

Victoria North

Specialist Lighting Design Report for Planning

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ARUP

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Executive Summary

This document presents the lighting strategy in support of the planning application for the Victoria North HIF Infrastructure Works.

This document encompasses the following distinct areas of the development and sets lighting principles which will be incorporated into the next phases of design:

- St Catherine's Wood
- Red Bank
- The Plateau
- New Town Water Front

The lighting vision has the following design aims:

- Reduce the impact of artificial light on natural habitats while employing safe lighting levels where needed
- Create safe and welcoming spaces and routes for residents and visitors
- Encourage local active travel
- Reinforce the wayfinding strategy throughout the development
- Provide a low carbon design
- Provide an inclusive design by creating night time routes for all abilities
- Bring social value
- Be flexible to offer a range of uses and activities

Lighting can play a transformative and meaningful role in creating a positive and inspiring experience for everyone in the urban environment after dark.

A pallet of lighting equipment will be developed so that equipment is appropriate for the space that is being lit, to balance lighting for people and providing darkness for natural ecology to thrive. Lighting sources will have good colour rendering, efficiency and longevity.

Lighting will be applied to vehicular and pedestrian routes around the development to aid navigation.

Low key lighting will be applied to pathways through the woodland to help with wayfinding and offer passive surveillance, whilst being respectful of the surroundings. Lighting will be sympathetic to adjacent waterways, habitats and foraging corridors, limiting spill

Lighting will also be applied to spaces used for socialising to encourage use away from other areas, creating an ambience in the space that encourages positive interactions.

1 Introduction

1.1 Project Overview

This document has been prepared by Arup to support the planning application for the Victoria North HIF infrastructure works. The Local Planning Authority (LPA) receiving the application is Manchester City Council (MCC).

The purpose of this document is to set out the relevant information to external lighting and design concepts for the Victoria North development. Careful consideration has been made to protect the integrity of the ecology within St Catherine's Wood, by incorporating subtle and appropriate lighting to routes where needed for safety.

Lighting can play a transformative and meaningful role in creating a positive and inspiring experience for everyone in the urban environment after dark.

This document presents the holistic lighting strategy vision and schematic lighting concepts for the site. Future development at the site will predominantly be made up of residential buildings surrounding an existing woodland, with the river Irk running through it. The proposals include new plazas and squares, waterfront terracing, an elevated walkway atop the existing viaduct, and play areas through the woods.

This planning document aims to illustrate a cohesive approach to the lighting treatment of four distinct areas, responding to their unique characters while developing a lighting identity for the site as a whole. These are broadly:

- St Catherine's Wood
- Red Bank
- The Plateau
- New Town Water Front

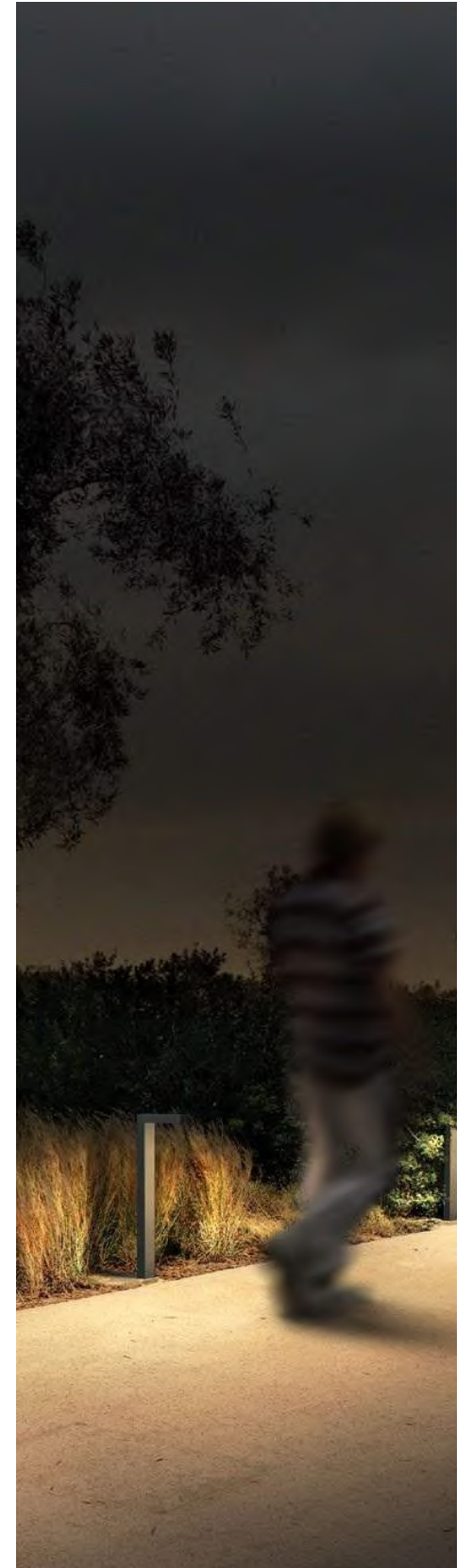
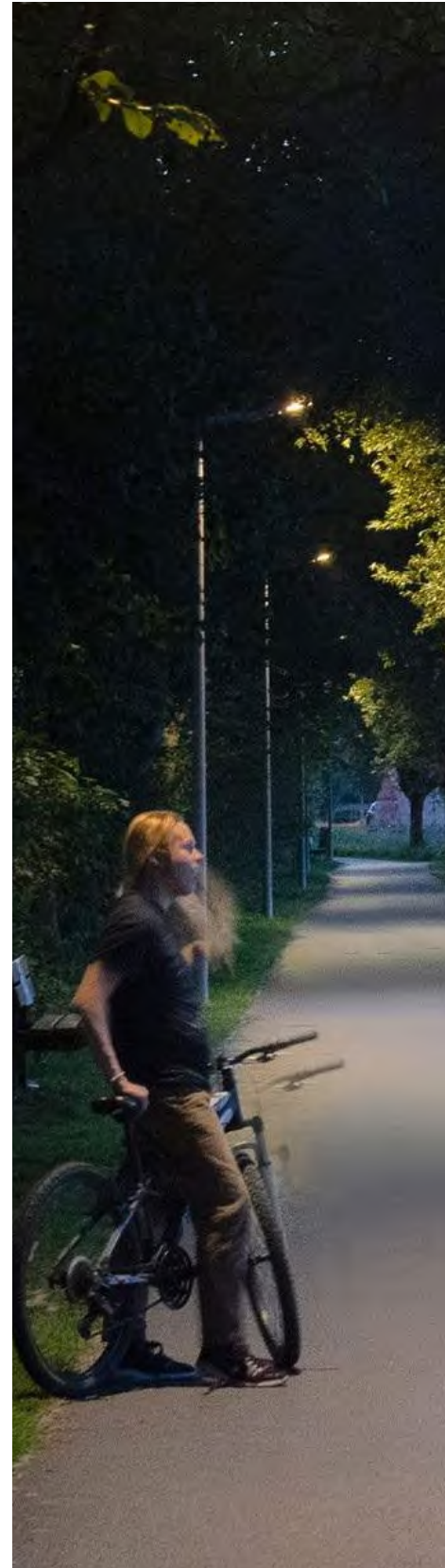


Victoria North Development showing project (red) and HIF works (blue) boundaries

1.2 Key Drivers and Aims

Responding to the Wild Urbanism concept developed by the Landscape Architect, the lighting will:

- Reduce the impact of artificial light on natural habitats by targeting safe but lower lighting levels, avoiding obtrusive lighting. By leaving some areas through the development in darkness, wildlife is allowed to thrive.
- Create safe and welcoming spaces and routes for residents and visitors; by allowing people to dwell in attractive outdoor spaces, and to participate in and enjoy a variety of activities, such as climbing walls, basketball forecourts and play zones through the park.
- Encourage local active travel: by focusing on active travel such as walking and cycling, the scheme will encourage sustainable modes of movement. Lighting will provide safe routes for cyclists and pedestrians when navigating the site.
- Reinforce the wayfinding strategy throughout the development
- Provide a low carbon design
- Provide an inclusive design by creating routes for all abilities.
- Bring social value, providing spaces and places that encourage community participation, a strong sense of ownership and positive social interactions.
- Be suited to a range of users and activities: the development is a mix of residential, commercial and flexible space, therefore attracting a wide range of people to the development.



1.3 Lighting Philosophy

The woodland is at the heart of the character of the proposed development. Different elements of the development are all intertwined, visible from other areas, and therefore the lighting philosophy aims to link the woodland to the urban areas to create a cohesive design.

Lighting of urban environments offers the unique opportunity to transform the aesthetic and perception of the development at night.

For the Victoria North project, the development represents a re-imagining of the existing area creating a wild urban park within the city centre, becoming a destination in its own right.

The aim and aspiration of the lighting scheme is to support this wild urban area by:

- Creating a strong identity to the development, strengthening the sense of place
- Welcoming visitors into the development
- Creating a sense of destination within the public realm squares and plazas, encouraging people to spend time in the evening
- Promoting a sense of safety and security for those travelling through the wood
- Accommodating and supporting special events and activities within the development
- Providing balanced, attractive and welcoming street scenes.



2 Lighting Design Criteria

2.1 Applicable codes and guidelines

The following codes and guidelines have been considered in the development of the lighting design, in addition to the requirements provided by the client:

- BS EN 5489-1 2020 Code of practice for the design of road lighting Part 1: Lighting of roads and public amenity areas
- BS EN 13201-2 2015 Road lighting Part 2: Performance Requirements.
- Institute of Lighting Professionals (ILP), Technical Report 12: Lighting of Pedestrian Crossings
- ILP Guidance Note 01 2021 for the reduction of obtrusive light
- ILP Guidance Note 08 2018 Bats and artificial lighting
- Secure by Design - Lighting Against Crime
- BS 8300 Part 1: 2018 - Design of an accessible and inclusive built environment, external environment.
- CIBSE Lighting Guide 6 - Lighting of the outdoor environment.
- ILP Guide 23: 2020 - Lighting for Cycling Infrastructure

In addition to horizontal illuminance and uniformity targets, we are also proposing additional ES (semi-cylindrical) illuminance criteria to ensure good ambient levels which will enhance the sense of safety and security for visitors.

