

4. Business Parks & Campus Masterplan Concepts



4. Business Parks & Campus Masterplans Concepts

In developing the concept for the Masterplan Lands, a number of campuses were researched including both international and Irish examples. The Masterplan incorporates this research and brings an international dimension to Irish business parks.

4.1 International - Google, Facebook & Yahoo

Technology companies such as Google, Facebook and Yahoo are at the forefront of creating innovative business campuses that focus not only on creating highly collaborative commercial spaces but harmonious environments that can be enjoyed by employees and visitors alike.

In these campuses the search for creativity and innovation is not only included in the design of the office space but also in the spaces between the buildings along with the supporting facilities. Google for example, has a holistic work philosophy encouraging a balanced, healthy work environment which enables interaction and communication between its employees. Their campus in Mountain View, California provides a number of break out spaces outdoors where people can hold informal meetings and also enjoy their local environment.

One of the key aspects of the Facebook campus in Menlo Park, California is that all traffic is kept to the perimeter of the buildings. This enables pedestrians to enjoy the central landscaped space safely and free from associated traffic noise. Along with many other sports facilities Facebook employees can also enjoy a half mile loop walk around the campus.



Figure 40 - Google Campus, Mountain View, California.

The success of the Yahoo campus in Sunnyvale, California also hinges on the fact that the buildings are located around a central landscaped space. Car parks are kept to the perimeter and the tall office buildings provide shelter for the daily inhabitants of the campus.

The campuses researched here are of course built around the needs of a single occupier. However, this does not mean that a campus cannot be built for a series of like-minded organisations.



Figure 41 - Yahoo Campus, Sunnyvale, California

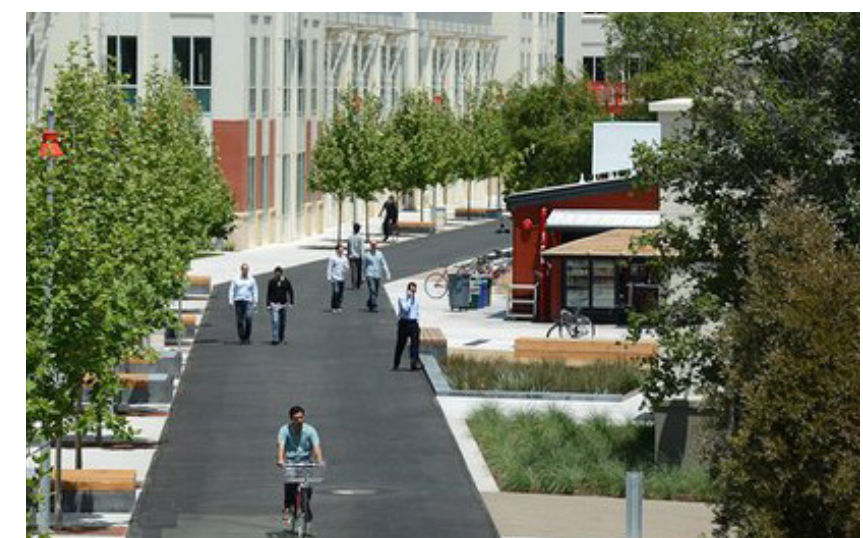


Figure 42 - Facebook, Menlo Park, California

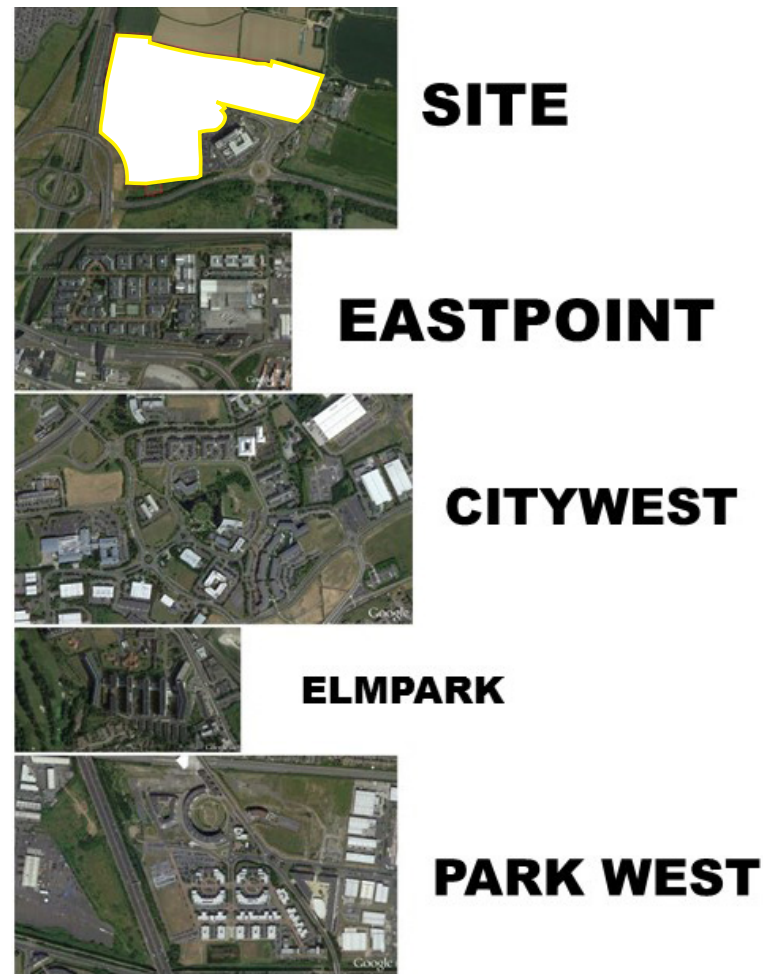


Figure 43 - Scale Comparison Diagram - Irish Business Parks

4.2 Dublin Based Business Parks

4.2.1 Elmpark, Dublin

Elm Park describes itself as an Urban Campus set on a site of 7 hectares and containing a mixture of offices, apartments and retail space. It is located just over 4 km from the centre of the city.

On site facilities include a Café and Crèche with a leisure centre and pool plus conference centre completed to shell and core standard. The development is a much higher density than normal business parks and the development is more of an urban development as opposed to a business park. The buildings are of a coherent style and set within extensive landscaping, the landscaping is more akin to space between the buildings rather than specifically designed landscape spaces.

4.2.2 Parkwest, Dublin

Parkwest is located just inside the M50 and 9.5 km to the west of Dublin City Centre. The development benefits from a heavy rail connection to Heuston station and a bus link to tie in with the Luas. The park itself is very generic in layout with numerous office buildings surrounded by roads and car parking.

Landscaping is modest with some sculptures placed in the landscape, but the development does benefit from the Grand Canal passing the site boundary and offering recreational activities. The park also benefits from a shop, crèche, restaurants, fitness centre and pool, pharmacy and hotel/conference centre. There is a certain level of consistency in the architecture of the development.

4.2.3 East Point, Dublin

East point is a version of the generic office park development built in the 1990's with a range of building types set by a road grid with intermittent green spaces. The development is on the periphery of Dublin Docklands and the City Centre.

The land was originally reclaimed for use as port and industrial facilities. The development is a significant distance from urban areas such that walking is difficult and therefore shuttle buses are provided from nearby public transport. Eastpoint sets out its main selling point as being the only central office park in Dublin and brands itself as the 'Gateway to Dublin's silicon docks'.

4.2.4 Citywest, Dublin

Citywest is located approximately 20 kilometres from Dublin City Centre and outside the M50 orbital motorway. The business park is set out in over 250 hectares of land where the philosophy has been to develop the landscape environment ahead of the buildings and to create amenity spaces to the highest standard.

The branding for the Citywest Business Park identifies the landscaping as setting it apart from other locations. Landscaping is a common theme linking all elements of the campus together. There are many focal points throughout the campus including the Pool of Tara and Riverwalk which provide for scenic walks.



Figure 44 - Scale Comparison Diagram - East Point, Dublin



Figure 45 - Scale Comparison Diagram - Citywest, Dublin

4.3 Chiswick Park, London

An example where the campus philosophy has been created on a speculative basis is Chiswick Park in London. Central to the design is a parkland, a performance area, a lake and nature reserve which form the heart of the Chiswick Park development. The project offers 185,000 m² of office space spread across 12 buildings, including a restaurant and bar. Importantly the entire facility is managed by a park management team under the banner of 'Enjoy-Work'.

This team are responsible for everything from maintenance through to the organisation of events and social activities within the park and its buildings. The provision of all these activities managed under the one umbrella organisation is critical to the success of the campus concept and the building of an environment of innovation and creativity.



Figure 46 - Comparison Chiswick Park, London

“The workplace continues to be the place that companies, and employees, see as the primary location in which to support both individual and collaborative work. Our research supports this preference and shows that providing an optimal work environment is an opportunity to improve business performance, engage employees, and drive innovation and the productive spread of ideas”.



Figure 47 - 'Enjoy - Work, Strategy', Chiswick Park, London

4.4 Masterplan Lands Urban Design Principles

From our study of these campuses and business parks a number of key design principles can be identified for incorporation into our Masterplan:

- A focal space at the heart of the campus which facilitates both informal and social interaction
- The creation of a hierarchy of spaces between the buildings, be they hard or soft landscaping, that provide spaces for individuals and smaller groups to enjoy
- A diversity of outdoor uses throughout the park to create a vibrant environment
- Iconic, flexible and innovative buildings that create a memorable place and set the standard for the advancement of sustainable ideas
- The creation of a safe and permeable development that is inviting to occupants and visitors



Figure 48 - Central Landscaped Area, Chiswick Business Park, London

4.4.1 The Heart, a Central Space

Masterplans for Innovation & Technology communities should have a heart, a centre, a special space that shall permanently remain open and unbuilt in perpetuity. This special space or axis is open to the sky, an axis mundi, representing knowledge yet to be discovered. This space, or sequence of spaces, will be the key focal point of the Masterplan.

