ADAMSTOWN BOULEVARD PHASE 1

Landscape Design Statement

Applicant: Adamstown Station + Boulevard Ltd

NMP LANDSCAPE ARCHITECTURE

April 2022

CONTENTS

Existing Hedgerow, Adamstown Boulevard, Sept 2021

Niall Montgomery + Partners Landscape Architects have been engaged by the applicant to collaborate with MDO Architects to develop lands at Adamstown Boulevard Phase 1.

Phase 1 of the Adamstown Boulevard development seeks Permission for 257no. terraced and semi-detached housing units ranging from 2 to 3-storeys in height; open space is proposed including a Pocket Park, and also a Linear Park which stretches from Adamstown Way to Station Road; all associated ancillary site development and landscape works, including internal roads and services, ESB Sub-Stations, landscaping and boundary treatment works. Outline Permission is also being sought for 166no. apartment units in a block ranging from 6 to 9-storeys in height which will deliver a range of unit types. All on a site of c.9.76Ha (including lands for Outline Permission).

This report and design approach is written with reference to the draft county development plan specifically acknowledging the following objectives:

GI2 Objective 5: To protect and enhance the County's hedgerow network: as demonstrated with the protection mitigation of hedgerows identified on site.

Chapter + section 4.2.3 Climate Resilience – Urban Greening – interventions which raise quality and quantity and access of urban green spaces: as included in design proposal the provision of a pocket park, linear park, additional hedgerow mitigation, bio-retention tree pits, swales, large areas of meadow grass and wildflower planting which are accessible to the public and of a high quality both with respect to provision of habitat (mini forests) and excess quantum over that which is required. Interventions such as bat boxes and habitat hotels have also been included.

GI5 Objective 6: To provide more tree cover across the county, in particular to areas that are lacking trees: as demonstrated in the net gain tree planting for the site and plant palette attached to drawing schedule.

INTRODUCTION 0.0

1.0 CONTEXT ANALYSIS

1.1 Existing Site Conditions

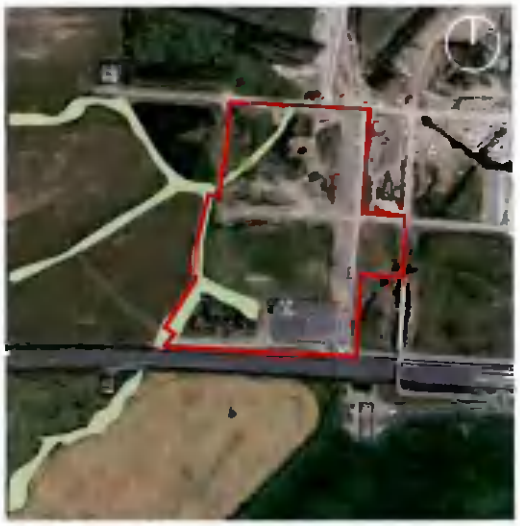
Micro-climate

The site will benefit from positive solar gain with no adjacent development to overshadow. Open space, seating and gathering areas will be arranged to take advantage of this. In the same way, the predominant north westerly winds will be sheltered from through tree planting and orientation of space and proximity to built form.

Access + Connections

Accessed, predominantly, on its southern most boundary from Station Road, the site has existing infrastructure in place to connect with the wider Adamstown SDZ area, future and current phases. The 'Cattle Bridge' straddles Station Road and the railway line to the south east, with a landing point at approximately the location of the interface with area 1 as annotated. This will need to be considered in future plans. There are numerous points of access with Adamstown Way to carry the most traffic.

Existing Vegetation



The site is on agricultural land. The area is broadly devoid of vegetation other than the hedgerow and trees within this hedgerow. A thicket of bramble and blackthorn have invaded this hedgerow which is mostly unkempt and in poor condition overall. Extensive ivy is also present mainly on the hawthorn trees as well as the ash and black poplar (Populus. nigra subsp. Betulifolia) trees present on site. One good quality high amenity and landscape value oak tree – no. 1529 - will be retained. Ref Arb Report for further detail.

Topography

Topography can be characterised as uneven and with localised challenging 'hillocks' to traverse by foot. The site falls gently overall from north west to south east over just a few meters. The hedgerow is located on top of a raised ditch with a deep drain adjacent, following the topographic falls and as a traditional agricultural drain and field demarcation.

Boundaries + Edges

1. Station Road and the railway line form the southern boundary of the site. An existing green paladin fence and scrubby hedgerow secure the actual boundary.
2. The western most boundary is formed by an existing hedgerow, as described in the arborist report. It is intended to retain this and mitigate any localised losses. It will be protected with a paladin fence.
3. The Northern boundary of the site is defined by a road, Adamstown Way, which will connect with the surrounding Adamstown phases and linking to the context beyond this.
4. The eastern boundary is formed by an existing road, again this will connect with the wider context of the SDZ area.

Note: any red line boundaries are indicative only. Refer to architects drawings for application boundary.

1.2 Site Existing Views

View 1: Typical View Facing North

View 2: Typical Hedgerow View Facing West

View 3: Existing Road on Eastern Boundary

View 4: Station Road on Southern Boundary

View 5: View Looking North Across Site

View 6: Aerial Facing South West from North East Corner

View 7: Existing Oak Tree

We don't inherit the earth from our ancestors, we borrow it from our children. —

Native American proverb

LANDSCAPE VISION 2.0

2.0 Landscape Principles + Vision

CONNECTING TO COMMUNITY

Adamstown has continued to grow around sound urban design principles, at the heart of which public open space has matured and continues to curate the community. Our design proposals for Phase 1 aim to align and enhance the public realm offering through the creation of flexible and programmed spaces, designed to bring the community together, creating opportunities for interactions through active and passive recreation.

CONNECTING TO NATURE

It is the responsibility of the design team to ensure we 'co-operate' with nature, designing to enhance a projects bio-diverse credentials.

We propose to integrate SUDs features throughout the public realm, plant a diverse mix of native and non native tree species, to increase carbon sequestration complimented with pollinator plants and wild flower meadows creating an enriched and robust habitat.

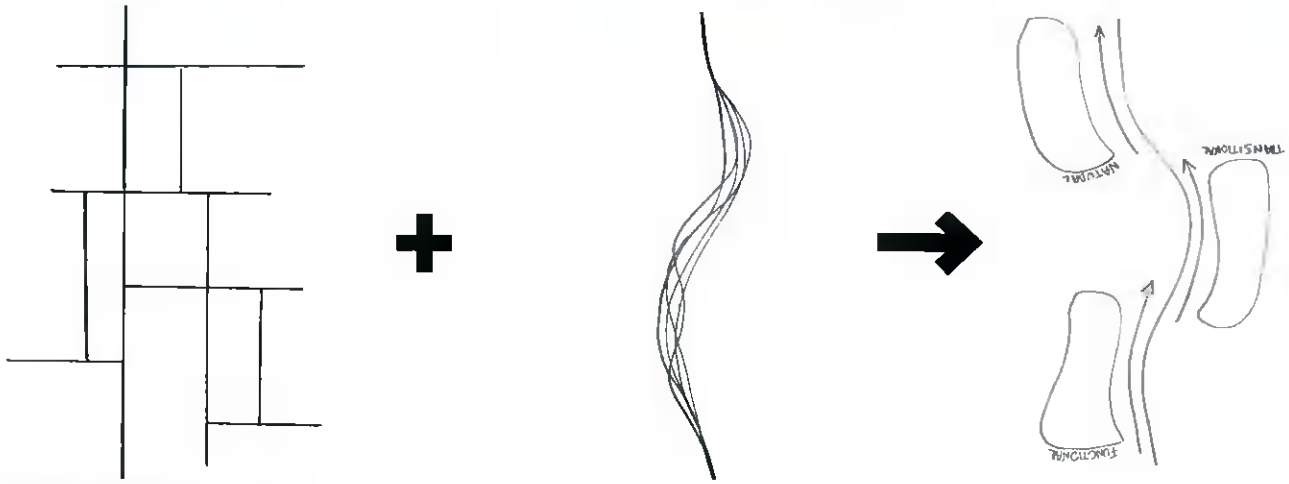
CONNECTING TO CONTEXT

Understanding site context with respect to its surrounding environment and historical use will underpin the emerging character of design proposals and its 'genius loci'. The use or integration of common plant species, hedgerows and the general soft landscape palette will firmly root it in its context and contribute to crafting and knitting its unique identity with the existing development and landscape.

2.0 Landscape Principles + Vision

AGRICULTURAL PATCHES

WATER DIRECTIONALITY



A rich and colourful tapestry of space.

reflective of Adamstown's diverse community and informed by its formative agricultural use. The public realm will be programmed to be flexible and responsive to its community's needs and wants.

"BEAUTY IS THE MOMENT OF TRANSITION..."

- Ralph Waldo Emerson

LANDSCAPE DESIGN STRATEGIES

3.0

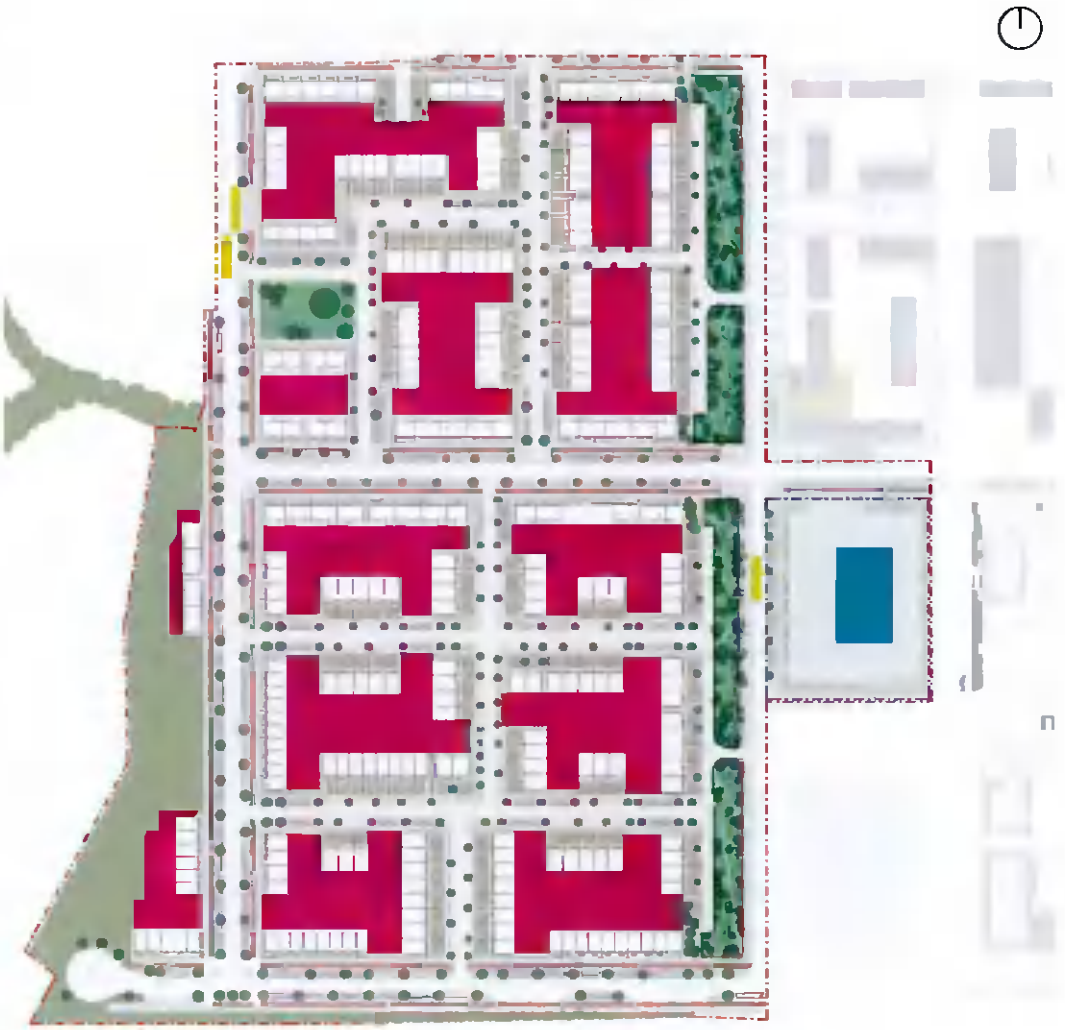
3.1 Landscape Strategies: Open Space Quantum

Public Open Space for Adamstown Boulevard will be delivered in excess of the .5 hectare requirement, totaling 9,540.22sq.m. It will be largely delivered in the form of the linear park running north south and the pocket park located to the north west of the site.

