

The background of the entire page is a photograph of tall, thin grasses with feathery seed heads, captured from a low angle looking upwards. The grasses are in shades of light green and beige, set against a bright, slightly overcast sky. The composition is minimalist and naturalistic.

Doyle &  
O'Troithigh  
Landscape  
Architecture

Landscape Design Report  
19-039 Taylors Lane LRD



Project Ref: 19-039  
Client: Shannon Homes Dublin Unlimited Company  
Date: 27/03/2023

## Contents

### Table of Contents:

- 1.0** - Introduction
  - 1.1 Location and Context
  - 1.2 Scheme Proposals
  - 1.3 Vision: Working in Harmony
  - 2.0** LRD Opinion - 'Landscape' Related Items
  - 3.0** Landscape and Green Infrastructure Proposals
    - 3.1 South Dublin County Council Engagement
    - 3.2 Green Infrastructure
    - 3.3 Green Score Factor
    - 3.4 Arboriculture
    - 3.5 Biodiversity Enhancement
    - 3.6 SuDS Features
    - 3.7 Amenity Enhancements including Play Rationale
  - 4.0** Landscape Features
    - 4.1 Northern Public Open Space
    - 4.2 Main Streetscape/Plaza
    - 4.3 Semi-private open space /Courtyard amenities
    - 4.4 Junction of Taylor's Lane and Ballyboden Road – Suggested Improvement Works at Public 'Space'
    - 4.5 Circuitous Amenity Trail
  - 5.0** Boundary Proposals
  - 6.0** Planting Programme
  - 7.0** Maintenance and Performance Standards
- Appendix 1** - Green Space Factor Score Sheet - Taylors Lane



Fig.1 - Site boundary of Taylors Lane LRD

## 1.0 Introduction

### 1.1 Location and Context

The site is located on a corner site at the junction of the R113 Taylors Lane Road and the Edmonstown Road R116, Ballyboden Dublin 16. The subject lands, some 3.8ha are part of what was a religious institution and a portion of the land was also used as a pitch and putt course. There are a range of former institutional 3-storey buildings on site and associated outbuildings within a parkland setting which are no longer in active use.

The site is edged by an existing wall and railing to the north by Taylors Lane Road which curves into a pedestrian entrance feature at the junction with Ballyboden Road offering open views to the site. The boundary with Edmonstown Road to the east comprises of a 2.0m high wall which extends southward where it meets with industrial style buildings which act as a boundary to the site. A tree lined drainage ditch largely forms the boundary edge to the south of the scheme with a chain-link fence arrangement.

There are a number of existing housing estates surrounding the site which include Palmer Park estate to the east, Moyville Estate to the south, the Brockwood estate to the southwest, Boden Heath to the west, Taylor's Court to the northeast and Ballyboden Crescent to the north.

The topography of the area is relatively flat at approximately 75m OD along Taylors Lane and 80m OD along the southern boundary but rises steeping on the adjoining lands to the south.



Fig. 2 - Existing Site Images

### 1.2 Scheme Proposals

The proposal is for a Large-scale Residential Development (LRD) comprising of the demolition of the former institutional buildings and associated out-buildings, and the construction of 402no. apartments (in a mix of 1, 2 and 3 bed units), retail units, creche, car and cycle parking, bin stores, substations, pedestrian and vehicular accesses and open spaces and all associated works, as described in the statutory notices.

The Overall Development statistics are as follows:

No. of Residential Units	402 no. Residential Units as follows: - 39 no. 1 Beds - 302 no. 2 Beds - 61 no. 3 Beds
Additional Facilities	- Creche (656 sqm) providing spaces for 124 no. Children  Retail Units - Retail 1: 262 sqm - Retail 2: 97 sqm  Meeting / Communal Rooms: 322 sqm
Site Area	3.845 Hectares
Net site Area	3.478 Hectares
Plot Ratio	1:19
Site Coverage	0.32
Residential Density	114.9 Units/ha
Aspect	53.3% Dual Aspect 46.5% Single Aspect
Public Open Space	5,400 sqm - Public Open Space to the Front 4,400 sqm - Woodland Walk
Communal Open Space	3,600 sqm
Car Parking	290 no. Car Parking Spaces  - 265 no. Basement Spaces - 25 no. Surface Spaces
Cycle Parking	1054 no. Cycle Parking spaces - 928 no. Basement Spaces - 126 no. Surface Spaces

### 1.3 Vision: Working in Harmony

The layout and design of the streetscape, the creation of inviting landscape amenity areas, adopting landscape mitigation and restorative measures, protection of 'feature' trees and enhancement of the existing drainage ditch to the south is central to the long-term successful establishment of this Residential Development (LRD) at Taylor's Lane.

As part of the master planning exercise, the open spaces were established and sited at appropriate locations throughout the scheme. The open spaces, as now developed, are woven into the scheme to provide regular breaks to the built form whilst providing a complimentary setting, a welcoming space and a strong sense of cohesion to the 'landscape'. The landscape design development has been guided and influenced by both the Ecological and Arboricultural appraisal of the site, both of which have been enclosed as part of this application and which have been referenced further below.

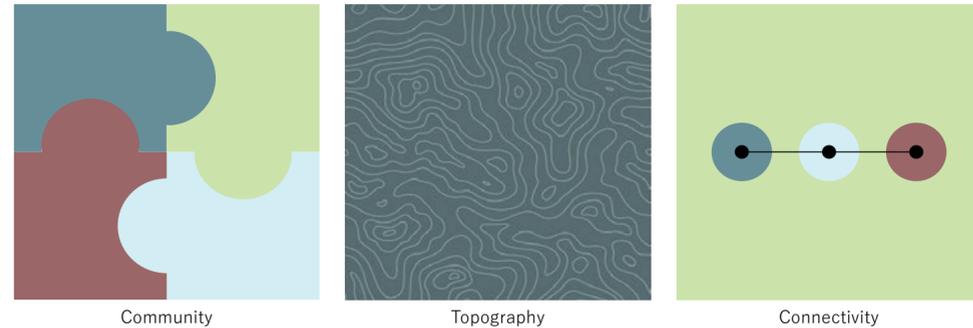


Fig.3 - Core influences in Landscape Design Development.

The use and mix of trees, shrubs and herbaceous plants have been considered in detail in order to be robust enough to establish, while still offering seasonal interest, movement and a focussed expression. Native plant material, where appropriate, has been considered for the scheme to improve the overall biodiversity of the site. Much of the herbaceous perennials shall be under-planted with a variety of bulb species to offer 'flurries' of colour from early to late spring. Leaf colour, bark tone and berries have all been considered for the scheme which allows for good contrast and again, seasonal variation.

The designed landscape must be comfortable, passively supervised, accessible, welcoming, sheltered and safe. The open space areas have been designed to provide a high level of visual amenity and a seamless and 'inviting' connection between this development and adjoining lands. This provision of 'connection' and was one of the core principals of the design.

The designed landscape amenity areas offer comfort, passive supervision, ease of access and a safe space for all end users.

Second to the core principal of amenity was the development of a palette of materials for both hard and soft landscaping to both the amenity lands and the streetscape. To aid us during the process to select materials we have developed a simple check list of both hard and soft landscape materials.

Hard works materials must;

- o Allow for ease of movement for all users
- o Enhance the space and not conflict with the building materials
- o Work and look attractive in both wet and dry conditions
- o Have a long timeline appeal

Soft works plant materials must;

- o Be suitable for the Irish climate
- o Be non-invasive
- o Collectively provide visual interest all year round
- o Enhance bio-diversity and habitat creation
- o Be disease resistant

By approaching the overall landscape design of the scheme at both macro and micro levels, the scheme delivered will provide a high level of amenity. Consideration has been given to provide a workable, aesthetically appealing, and robust scheme to work both within and beyond the surrounding development. It is proposed that both the streetscapes and landscape amenity areas proposed will receive a landscape treatment of a high standard in terms of materials and specification; both for hard and soft landscape elements.

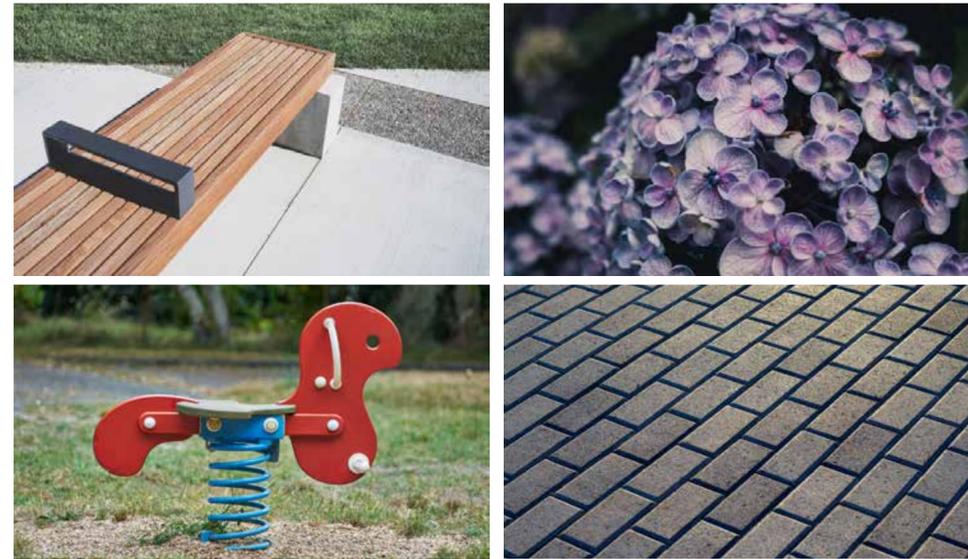


Fig.4 - Palette of external hard and soft materials (Concept Images)

### 2.0 LRD Opinion – 'Landscape' Related Items

The conclusions and recommendations as provided by SDCC have been considered in detail as necessary to ensure the response is cohesive and considered. Landscape related items as highlighted have been noted below:

- **Justification and mitigation for the significant loss of trees at the site to cater for the development.**

A full and detailed Tree Survey Report has been prepared by Independent Tree Surveys Ltd. which notes the detailed tree survey and associated impacts of the LRD proposal. From the outset it is important to note that the individual trees present in the application site (>80%) 'are relatively low value and are unsuited to long-term retention'. Refer to the following documentations, drawings and reports which justify and mitigate the approach with regard to tree loss and mitigation:

- o Tree Survey Report, Independent Tree Surveys and associated drawings.
- o Landscape Design Report, Section 3.4 ('Arboriculture')
- o Landscape Design Report, Section 3.5 ('Biodiversity')
- o Landscape Design Report, Section 3.3 ('Green Score Factor')
- o Detailed Planting Plans (PP-01-PP to PP-04-PP inclusive)

- **Demonstrate compliance with green infrastructure policies contained with in the Development Plan.**

Refer to Landscape design Report, Section 2.2 ('Green Infrastructure') and drawing no. LPR-01-PP ('Landscape Policy Review and Green Infrastructure') which illustrate the assessment of the infrastructure policies contained within the Development Plan and compliance with the same.

- **Detailed plans for the existing landscaped area at the north-western entrance and how its use can be maintained for the existing community.**

Refer to Landscape design Report, Section 3.1 ('The North – Northern Public Open Space') which describes in detail how this space has been revised and reviewed in terms of providing a more open and welcoming space with increased amenity value. Refer to the following detailed drawings for detailed proposals as necessary: LP-01-PP, LP-02-PP along with associated landscape details (LD-01-PP to LD-13-PP as necessary), boundary proposals (contained within drawing no. BP-01-PP, BD-01-PP and BD-02-PP), Play Rationale drawings (PG-01-PP and PPG-02-PP), landscape sections (LS-01-PP) and supporting planting plans (PP-01-PP to PP-04-PP inclusive)

- **Provide detailed drawings and calculations for SuDS, providing additional SuDS where possible including green roofs, as well as revised surface water attenuation and catchment area calculations.**

For all calculations and details with regard to SuDS, surface water attenuation and catchment calculation refer to drawings, details and reports as supplied by DBFL

Consulting Engineers. The full SuDS approach has been considered collectively and holistically with the landscape design and as has been specifically referenced within the Landscape Design Report, Section 3.6 'SuDS Features' and Section 3.2 'Green Infrastructure' along with supporting drawings: Landscape Plans (LP-01-PP to LP-04-PP inclusive), Landscape Policy Review and Green Infrastructure (LPR-01-PP), Green Space Factor and SuDS drawing (LPR-02-PP), Landscape Sections (LS-01-PP) and Landscape Details LD-04-PP and LD-05-PP inclusive. It was furthermore noted in the opinion under the '**Specified Information required in addition to Article 23 of the Planning and Development Regulations as per Article 16A(7)**) a list of 'particulars' required. The landscape related 'particulars' have been referenced below to support this application:

**6. Green Infrastructure Plan** – refer to drawing no. LPR-01-PP and Landscape Design Report, Section 3.2 'Green Infrastructure'.