4.4.2 Georgian Squares, Dublin

Merrion Square and Fitzwilliam Square are two of the finest examples of Georgian Squares remaining in Dublin. Both squares are successful examples of high quality public landscape spaces enclosed and surrounded by high quality architecture. Many of the design principles which underpin these spaces have been utilised in the design of the Masterplan and its central landscaped space.



Figure 49 - Merrion Square, Dublin



Figure 50 - Fitzwilliam Square, Dublin

5. The Vision



5. The Vision

5.1 An integrated Vision

This Masterplan seeks to ensure that the Masterplan Lands become a flagship development at both national and international level and are seen as a gateway to Fingal and to Dublin City.

The vision for the Masterplan is both a spatial vision as well as an economic vision. The economic vision is to enhance the knowledge economy and whilst manufacturing is not ruled out, the predominant value that is added in the Irish economy is knowledge based.

Another important characteristic of this type of economic development is that the employment is strongly related to international networks and a location near an international airport is generally seen as an essential prerequisite.

Experience shows that the economic activity that is based on *'knowledge type employment'* requires informal as well as formal contacts between workers. The informal contacts are considered essential in order to stimulate creativity. More importantly, different companies and workers within these companies stimulate each other in the drive towards innovation without necessarily setting out to do so. For this informal interaction to work effectively, it is essential that the physical environment stimulates social interaction.

This is achieved by providing high quality landscaping and public realm coupled with the type of activities

that encourage interaction between people who might otherwise not have reason to meet each other. Such activities include bars, cafes and restaurants and sports activities, meeting rooms and outdoor sitting areas.

Fundamental to the vision for the business park is the mix of offices and hotels which will encourage synergies between permanent employees and transient employees who may be visiting the business park. It is anticipated that a number of companies in the park will have a high level of international networking, resulting in frequent visitors from overseas.

The hotels provide not only temporary accommodation for such visitors but can also provide meeting rooms, and accommodate the need for working dinners. The high quality public realm between the office buildings and the hotels will further enhance such interaction and synergies to develop.

The vision for the proposed Masterplan is therefore a high quality employment environment with good access to the nearby Dublin airport and a high quality public realm that is shared by the workers and the visitors of the business park.



Figure 51 - Chiswick Park, London

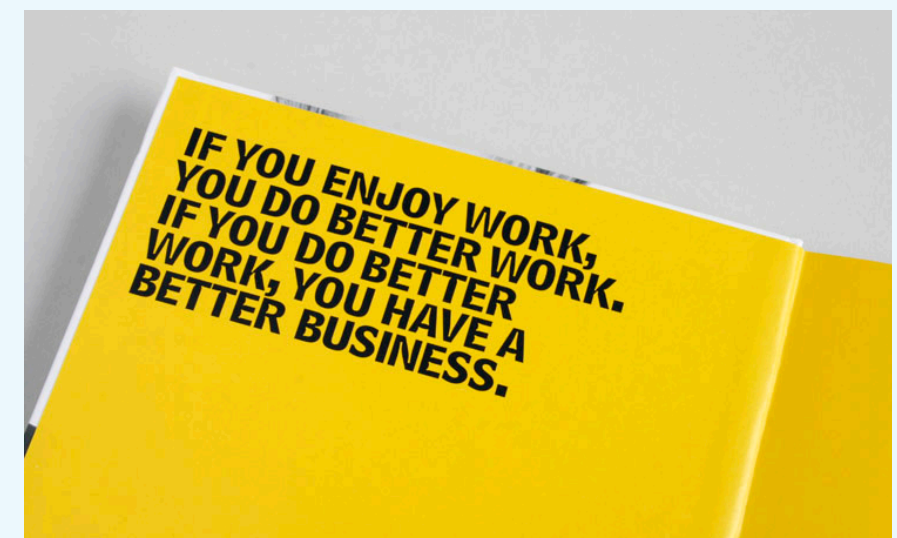


Figure 52 - Enjoy-Work Strategy, Chiswick Park, London

5.2 Parameters for Development

The Masterplan has been set up with a series of linear blocks radiating out from the central park area. The radiating blocks facilitate pedestrian movement from the perimeter road and car parking into the park area where all building entrances are focused.

The radiating blocks to the south of the central park maximise the periods of sun penetration to this important central social space. To the north and west the blocks are oriented to assist with protection from strong and/or cold winds. In particular the blocks to the north are cranked in order to reduce wind speeds from that direction, the curved/cranked facades also create distinctive landscaped spaces between these blocks.

- Green spaces / links to be maintained between buildings – no parking or ancillary uses
- Undercroft/basement carparking to be provided
- Predominantly office floor space to be provided, but with the potential for workforce related retail / leisure use facing onto the promenade at ground floor
- Key entrance location to be at the centre of buildings – not from the promenade
- All services equipment to be screened in undercroft or on the roof
- Single vehicular access point to the Masterplan.
- Public transport provision within the site: scope for a bus route along the perimeter road
- Public transport provision outside the site: scope for bus parking near the front of the site

5.3 Quantum of Development

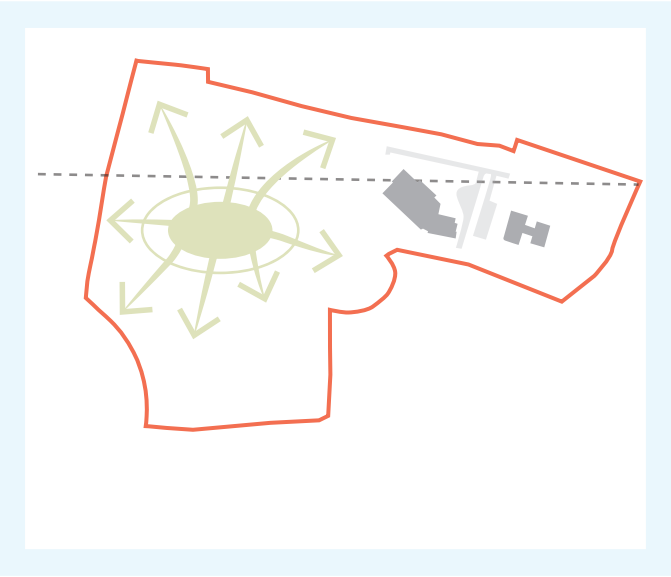
- Site area: 14.1 hectares
- Total Building Area - 100,000sq.m
- Plot ratio: ca. 0.8. (excl. undercroft car parking)
- No. of Blocks - 13
- Height – 4 - 6 storeys
- Potential to have a landmark building for block 12
- Site coverage: ca. 15%
- Refer to Section 7.1.4 for further information on carparking

5.4 Masterplan Design Principles

A series of design principles have been developed in response to the key opportunities and constraints identified through the Masterplan process. These principles together create a spatial framework specific to the site which will guide future developments, ensuring they embrace and embody the design aspirations and objectives of the Masterplan.

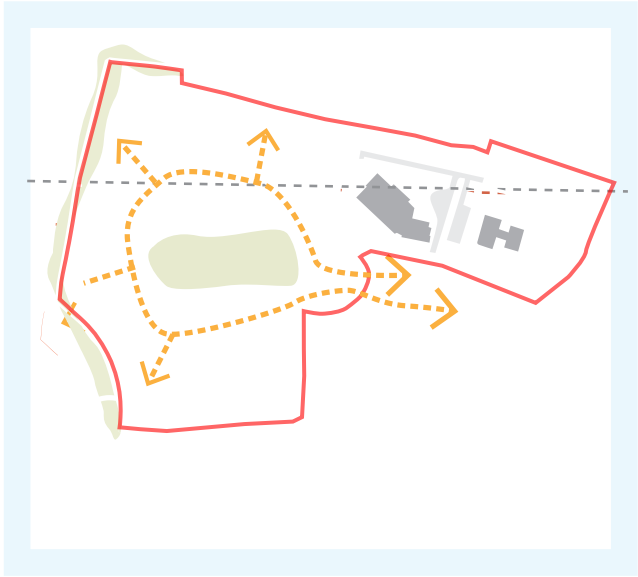
The principles also aim to respond to the 12 urban design criteria outlined in Section 7.2 of the Fingal Development Plan 2011-2017.

1. Focal Space & Heart



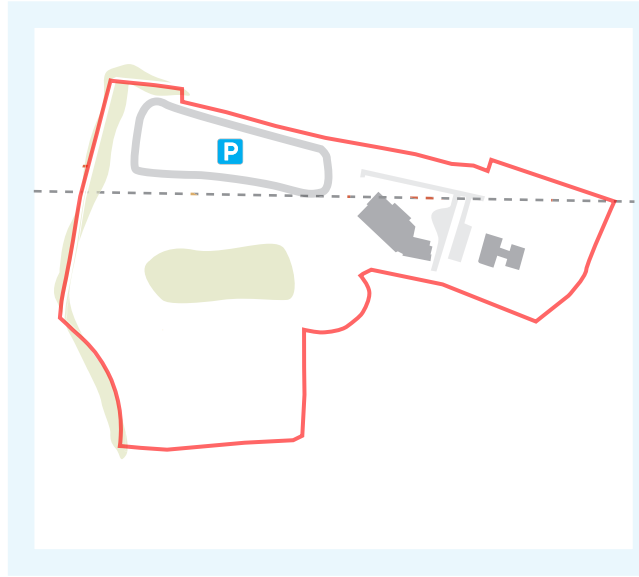
Central landscaped space as the heart of the development.

