
	Green and Blue Spaces		
1	Amount of skyrise greenery	61 ha	200 ha
2	Amount of park space and waterbodies open to recreational activity		
	a) Parks	4,040 ha	Park Provision Ratio of 0.8 ha / 1,000 population
	b) Waterbodies	959 ha	1,039 ha
3	Length of park connectors and waterways open to recreational activity		
	a) Park connectors[1]	216 km	400 km
	b) Waterways	93 km	100 km
4	Length of Nature Ways	21 km	180 km
5	Proportion of households within 10-min walk of a park	80%	90%
	Mobility		
6	Length of cycling paths	230 km	700 km
7	Modal share of journeys during peak hours made via public transport	64%	75%
8	Length of rail network	180 km	360 km
9	Proportion of households within 10-min walk of a train station	58.5%	80%
	Resource Sustainability		
10	Proportion of buildings to achieve BCA Green Mark Certified rating	21.9%	80%
11	Energy intensity improvement (from 2005 levels)	22% (in 2012)[2]	35%
12	Domestic water consumption per capita per day	151 L	140 L
13	National recycling rate	61%	70%
	a) Domestic recycling rate	20%	30%
	b) Non-domestic recycling rate	77%	81%
	Air Quality		
14	Air Quality		(Targets for 2020)
	a) PM2.5		
	Annual mean	20 $\mu g/m^3$	12 $\mu g/m^3$ (Long term: 10 $\mu g/m^3$)
	24-hour mean (99th percentile)	176 $\mu g/m^3$	37.5 $\mu g/m^3$ (Long term: 25 $\mu g/m^3$)
	b) PM10		
	Annual mean	31 $\mu g/m^3$	20 $\mu g/m^3$
	24-hour mean (99th percentile)	215 $\mu g/m^3$	50 $\mu g/m^3$
	c) Sulphur Dioxide (SO_2), 24-hour mean (Max)	75 $\mu g/m^3$	50 $\mu g/m^3$ (Long term: 20 $\mu g/m^3$)
	d) Ozone, 8-hour mean (Max)	139 $\mu g/m^3$	100 $\mu g/m^3$
	e) Nitrogen Dioxide (NO_2)		
	Annual mean	25 $\mu g/m^3$	40 $\mu g/m^3$
	1-hour mean (Max)	132 $\mu g/m^3$	200 $\mu g/m^3$
	f) Carbon Monoxide (CO)		
	8-hour mean (Max)	5.5 mg/m^3	10 mg/m^3
	1-hour mean (Max)	7.5 mg/m^3	30 mg/m^3
	Drainage		
15	Flood-prone areas	36 ha	23 ha
	Community Stewardship		
16	Number of active green volunteers	>1,000	5,000
17	Number of Community in Bloom Gardens	>700	2,000
18	Number of litter-free Bright Spots	>300	500 (by 2015)

[1] Includes Round Island Route
[2] The 2013 figure for % energy consumption per dollar GDP improvement from 2005 levels will be released in 4th quarter 2014.

Collaborative Design

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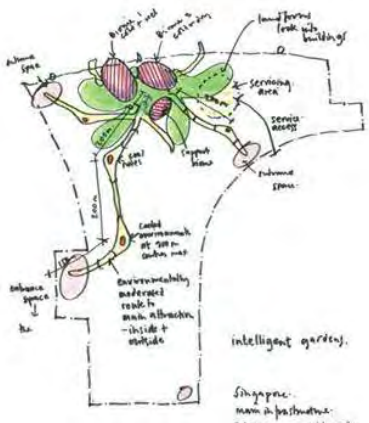
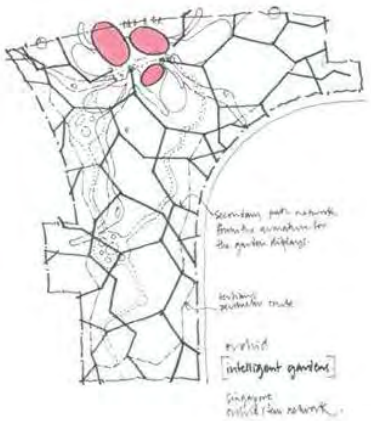
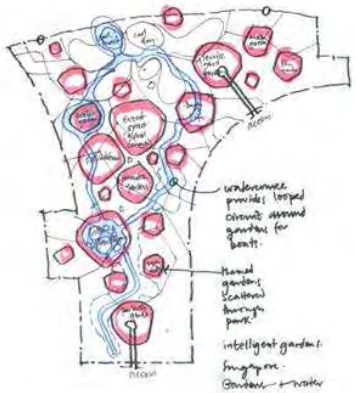
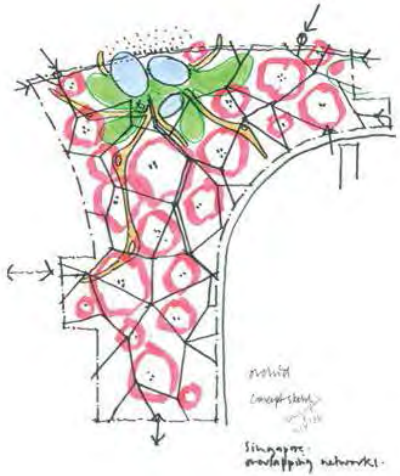
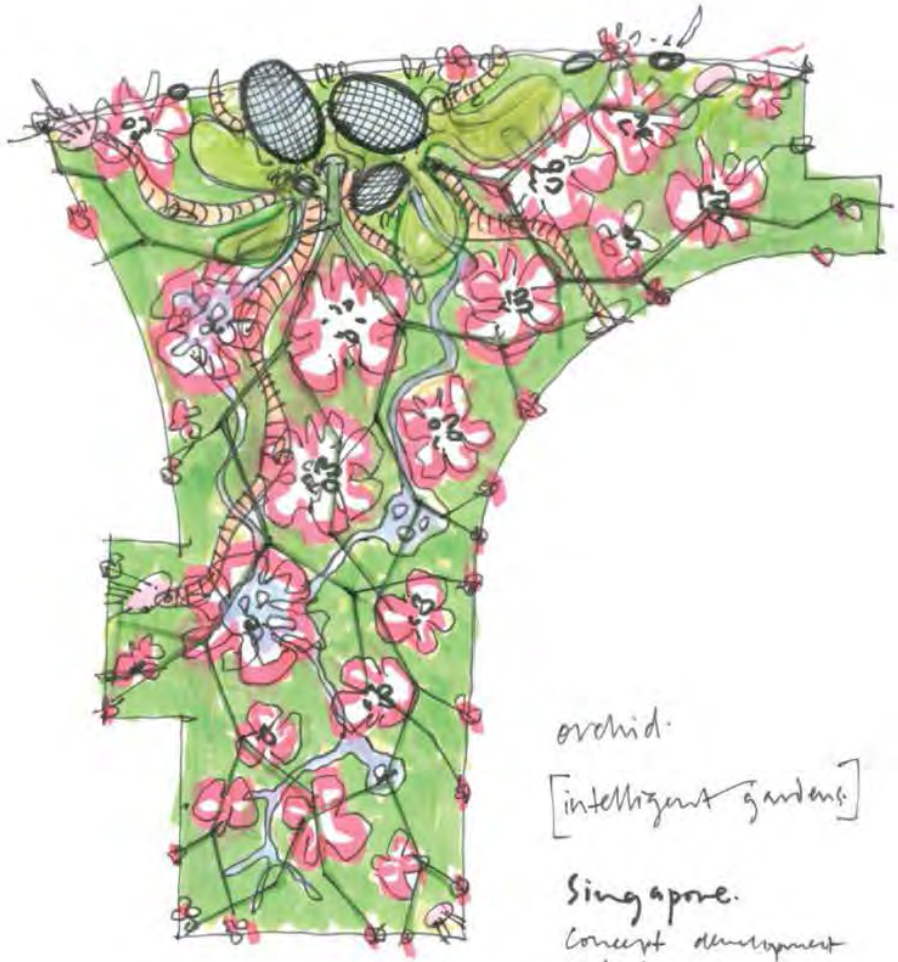

intelligent gardens.
Singapore.
9/6/06.

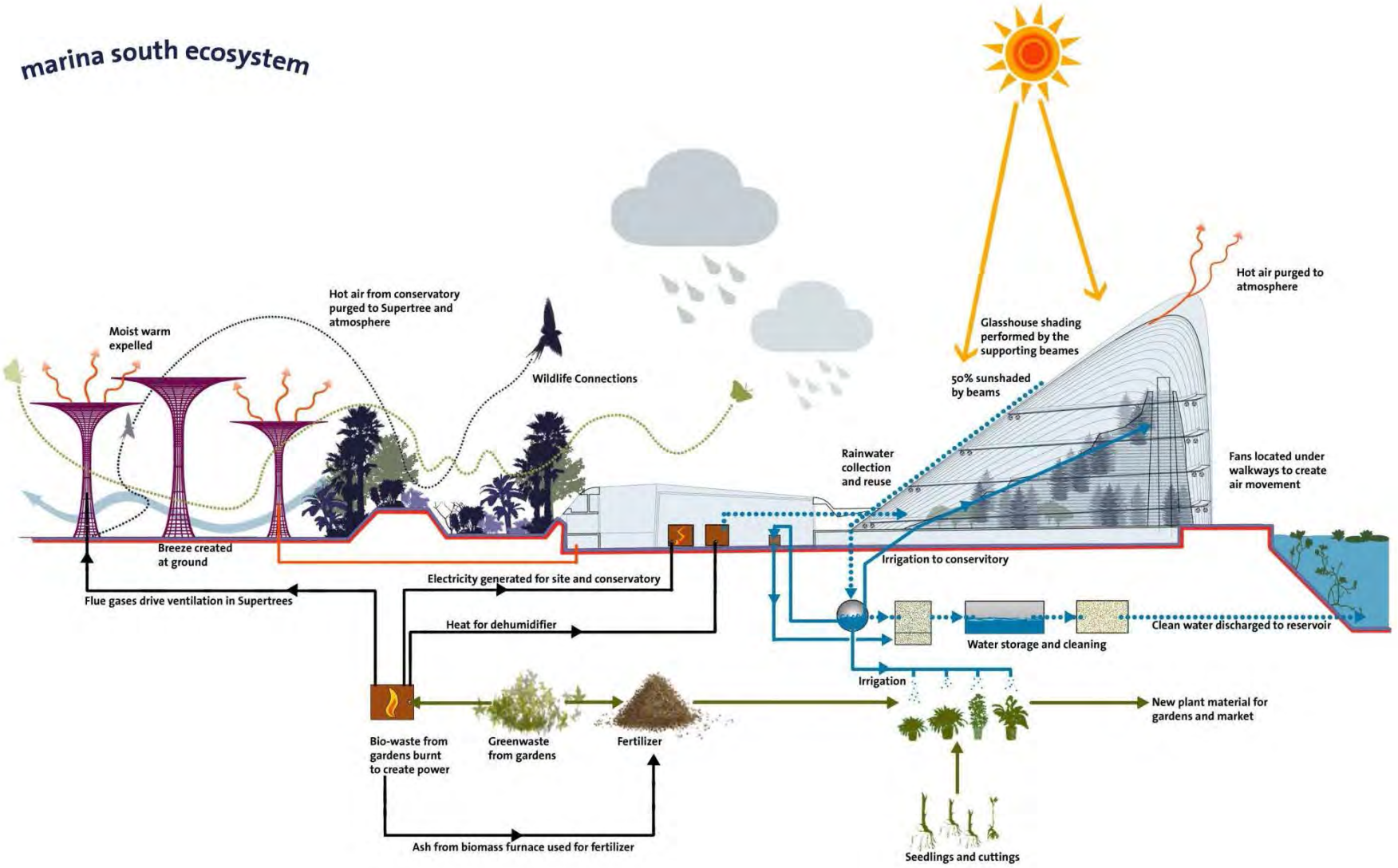

orchid
[intelligent gardens]
Singapore.


intelligent gardens.
Singapore.
9/6/06.

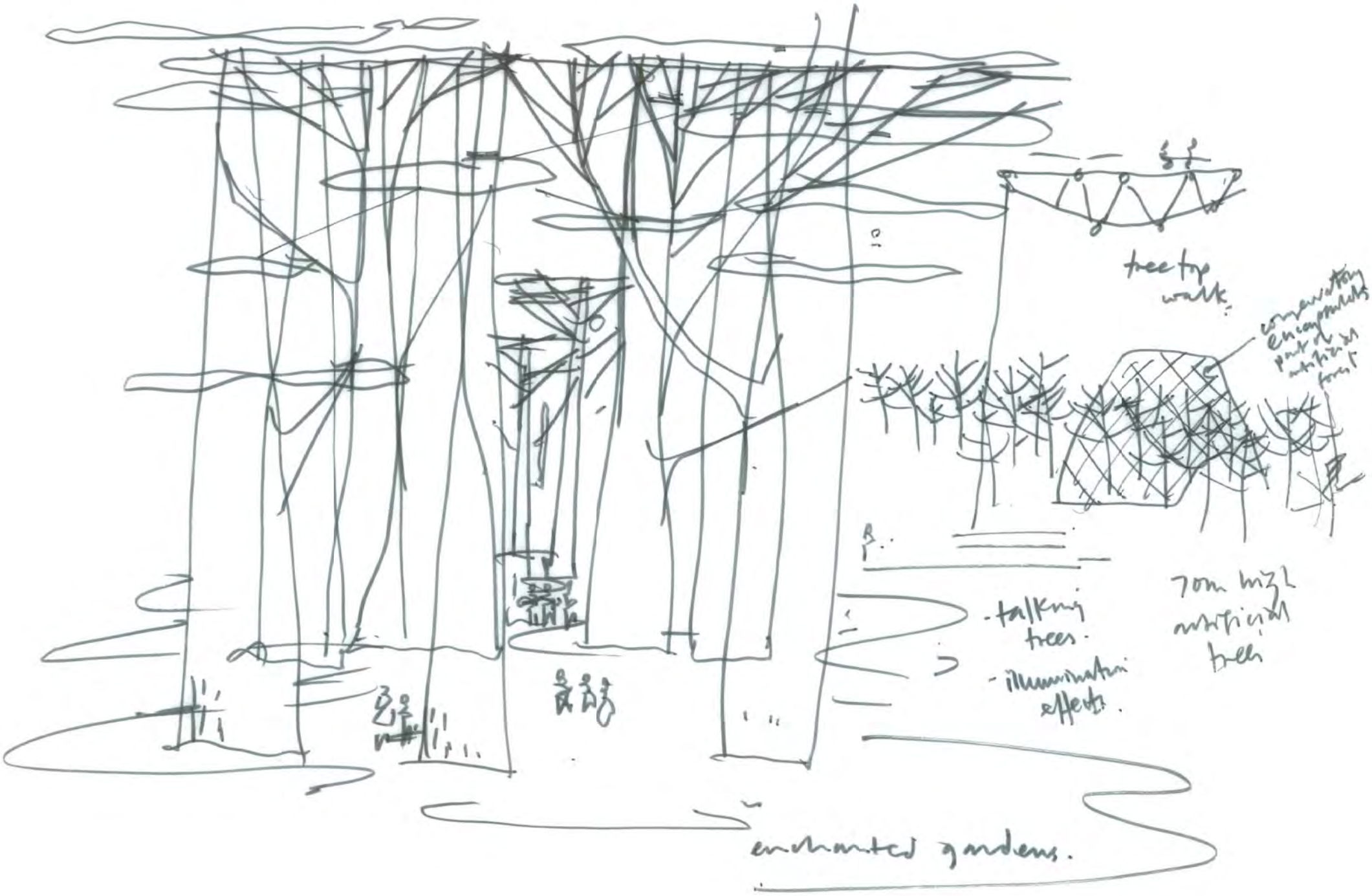

orchid
Singapore.
overlapping networks.

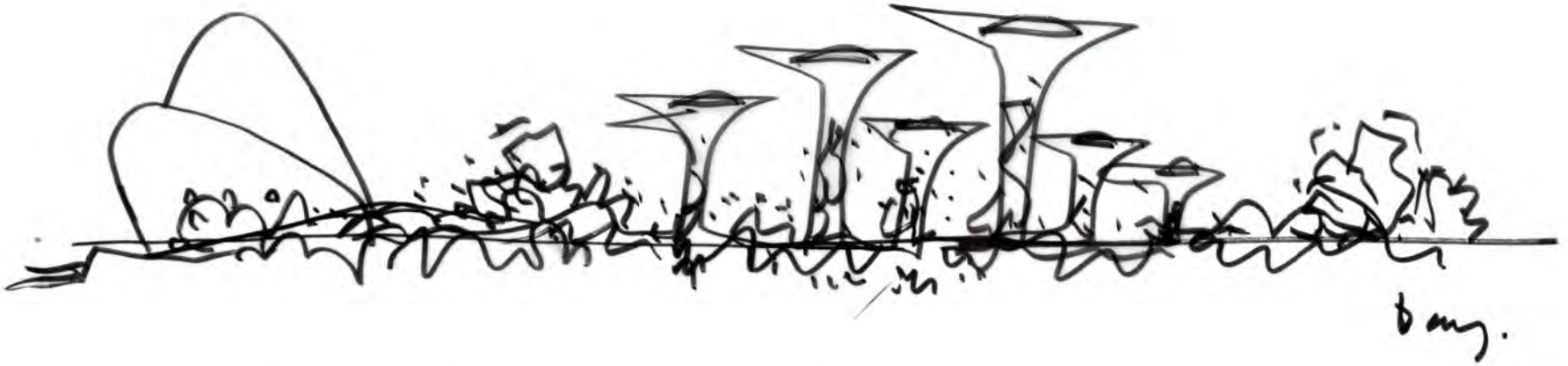

orchid.
[intelligent gardens.]
Singapore.
Concept development
9/6/06.

marina south ecosystem



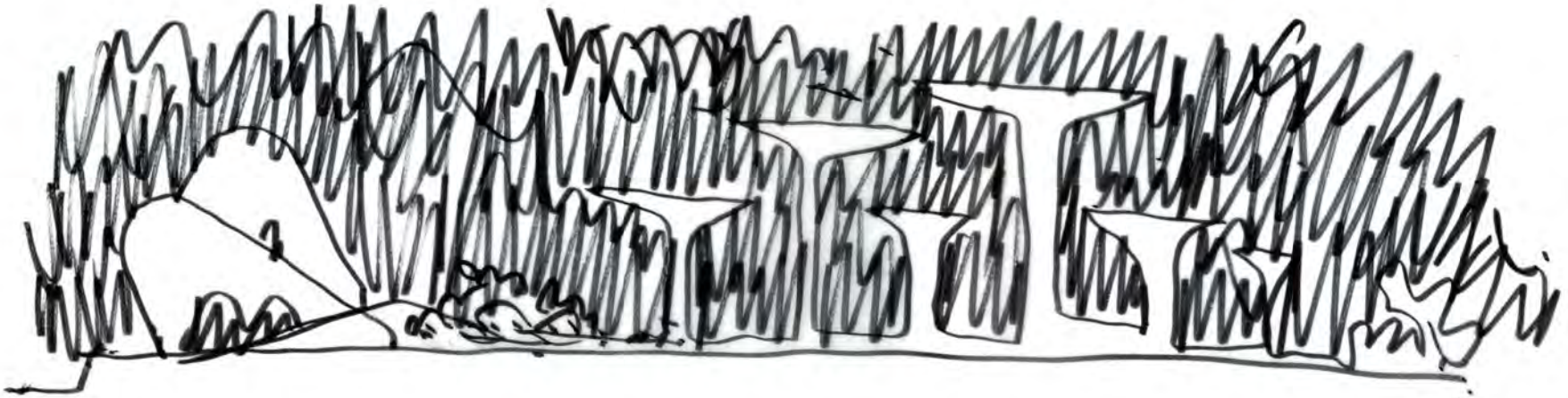
The Supertrees


tree top walk
- talking trees
- illumination effects
enchanted gardens.



- colourful
- natural garden
-
-

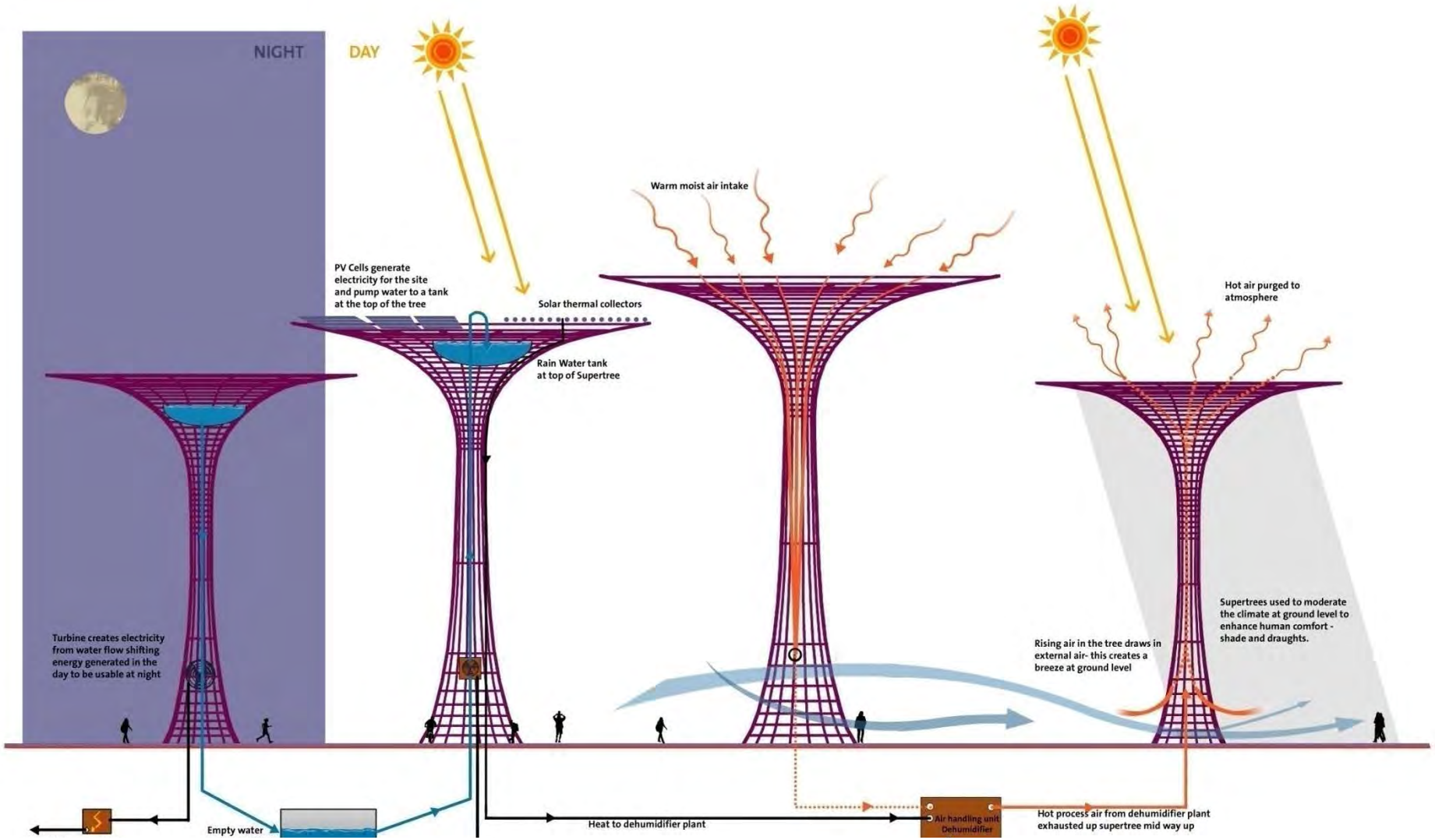
day.

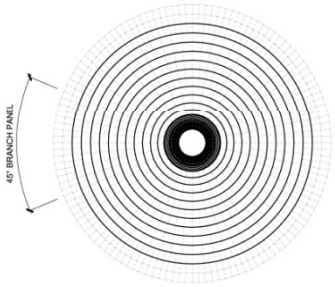


- magical
- romantic
- scented
- electric garden
- gothic

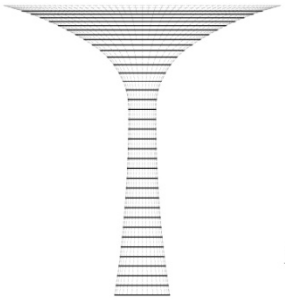
night.

transformation. - 2 worlds. - 30 minute day/night important mood change.