**7. Green Space Factor Calculations** – refer to drawing no. LPR-02-PP and Landscape Design Report, Section 3.3 'Green Score Factor'

**8. Street Tree Planting** – refer to planting plans PP-01-PP to PP-04-PP inclusive as provided for detail.

**9. Landscape Plan to include:**

#### A. Details of hard and soft landscaping

Provided in Landscape Plans (LP-01-PP to LP-04-PP inclusive), Planting Plans (PP-01-PP to PP-04-PP inclusive), Landscape Sections (LS-01-PP to LS-04-PP inclusive), Boundary Plans and Details (BP-01-PP, BD-01-PP and BD-02-PP) and Landscape Details (LD-01-PP to LD-13-PP) as provided.

#### B. Details on levels and gradients

Provided in Landscape Plans (LP-01-PP to LP-04-PP inclusive) and Landscape Sections (LS-01-PP to LS-04-PP inclusive) as provided.

#### C. Details on street trees

Provided in Planting Plans (PP-01-PP to PP-04-PP inclusive) as provided.

#### D. Pedestrian connections to other sites

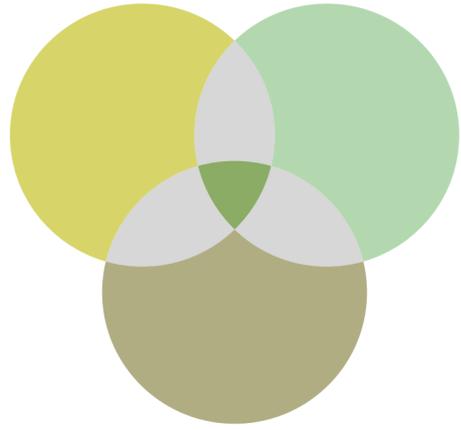
Provided in the following drawings: Landscape Plans (LP-01-PP to LP-04-PP inclusive), Landscape Policy Review and Green Infrastructure (LPR-01-PP) and Boundary Plans and Details (BP-01-PP, BD-01-PP and BD-02-PP) as provided.

#### E. Play Rationale and Layout Plan

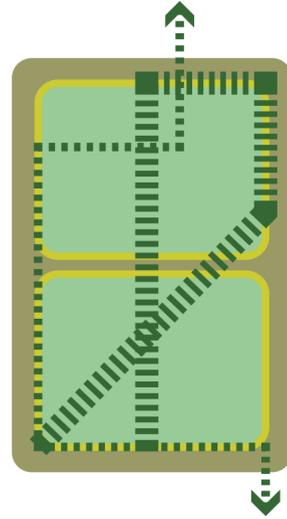
Provided in Play Rationale drawings (PG-01-PP and PG-02-PP) and also referenced in Landscape Design Report Section 3.7 'Amenity Enhancements including Play Rationale'

#### F. Detail on boundary Treatments.

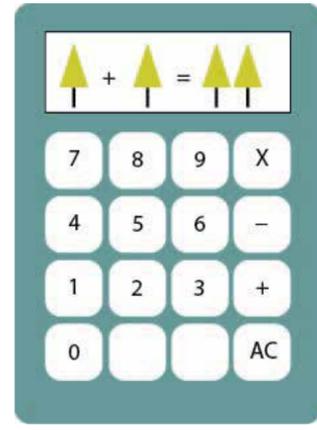
Provided in Boundary Plan and details drawings (BP-01-PP, BD-01-PP and BD-02-PP) as provided. It was furthermore noted at 'Prior to commencement stage' that a Landscape Maintenance and Management Scheme is to be provided. In the interim a 'Landscape Maintenance and Management' Report has been provided to address the specific request.



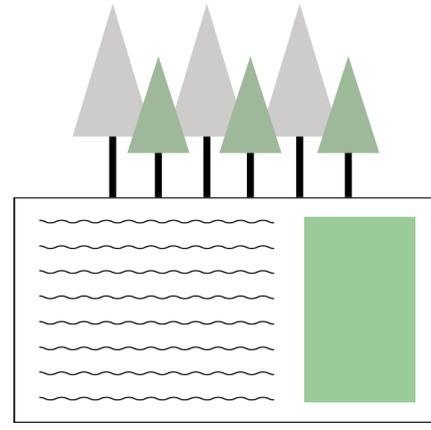
Engagement



Green Infrastructure



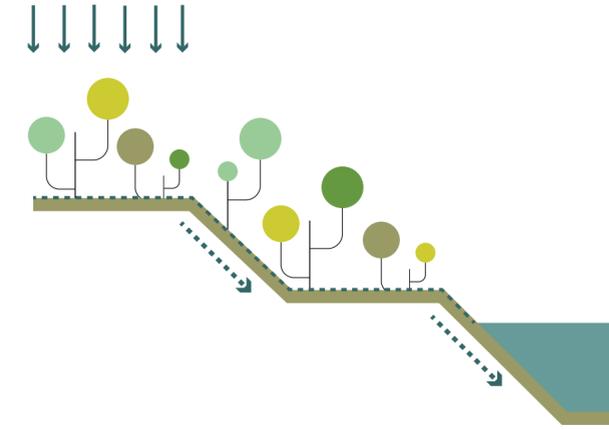
Green Score Factor



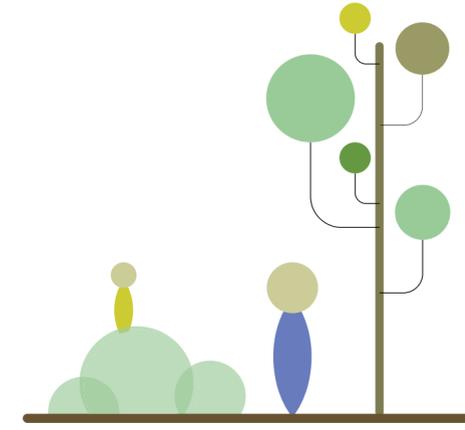
Arboriculture



Biodiversity



SuDS Elements



Amenity



## Landscape and Green Infrastructure Proposals

The site has been assessed holistically from the outset at the concept masterplan stage in terms of the existing site features. The existing trees, drainage ditch (former Mill Race) to the south, surrounding lands, archaeological and ecological aspects have all been considered. This process has been important in determining a landscape masterplan which is respectful of the key aspects of the of the landscape fabric.

In terms of fully realising this considered and restorative landscape scheme put forward, a series of measured factors have been assessed along with associated engagements have been facilitated all of which are referenced below.

### 3.1 South Dublin County Council Engagement

The landscape scheme has been developed further and redesigned as necessary to ensure that the commentary as received in the LRD Opinion report is suitably addressed and considered. A follow-on review meeting with Mr. Oisín Egan,

Executive Parks Superintendent was held on the 14/02/2023 to review the landscape strategy put forward and to seek specific guidance on the GSF scoring arrangement.

### 3.2 Green Infrastructure (GI)

As part of South Dublin County Councils Development Plan 2022-2028, the Overarching GI1 Policy notes to *‘protect, enhance and further develop a multifunctional GI network, using an ecosystem services approach, protecting, enhancing and so further developing the identified interconnected network of parks, open spaces, natural features, protected areas, and rivers and streams that provide a shared space for amenity and recreation, biodiversity protection, water quality, flood management and adaptation to climate change.’*

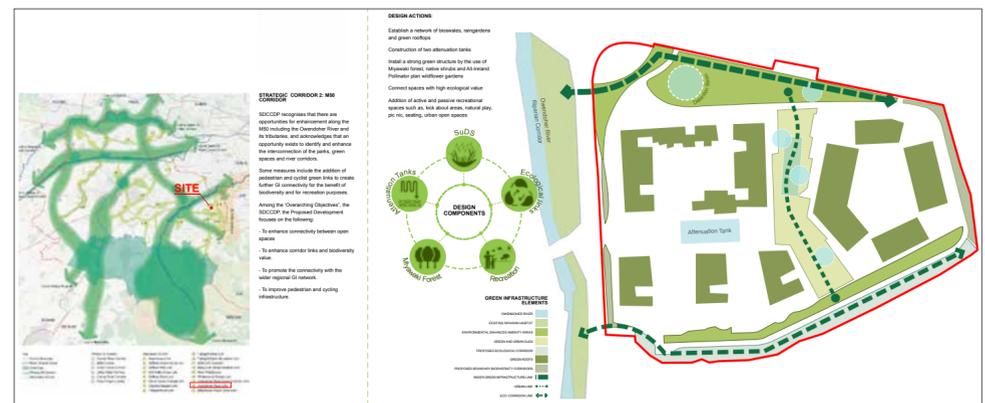


Fig.5 - Landscape Policy Review and Green Infrastructure (Extract of Drawing no. LPR-01-PP)

The landscape scheme as put forward incorporates GI as an integral part of the design and as specifically required under GI1 Objective 4. Refer to drawing no. LPR-01-PP (‘Landscape Policy Review and Green Infrastructure’) which illustrates a full assessment of South Dublin County Council’s Development Plan 2022-2028 and its requirements. It specifically strives to enhance connectivity between open spaces, enhance corridors links and biodiversity value, promotes connectivity with the wider regional GI network and improves pedestrian and cycling infrastructure.

It references that the site is located with a riparian corridor area (Owendohr River). Section 4.2.2 ‘Sustainable Water Management’ regarding riparian corridors states that ‘designating and maintaining riparian corridors along the major watercourses and the tributaries is key to maximizing ecosystems services provided by the watercourses.’ The proposed development considers the following key ecosystems and services to integrate in the GI infrastructure design and strategy:

- Interception and reduction of potential pollutants from urban sources
- Reduces runoff volumes
- Provides habitat refuge
- Creates an ecological corridor
- Amenity Value

The specific design actions or ‘design components’ which are proposed as part of the overall scheme and contribute to Green Infrastructure policies include:

- To establish a network of swales, raingardens, bio-retention basin, retention basin, bio-retention tree pits and green roofs
- construction of attenuation tanks
- bolstering of existing Green Infrastructure by the use of Miyawaki forest, native shrubs and recognizing the All-Ireland Pollinator Plan in plant selection.
- connecting spaces with high ecological value
- addition of active and passive recreational spaces such as kick about areas, natural play, exercise zone, picnic seating and urban open spaces
- Protect feature trees as appropriate and recognize the value of mature trees in terms of carbon sequestration. Allow for suitable additional tree planting (such as Miyawaki style planting) to extend canopy cover and to focus on sequestering carbon in an efficient and timely manner.

### 3.3 Green Score Factor

South Dublin County Council’s Development Plan 2022-2028 references the ‘Green Space Factor’ which notes that *‘the quantity and quality of the green infrastructure provided by the new development will be improved by the implementation of a Green Space Factor (GSF) for South Dublin. The GSF is a measurement that describes the quantity and quality of the landscaping and GI across a defined spatial area.’*

As part of this application, the ‘Green Space Factor Guidance Note’ along with engagement with South Dublin County Council’s Public Realm Section has been considered in detail in preparing the GSF specifically for this site. It is noted that a minimum score of 0.5 is required as a minimum green space factor score for ‘Res-N’ Land Use Scoring.

Refer to drawing no. LPR-01-PP and supporting completed ‘Green Factor Score Sheet’ which notes that the 0.5 score requirement has been achieved. It is noted that this GSF score has been based on the net site area of 3.5ha as agreed with the South Dublin County Council’s Public Realm Section as part of the engagement process.