The residential units will have private gardens to the rear whilst the front gardens will be shorter to accommodate car parking in some instances and providing defensible space whilst also encouraging interactions.

The apartment block will have a provision for communal open space to the centre of the block delivered as an open courtyard. The Apartments are subject of an application for Outline Permission, any detail regarding the landscaping of the Block shall form part of a future application.

The spaces will be delivered in line with current design and taking in charge standards, celebrating SUDs features, informal play, exercise and seating opportunities with an abundance of tree planting, shrubs and wild flower areas to support localised biodiversity needs and requirements. The linear park and pocket park will provide points whereby the neighborhood can interact and gather to create a genuine sense of community as has been documented with great success across the early phases of the Adamstown SDZ.



LEGEND

- Private Gardens
- Public Open Sapce
- Apartment Courtyard Communal Space

Private garden

Public Open Space

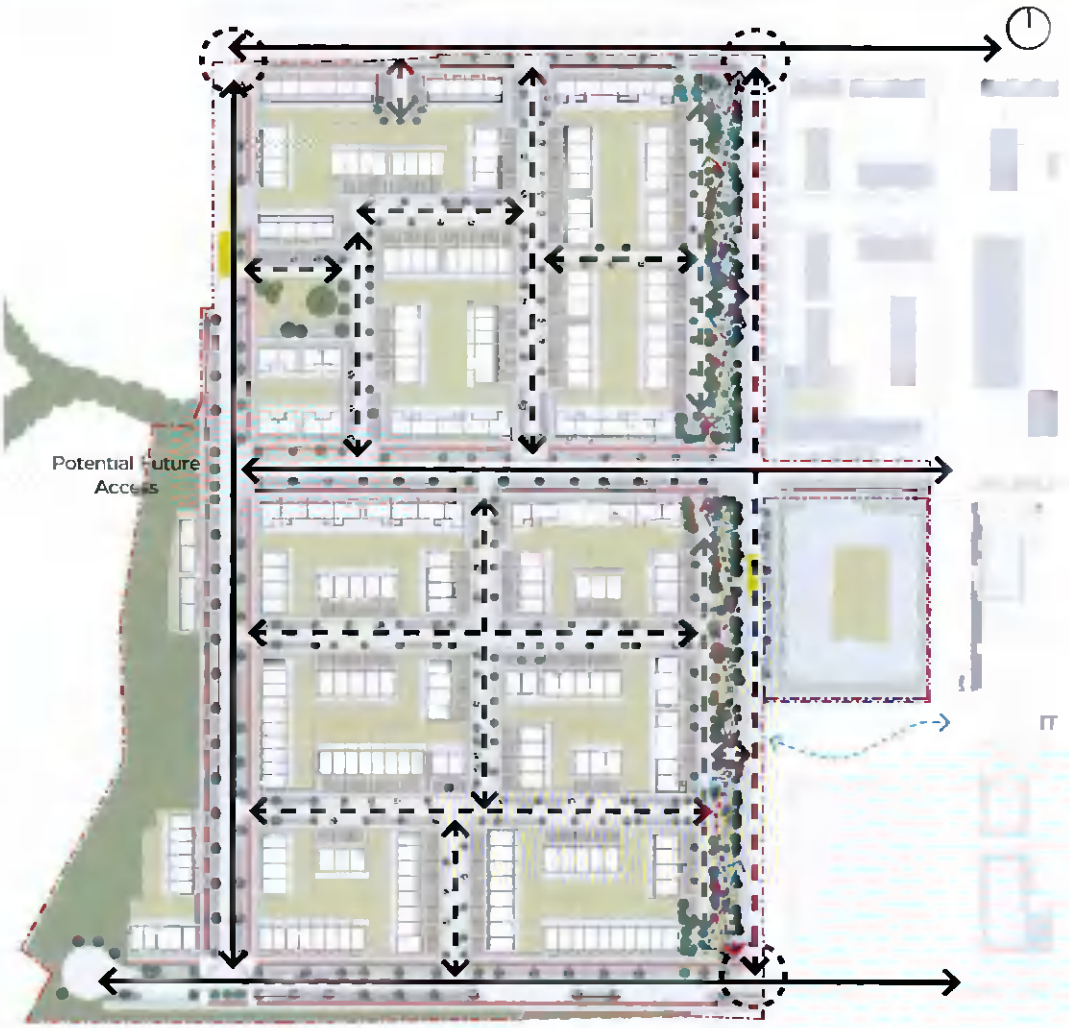
Communal Open Space

3.2 Landscape Strategies: Accessibility + Circulation

Adamstown Boulevard is linked to Station Road on its southern boundary by two roads running north south, one to the west adjacent to the existing hedgerow (an avenue) and the other to the east, adjacent to the linear park (a local street).

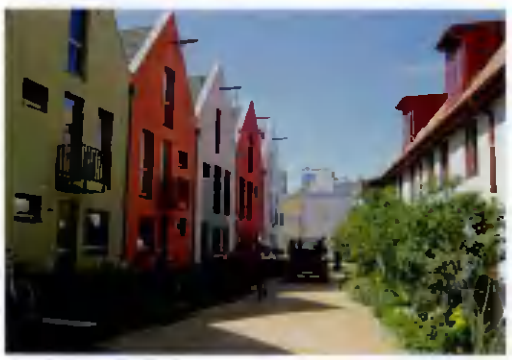
Two additional avenues run east west across the site, one dissecting it at the center and a second on its northern most boundary. These avenues and local streets connect the development to the wider SDZ context beyond, providing for cycle, pedestrian, public transport and vehicular connectivity and permeability. Internal to the site a series of home zones define the streetscape character and encourage intuitive traffic calming through the use of shared surfaces, flush pavements and scale of the overall street cross section.

In masterplannig the Phase 1 site, what has been a key driver is the delivery of tree lined streets. This has defined parking bays, access points to homes and consequently will inform character alongside the distinctive architectural design quality. All of these components combine to create a sense of place and individual character areas, enabling each zone to be unique. The tree pits themselves have been designed in line with current standards and agreement with SDCC Parks to ensure they provide adequate space for root growth and bio-retention credentials. There are a number of tree pit typologies which have been detailed to suit a variety of scenarios, these are detailed in the landscape drawing pack and later in this report. For further information, please refer to the material prepared by Atkins Consulting Engineers.



LEGEND

- Primary Avenue
- Local Street
- Homezone
- Primary Pedestrian Route
- Secondary Pedestrian Route
- Access



Home Zone

Pedestrian Orientated

3.3 Landscape Strategies: Play + Exercise Strategy

For the most part play will be delivered as informal and natural. Inclusive play spaces have been proposed to provide opportunities for everyone to play together. The play spaces are accessible, engage children of all ages and abilities and encourage them to interact with each other. These will promote health and wellbeing, learning, and social interactions. Play is provided throughout the site and responds to age, context and ability. Several principles have driven the design all of which underpin creating a well-integrated community:

- equipment that stimulates the senses such as sound play

- equipment that is accessible to all such as rockr's with the width for wheelchair access and part M compliant and space for children who do not like to be touched

- surface materials meet EN 1176 and EN 1177 standards, to be safe and visually pleasing

- play for all has been provided for with play equipment that has similar tasks but different levels of challenge for age groups and abilities, such as the climbing frame, providing children with choice.

-Providing for calm and landscaped areas with seating.

-A variety of routes to encourage exploration but also allowing for solitary play, onlooker play, parallel play (playing beside one another), associative play (playing close by and mimicking other children).

In addition to this, exercise stations will be provided in the form of functional equipment

LEGEND

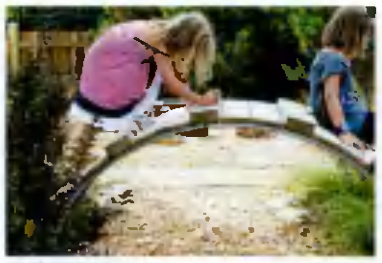
Play Area

Exercise Area

Exercise Trail

Challenging Play

Natural Play



Playing together

Exercise

3.4 Landscape Strategies: Boundary Strategy

It is intended to define the sites western boundary with hedge protection measures utilising a 2.4m black paladin fence. The southern eastern and norther boundaries of the site will be defined by roads and footpaths adjoining adjacent future, current and competed phase of Adamstown.

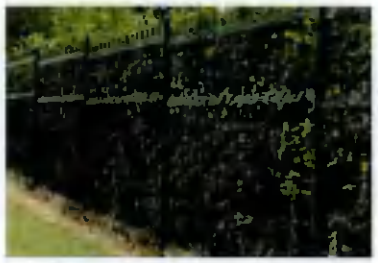
The intermediate boundaries of each rear garden will be secured with a timber fence and concrete post (1.8m in height). End houses will have a brick or rendered wall and capping to secure rear gardens with planting to screen in front where possible. Front gardens will utilise hedges to delineate separations where possible with post and wire fence to aid in establishing the hedge.

A minimum 1.5m defensible space to front gardens or interfacing gables etc. will be provided in planting where a driveway cannot adequately create the separation.

LEGEND

- 2.4m Paladian Fence
- 1.8m Concrete Post + Timber Panel Fence
- 1.8m Brick / Rendered Wall

Timber panel and concrete post



Paladin Fence

Brick Wall (planting to soften in front)

Hedge Sub-division on driveway

3.5 Landscape Strategies: Existing + Proposed Trees + Plants

Phase 1 of the site is largely devoid of existing tree or shrub material with the exception of the existing hedgerow on the western boundary and a single oak tree (no. 1529). It is proposed to retain this Oak Tree and also the hedgerow. Some hedgerow will be required to be removed to facilitate development, however, this will be mitigated against through the provision of compensatory planting on adjacent lands which will also act as a buffer to future development (refer to drawing pack for extent of offset measures). The hedgerow to be retained will be protected with a paladin fence. Some off cuts will be taken from specific species such as Black Poplar and used to establish new hedgerows. In addition to this the existing hedgerow will be enhanced and augmented with infill planting once some maintenance has taken place to improve its current condition in consultation with the local authority.