2. Accessible



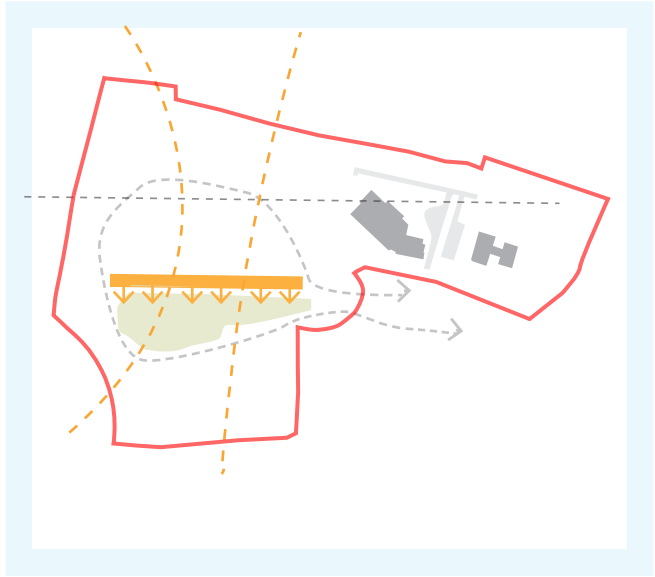
Vehicular access moved outside the boundary of the buildings to provide a **fully pedestrianised space** between the buildings and in the park.

3. Efficiency



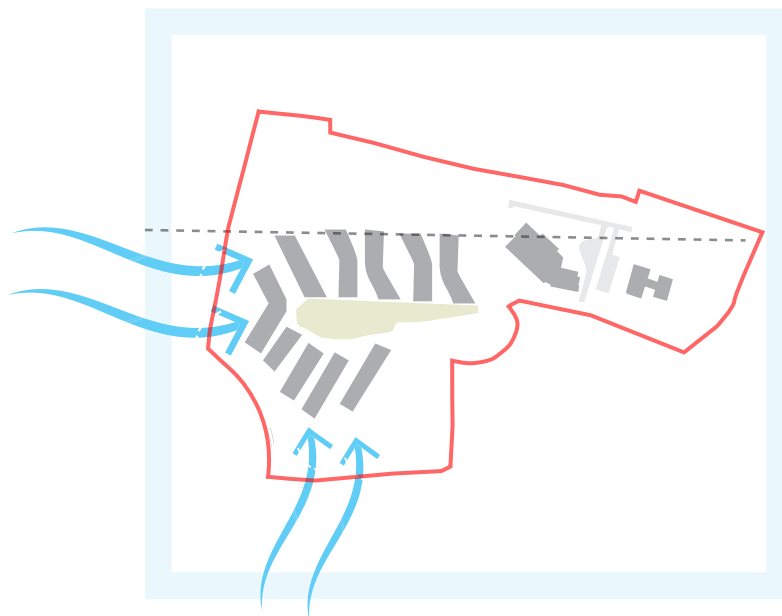
Car parking located to the perimeter of site to optimise placemaking opportunities.

4. High Quality Public Realm



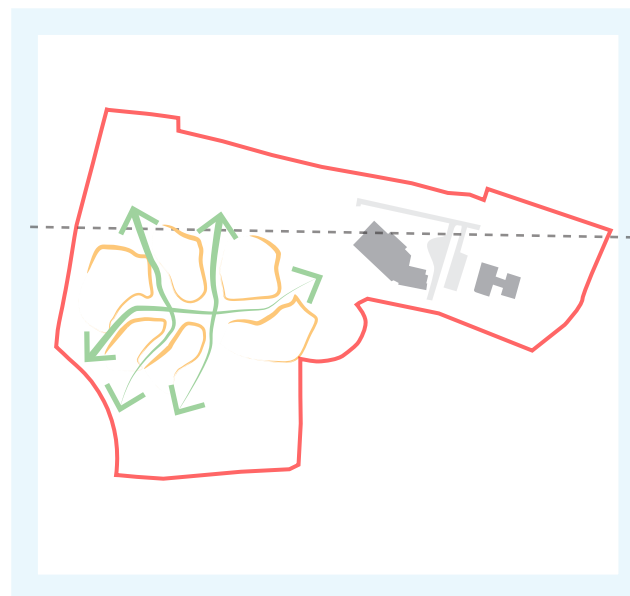
South facing boardwalk as a **central axis** through the landscape.

5. Sheltered



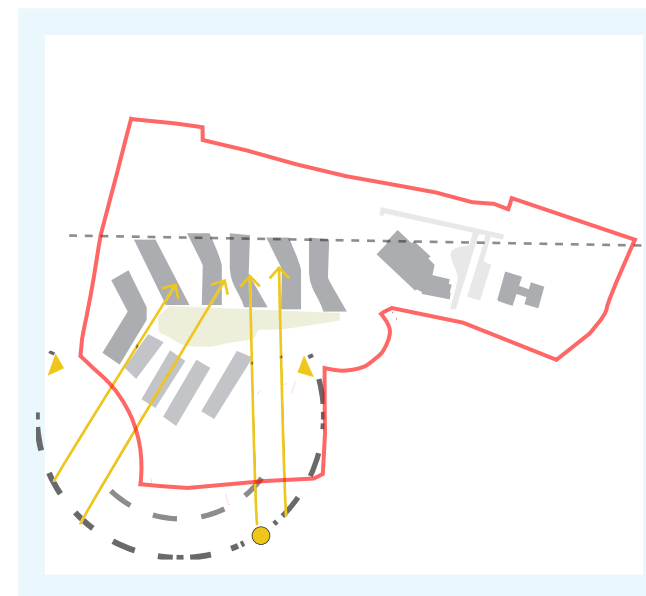
Buildings & landscape to
Provide **shelter** from winds

6. Green Infrastructure



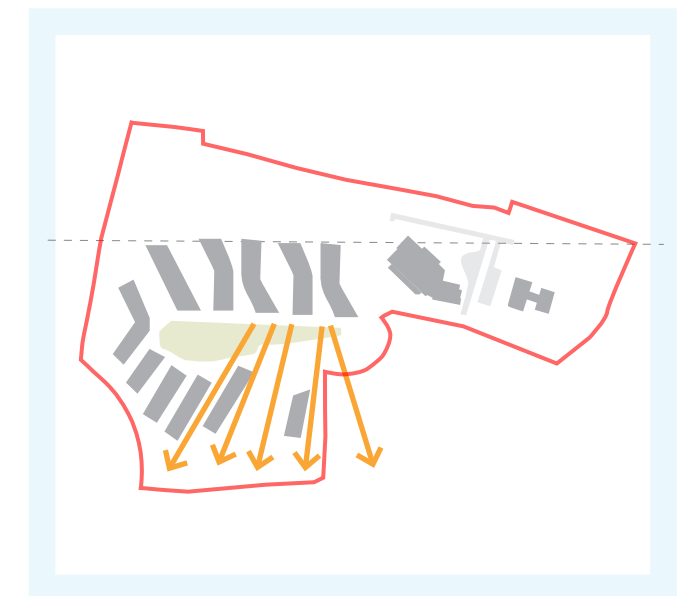
Landscape to flow between
the buildings

7. Amenity



Building layout to allow
maximum sun penetration
from the south

8. Distinctive



Buildings radiate out from
the central landscaped
space

Figure 53 - Key Design Moves - Site Organisation

5.5 Concept Development



Figure 54 - Concept Evolution Sketches



Figure 55 - Indicative Masterplan Site Layout

Key Masterplan Initiatives

- | | | | | |
|--------------------------------|----------------------------|-------------------------------|----------------------------------|------------------------------------|
| 1 Arrival / Park Drop off area | 5 Water Feature | 9 Surface Car parking | 13 Permitted Hotel | 17 Pedestrian Bridges |
| 2 Pedestrian Promenade | 6 Green Recreational Space | 10 Access to Basement Parking | 14 Existing Topaz Petrol Station | 18 Link to Fingal Coastal Greenway |
| 3 Boardwalk | 7 Shared Green Spaces | 11 Clayton Hotel | 15 Landscape Buffer | |
| 4 Multi-Purpose Civic Plaza | 8 Green Links | 12 Potential Light Industry | 16 Running Track | |

*** This Masterplan acknowledges that Fingal are keen on encouraging linkages and connections to the coast using the River Mayne as a guidance for the route.*

5.6 Preferred Masterplan Concept

The development of the Masterplan has been underpinned by two fundamental design principles:

1. To create a high quality landscaped community space which not only binds together the individual physical building elements, but also creates spaces which foster social interaction and stimulate informal interaction.
2. To optimise placemaking opportunities by efficiently locating the vehicle access road and carparking to the perimeter of the site.

In response to the sites location and distinctive characteristics, the Masterplan has been set up with a series of linear blocks radiating out from the central park area. The radiating blocks facilitate pedestrian movement from the perimeter road and car parking into the park area where all building entrances are focused.

To the south, the buildings have been configured to maximise the sunlight to the central space, helping to create greater levels of amenity in the central space.

To the north and west the blocks are oriented to assist with protection from strong and/or cold winds. In particular, the blocks to the north are curved / cranked in order to reduce wind speeds from that direction, the cranked facades also create distinctive landscaped spaces between these blocks.

5.7 Landscape & Placemaking Concept

The landscapes of Ireland have a very strong and unique character. The variety of shades of green, the rolling hills and storm lashed coastlines make Ireland famous for its scenery.

To give the new development a strong identity and to anchor it in the surrounding it is envisioned to use typical Irish landscape elements. The planting of hedgerows, drystone walls, the use of indigenous trees and local materials will help creating a strong local identity for the business park.