Fig.6 - GSF Map

Development Site Area (Gross) (m <sup>2</sup> )		34506.21		
Surface Type (see tab for detailed descriptions)	Factor	Proposed Surface Area m <sup>2</sup>	Factor Values	
1. Short Lawn	0.3	2817.57	845.27	
2. Tall Lawn (wild, not mown)	0.5	2533.55	1266.77	
3. Permeable Paving	0.3	4988.08	1496.42	
4. Vegetation				
4a. Vegetation-Shrub below 3m	0.4	5190.31	2076.12	
4b. Vegetation-Shrub / Hedgerow above 3m	0.5	1337.15	668.58	
4c. Vegetation-Pollinator friendly perennial planting	0.5	1045.39	522.69	
4d. Vegetation-Preserved hedgerow	1.2	1212.12	1454.54	
5. Trees				
5a. New trees	0.6	737.50	442.50	
5b. Preserved trees	1.2	924.06	1108.88	
6. SuDS intervention (rain garden, bioswale)	0.6	2520.95	1512.57	
7. Green Roofs				
7a. Green Roofs - Intensive green roof (substrate is 200-1200mm in depth)	0.7	1379.76	965.83	
7b. Green Roofs - Extensive green roof (substrate is 80-200mm in depth)	0.6	6151.02	3690.61	
8. Green wall	0.4	108.49	43.40	
9. Retained Open Water	2	589.27	1178.54	
10. New open water	1.5	0.00	0.00	
Total Equivalent Surface Area of Greening Factors		31,535.22		
Green Factor Numerator		17,272.73		
Minimum Required GI score		0.5	Final GI Score	
			0.50	

Fig.7 - Green Space Factor Worksheet

### 3.4 Arboriculture

The existing trees and hedgerows pertaining to the said lands have been reviewed by the Consulting Arborist (Independent Tree Surveys Ltd.), Consulting Ecologist (Altamar Environmental Consultants) and the Consulting landscape architect (doyle + o’toirhigh landscape architecture ltd.) The detailed tree survey and associated impacts have been included within this LRD application as prepared separately by Mr. John Morgan, Independent Tree Surveys Ltd.

As part of previous engagements with South Dublin County Council at the s.247 (1A) and follow on Stage 2 meeting, the tree loss on the site was raised as a concern in the context of the development proposals. As noted in the supporting Tree Survey Report, 'Some of the more prominent mature trees will be retained in the north-western part of the site (including the two category A trees tagged T890 and T909) along with the dense landscape screen of Cypress trees (groups G7, and G18, G19 and G20) along the eastern boundary.' However, through the course of the scheme development, and with a view to achieving housing densities, it has been collectively considered that the tree and hedgerow species throughout the core of the site lands will require removal to facilitate the development. It is important to note however, that many of the individual trees surveyed (>80%) 'are relatively low value or unsuited to long term retention' as noted in the supporting Tree Survey Report.

It goes on to note that 'a total of 95 individual trees and 22 tree groups were assessed as part of the survey fieldwork; of the individual trees; 2 were classed as category A tree (high value), 16 as category B trees (moderate value), 57 trees were classed as category C (low value) and 20 were classed as category U (unsuitable for long term retention). 21 of the tree groups were classed as category C when assessed collectively, although some groups contain stems of lesser value (Category U); there was one category U group.'



Fig.8 - Existing Site Images - Arboriculture

The report also specifically references the presence of disease and in particular Ash Dieback and Dutch Elm disease where it notes *'all of the Ash trees on the site are showing signs of Ash Dieback disease (ADB); unfortunately, these trees are likely to decline in health and condition, and most will die within a few years. The Wych Elm trees growing on the site have all been affected by Dutch Elm disease, with trees 923.1 and 926 now standing dead.'*

The arboriculture report further notes that some 22 tree groups have been surveyed, however *'the arboricultural quality and value of most of these trees is comparatively low'. Most of the tree groups 'are remnants of the planting scheme established during the creation of a pitch and putt golf course and the planting groups reflect the origin. The trees mostly form narrow linear groups (both straight and sinuous) that were used to divide and separate the individual components of the golf course, the trees are closely spaced and mostly disfigured by the severe pruning regimes to control their size and spread. The planting design, species mix and past treatment limit the management options for the trees and underlie the reasons for their relatively low overall value and low grading in the initial tree survey assessment. Many of the trees planted into the old pitch and putt course has created what are in effect, short sections of hedge which are of little practical use outside of the intended purpose. The individual trees making up the groups are unsuited for retention as individuals because of their growth habit and form and co-dependence with the other members of the group.'*

*The existing pattern of tree cover in the eastern part of the site is thus quite unsuited to incorporation within an efficient revised land use layout for the site, and this makes its removal and replacement unavoidable if the site is to be re-developed for high density residential use.'*

Whilst it is acknowledged that there will be a high proportion of tree loss throughout the scheme, the landscape proposals have included a robust planting arrangement which will feature new specimen trees, woodland blocks, Miyawaki planting in an effort to restore and mitigate the loss. The new landscape planting will be more suited to the built development and it will provide a greater longevity and amenity interest in the long term. The new tree planting regime has been considered as part of the aforementioned Green Score Factor (GSF) assessment; and for all details with regard to tree planting refer to planting plans (PP-01-PP to PP-04-PP inclusive as provided.)

### 3.5 Biodiversity Enhancement

The Ecological Assessment of the said lands has been carried out by Altamar Environmental Consultants. A collaborative approach has been adopted with regard to the development of the scheme, including the protection and reinforcement, where possible, of key elements of the site's 'Green Infrastructure'. It is proposed that the drainage ditch/former millrace along the southern boundary will be enhanced as part of the overall scheme. Currently, this boundary consists of a large proportion of exotic conifers (Lawson Cypress) which vary between fair to poor condition along the edge of a 'man-made' drainage ditch offering very little to the site's biodiversity.

It is proposed that the aforementioned Lawson Cypress (tree line reference G21) will be removed; which will offer the opportunity to create a new and improved habitat at this location. The existing drainage ditch shall be cleaned of debris but retained in its current form where it will offer opportunity for new habitats for flora and fauna. The 'opening up' of this space and the removal of the dense heavy shade will provide an opportunity for a greater diversity in plant material. New native woodlands with a shade tolerant wildflower edge mix are proposed along the drainage ditch which will further enhance the green corridor as well as providing a strong and more sustainable boundary in the long term. This will create a feature in the landscape and enhance the ecological diversity locally. All plant material as proposed and as referenced within the supporting landscape plans have been fully reviewed with the Altamar Environmental Consultants.

The Tree Survey as enclosed with this application conforms with this suggested approach along the southern boundary in terms net improvement of tree and the vegetation quality over time: *'The plans for the new development include for the removal of the overgrown Cypress treeline (G21) that runs along the southern boundary region of the site and other trees planted along the bank below the small watercourse. This is proposed as part of plans to improve the conservation value of the riparian corridor by replacing the monocultural stand of conifers with a mix of species able to benefit from the vastly improved growing conditions created by the removal of the heavy shading from the Cypress trees. This work will involve the removal of a considerable number of individual trees and open up the southern boundary region in the short term, however, the trees are of low individual value and the works should bring about a net improvement of tree and vegetation quality over time and into the future.'*

In order to ameliorate against the potential loss of green infrastructure, further ecological compensatory measures are proposed as part of the scheme which include developing new compensatory native woodlands (compensating the loss of exotic conifers along the southern boundary), Miyawaki planting (Refer to follow on page for details on Miyawaki Planting and Carbon Sequestration), and planting of flowering trees, shrubs and herbaceous plants which are beneficial for pollinators. Wildflower meadow mixes and naturalised bulbs shall also be included at appropriate locations through the open green areas, will further enhance the local biodiversity.

To the south of the scheme, a low retaining timber crib wall is proposed to locally retain levels along the drainage ditch/former mill race. It is proposed that the retaining feature will include climbing plants, many native including Honeysuckle and Ivy which will create a series of 'micro-habitats' for beneficial insects, birds and pollinators.

Green roofs (largely sedum) are proposed as part of the scheme which will contribute to local biodiversity. The South Dublin County Council Development Plan 2022-2028 notes that Green roofs *'depending on the mix of plants' can 'contribute to climate change resilience, helping to improve air quality and temperature while also retaining and filtering stormwater to alleviate pressure on drainage infrastructure.'*

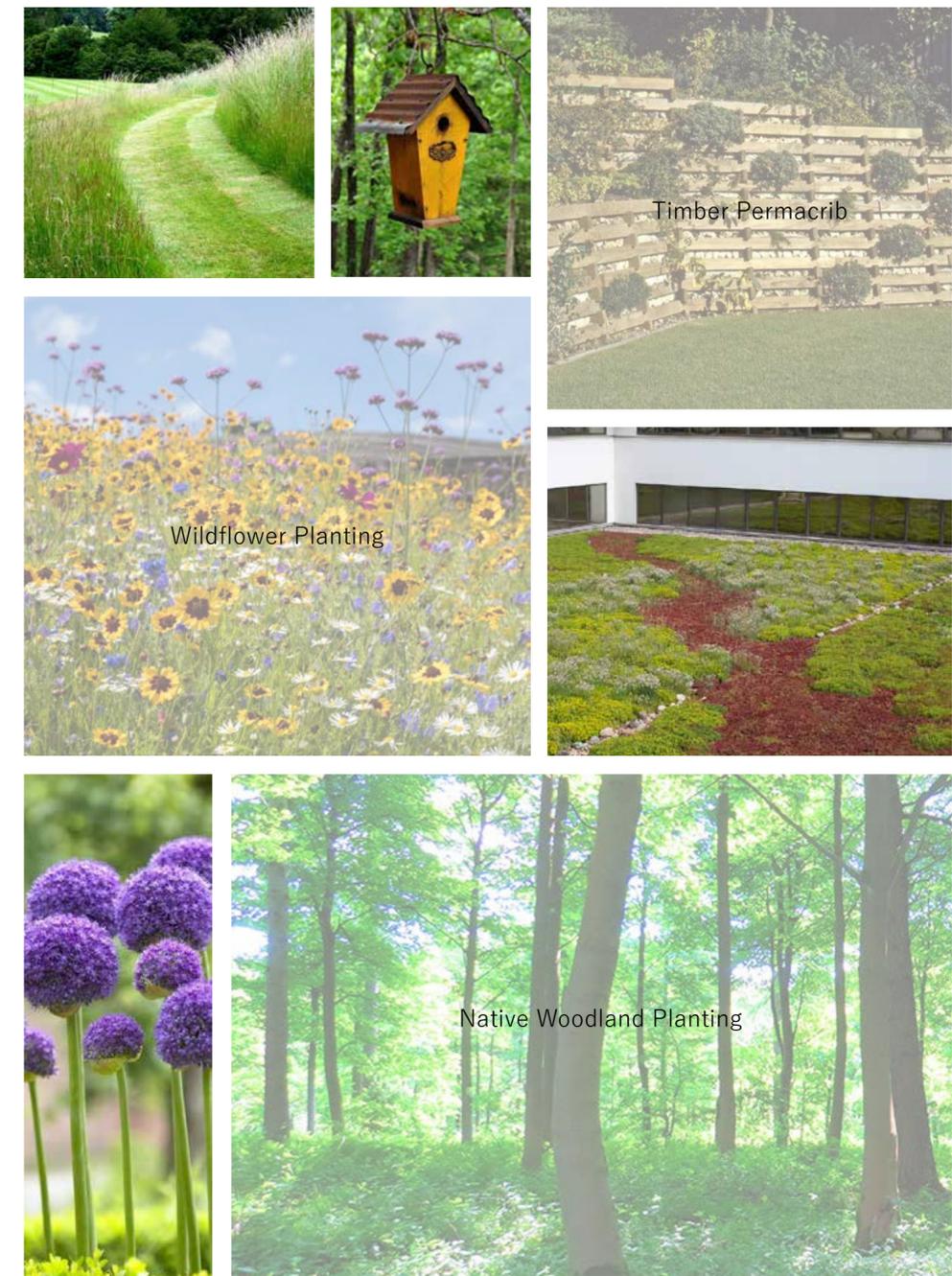


Fig.9 - Concept images of Landscape restorative measures proposed for Taylors Lane

## Miyawaki Planting

### What is Miyawaki Planting?

The Miyawaki Method is one of the most effective tree planting methods for creating forest cover quickly on degraded land that has been used for other purposes such as agriculture or construction. It is effective because it is based on natural reforestation principles, i.e. using trees native to the area and replicating natural forest regeneration processes. It has some significant benefits over more traditional forestry methods when used in smaller afforestation projects and is particularly effective in the urban environment.

The trees planted by this method grow much faster, jump starting the forest creation process and capturing more carbon. Higher biodiversity has been recorded in Miyawaki forests than in neighbouring woodland, so it's an ideal method for creating diverse forest ecosystems quickly.

Within the context of the current climate change emergency and stark warnings about the global loss of biodiversity, being able to create diverse, healthy forests quickly could prove vital to meeting international targets and tackling these issues.

### Miyawaki Growth Timeline

The Miyawaki Method promises to grow mature native forests 10 times faster, sequestering more carbon CO<sub>2</sub> and 100 times more biodiverse than conventional plantations. Researchers recommend mass tree planting as the best solution to lock carbon in the soil.