Proposed planting styles and types will vary depending on use. Within the public realm, plants will be more robust, evergreen and require less maintenance and consistent with other developments in Adamstown. Street trees will be tried and tested urban species. Scale of planting and transition in shrub planting from low medium and high to create defensible space has been planned according to programme, thresholds and spatial hierarchy. Within the semi-private apartment courtyards, the palette should be softer, colorful and generally more shade tolerant.

The Pollinator Plan 2020 has richly informed the planting palatte and soft landscape approach. This, in conjunction with a selection of native plant species will characterise the landscape design. Planting will inform and define public routes to differentiate from communal or private space. Planting will respond to the existing character in which it is located and enhance the sense of place to complement it and not compete with it. Trees will be planted as specimens in park area and key accent points in addition to creating tree lined streets. It is also proposed to incorporate the Miyawaki method of planting densely with saplings in 1 or 2 isolated clusters on the linear park. This will help raise awareness of the issues faced with climate change whilst providing valuable habitat and diversity for ecology. Raingardens and bio retention tree pits will be planted with appropriate species which can tolerate been inundated with water. All back gardens will have seeded lawns, with a minimum 1.5m defensible space to front gardens or interfacing gables etc.

LEGEND

- 1no. Existing Tree To Be Retained
- 540no. Proposed Trees

The Miyawaki Method

Accent + Specimen Trees

Existing Oak Tree to be Retained

3.6 Landscape Strategies: Water Attenuation Strategy

The landscape surface water drainage strategy for Phase 1 celebrates SUDS features and has been designed in line with the recently released Sustainable Drainage Explanatory Design + Evaluation Guide 2022.

The soft landscape will allow water to drain freely to recharge the ground water if not captured by filter drains before release. In addition it is proposed to create several rain gardens on the linear park to capture run off.

Bio Retention Tree Pits are proposed for Streets and have been detailed in coordination and collaboration with SDCC Parks based on recently submitted and approved plans for the Aderrig Tile within the Adamstown SDZ area.

Presently the old Tobermaclugg Stream is underground with select locations being brought up to the surface in man-made designed water features. The location of these water features can be found in the Aderrig Phase 1 and Tobermaclugg Village Tiles (adjacent the Shackleton Drive Lidl), both north of the subject site. The Adamstown Boulevard is proposed to include a similar man-made water feature through the site, from south to north, as per the SDCC Strategic Development Zone (SDZ) guidelines.

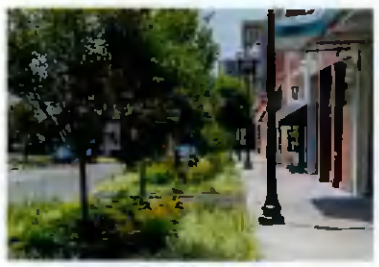
The streams edges will be planted with riparian and emergent plants species, and lined with boulders creating a natural appearance and complimented with appropriate tree species associated with similar habitats. For technical detail refer to engineers drawings and report. The flow rate of the stream will be restricted to 100l/s (extremely slow).

LEGEND

Rain Garden/ SWALE

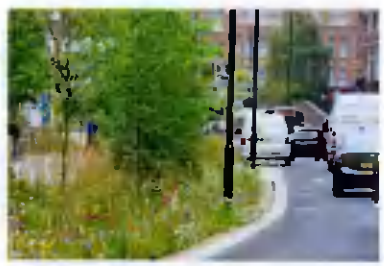
Bio-Retention Tree Pit

Water Feature



Bio-retention Tree Pits

Rain Gardens



Swale

3.7 Landscape Strategies: Parking + Furniture

Off street parking has been provided for residents where the curtilage is set back from the pavement edge allowing vehicle access and space to park. Off street parking has also been provided for both residents and visitors. On street parking and access to driveways has been designed in coordination with proposed tree pit locations to maximise tree planting opportunities. For the most part, a tree will occur every two or three parallel parking spaces. These have also been coordinated with street lights. Tree positions and maximising numbers have driven the masterplan layout in a large part.

Furniture will be provided in line with SDCC TIC standards such as benches and bins in addition to play and exercise equipment which can be further defined at a detailed design stage. Bike parking has also been considered and set out at appropriate locations. There are 60no. sheffiled bike stands proposed.

LEGEND

- Car Street Parking
- Car Off Street Parking
- Bike Parking
- Seating

Robust Seating

Habitat Furniture

Picnic Tables

Bike Parking

4.0 LANDSCAPE CONCEPT DESIGN

4.0 Phase 1 Landscape Masterplan

Landscape design proposals for Adamstown Boulevard are driven by ecological influences in response to the sites context and relationship with surrounding character. Experienced sequentially as routes of discovery and exploration which weave themselves across the lands revealing a sensorium of spatial typologies.

The landscape design has been planned in such a way so as to maximise the site's orientation and anticipated microclimate to create habitable, quality spaces which respond to human comfort, encouraging residents and public into a safe and surveilled space. A number of potential routes through the site have been identified to benefit connections with its surroundings and provide a better amenity for the wider community. Pedestrian and cycle routes complement this strategy underpinning the sustainable credentials associated with the development.

In addition, it is anticipated that the development will offer a net gain to biodiversity through the development of additional habitat connecting existing surrounding ecological stands with continuous tree canopies for bat and bird roosting and provision of specific plants for wildlife to forage through.

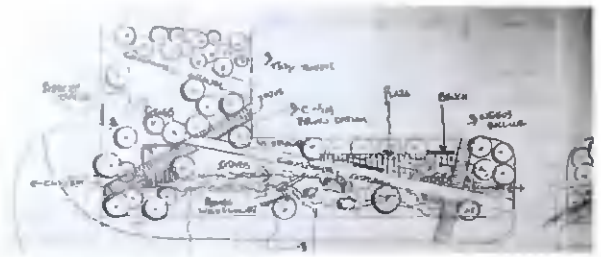
An increased number of trees, areas for surface water treatment and wildflower meadows, coupled with best practice maintenance will ensure a sustainable landscape for the future. Edge conditions and relationships with neighboring developments are sensitively integrated and screened.

The primary objectives of the design are to encourage biodiversity through varied tree and shrub planting, create a series of interlinking spaces which 'blur' the boundaries and create 'moments' for interactions, crafting a sense and extension of the community for the wider neighborhood.

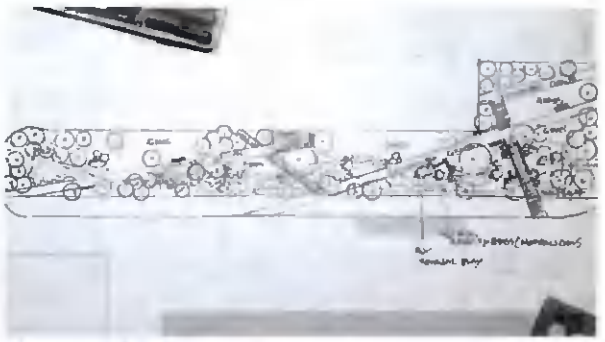
The following pages will demonstrate through illustrations and narrative the spatial experience for each area of significance.

Legend

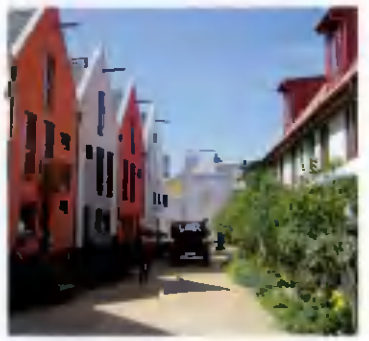
01 Linear Park
02 Existing Hedge Row
03 Water Feature
04 Private Gardens
05 Apartment Block Courtyard
06 Avenue
07 Station Road
08 Homezone
09 Pocket Park
10 Boulevard P2



Linear Park Sketch Development



Linear Park Sketch Development



Streets for sharing

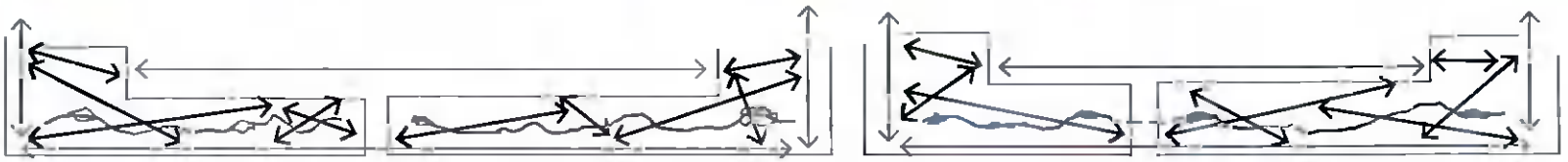
Places for people

Natural, low intervention maintenance

High Quality Tree Planting

4.1 Linear Park

Illustrative Plan

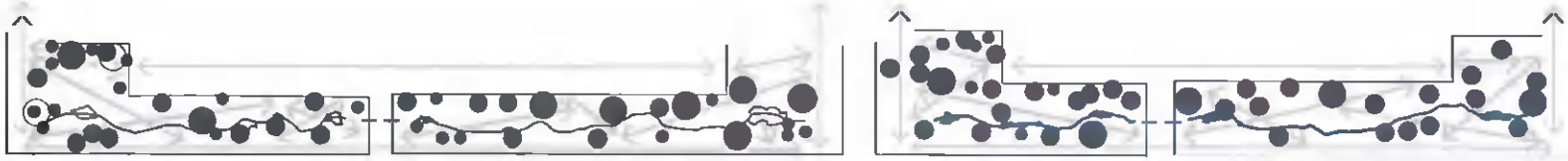


Movement Diagram

The Linear Park is a multi-faceted landscape component. It provides a point of active and passive recreation, ecological habitat, visual relief and re-awakens the Tobermaclugg stream by opening it back up to the world above where it was once buried. As an active spine it is proposed to programme it with natural play such as nurse logs and boulders, functional exercise stations such as chin up bars as well as opportunities to sit and contemplate in smaller pocket gardens paved to create incidental gathering space. There will be areas for informal activity such as kick abouts on lawn areas.

The Tobermaclugg Stream will integrate with landscape proposals by not only providing additional habitat through planting and varied boulder edges to the stream but also in how children engage with it and sounds of water flowing over stones and around rocks. Tree planting will vary with specimens at key pausing points, a cluster of saplings to create a tiny forest using the Miyawaki method complimented with under story plants, wildflower swathes and a riparian edge to the stream of emergent and aquatic plants.