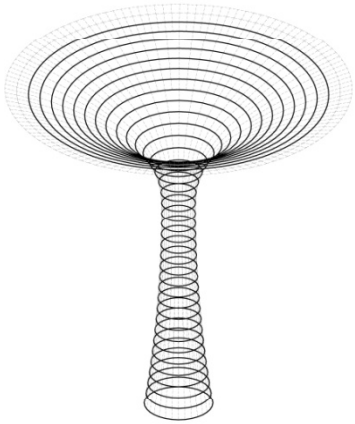

NIGHT
DAY
PV Cells generate electricity for the site and pump water to a tank at the top of the tree
Solar thermal collectors
Rain Water tank at top of Supertree
Warm moist air intake
Hot air purged to atmosphere
Turbine creates electricity from water flow shifting energy generated in the day to be usable at night
Supertrees used to moderate the climate at ground level to enhance human comfort - shade and draughts.
Rising air in the tree draws in external air- this creates a breeze at ground level
Empty water
Heat to dehumidifier plant
Air handling unit Dehumidifier
Hot process air from dehumidifier plant exhausted up supertree mid way up



PLAN

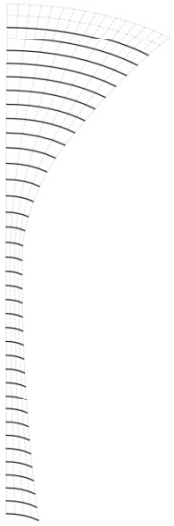


ELEVATION

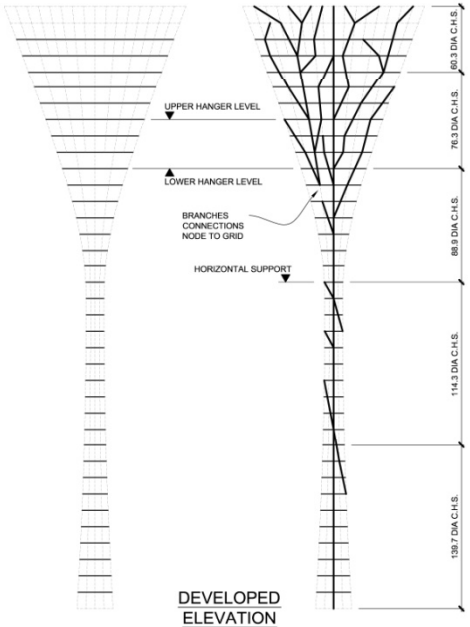


ISOMETRIC

CIRCUMFEREMTIAL RINGS

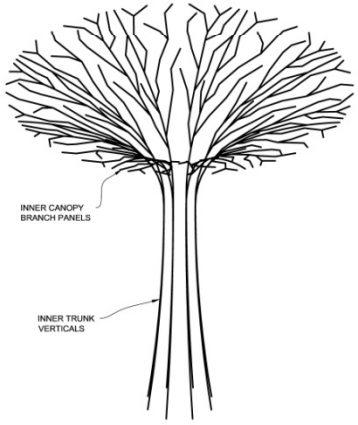


ISOMETRIC OF TYPICAL
BRANCH PANEL GRID



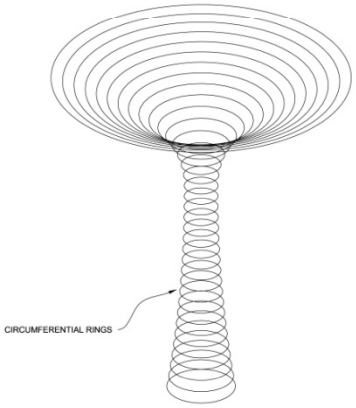
DEVELOPED
ELEVATION

BRANCH PATTERN



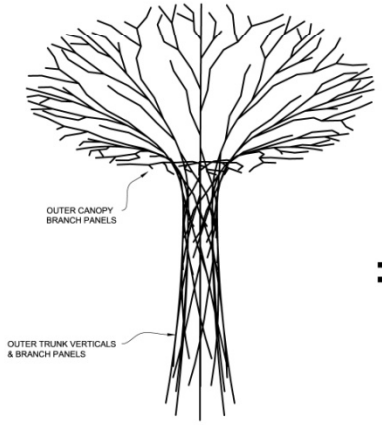
INNER BRANCH PANELS

+



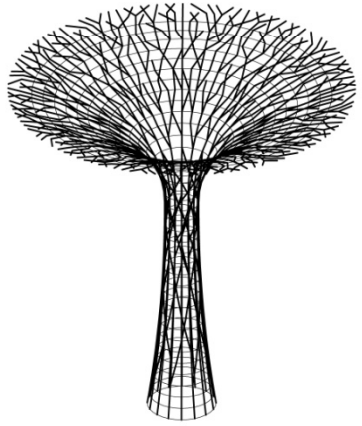
CIRCUMFERENTIAL RINGS

+

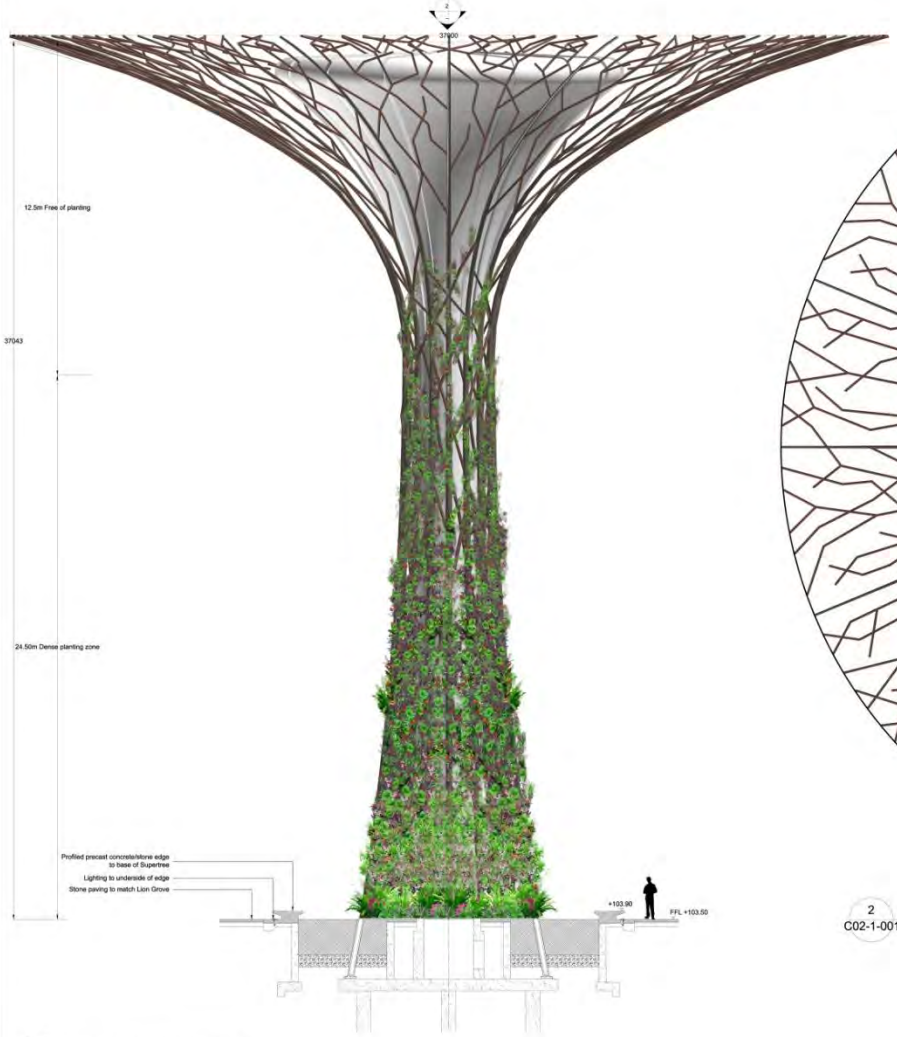


OUTER BRANCH PANELS

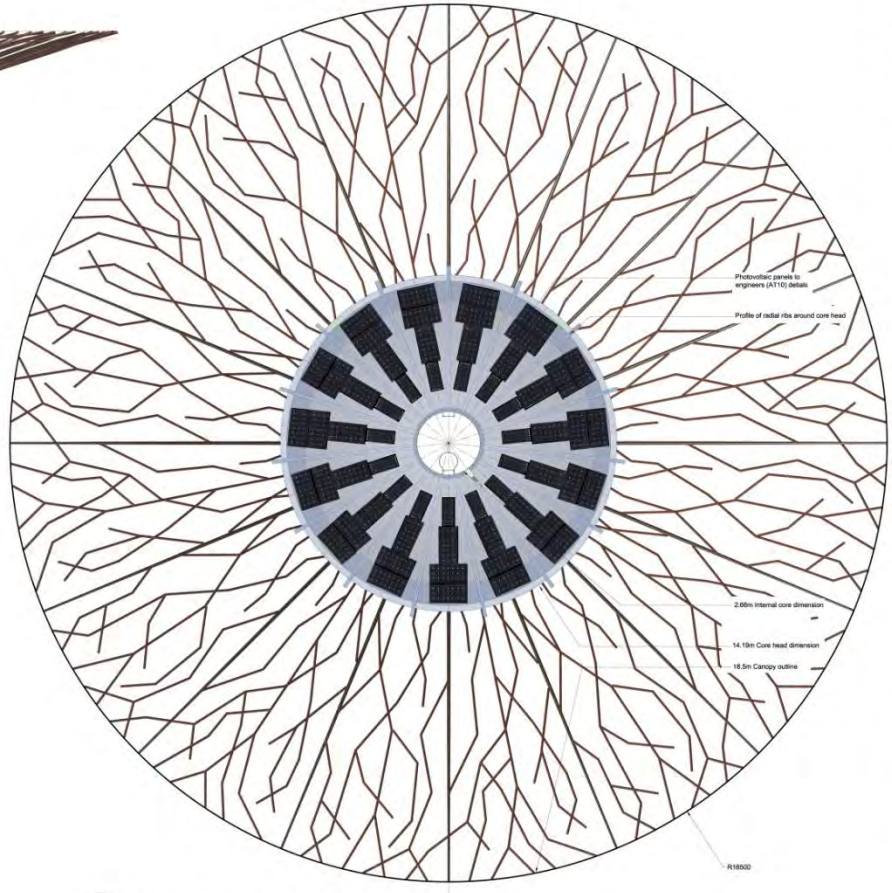
=



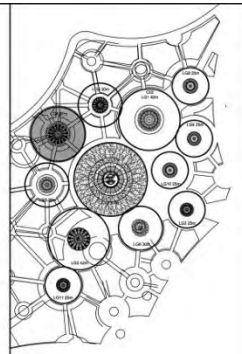
FULL SKIN CONFIGURATION



1 — Illustrative Elevation of Supertree LG4, 37m
Scale 1:100



2 / C02-1-001 — Illustrative Plan of Supertree LG4, 37m with PV Collectors
Scale 1:100



GENERAL NOTES

1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO CONSTRUCTION WORK COMMENCING.
2. ALL LANDSCAPE DRAWINGS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
4. ANY DISCREPANCY CONCERNING THE DRAWINGS SHOULD BE REFERED TO CA IMMEDIATELY.
5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE
6. ALL LEVELS IN METRES.
7. DO NOT SCALE OFF THIS DRAWING.
8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.
9. FOR INTERFACE DETAILS OF COMBINED SERVICE TUNNEL WITH ENERGY CENTRE REFER TO ATELIER TEN'S DRAWINGS
10. FOR INTERFACE DETAILS OF COMBINED SERVICE TUNNEL WITH THE CONSERVATORIES REFER TO WILKINSON EYRE ARCHITECTS DRAWINGS

REV	DATE	NAME	SUBJECT	CHK'D
00	11.01.08	JC	URA SUBMISSION	KF

AMENDMENTS

CLIENT

NATIONAL PARKS BOARD
1 CLUNY ROAD
SINGAPORE 259569
Tel: (65) 6471 7650
Fax: (65) 6472 7508

LANDSCAPE ARCHITECT

grant associates
Landscape Architecture, Urban Design, Creative Ecology
5 Princes Buildings, George Street, Bath BA1 2ED
T +44 (0) 1225 332664
E info@grant-associates.uk.com

PROJECT

GARDENS BY THE BAY
MARINA SOUTH , SINGAPORE

DRAWING TITLE

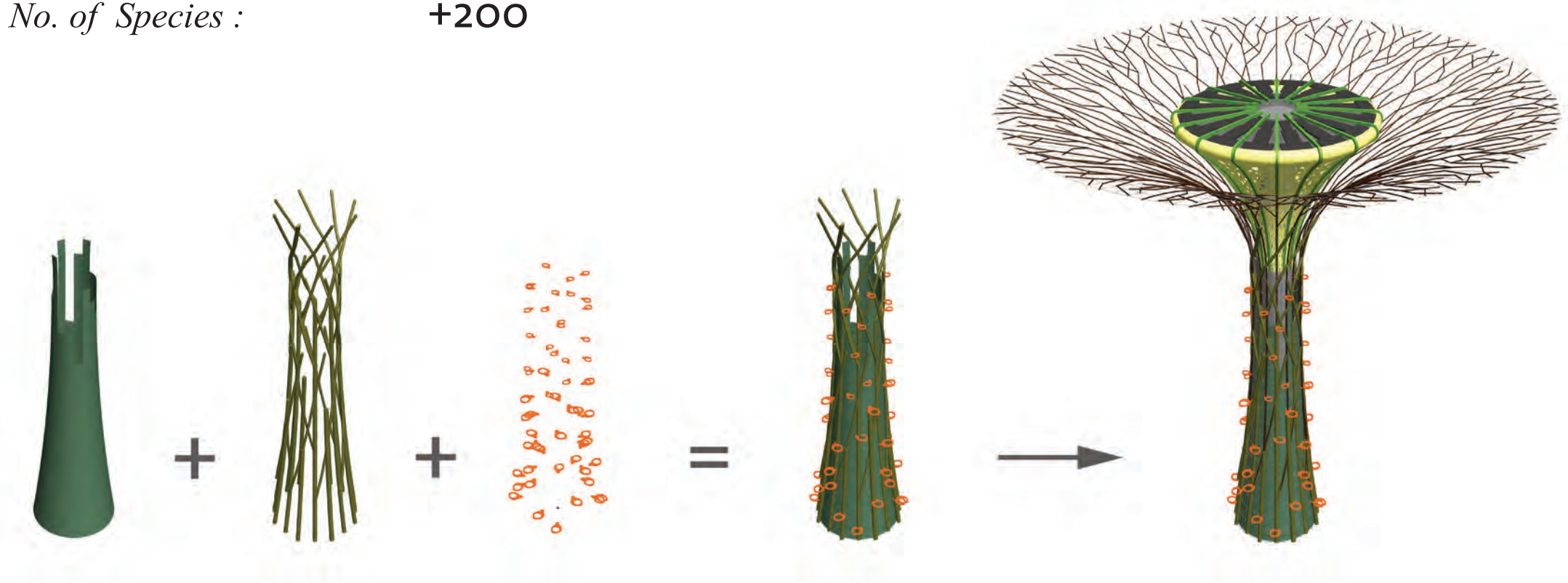
SUPERTREE - C02 LG4, 37m ILLUSTRATIVE ELEVATION AND PLAN

SCALE	VARIES @ A1	
	BY	DATE
DRAWN	JC	07.01.2008
DESIGNED	JC	07.01.2008
CHECKED	KF	07.01.2008
APPROVED	AG	07.01.2008

JOB NO.	DISCIPLINE	DRAWING NO.	REVISION
SNG233	AL/GA	C02-RE-2-005	00

Planting The supertrees

No. of Plants : 162,900
No. of Species : +200



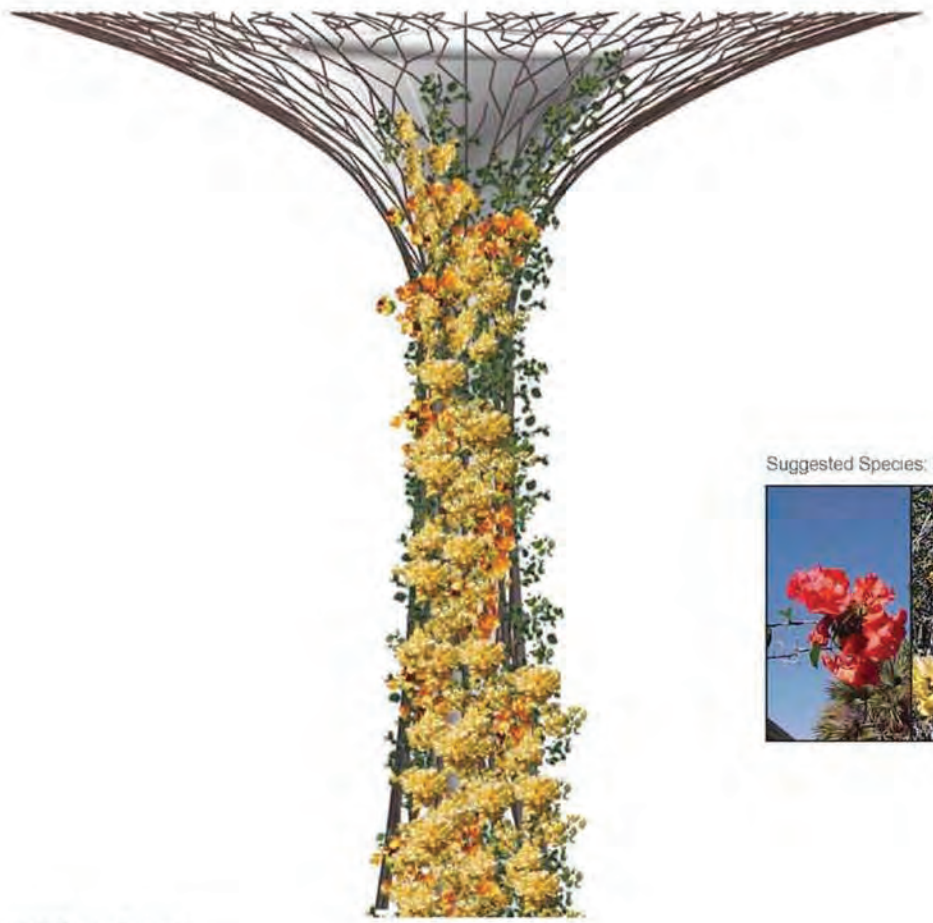
Planting The supertrees

X01 Typical Elevation

Suggested Species: Adiatum tenerum, Microlepia speluncae, Colocasia sp., Matonia pectinata

Aerangis sp., Bulbophyllum sp., Broughtonia sp., Cattleytonia sp., Dendrobium sp., Phalaenopsis sp., Paphiopedilum sp., Oncidium sp., Epidendrum sp.

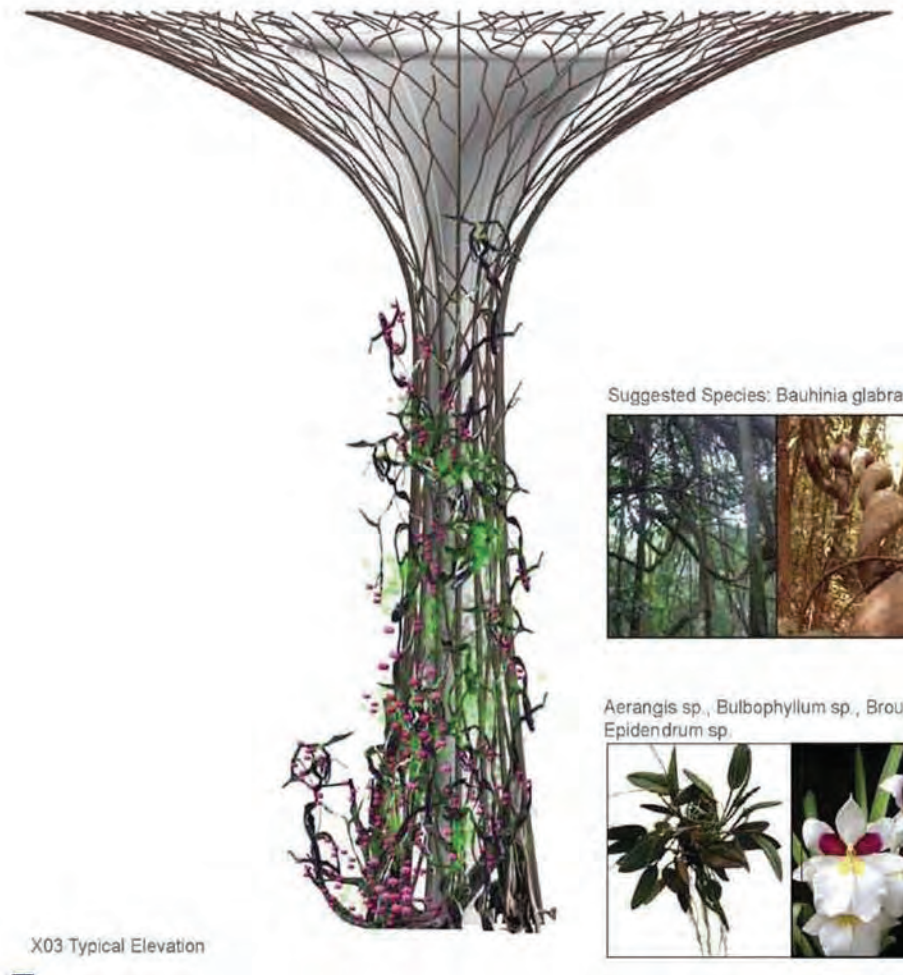
Planting The supertrees



X02 Typical Elevation

Suggested Species: B. spectabilis, B. glabra and B. peruviana

Planting The supertrees



X03 Typical Elevation

Suggested Species: Bauhinia glabra, Philodendron sp.,

Aerangis sp., Bulbophyllum sp., Broughtonia sp., Cattleytonia sp., Dendrobium sp., Phalaenopsis sp., Paphiopedilum sp., Oncidium sp., Epidendrum sp.