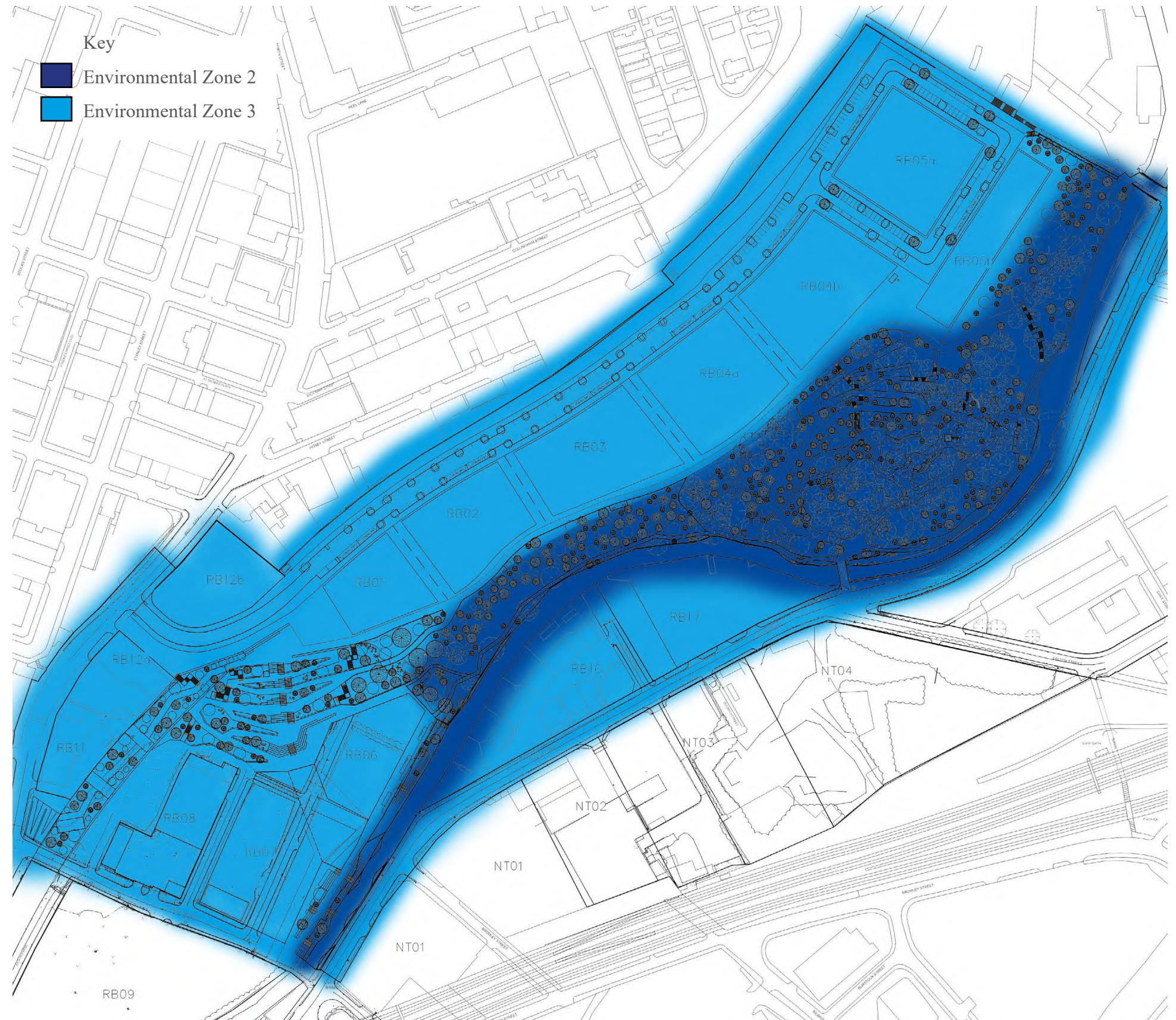
2.2 Environmental Zone

To support development of the lighting design in a sustainable manner, the lighting strategy proposes that the project site is defined in terms of the Environmental Zones (as per ILP GN01, Table 2).

Environmental Zones are categorised in the ILP document as follows:

- E0: Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places.
- E1: Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
- E2: Sparsely inhabited rural areas, village or relatively dark outer suburban locations.
- E3: Well inhabited rural and urban settlements, small town centres of suburban locations.
- E4: Town/city centres with high levels of night-time activity.

The lighting of the Victoria North development will conform to the zones demonstrated on this page.



2.3 Lighting Control Strategy

All proposed lighting will be maintained by a private management company through MCC and FEC. Lighting control will be provided by a standalone control system for the Victoria North development. This may be capable of integration with the local security system or the existing city wide CMS.

The controls treatment for routes and areas within each character area will be zoned to allow for part-night dimming. Special events, such as seasonal festivities and parades, will be designated and commissioned to allow for extended use of the park into the evening.

Part-night dimming is proposed to reflect anticipated usage and requirements through the hours of darkness. The strategy aims to reduce impact to ecologically sensitive areas. Through the woods for example, light levels may be dimmed further than in the plaza.

Light levels have been proposed in Section 2.4.

To promote sustainability and to reduce energy usage, a control schedule will also be employed. This will allow lighting to be switched on and off when required to best support the design aspirations, to follow obtrusive light guidance and to limit disturbance to local ecology, where appropriate, such as for any potential bat corridor. Time scheduling will have input from a photocell to switch lighting on when daylight levels have dropped below a predetermined level.

For example:

- Routes around the development will be on all night, providing safe levels of light, but may dim to a lower level after an agreed time when expected traffic reduces or alternative routes are to be encouraged.
- Lighting to soft landscaping, sports facilities and features will switch off at a curfew time, to be agreed.
- Lighting within the woodland play areas may come on earlier in the evening and have a different time schedule to the rest of the development.



2.4 Lighting Levels Treatment Plan

Lighting level requirements noted in (brackets) is a post curfew light level as part of a variable lighting control system.



2.5 Sustainability

The exterior lighting will be strategically designed in accordance with the ILP GN01, to avoid excessive upward light and light trespass to neighbouring properties and sensitive areas of ecology. The lighting design will incorporate the following in response to the sustainability requirements:

- Controlling of all exterior luminaires to ensure all lighting will be directed downwards and falls on the surfaces being illuminated only. This will limit the potential impact on local ecology and minimise the scheme's contribution to light pollution.
- Maximising energy saving through the lighting control system including the use of part-night dimming. Utilising constant light output controls to avoid over lighting while maintaining minimum design levels.
- Specifying and selecting light sources for their long life, high efficacy characteristics as well as their ability to be dimmed.
- The use of materials with a lower embodied carbon will be investigated within the design, such as timber and weathering steel. Materials will be chosen for longevity and robustness, appropriate for the installed location.
- Luminaire manufacturer credentials will be reviewed with reference to circular lighting principles set out in CIBSE TM66. Principles include modularity and off-the-shelf solutions to ease future maintenance.

2.6 Supporting Ecology

Light pollution will be minimised. Where appropriate, care will be taken to ensure that the proposed lighting installation will not adversely affect the sensitive neighbouring ecology, and, where appropriate, in accordance with ILP GN08 to avoid illuminating potential bat corridors.

LED technology is proposed to be the light source of choice for applications across the Victoria North Development, with a colour temperature of 2700K to 3000K. However, where ecological considerations or human factors take precedence, warmer colour temperatures (<2,500K) will be considered for the advantages of reduced blue spectral content (minimised wavelength <550nm) and promotion of a warmer and more intimate setting.

LED light sources can be susceptible to high frequency flicker and sensitivity varies between humans and different species of ecological receptors. Visible blinking, flickering or strobing will not be acceptable at full lumen output, nor at any dimming level should dimming be specified. Many drivers available on the market are able to dim down to 1% output while maintaining Flicker Frequency above 500Hz. The requirements of IEEE 1789–2015 will apply to all LED drivers, where unless specified otherwise drivers will aim to limit the other biological effects of flicker.

Consultation with an Ecologist will be undertaken during the design process as it is an essential activity when selecting appropriate light sources as part of the Lighting Design development.

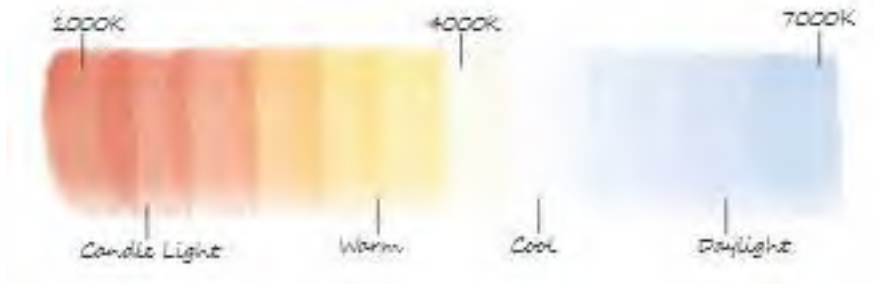
2.7 Light Quality

Generally all white-light light sources will have a colour rendering index Ra greater than 80 in accordance with the international colour code. This is of particular importance in areas with higher levels of illumination, where improved visual quality and accurate rendition of skin tones and signage, etc. can facilitate tasks and interactions and help to improve a user journey and sense of safety.

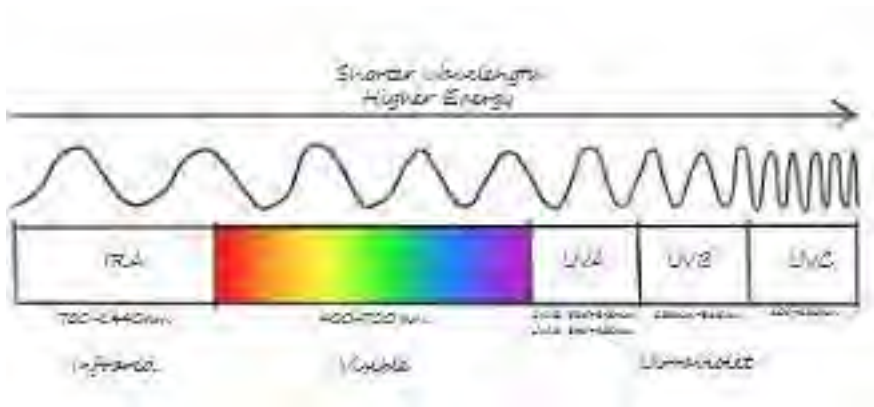
2.8 Maintenance

All luminaires will be specified and installed at accessible locations for ease of maintenance, meeting the following criteria:

- Luminaires specified will be robust to minimise potential vandalism and will be suitable for use in external environment with the appropriate IP rating;
- Long life LED light sources will be used which exceed 50,000 hours.



Correlated Colour Temperature (CCT)



Light Spectrum

2.9 Reduction of Obtrusive Light

Light pollution can be simply defined as light directed into areas where is not needed or wanted, and can be separated into basic parts:

- Sky Glow – the brightening of the night sky diminishing of the beauty of a star-filled sky by either direct upward light or upward reflected light from surfaces;
- Glare – the excessive brightness of a luminaire between itself and viewed background;
- Light intrusion – the spill of light beyond the boundary of the area intended to be lit and also light intrusion in to adjacent properties.

The majority of light pollution is caused through poor design, either through the choice of lighting equipment that is unsuitable for the application, poor optical design and/or through improper orientation of fittings.

The impact of light pollution will be reduced through considered design and using the following methods:

Luminaires and Installation

All column mounted luminaires shall be flat glass design with 0 degree upward tilt.