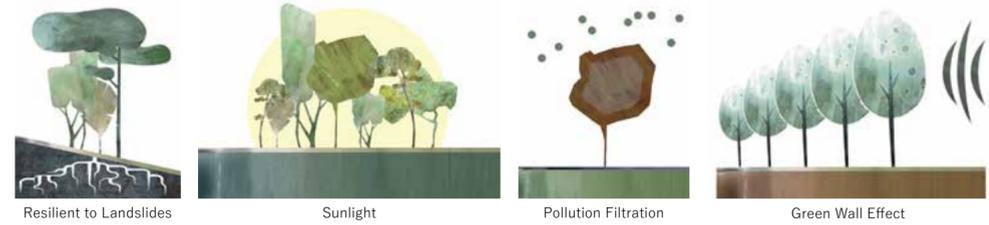
The 2 main ideas behind the Miyawaki method are density and diversity. Density creates under soil co-operation and above soil competition. By planting native trees very close together the underground root network establishes quickly.

This under soil root network provides many benefits to the trees including the ability to pass nutrients and water. Above ground, the trees stretch up faster as they are competing with each other for light in unusually close quarters.



Year 1. Seedlings Planted - Year 3. Natural Selection - Year 20. Established Woodland and understory growth.

## Advantages of Miyawaki Planting



- This denseness is great for creating biodiversity.
- Miyawaki planting method Increases carbon capture.
- Denseness of trees helps pollution filtration.
- Produces an area more resilient to flooding and landslides.
- It can be created in any place, where sunlight is available for at least 8 hours a day.
- There is no area that is so small or so big that you cannot have a Miyawaki Forest in.
- The green-wall effect of the multi-layered trees, which acts as a shield if there's ever a storm surge.
- Increased canopy cover reduces the amount of rainfall that hits the ground, increases shade and promotes cooling.

## The Miyawaki Method



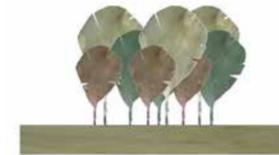
### 1. Choose Potential Natural Vegetation

Select and procure Native plant saplings of varied species. This should comprise trees, sub trees and shrubs. A combination of wild, medicinal, fruiting and flowering plants will help maintain biodiversity.



### 2. Prepare Planting Site with Organic Biomass

Dig the planting site one metre deep, and remove soil to a depth of half a metre. Ideally add manure to the newly oxygenated soil. Soil is often degraded, compacted, waterlogged or bacteria-dominant. However, trees need fungi-dominant, soft and crumbly soil, so their roots can establish faster and have better access to nutrients. The loosened soil, enriched with organic biomass, will let the roots go easily and deep into the soil.



### 3. Plant Saplings Densely

Mark the planting ground into one square metre segments. Plant 3 to 4 saplings in each, selecting a tree and a combination of sub trees and shrubs. The competition for sunlight will make all of them grow vigorously. Planting in close proximity mirrors how natural forests grow. Planting young saplings are more adaptable and can form symbiotic relationships with mycorrhizal fungi in the soil far quicker than an older plants.



### 4. Mulching

Mulch the ground as thickly and gently as possible. This will prevent the growth of weeds and help retain moisture in the soil.



### 5. Upkeep and Maintenance

Do regular watering and prune the branches wisely. Water the plants regularly for the next two years. Prune them as required. Both are equally crucial for the healthy growth of all the plants.

## Miyawaki Urban Planting

The Miyawaki method is a proven technique for creating sustainable forests in urban areas. It involves planting a diverse selection of native trees and shrubs closely together. This allows the plants to grow quickly and create a healthy ecosystem. Miyawaki urban forests are fascinating complex ecosystems, in balance with today's soil and climate conditions. This technique works worldwide irrespective of soil and climatic conditions. The 3 Main Miyawaki factors for Urban Environment are;

### Speed

It is a quick way to fill and grow a space. This method can transform spaces in a far quicker time than other methods due to the density and intensity of the competition to grow. Trees in a Miyawaki forest grow up to ten times **Faster** than trees planted in conventional woodland planting schemes at around one metre per year

### Biodiversity

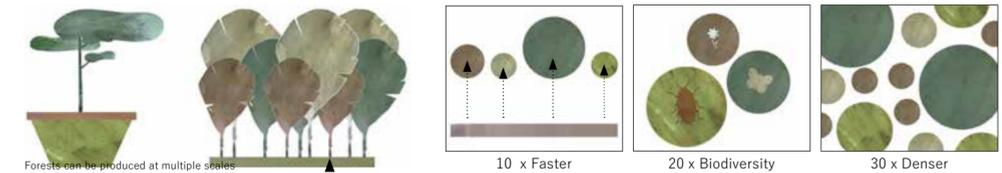
Understanding what grows well within different spaces is key to the method working to its fullest potential. Native species are highly encouraged and will deliver quicker results by growing in a familiar environment. With strong native species comes a richer **Biodiversity** to a space. Native trees, such as those planted in a Miyawaki forest, can support significantly more wildlife than non-native species.

### Climate and Carbon Storage

Although, fully grown, mature trees hold far bigger numbers of carbon than smaller trees, the competition for space, the **Density** and volume of planting using the Miyawaki method still equates to a strong reading of carbon storage. Holding Carbon in small pockets of space throughout the urban landscape will add up to a strong number of carbon stored.

### Scale and Positivity

Miyawaki Forests can be created in areas as small as 1000 sq ft, which makes them particularly well suited to urban areas where space is limited and heat, pollution, storms, and flooding are present.



## Miyawaki and Carbon Sequestration

It is important to note that carbon dioxide stored as biomass needs to be permanent in order to ensure a true reduction in atmospheric carbon dioxide levels. Decaying trees, burning of biomass and short-lived wood products can release this carbon dioxide back into the atmosphere, reversing the effects of carbon sequestration.

Designing landscapes with sequestration in mind can hugely effect an area in a positive way. Planting correctly and fully understanding what exists in a site both above and below the ground is pivotal. With the extent of climate change and human interaction with the land, carbon storage needs to be a major focus throughout the design process going forward.



The idea that trees have a positive impact on mental health, intuitively believed by many, is supported by a wealth of scientific literature. Beyond a sense of calm, trees provide surprising benefits to the mental health and well being of the people, especially in the context of urban forests.

## Carbon Sequestration

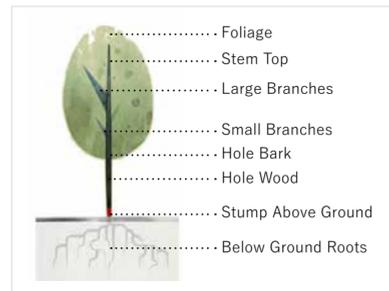
Carbon sequestration is the process of absorbing and storing carbon dioxide from the atmosphere. By stabilizing the carbon in solid and dissolved forms, it reduces further damage to the earth's atmosphere. Sequestration of carbon is happening around us. With more awareness, more can be done to tackle our 'carbon footprint'.

Natural features such as trees, plants, and soils play a critical ecological role in storing excess carbon. Within the lifespan of a tree, carbon dioxide is absorbed through the process of photosynthesis and carbon is stored as biomass and soil organic matter. However, carbon dioxide is also partially released back into the atmosphere through organic matter decomposition and respiration. The diagram (Fig.3) provides a simple illustration of the carbon cycle in trees.

**Soil.** Carbon is sequestered in soil by plants through photosynthesis and can be stored as soil organic carbon (SOC).

**Trees.** Roughly 25 percent of global carbon emissions are captured by plant-rich landscapes such as forests and woodlands.

**Grasslands.** Unlike trees, grasslands sequester most of their carbon underground. Forests/Trees have the ability to store more carbon, but in unstable conditions due to climate change, grasslands stand more resilient.



Whole Tree Biomass and Carbon Stock

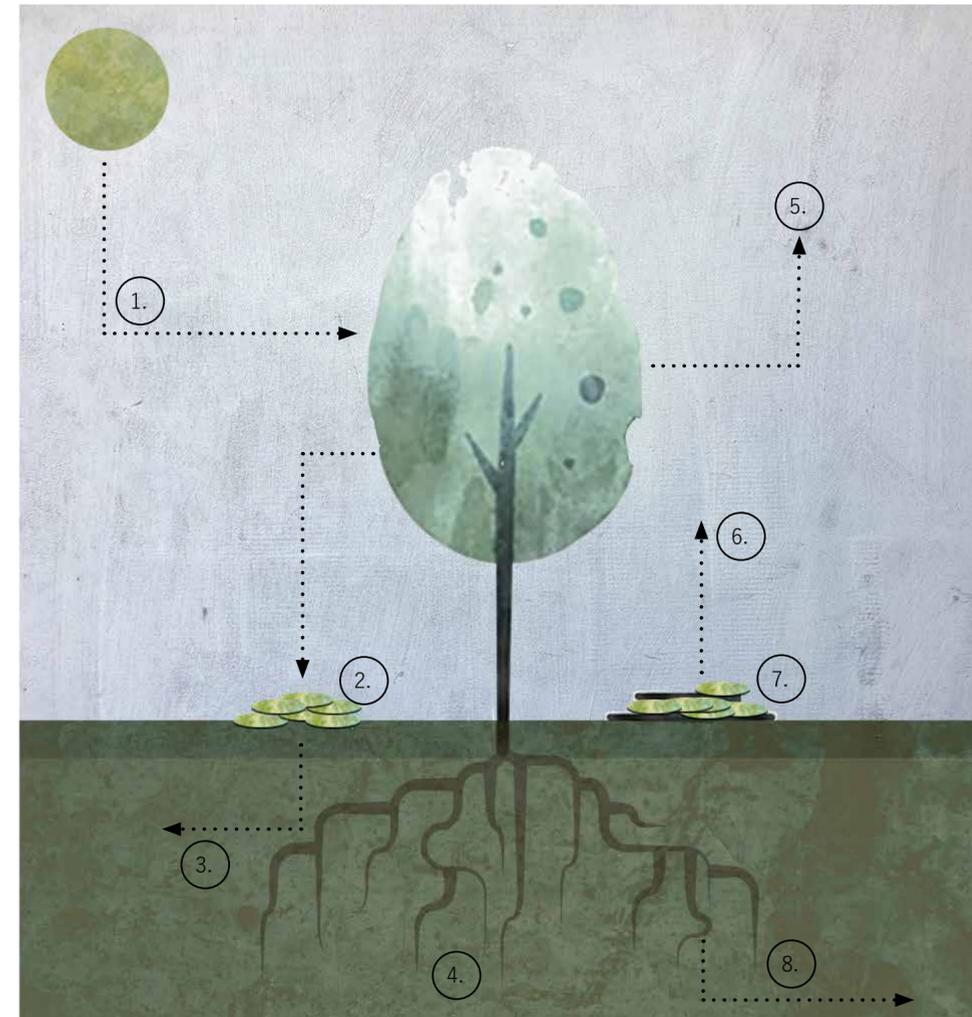
### SOC: Soil Organic Carbon

Soil Carbon Sequestration is a process in which CO<sub>2</sub> is removed from the atmosphere through photosynthesis and stored in the soil carbon pool. (Fig.2)

Reducing soil compaction and disturbance is key. Soils hold 4 times the amount of carbon stored in the atmosphere. About half of this is found deep within soils. Plant cover enriches the soil with more carbon and reduces erosion keeping the carbon in the ground in tact.