Growing Panels and Irrigation

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Ananas Cosmosus Jet Stream

Tillandsia biflors

Neoregelia Laevis

Cryplanthus

Neoregelia Lila Variagated

Neoregelia Maria Veronita

Neoregelia Conta Rubra

Neoregelia Perfecta

Neoregelia Vivaloy

Lion Grove
Non Habitable Trees

Base Planting
Accent Planting

Red Accent Colour

LG8 + LG9

TYPE 01R

Green Epiphytes + climbers
Bromeliads

... bromeliad and tillandsia

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mighty growth

energy from sky

SECTION THROUGH SUPERTREE CO5 50m

OUTLINE OF SUPERTREE CO2 LG1 42m

RTREE LG4 37m

OUTLINE OF SUPERTREE LG5 30m

OUTLINE OF SUPERTREE LG8 25m

OUTLINE OF SUPERTREE LG9 25m

OUTLINE OF SUPERTREE LG10 25m

OUTLINE OF SUPERTREE LG2 25m

SECTION THROUGH S

103.50

103.50

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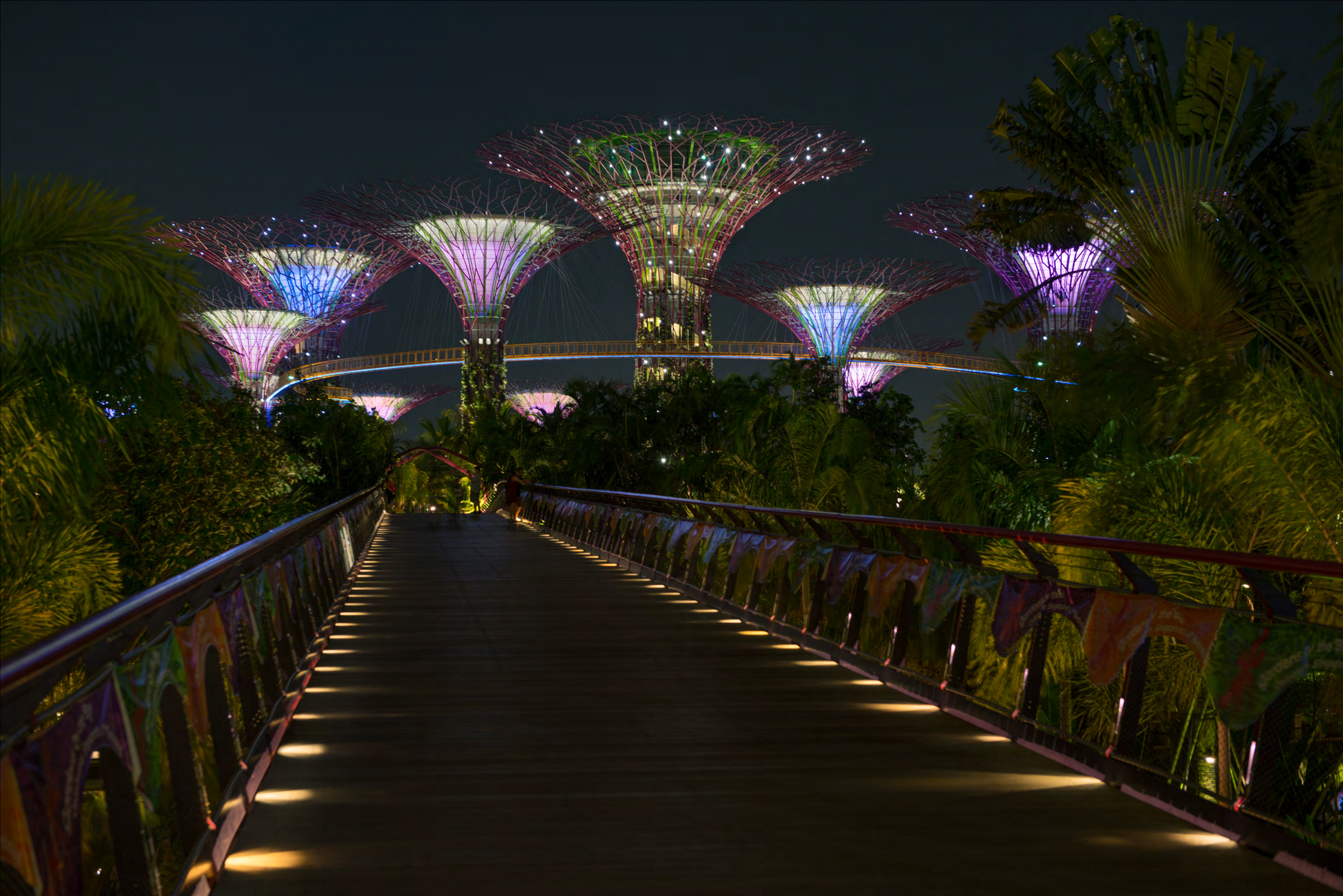

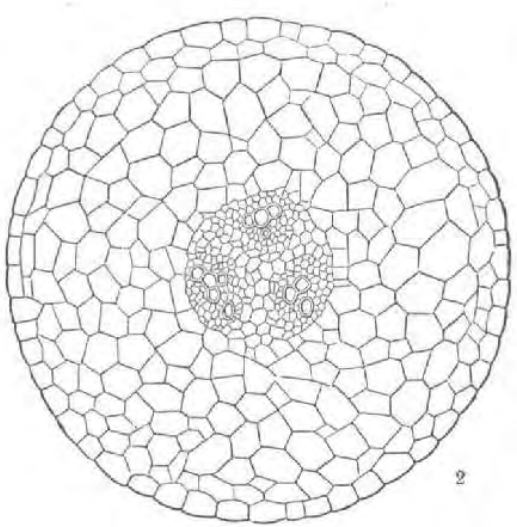
2

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Figure 001

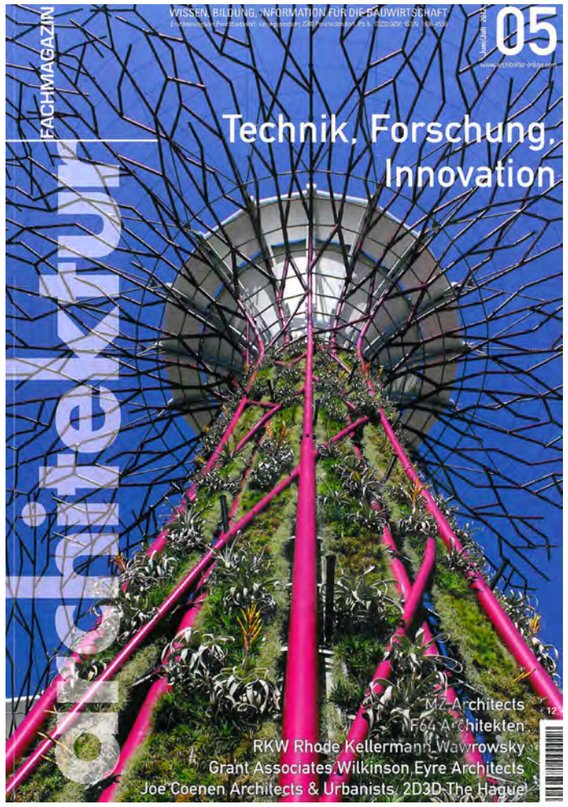

Figure 002

Figure 003

Figure 004

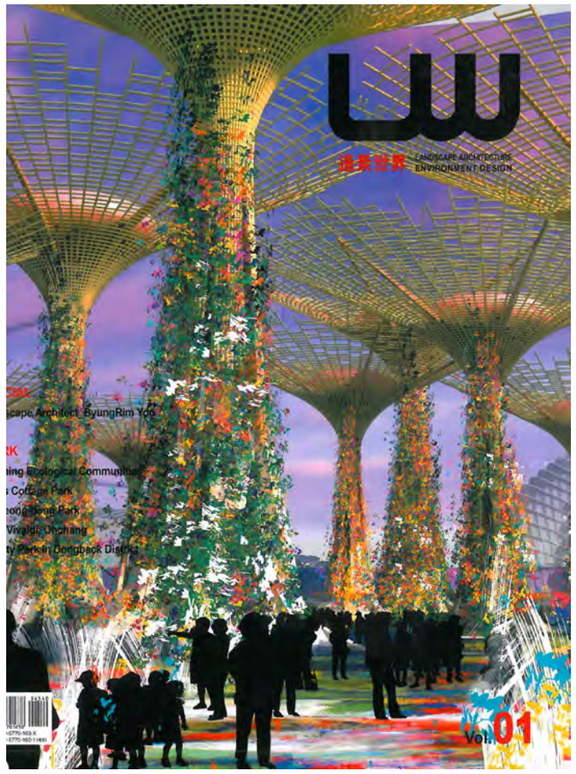

Figure 005

Figure 006

Figure 007

Figure 008

Front Covers : Gardens by the Bay

Bay South, Singapore - DLPU07

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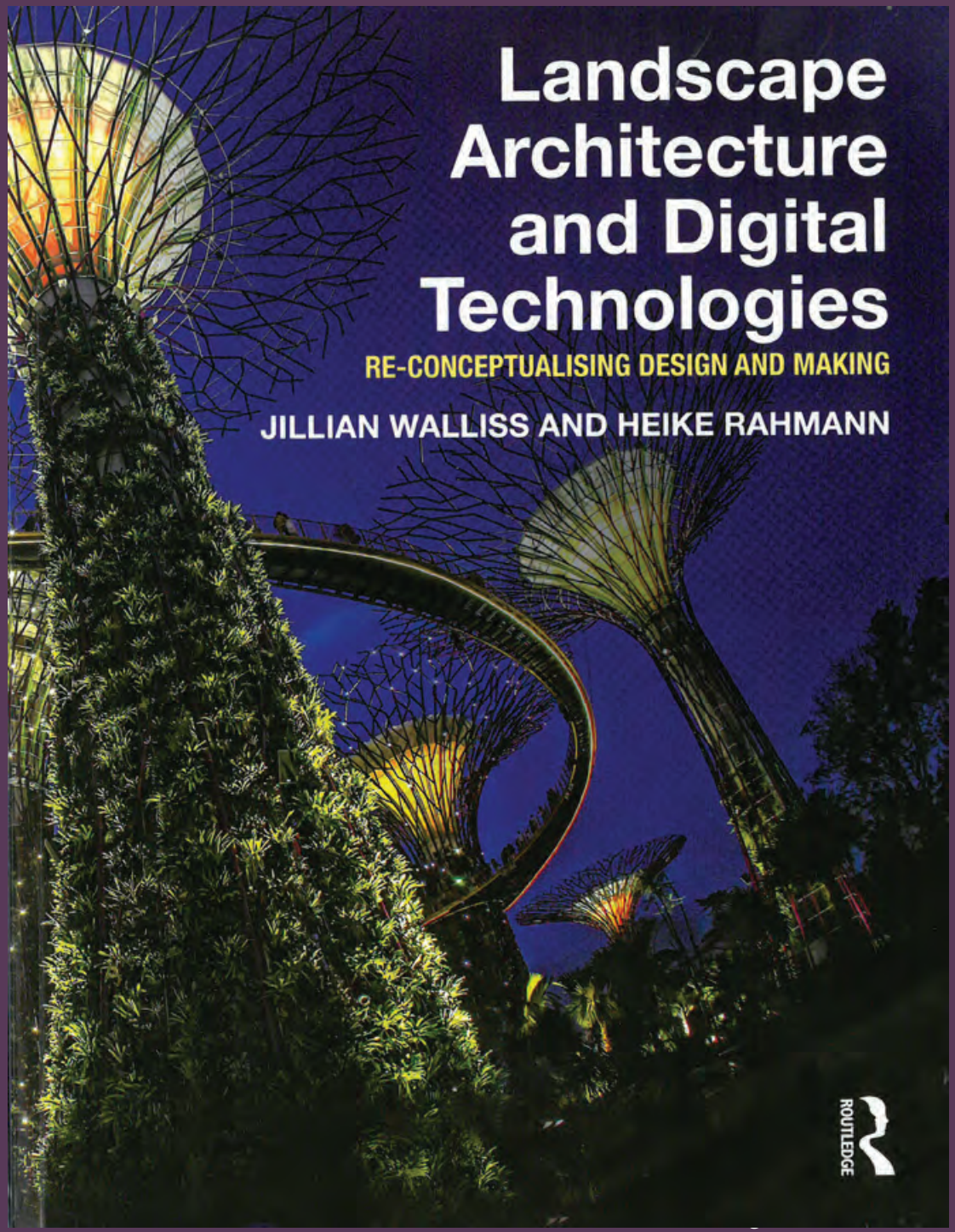
Landscape Architecture and Digital Technologies
RE-CONCEPTUALISING DESIGN AND MAKING
JILLIAN WALLISS AND HEIKE RAHMANN
ROUTLEDGE

lonely planet

Singapore

Pull-out map
Local secrets

Call of Duty - Black Ops 3


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Plant Hunting


Gardens by the Bay
Giant Baobabs
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TRC 1614 T
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Energy Source

Themed Gardens

Accordia

Inspired by Big Mature Trees

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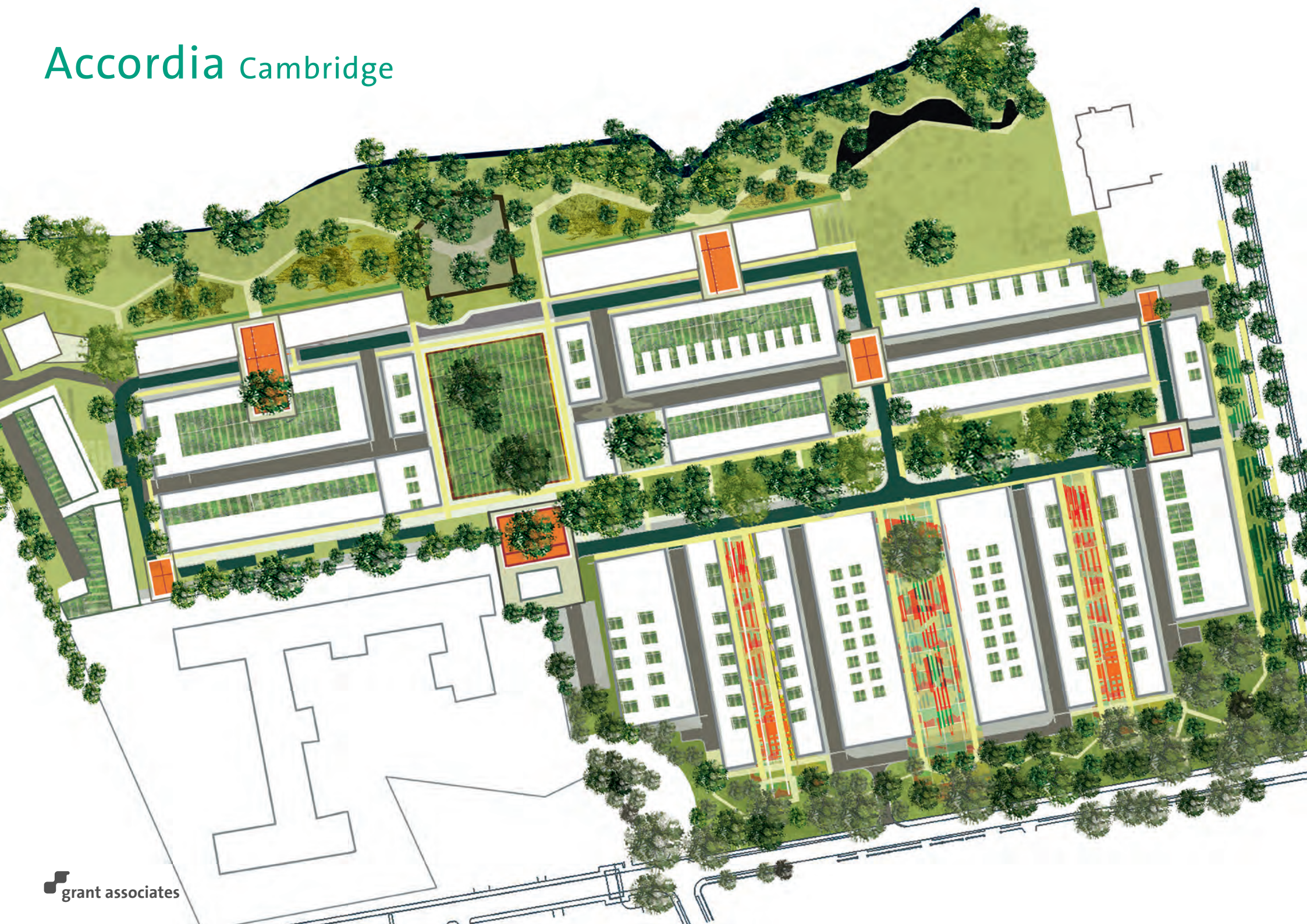
Accordia Cambridge



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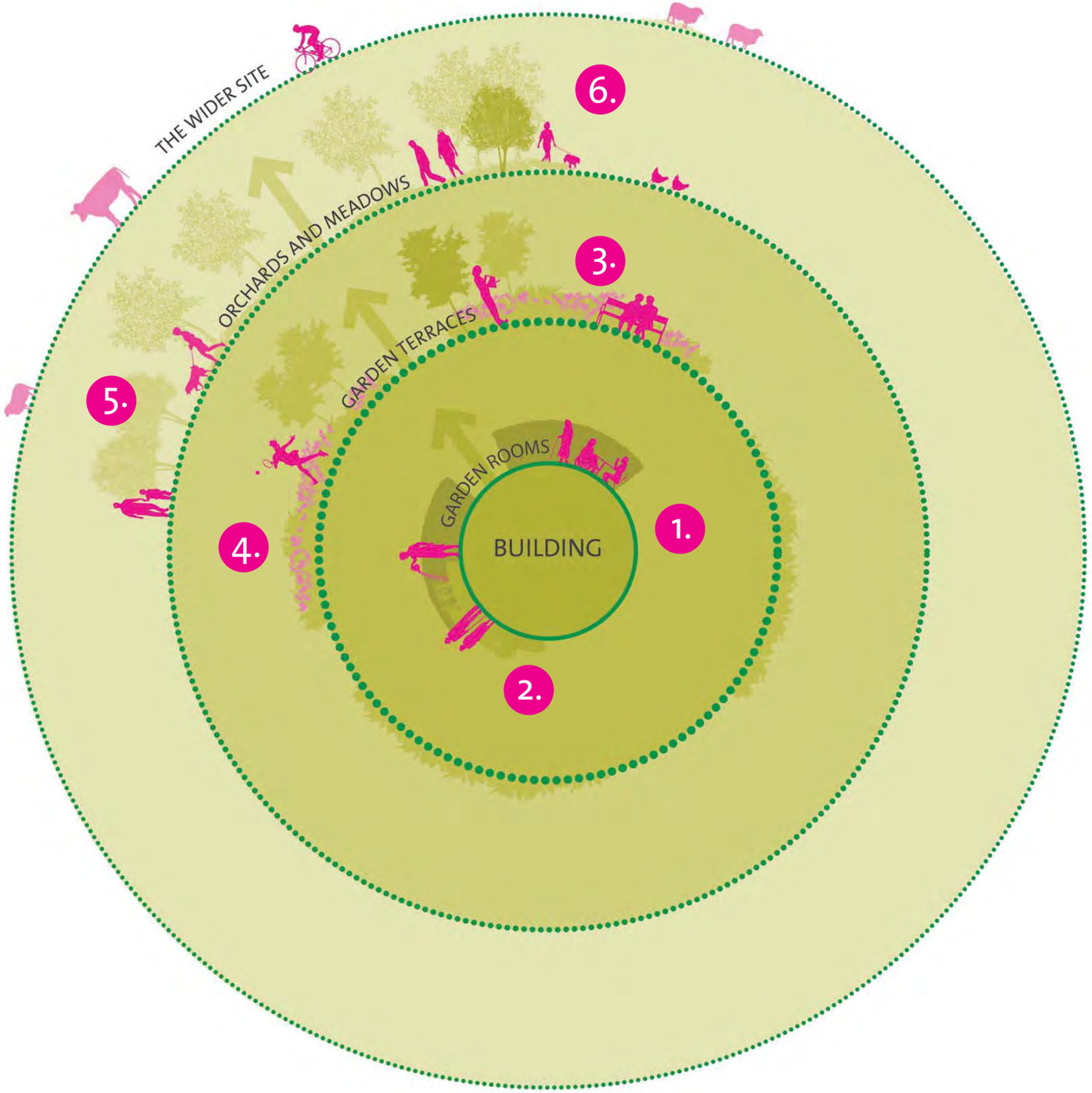

Living in a Garden

GARDEN ROOMS:
Secure garden spaces that gives patients a sense of enclosure and comfort. Good relationship with building through the inclusion of sheltered thresholds and inclusive access.

GARDEN TERRACES:
Informal gardens with opportunuities for expansive chalk herbaceous planting, lawns and productive gardens.

ORCHARDS AND MEADOWS:
Communal orchards, nut groves and meadows would lie beyond the garden terraces. This area of the site could also provide reedbeds and/or wildlife ponds, grazing and nature trails.