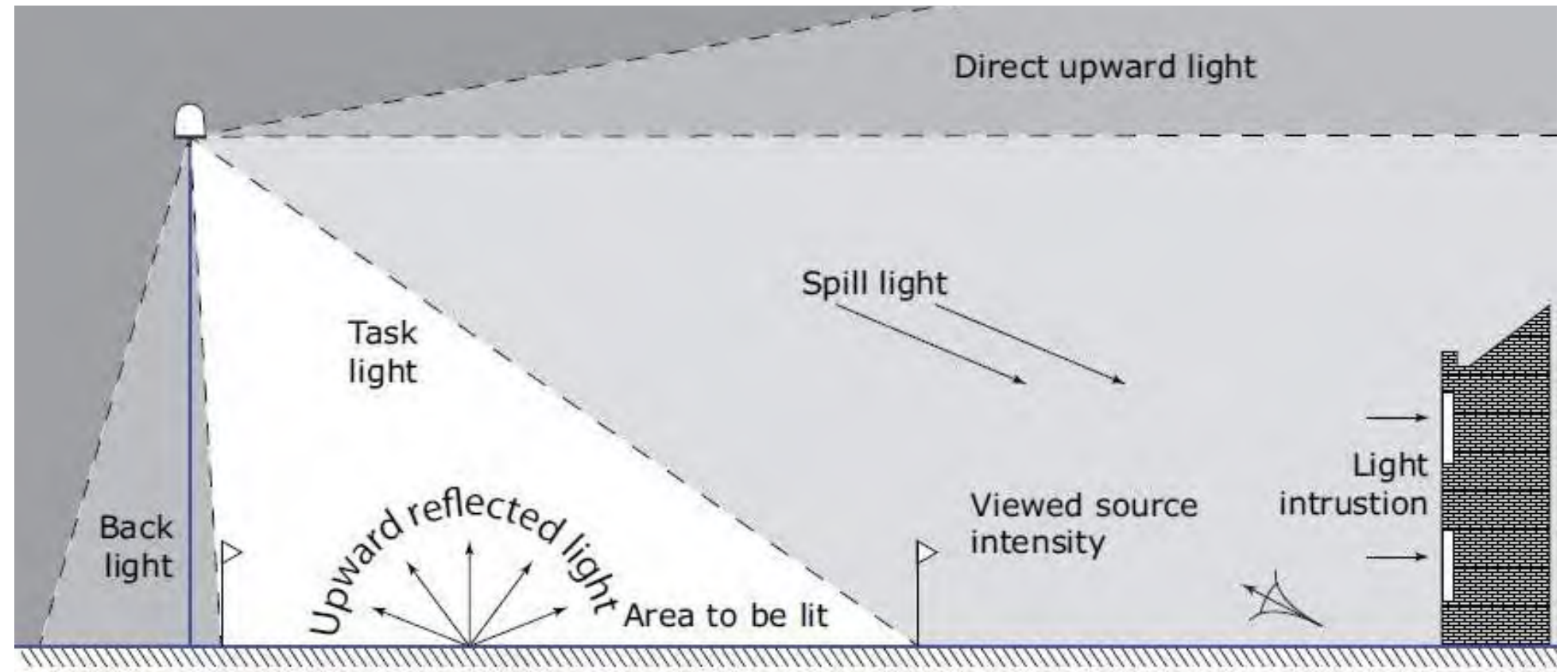
Projectors on multi-head columns shall have an upward tilt of no more than 45 degrees.

Luminaires shall utilise louvres, cowls and snoots etc to prevent light spill outside of the task area and minimise direct view of the light source.

The luminance intensity of all luminaires shall comply with the recommended limits presented in ILP GN 01 Table 4.

Ground recessed and low level lighting to trees, planting, sculptures etc, shall be adjustable to allow light to be focused toward the surface or item being illuminated.

The upward light ratio of luminaires and upward flux ratio of the lighting scheme shall comply with the maximum values set on in ILP GN 01 tables 6 and table 7 respectively.



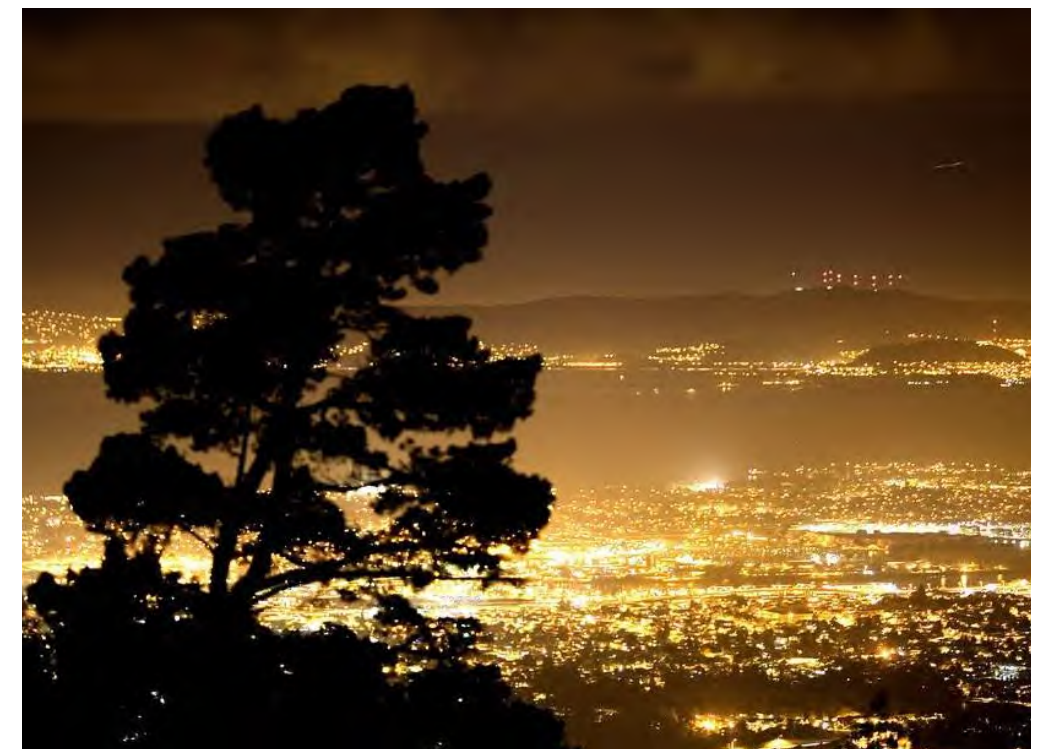
Extracted from ILP GN;01

Luminance and Illuminance Criteria

Illuminance levels for horizontal surfaces, as defined in section 6.4, have been selected in accordance with relevant British Standards to ensure appropriate illumination of routes for the specific location, environment and anticipated traffic flow.

Vertical illumination is an important element of the lighting design to enhance facial recognition and instil a sense of safety and security for users. However, vertical illuminance must be carefully controlled to minimise intrusive light spill into adjacent properties, particularly residential and hotel accommodation. The lighting scheme shall be designed so as not to surpass the maximum values of vertical illuminance on properties as detailed in ILP GN 01 table 3.

The illumination of vertical surfaces is a fundamental part of the Victoria North lighting strategy in order to create attractive and welcoming vistas within and through the development.



Light Pollution ©Thomas Hawk

3 Lighting Vision

3.1 Layers of Light

A layered approach will be utilised to inform a consistent overarching design of lighting within the development. The considered application of lighting layers in conjunction with a cohesive lighting strategy to individual character areas will reinforce their unique identities while creating legible and safe environments throughout the development.

The three key layers of light to be considered are:

- Ambient horizontal illumination
- Ambient vertical illumination
- Accent illumination

The figures on the right demonstrate the fundamental characteristics of each layer and their contributions to the final lighting composition.

Depending on the use of a space or route, the priority of these layers will be balanced as appropriate. For example in the woodland the application of vertical and accent illumination is important to define the perimeter of the space, silhouette people in the distance, and create good sightlines through the wood below the canopy. Considered lighting is a key to creating a perceived safe and welcoming environment.

The strategy will use differing intensities of light and create a contrast with light and dark areas will promote way finding and create a variety of defined spaces and atmospheres appropriate to the use of the area. This creates a simple, elegant and dynamic experience for the visitors and residents alike.

3.2 Inclusive Design

An inclusive approach to lighting is essential regardless of age and ability. Light as a medium creates safe accessible environments for all. Residents and visitors will be able to participate equally in every day activities, promoting well-being and social interactions.

As Victoria North is a unique development which offers something entirely different to the other areas of Manchester, the aim is to attract a completely new and diverse demographic.

The lighting scheme should be developed to consider the needs of ambulant and disabled visitors. These considerations should be made spatially and in terms of the visual experience of the environment. Spatially, the sighting of equipment and reduction of physical clutter within the public realm is important. Visually, the experiences of those with visual impairments should be carefully considered, avoiding high contrast and minimising glare.

The lighting vision focuses on quality of place, positive use of space, and enhancing the visitor and resident experience of the development.



Ambient horizontal illumination

A base layer of light on the horizontal plane (typically the ground).

Aids way-finding and promotes safe navigation by illuminating pathways, changes in level, and other potential obstructions and risks of trips/falls along the route; i.e. through woodland there may be tree roots, steps, and in the urban areas, there will be stepped access and ramps. For cyclists and runners, uniform horizontal lighting allows scanning for obstructions further ahead.

Typically provided by the downward portion of a luminaires photometric distribution.



Ambient vertical illumination

A base layer of light to the vertical plane.

Improves illumination for facial recognition to enhance the perception of safety, a key aspect influencing the positive use of public realm space.

Lighting applied to vertical surfaces draws people through public realm areas, allowing transparency and good visibility through a space.

Typically provided by the diffuse portion of a luminaires photometric distribution, or inter-reflection from adjacent surfaces.



Accent illumination

Defines boundaries and edges of space

Helps silhouette other occupants and assists in our understanding of who is in an area, offering passive surveillance.

Localised highlights of higher illumination (typically to static elements such as monuments, façades, vegetation, street furniture, etc.)

Encourages the use of public realm space by providing destinations, directing the eye and channelling the movement of people towards surfaces and areas of higher luminance.

Creates impressions of space, depth and volume.

3.3 Managed Darkness

Lighting holds the ability to alter the structure and function of ecosystems. To truly design for biodiversity, the majority of the woodland must be left dark.

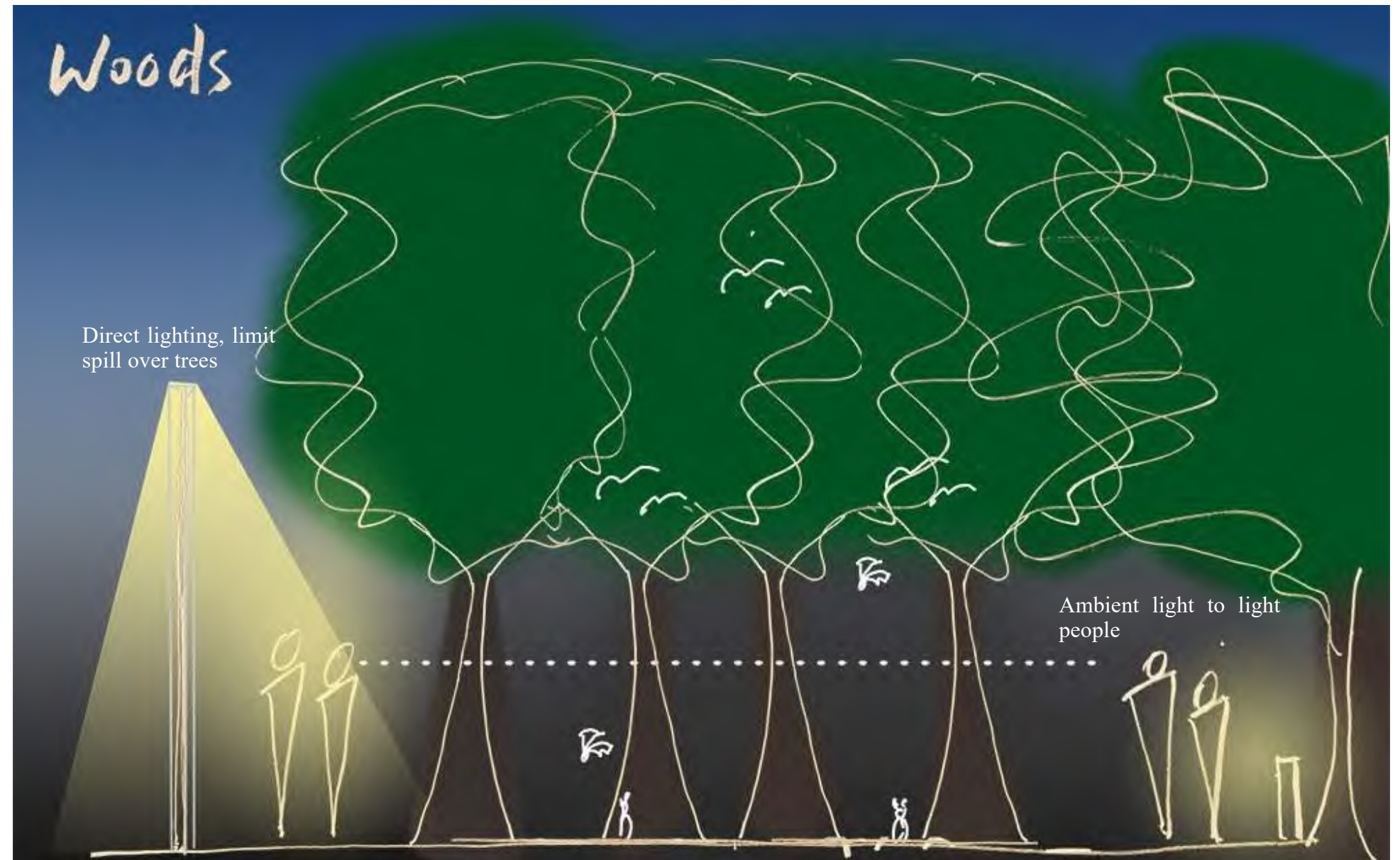
A darkness strategy rethinks the value of darkness and explores the different shades of night.

