



NATIONAL HEALTH INNOVATION CAMPUS MASTERPLAN
SOUTHGATE, HUDDERSFIELD

MASTER PLANNING, PHASING, DESIGN CODE CONTEXT: **VOLUME 3 - DESIGN CODE**

JULY 2024 - ISSUE TO CLIENT

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1.0 INTRODUCTION

1.1 INTRODUCTION

This document forms part of a Condition Discharge application for conditions 4,5 and 6 of outline planning permission reference 2021/91544 for a new National Health Innovation Campus on the Southgate site and should also be read in association with the 1st Reserved Matters application submitted.

The site was granted outline planning permission in September 2021 for 75,000sqm of new development across a range of land use classes. This series of documents outlines the proposed phasing for bringing forward the development of the site, its strategic masterplan framework as well as various design code principles that will be incorporated into this process..

The proposal is for a new National Health Innovation Campus as part of the University of Huddersfield. The campus will promote health and well-being through its education, built form and public realm.

This particular document, Volume 3: Design Code Context, outlines a set of principles and materials that should be considered in each developed phase of the Masterplan development at the National Health Innovation Campus.

1.2 CLIENT & PROFESSIONAL TEAM

Client and Developer University of Huddersfield
Architect AHR Architects
Planning Consultant IB Planning Limited



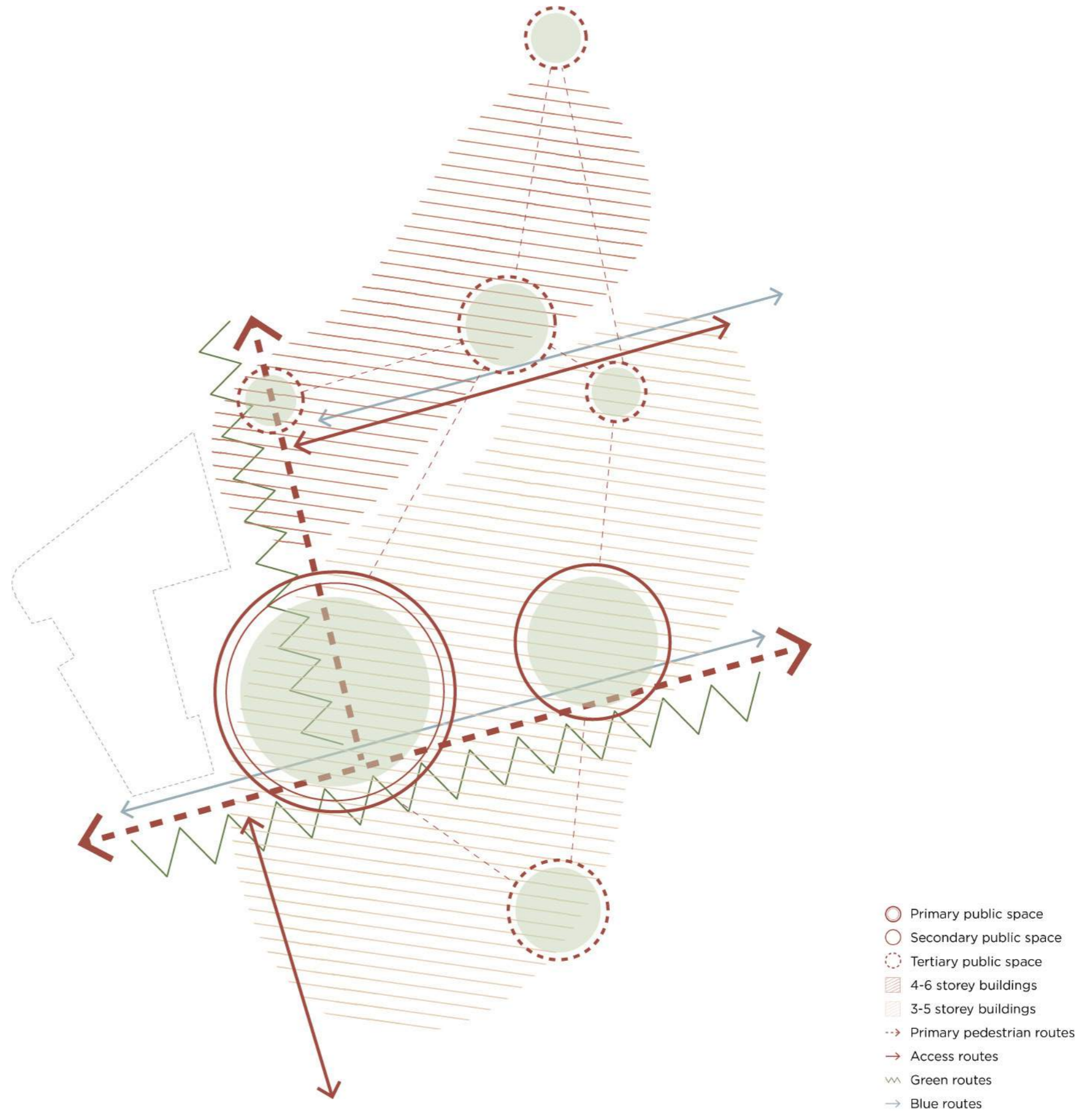
2.0 CONTEXT

2.1 DESIGN CODE PRINCIPLES

This design code provides a simple set of design requirements that will help to provide a visual aid to set the parameters for the future development of the site. The proposed Strategic Framework has been developed through the analysis of the current context of the Southgate Site.