- |                   |                                   |
|-------------------|-----------------------------------|
| 1. Photosynthesis | 4. Decomposition                  |
| 2. Plant shoots   | 5. Stored Carbon                  |
| 3. Plant Roots    | 6. Respiration of CO <sub>2</sub> |

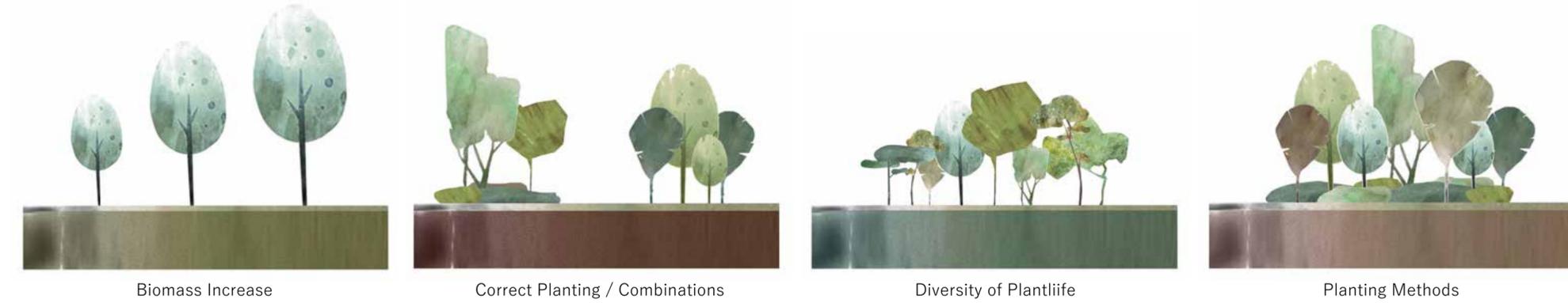


Carbon Cycles in Trees

- |   |   |
|---|---|
| 1. Photosynthesis. CO <sub>2</sub> absorbed by Tree | 5. Plant Respiration. CO <sub>2</sub> released back to Atmosphere |
| 2. Leaf Litter from Tree                            | 6. Leaf Litter and Dead Wood                                      |
| 3. Decomposition. Carbon enters ground              | 7. Decomposition. Carbon enters the ground                        |
| 4. Trees root system                                | 8. Root Cell Respiration/Death. Carbon Storeed                    |

## Ways to benefit an area focusing on Carbon Sequestration

- **Biomass Increase** - Quick growing, maintenance free species with deep roots hold more Carbon. Deciduous trees shed leaves creating leaf litter that leaches CO<sub>2</sub> into the soil.
- **Correct Planting** - Understanding what species work well within a particular site is key to longevity of plants.
- **Diversity of Plantlife** - Multiple sizes of plants, ranges of heights and spreads, diversity of root depths, warm and cool season plants.
- **Planting Methods** - Layering and grouping plants results in greater biomass which in turn retains more Carbon. Miyawaki planting is a good example of this.



## Miyawaki Planting Method and Design

The Miyawaki Method promises to grow mature native forests 10 times faster, sequestering more carbon CO<sub>2</sub> and 100 times more biodiverse than conventional plantations. Researchers recommend mass tree planting as the best solution to lock carbon in the soil.

The 2 main ideas behind the Miyawaki method are density and diversity. Density creates under soil co-operation and above soil competition. By planting native trees very close together the underground root network establishes quickly.

This under soil root network provides many benefits to the trees including the ability to pass nutrients and water. Above ground, the trees stretch up faster as they are competing with each other for light in unusually close quarters. (Fig.4)



Year 1. Seedlings Planted - Year 3. Natural Selection - Year 20. Established Woodland and understory growth.

It is important to note that carbon dioxide stored as biomass needs to be permanent in order to ensure a true reduction in atmospheric carbon dioxide levels. Decaying trees, burning of biomass and short-lived wood products can release this carbon dioxide back into the atmosphere, reversing the effects of carbon sequestration.

Designing landscapes with sequestration in mind can hugely effect an area in a positive way. Planting correctly and fully understanding what exists in a site both above and below the ground is pivotal. With the extent of climate change and human interaction with the land, carbon storage needs to be a major focus throughout the design process going forward.

### 3.6 SuDS Features

The Development Plan Policy G14: Sustainable Urban Drainage System requires the 'provision of Sustainable Urban Drainage Systems (SuDS) in the County and maximize the amenity and biodiversity value of these systems.' G14 Objective 1: notes specifically 'to limit surface water run-off from new developments through the use of Sustainable Drainage Systems (SuDS) using surface water and nature-based solutions and ensure that SuDS is integrated into all new development in the County and designed in accordance with SDCC's Sustainable Drainage Explanatory Design and Evaluation Guide, 2022.'

As part of the scheme development, a holistic approach has been adopted regarding the open space provision and Sustainable urban Drainage Solutions (SuDS). Both the Consulting Engineers (DBFL Consulting Engineers) and the Landscape Architect have coordinated to develop landscape proposals which offers multifunctional spaces whilst providing for 'ecology and sustainable water management' as required under G14 Objective 3 (South Dublin County Development Plan 2022-2028)

Proposed SuDS features proposed within the development include: (for further details refer to drawing no. LD-03-PP to LD-05-PP inclusive for detailed reference)

- **SuDS Tree Pits and Bio-Retention Tree Pits.** These proposed pits are located in the streetscape; and the details as provided have captured commentary received previously from SDCC Parks Department in terms of design. The tree pits aim to attenuate surface water run off by exploiting the soil/stone mix which is contained within the underground tree pit.

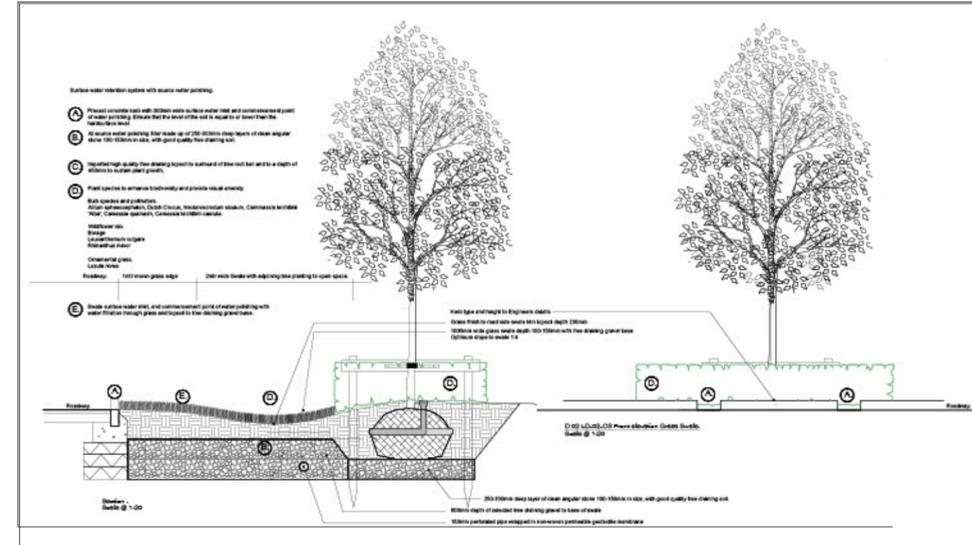


Fig.10 - Typical Bio-retention Tree Pit

The bio-retention arrangement aims to include a grass buffer strip to reduce the runoff speed and remove suspended solids. The feature will include vegetation with a mulched layer which will remove water through evapotranspiration and remove the excess nutrients through the nutrient cycle. The mulch will help to encourage micro biological degradation of pollutants, aid pollutant filtration and reduce soil erosion. A shallow ponding area, in the order of 300mm, will offer storage of excess storm water flow and its subsequent evaporation. The suitable soils, often referenced as an 'engineered soil' with a clay element to absorb pollutants are proposed to support good rates of plant establishment. Beneath the soil later, a sand bed is proposed to provide drainage and aeration of soil as well as an aid in flushing pollutants. A positive 'under-drain' system shall also be included to remove excess treated water to the storm drain system.

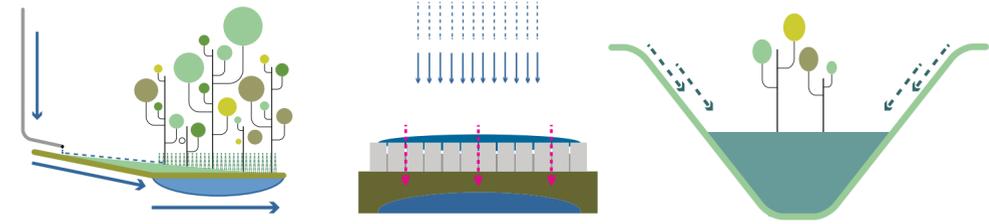


Fig.11 - (Concept Diagrams Left to Right). Rain Garden, Permeable paving, Bio-Retention Basin

- **Rain Gardens** – Localised spaces containing flowering plants and grasses (native in some instances) that can thrive in soil soaked with rain water. The aim of the rain garden is to collect and slow stormwater run off and increase its infiltration in the soil whilst creating a habitat to beneficial insects, pollinators and birds.
- **Permeable Paving** – Paving designed to allow low percolation or infiltration of stormwater through the surface into the soil below where the water is naturally filtered and pollutants are removed.
- **Retention Basin** – A basin providing a capacity to temporarily store stormwater to a depth of approximately 400mm during heavy rain. The retention basin in this instance offers a grass finish which also provides a recreational space for the community while dry. An elevated walkway is proposed to increase the amenity value of the space whilst avoiding impact on the attenuation capacity.
- **Conveyance Swales or Grass Swales** – These offer shallow open depressions within the open grassed zones in the order of 300mm depth. The grass swales promotes the conveyance of storm water at a slower, controlled rate and acts a filter medium removing pollutants and allowing stormwater infiltration.
- **Bio-Retention Basins** - Landscaped depressions or shallow basins used to slow and treat on-site stormwater runoff. Stormwater is directed to the basin and then percolates through the system where it is treated by a number of physical, chemical and biological processes. The slowed, cleaned water is allowed to infiltrate native soils or directed to nearby stormwater drains or receiving waters.

### 3.7 Amenity Enhancements including Play Rationale

The landscape scheme as put forward, and as described further below in 3.1-3.5 inclusive is a considered and restorative design which aims to deliver a high level of visual amenity and recreation for the residents and the wider community. Play elements, natural and structured, and which cater for a wide age range feature throughout the scheme in both public and semi-private open space. Structured play areas are also provided to facilitate the creche proposed to the north-west of Block A. Refer to drawing no. PG-01-PP and PG-02-PP which provides the play rationale, positioning and detail.

Other amenity enhancements include:

- Welcoming and circuitous pathways (and in some instances combined cycle ways) through the scheme and which link to the surrounding pedestrian (and cycle routes). Consideration of potential desire lines within and beyond the site have been assessed as part of the design development.
- Formal outdoor exercise point
- Welcome 'arch feature' to the northwest pedestrian approach.
- Art installation within the formal streetscape
- Multifunctional spaces which cater for attenuation as well as play
- Structural tree planting and meadow grass mixes including diverse an appropri

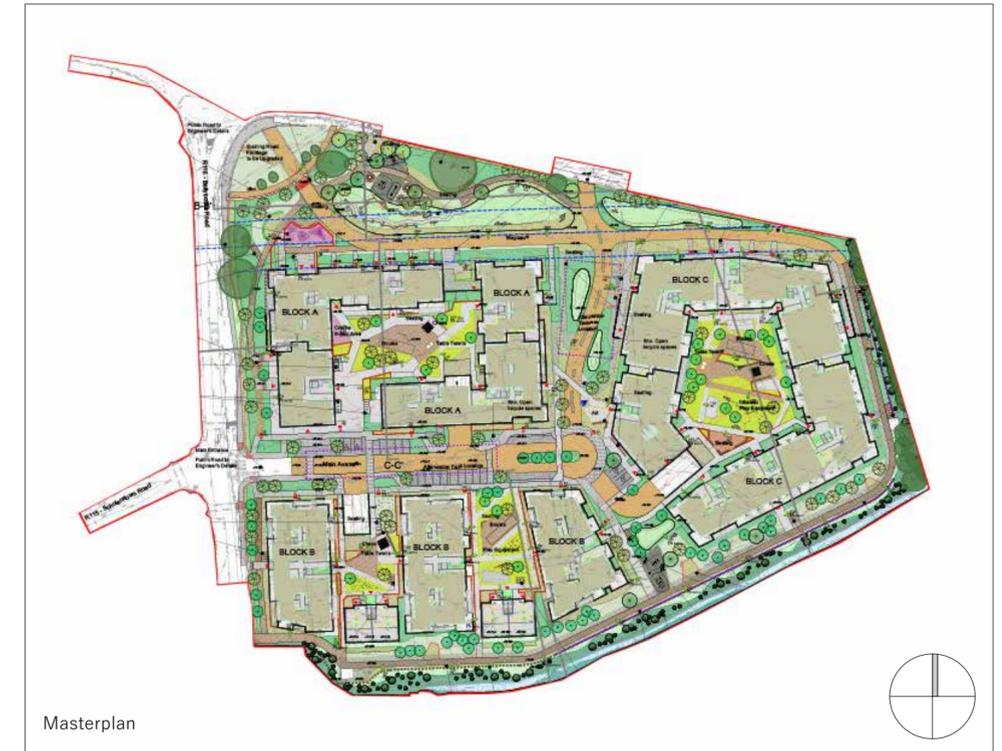


Fig.12 - Open Pathways, Exercise Points, Structured Play space, Meadow Grass with seed appropriate seed mix.