- Responding to ecological and environmental factors, such as the lighting spectra, location, frequency and form of lighting equipment to be sensitive to ecological receptors.
- Create a coherent night-time environment that is memorable and safe for visitors.
- Heighten awareness of the value of darkness.

St Catherine's Wood is situated within a natural valley. With ample canopy cover within the wood, there is unlikely to be any ambient light along the primary routes from the night sky, which will create a very dark and potentially unsafe space. In order to maintain a safe route, there will be a minimum lighting requirement.

Direct lighting will be applied to the primary routes through the wood to encourage positive use. The use of other routes will be discouraged, but there will be low level warm-white pools of light to areas of play to help guide people safely.

Clear and visible sight lines through the trees will be imperative for the perception of safety within the woodland. Vertically lit surfaces via ambient low level lighting will offer a backdrop to allow passive surveillance.



Sketch to show visible lines of sight through dark woodland

4 Lighting Strategy

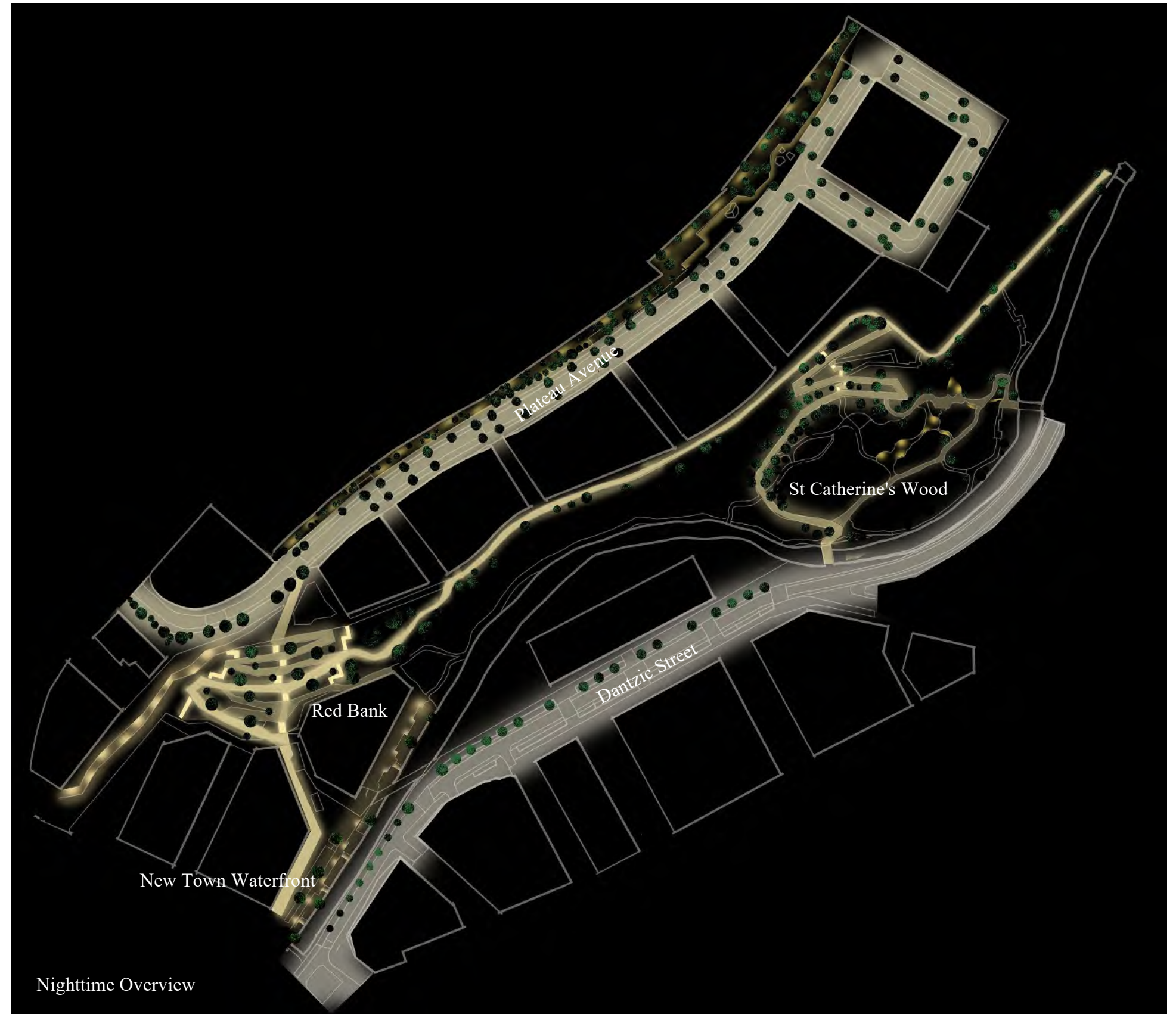
The following pages describe the lighting design principles for the scheme as a whole and details pertaining to each key area and route type.

The lighting strategy has been developed considering the identified priority themes of ecology, safety, legibility and longevity.

The nighttime overview shows the proposed colour temperatures within the development, and depicts the routes and areas that are intended to be lit or not lit:

- Dantzic Street (out of scope) is currently lit to the MCC standard of 4000K
- Plateau Avenue will be lit to 2700K - 3000K
- Red Bank Terraces and Viaduct will be lit to 2700K - 3000K
- New Town Waterfront will be lit to 2700K - 3000K
- St Catherine's Wood pathways and play areas will be lit to 2200K - 2700K.

Routes alongside the river and some pathways through the wood will be kept dark to limit light spill over ecologically sensitive areas.



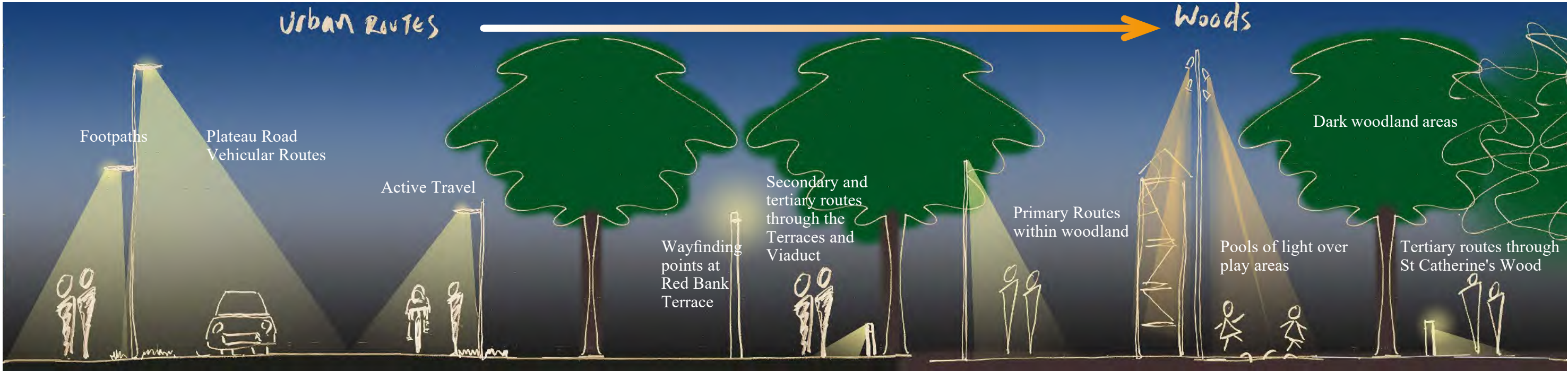
4.1 Look and Feel

This section of the document discusses the form and materiality of the lighting equipment. The intention is to be sympathetic to the context of the project setting and to deliver a consistent and cohesive lighting strategy that references distinctive character areas. The lighting approach within the various areas will differ due to the different uses within each character zone, but equipment will be from the same palette.

4.1.1 Scale

Varying sizes and heights of equipment will form a lighting family which can be applied to different areas and route types.

Scale is important to define primary, secondary and tertiary routes, to aid with wayfinding and place-making.



4.1.2 Materiality

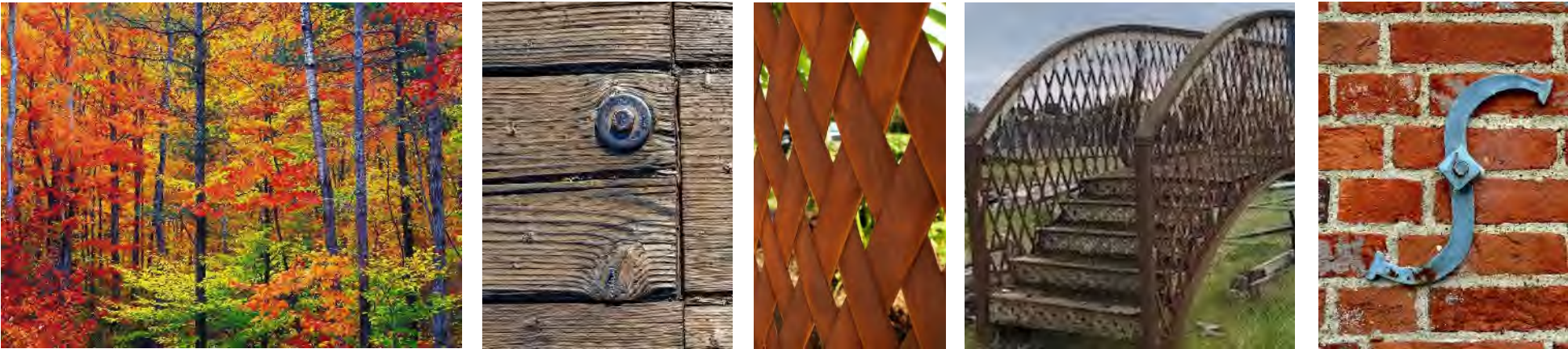
The materiality and finish of equipment should take inspiration from the woods and industrial context, and are presented to create a family of fixtures.

The materiality of the lighting equipment is inspired by the colouration of the woods, amber/reds of the changing seasons, as well as the patina of weathered steel, brick and timber.

The following are options to be considered:

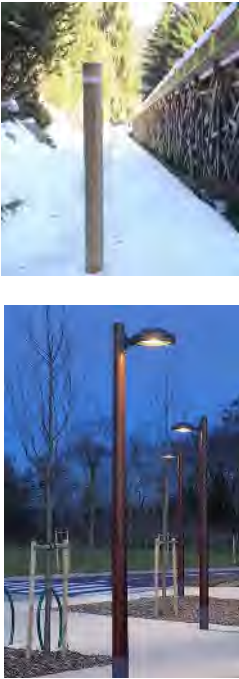
- Weathering Steel / Corten
- Wood

Painted finishes will be avoided in the woodland areas to limit potential for vandalism.