The design code should be used to inform development proposals, providing clarity about design guidelines and expectations that reflect the local character of Huddersfield Town. This is not a prescriptive guide, however it has been tailored to reflect the local contextual settings and heritage characteristics for future development.

This design code describes the principles behind the vision and framework for the proposed masterplan and future developments to create healthy, greener, environmentally responsive and distinctive world class facilities.



- Primary public space
- Secondary public space
- Tertiary public space
- ▨ 4-6 storey buildings
- ▨ 3-5 storey buildings
- Primary pedestrian routes
- Access routes
- ↘ Green routes
- Blue routes

2.2 CURRENT CONTEXT

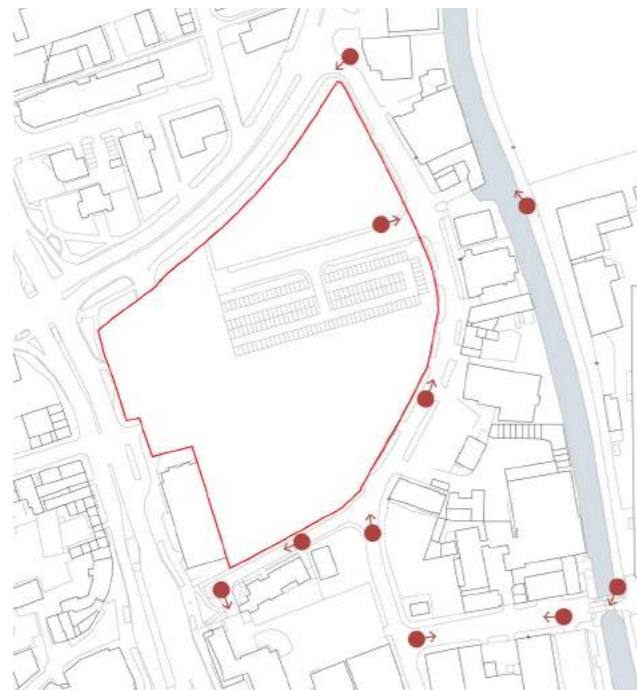
The current surrounding context of the site is mainly old industrial mills and light industrial buildings. Huddersfield Broad Canal sits to the East of the site, with access along it from the South and North and then across the canal bridge. Taller mills sit along the boundary with the canal with lower industrial surrounding. Boarding surrounds the site, with no access currently onto the site aside from Pine Street.



1. Canal bridge over the Broad Canal



2. View north west down Quay St



3. View west down Quay St towards the canal bridge



4. View north up the Broad canal



5. View north down Watergate



6. View south west up Old Leeds Rd



7. View south towards BT openreach building



8. View north up Old Leeds Rd



9. View west from the junction of Pine St and Old Leeds Rd



10. View south west on the junction of Leeds Rd and Old Leeds Rd

2.3 PHYSICAL ATTRIBUTES

The Southgate Site is currently occupied by a car park owned and run by Kirklees Council, but now in the ownership of the University of Huddersfield. This is the only activity which remains on the site. Pine Street is the access road into the heart of the site, an existing road and pavement which has space for car parking along it.

The topography of the site is sloped and rough. There is a significant level change across the site - from West to East the site falls by approximately 7m. This provides a challenge for developing the site in a way that is accessible for all.