Water Diagram



Tree Massing Diagram

Art Opportunities

Integrated SUDS

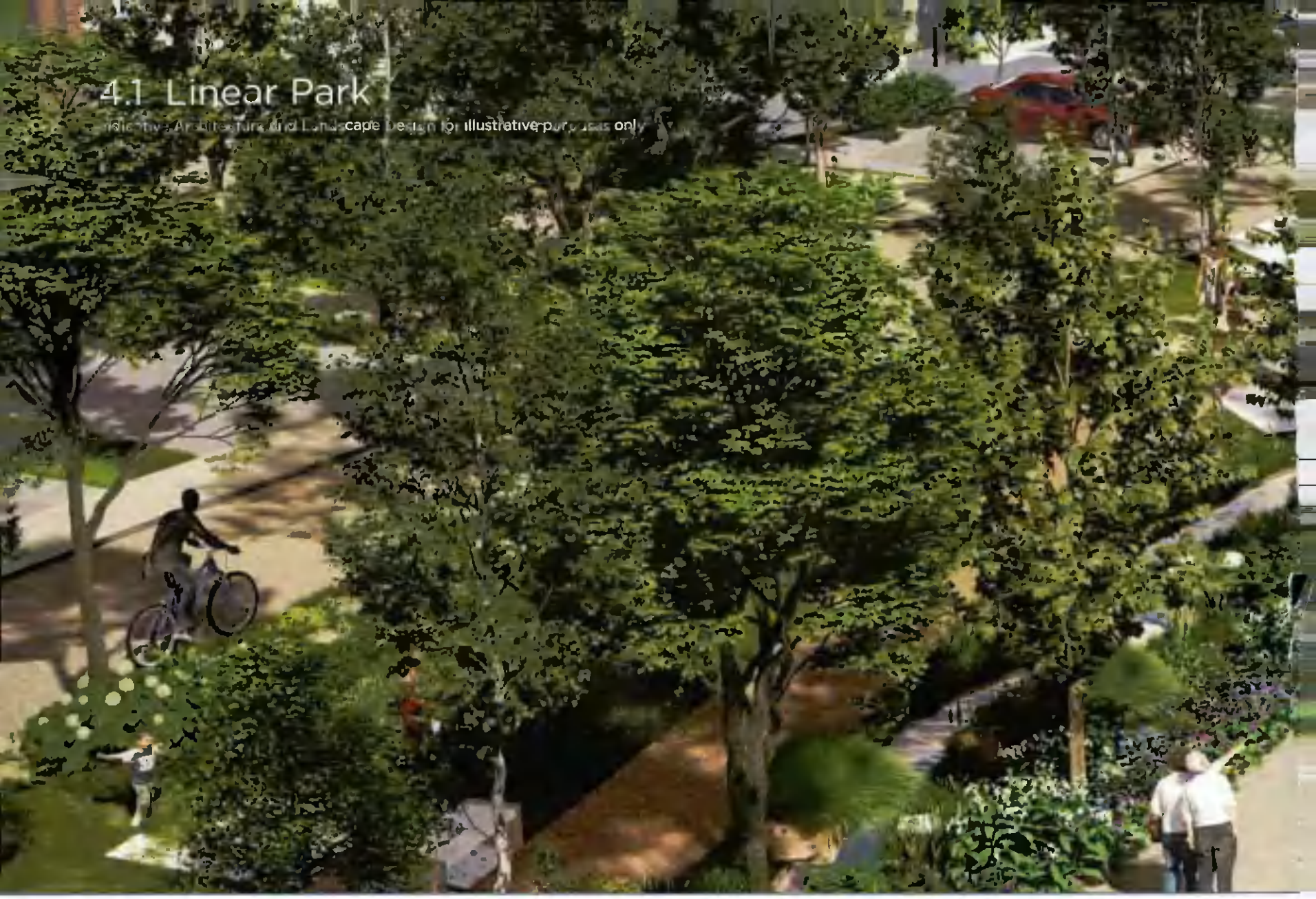
Tiny Forest /

Ecologically Orientated


4.1 Linear Park
Indicative Architecture and Landscape Design for Illustrative purposes only

4.1 Linear Park

Indicative Architecture and Landscape Design for illustrative purposes only




Indicative Architectural and Landscape Design for illustrative purposes only

The form of buildings only are shown in the following images to help to understand the streetscape. For full details of building finishes proposed see McCauley Daye O'Connell drawings and CGI's in the accompanying Architects Design Statement.

4.2 Pocket Park

The design of the pocket park responds both to the existing Oak Tree to be retained and its arrangement / proximity to adjacent housing units. The retention of the Oak Tree itself requires that surrounding native soil levels are maintained. As such this informs the FLS of both houses and roads in close proximity. The root protection zone extends beyond the canopy line. It is intended to celebrate the tree and place an ellipse shaped low bench around the root protection, almost as a barrier to demarcate the great trees territory. This will enable users to sit and admire the fine specimen. Hardy, understory shrub planting to the southern portion of the park will encourage users away for the edge and provide a little more privacy to residents facing directly onto it. This panting will be broken up with feature boulders. The remainder of the park will be planned as lawn, allowing for informal activities such as kick-abouts or picnics.

Enclosure

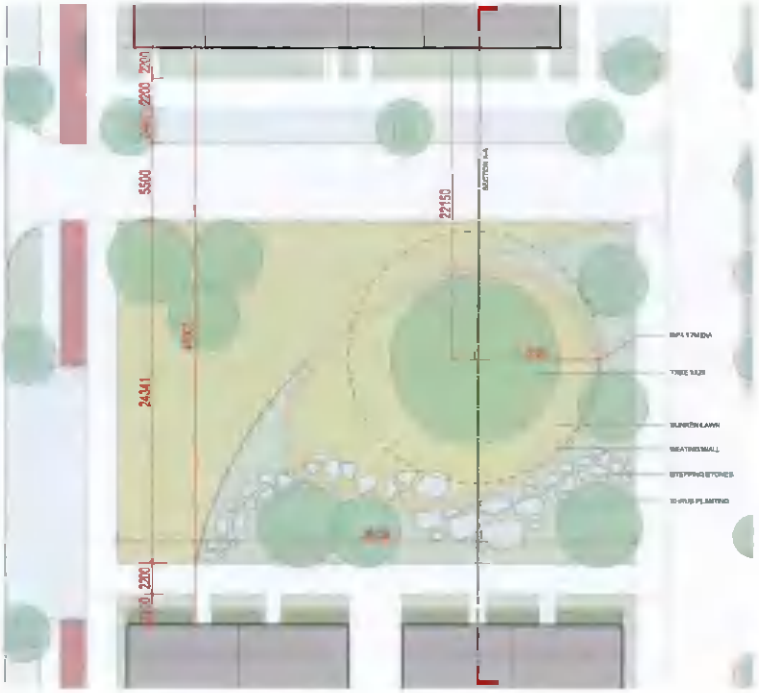
Location plan

Understory planting

Sense of natural space

Ellipse bench

Oak tree to be retained

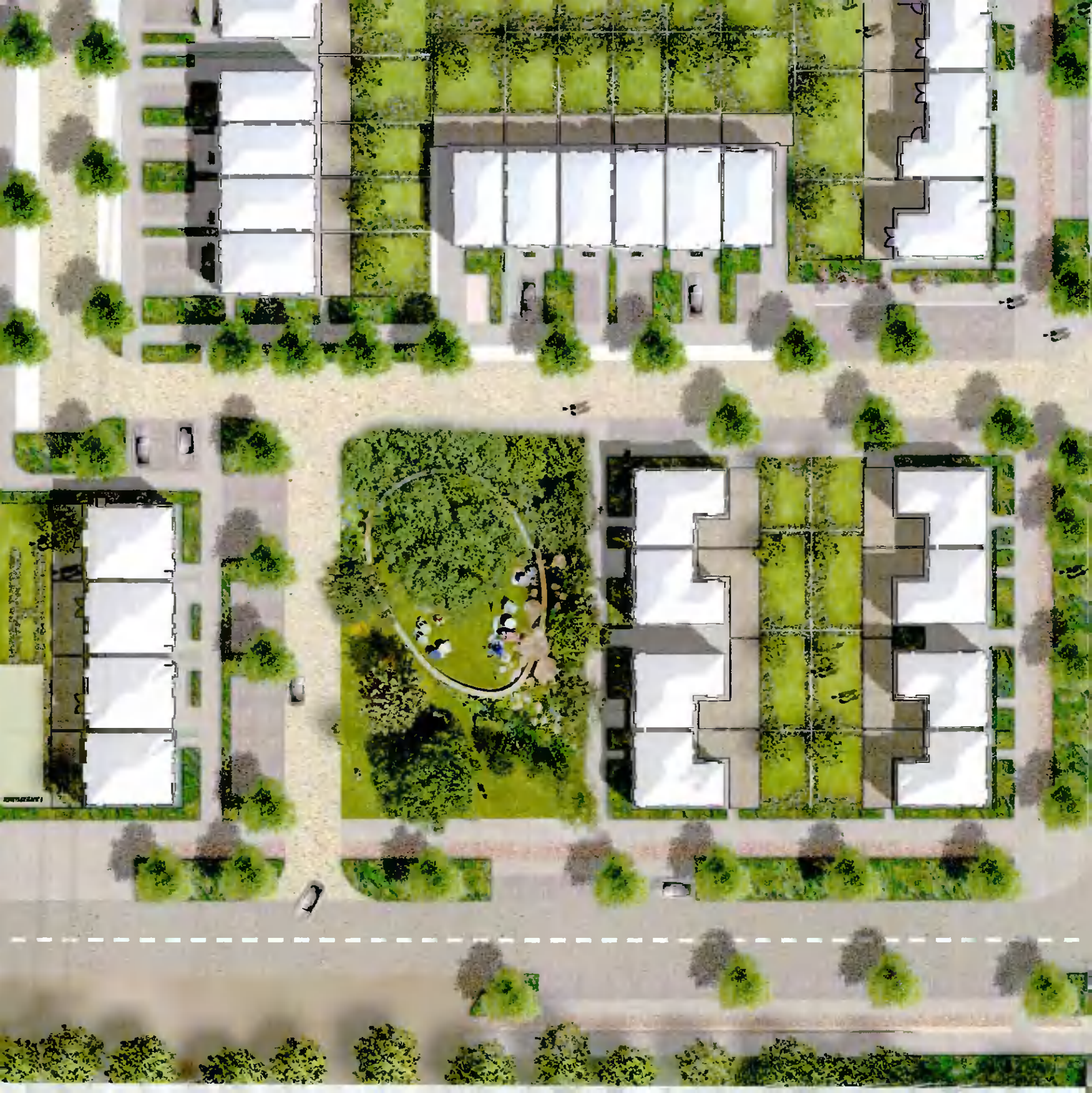


Critical dimensions

Tree No	Species Botanical Name	Common Name	Age Y SM EM M OM V	DBH (cms)	Height (m) ---------- Height of clear stem	Crown Span (m)	Physiological Condition -Good -Fair -Poor -Dead	Comments Structural Observations	Retention Category A-High B-Moderat C-Low U-Fell -Life-span	Preliminary Management Recommendations Priority A, B, C or U
1529	*Quercus*	Oak	M	86	16	N – 6 S – 7 E – 7 W - 7	Fair	Good vigour and fair form. Significant root damage during previous ground clearance compromising the stability of this specimen	A >40 years	

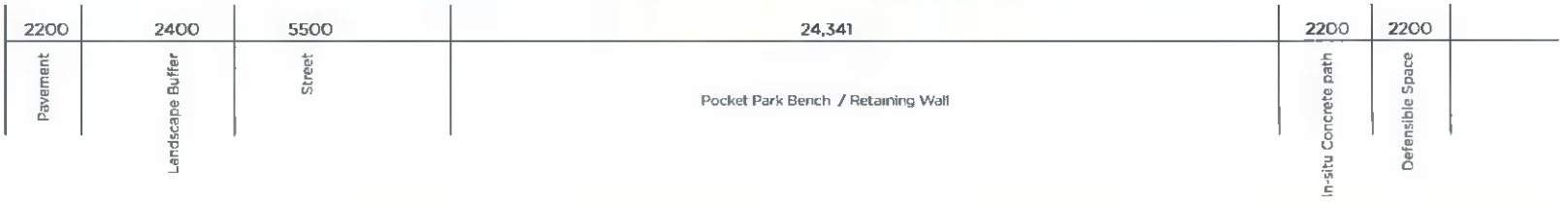
Tree Survey Extract

Informal



4.2 Pocket Park

Indicative Architecture and Landscaepe Design for illustrative purposes only



Indicative Architecture and Landscape Design for illustrative purposes only


1 Existing Oak Tree
2 Ellipse Seating
3 Woodland Shrubs
4 Lawn
5 Adjacent Home
6 Road
7 Footpath
8 Defensible Space

4.2 Pocket Park Indicative View

Indicative Architecture and Landscape Design for illustrative purposes only

The form of buildings only are shown in the following images to help to understand the streetscape. For full detail of building finishes, proposed by McCauley Daye Connell drawings and Cd's in the accompanying Architectural Design Statement.