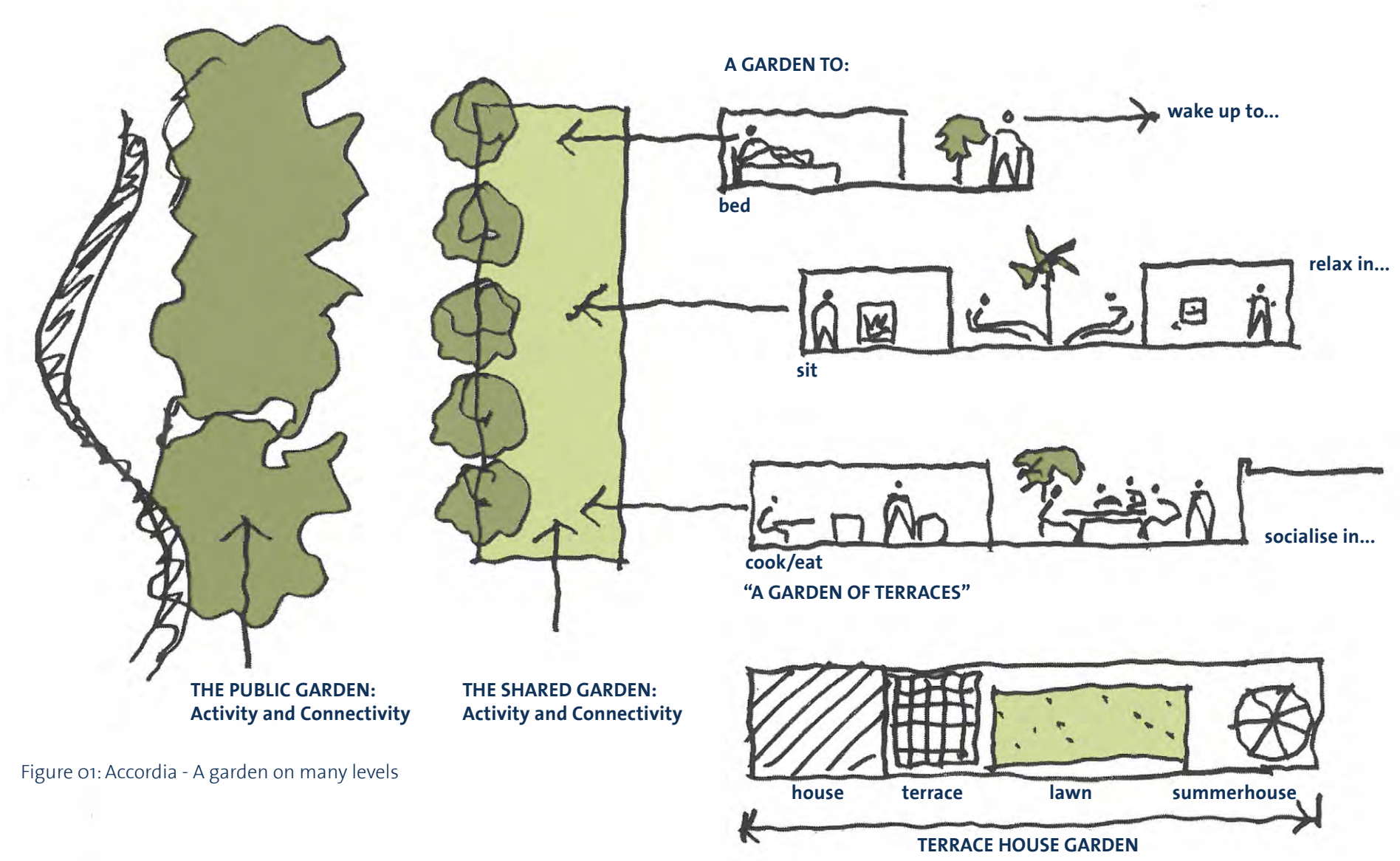

Figure 01: Accordia - A garden on many levels

Accordia developed around existing mature trees

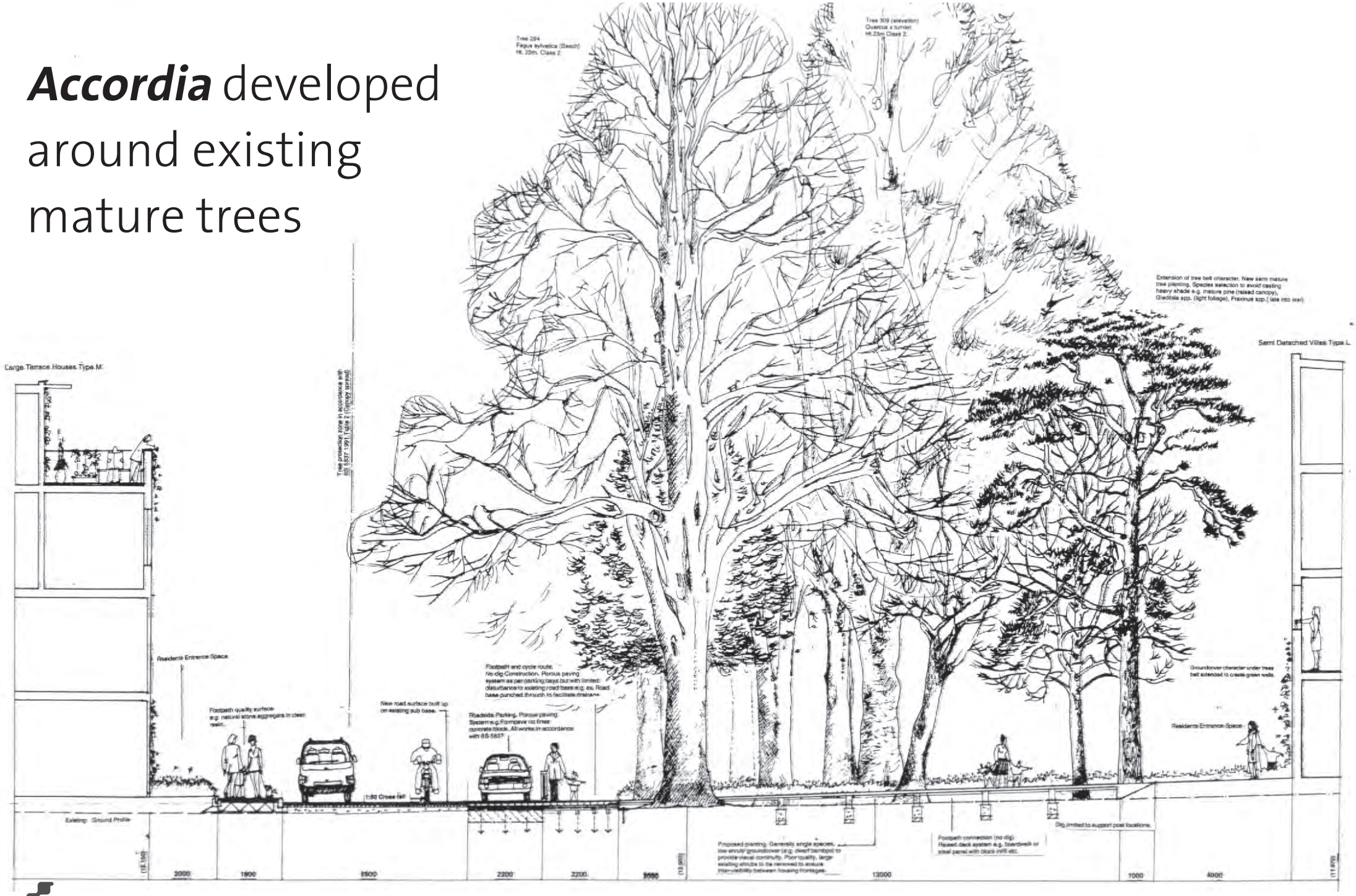

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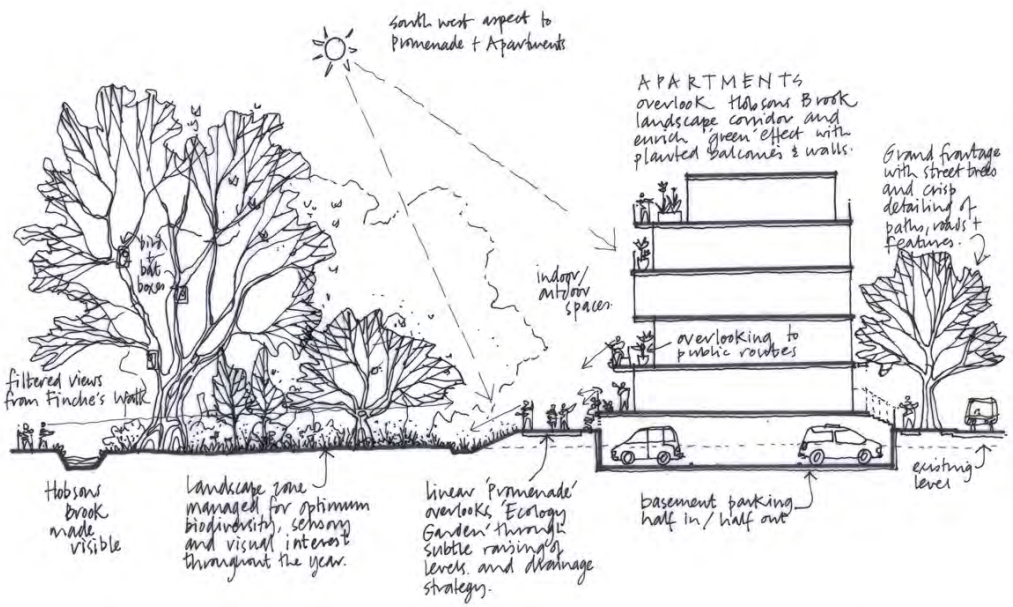
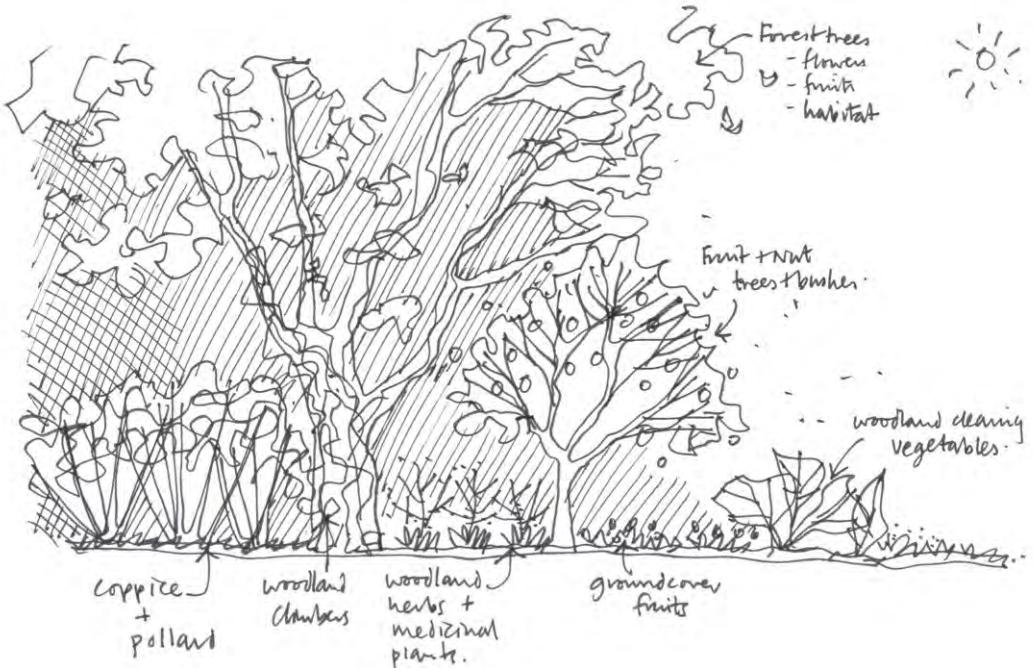
Figure 07: Brooklands Avenue – a garden frontage with habitat walks

Accordia
Cambridge, UK

Tree Structure Accordia





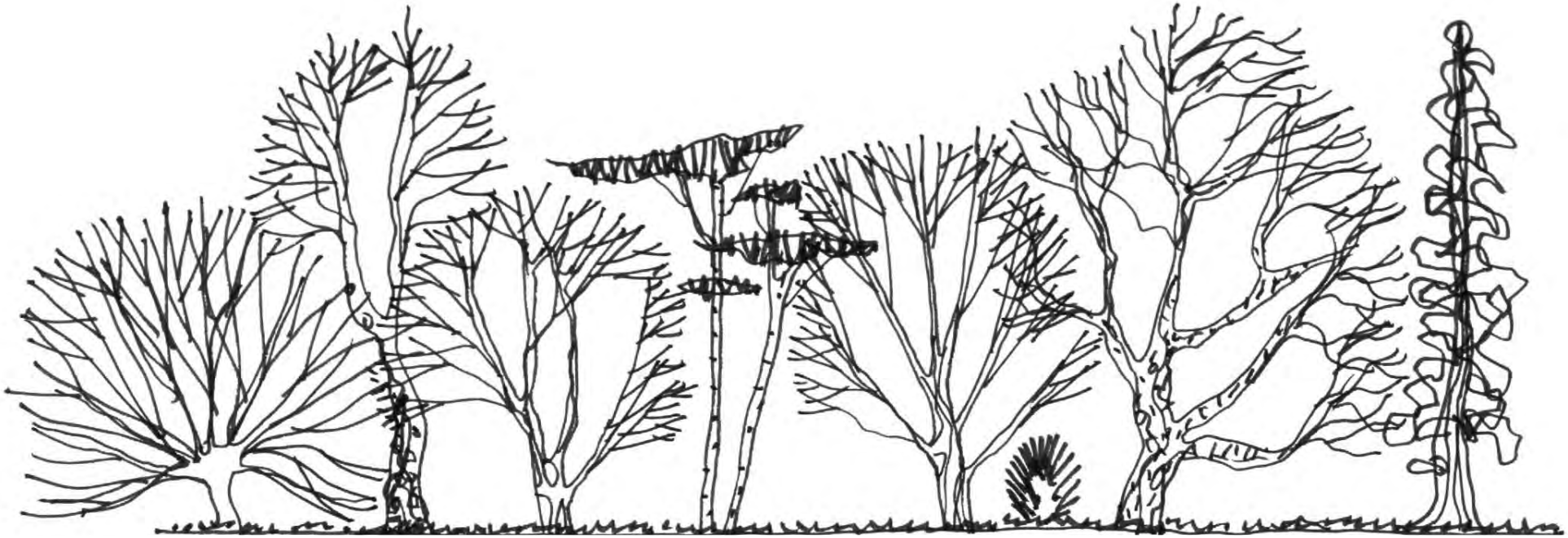


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Figure 09: Brooklands Avenue – Forest Garden

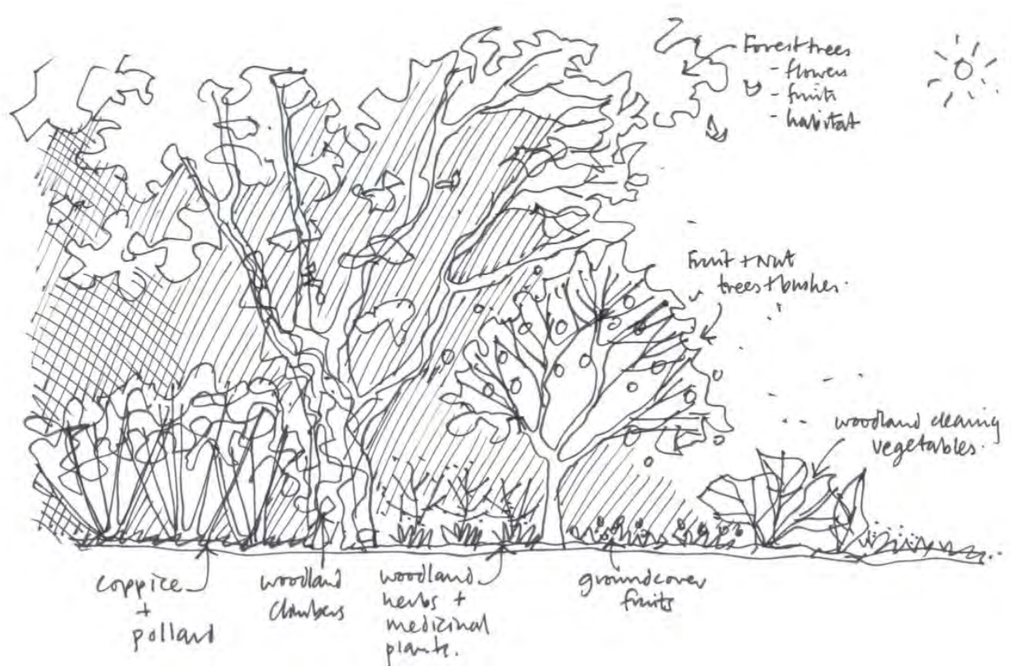
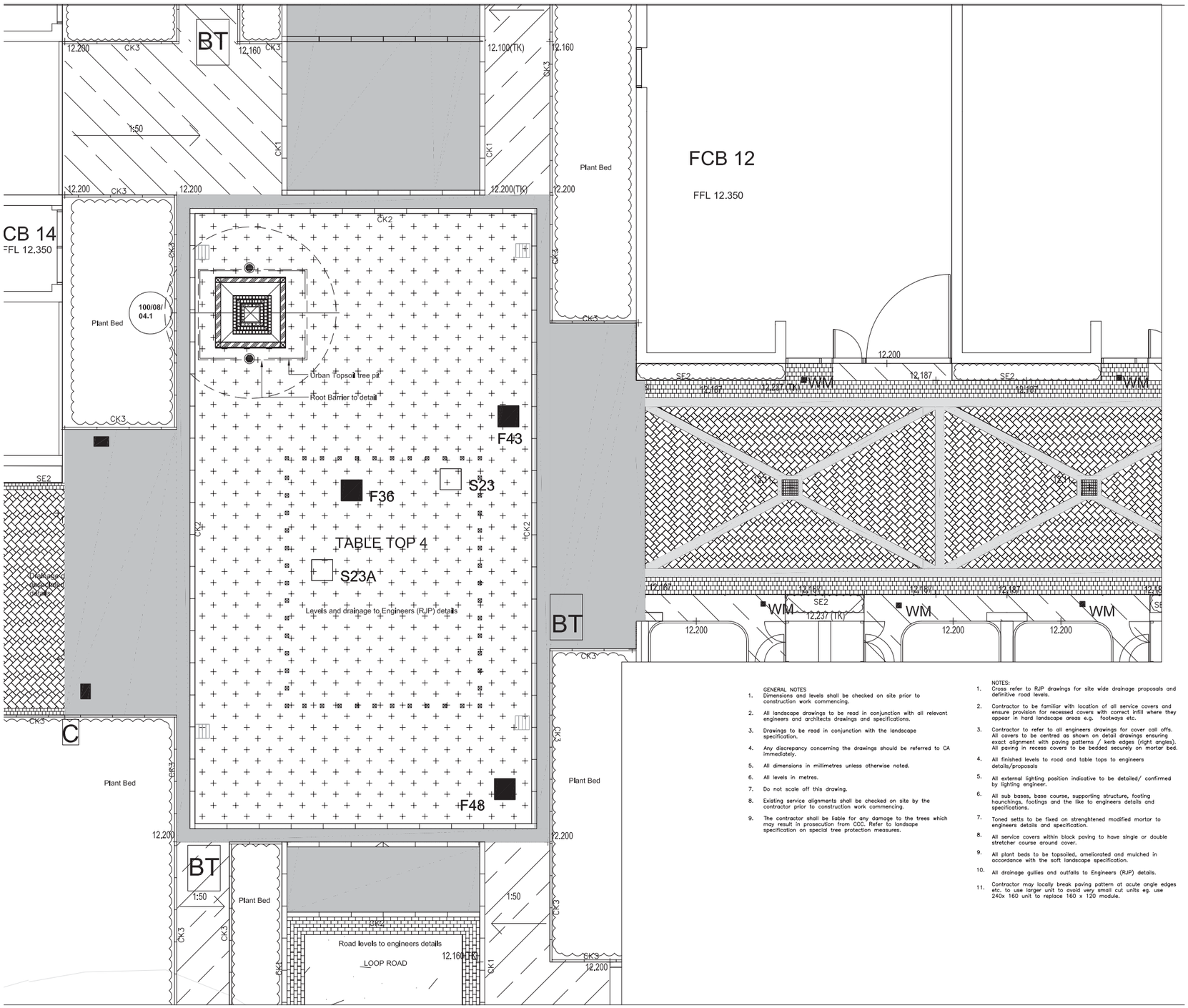


Figure 10: The principle of natural foraging inform the planting diversity

Figure 11: Central Garden and play spaces respond to key existing trees



GENERAL NOTES

1. Dimensions and levels shall be checked on site prior to construction work commencing.
2. All landscape drawings to be read in conjunction with all relevant engineers and architects drawings and specifications.
3. Drawings to be read in conjunction with the landscape specification.
4. Any discrepancy concerning the drawings should be referred to CA immediately.
5. All dimensions in millimetres unless otherwise noted.
6. All levels in metres.
7. Do not scale off this drawing.
8. Existing service alignments shall be checked on site by the contractor prior to construction work commencing.
9. The contractor shall be liable for any damage to the trees which may result in prosecution from CCC. Refer to landscape specification on special tree protection measures.

NOTES:

1. Cross refer to RJP drawings for site wide drainage proposals and definitive road levels.
2. Contractor to be familiar with location of all service covers and ensure provision for recessed covers with correct infill where they appear in hard landscape areas e.g. footways etc.
3. Contractor to refer to all engineers drawings for cover call offs. All covers to be centred as shown on detail drawings ensuring exact alignment with paving patterns / kerb edges (right angles). All paving in recess covers to be bedded securely on mortar bed.
4. All finished levels to road and table tops to engineers details/proposals
5. All external lighting position indicative to be detailed/ confirmed by lighting engineer.
6. All sub bases, base course, supporting structure, footing haunchings, footings and the like to engineers details and specifications.
7. Toned setts to be fixed on strenghtened modified mortar to engineers details and specification.
8. All service covers within block paving to have single or double stretcher course around cover.
9. All plant beds to be topsoiled, ameliorated and mulched in accordance with the soft landscape specification.
10. All drainage gullies and outfalls to Engineers (RJP) details.
11. Contractor may locally break paving pattern at acute angle edges etc. to use larger unit to avoid very small cut units eg. use 240x 160 unit to replace 160 x 120 module.

Figure 27: Details set out a hierarchy and variety of materials to a homely and humanising scale

Figure 28. Strategically place trees manage traffic tracking

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Figure 30: Illustrative section private garden – earth, wind & fire

Figure 31: Illustrative section private garden – Mediterranean garden

Figure 32: Illustrative section private garden- deck house

Figure 33: Earth, wind & fire garden

Figure 34: Long house garden

Figure 35: View from home into private garden


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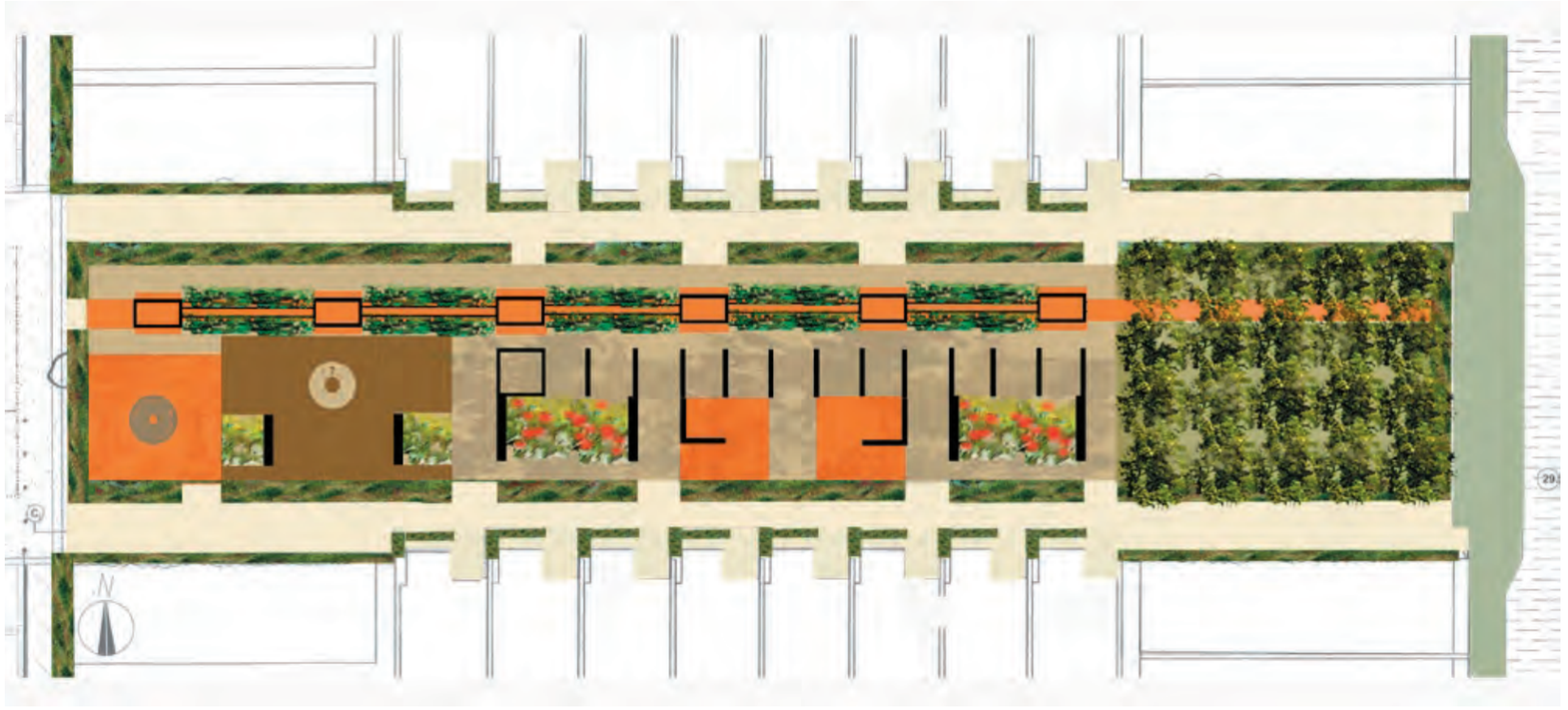
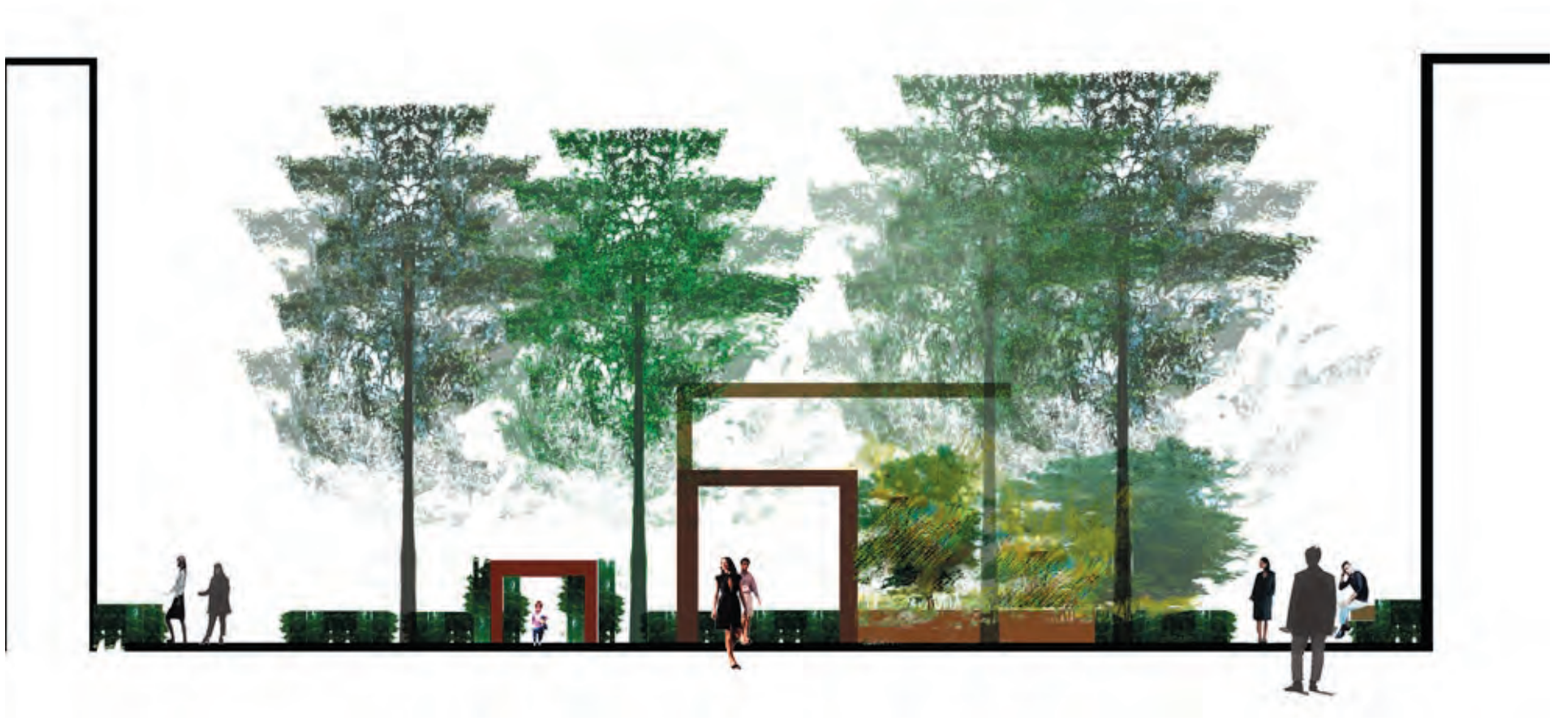


Plan



Section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New Islington

Polka Dots

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New Islington, Manchester - Landscape Strategy

urban play space

water edges

views across water park

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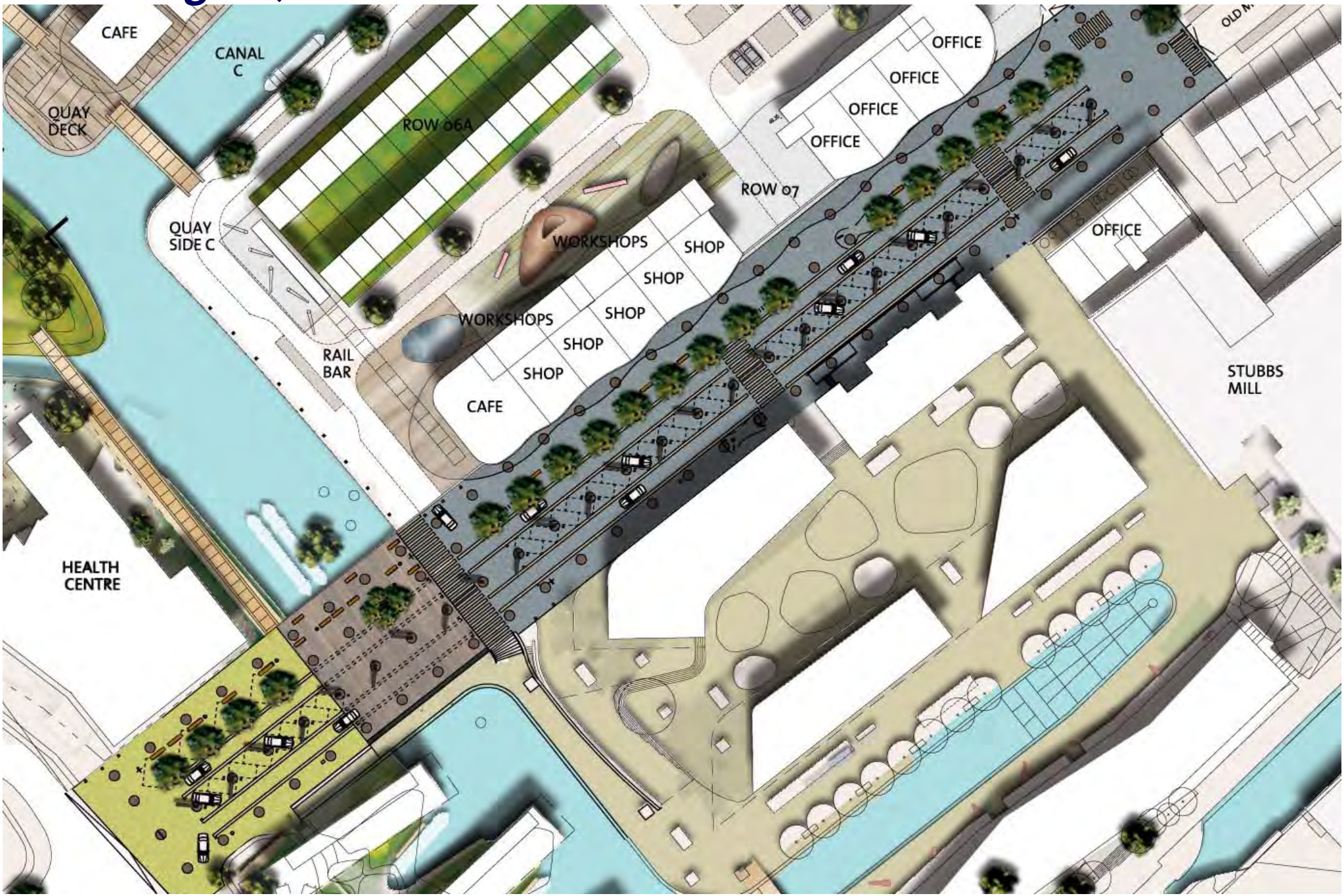
New Islington, Manchester – Old Mill Street