### 4.0 Landscape Features

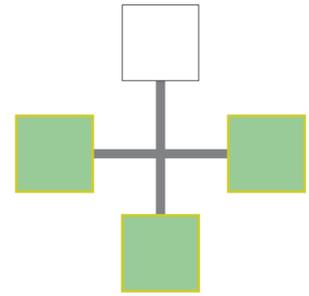
The key objectives of the landscape proposals specific to this development are:

- To provide a landscape scheme which delivers a high level of visual amenity and passive recreation for the residents all year round;
- To create an attractive, high quality landscape for the residents and their life styles. Well-designed landscapes, especially in neighbourhoods contribute to an overall sense of well-being by providing places for people to meet up for a walk, for collaboration or just to chat. People places are successful places.
- To ensure that the plant materials proposed are suitable in terms of scale, species selection, on-going maintenance and overall longevity;
- To adopt a repetition and rhythm of plant species to ensure a cohesive style and an overall consistency.
- To adopt ecological compensatory measures for the scheme, including use of pollinator plants and the objective to enhance the southern boundary of the scheme which will provide a positive aspect to the landscape and offer significant ecological mitigation measures.
- To include a landscape strategy around creation of safe and pleasant pedestrian and cycle routes through the scheme.

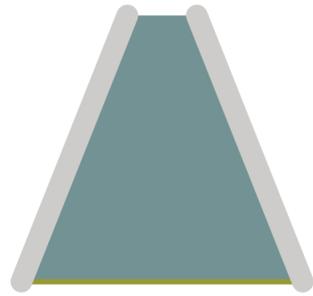


Masterplan

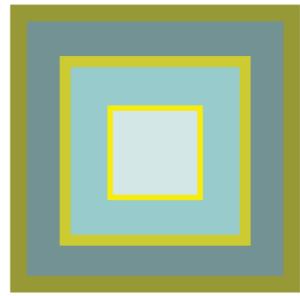
Featured Locations



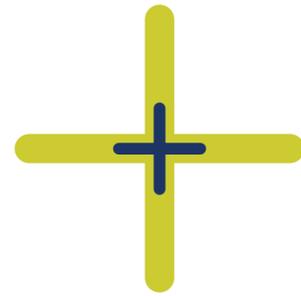
The North



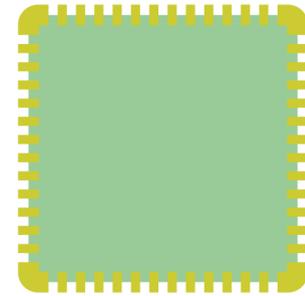
Main Avenue



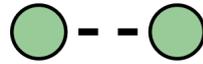
The Courtyards



The Junction



The Trail



## 4.1 The North

### Northern Public Open Space

Following engagement with South Dublin County Council and the receipt of the LRD Opinion Report, the northern public open space has been revised and reviewed in terms of provide a more open and welcoming space with increased amenity value. The space features the following key elements:

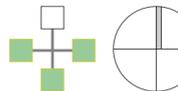
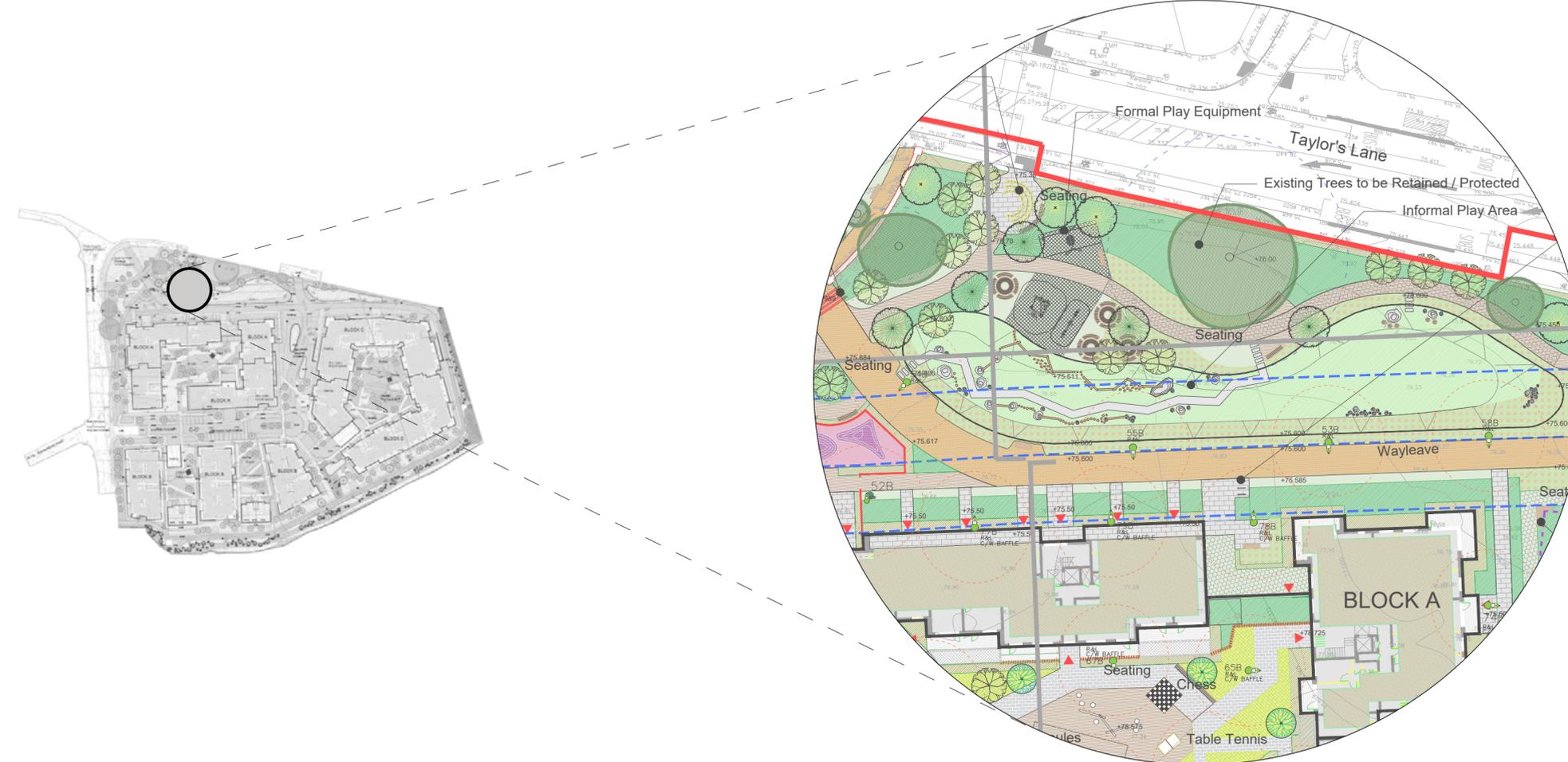
- A welcoming 'feature arch' to the north-west of the scheme at the existing gated arrangement. This feature arch aims to encourage users from the wider public as well as a placemaking feature in the local landscape.
- Open pathway links comprising of buff coloured macadam for the key links along with secondary paths finished in bound gravel. A portion of the secondary path ways are based on a non-dig system with geogrid to avoid impact on the root zone of trees scheduled for retention.
- Feature play units within the open landscape setting set on a base of 'tiger mulch' or bonded resin mulch or rubberized grass matting as deemed appropriate.
- A picnic area with a quality aspect and good views of featured play elements.
- A retention basin with planted size slopes which features elements of natural play (balance beams, rounded natural boulders), an elevated walkway to improve local permeability and a level base zone for kickabout.
- As noted in the supporting 'Tree Survey Report', 'some of the more prominent mature trees will be retained in the north-western part of the site (including the two category A trees tagged T890 and T909), which will offer a sense of maturity to the local setting.
- Feature seating zones and rest spots as necessary throughout along with an additional arrival space to the scheme to further welcome and invite users and the wider community to utilize the open space within the proposed scheme.
- The inclusion of new semi-matures trees, of a mixed variety, which will establish well in an open parkland. Many of the species will be grouped together.
- er in order to give greater appeal and impact. Miyawaki planting also to be adopted at appropriate locations.
- The inclusion of a formal play area as part of the creche facility, protected by a bow top railing arrangement as necessary.



Fig.13 - Artistic Impression of Northern Public Open Space



Fig.14 - Concept images for Northern Public Open Space





## 4.2 Main Avenue

### Main Streetscape/Plaza

The main vehicular access to the development is located to the west of the scheme, just off the Edmonstown Road. This has been designed as a generous avenue which includes traffic calming measures such as shared surface zones, speed ramps, change in material and use of chicanes.

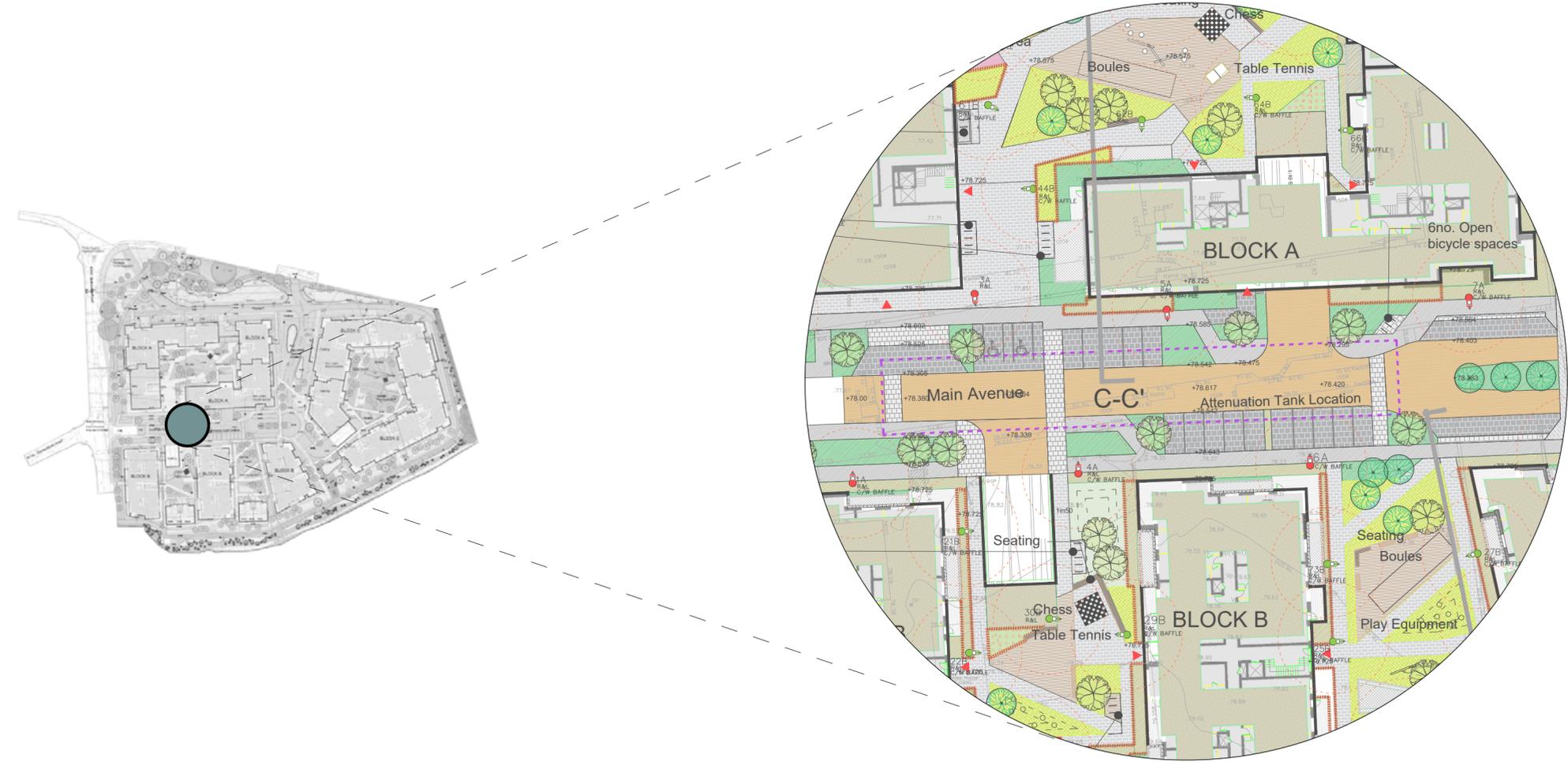
Select concrete paving and formal planting adjacent the main entrance will provide a distinct zone, welcoming residents and visitors along with providing designated and visitor parking. A series of rain gardens and bio-retention tree pits are proposed at this location and the understory planting associated with the same will offer a relaxed arrangement in contrast to the built elements and hard landscape.