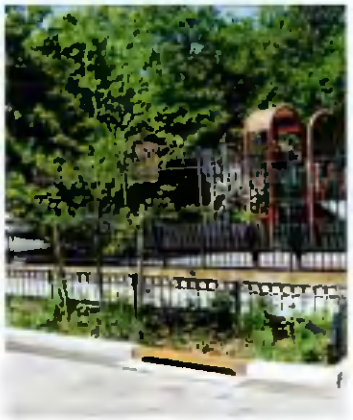
4.3 Streets: The Avenues

Design proposals for the Avenues in Adamstown Boulevard respond to their primary functional purpose as the key movement corridors for pedestrians, cyclists, public transport and private cars. These particular roads are the predominant arrival and exit point to the tile and link with the surrounding context of Adamstown SDZ.

The street cross section has been set up similar to other tiles in Adamstown. A 1.5m planted defensible strip defines the interface between public and private space. The pavement varies in width and meets a minimum of 2.2m. A cycle path is separated from the carriageway and is 1.75m in width. A further 1.5m concrete path adjacent to parking bays has been planned in order to allow car doors swing open without creating conflicts with cyclists. Car bays have been designed to incorporate tree planting with bio-retention tree pits for every 2no. car bays planned. Water will runoff into these through side gully's.

Further detail on the various tree pit types can be found in the detail drawing pack accompanying this report which also demonstrates coordination with street lighting and other utilities (refer to relevant disciples report / drawing pack).

The surface of the carriageway will be black asphalt, the paths will be brushed concrete, cycle paths will be a coloured asphalt and demarcated.

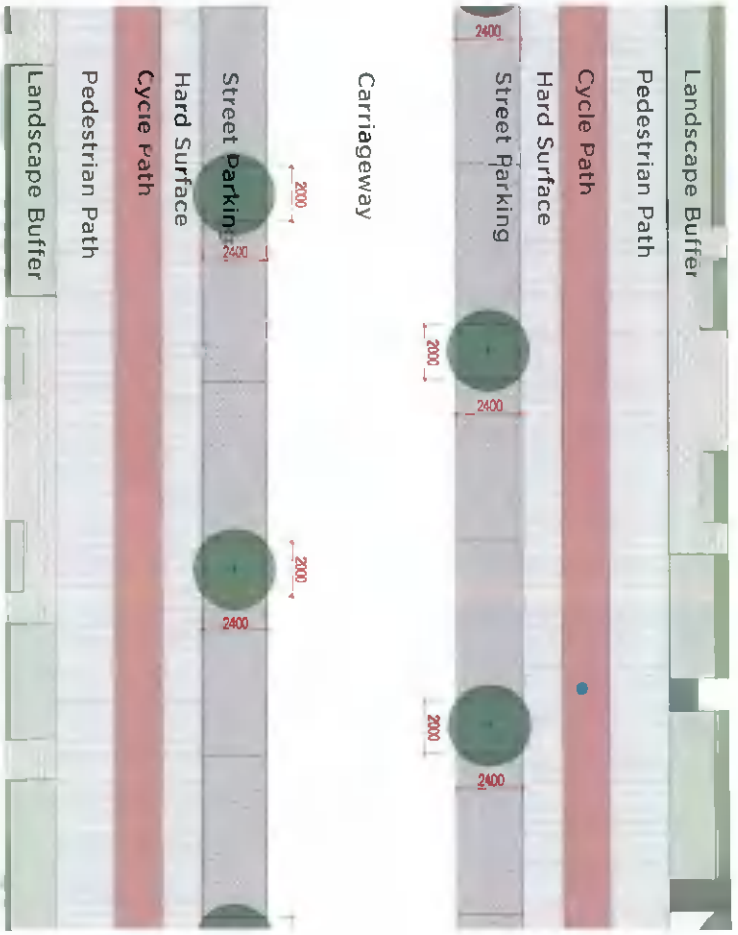


Reference Image

Location Plan

Similar Existing Condition - Adamstown

Typical Avenue 3D Extract With Tree Planting Parking



Typical Avenue Plan

4.3 Streets: The Avenues

The form of buildings only are shown in the following images to help to understand the streetscape. For full details of building finishes proposed see McCauley Daye O'Connell drawings and CGI's in the accompanying Architects Design Statement

Typical Avenue Illustrative Sec

Typical Avenue Illustrative Plan

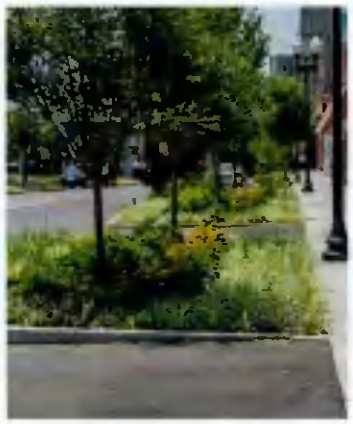
4.4 Streets: The Homezones

Homezones in Adamstown Boulevard respond to DMURs principles in placing the pedestrian at the top of the street hierarchy in terms of users. The homezones act as tertiary streets connecting to the wider development, leading to individual homes with a lower traffic volume. It is expected that they will be safer places for children, cyclists and pedestrians to share with vehicular traffic.

The street cross section has been set up similar to other tiles in Adamstown. A 1.5m planted defensible strip defines the interface between public and private space or a driveway for in curtilage parking. The pavement varies in width and meets a minimum of 2.2m. The cycle route is part of the shared surface carriageway and is not defined. The tree planting with bio-retention tree pits have also been provided and coordinated with the entrances to driveways. Water will runoff into these from surface or through side gully's.

Further detail on the various tree pit types can be found in the detail drawing pack accompanying this report which also demonstrates coordination with street lighting and other utilities (refer to relevant disciplines report / drawing pack).

The surface of the carriageway will be buff coloured asphalt, the paths will match this.

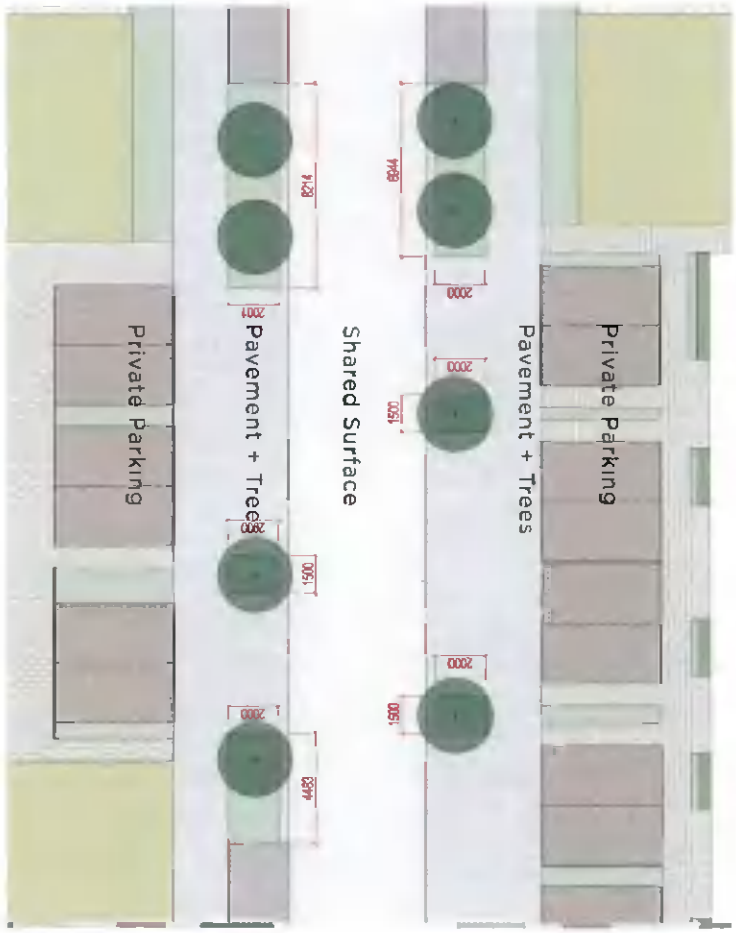


Reference Image

Location Plan

Street trees in public realm

Typical Homezone 3D Extract With Tree Planting



Typical Homezone Plan

4.4 Streets: The Homezones

The form of buildings only are shown in the following images to help to understand the streetscape. For full details of building finishes proposed see McCauley Daye O'Connell drawings and CGI's in the accompanying Architects Design Statement.

Typical Homezone Illustrative Sec

Typical Homezone Illustrative Plan


4.4 Streets: The Homezones Indicative View
Indicative Architecture and Landscape Design for illustrative purposes only

The form of buildings only are shown in the following images to help to understand the streetscape. For full details of building finishes, proposed see McCauley Daye O'Connell drawings and CGI's in the accompanying Architects Design Statement.

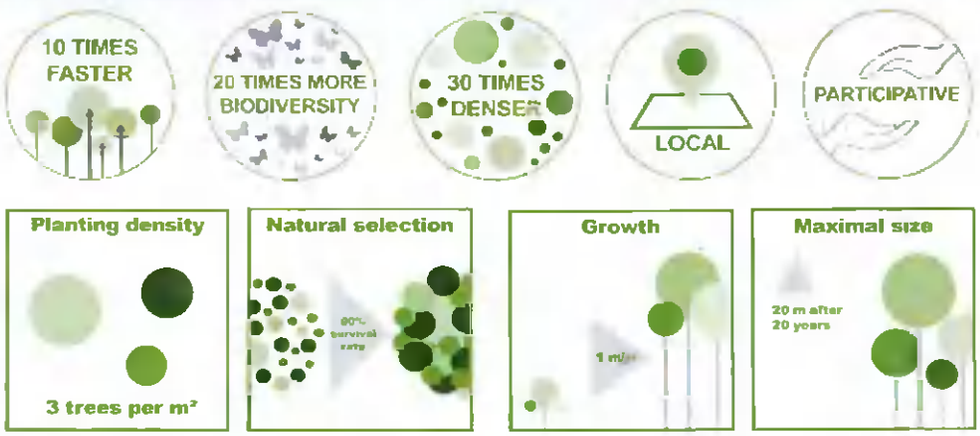
4.5 Hedgerow Mitigation

The existing hedgerow which defines Adamstown Boulevards Western boundary and partially runs into will be protected, enhanced and losses mitigated against as per the below table and as agreed with SDCC Parks. Although the SDZ plans for the Boulevard tile indicate the housing to be arranged over part of the hedgerow, efforts to mitigate these loses are been made.

Clippings and species found in the hedgerow will be planted in a buffer strip to its rear on adjacent lands. Further planting will be made adjacent to the railway line and within pockets around the planned housing. In addition to this it is anticipated that the Miyawaki method of densely planting saplings will be proposed on the linear boulevard in two locations. This will further enhance the tiles biodiversity credentials and create awareness in the community of natures importance.