5.7.1 Outer Irish Landscape

The landscaping for the site has two different characters which are defined by their function.



Figure 56 - Hedge grow
- Bere



Figure 57 -Outer Zone Concept

The outer zone includes the important arrival area, has a more functional character. Here are the surface parking areas, the ring road loop, entrances to the undercroft parking and service entrances to the buildings. This area will be planted with a mix of indigenous trees mixed with hedgerow planting.

These trees and hedge species will be well adapted to the local microclimate, provide an important addition to the biodiversity on site and are important part of the concept, reinforcing the strong local identity of the project.

5.7.2 Inner Landscaped Park

The Inner Landscaped Park is a pedestrian community space that not only physically connects the buildings but also stimulates informal meeting. Along a continuous Promenade on the northern side of the central water feature there is the possibility to have cafes or community spaces which open up to the promenade and animate the space. The landscaping in this area will be related to the water feature, with complementary trees.

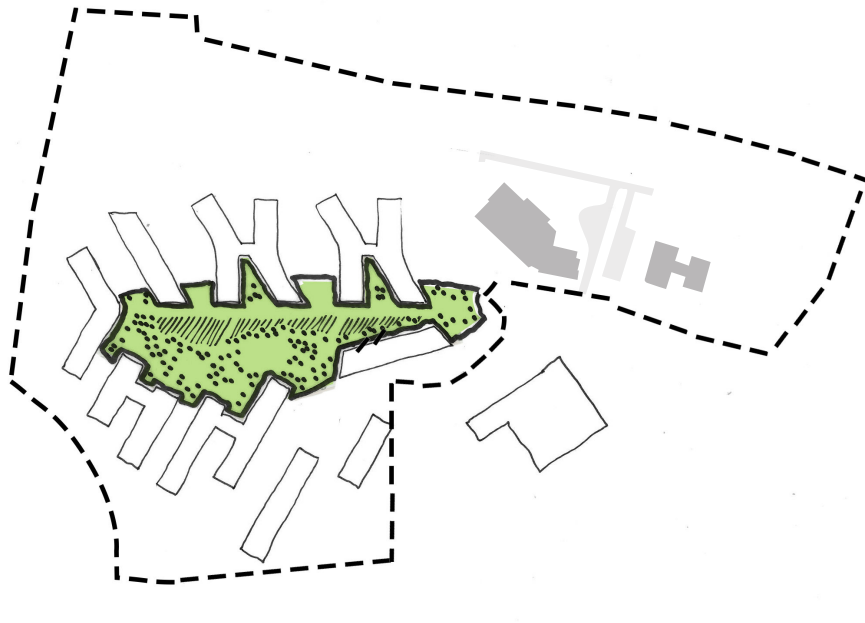


Figure 63 -Inner Courtyard Concept



Figure 62 - Proposed
Water's Edge



Figure 58 - Ash



Figure 59 - Aspen



Figure 60 - Pedunculate



Figure 61 - Rowan or
Mountain Ash



Figure 64 - Indicative Trees for Inner Courtyard



Figure 65 - Indicative Trees for Inner Courtyard

5.8 Planned Movement and Connectivity

The design of the Masterplan layout has focused on providing a high level of internal pedestrian and cyclist permeability whilst ensuring that an appropriate level of connectivity to the external networks is maintained. The general movement structure afforded to pedestrians, cyclists and vehicles within the internal site layout is illustrated in Figure 66.

This Masterplan acknowledges that Fingal are keen on encouraging linkages and connections to the coast using the River Mayne as a guidance for the route.

Pedestrian and Cyclist Movement

Pedestrians and cyclists are accommodated through the street network and through a network of vehicle free links which permeate through the building enclaves. A green connection along the River Mayne has been identified (refer to Figure 55, Figure 66 and Figure 74) as a potential external connection to proposed pedestrian/cycle routes to the east. This connection will help connect the development to the coast and the urban areas which lay between. (Please refer to Figure 73 for wider greenway proposal).

All pedestrian and cyclist links are barrier free and will be overlooked by buildings and the streets which will provide passive surveillance, ensuring a greater sense of security. On street provisions are in the form of 3.0 m wide paths shared between the pedestrians and cyclists.

Bicycle parking will be provided in close proximity to building entrances whilst appropriate linkage is afforded to all other facilities, including car parks and the neighbouring hotel. The internal site layout will be designed in line with Universal Access guidelines to ensure ease of movement between the pedestrian network and the building entrances.

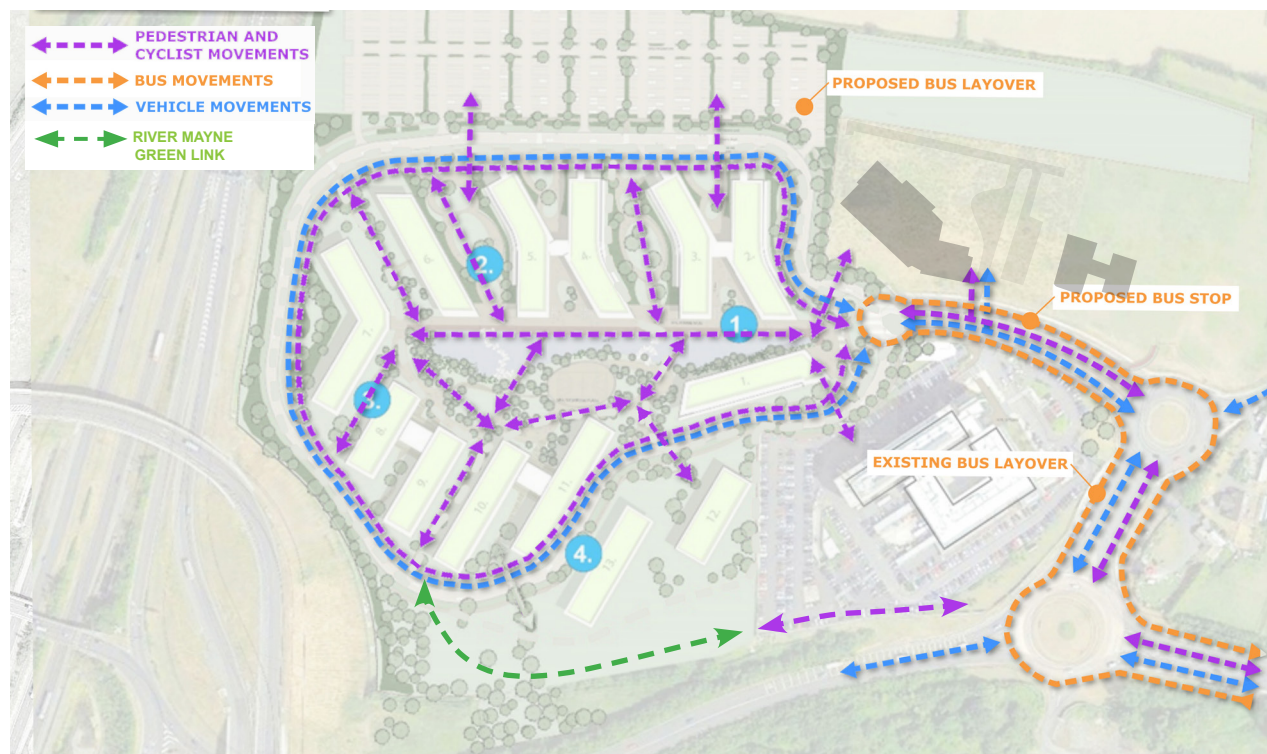


Figure 66 - Map showing planned movement and connectivity (Extracted from the Masterplan Movement Framework Document, July 2016)

5.8.1 Bus Movement

The design of streets and junctions is such to allow for the forward progression of buses. Provision for bus services has been facilitated by the proposed implementation of two bus stops. These are located at the entrance to the development ensuring that they are close to both the external road network and the main internal pedestrian promenade. In addition a bus layover is proposed at the eastern side of the surface car park. This will facilitate layover for buses between services. Bus shelters are also to be provided.