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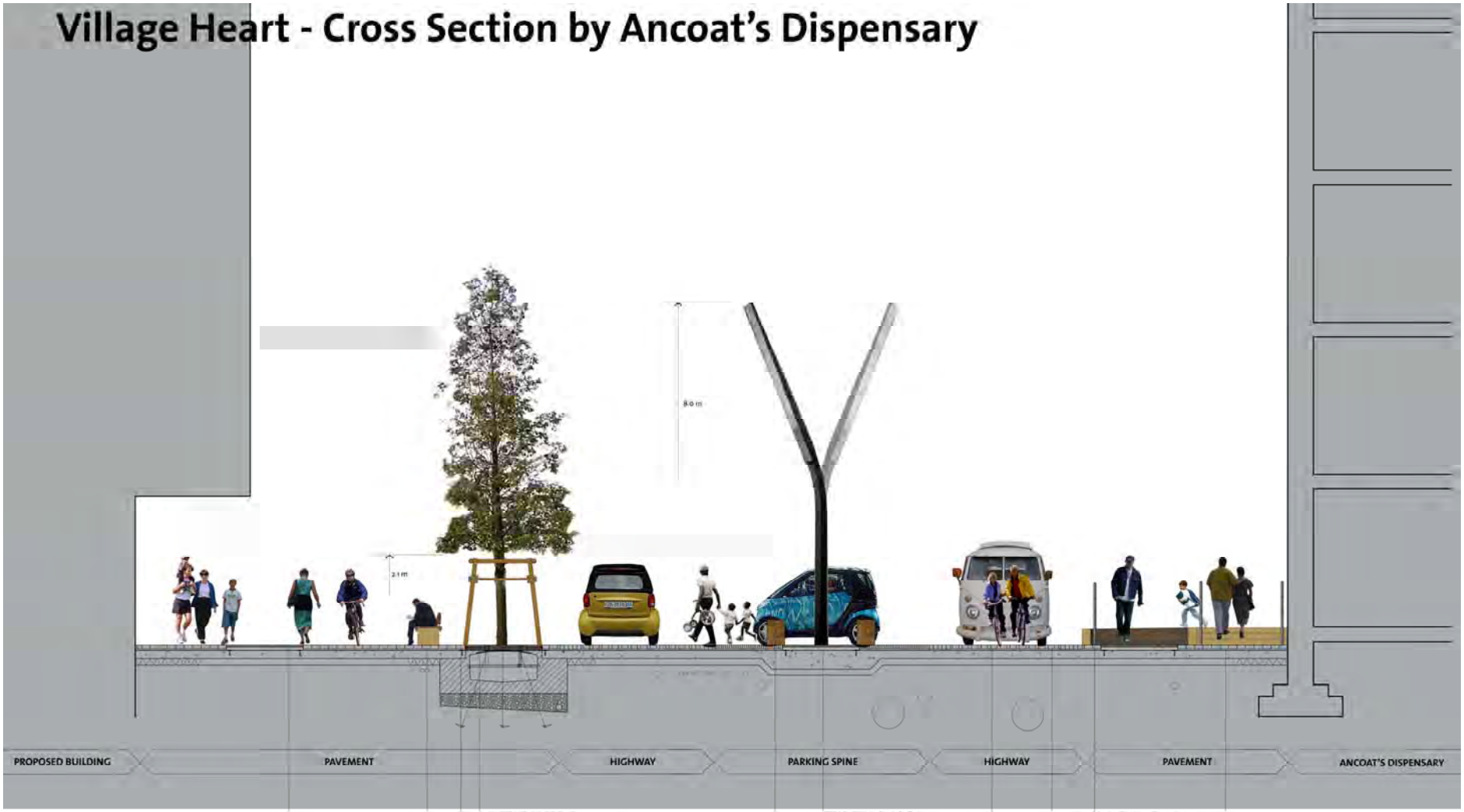
New Islington, Manchester – Old Mill Street

Village Heart - Cross Section by Ancoat's Dispensary



Bespoke Cast Iron Polka Dot

Manufacturer and Reference: Casting Services Ltd
Type/Size: Cast iron 1800mm dia. solid top cover formed in 5no. pieces with rolled galvanised steel frame
Finishes: Fine cast with a light shot blast SA2.5 Finish
Fixing: Epoxy resin mortar
Other Requirements: Embossed 'water plantain' motif to top of the cover

Cast iron polka dot tree grille

Timber frame and integrated uplighters

Bench (Type 2 of Family of 4)

Manufacturer and Reference: Slatted timber seat and steel arm rests on a sandstone faced seating block
Finishes: Green oak. Scarified and sanded
Galvanised steel arm rests
Honed Yorkstone finish
Fixing: Concrete foundation

Bench (Type 3 of Family of 4)

Manufacturer and Reference: Slatted timber seat and timber back, steel arm rests, on a sandstone faced seating block
Finishes: Green oak. Scarified and sanded
Galvanised steel arm rests
Honed Yorkstone finish
Fixing: Concrete foundation

Urbis Fernandez MKII finish

Timber bollards protect street lighting

Rumble Strip

Manufacturer and Reference: Crosshill Yorkstone Setts
Finishes: Shot sawn finish
Bond: Stacked

Hand rail to pavement plinth

Clay Brick Paving – Highway

Manufacturer and Reference: Nostalgie LF
Bond: Herringbone bond

Clay Brick Paving – Pavement

Manufacturer and Reference: Nostalgie LF
Bond: Stretcher bond

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New Islington, Manchester – Old Mill Street

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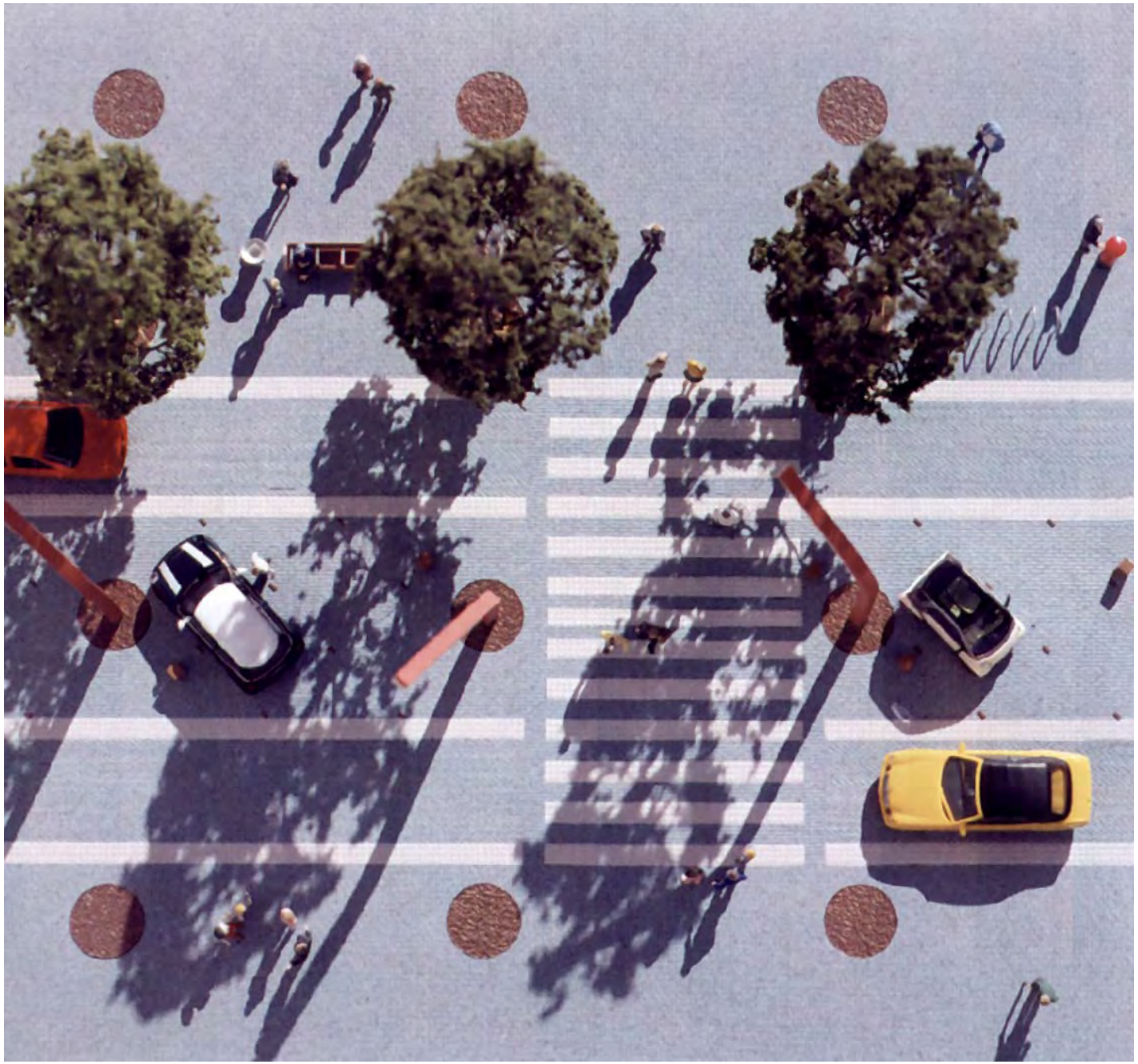
New Islington, Manchester – Old Mill Street



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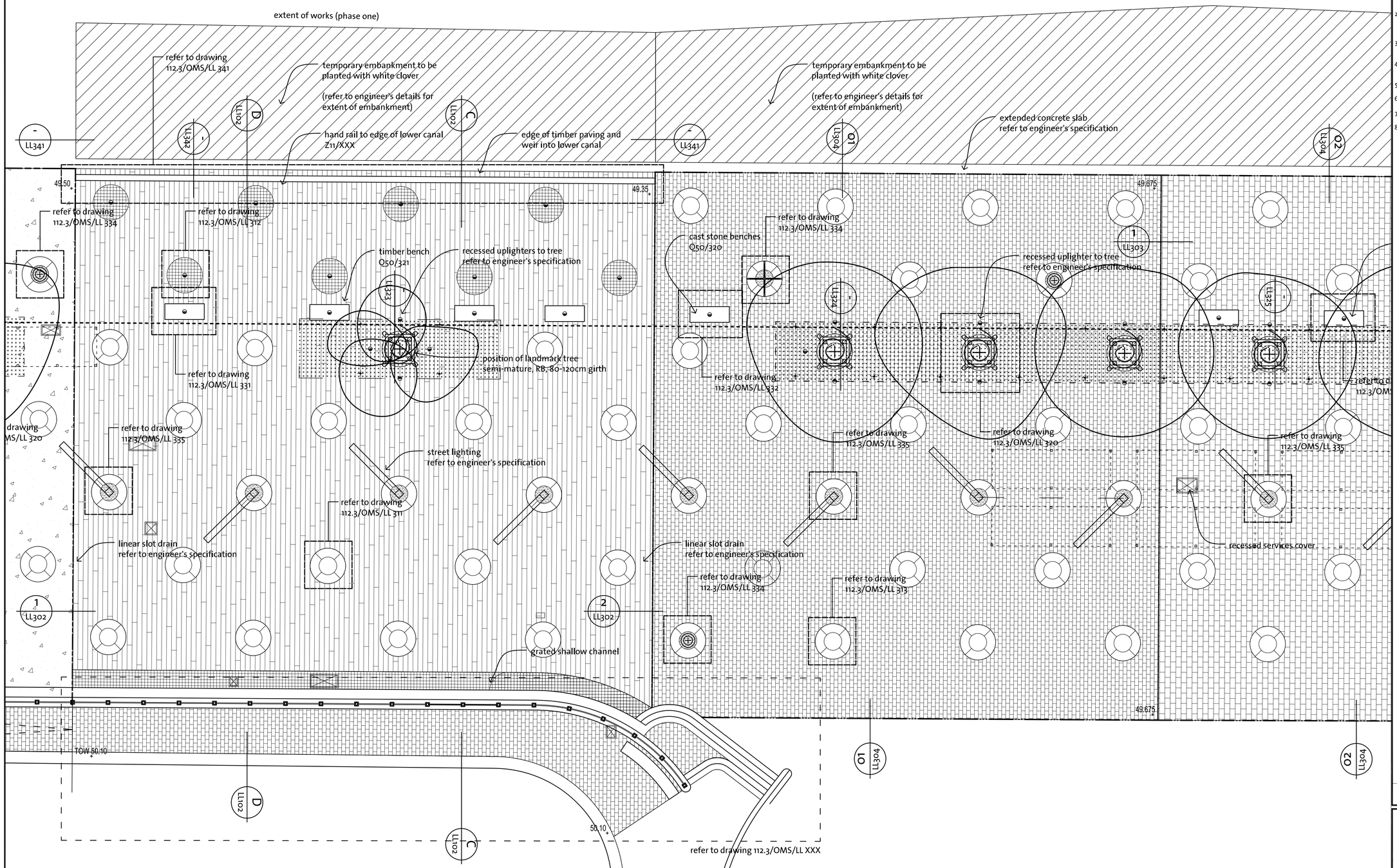

GENERAL NOTES

1. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO CONSTRUCTION WORK COMMENCING.
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3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATION.
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5. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE
6. ALL LEVELS IN METRES.
7. DO NOT SCALE OFF THIS DRAWING.
8. EXISTING SERVICE ALIGNMENTS SHALL BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION WORK COMMENCING.

Rev.	Date	Description	By
B	07/04/04	Setting out revised	David
A	03/03/04	Issued for tender	David

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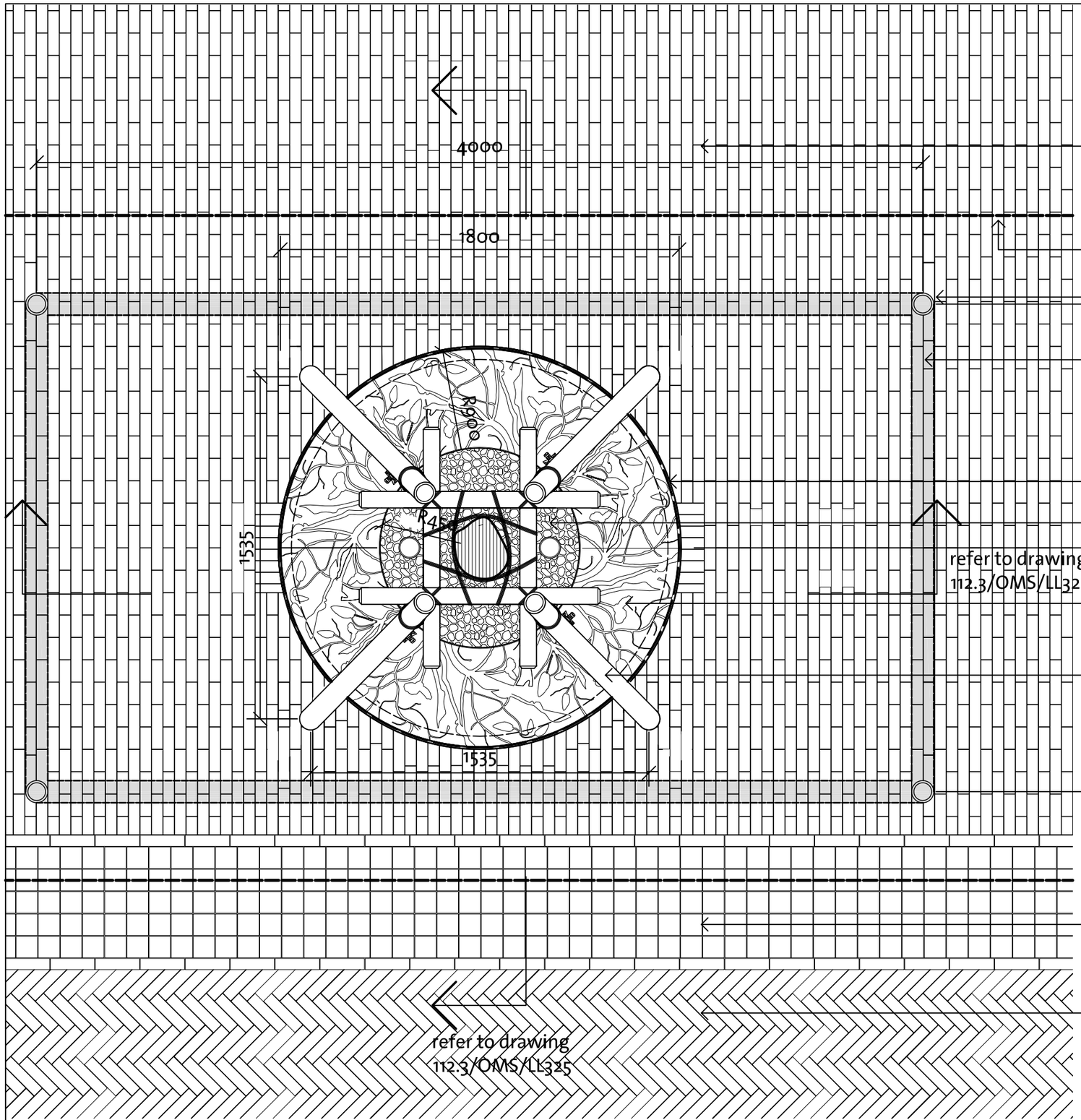
Key (Old Mill Street)

- Resin bonded aggregate surface spec clause Q22/130
- Brick pavers laid stretcher bond spec clause Q24/110
- Timber sleepers To Engineer's specification
- Reclaimed York stone setts laid stretcher bond spec clause Q25/520
- Steel edging type 1 (bound gravel) spec clause Z11/150
- Steel edging type 2 (setts) spec clause Z11/152
- Steel edging type 3 (brick) spec clause Z11/153
- Existing macadam surface raised to tie-in with new raod levels refer to engineer's spcification
- Metal polkadot type a spec clause Q50/322
- Metal polkadot with inset (inset varies) type b spec clause Q50/323
- Metal polkadot with grille type c spec clause Q50/350
- Metal polkadot with grating cover type d spec clause Q50/324
- Recessed service cover to Engineer's specification see note
- Bench type 1 spec clause Q50/320
- Timber Bench type 2 spec clause Q50/321
- Aluminium metal studs to define parking bays spec clause Q24/130
- Bus stop spec clause Q50/340
- Litter bin spec clause Q50/326
- Post box
- Cycle stands spec clause Q50/330
- Uplighter to Engineer's specification
- Tree pit aeration grilles spec clause Q31/320
- Urban tree soil trench spec clause D20/835
- Irrigation
- Way maker signage spec clause Q50/335
- Street lighting unit to Engineer's specification
- Handrail / balustrade spec clause Z11/220

Client	Urban Splash/English Partnerships
Project	New Islington Old Mill Street
Title	Landscape Plan (2 of 4)
Status	Tender

Drawn: David	Scale: 1:100 @ A1 (1:200 @ A3)	Date: 18/02/04
Checked: Keith		CAD Ref. No.
Drg. No.: 112.3/OMS/LL 003		Rev.: B



Note:
paving to be core drilled to receive tree protection, aeration/irrigation inlets

clay brick paving (stretcher bond), Q24/110

continuous root barrier

aeration/irrigation inlet

aeration/irrigation system, Q31/320

pieces to be fixed together on the underside of pieces

steel edge, Z11/165

gravel mulch, Q31/627

cast iron polka dot (quarter piece), Q50/322

timber tree frame, G20/270
refer to drawing 112.3/OMS/LL328 for fixing bracket detail

yorkstone rumble strip, Q25/520

clay brick paving (herring bone), Q24/110

Refer to drawings 112.3/OMS/LL302 - 305 for proposed finishes around trees

GENERAL NOTES

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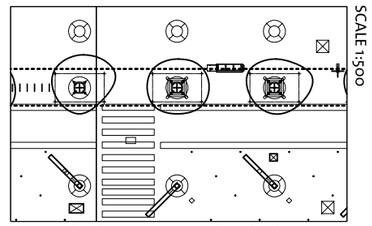
NOTES:

1. CONTRACTOR TO REFER TO CONTRACT DRAWINGS AND SPECIFICATION FOR ALL LAYING DETAILS
2. CONTRATOR TO REFER TO ENGINEER'S (MSA) DETAIL FOR ALL BASES AND SUB-BASES
3. TREE GRILLE PATTERN TO BE ORIENTATED 45 DEGREES TO FALL OF ROAD SURFACE, REFER TO DRAWINGS 112.3/OMS/LL002 - 005
4. CONTRACTOR TO ENSURE THAT URBAN TREE SOIL IS NOT CONTAMINATED DURING CONSTRUCTION OF CONCRETE SLAB, OR ANY OTHER ACTIVITIES
5. REFER TO SPECIFICATION AND APPENDIX FOR ADDITL INFORMATION REGARDING TREE FRAME WRAPPED WIRE
6. ROOTBARRIER TO BE CONTINUOUS AROUND TRENCH REFER TO DRAWINGS 112.3/OMS/006 - 010
7. CONTRACTOR TO CORE DRILL FINISHES TO ACCEPT TREE FRAMES AND AERATION/IRRIGATION INLETS



E	02/10/06	Issued 'as built'	David
D	05/08/05	setting out, angle and timber sizes revised	David
C	22/11/04	Angle detail revised	David
B	11/11/04	Irrigatn omitted	David
A	22/07/04	Tree Frame revised	David

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Client: Urban Splash / English Partnerships

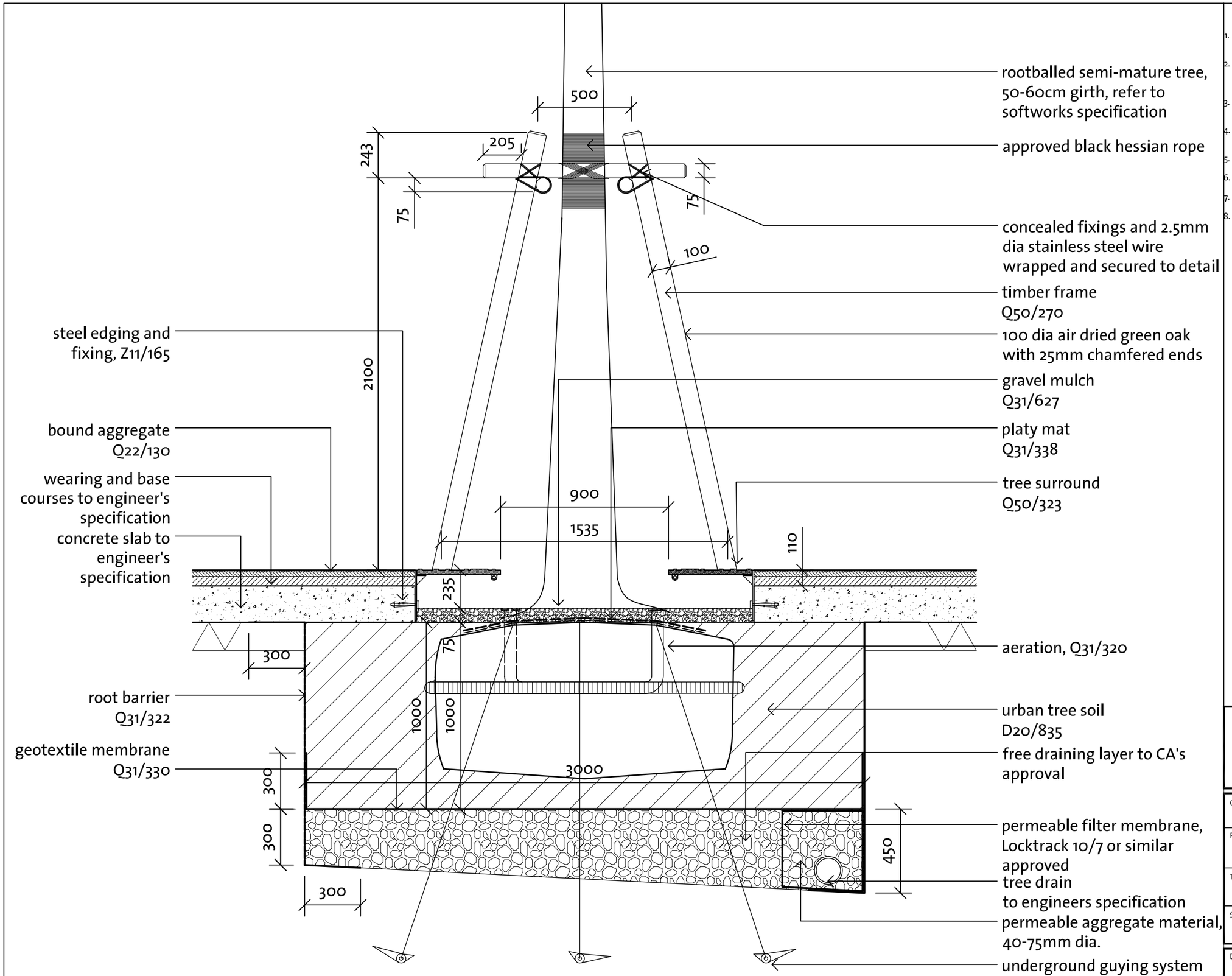
Project: New Islington
Old Mill Street

Title: Tree Pit Details
Tree Trench Detail

Status: As Built

Drawn	Scale	Date
David	1:20 @ A3	17/06/04
Checked		CAD Ref. No.