Pine Street and Pine Street car park



Level changes from Crown House

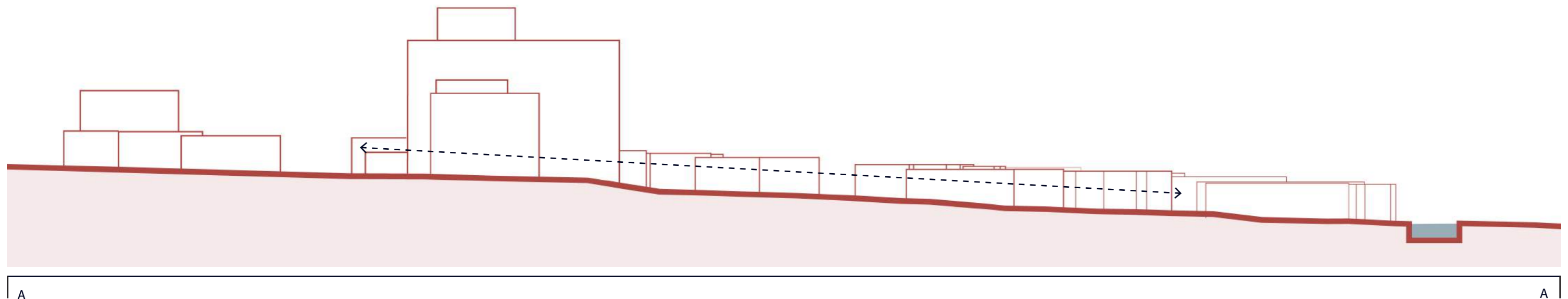


Fig 2.8.2 - Site section looking north, showing level change from east to west

2.4 ASPECT

The site has 4 main aspects:

South - Immediately to the south of the site is Crown House, an imposing 9 storey tower. Beyond Crown House, is a BT openreach building and a Sainsbury's Supermarket and petrol station. On the other side of Southgate, buildings from the Town Centre back onto the road until Kingsgate Shopping Centre and multi storey sit prominently on the roundabout where the University of Huddersfield buildings then come into view.

West - To the West of the site is the Town Centre. Backs of shops and some frontage overlook the site. The steeple of St Peter's Church rises above the York stone buildings of the Town Centre which defines the close proximity and relationship that this site has to the centre of Huddersfield.

East - To the East the site runs down to Huddersfield Broad Canal. Pine street car park sits within the land between the canal and the site, which will be retained within the first phase of masterplan implementation. The rest of the land is currently disused, however will become the Southgate Masterplan. Beyond this, existing mill buildings line the canal, and light industrial sheds which are still occupied are littered within this area - the area also provides some opportunity for future development.

North - Immediately to the North of the site are low level industrial sheds as well as the residential tower of Harold Wilson Court. Beyond this the gas works sits as a the highest point to connect back to the building.



View east towards Broad Canal



View north towards Leeds Road



View south towards University of Huddersfield campus



View west towards Huddersfield town centre

2.5 APPEARANCE (DETAIL AND MATERIAL)

The strong and varied historical background to Huddersfield means that there are a number of materials considered common in the town. Whilst many of the civic buildings such as the Post Office, Station, St Peters Church and St George Hotel use a local Sandstone as their primary material, many of the buildings and surrounding houses close to the site use a vernacular brick. The nearby university uses a mix of both stone, brick and metal clad buildings with many more recent ones using contemporary detailing of these materials.

This suggests there is a fairly varied material palette in the town, although sandstone is considered a dominant material.

Huddersfield Station – completed between 1846-50, the station was designed by JP Pritchett and sits on the original Manchester to Leeds line which now extends to the East and West coasts of England.

George Hotel – Opened in 1851, the hotel was developed to support the requirements of the adjacent railway station and was famously the venue where the Northern Rugby Football Union was established in 1895. The 60 bedroom hotel is currently undergoing a significant refurbishment and is currently closed.

The Mechanics Institution – with construction commenced in 1859, the institute is well proportioned sandstone building dominated by 3 blind arches to its frontage. More recently, it has been redeveloped into 21 loft apartments.

Post Office – In the early 20th century, the new Post Office was opened. Designed by post office architect, Charles P Wilkinson, the building is now listed. It also has an addition to the rear made in 1968 to accommodate mechanised sorting equipment. The Post Office has been re-located within the Town Centre, the building now unused, however the sorting office remains in function. This is a key point for re-development within the Huddersfield Blueprint, with residential and co-working spaces proposed.

Open Market – opened in 1888, the listed market hall is constructed from cast iron and glass with a colourful treatment to the external metal dominating the street along with its intricate detailing.

St Peters Church – Constructed in 1836, the site has had a church located

here since 1073. J P Pritchett was the architect for the current church which uses local sandstone. Further updates were made in the 19th century by acclaimed architect of the time William Butterfield. Further additions have been added more recently.

Oastler Building – completed in 2017, this confident building is located on a prominent gateway to the university campus and combines local sandstone with glazing then wrapped in brise soleil.

Barbara Hepworth Building – in 2019, the university completed its latest major new building for the School of Art Design and Architecture. This has established a new standard for quality of architecture in the town and has secured numerous awards for its design.



Huddersfield Station



George Hotel



The Mechanics Institution



Open Market



Oastler Building



Post Office



St Peters Church



Barbara Hepworth Building

3.0 STRATEGIC FRAMEWORK

3.0 STRATEGIC FRAMEWORK

The Vision

The overarching vision for the Southgate site is a world class leading National Health Innovation Campus which integrates health and well-being outcomes into its values as a place. The campus will be a place where people will come to learn, innovate, research, communicate and share the role that health will play in the future success of Huddersfield and Kirklees. The new masterplan carefully considers an environment where relationships between academics, businesses and the public are actively encouraged.