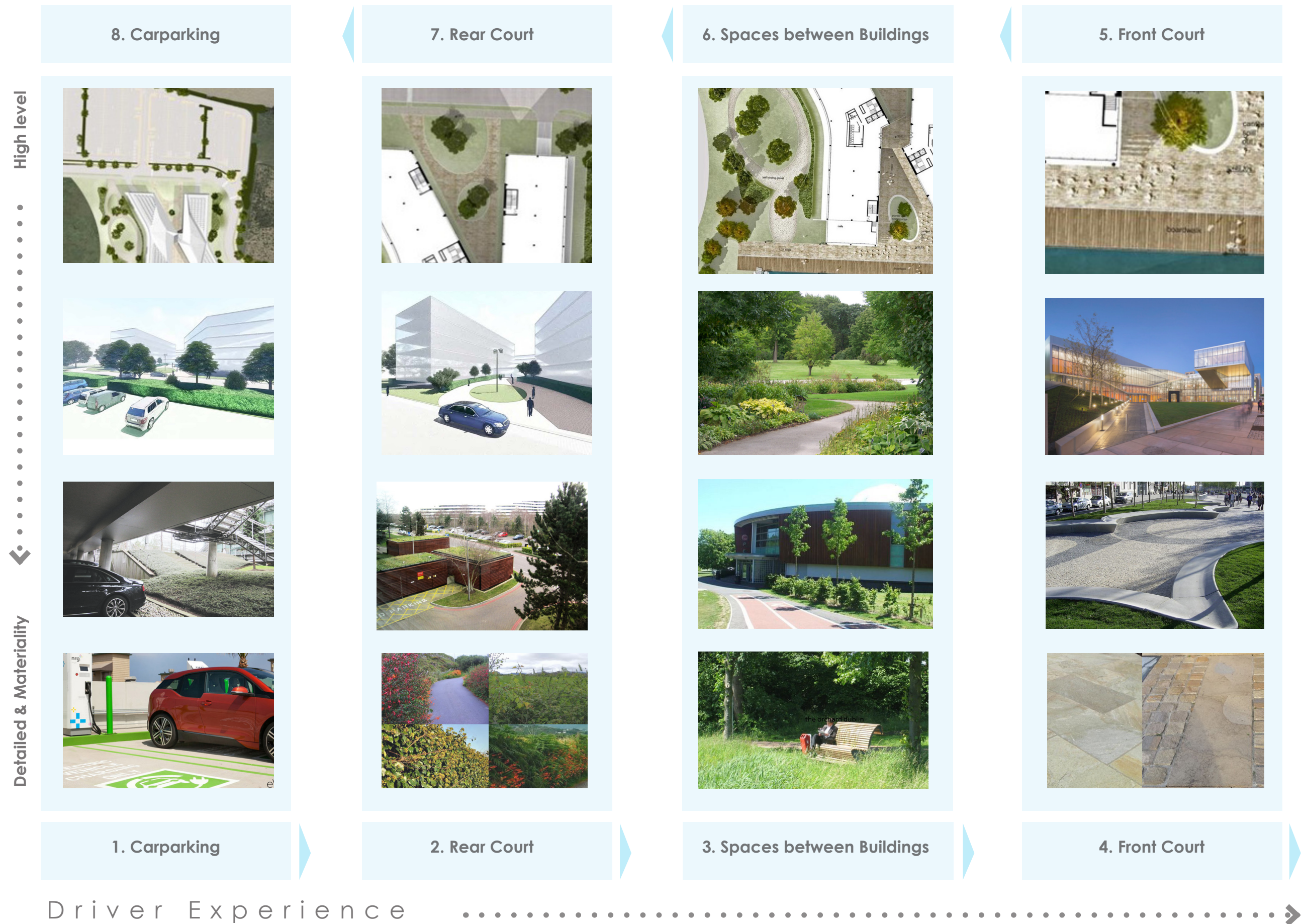
5.8.2 Vehicular Movement

The internal street layout encompasses two-way operation, ensuring that site permeability is maximised. The design of the street will ensure that a self-regulating 30 kph speed environment is achieved through appropriate road widths, junction treatments and horizontal and vertical road alignments. This will serve to enhance the walking and cycling experience thereby ensuring that the street network is integrated with the adjacent buildings.



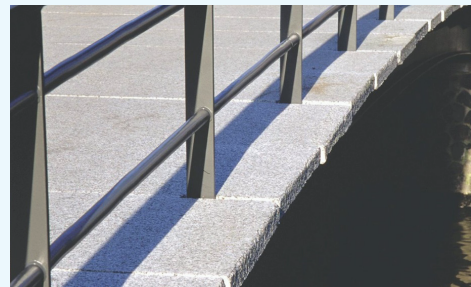
Figure 67 - Multi-Modal Approach.

5.9 Sequence of Spaces & Design Elements



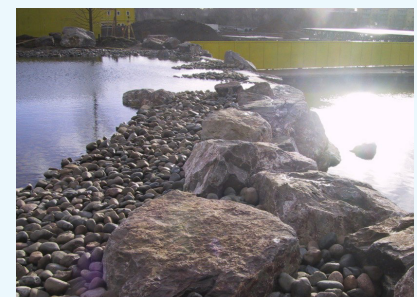
◀ Pedestrian Experience

4. Civic Space / Water Feature



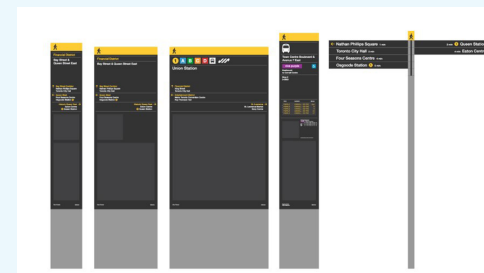
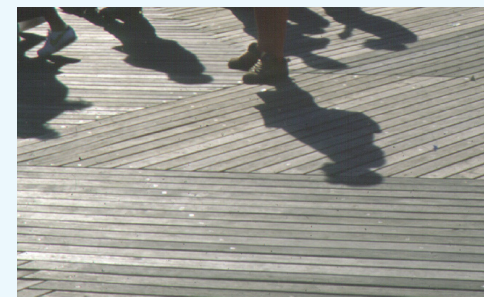
5. Civic Space / Water Feature

3. Promenade



6. Promenade

2. Arrival



7. Arrival

1. Approach



8. Approach

Figure 68 - Transect showing wayfinding & sequence of spaces

5.10 Building Concept - Design Outcomes

The long linear blocks have entrances located at the centre of each block and they offer good flexibility of office space. Blocks can be paired up and linked by atria of varying sizes at their entrances. In addition, bridges can be added linking the stair cores at the ends of blocks in order to improve connectivity where a pair of buildings are occupied by a single tenant. The blocks also offer the option of providing infill office space between each pair of the blocks assuming that the ground level access is maintained into the buildings from the park.

Individually, the central location of the core and 9m x 9m structural grid facilitates flexibility of layout. Each block is potentially divisible either side of the core, by entire floor, or a combination of both depending on the users needs. A typical 5 storey block will have the capacity to accommodate between one and ten different users, with each maintaining full access to the buildings facilities.

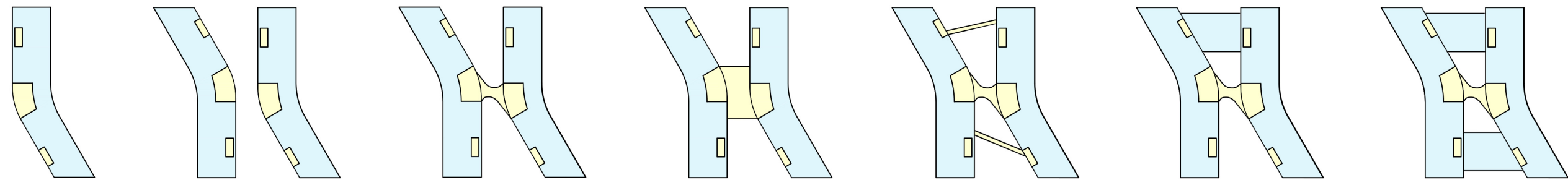


Figure 69 - Indicative building typology diagrams showing flexibility for tenants

5.11 Façade Strategy

Whilst the façade hierarchy has been defined as primary, secondary and tertiary all of the facades will be fully visible to the public. There will therefore be no 'front of house' versus 'back of house' treatment of the facades in terms of the quality of the materials used. Instead the hierarchy will be determined by the proportion of glazing or the size of windows used.

The facades facing onto the park are fully glazed with louvres providing solar shading, a roof is also cantilevered out over the front of the building. The façade is recessed at ground level to provide shelter over part of the boardwalk route, the fourth floor is also recessed to provide a terraced area overlooking the park. The façade is clearly split into a top, middle and bottom to break down the scale of the building.

On the secondary facades facing the landscaped spaces between buildings the facades are split in three horizontally. Ground and fourth floors are glazed facades with a recessed façade on the ground floor where the façade line is set back behind the columns. On the intermediate levels the façade is more solid in appearance with punched windows.

Again at these locations the façade is clearly split into a top, middle and bottom to break down the scale of the building. The banding of these facades also helps to emphasise the horizontal nature of the building.

On the tertiary, facades there is a need to provide a clear distinction in façade treatment. The size and orientation of windows will also differ on this façade.