Drg. No. 112.3/OMS/LL 327 | Rev. E



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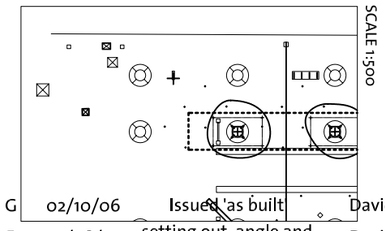
5. REFER TO SPECIFICATION AND APPENDIX FOR ADDITL INFORMATION REGARDING TREE FRAME WRAPPED WIRE
6. ROOTBARRIER TO BE CONTINUOUS AROUND TRENCH REFER TO DRAWINGS 112.3/OMS/006 - 010
7. TREE FRAME TO BE LEVELLED WITH BASE FIXING TO ENSURE THAT TOP RAILS ARE HORIZONTAL



G	02/10/06	Issued 'as built	David
F	05/08/05	setting out, angle and timber sizes revised	David
E	22/11/04	Angle detail revised	David
D	11/11/04	Irrigatn omitted & pit rev	David
C	20/07/04	Irrigatn & frame rev	David
B	16/06/04	General revision	David
A	03/03/04	Issued for tender	David

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Client: Urban Splash / English Partnerships

Project: New Islington Old Mill Street

Title: Tree Pit Details Bound Gravel Surfacing

Status: As Built

Drawn	Scale	Date
David	1:20 @ A3 (1:10 @ A1)	29/01/04
Checked		CAD Ref. No.

Drg. No. 112.3/OMS/LL 322 | Rev. G


NEW ISLINGTON
NEW ISLINGTON
NEW ISLINGTON
NEW ISLINGTON


ML08 OVD


FREE
FUNDING

Cotton Field Water Park - New Islington

Giant Pines

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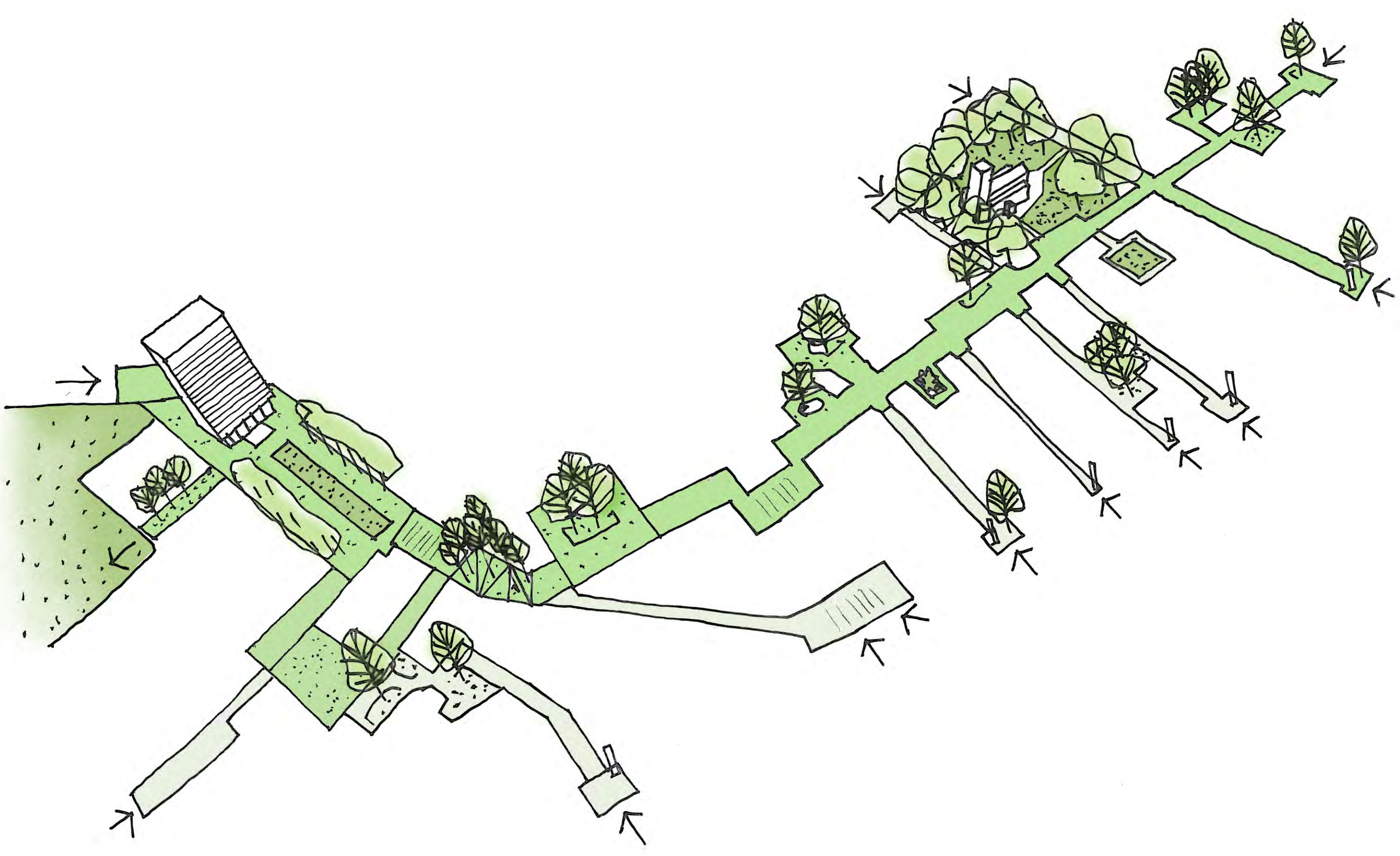
ARGOS
LOZAGARDO
River Weaver

The University of Sheffield Masterplan
Phase 1 Public Realm Works



THE CAMPUS

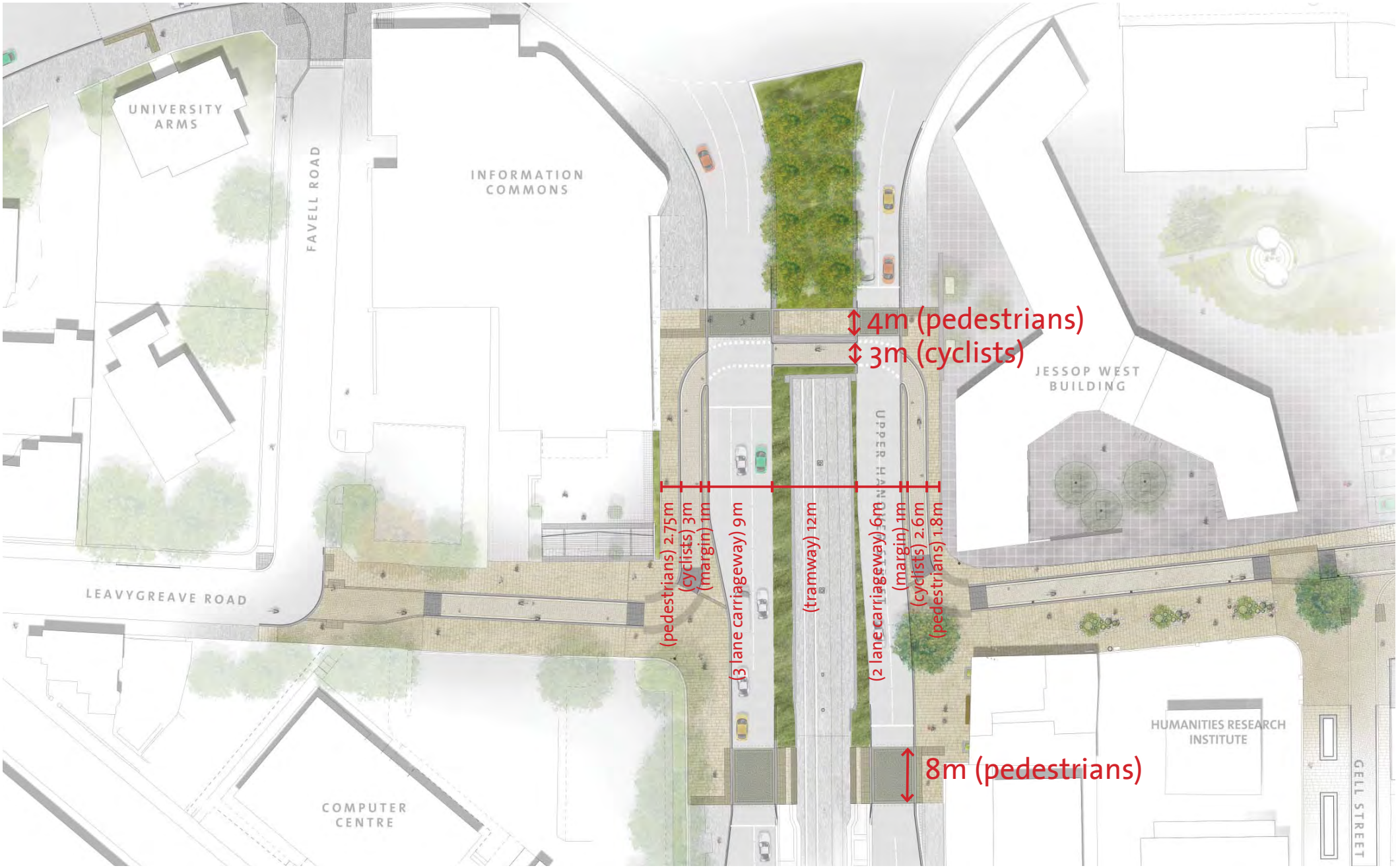
ESTABLISHING A HIERARCHY OF ROUTES

The University of Sheffield Masterplan 2014

The University Of Sheffield.

Existing View to Arts Tower Court

Proposed View to Arts Tower Court


UNIVERSITY ARMS
FAVELL ROAD
INFORMATION COMMONS
JESSOP WEST BUILDING
LEAVYGREAVE ROAD
COMPUTER CENTRE
HUMANITIES RESEARCH INSTITUTE
GELL STREET
UPPER HANOVER STREET
4m (pedestrians)
3m (cyclists)
(pedestrians) 2.75m
(cyclists) 3m
(margin) 1m
(3 lane carriageway) 9m
(tramway) 12m
(2 lane carriageway) 6m
(margin) 1m
(cyclists) 2.6m
(pedestrians) 1.8m
8m (pedestrians)

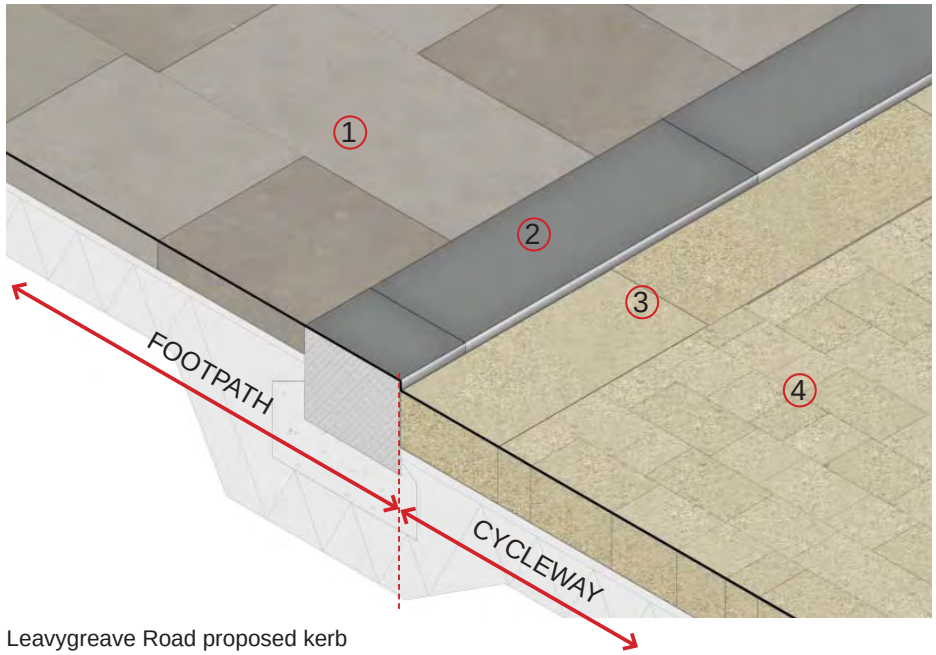
Existing view

Illustrative View

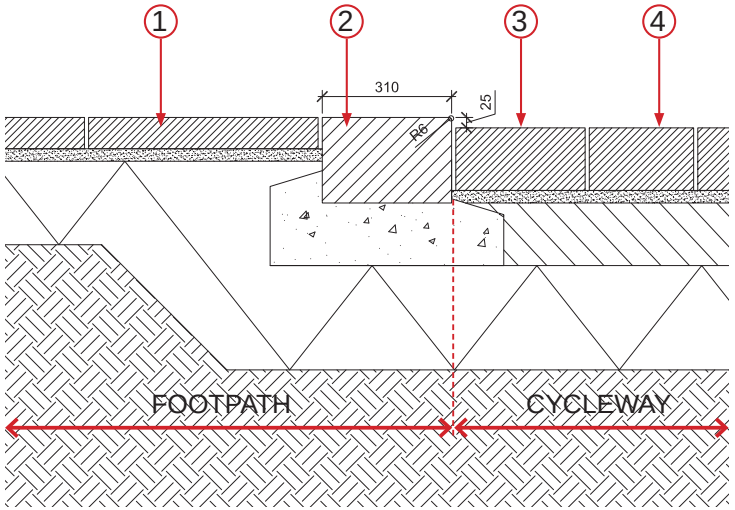
Illustrative masterplan - Leavygreave Road

25mm kerb precedents
Surrey Street

25mm kerb precedents
Norfolk Street



Leavygreave Road proposed kerb
Axo



Leavygreave Road proposed 6mm Bullnose kerb
Section

Legend:

1. Whitworth sandstone paving
(450mm wide)

2. Alentejo dark grey granite kerb
(310mm wide, 6mm bullnose, 25mm upstand)

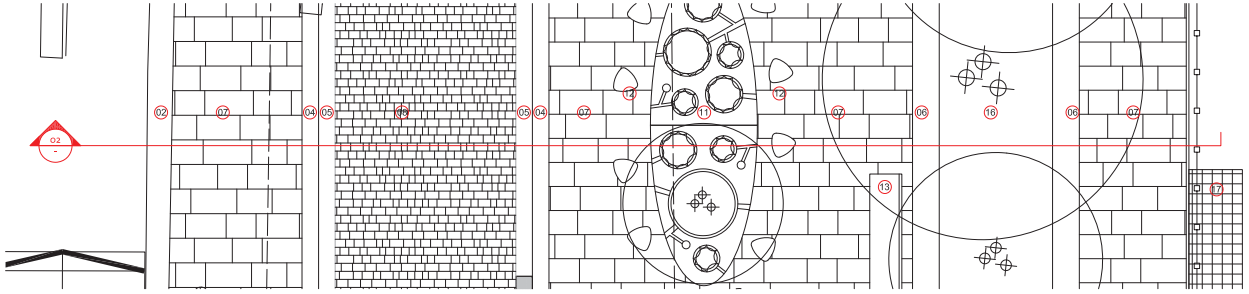
3. Yellow Alpendurada granite channel
(310mm wide)

4. Yellow Alpendurada granite setts
(150mm wide)

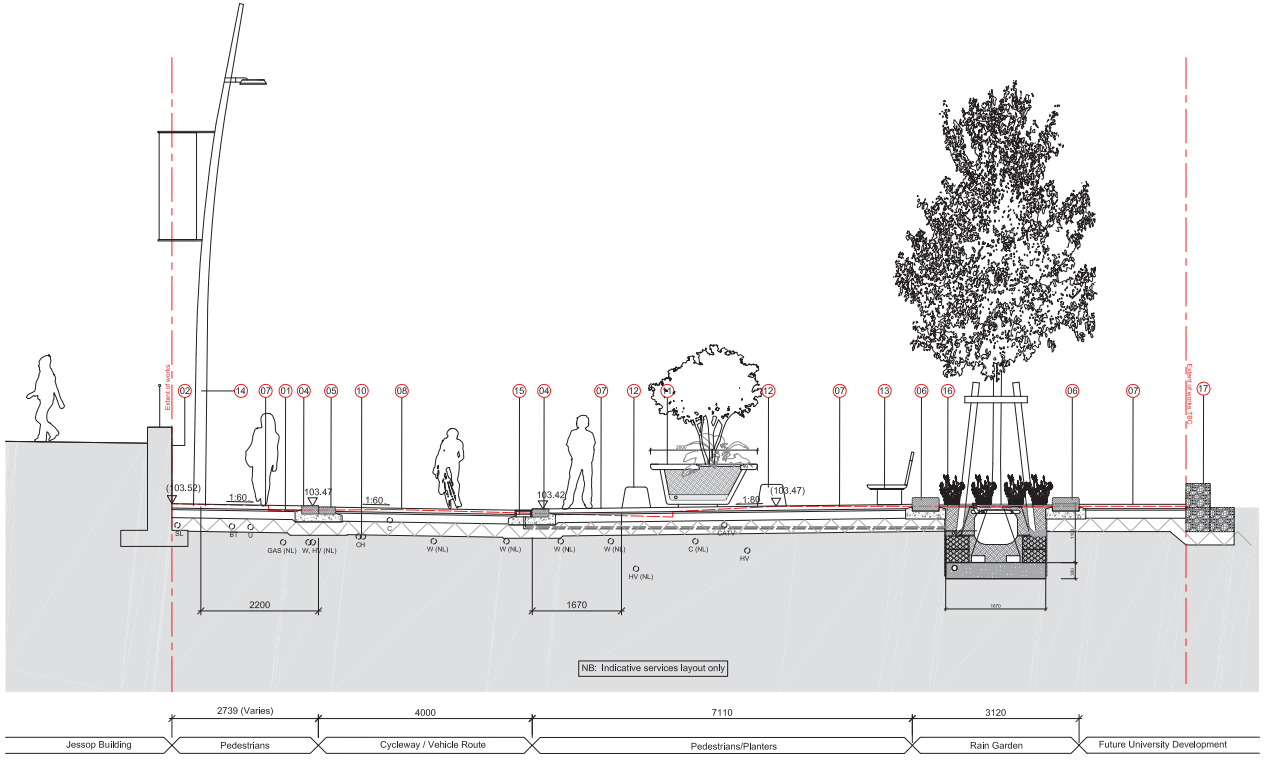
Western end of Leavygreave Road

Typical side street junction layout

Typical Section



01 PLAN VIEW
LEAVYGREAVE ROAD



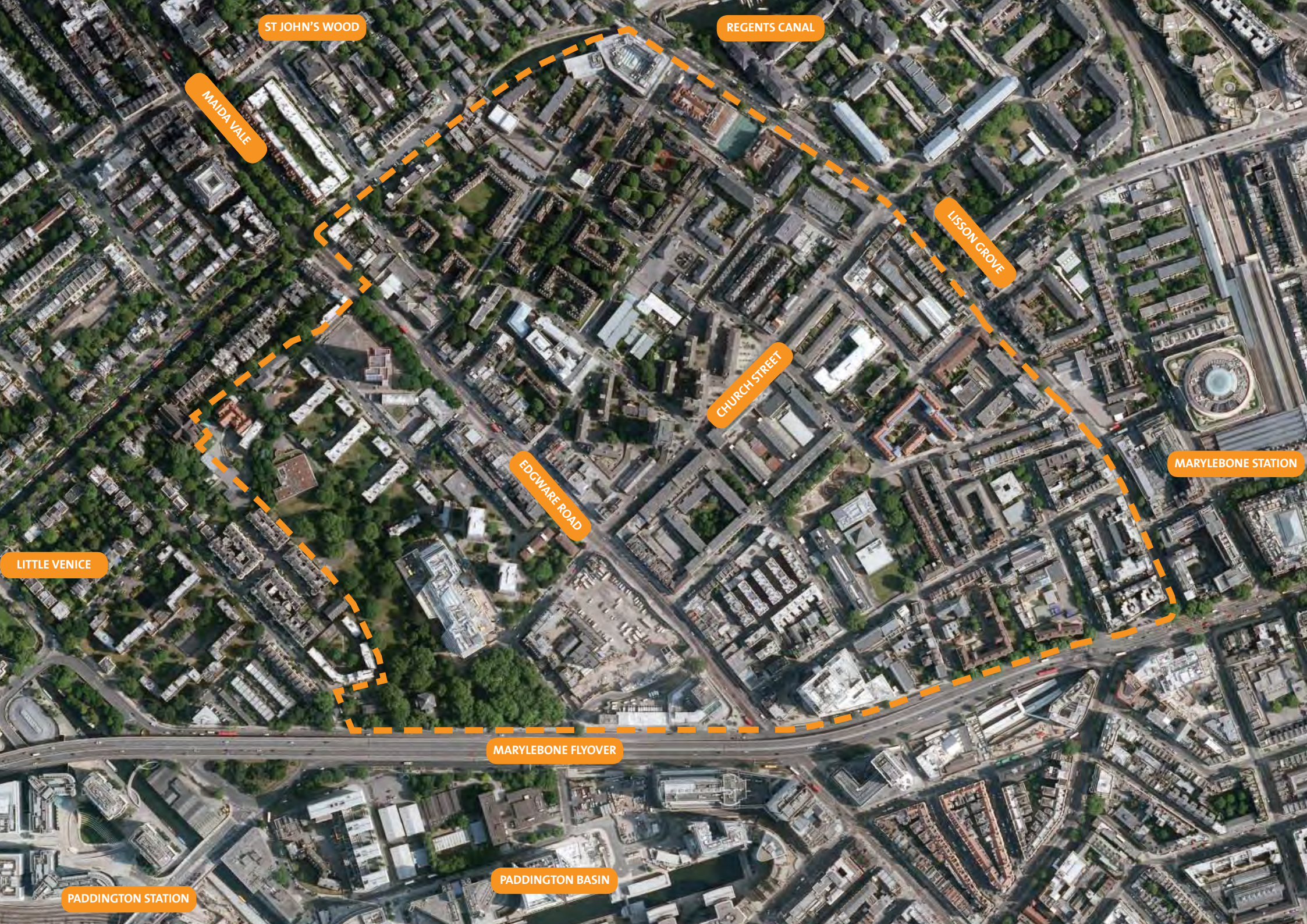
02 SECTION
THROUGH LEAVYGREAVE ROAD AND RAIN GARDEN