Urban Routes

Woodland Routes



Steel lighting columns with RAL black finish in urban highway and pedestrian routes

Wooden columns within Red Bank Terraces and Viaduct

Weathered Steel materiality in the woodland areas

5 Character Areas

The following pages explore concepts for various spaces within Victoria North that are to be further developed through the next stage of design.

Red Bank

- Active Travel Route
- Terraces
- Viaduct
- Temporary Routes

Plateau

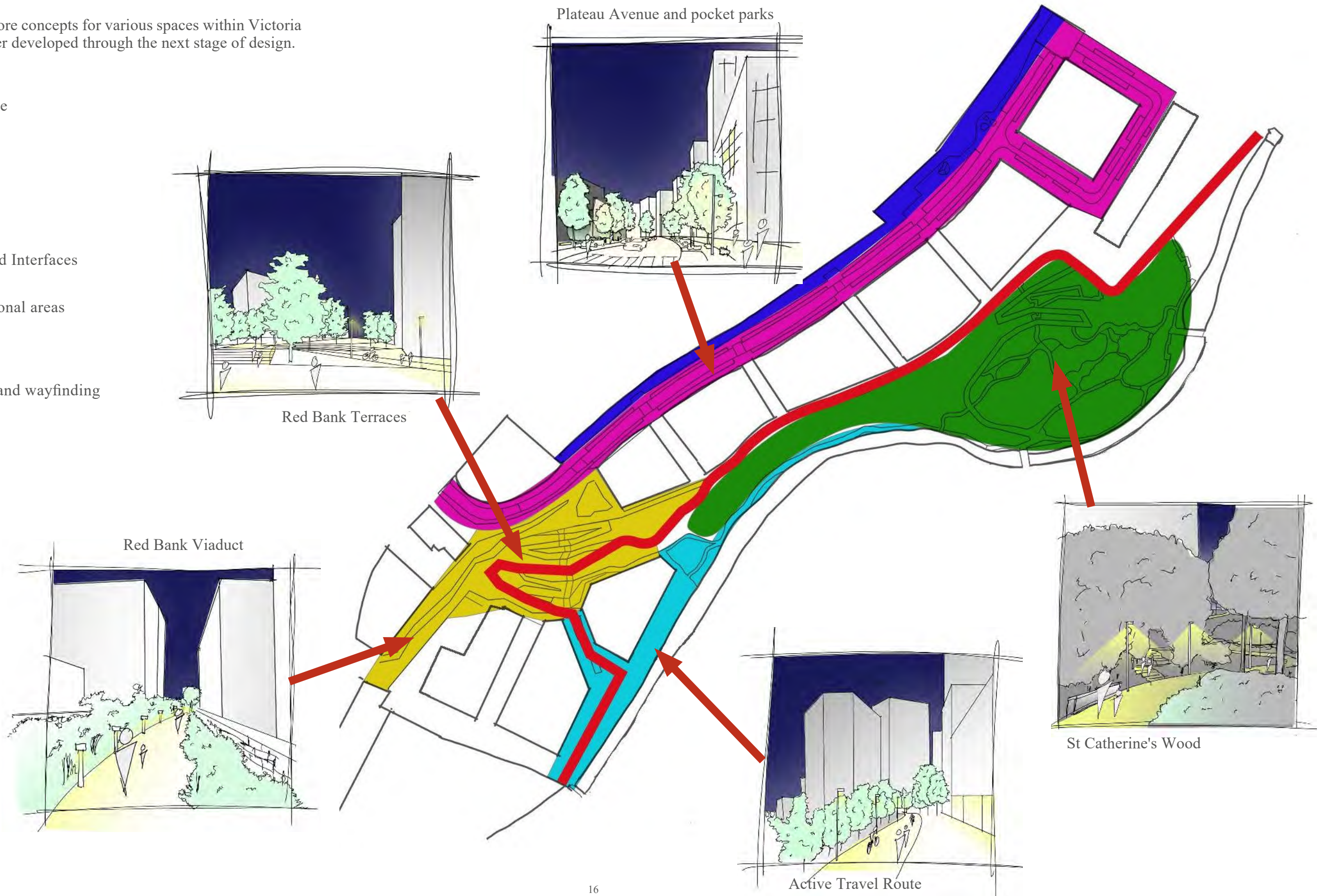
- Highway
- Plot Boundaries and Interfaces
- Pocket Parks
- Sports and recreational areas

St Catherine's Wood

- Primary Routes
- Secondary Routes and wayfinding
- Play Areas

New Town Waterfront

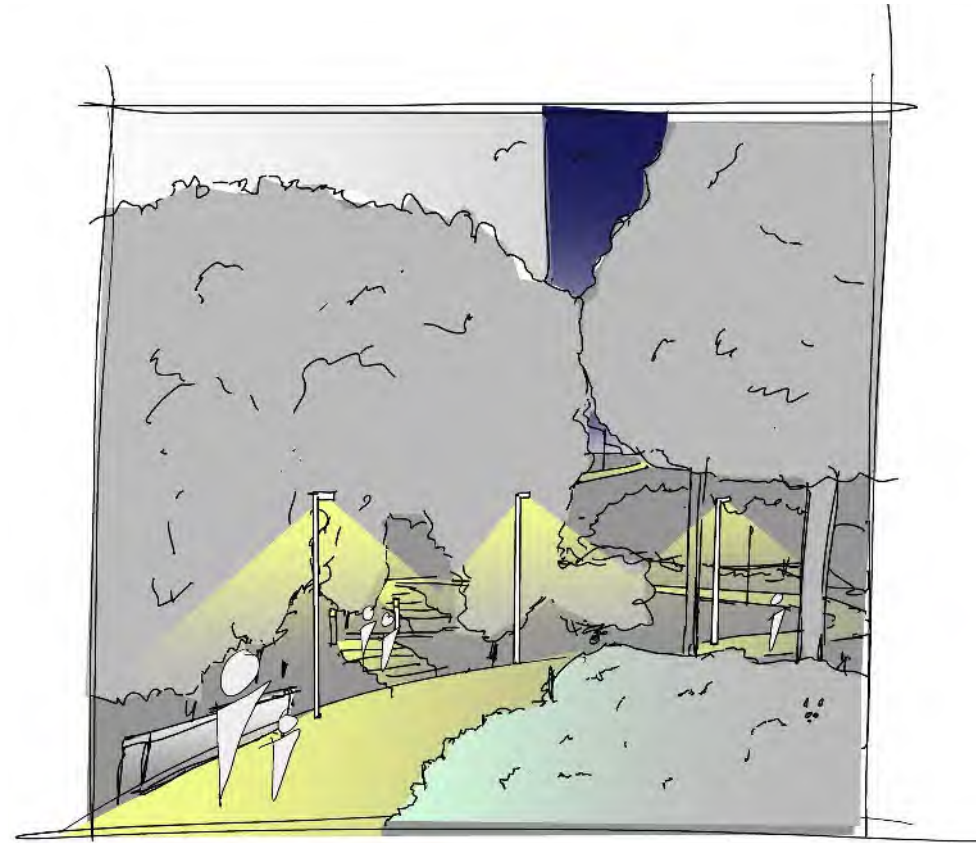
- Terraces
- Pedestrian Routes



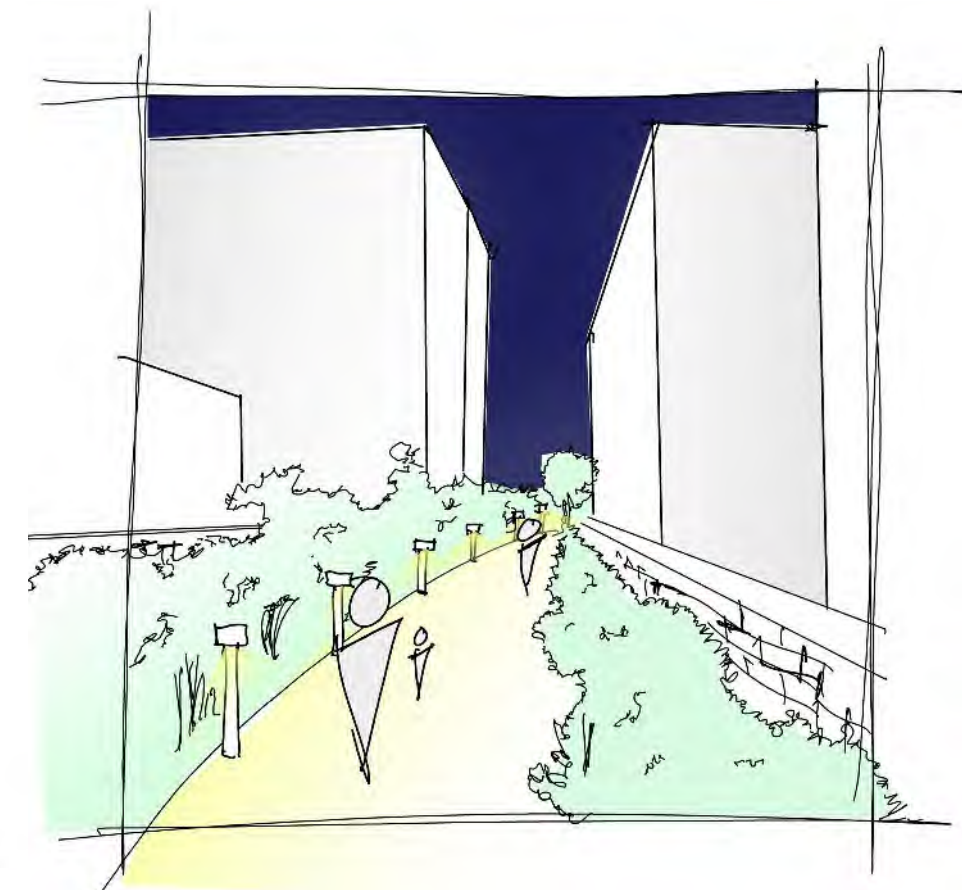
5.1 Overview

This design document aims to illustrate a cohesive approach to the lighting treatment of distinct areas, responding to their unique characters while developing a lighting identity for the site as a whole. These are broadly, from darkest to brightest:

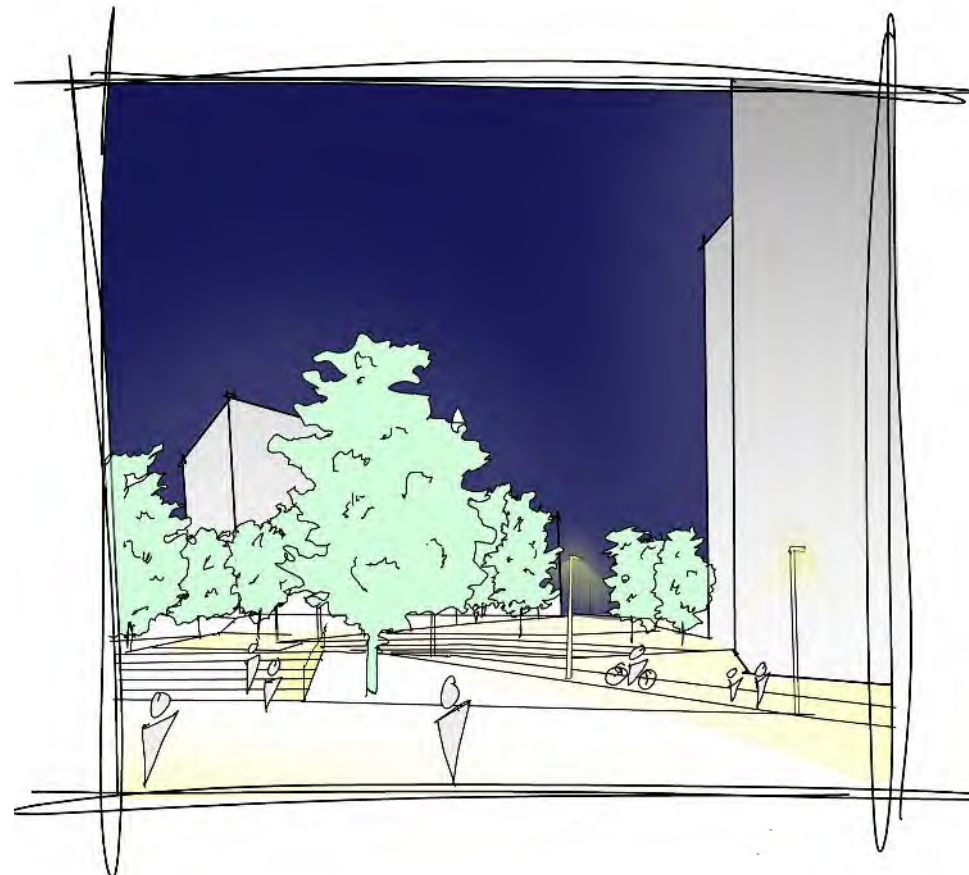
- St Catherine's Wood: Characterised by controlled lighting, visibility of the path ahead is a priority. Low intensity lighting to some areas of play allows passive surveillance for night time use. Areas of darkness away from routes is preserved for the benefit of ecology.
- Red Bank Viaduct: Low level lighting allows the sky and surrounding cityscape to take precedent.
- Red Bank Terraces: A place to socialise and dwell, lighting is applied to the winding pathways and stairs, seating areas and soft landscaping.
- Plateau Avenue: Highway lighting provides uniform levels for interactions between vehicles, cyclists and pedestrians. Pocket parks and private gardens have a low key feel with integrated lighting for passive surveillance and dedicated lighting for sports areas.
- Active Travel Route: The active travel route is the primary route around the site, with lighting to this route providing wayfinding and being playful in form to encourage use throughout the evening. It lies adjacent to sensitive woodland and winds through urban plazas, therefore lighting acts in a transitional way to connect the spaces.



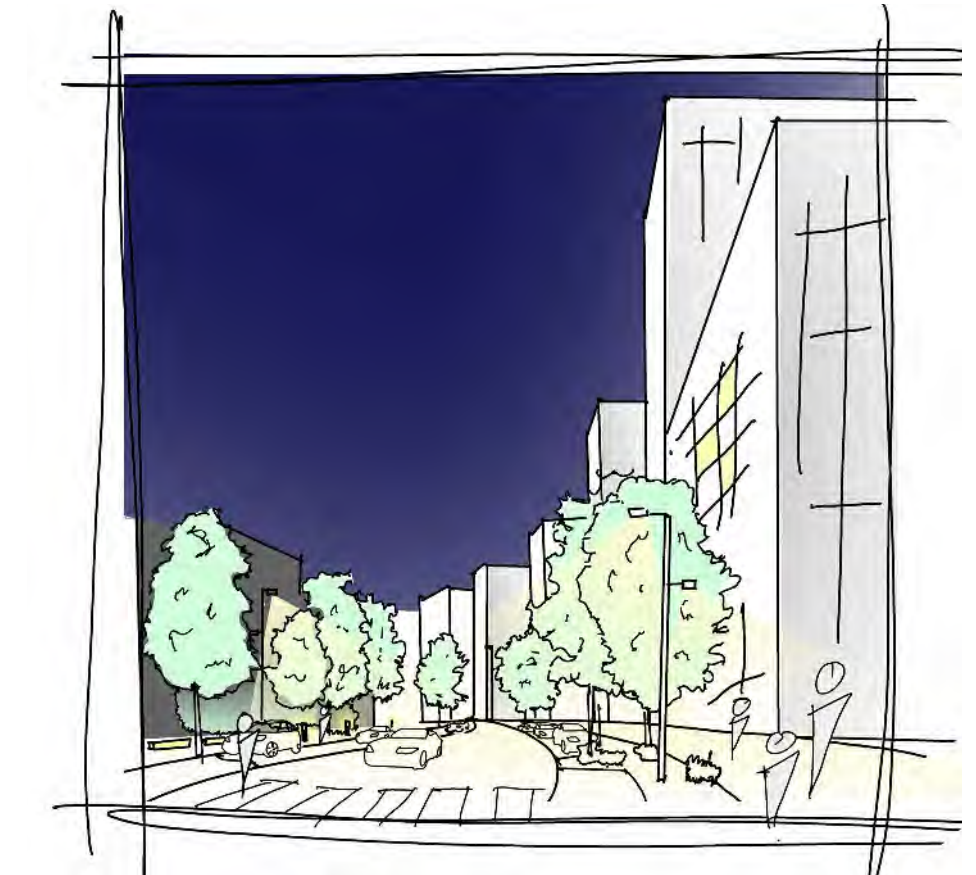
St Catherine's Wood



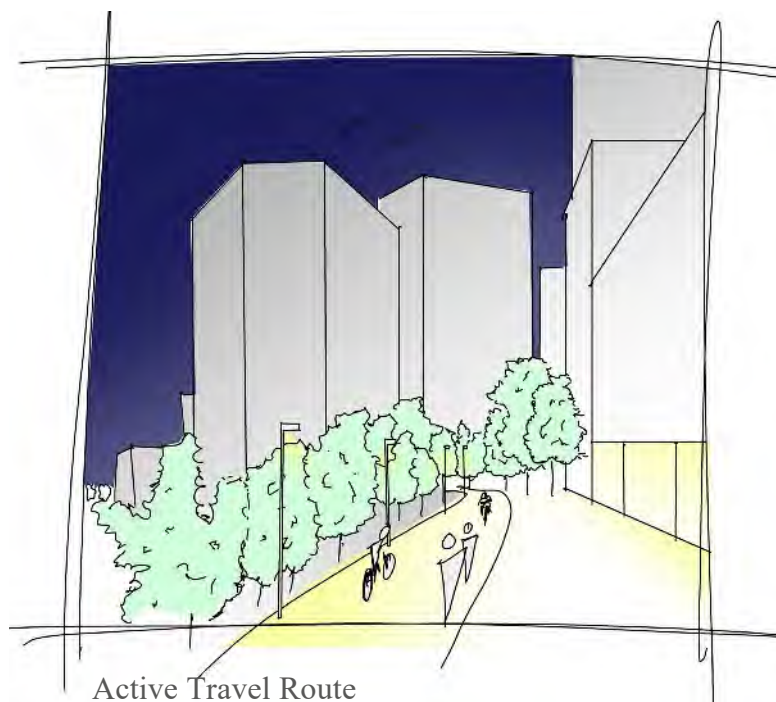
Red Bank Viaduct



Red Bank Terraces



Plateau Avenue



Active Travel Route

5.2 Red Bank

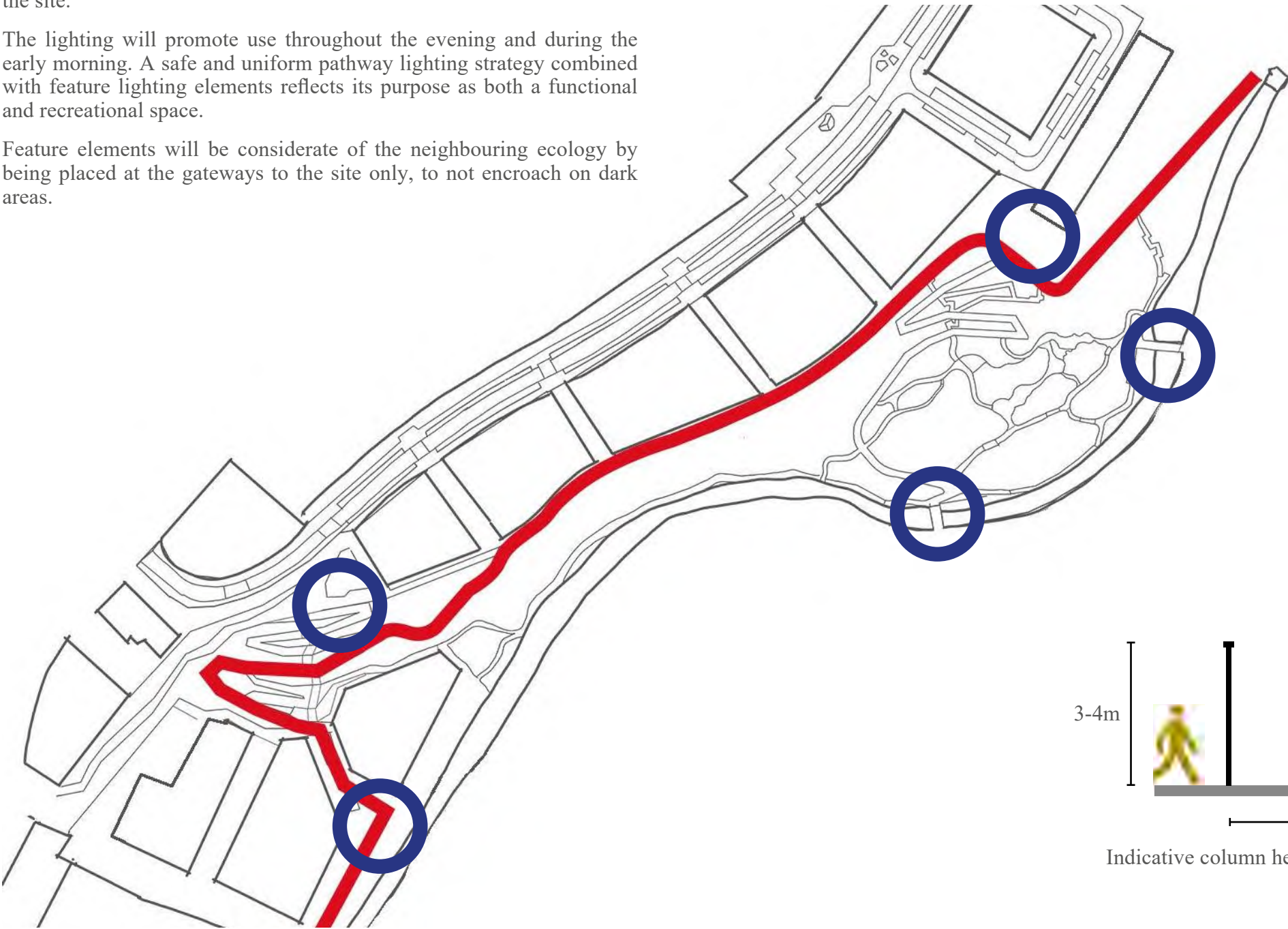
5.2.1 Active Travel Route

The active travel route runs through the site providing a safe and vehicle free pathway for runners and cyclists to exercise, and for pedestrians to walk.

Sculptural lighting elements will be placed at gateways into the development to aid wayfinding and demark the active travel route around the site.

The lighting will promote use throughout the evening and during the early morning. A safe and uniform pathway lighting strategy combined with feature lighting elements reflects its purpose as both a functional and recreational space.

Feature elements will be considerate of the neighbouring ecology by being placed at the gateways to the site only, to not encroach on dark areas.



5.2.2 Gateways

The feature lighting locations are proposed as Gateways into the development, to provide wayfinding points along the active travel route.