It is proposed that the main avenue will receive specimen trees, suitable for the streetscape development; where possible. Size, seasonal interest, colour and a good variation have all been considered in choosing specific trees for these locations. a range of supporting shrub planting has been included along the proposed routes to ensure an overall unified approach is adopted. Tree planting, has been coordinated with site lighting, in accordance with requirements set out by South Dublin County Council.

A community zone at the eastern end of the streetscape welcomes residents with quality seating with good aspect, a public art opportunity and a space for outdoor gathering/connection and exhibitions. The Plaza area connects the main streetscape with the main Public Open Space to the north with a wide buff bitmac shared surface,



Fig.15 - Concept images for Plaza. Planting and hard materials.





### 4.3 The Courtyards

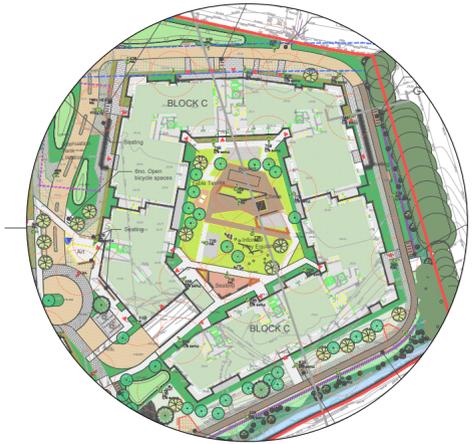
#### Semi-private Open Space /Courtyard Amenities

The apartments and duplex blocks are served by a mix of defensible, communal and plaza type spaces, depending on the location, however all units are located in close proximity to a provision of quality public open space ensuring a clean, high-quality residential environment for future residents. All of the apartments shall receive a landscape treatment which will include the following key features:

- Open design to allow for a wide variety of uses including informal play, outdoor games such as table tennis, chess and boules, relaxation, social gathering etc.
- Semi private areas will receive contrasting soft and hard landscape materials to distinguish the areas from the general public open space. This will be supported by level change and hedge planting along 'boundaries' to increase the privacy element.
- Edge treatment in the form of evergreen shrub planting along the building facade to ensure a consistent edge treatment. Where recesses are proposed within the building alignment and wider planting blocks are possible, it is proposed that these areas will receive a block of herbaceous planting with an under planting of spring bulbs to provide some seasonal interest.
- The external space to the apartment blocks includes a proposed landscape/courtyard space over a podium arrangement. These zones have been developed to include formal pedestrian access to building, seating zones with good aspect, screening of ventilation, ornamental planting and formal hedge planting to edge the space. The finished planting scheme has been developed in accordance with restricted soil zones over the proposed podium arrangement. The spaces will include elements of play and suitable outdoor games as noted previously to improve the amenities.



Fig.16 - Concept images of Courtyard Amenities.





#### 4.4 The Junction

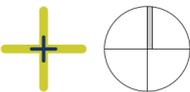
##### Junction of Taylor's Lane and Ballyboden Road – Suggested Improvement Works at Public 'Space'

Following engagement with SDCC and receipt of the LRD Opinion Report, the integration and improvement of the existing public open space to the north-west of the scheme is welcomed and encouraged. This existing 'Junction' space includes pathway linkages with gravel insets and the existing railings are used for community notices.

The proposal is to soften the entrance space, to improve on local biodiversity, rationalize the pathlinks, include a public community notice board, to integrate new seating, all which will aim to create a seamless transition to and from the new development.



Fig.17 - Concept sketch of Pedestrian Entrance at North-west Corner.





## 4.5 The Trail

### Circuitous Amenity Trail

A well-connected path network circulates the entire development including shared cycle footpaths, in the order of 3.5m in width. The path network will allow for circulation throughout the development and invite residents and the wider community for leisure walks and jogging.

Along the eastern and southern route, a reinforced gravel path will invite residents and the general public to explore the area and use it for informal play. This gravel path offers a dual role whereby it acts also as fire-tender route given the juxtaposition of a grass ritter width along its edge.

An attractive low retaining wall in the form of a permacrib timber system or similar which will receive climbers is proposed along the edge of the southern path. This arrangement will protect the levels and the proposed ecological 'enhancement' zone, which will include indigenous herbaceous and woodland planting and the naturalised drainage ditch described above.

Semi-matures trees, of a mixed variety, which will establish well in an open parkland. Many of the species will be grouped together in order to give greater appeal and impact.

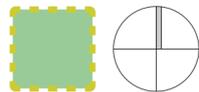
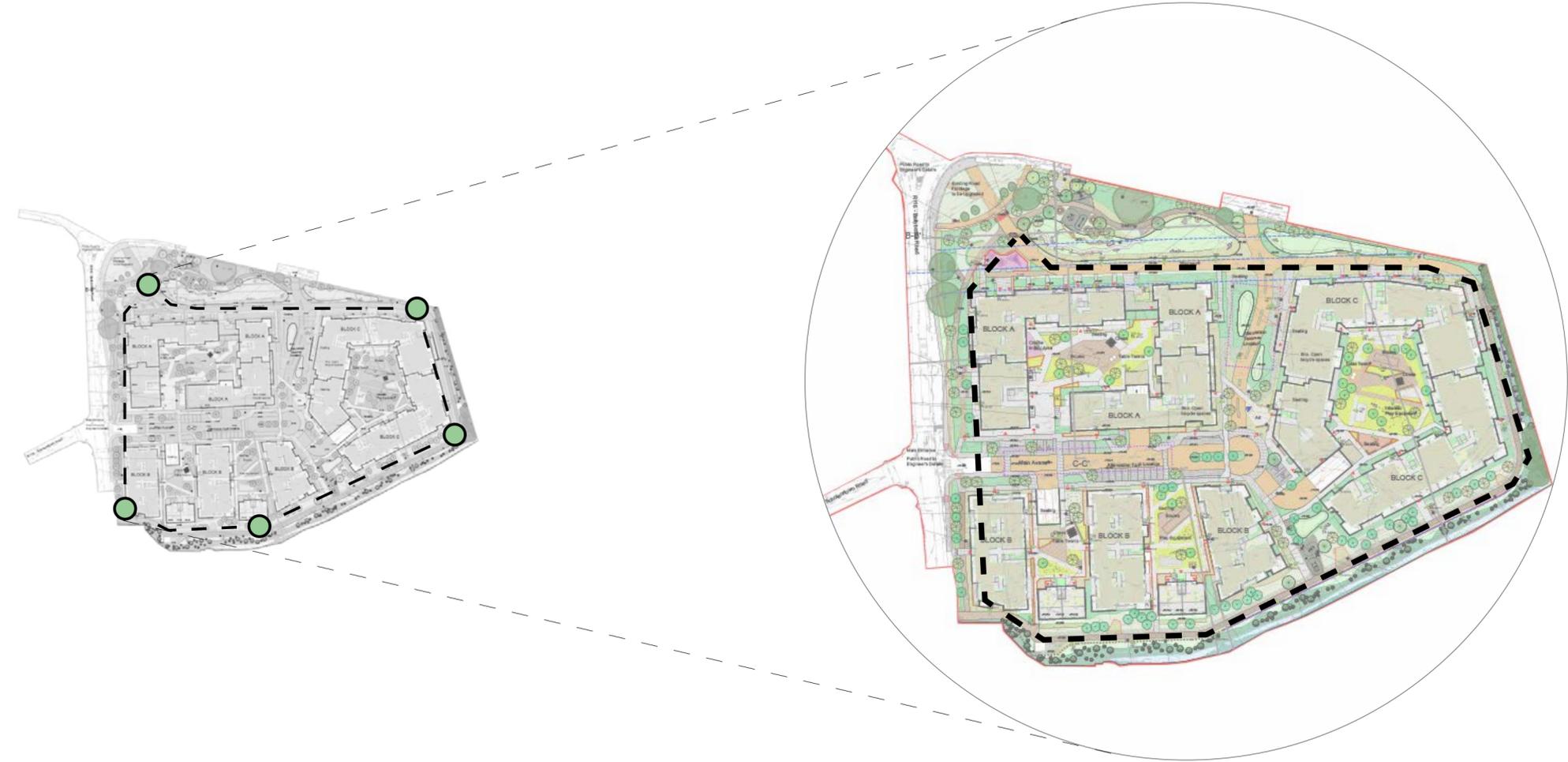
The pathway link will directly connect with a proposed 'gym zone' which will include a series of stationary equipment stations. These features will help to promote more physical activity within the proposed built facility to provide an opportunity to improve strength, balance and flexibility; as well as the wider benefits including social activity, integration, accessibility and the improvement of cognitive skills.



Fig.18 - Section Sketch of trail along Southern Site Boundary.



Fig.19 - Concept images of Trail usage.



## 5.0 Boundary Proposals

It is proposed that the attractive existing boundary wall and the bow top railing arrangement along the northern boundary will remain in place and will be reinforced by formal native hedge planting. Two openings will feature along this wall/railing arrangement which will include bollards as necessary to a combined cycle/footpath which will also act as an occasional vehicle route should this be required.

The third opening shall include a featured paved space in circular form to the north-west of the site which will generally improve the local permeability and encourage users to access the space. A select number of existing trees mature trees along the boundary shall be retained and protected; and will be further enhanced by the new planting of specimen trees of a parkland variety within this zone. To the north-western edge of the site at the curved public open space, The wall and railing, along with the gated entrance arrangement shall be retained. This wall and railing arrangement includes a granite stone wall featuring a cut stone top and black railing and ornate feature piers.

The existing high wall along the western boundary shall be demolished and replaced by a stone wall and railing to largely to match the existing wall and the pier arrangement currently present at the north-western curve edge, however a bufftop black rail shall be adopted. Formal hedge and tree planting along this boundary will unify the scheme, provide screening and create a quality buffer from Edmonstown Road. 'Openings', with matching stone wall arrangements, to the new development shall feature along this edge to cater for vehicular and pedestrian movement where necessary. It is proposed that the existing vegetation and the chain-link fencing arrangement to the east of the site, shall be retained and receive amelioration works where required. Additional woodland and shrub planting along this boundary will improve screening and raise the ecological diversity locally.

As noted previously, the trees and vegetation along the southern boundary shall be removed to facilitate a new native woodland planting along the naturalised drainage ditch. A low retaining wall in combination with a 1.2m height timber post and rail fence will protect the habitat further and retain levels as necessary. A proposed 2.4m height black paladin fence will be located along the ownership line to the south with the aforementioned native woodland block screening the structure as necessary. For all details with regard to boundary elements and finishes refer to drawing no. BP-01-PP, BD-01-PP and BD-02-PP for reference.



Fig.20 - Retained boundary details.

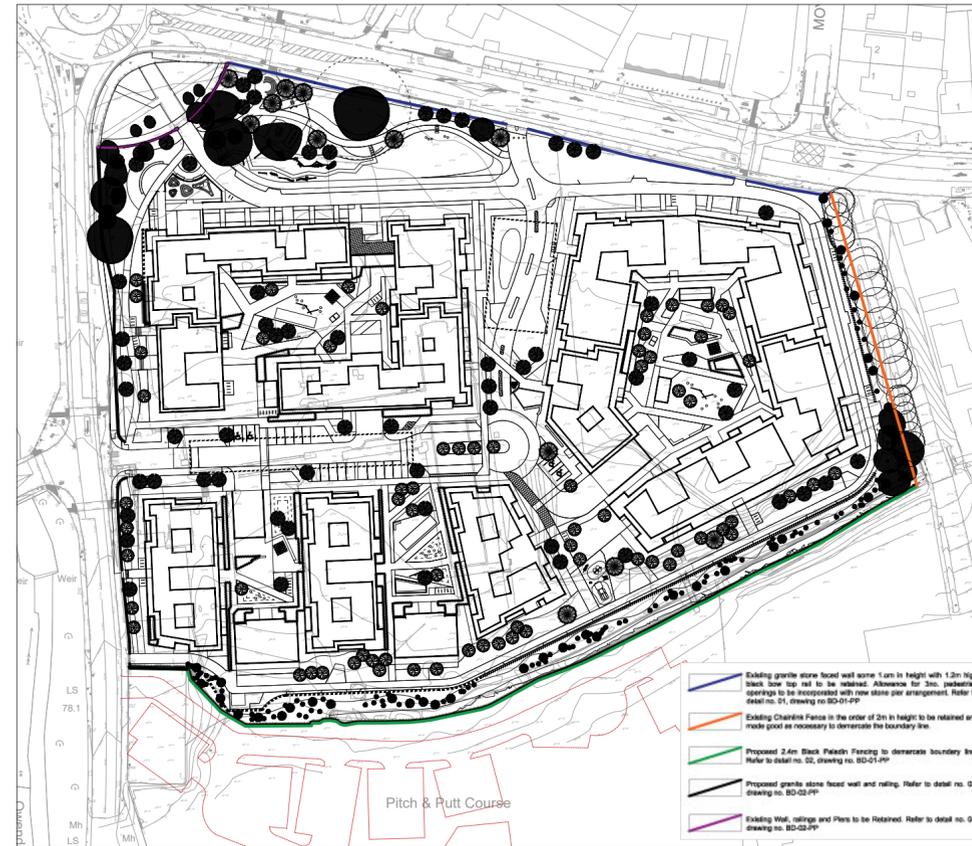


Fig.21 - Boundary Plan Details (Extract of Drawing no. BP-01-PP)

## 6.0 Planting Programme

Planting on site will commence with the completion of each stage of the works and as a result the programme is closely tied to construction operations.