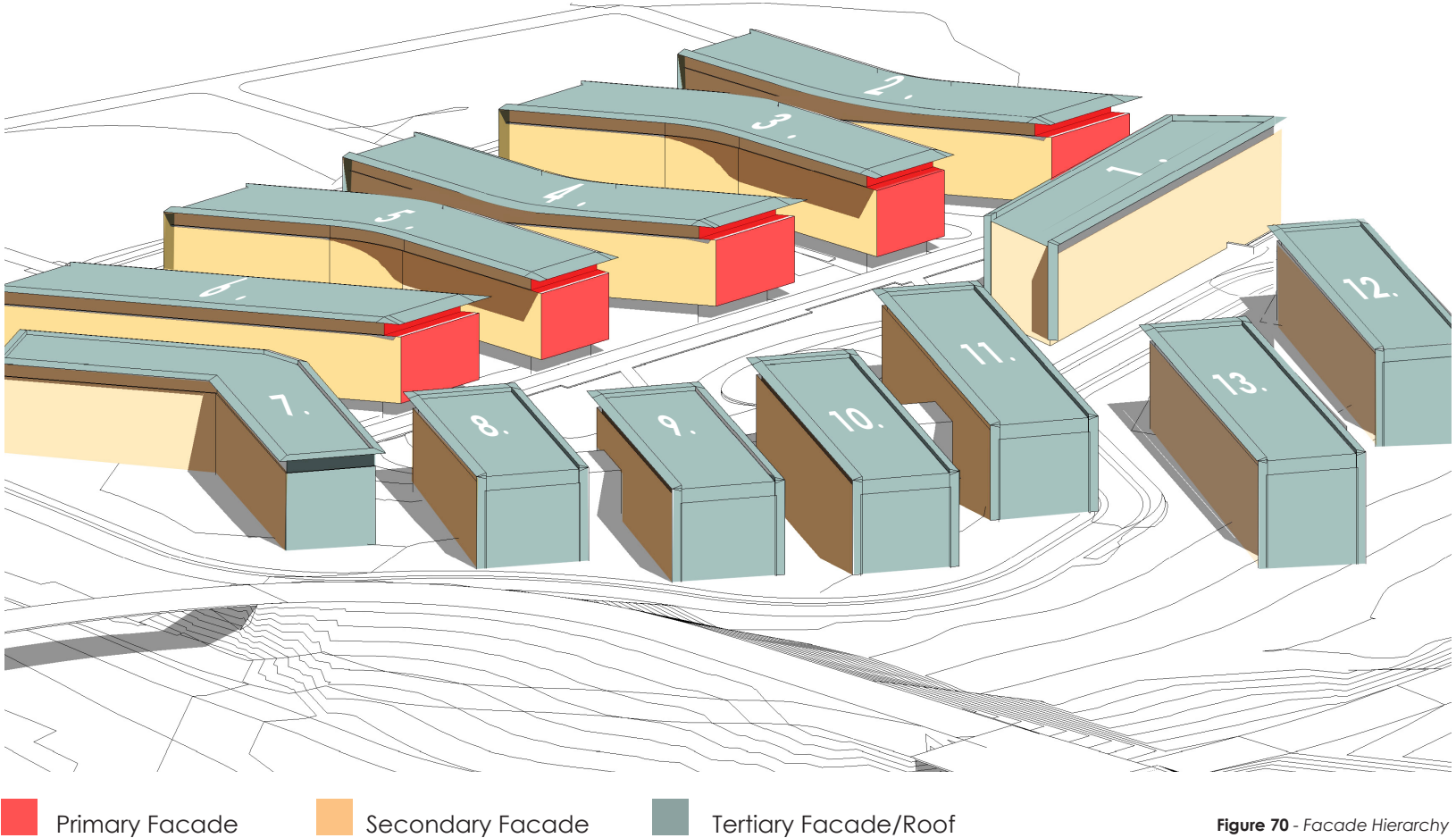


Figure 70 - Façade Hierarchy



Figure 71 - Facades Examples

6. Infrastructure & Sustainability



6. Infrastructure & Sustainability

6.1 Introduction

Each application will be supported by a detailed Traffic and Transport Assessment, which will include proposals for the promotion of public transport modes and mitigation to address potential impacts, where necessary.

6.2 Existing Road Infrastructure

The lands are accessed from the R139, via the roundabout junction with Stockhole Lane. The existing road stretches west from the roundabout, currently terminating at the entrance to the lands.

The R139 is a predominantly four-lane carriageway, which provides two-way dedicated bus lanes to the south-east of the site. The M50/M1 Dublin to Belfast interchange is approximately 250m to the south-west, providing a high level of accessibility regionally and nationally. The Port Tunnel is approximately 2.2km south-west along the M50, providing direct access to the city centre and docklands areas.

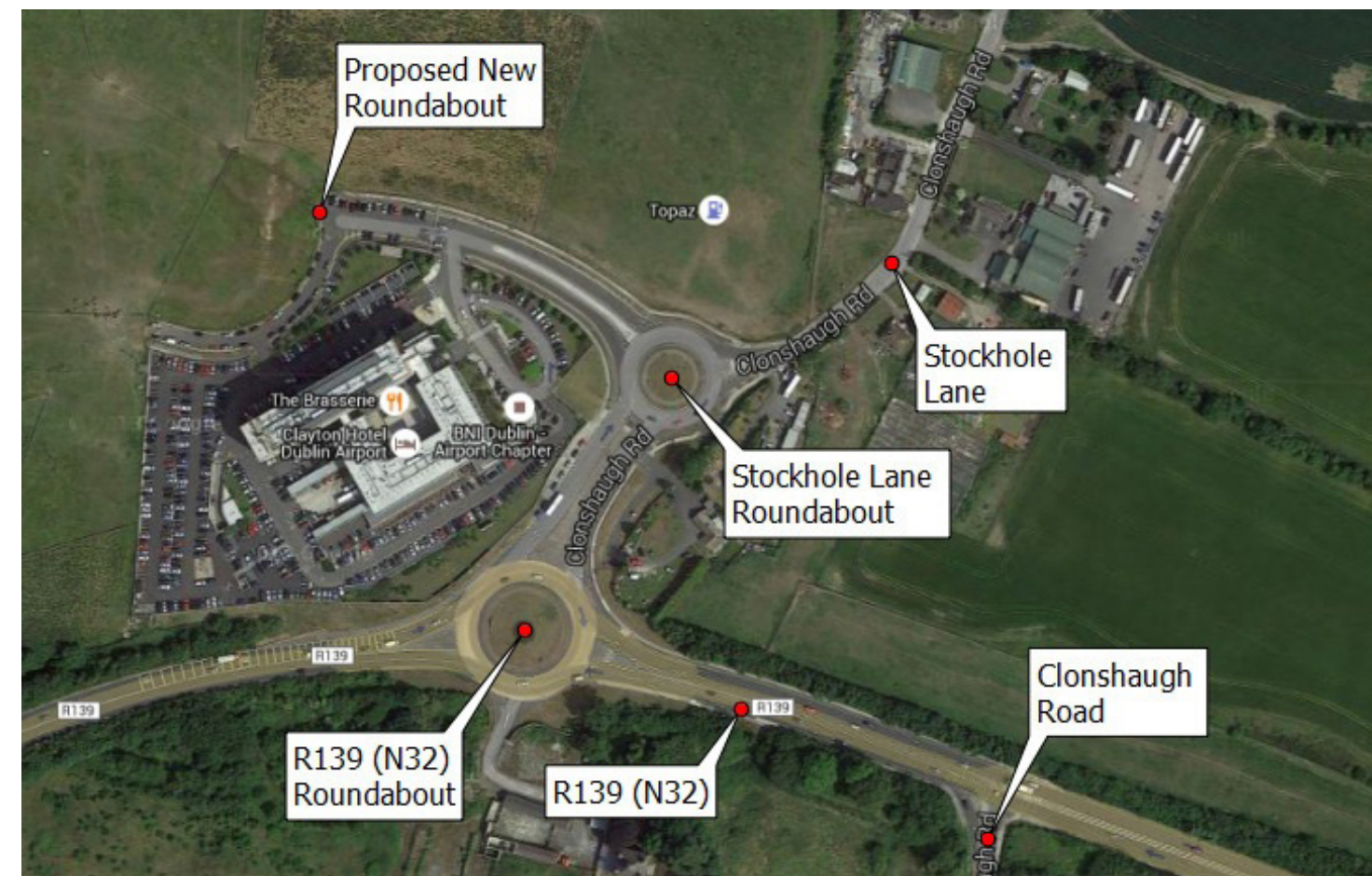


Figure 72 - Site Access (Extract from Traffic & Transportation Assessment, by Atkins)

6.3 Future Road Infrastructure Proposals

The Masterplan Lands, while within Fingal County Council area are close to the border of Dublin City Council. Therefore, the road infrastructure included in the development plans of both authorities have been considered for the MTF:

Fingal County Council Proposals (inc. in the Development Plan 2011-2017 and in the Draft Development Plan):

- North-South Malahide Road to the east of the site to be upgraded
- East-West Distributor Road to be constructed to run parallel to the R139
- Clonshaugh Road north of the R139 to be upgraded (Stockhole Lane)
- A link road between the R139 and the new East-West Road to the north to be constructed

6.4 Car Parking Standards

Car and cycles parking will be provided in accordance with County Development Plan Standards, in consultation with Fingal County Council, Transport Infrastructure Ireland and the National Transport Authority.

Dublin City Council Proposals (inc. in the Development Plan 2010-2016):

- A northwest-southeast link joining the Malahide Road to the corresponding north-south road in the Fingal Development Plan
- An east-west road linking the Belmayne development, east of the Malahide Road, to the R139
- An extension of the link road between the existing R139 and the new east-west road to the north as proposed in the Fingal Development Plan
- The realignment of the Clonshaugh Road to the south of the R139 to the Clonshaugh roundabout
- A new road to the Clarehall junction from the adjacent estate to the north-east.

6.5 Existing Cycling Facilities

Research suggests that cycling is a viable mode of transport for staff who live up to 10 km from work. Therefore staff living within 10 km of the Masterplan Lands have the potential to cycle to work.