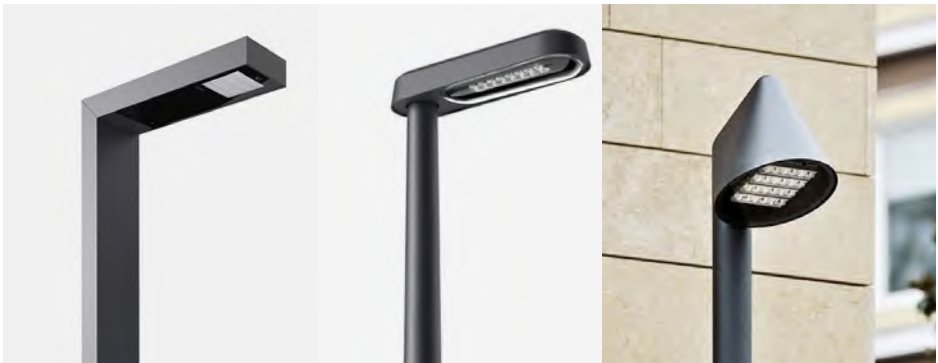
Oversized features will be placed at the entrances to the development, that are placemaking, and relate to the character of Victoria North.



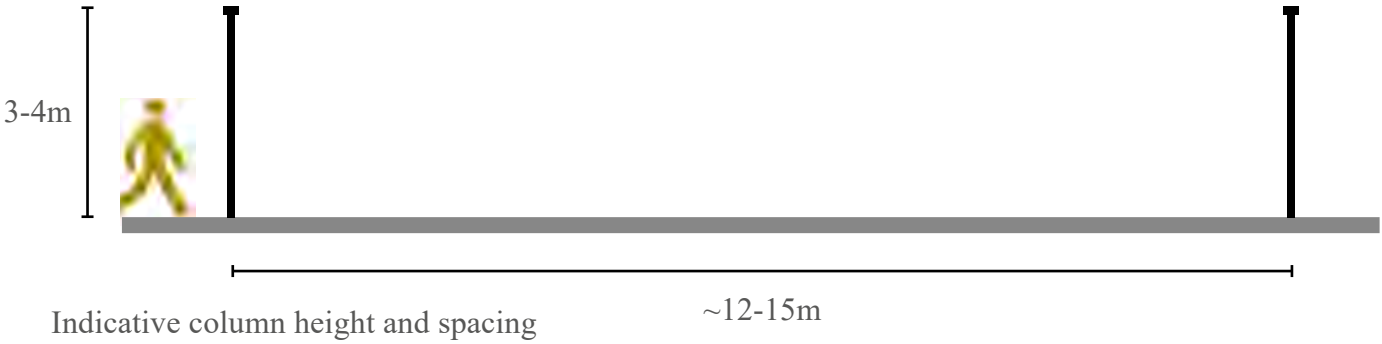
Example feature lighting



Active travel route



Example column products



5.2.3 Terraces

The terraces offer a space for people to meet and socialise through the evening, therefore lighting will be applied through the space to increase the perception of safety, provide good sightlines and visible routes.

Pathways through the Red Bank area are largely within the terraced area. The topography of the site slopes steeply down from Plateau Avenue to the river. There are multiple routes from the top to bottom and lighting will aid decision making through the space.

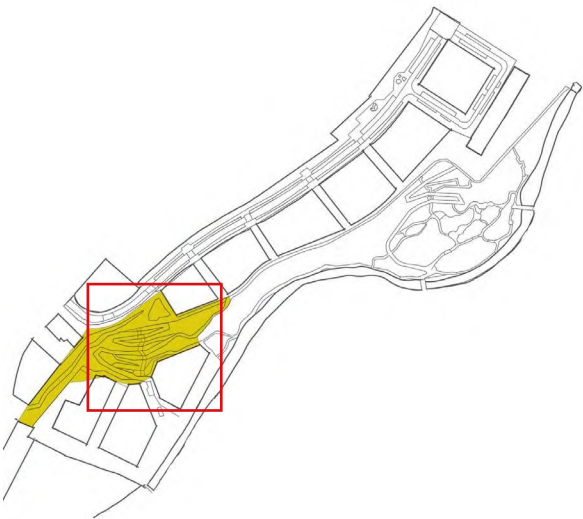
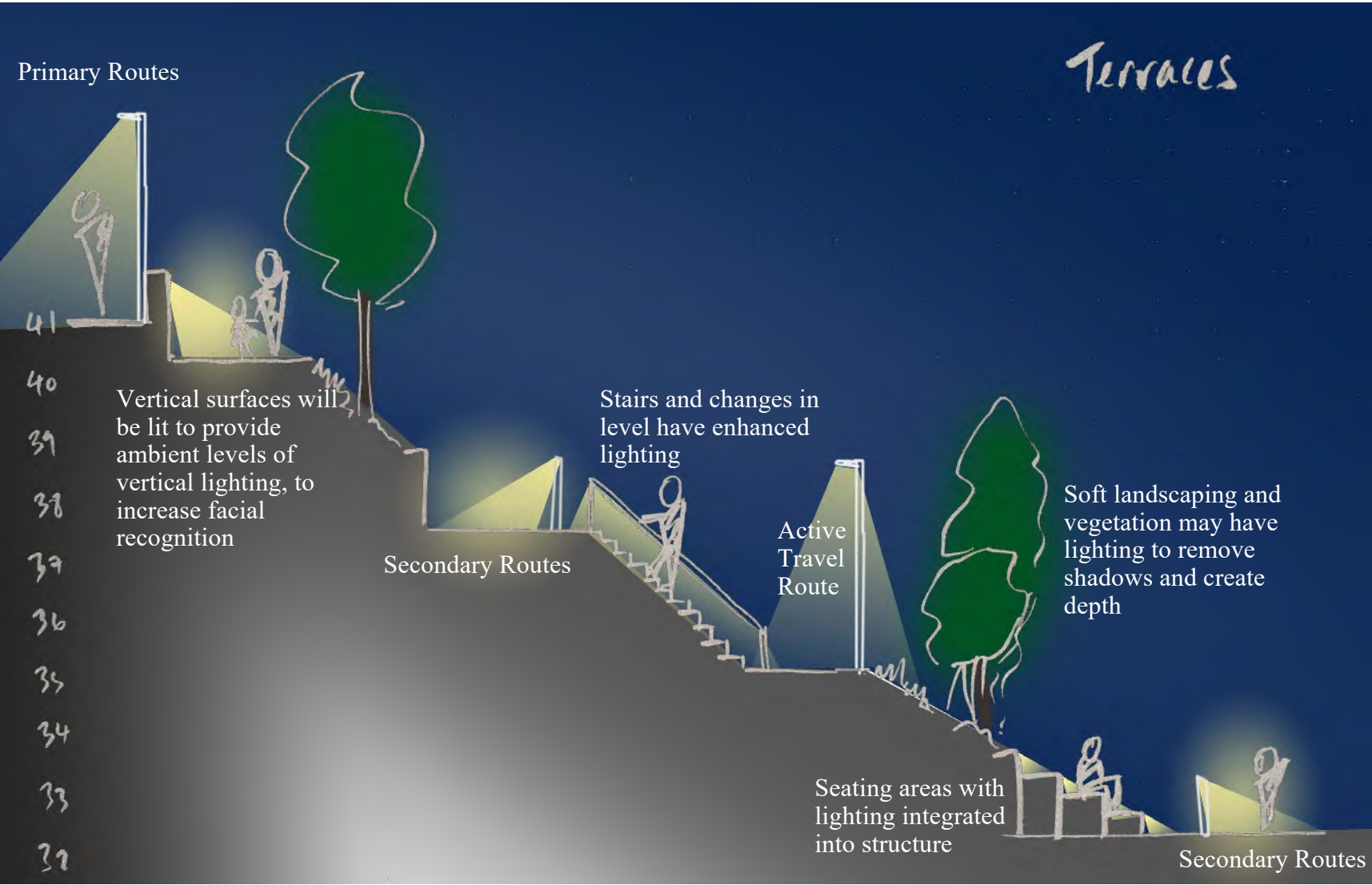
Pathways through the site have sloped and stepped sections and therefore changes in level will be highlighted.

Primary Routes

Lighting to primary routes is provided by column mounted lanterns at a height of 4-5m.

Secondary Routes

Lighting to secondary routes is provided by low level bollard luminaires at a height of 1-2m.

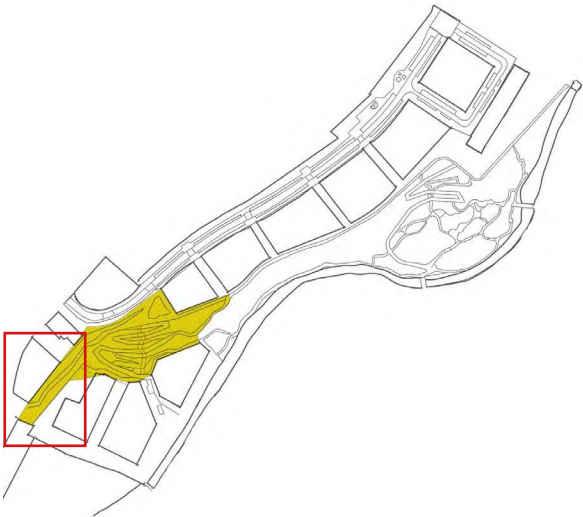


5.2.4 Viaduct

The elevated viaduct walkway offers a tranquil route from the city centre to the heart of the development, to the alternative footpaths and roadside traffic. It is anticipated that this will become a much used pedestrian route into Victoria North.

The path allows pedestrians to enjoy views of the city, and the scale of the lighting equipment will be low level to reduce visibility from a distance and minimise the environmental impact.

Lighting will define the edge of the viaduct route by highlighting the horizontality of the structure.



5.2.5 Temporary Routes

Temporary routes within the project boundary will be lit allowing safe access for pedestrians while plot developments are constructed.

The character of lighting used along these temporary routes, will support the final quality of the space.

The columns, their mounting and fixings will be temporary in nature, where lanterns will be reused and relocated into their final position when the plots are complete.

Existing road lighting will remain in place until construction begins.



HIF boundary (blue) and routes requiring temporary lighting (purple)



Indicative column mounted luminaire products

5.3 Plateau

5.3.1 Highway

Lighting to the Plateau Avenue highway will be provided by column mounted lanterns with flat glass, roadway distributions to ensure light is uniform across the road.

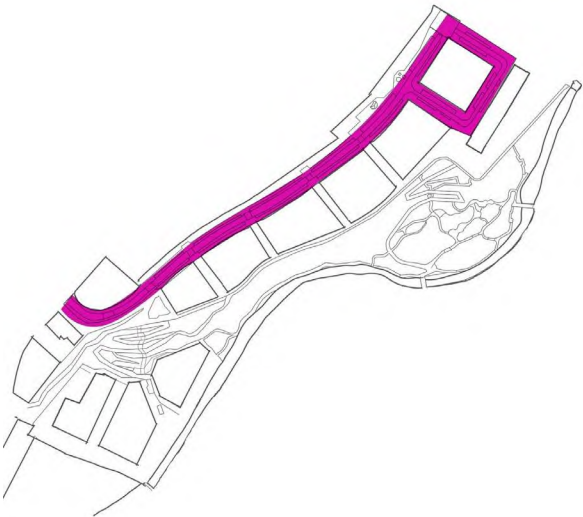
Columns will be coordinated with parking and loading bays on the side of the road.

Enhanced levels of lighting will be provided at crossings to ensure good visibility of pedestrians.

5.3.2 Footpaths

Footpaths adjacent to the highway will be lit from the spill of light from the roadway lanterns.

Dedicated lanterns may be used but at a lower mounting height to reduce the scale of the roadway lighting.



5.3.3 Pocket Parks

There are a series of gardens and parks along the northern edge of Plateau Avenue which frame the street scene. To encourage positive use of the spaces in the evening and allow others to monitor behaviour, lighting is proposed to vertical surfaces and indicatively depict walkways. This creates an ambience which allows for safe interactions.