Existing Hedgerow

Miyawaki Method, before and established



Miyawaki Method Extract.

Legend: Hedgerow Mitigation

	Removed	(Approx. 2930 m²)
	Existing	(Approx. 825 m²) Retained Inside Red line
	Mitigation	(Approx. 2170 m²)* Inside Red line *Excluding Tiny Forrest Pockets
	Augmentation	(Approx. 1200 m²) Existing Hedgerow in adjacent land augmented as further mitigation.

Total Area of Hedgerow Removed - 2930 m2

Total Area of New Hedgerow Proposed - **3370 m2**

Note: Existing Black Poplar trees to relocated and used as part of hedgerow mitigation strategy.

4.5 Hedgerow Mitigation

Landscape Plans and schedules included in the application, prepared by NMP Landscape Architects includes a detailed schedule of proposed planting and illustrates the location and extent of mown grass, managed long grass, reinforced grass, low ground cover, hedge and tree planting as well as existing trees to be retained where applicable.

Tree species are selected for longevity, suitability to local soil conditions and micro-climate, biodiversity (native species) and where required suitability for proximity to residential buildings. Proposed tree sizes range from heavy standards and multi-stemmed trees to native whip and forestry transplants. There will be a net gain of individual trees in order to improve the species mix and the proportion of native species on site. Typical species are illustrated on the following pages.

Low planting is utilized to make and reinforce sub-spaces within the larger landscape spaces, for visual screening, defensible space, visual interest, ecological purposes and to guide or direct people's movement. The low planting is conceived as subtle layering of greens within the open spaces. The planting is layered as follows; lowest - bulb planting, ground cover planting, highest - clipped hedge planting.

The selection of hard landscape materials is determined by function but also to provide a cohesive palette of materials throughout. Materials are chosen for durability, but where practical are proposed to be constructed in a way which is sensitively integrated with lawn and soft landscape, in order to minimise the impact of hard landscape surfaces. Primary vehicular, pedestrian and cycle circulation are proposed as a durable, limited range of neutral materials with robust construction.

5.0 LANDSCAPE PALETTES

5.1 Indicative Hard Landscape Material Approach

SURFACE FINISHES

The hard materials palettes have been selected to represent and respond to use and character of specific spaces. They will be durable and of high quality with patterning developed in the latter stages to indicate moments and celebrate thresholds.

Brushed Concrete

To Paths on Avenues

Self Binding Gravel

To Parks

Colored Cycle

To Cycle Tracks

FURNITURE

Bins, bollards and seating have been selected as appropriate to the design language and surroundings within which they fit. These for the most part, will be off the shelf products and specified accordingly.

Picnic Table

To woodland

Bins

To pedestrian areas

Bollards

To road edges

Colored Asphalt

To Homezones

Soft Pour

To play + fitness zone

Exposed Concrete Aggregate

To Parks

Black Top Asphalt

To Roads

Block Paving

To On Street Parking

Block Paving

To Driveways

Bike Stand

To bike parking

Benches

To pedestrian areas

Play

Bespoke Imaginative

Exercise

To fitness areas

Ecology

Habitat Opportunities

5.2 Indicative Soft Landscape Material Approach

WOODLAND TREE PLANTING

Informed by the existing and formative tree planting and a native palette the tree planting will bleed into the site and grade out form north to south.

Fagus sylvatica

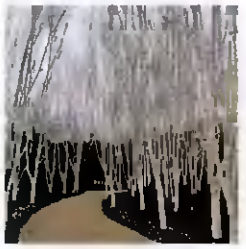
Betula utilis

Pinus sylvestris

STREET TREES + SMALL FEATURE TREES + PODIUM TREES PLANTING

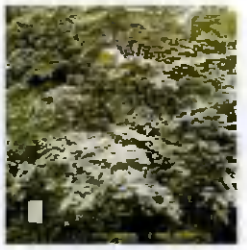
Specimen tree planting will provide year long interest and beauty - landmarks in the landscape, to celebrate and identify with.

Betula jacquemontii



Carpinus betulus multistem

Cornus sanguinea



WILDFLOWER & SHRUB PLANTING

To enhance bio-diverse credentials wildflower planting will occupy edges and large swathes of the sites periphery along with shade tolerant understory planting including plant selection to encourage foraging.

Papaver rhoeas

Silene dioica

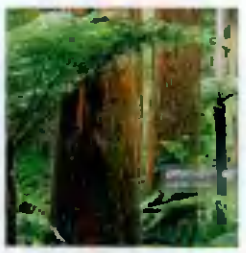
Lotus corniculatus

WOODLAND UNDERSTORY & SHADE LOVING PLANTING

Woodland areas and shaded gardens will be planted with mix of shade loving plants.

Polystitchum aculeatum

Cyathea australis



Dicksonia antarctica

Sorbus aucuparia

Pyrus callerayana

Quercus robur

Prunus serrula

Pinus sylvestris watereri

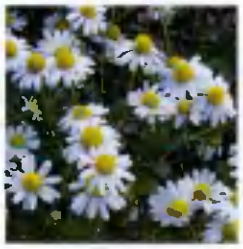
Acer griseum

Magnolia grandiflora

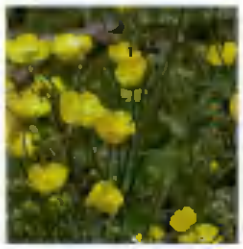
Buxus sempervirens

Tilia cordata

Matricaria chamomilla



Ranunculus acris



Medicago lupulina

Lavandula x intermedia

Salvia officinalis

Dryopteris filix-mas

Viburnum davidii

Heuchera 'Fireworks'

Hosta sp.

Pachysandra terminalis

APPENDIX

Appendix 1 - Soft Landscape Outline Specification

1. Specifications for supply.

1.0 Schedule of supply:

The nursery stock material will be delivered following consultation between the Landscape Architect, landscape contractor and the selected nursery, and the Engineer. Delivery will be at all times by means of covered vehicles, and all plant material will be clearly labeled. The source of origin must be from the selected nursery as no other additional stock from other nurseries will be permitted without prior inspection and approval.

1.1 Programme of Works

The planting works shall be executed at the earliest opportunity.

1.2 Nursery stock:

All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, aphids, red spider or other insect pests and any physical damage. It shall comply with the requirements of B.S. 3936: Parts 1-10: 1965 Specification for Nursery Stock, where applicable.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species. Country of origin must be shown in all cases for species grown from seed.

Unless otherwise stated, the plant materials shall be supplied in accordance with the following codes where stated:

1+0	1 Year old seedling
1+1	1 Year old seedling lined out for 1 year
1+2	1 Year old seedling lined out for 2 years
1+1+1	1 Year old seedling lined out for 1 year, lifted and lined out for one further year
1u1	1 Year old seedling undercut then 1 more year in seedbed.
1u2	1 Year old seedling undercut then 2 more years in seedbed
0/1	1 Year old Hardwood cutting
0/2	2 Year old Hardwood cutting
2X	Twice transplanted tree
3X	Three times transplanted tree
4X	Four times transplanted tree
P9	Containerised plant in 9cm pot

1.3 Species:
All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated and/or coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced by the contractor at his/her own expense.
Bundles of plants shall be marked in conformity with B.S. 3936: Part 1: 1965 and B.S. 3936: part 4: 1966. The nursery supplier shall replace any plants which, on leafing out, are found not to conform to the labels. Definitions of all terms used are in accordance with the following British Standards: -

B.S. No. 3936: Part 1: 1965 entitled "Nursery Stock- Trees and Shrubs"

B.S. No. 3936: Part 4: 1966 entitled " Nursery Stock- Forest Trees"

B.S. No. 3936: 1967 entitled "Specification for Nursery Stock"

2.0 Tree specifications.

Trees shall have a sturdy, reasonably straight stem, and a well-defined straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown and root systems shall be well formed. Roots shall be in reasonable balance with the crown and shall be conductive to successful transplantation.

2.1 Standard trees shall have a clear stem 1.70m in height from ground level to the lowest branch, a minimum girth of 8cm measured at 1.00m above ground level and a total height of 2.75-3.00 m.

2.2 Light Standard trees have a clear stem 1.30m in height from ground level to the lowest branch, a minimum girth of 6cm measured at 1.00m above ground level and a total height of 1.80-2.40m.

2.3 Select standard trees shall have a clear stem 1.70 m in height from ground level to the lowest branch, a minimum girth of 10 cm. measured at 1.00.m. above ground level and a total height of 3.0 to 3.5 metres.

2.4 Heavy standard trees shall have a clear stem 1.80-1.90m in height from ground level to the lowest branch, a minimum girth of 14 cm. measured at 1.00.m. above ground level and a total height of 4.0 to 4.5 metres. All trees shall have been undercut a minimum of three times.

2.5 Extra Heavy standard trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth of 16 cm. measured at 1.00.m. above ground level and a total height of 4.5 to 5 metres. All trees shall have been undercut a minimum of three times.

2.6 Semi-mature trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth, as specified in the Bill of Quantities, measured at 1.00.m. above ground level and a total height of min. 5 metres. All trees shall have been undercut a minimum of three times.

All standards shall be clearly labeled.

2.7 Feathered Trees 180-240cm
Feathered trees shall be not less than four years old, and shall have been transplanted at least three times. Trees of species not listed in BS 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.8 Feathered Transplants 120-150cm
Transplants shall be not less than two years old, and shall have been transplanted at least once. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.9 Feathered Transplants 90-120 cms, 60-90 cm, 40-60 cm, 30-40 cm
Transplants shall be not less than one year old. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules. Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.10 Shrubs

(1) Containerised Shrubs shall be of the size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, vigorous and with a sound root system. Pots or containers shall be appropriate to the size of shrub supplied and clearly labeled. Shrubs shall not be pot bound or with girdled or restricted roots.

(2) Bare Root Shrubs shall be of size specified in the schedules, with several stems originating from or near ground level, with reasonable bushiness, healthy, and vigorous. They shall be well furnished with fibrous roots and shall be lifted without severence of major roots. All bare root shrubs shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.11 Container Grown Conifers:
Conifers shall be of the size specified in the schedules, with one main stem originating from or near ground level and of reasonable bushiness and health, with a well-grown, root system. Pots or containers, where required, shall be appropriate to the size of plant supplied and clearly labeled. Plants shall not be pot bound, or with deformed or restricted roots.

Appendix 1 - Soft Landscape Outline Specification

2.12 Protection:
The interval between the lifting of stock at the nursery and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting transport shall be protected from the wind and frost and from drying out.
Protection shall include for the supply of stock to site to a suitable heeling-in/ storage area prior to planting. The landscape contractor shall allow for liaison with the site engineer to arrange the heeling-in area/ storage. The contractor shall continue to be entirely responsible for the maintenance of this stock to ensure that at the time of planting the stock complies with the requirements for the supply of nursery stock as per clause 1.0 thereof. No responsibility for the maintenance of the stock will attach to the site engineer whilst the stock is protected on site. No time limit shall attach to the period of protection.

In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

2.13 Damage
On completion of lifting of plants in the nursery, any broken shoots or severed roots shall be pruned, areas of damaged bark neatly pared back to sound tissue.

2.14 Inspections
The Landscape Architect will inspect the hardy nursery stock on the selected nursery during the execution of the works. Only plants selected and approved in the landscape contractors selected nursery will be accepted on the site.