Ground preparation will precede planting and will include weed clearance and soil amelioration where necessary.

Planting will largely be carried out during the dormant period from November – March, with grass seeding carried out from April – September. A 12 months defects liability and landscape maintenance period will be set in place for all plant material with plant failures being replaced in the following planting season.

Plant materials selected for this residential scheme will largely follow the planting plans provided within the application. The following landscape specification as outlined below shall be adopted in accordance with best practice.

## 7.0 - Maintenance and Performance Standards

The regular care and maintenance of any area of landscape has a profound effect on its appearance, its value as an amenity and, even in the longer term, its plant structure and overall nature. The right levels of maintenance, and the methods to be used, will vary considerably from site to site and as well as being influenced by the layout and use, will also be a reflection of the soil types, topography, exposure to the elements and local climatic variations.

Matching the maintenance regimes to the needs of a site is a major part of landscape management and it is not possible to give any absolute prescription or standard specification that can be applied for a particular type of landscape. However, this chapter attempts to describe and define the main operations that go into routine maintenance. Under the heading of each main type of landscape feature there are performance specifications and objectives for the various operations.

### Amenity Grassland

Amenity grassland describes all natural and semi-natural grassland used for recreation purposes as distinct from that used for productive agriculture. It forms the major part of the landscape and its maintenance requires more time during the summer growing season than any other activity.

To provide an even stand of vegetation of uniform height and colour comprising predominantly of grass species, although a small percentage of dicotyledonous plants - no more than 5 per cent - will be accepted.

- Mowing shall be carried out using a cylinder mower to maintain the vegetation length within the limits of 30 mm and 35mm during April to August inclusive and between 35 mm and 50 mm during the rest of the year. (This will normally require mowing at up to once a week in the peak of the season and up to, 20 times per year).
- The 'arising' shall be collected and discarded appropriately off site by the Landscape Contractor. At no stage must arising come to rest on paved or planted areas.
- All edges of grass areas, against buildings, footpaths, roadways, trees, posts and any other obstruction shall be kept neat, trimmed and tidy.
- Mowing strips against walls, etc. shall be 100 mm wide and may be maintained by the use of an appropriate approved herbicide.
- Border edges shall be clipped and not be allowed to exceed 75mm length.
- Grass areas may be sprayed overall with a suitable approved selective herbicide in accordance with the manufacturer's instructions. Alternatively, spot weeding of isolated weed infestation may be carried out.
- Fertilisers to be applied in the period of March to April and in period September to October as noted above.

### Meadow Grassland / Wildflower

Wildflower meadow grassland areas, these open habitat areas are seeded with a wildflower meadow mix to attract wildlife and support flora and fauna.

To provide a low maintenance naturally occurring wildflower rich meadow with mown grass pathways. Providing cover and food for wildlife through the development of a habitat rich environment with pollinator plants.

- Mowing, the whole area should be trimmed back to approximately 100mm height using a tractor pulled mower or strimmer in Autumn
- Raking, the cut material should be raked off and removed off site. The raking will help open up the ground and allow any fallen wildflower seed to establish in the following year.

### Planting Areas (Shrubs/Herbaceous)

The borders must be kept weed free, particularly of perennial weeds, to allow planting to give early cover. However, the plants may be required to be thinned so that the shrubs that are retained are able to achieve an attractive form. This may involve removing the intermediate plants soon after shoots are touching.

Maintain shrub growth to cover as much as possible of the border area and allowing the individual plants to achieve as nearly as possible their natural form. Maintain the borders free of visible weeds and shape and prune the shrubs to avoid obstructing pathways or blocking light to, or adhering to windows.

- After planting, if appropriate and in season for the species involved, prune shrubs to develop their desirable ornamental characteristics. At the same time remove intermediate plants that are restricting the natural and attractive development of their neighbours. Remove all arising from site. If plants have become over mature, rejuvenation by a once over complete coppice is recommended; however this should be reviewed with the Employer in the first instance.
- Lightly cultivate the surface soil, to a depth of approximately 50 mm, remove or bury all annual weed or natural litter and break any surface capping.
- Take special care to avoid unnecessary damage to the shrub plants and ensure that all the shrubs are firmly bedded in the soil. Leave the surface with a fine and even tilth with soil crumbs of less than 50 mm in diameter. Once a year operation (in early winter).  
Note: This operation is only essential where the soil is compacted or as a means of incorporating mulch. Not required where the areas are mulched.
- Maintain the soil surface substantially free of weeds (less than 10 per cent weed cover) by hand removal and spot treating with Glyphosate, or approved equivalent. Spot treatment at approximately four-weekly intervals in the main growing season, to a total of five times per season.  
Note: As an alternative the borders can be regularly hand-hoed at up to two-weekly intervals in the main growing season, to 6 times per year. This procedure is recommended for the first year after planting when the plants may be more sensitive to contact herbicide damage and residual herbicides may not be used.
- Immediately after planting or, as required and where subsequently directed, mulch the surface of the border with a 50 mm layer of pulverised bark (maximum particle size 40 mm), or other approved equivalent. Thereafter, top dress the mulch as necessary and at least once a year to maintain effective cover. Spot treat or remove any emergent weeds as specified in c) above but do not cultivate or incorporate the mulch into the soil.

## Newly Planted Trees

Young trees will need regular attention to ensure establishment. Either guards or fencing have been used to protect the plant against rabbits, etc. The most important operation is to keep the soil around the base of the tree free from weeds or grass and to ensure secure and correct staking.

Establish a stable and healthily growing tree with a well-shaped framework for future growth.

- Maintain a 1 m diameter circle of plant-free soil around the base of each isolated tree by hoeing or the use of approved herbicide other than a residual. Avoid strimming around the base of standard trees which readily damages young bark. Allow for hoeing up of soil once every 4 weeks in the growing season (5 times per year). Allow for herbicide treatment once in the winter or spring and 3 additional treatments.  
Note: In some areas this operation may be replaced by the application of bark mulch as ground cover.
- Cut back any tall vegetation that is threatening to shade or smother the young tree (i.e. taller vegetation growing from outside the 1 m weed free area). Allow for cutting back regularly (3/4 times a year).
- If required, water the newly planted trees throughout the summer months (May to August) as required after any period of 4 weeks without significant rainfall (less than 5 mm). Apply sufficient water to thoroughly wet the top 150 mm of soil around the tree roots. This will normally require approximately 10 litres for a seedling or whip and 20 litres for a standard tree. Supply/transport of water to be the responsibility of the Landscape Contractor.
- Check stakes and ties for firmness and support and adjust as necessary. Allow for checking twice a year, preferably in late spring and late summer.
- Firm the soil around the roots to ensure that the plant is securely planted in the ground and upright. Allow for firming once in the spring after planting.
- Formative prune to remove any dead, diseased or damaged shoots and create a balanced form for future growth. Allow for pruning once in the season after planting.
- Where tree guards, stakes, ties, strimmer guards, rabbit guards and temporary fencing is no longer deemed necessary, the contractor shall allow for removing and discarding of these elements appropriately off site.

## Hedging

Regularly clip hedges to maintain a uniform and tidy appearance (according to the type of hedge and situation) and a well-developed cover of vegetation over the whole of the hedge surface. Control any weed or grass growth at the base of the hedge so that it does not detract from the overall appearance or adversely compete with the hedge.

- Clip the top and sides of the hedge to maintain true and even levels and using suitable mechanical cutters to maintain the shape and height. Remove any cuttings lodged in the surface of the hedge and rake up and remove all arisings.
- Allow for the operation to be carried out to suit the species and position of the hedge.
- Maintain weedfree 750mm wide band at the base of the hedge (weeds at a maximum height of 100mm and a maximum ground cover of 10%) by regular hand removal, hoeing or by the use of approved herbicide. Allow for control once every 6 weeks in the main growing season (4 times per year).

## Litter Clearance

Collect and remove from the site, all extraneous litter and rubbish on a regular basis so that its presence is not detrimental to the appearance of the site. (This means that the site should be free from litter after each visit to site).

- Collect and remove and dispose appropriately off site all extraneous rubbish, not arising from maintenance works, which is detrimental to the appearance of the site. This rubbish to include stones (over 50mm dia. which may be buried), bricks, debris, paper, confectionery and other wrappings, bottles, cans and plastic containers.  
Allow for this operation to be carried out at regular intervals based in conjunction with other maintenance visits and operations.
- Collect and remove and disposed of appropriately off site all extraneous matter which has deliberately been deposited on the site by persons known or unknown (fly-tipping). Such matter to include bricks, rubble, garden and household refuse, discarded domestic appliances, furniture and scrap metal. Priced per occasion based on an estimate of the volume of material to be collected.

## Pathway Areas

Regularly sweep or clean paved surfaces to keep it clear of litter or other debris that will detract from the appearance of the site. Keep the surface free from weed (including moss) growth and all associated drainage gullies in working order.

- Sweep all pathway areas at regular intervals and remove all arisings from the site. Frequency may vary according to time of year or other maintenance operations. Hand or mechanical - sweeping may be used.
- Control all annual weed (moss) growth by the application of residual weed killer. A single application in March/April should normally be sufficient but follow-up spot treatment may be necessary in late summer.
- Clear silt and extraneous matter from the drainage gullies, including the lifting and replacement of the drain cover. Programme for once every six months but more frequently where silting up is a particular problem.
- Inspect and clear any leaves and other litter from drain gully covers. Programme for up to once a week in the autumn when the where there is likely to be heavy leaf fall.

## Appendix 1 - Green Space Factor Score Sheet - Taylors Lane

Green Space Factor Tool		Comhairle Contae Átha Cliath Theas South Dublin County Council	
<b>User input indicated by Orange fields</b>		<b>User Input</b>	
		Zoning lookup	Minimum GI Score
		RES-N	0.5
<b>1. Enter Development Site Area m<sup>2</sup> <a href="#">HERE</a></b>		34506.21	
Surface Type (see tab for detailed descriptions)	Factor	Proposed Surface Area m <sup>2</sup>	Factor Values
1. Short Lawn	0.3	2817.57	845.271
2. Tall Lawn (wild, not mown)	0.5	2533.55	1266.775
Permeable Paving	0.3	4988.08	1496.424
Vegetation			0
4a. Vegetation-Shrub below 3m	0.4	5190.31	2076.124
4b. Vegetation-Shrub / Hedgerow above 3m	0.5	1337.15	668.575
4c. Vegetation-Pollinator friendly perennial planting	0.5	1045.39	522.695
4d. Vegetation-Preserved hedgerow	1.2	1212.12	1454.544
Trees			0
5a. New trees	0.6	737.5	442.5
5b. Preserved trees	1.2	924.063	1108.8756
7. SuDS intervention (rain garden, bioswale)	0.6	2520.947	1512.5682
Green Roof			0
9a. Green Roofs - Intensive green roof (substrate is 200-1200mm in depth)	0.7	1379.76	965.832
9b. Green Roofs - Extensive green roof (substrate is 80-200mm in depth)	0.6	6151.02	3690.612
10. Green wall	0.4	108.49	43.396
11. Retained Open Water	2	589.27	1178.54
12. New open water	1.5	0	0
<b>Total Equivalent Surface Area of Greening Factors</b>		<b>31,535.22</b>	
<b>Green Factor Numerator</b>		<b>17272.73</b>	
<b>Minimum Required GI score</b>		<b>Final GI score</b>	<b>Result</b>
0.5		0.50	Pass

The logo consists of the letters 'D&' stacked above 'O'T' in a bold, sans-serif font, all contained within a dark grey square.

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