HERAS
HIGHWAYS
& UTILITIES
ACOUSTIC BARRIER
NOISE REDUCTION SYSTEM
HIGHWAYS
& UTILITIES

Church Street and Paddington Green

Infrastructure and Public Realm Plan,

Westminster

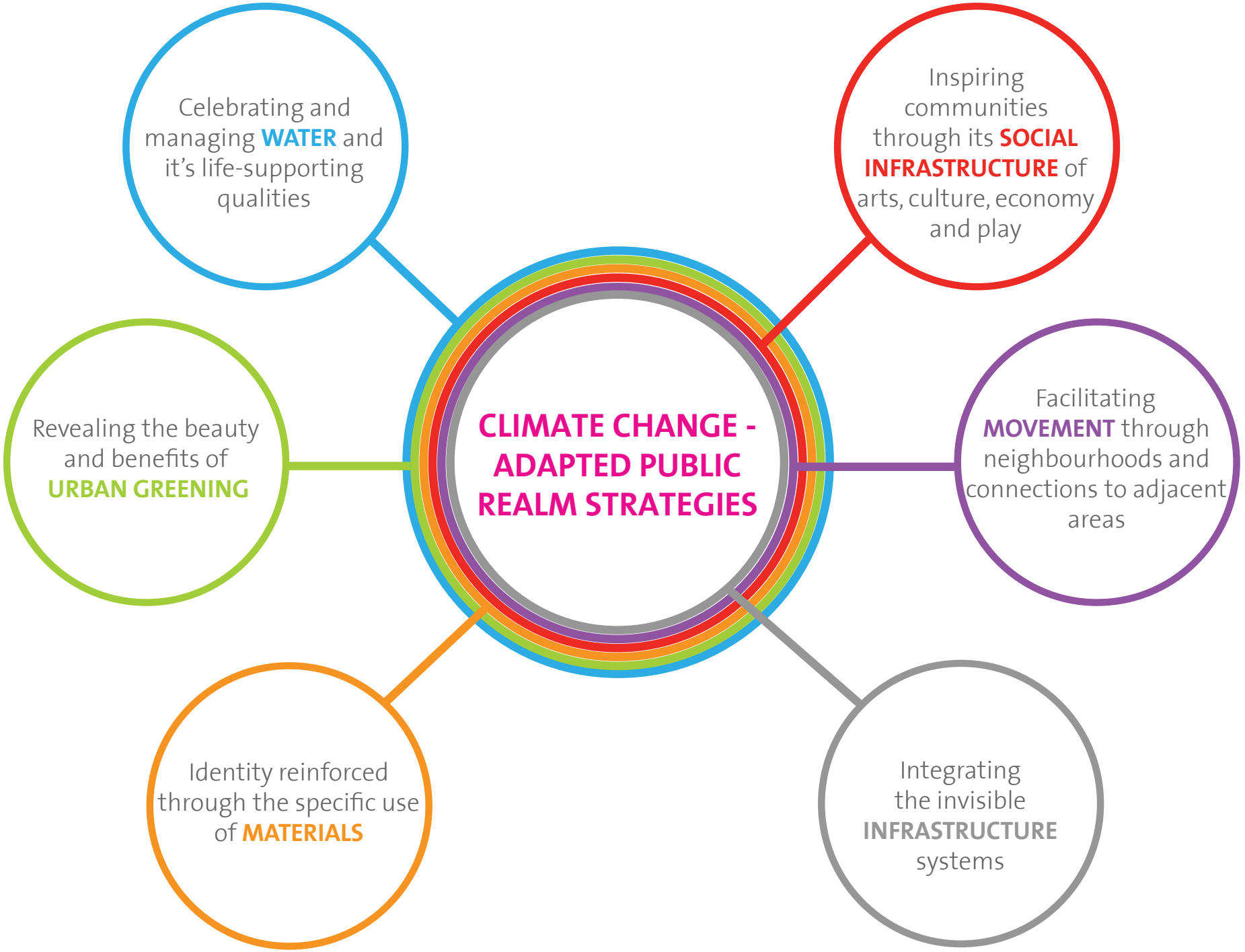

ST JOHN'S WOOD
REGENTS CANAL
MAIDA VALE
LISSON GROVE
CHURCH STREET
EDGWARE ROAD
MARYLEBONE STATION
LITTLE VENICE
MARYLEBONE FLYOVER
PADDINGTON BASIN
PADDINGTON STATION

The Church Street area *has the* highest instances of poor physical and mental health and the lowest life expectancy in Westminster


B EA 2288

The Team

- **Feilden Clegg Bradley Studios**
- **Biodiversity by Design**
- **Buro Happold**
- **Ackroyd and Harvey**
- **Thomas Lister**
- **Davis Langdon**


Celebrating and managing WATER and it's life-supporting qualities
Inspiring communities through its SOCIAL INFRASTRUCTURE of arts, culture, economy and play
Revealing the beauty and benefits of URBAN GREENING
CLIMATE CHANGE - ADAPTED PUBLIC REALM STRATEGIES
Facilitating MOVEMENT through neighbourhoods and connections to adjacent areas
Identity reinforced through the specific use of MATERIALS
Integrating the invisible INFRASTRUCTURE systems

Unlocking Potential

Space to *breathe*

- extensive tree planting
- rain gardens
- informal play spaces
- community gardens
- spaces of nature
- attractive walks and cycle routes


Tree
Planting
Green
Walls
Rain
Garden
Shared
Space

Tree Planting strategy

“ The intent is to maximise the environmental and wildlife benefits of tree planting through the increasing of canopy cover within the Church Street and Paddington Green neighbourhood. “

An Assumption for *Forest-Scale Trees*

Tree selection for *Air Quality*

1.3 TREE PLANTING

SCIENTIFIC NAME	COMMON NAME	SIZE	SOILS/ ROOT HABIT	WILDLIFE VALUE/ NATIVE	AIR QUALITY BENEFIT	MAINTENANCE ISSUES	IMAGES
Pinus sylvestris	Scots Pine	Large 10-30m H x 5-8m W	Deep rooting	Native	High	None	
Prunus domestica subsp. Institia (many cultivars)	Damson	Medium 5-15m H x 5-10m W	Sensitive to compaction and paving	Edible fruits and nectar	Medium	Fruiting May lift paving	
Pyrus comunis (many cultivars)	Pear	Medium 5-15m H x 5-10m W	Sensitive to compaction and paving	Edible fruits and nectar	Medium	Fruiting May lift paving	
Quercus robur	Pendunculate Oak	Large 30-35m H x 15-25m W	Deep rooting	Native	Low	None	
Sorbus aucuparia	Mountain Ash	Small 5-10m H x 4-6m W	Shallow rooting, sensitive to soil compaction	Native	Medium	None	
Tilia x europea	Common Lime	Large 25-40m H x 10-15m W	Sensitive to soil compaction	Native	Medium	Takes well to cutting, suitable for topiary forms	

Tree selection for *Rain Gardens*

1.5 SUDS AND ASSOCIATED PLANTING

SCIENTIFIC NAME	COMMON NAME	SIZE	SOILS/ ROOT HABIT	WILDLIFE VALUE/ NATIVE	AIR QUALITY BENEFIT	MAINTENANCE ISSUES	IMAGES
Alnus glutinosa	Common Alder	Large 8-20m H x 8-10m W	Shallow roots Tolerates flooding	Native	Medium	None	
Alnus incana	Grey Alder	Medium 8-12m H x 3-6m W	Shallow roots Tolerates flooding	Native	Medium	None	
Berberis	Barberry	Shrub 1.5-2m H x 1.5-2m W		Edible fruits	N.A	None	
Betula nigra	River Birch	Large 15-20m H x 8-12m W	Shallow roots Tolerates flooding		High	None	
Betula pubescens	Downy Birch	Medum 5-15m H x 3-5m W	Shallow roots	Native	High	None	

Tree selection for *Cultivating and Foraging*

1.6 EDIBLE LANDSCAPES

EDIBLE COMMUNITY GARDENS : SUGGESTED SPECIES

EDIBLE STREET TREES

Common Walnut (1)
Juglans regia

Common Lime (2)
Tilia x europea (edible leaves)

Gingko (3)
Gingko balboa

Wild Cherry
Prunus avium

Sweet Chestnut (4)
Castanea sativa

Apple (5)
Malus domestica (many cultivars)

Damson (6)
Prunus domestica subsp. Insititia (many cultivars)

Pear (7)
Pyrus communis (many cultivars)

Strawberry Tree (8)
Arbutus inedo

Black Mulberry
Morus nigra

EDIBLE HEDGING

Protective hedges should be used for demarcating food plots. Species include varieites with edible fruits

Darwin's Barberry (9)
Berberis darwinii

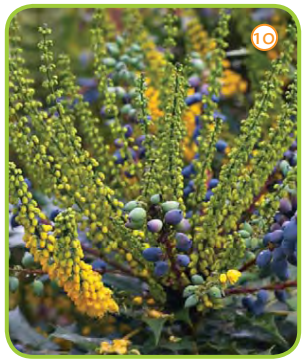
Oregon Grape (10)
Mahonia aquifolium

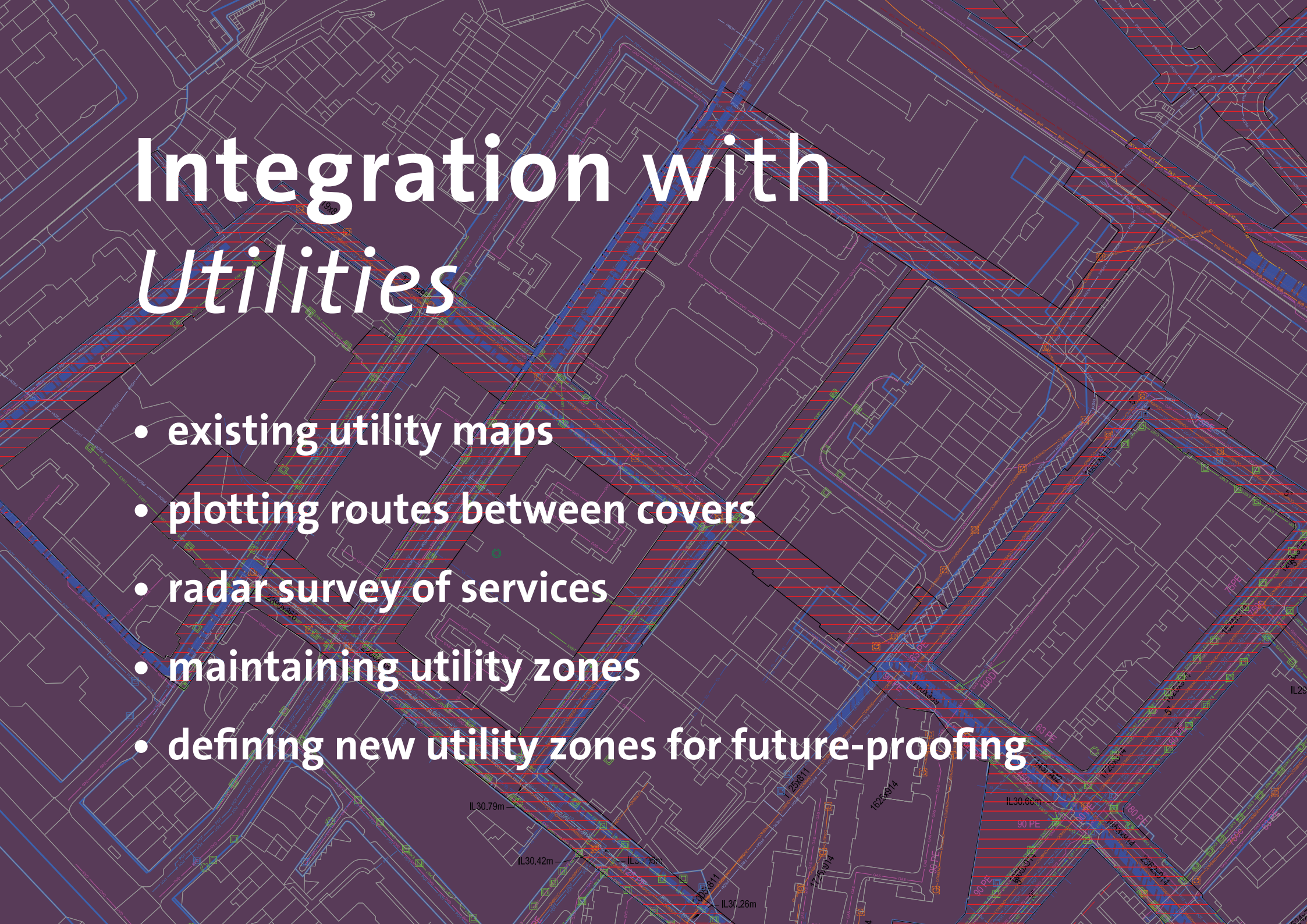
Hawthorn (11)
Crataegus monogyna

Blackthorn
Prunus spinosa

Ramanas Rose (12)
Rosa rugosa

Eleagnus
Elaeagnus x ebbingei



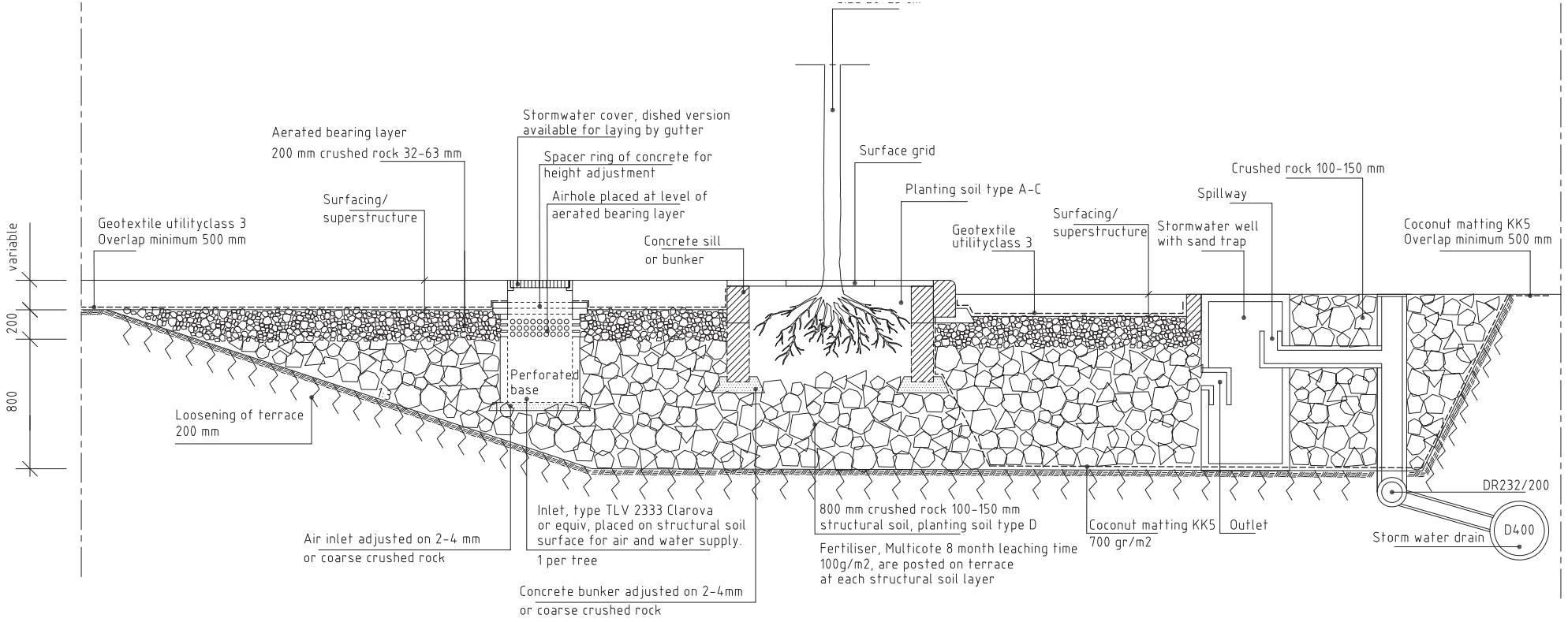


Integration with *Utilities*

- existing utility maps
- plotting routes between covers
- radar survey of services
- maintaining utility zones
- defining new utility zones for future-proofing

Integration with *Utilities*

Consider the *Stockholm Method*



LOCAL DISPOSAL OF STORM WATER - TREE IN PAVED AREA WITH STRUCTURAL SOIL
Principle section

NOTES
All data in mm unless otherwise specified


NA52 ZYE

Existing

Proposed

forest of IMAGINATION

Forests of imagination

grant associates

FOREST OF IMAGINATION IS A CREATIVE ECOSYSTEM FOR ART AND PARTICIPATION

forest of IMAGINATION

PARTNERS/COLLABORATORS

5x5x5=creativity

Bath Spa University

Bath Abbey

Bristol Zoo Gardens

Carpenter Oak & Woodland

FeildenCleggBradleyStudios

Hawker Joinery
Honest | Handmade | Heritage

Herman Miller

The House of Fairy Tales

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IMAGINNOVATION

illustrious

Media Grand
Augmented Reality

The Museum of East Asian Art

RSA Fellowship

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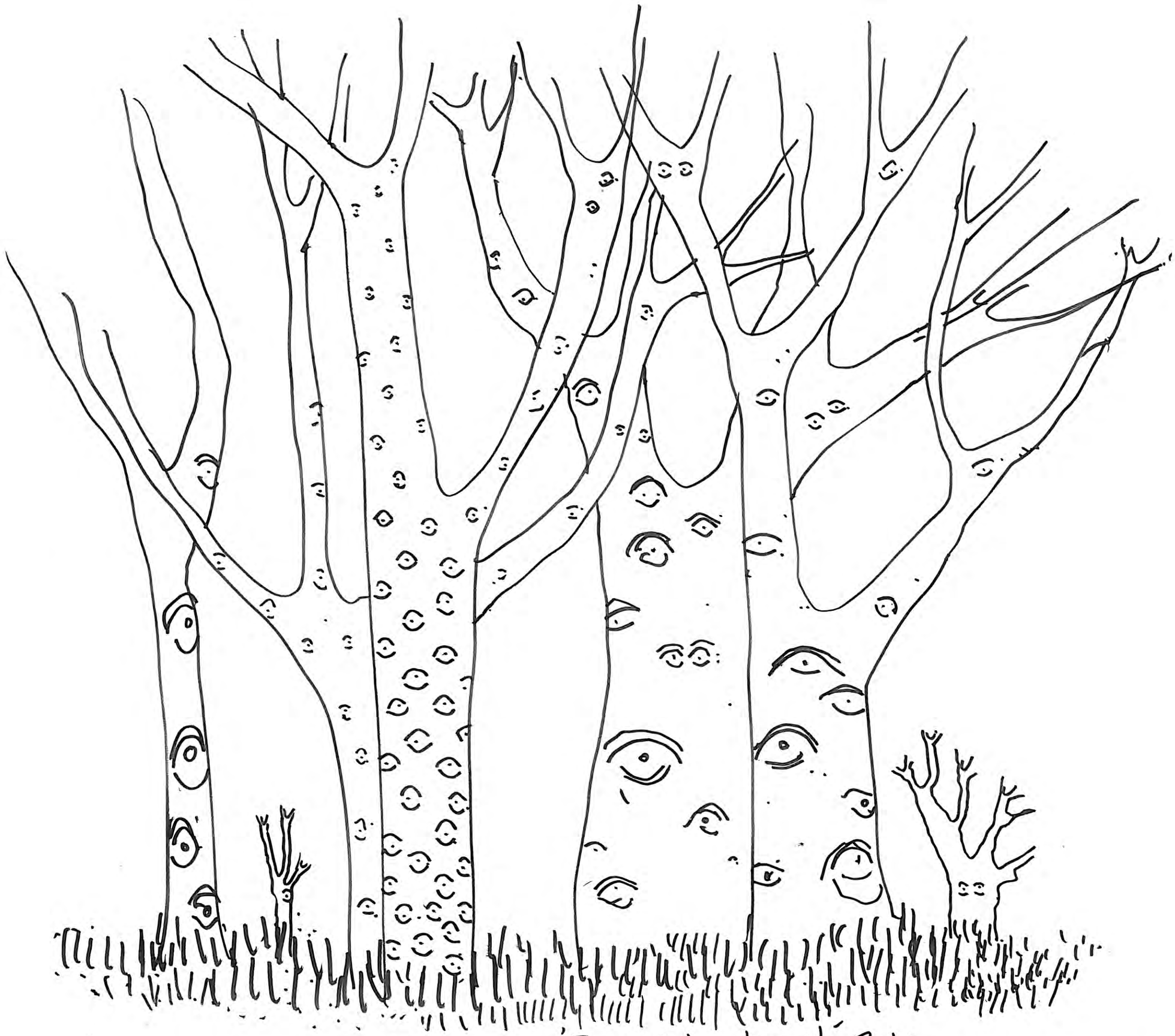
Batheaston Primary School
Colerne Old School Playgroup
Marksbury Primary School
St Andrew's Primary School
St Michael's Junior School
St Saviours Infant School
St Vigor and St John Primary School
Swainswick Primary School
The Greenhouse School
Writhlington Secondary School

EVERYONE IS AN ARTIST



Eyes of the forest 2016.

Forest of Imagination 2016
Eyes of the Forest

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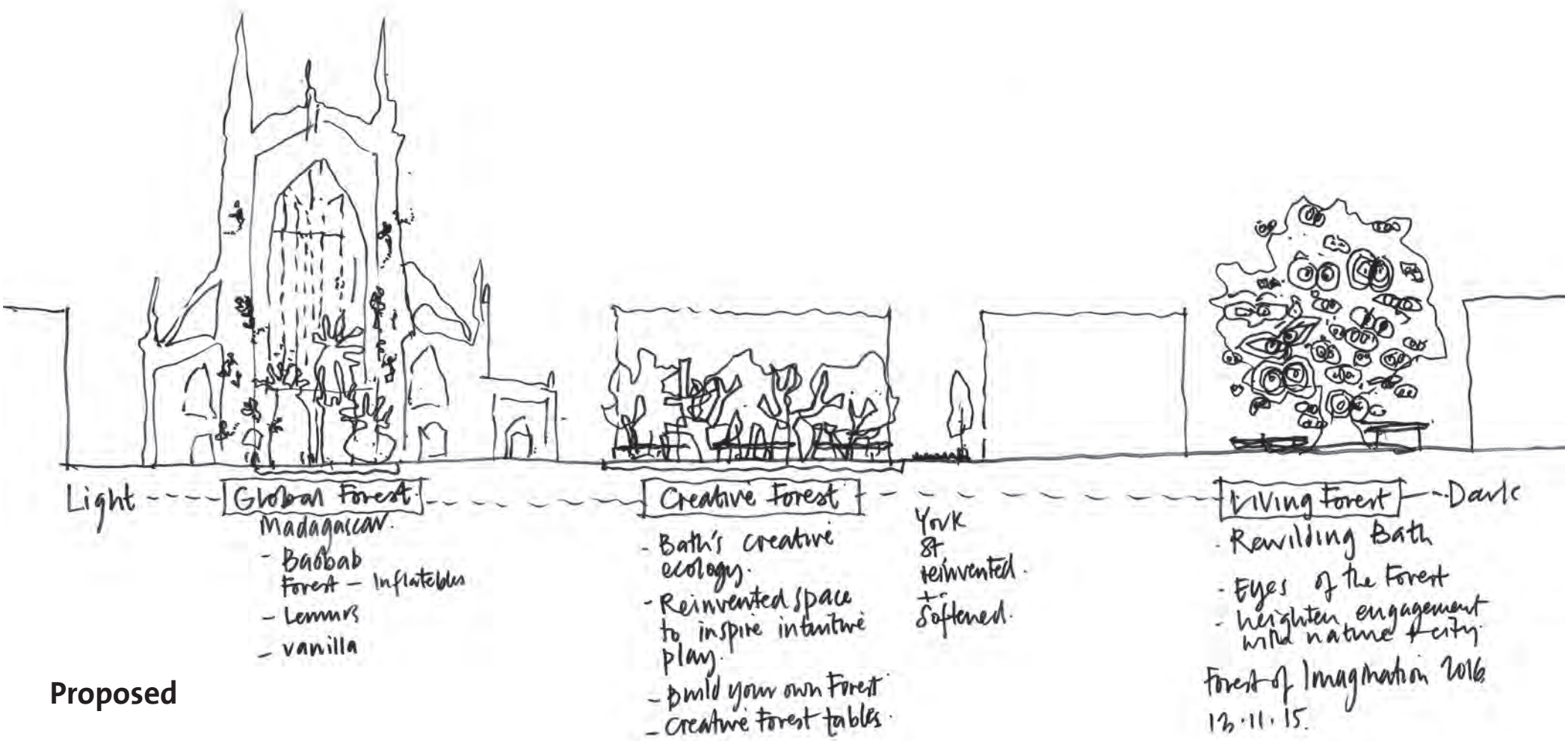
We want to transform these City Centre Spaces into a temporary, inspiring 'Forest'



Proposed

forest IMAGINATION

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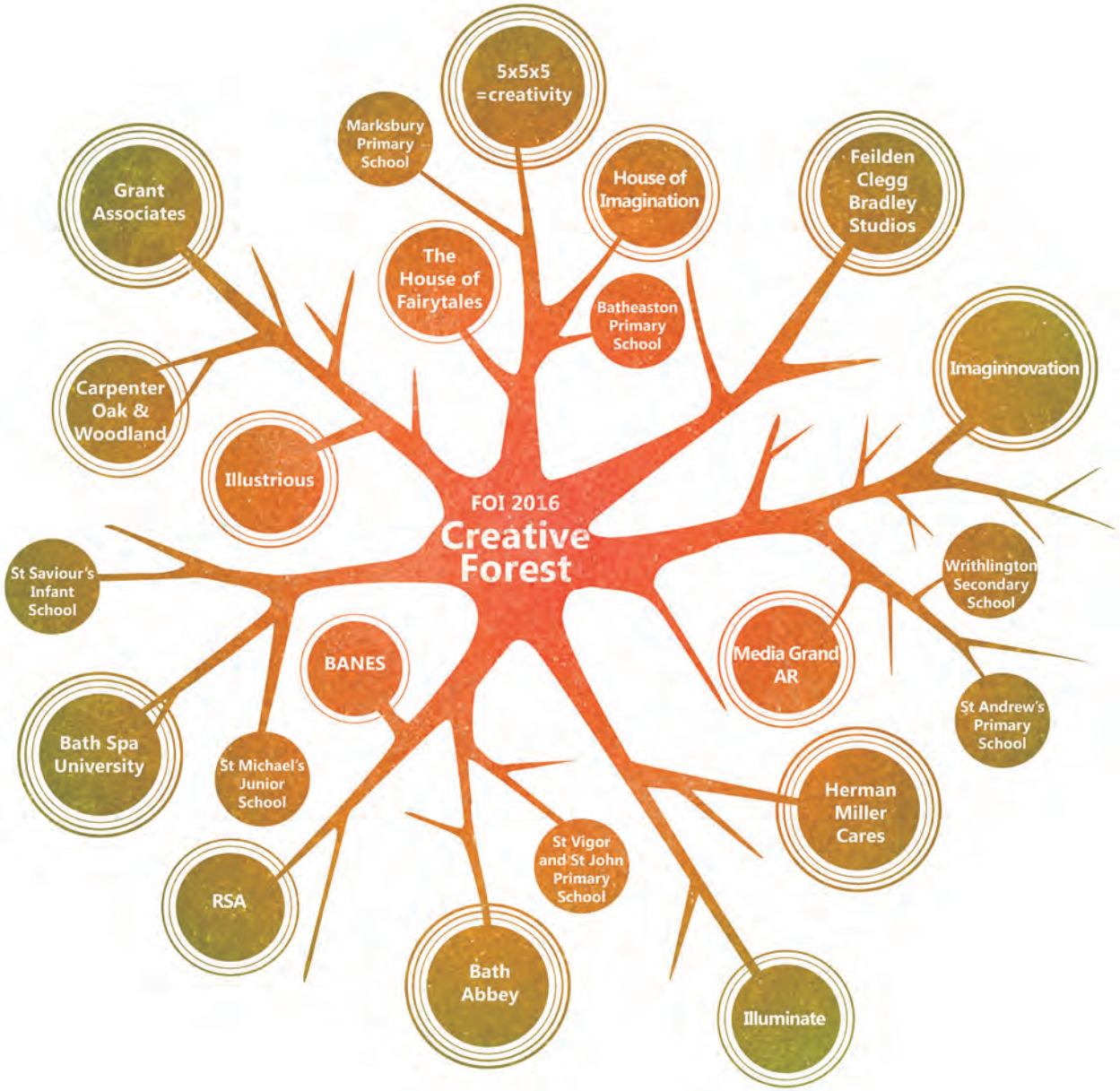

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Creative Forest | Kingston Parade

In the square at Kingston Parade , the Creative Forest will bring the creative ecology of the city to life and will make a new urban forest of 1000 artificial trees. The square will become a big outdoor workshop space where we make/grow an abstract 'forest' over the course of the event. The emphasis is on human response to the forest environment. At the heart of this space is the Bower nest structure by Carpenter Oak and Woodland offering a special spatial enclosure. The soundscape created by Martyn Ware is an experience within this enclosure and will capture a more elemental quality of the forest and perhaps dwell on the darkness and sense of the unknown.