2.15 Delivery and heeling in
All plants will be delivered on a phased basis as called up in advance in agreement with the Engineer, Landscape Architect and the appointed Landscape Contractor. In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

3.0 Specifications for site operations:

3.1 Setting out:
Setting out shall be in accordance with site meetings with the Landscape Architect, and the drawings listed in the preliminaries. No planting works shall take place when the soil /fill is in a waterlogged condition.

3.2 Finished grading:
All planting pits and topsoiled areas disturbed by the landscape contractor shall be left in an even state, with all soil clumps broken up and stones of greater than 50mm diameter shall be removed.

4.0 Specifications for Planting and Plant Materials

4.1.1 Stakes:
Round stakes shall be of peeled larch, pine or Douglas fir, preserved with a water-borne copper chrome arsenic composition in accordance with I.S. 131. For standard and select standards stakes shall be 1.8m long, 75mm in diameter. Stake all whips and transplants greater than 120cm in height. For all transplants exceeding 120cm height stakes shall be 1.2m long, 37mm x 37mm square. Stakes shall be pointed at the butt end. Set stakes vertically in the pit, to the western side of the tree station, and drive before planting. Drive stake with a wooden maul or cast-iron headed drive. Stakes shall be driven into the excavated planting pit to a depth of:

800mm for Standards/Light Standards/Feathered Trees
1000mm for Heavy Standards
500mm for Whips/Transplants

4.1.2 Canes:
Bamboo canes or similar approved shall be used to provide spot spraying location markers for small plants including Pinus, species. The canes are not to be attached to the plants.

4.2 Tree ties:
For standard and select standards, tree ties shall be of rubber, PVC or proprietary fabric laminate composition and shall be strong and durable enough to hold the tree securely in all weather conditions for a period of three years. They shall be flexible enough to allow proper tightening of the tie. Ties shall be min. 25mm wide for 120cms height trees and min. 38mm for larger sizes. They shall be fitted with a simple collar spacer to prevent chafing. Two ties per tree shall be applied to standards; for staked transplants, one tie per tree is required.
Ties shall be nailed to the stake with one galvanised nail.

4.3 Protection:
The interval between the lifting of stock at the heeling-in area and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting planting on site shall be stored in a sheltered place protected from the wind and frost and from drying out.

All transplants shall be wrapped in polythene from the time of lifting to conserve moisture. Except when heeled-in, they shall be protected in polythene at all times until planted into their final position on site.

4.4 Damage:
On completion of planting any broken branches shall be pruned, areas of damaged bark neatly pared back to sound tissue.

4.5 Watering / Alginure / Fertilisers:
All bare rooted light standards and select standards shall be soaked in water overnight, on site, before planting in a liquid solution containing "Alginure" at the recommended dilution rate. Fertilisers shall conform to BS 5581: 1981. In the case of granular fertiliser being added to plantings, it must be mixed through and incorporated into the base of the planting hole and covered over in order to avoid roots of plants coming in direct contact.

4.6 Setting out:
Setting out shall be in accordance with site meetings with the Landscape Architect. Transplants in mixtures shall be planted in staggered rows. Species shall be planted in groups, as indicated in the planting drawings.
No planting shall take place until all planting holes (with ameliorants) have been inspected and approved by the Landscape Architect, or a person appointed by him as a representative, to ensure accordance with the specifications. No planting shall take place when ground conditions are frozen or waterlogged. All planting holes shall be opened and closed on the same day.

Be planted in the centre of the planting pit and planted upright. Stones or other rubbish over 75mm shall be removed. Supply and drive the stake 800mm into the ground for standards, 500mm for other transplants. Backfill planting hole 4.7 Tree planting:
Trees shall be planted at the same depth as in the nursery, indicated by the soil mark on the stem of the tree. They shall with excavated topsoil, and remove all stones and debris, firming plant into position

4.7.1.Select Standards
Excavate tree pits to 800mm x 800mm x 600mm deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m.(equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Heavy and Extra Heavy Standards
Excavate tree pits to 1000mm x 1000mm x 800mm deep, or as approved. The base of the pit shall be broken up to a depth of 100mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Semi-mature trees
Excavate tree pits to 1200mm x 1200mm x 1000mm deep, or as approved. The base of the pit shall be broken up to a depth of 200mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.3.Light Standard Trees
Excavate tree pits to 500mmx500mmx500xx deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm

Appendix 1 - Soft Landscape Outline Specification

manure shall consist predominantly of fecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.8 Feathered Trees 180-240cm, container grown conifers (>2l)
Excavate tree pits to 400mm x400mm x 400 mm deep, or as approved (slit or notch planting are not acceptable planting methods). The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. Trees shall be planted at the same depth as in the nursery and backfilled with compound fertiliser 0.10.20 at the rate of 50gm per tree and 0.020m3 of Mushroom Compost or similar approved. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.9 Feathered Whips 120-150 cm:
Excavate tree pit to depth of 300mm x 300mm x 300mm deep, or as approved (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or auguring methods, approved by the Landscape Architect. The base to be broken up to a depth of 60mm and glazed sides roughened. Whips to be planted at same size as in the nursery. Apply 60gm 0.10.20 and 0.020m3 of Mushroom Compost or similar approved. Per tree pit to plants. Stakes 1.2m high x 37mm diam. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.10 Feathered Whips and Transplants 90-120cm, 60-90 cm, 40-60cm, 30-40cm, container grown conifers (<2l size) and container grown shrubs (<2l size):
Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or auguring methods, approved by the Landscape Architect. Apply 30gm 0.10.20.per planting pit. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.11 C. G. Shrubs / C. G. Wall Shrubs / C.G. Climbers:
Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened. The following products are to be supplied and incorporated in to the bottom 100mm of topsoil at the base of the planting pit and in to the topsoil for backfilling around each plant: (1)Seanure soilbuilder as supplied by Farmura @ 1.5Kg per cu.m of topsoil, (2) clean and friable green waste compost @ 25 Kg per cu.m of topsoil and (3) Sierrablen Flora 15:9:9 slow release fertiliser @ 70 grams per m2 Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.12 Grassing
All grass areas to be ripped with a tractor mounted tine prior to rotovating. The contractor shall grade off all areas to smooth flowing contours, removing all stones greater than 10mm diameter and tip off site. All hollows to be filled in. Roll all areas with a roller as approved. Following the completion of final grading and raking, the area is to be left fallow for a period of 14 days. Spray with 'Basta' at recommended rates, and seed with fine grass mix at a rate of 35gr/Sq.m together with fertilizer 10:10:20 at a rate of 50gr/Sq.m use Coburns Irish premier low maintenance mixture or other as approved by the Landscape Architect.

4.12.1 Grass cutting
Grass cutting shall be carried out during the three year maintenance period and is defined into three categories:
4.12.2 Regular grass cutting
Shall be carried out to the frequencies indicated in the Bill of Quantities. Attention to neat and tidy cutting shall be required to all areas. Sightlines, as set out with the Engineer, at junctions and roundabouts must be kept clear of vegetation at all times.

GENERAL
Upon completion of planting, all pits shall be raked over lightly to leave an even surface and neat appearance. All stones greater than 50mm dia. to be removed. Provision should be made for the watering of light and select standards during periods of prolonged drought in the first year following planting.

4.13 Inspections:
The Landscape Architect will inspect the site with the Landscape Contractor during the execution of the works and following maintenance visits.

4.14 Presentation of certificates:
The Landscape Contractor shall present for the Landscape Architect's inspection, all seed and fertiliser bags, together with their markings. If requested, the contractor shall furnish the Landscape Architect with receipts of purchase for these respective materials.

4.15 Spraying:

1) Following planting of embankments, slopes etc., weed free circles to be formed around individual plants, as directed, using an approved broad-spectrum contact herbicide, as approved by the landscape architect, in mid-spring following planting. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. In areas where grass is excessively long, such grass will be strimmed off and collected prior to spraying. The contractor shall be responsible for keeping the ground (1m diameter circle) around all planted material weed free by means of herbicidal application, using approved sprays, during the course of the contract. Weeds to be removed include grasses ,broad-leaved annual and perennial weeds and all noxious weeds.

2) Selective spot spraying will be carried out to all grassed areas, whether planted or unplanted through the application of contact herbicide to control broad-leaved annual and perennial weeds, including thistle, dock and ragwort. Contact herbicide to be approved by the landscape architect prior to application. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. The contractor shall allow for the removal of gorse by cutting, as required prior to spraying to ensure its eradication from all grassed areas for the duration of the contract.

3) The boundary hedgerows shall be kept weed free by herbicidal application by forming a 300mm wide spayed strip along the full length of each respective hedgerow. Approved herbicide (broad-spectrum contact herbicide) to be applied using controlled drop applicator containing a dye to indicate areas sprayed. Spraying of planted areas on roundabouts is also included in this spraying application.

4) Such routine spraying (1, 2 and 3 above) shall be carried out during maintenance visits over the three-year period. No spraying shall take place during adverse weather conditions or at times not recommended by the manufacturer.

4.16 Cutting back:
Plants for cutting back/tip pruning shall be cut back after inspection by the Landscape Architect. This work to be carried out initially following planting for plants suffering from wind damage.

4.17 Mulching
Mulching may be considered as an optional factor that may be implemented. Mulch shall be from coniferous trees. It shall be shredded, but not pulverised, so that no dimension exceeds 75mm. Bark shall have been composted for a min. of 3mths. In the case of areas requiring mulch the depth of bark shall measure 30 mm.

4.18 Ground finish:
Upon completion of planting, all ground finish shall include for the removal of stones greater than 50mm excavated during the course of the digging for planting purposes.

Appendix 2 - Hard Landscape Outline Specification

PAVING & KERBS

FOOTPATHS

General: Public footpaths, roadways, kerbs etc. shall be constructed in accordance with the requirements of the Roads Maintenance Dun Laoghaire Rathdown County Council.

Accuracy of Levels and Alignment: The levels of paths and paving shall be carefully set out and frequently checked. All care shall be taken to ensure that the correct cross sections are maintained. The finished face of paths shall be formed so as to provide adequate fall and satisfactory run off to surface water outlets, gullies, etc. Cross-falls of paths shall be carried without break across verges and kerbs to prevent ponding of water between back of kerb and path.

Sub-Base: Granular material shall comply with Clause 804 of the D.o.E. Specification for Roadwork's and shall be spread uniformly over the formation and compacted by vibrator roller. Rolling shall continue until there is no movement under the roller. The finished surface of the compacted sub-base shall be parallel to the proposed finished surface of the footpath. The surface levels for each layer shall not deviate from the design levels by more than +15mm or –15mm.

For sub-base thickness in paved areas see area engineers spec. and attached following schedule. Each contractor shall do all necessary tests to ensure a well compacted, plain even surface on all areas with traffic movement. If paving shows settling after 1 year which normally is related to an insufficient depth and compaction of the sub-base the contractor shall rebuilt the failed area to his own cost.

Use of Surfaces by Construction Traffic:
Constructional traffic used on pavements under construction shall be suitable in relation to the courses it traverses so that damage is not caused to the sub-grade. Where damage is caused to the formation of the sub- grade in strength or level the damaged area shall be excavated for an area and depth which shall be determined by the Architect and this area shall be filled to the required levels with crushed rock of 50mm maximum size. The degree of compaction for this area shall be the same as that specified for the remainder of the formation. All this excavation and making good of damaged areas shall be carried out at the expense of the Contractor. Where damage is caused to the sub-base, the damaged area shall be made good as noted above, using the material of which the sub-base is composed. The wheels or tracks of plant moving over the various pavement courses shall be kept free from deleterious materials.