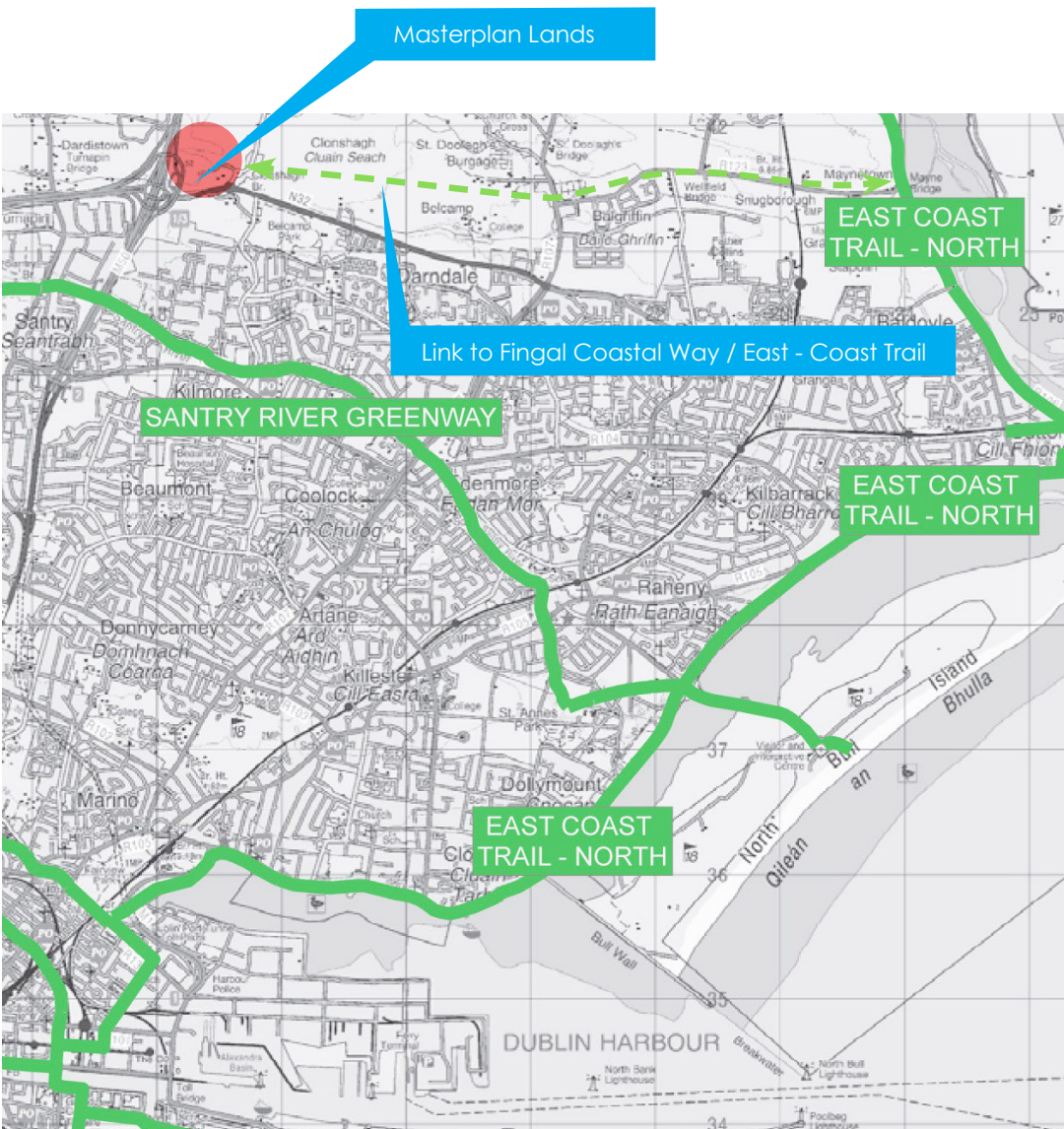


Figure 73 - Image showing the strategic link from Masterplan Lands to Fingal Greenway/East Coast Trail

6.6 Future Cycle Transport Infrastructure

The Greater Dublin Area Cycle Network Plan proposes to expand the urban cycle network to over 1,485 kilometres in length, and will provide over 1,300 kilometres of new connections between towns in the rural areas of the GDA. The network is intended to provide a quality of service sufficient to attract new cyclists, as well as catering for the increasing numbers of existing cyclists.

Providing a link from the site to the adjacent feeder routes (outlined in Figure 73 & Figure 74) would create a link from the proposed development to the wider Dublin North Central cycle network.



Figure 74 - Indicative cycle / pedestrian link to East Coast trail from Masterplan Lands

6.7 Fire Safety Engineering

6.7.1 Access

Facilities and access for the fire and emergency services shall be provided in accordance with the building regulations and specifically section B5 of Technical Guidance Document B "Fire Safety" 2006.

Vehicular access across the site shall be provided for fire service pumping appliances with routes designated such that the pumping appliance can set down adjacent to the fire escape stairwells. Two circular routes are proposed, an outer primary access route using the perimeter road network and a secondary internal circular route using hard landscaping features within the pedestrian heart of the campus, the combined effect of each providing the necessary perimeter access to each building.

Where required the stairwells shall be provided with dry risers to negate the requirement to provide vehicular access routes for aerial (high reach) fire appliances as these larger vehicles have more onerous requirements in terms of turning areas, overhead obstructions and set down offsets from building facades.

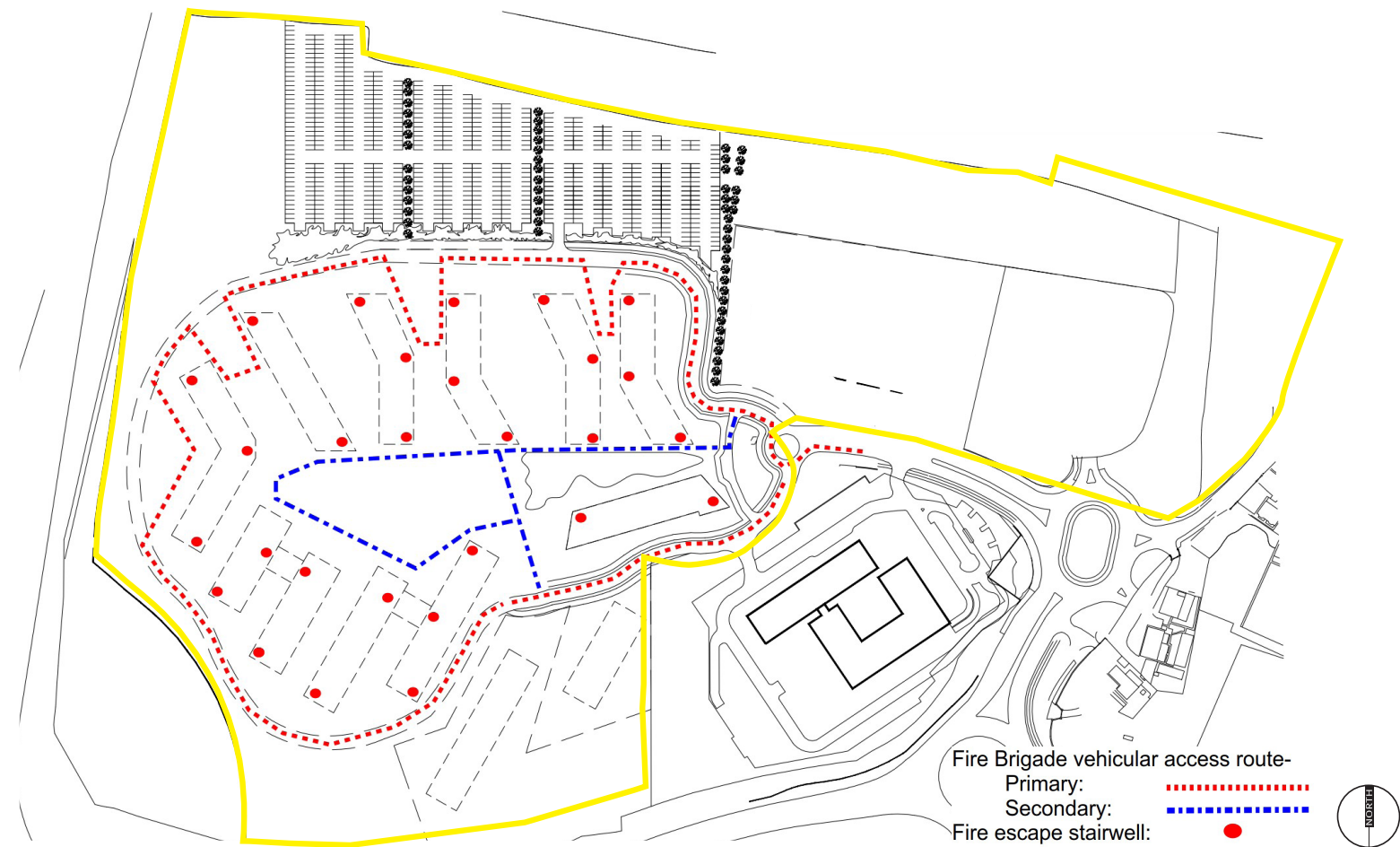


Figure 75 - Fire Engineering Strategy

6.8 Services Infrastructure

6.8.1 Natural Gas Supply

The Masterplan for Business Park includes a natural gas supply line throughout the development, to enable each building to connect to the natural gas network as construction of the business park evolves. Natural gas will provide a clean energy efficient source for space heating and for hot water for each building.

The required tie in point to the existing gas networks distribution main is via the Clonshaugh Road roundabout located at the Clayton Hotel adjacent to front entrance of the site. The incoming gas will enter a Bord Gais medium pressure gas skid located inside the Masterplan Lands. From the medium pressure skid, natural gas will feed an underground ring main around the perimeter of the site, adjacent to the access road.

The main underground distribution pipe will be sized to allow for the full load of the completed business park, and will be valved and capped at a number of points around the site for each subsequent building. This is to prevent additional works to the existing distribution pipe work as the site development progresses.

Each building will house its own dedicated low pressure natural gas skid, this will allow for individual metering of each buildings usage, to improve control and energy efficiency.



Figure 76 - Indicative Gas Supply Strategy by RPS

A service connection to the proposed buildings will be determined when all building layouts and orientations are confirmed. The supply to the site would be metered as per the requirements of local authority.

Demand for a potable water supply will be minimised by the provision of rain water harvesting by means of a grey water drainage system collecting roof run-off for re-use within the building.

6.8.2 Flood Risk

The subject site is within the Eastern River Basin District and catchment of the Mayne River. The Mayne River flows from West to East and is located in the southern section of the site. The Mayne river is culverted in sections upstream and downstream of the proposed site. The OPW National Flood Hazard Map for the locality indicates that there is no known flooding event at the site.

Each application will be accompanied by a detailed Flood Risk Assessment.