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Creative Forest | 1000 Trees

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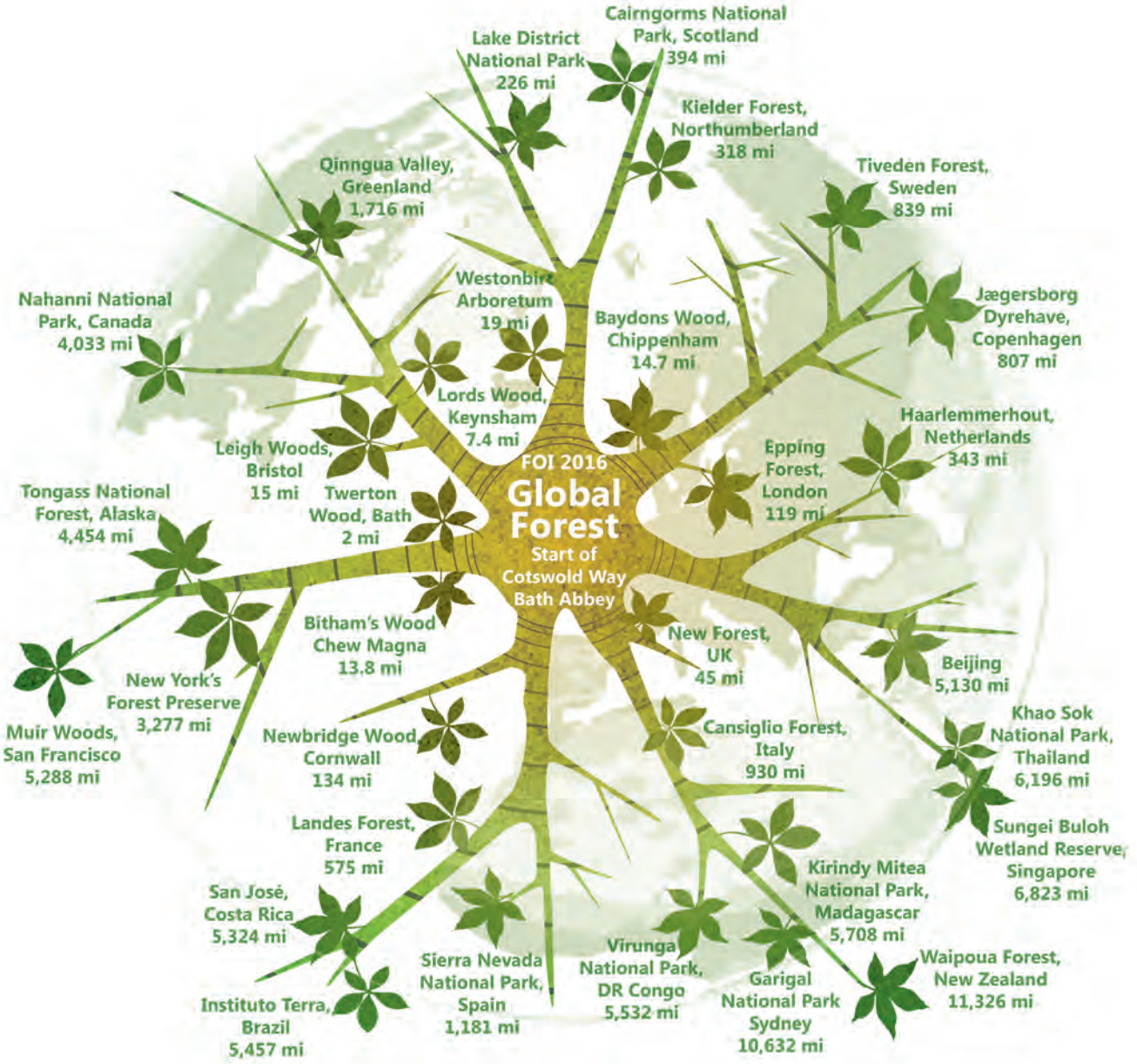

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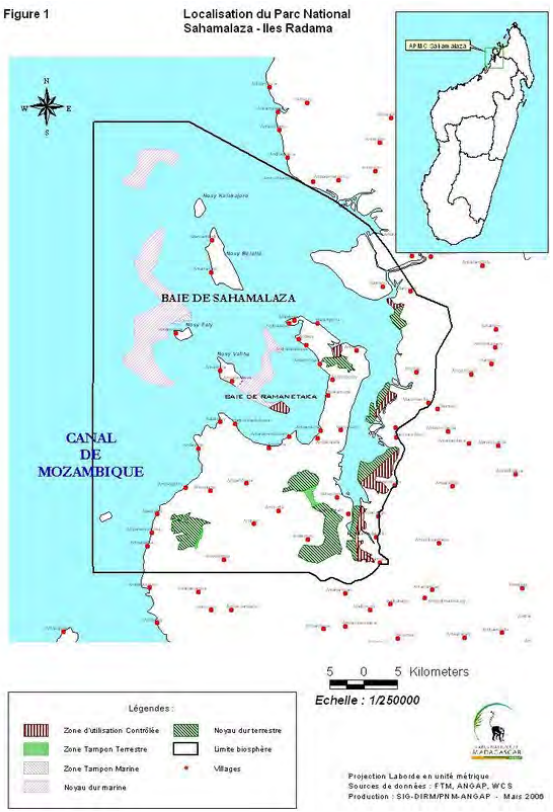
Global Forest | Abbey Church Yard

Telling a story about the global importance of forests but also to invite/encourage imagination about forests we may never have the chance to visit.

We have selected Madagascar and the Baobab forests as the main reference since they are highly unusual, under serious threat, have extraordinary biodiversity and lend themselves to some dramatic installations. Bristol Zoo are supporting this aspect of the project as one as one of their key conservation projects (Lemurs) is based in Madagascar. The main installation in this space is for the erection of three large inflatable Baobab trees in front of the Abbey west door. These will range in size from 6m to 10m high and with girths from 3m to 4m diameter.

A large diagram will be drawn onto the ground in chalk/ eco paint. This will depict the distance from Bath of a number of major forests around the world and a selection of local woods.



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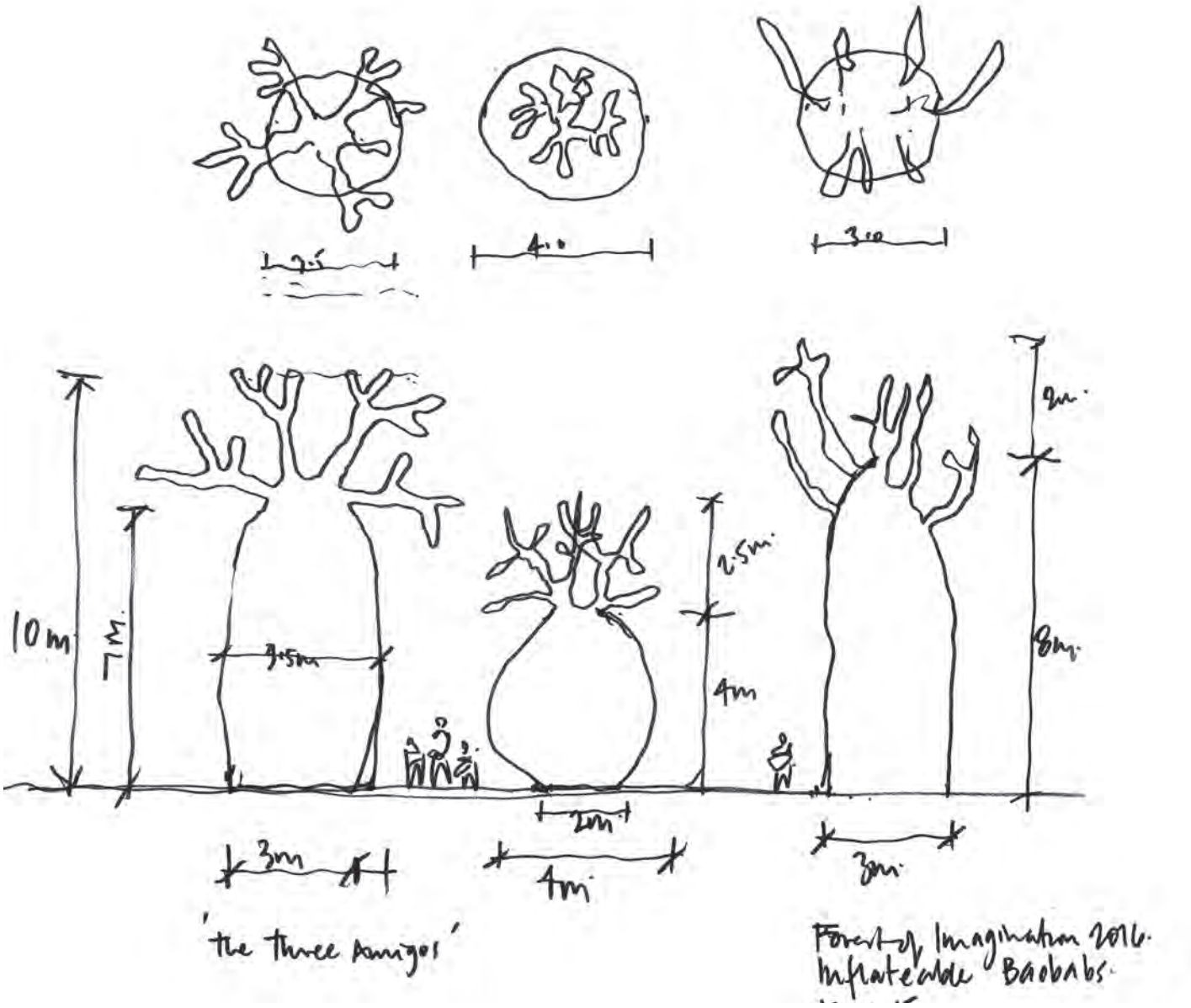
Global Forest | Baobab Trees



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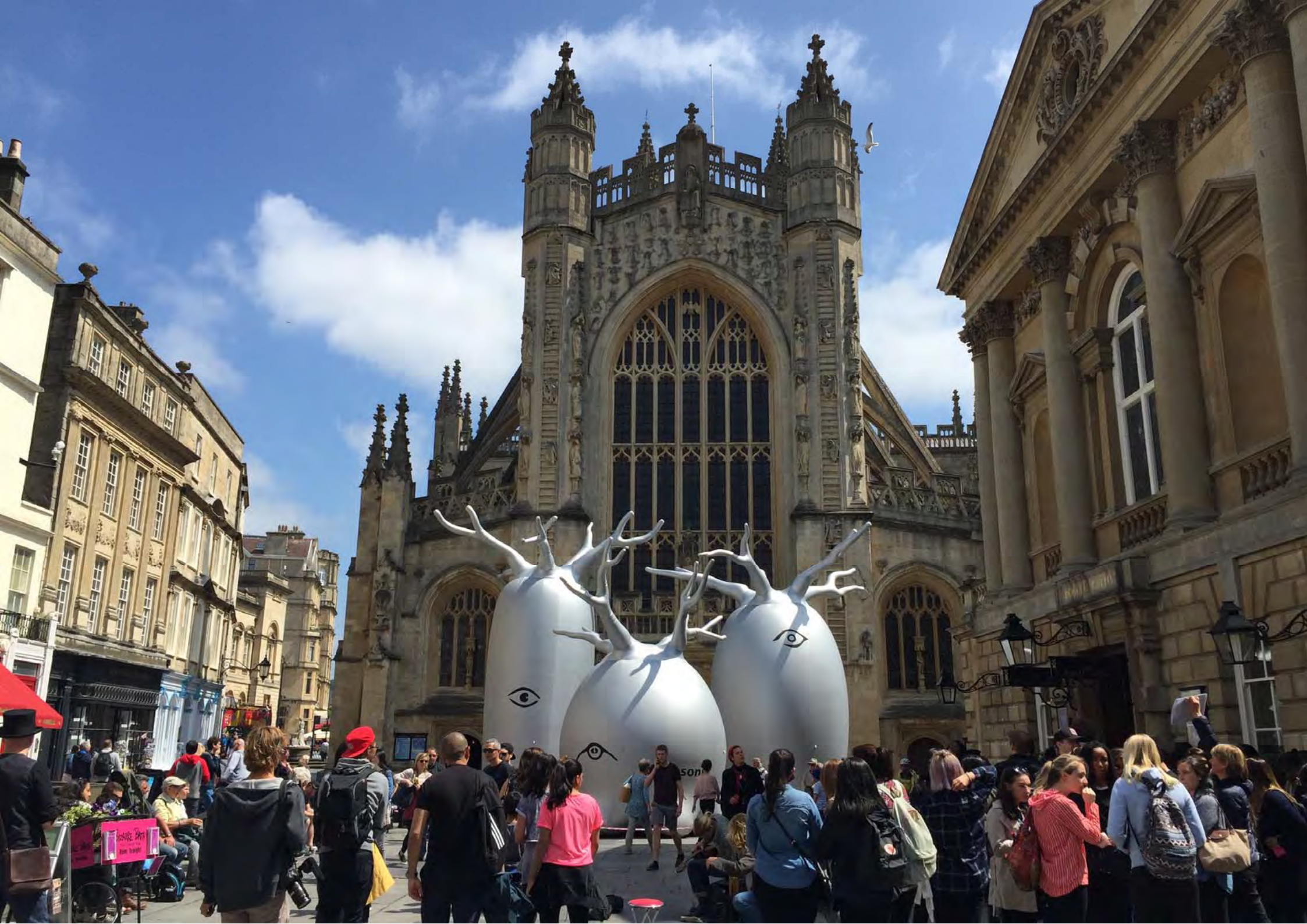

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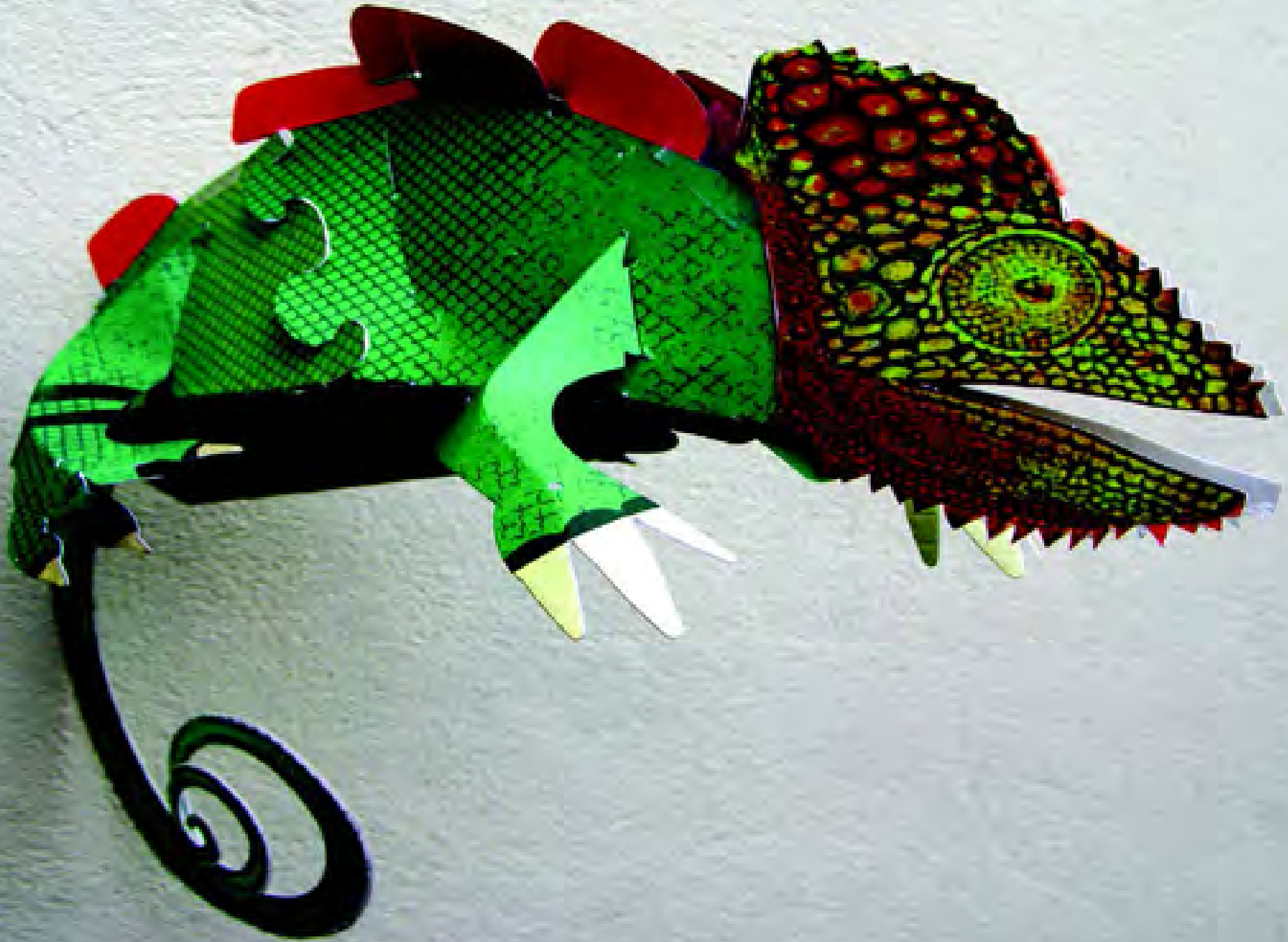
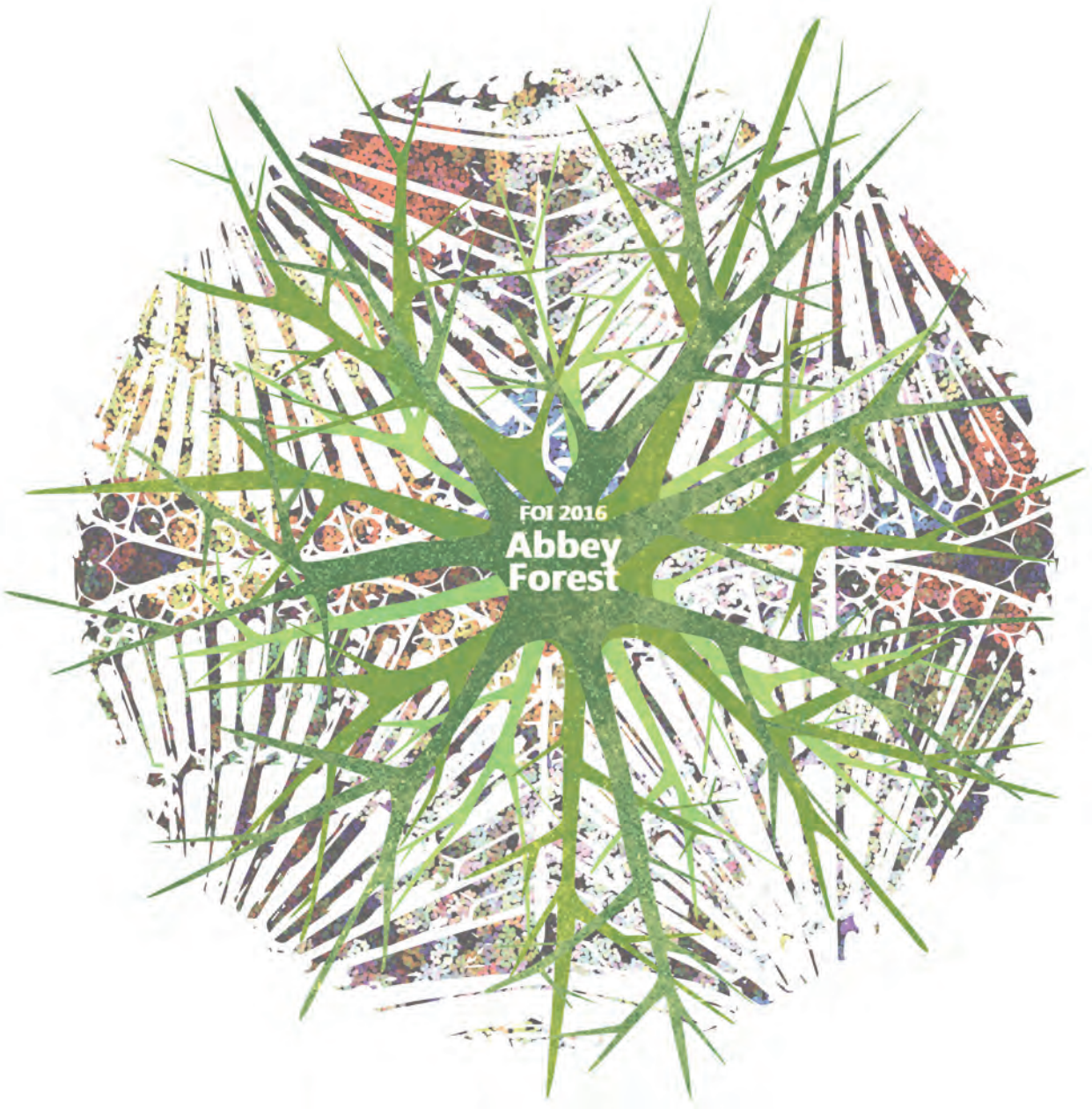



THE BATH BUN TEA SHOPPE
TODAY



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Bath

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Thank you
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