There are the following types of pocket park within the Development:

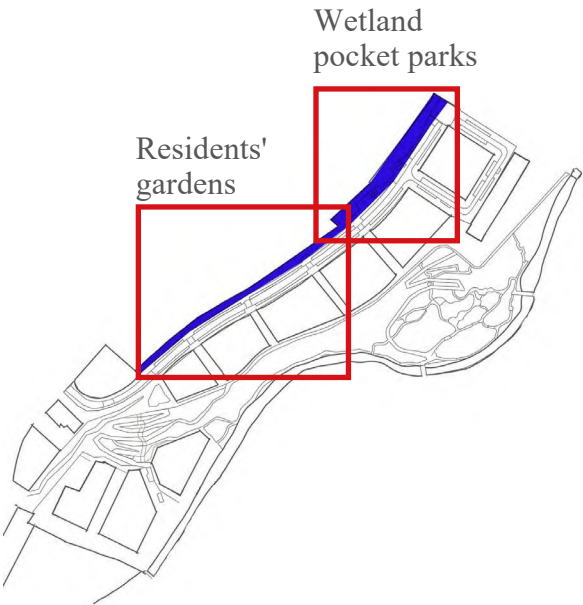
Wetland Pocket Parks

The parks with rain gardens and low vegetation will have very low light levels to reduce impact to wildlife and biodiversity. Walkways will be highlighted with marker lighting to indicate changes in direction.

Residents' Gardens

Parks dedicated for the residents of the Plateau area will have lighting provided to seating areas, to create comfortable spaces to sit in the evening.

Lighting will be provided by bollards and some soft landscaping lighting to trees will allow for passive surveillance.



5.4 St Catherine's Wood

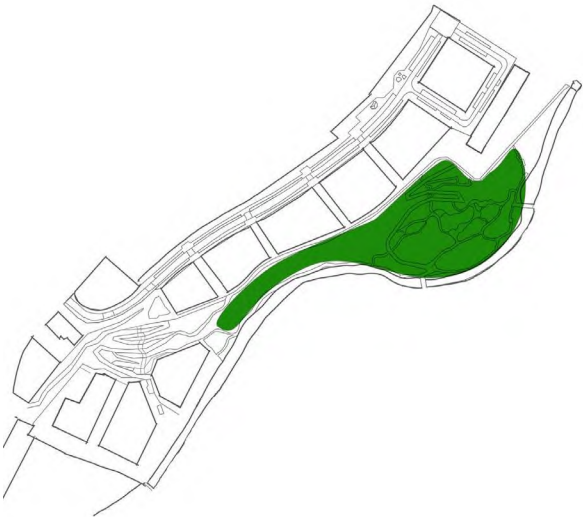
To support allow natural corridors between foraging zones, lighting is not proposed along every footpath in the woods.

The primary footpath that takes pedestrians from Dantzic Street to the Plateau will be lit to provide a safe route through a potentially very dark space. Lighting equipment will be mounted at 3-4m on columns.

To supplement the primary footpath and create some ambience in the woods, low level lighting will also be applied to secondary routes and some play areas with vertical surfaces to create a feeling of safety, provide good sightlines underneath the canopies, and highlight / bring awareness to other users of this woodland route on the path ahead.

Secondary footpaths will be lit via low bollards to act as beacons, provide wayfinding and direct people through the woods back to the primary routes.

The lighting design will be sensitive to the surrounding ecology by being low intensity and warm in colour temperature.



5.4.1 Play Areas

St Catherine's Wood provides multiple opportunities for play. During the early evening in winter months, when the sun sets before the end of the working day, there may be times when the school run goes through the wood whilst it is dark.

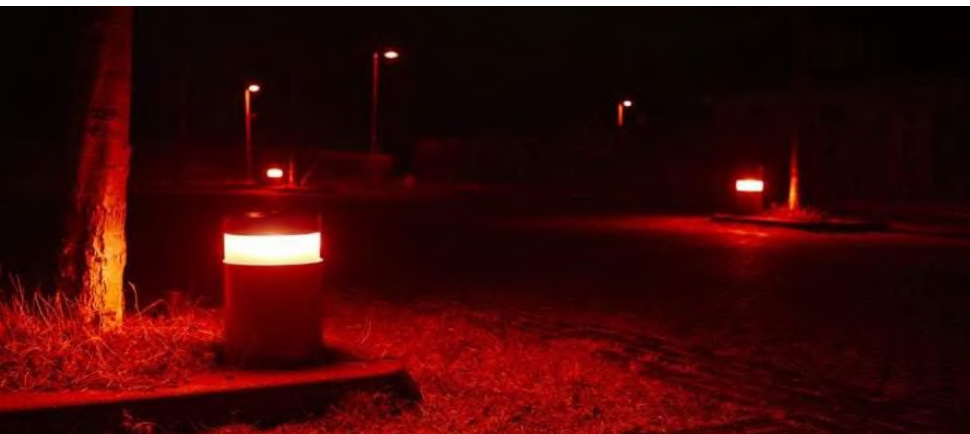
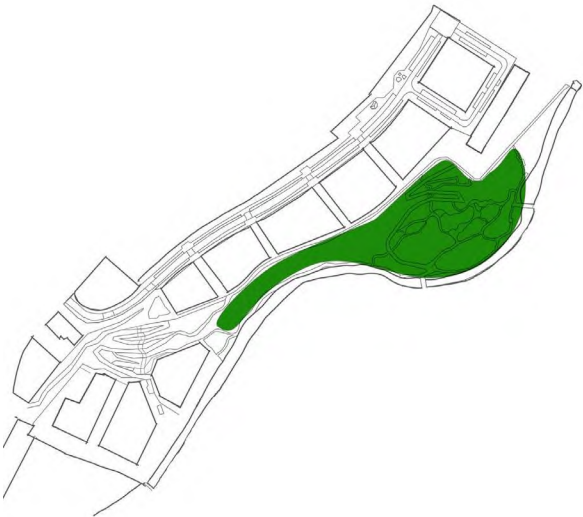
Lighting to the play areas is recommended during these times to ensure that there is some ambience in the wood, allowing for passive surveillance and creating visible sightlines.

A low-impact approach to lighting these areas is recommended due to the ecological sensitivity of the area.

Lighting may be integrated into play equipment, emphasising lit vertical surfaces while gobo projections create broken light patterns on the ground.

All lighting that is proposed will be robust, appropriate for the environment and warm white / amber to be as unobtrusive as possible.

Lighting will be controlled to switch off during the night.

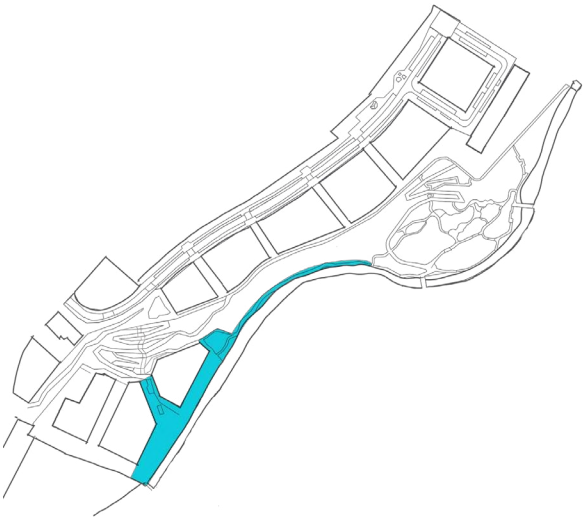


5.5 New Town Waterfront

These south facing terraced areas provide a space for meeting and relaxing during the day, which will be extended into the night using a lighting scheme sensitive to the adjacent marine life.

Route lighting at the upper level will be provided facing towards buildings to reduce spill of light towards the river and forms the main wayfinding route for pedestrians.

The steps and terraces are characterised by low level lighting, which at its lowest utilises marker lighting at the water's edge.



Precedent integrated terrace lighting



Anticipated daytime usage



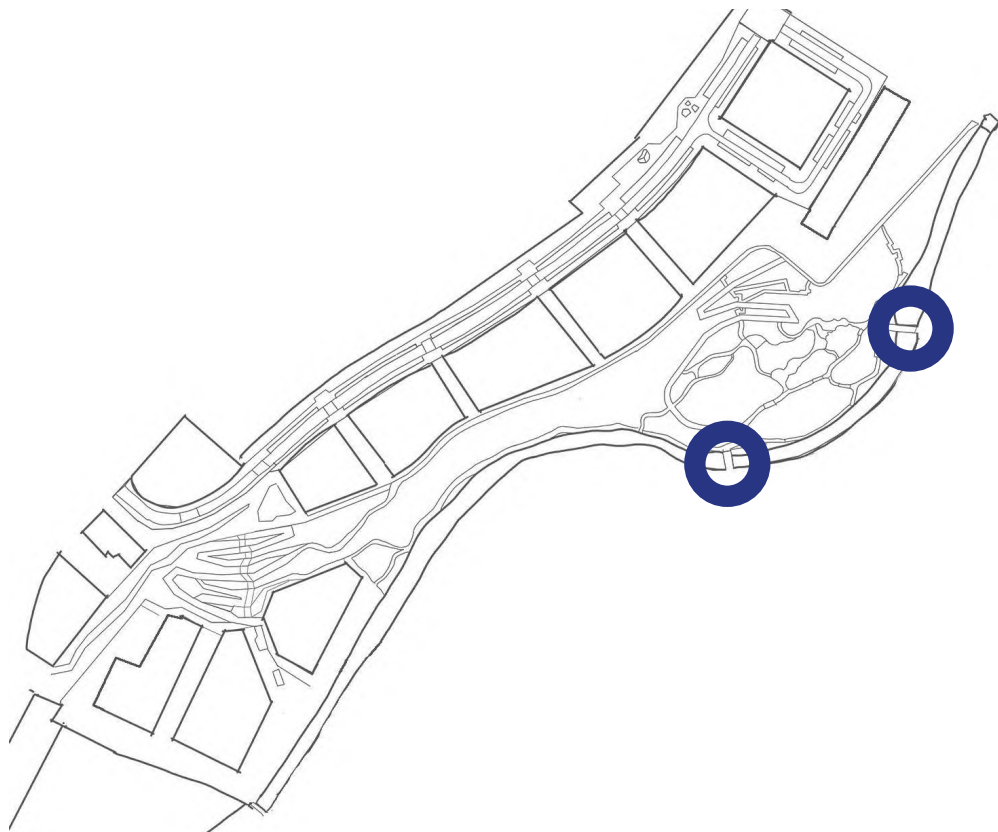
Shielded stanchion-integrated luminaire



Indicative marker lighting product

5.6 Bridges

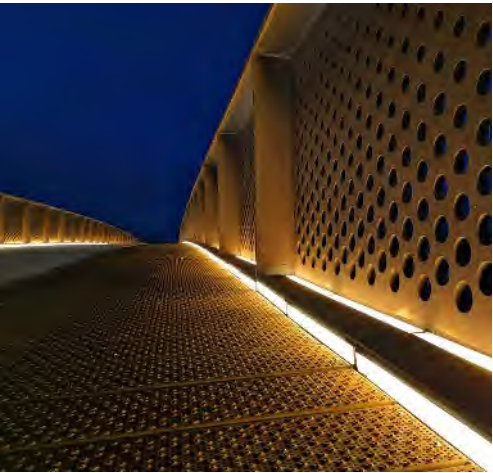
Bridges act as gateways to the development, and will become local reference points for wayfinding. Lighting to these structures will encourage their use by providing an impression of safety. Integrated lighting will create a memorable environment, complementing the architecture of the bridges.



 Bridge locations on the river Irk



Precedent handrail integrated lighting



Precedent integrated linear lighting

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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