MODULAR PAVING

Concrete Pavers Precast concrete pavers shall conform to the requirements of BS 6717 Part 1.
Ensure that sub-bases are suitably accurate and to specified gradients before being laid.

Sample: Before placing orders submit representative samples for approval.
Ensure that delivered materials match sample.

Laying Generally:

1. Laying Specification

1.1 Paving blocks/bricks shall be laid to the requirements of Part 3: 1997, BS 7533, except that the lip onto gully gratings is modified to 5 - 6 mm.
Note, in particular, the following requirements of Part 3.
i. The difference in level between two adjacent blocks shall not exceed 2 mm.
ii. The finished pavement surface shall not deviate more than 10 mm under a 3m straight edge.
iii. The accuracy of cutting a block should be such that the resulting joint should not exceed 5 mm.
iv. The surface course should be between
(a) 3 - 6 mm above drainage channels
(b) 5 - 10 mm above gullies (*BRL modify this to 5 - 7 mm above gullies to reduce "trips")
v. The surface course should be inspected soon after completion and at regular intervals thereafter - additional sand should be brushed in where necessary.
1.2 The surface course for chamfered units should be 3 - 5 mm above the kerb to facilitate surface drainage. The surface course for non-chamfered units should be 2 mm above the kerb to facilitate surface drainage.
1.3 When paving units need to be trimmed, pieces with a dimension less than 50 mm should not be used.

2. Drainage Channels

2.1 Where paving blocks are used in a channel, they shall be laid on freshly mixed moist 3:1 sand-cement mortar. The mortar should have thickness between 10 mm and 40 mm. Vertical joints should be filled with 3:1 wet sand-cement mix.
2.2 Mortar, which has been mixed for over 2 hours, should be discarded.
2.3 The mortar should be laid on a previously prepared concrete base as per construction drawing detail. Select blocks/paviors vertically from at least 3 separate packs in rotation, or as recommended by manufacturer, to avoid colour banding. Lay blocks/paviors on a well graded sand bed and vibrate to produce a thoroughly interlocked paving of even overall appearance with sharp sand filled joints and accurate to line, level and profile. Refill joints once a week three weeks after first fill. Commencing from an edge restraint lay blocks/paviors hand tight with a joint width of 2-3mm for pedestrian use and 3-5 mm for areas with traffic. Maintain an open working face and do not use mechanical force to obtain tight joints. Place blocks/pavers squarely with minimum disturbance to bedding. Supply blocks/paviors to laying face over newly laid paving but stack at least 1 m back from laying face. Do not allow plant to traverse areas of uncompacted paving. Continually check alignment of pavers with string lines as work proceeds to ensure maintenance of accurate bond.Infill at edge restraints as work proceeds. Wherever the type of bond and angle of edging permit, avoid very small infill pieces at edges by breaking bond on the next course in from the edge, using cut blocks/pavers not less than 1/3 full size. Cut stones shall be rectangular or trapezoidal; the smallest point shall be a minimum of 35mm. (May be pavers have to be turned by 90 deg.)Half stones shall be cut at manufacture. Thoroughly compact blocks/pavers with vibrating plate compactor as laying proceeds but after infilling at edges. Apply the same compacting effort over the whole surface. Do not compact within 1 m of the working face. Do not leave uncompacted areas of paving at the end of working periods, except within 1 m of unrestrained edges. Checks paving after compacting first few metres, then at frequent intervals to ensure that surface levels are as specified; if they are not, lift blocks/pavers and relay. Brush sharp sand into joints, revibrate surface and repeat as required to completely fill joints. Make sure that paving is held by a kerb on both sides before vibration to avoid uneven joints. Avoid damaging kerb haunching and adjacent work during vibration. Do not begin vibration until kerbs have matured. The paving pattern will be stretcher bond, make sure that the joints will be in straight line after vibrating. Also ensure joints are off equal width. The block pavement shall have a surface regularity/ flatness tolerance of less than 10 mm under a 3 m straight edge.

Sample: Before placing orders submit representative samples for approval.
Ensure that delivered materials match sample.

PRECAST CONCRETE FLAGS
Pre-cast Concrete Flags:
1. Precast concrete flags shall be laid to the requirements of BS 7533 Part 4.
Note the following selected items from BS 7533, Part 4.
- The difference in level between two adjacent flags should not exceed 3 mm.
- The top surface of the paving units should stand 3 - 6 mm above the drainage channel.
- A 30 - 50 mm (compacted thickness) of the sand laying course is given as suitable (for narrow joints)

2. Flags should be laid with narrow joints (2 - 5 mm).Joints should be filled with dried sand (conforming to table 4 of the code), or as determined by the Landscape Architect.

KERBS
Kerbing General: Kerb radii shall be in accordance with Architects and Engineers drawings. Use radius kerbs for all new kerbs.

Laying Generally:
Natural stone and precast concrete kerbs shall meet the requirements of BS 435 and BS 7263-1.
1. Precast concrete kerbs shall be laid to the requirements of BS 7533, Part 6.
2. Units shall be laid on fresh concrete or mortar bed and adjusted to line and level.
3. Concrete for foundations and haunching shall be to BS 5328.
4. Bedding mortar shall be freshly mixed, moist 3:1 sand-cement between 12 and 40 mm thick.
5. Kerbs shall be backed with concrete as per drawing.
6. Radius kerbs shall be used on radii of 12 m or less.
7. Kerbs should not deviate from the required level by more than 6mm.
8. Kerbs should not deviate by more than 3 mm under a 3 m straight edge.
9. Open-jointed kerbs should have joints of 2 - 4 mm wide.
Mortar jointed kerbs should have joints of 7 - 10 mm wide filled completely with 3:1 sand-cement mortar, and finished to give a smooth flush joint or as specified by the Landscape Architect.

Appendix 3 - Programme For Implementation, Maintenance + Defects Period

5.0 Maintenance:

5.1 Period:

The Contractor shall be responsible for aftercare of the completed works for 1 Year from the date of completion of planting. Subject to satisfactory performance the maintenance contract may be extended for two further periods of 12 months. Maintenance in years 2 and 3 shall be provisional. Maintenance during years 2 and 3 may be assigned directly. This will include grass cutting, weed control of all planted areas, litter clearance and watering of Select Standard trees during dry weather.

5.2 Organisation:
The aftercare programme will be organised as follows:-
(1) Scheduled operations, in whose timing the contractor will be permitted some flexibility and which will be the basis of payment to the Contractor.
(2) Performance standards, which the Contractor is required to meet at all times, and on which his performance will be assessed.
(3) Critical dates, by which time scheduled operations, shall have been completed, and at which performance will be assessed.

5.3 Performance standards:
Shrub, woodland and hedgerow planting to be maintained in accordance with specifications e.g. spraying, firming, tree tie adjustment. Weeds shall not cover more than 20% of the ground surface within planting areas and the maintained 1m diameter weed free circles at any time, and neither shall they exceed 100mm in height. Weeds shall be treated before they establish.

Within grass areas noxious and competitive weeds shall not be allowed to establish and all perennial weeds shall be spot treated at each maintenance visit, 3 times per year.

5.4 Watering:
The contractor is responsible for the survival of all plants during the maintenance period. Apply water to moisten full depth of root run using proprietary irrigation system. Avoid washing or compaction of the soil surface. The Landscape Contractor is responsible for informing the Landscape Architect if the plants require watering. A minimum of 16 no. waterings year1, 8 no. year 2, 4 no. year 3. Prior notification to the landscape architect and a record of attendance will be requested for each visit. Spot checks will be made to ensure full compliance with this condition.

5.5 PROGRAMME
Year One (After Planting): Period of 12 months from date of practical completion

5.5.1 By end of May (Year One):
Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Strim long grass prior to spray application. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. Tip prune, firm plants. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.
Critical date: 30 May (Year One)

5.5.2 By end August (Year One):
Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.
Critical Date: 30 August (Year One)

5.5.3 October (Year One):
Remove dead plants after Landscape Architect's inspection.

5.5.4 November (Year One):
Replacement planting. Tree care shall mean pruning deciduous trees including those of hedgerow form when dormant to promote open frame works in the crown. Remove all suckers and dead branches, and branches that are encroaching on to footpaths should be cut back to point of branching.

5.5.5 By end December:
Application of herbicide agreed with Landscape Architect to all planting areas. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water extra heavy standard trees, standard trees.
Critical Date: 30 December (Year One).

5.5.6 Year 2

As year 1.

5.5.7 Year 3

As year 1. Hedgerow to be fully pruned at end of season.

5.5.8 Sweeping and Cleaning

Sweeping shall mean sweeping of the footpaths, playing courts, car parks and the schools road network and removal of all grit rubbish moss and leaves, keeping the hard landscaped areas of the site in a neat and tidy manner. Number of sweepings per annum -12no.

Cleaning shall mean the removal of paper, plastic bags and all other rubbish from grassed areas, roads, car parks, playing courts, shrubbery's, hedging etc. or any part of the school grounds. This operation shall be carried out twice a month.
All dirt and rubbish to be removed off site to a tip to be provided by the Landscape contractor.
Autumn leaves shall be swept on a weekly basis from end of October to mid-November (three weeks). Any additional cleaning and sweeping deemed necessary, during the year, and requested will be paid for at a pro rata basis to the rates for the programmed maintenance schedule.

5.5.9 Other Maintenance Works
All grassed areas are to be edged 3 times a year using a machine and are not to be sprayed.

Carry out any other maintenance to ensure the works are kept in a satisfactory state during the defects liability period.

Appendix 3 - Programme For Implementation, Maintenance + Defects Period

5.6 Grass Cutting

Grass cutting shall be deemed to include for:
[a] Removal of lodged grass.
[b] Removal and disposal of grass cuttings from adjoining roads and paving.
[c] Removal and disposal of stones and other obstructions from area of grass to be cut.

high profile grassed areas, eg. central gardens are to be Fine cut. Fine cutting shall mean mowing to 25mm high. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the management team. A rough schedule is as follows-
March: 1cut
April: 3 cuts
May: 4 cuts
June: 4 cuts
July: 4 cuts
August: 4 cuts
September: 4 cuts
October: 4 cuts
November - February: 1 cut
Total 29 cuts

Fine cutting shall be deemed to include for grass cut to 25mm high evenly over the whole area, with cuttings left evenly spread over the surfaces. Grass not to exceed 50mm between cuts.

Other grass areas of which are less high profile are to be cut 16 times a year. These will include the grassed areas around the woodland areas etc

Areas indicated as wildflower mix shall be cut three times per annum. Cuts shall be carried out at specified times as agreed with landscape architect and recommended by the wildflower seed producer. Remove cuttings after each cut and remove offsite to tip.

Leave cuttings evenly spread. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the council.

At every second grass cut, grass shall be trimmed from around the base of walls and fences, back of footpaths and kerbs, litter bins, sluice valves and hydrant markers, trees, shrubberies poles and public lighting columns etc., and kept in a neat and tidy condition.

The contractor shall apply a broad spectrum weed killer, once a year, mid April, at the recommended application rate, to control weeds in the grassed areas during the growing season. In addition, 1 no. applications of herbicide to kill off clover in the grass areas shall be applied in April in line with approved herbicides under current legislation.