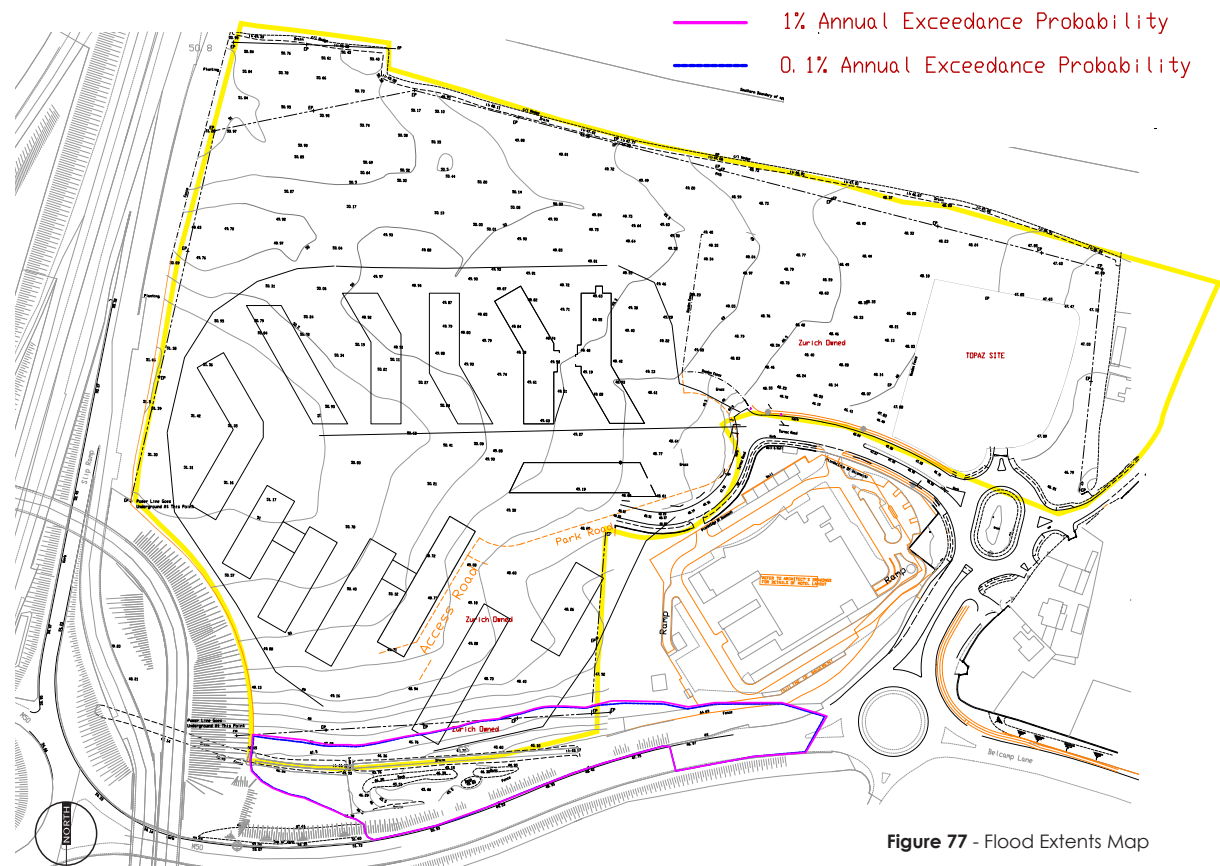


Figure 77 - Flood Extents Map



Figure 78 - - Examples of effective landscape design incorporating water sensitive urban design

6.8.3 Surface Water Drainage

Applications should be supported by detailed Surface Water Drainage reports, which set out and justify proposals in respect of surface water drainage. The use of Sustainable Urban Drainage Systems (SUDS) will be actively considered and utilised where possible.

6.8.4 Foul Water Drainage

Foul water drainage proposals have been discussed with the relevant technical departments of Fingal County Council.

Planning applications should be supported by detailed Foul Water Drainage reports, which set out and justify proposals in respect of foul water drainage.

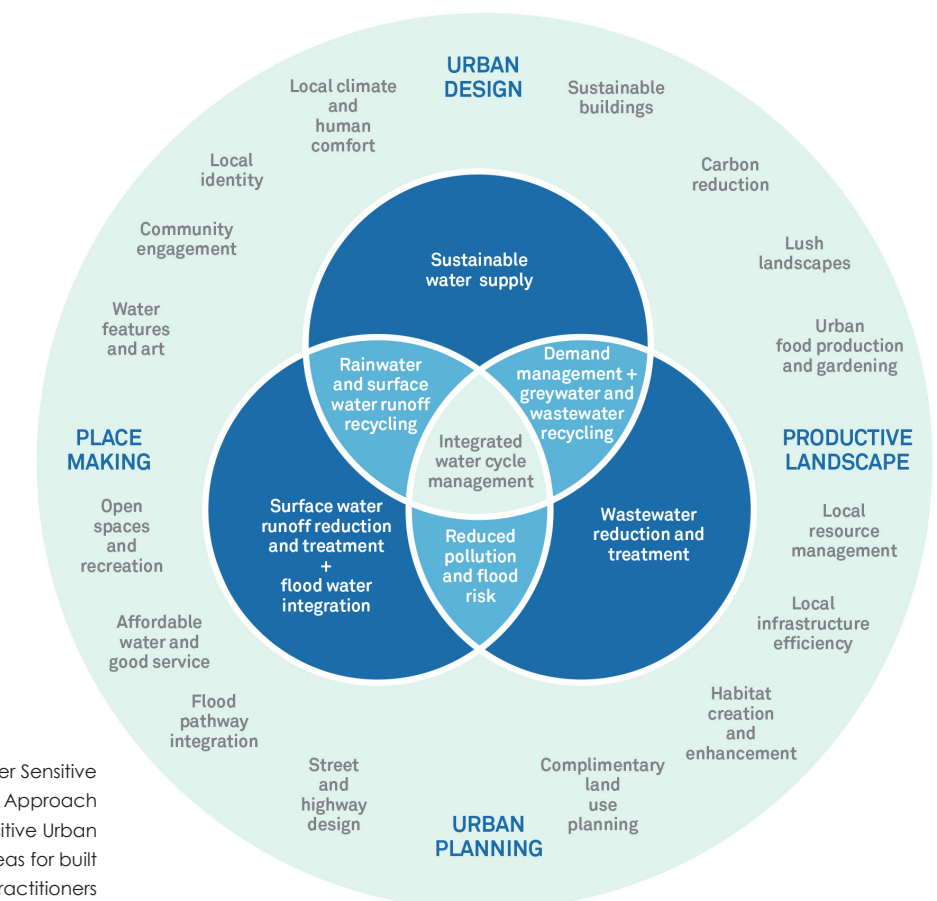


Figure 79 - Water Sensitive Urban Design (WSUD) Approach Diagram, Water Sensitive Urban Design in the UK - Ideas for built environment practitioners

6.8.5 Electricity Supply

The Masterplan includes an ESB Networks electrical Medium Voltage MV 10kV underground cable throughout the development, to enable each building to connect to the ESB Networks electricity grid as construction of the business park evolves. Electricity will provide power and lighting for each building.

The underground electricity mains cables will be sized to allow for the full load of the completed business park, to allow for connection of each new building to the mains as the site development progresses.

The incoming ESB Networks main will connect to a transformer at each building, to reduce the voltage to Low Voltage 400 volts. Each building will have its own dedicated electricity meter, with the facility to meter on a floor by floor basis, to improve control and energy efficiency.

Electricity will also be provided for site roadway and carpark lighting, with provision at dedicated parking spaces for electric vehicle electric charging points.

6.8.6 Telecommunications & Connectivity

The Masterplan Lands are optimally located in terms of international, national, regional and local fibre optic connectivity. The development is adjacent to Clonshaugh Business Park which, together with City West Business Park (to the south of Dublin) provide the primary fibre optic connectivity nodes for Dublin and Ireland. The Lands have a direct telecoms duct link with Clonshaugh Business Park and have a looped duct infrastructure network which can facilitate cable deployment with capacity which will enable it to provide low latency fibre connectivity at a worldwide scale.

Access to the T50 is also available. The T50 is a 12-duct multi-cable infrastructure network which links with City West and provides a high capacity telecoms facility around Dublin with multiple service providers. The connection with Clonshaugh Business Park also provides access to the Hibernia Trans-Atlantic and Ireland-UK subsea cables. It also links with the recently developed AE Connect trans-Atlantic cable from Ireland to Long Island, New York with onward links to the UK and Europe via Aqua Comm's Celtix Connect subsea cable from Dublin to North Wales and on to London.

A list of telecoms Companies who are physically connected to the Materplan Lands include, Virgin Media, Aurora Telecom, Colt Telecom, Vodafone, Sky Networks, Eir, British Telecom, 3 Ireland, Verizon, Viatel Ireland, AT&T, amongst many others.

6.9 Leadership in Energy & Environmental Design (LEED)

LEED is an internationally recognised rating system devised by the United States Green Building Council (USGBC) to evaluate the sustainability of a building or development and encourage market transformation towards sustainable developments. It provides building owners and operators with a concise framework for identifying and implementing practical and measurable building design, construction, operations and maintenance solutions to maximise the environmental performance of the building/development over its whole life cycle.

LEED is a flexible system rather than a one-size-fits-all approach and so there are different certification systems depending on the type of development. The development on the Masterplan Lands is best suited to LEED for Core & Shell. It is intended that the development will achieve the LEED Gold standard. This will be achieved through implementing a variety of measures in the following areas:

- Sustainable site development
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality

Each planning application will be supported by a Building Sustainability Report which will outline key aspects of proposed developments in this respect.



Figure 80 - Solar Panels - California.



Figure 81 - Substations Design Integration