The Framework

The framework is a guide for the strategic development of the Southgate masterplan site, and will direct the trajectory of Southgate in becoming an innovative world class National Health Innovation Campus. The strategic framework diagram sits as a conceptual overview of the site, taking into consideration the key principles that have been developed, all of which are centred around driving the aspiration for a Health Innovation Campus.

The framework targets five key objectives;

Walkability

The objective is to improve connectivity through the site and into Huddersfield town centre through the means of well designed public realm and walking routes.

Human Dimension

The objective is to provide a sense of enclosure and activity within the masterplan and create a place which feels accessible for all users.

Sustainability

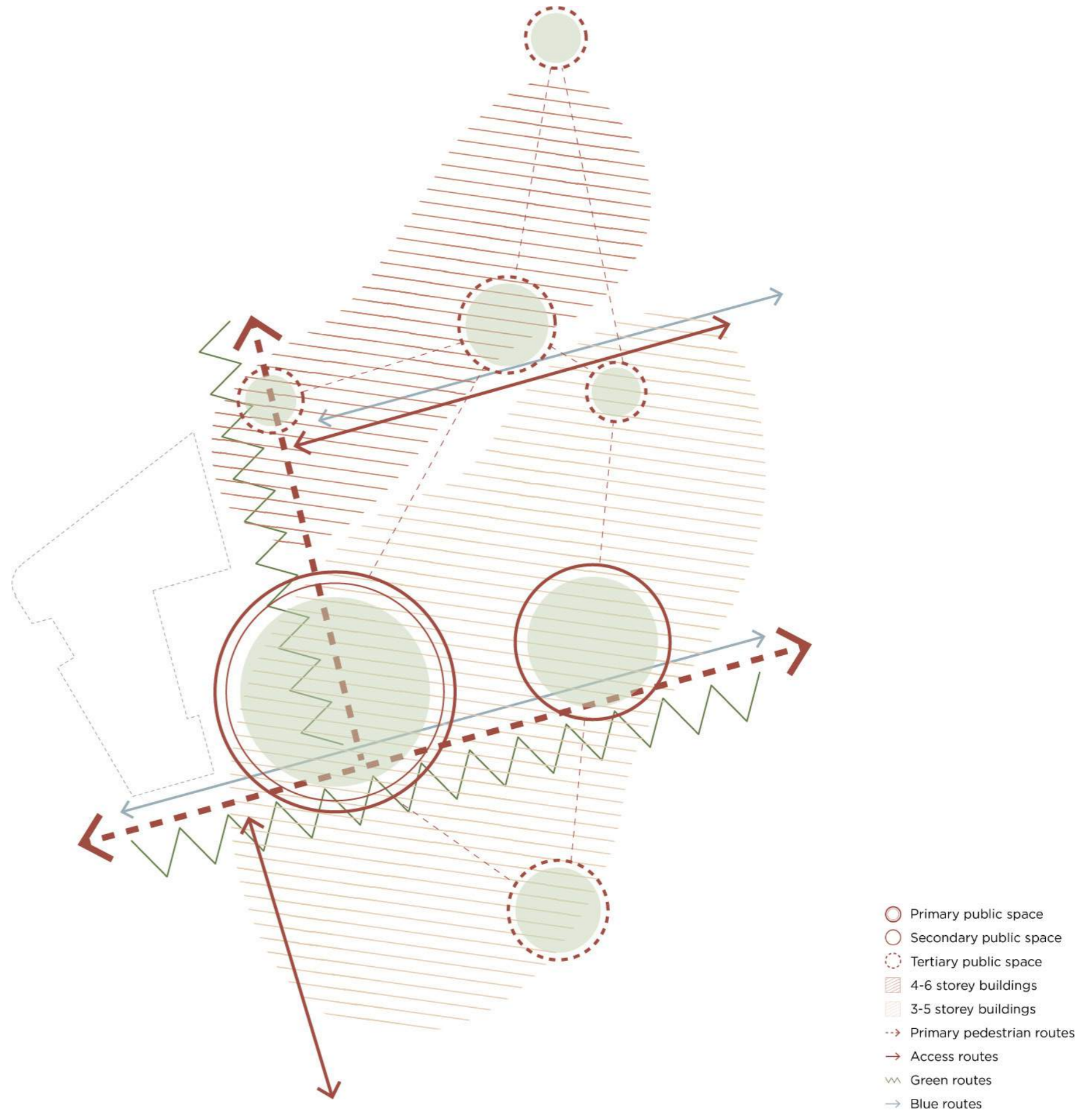
The objective is to create a place which promotes health and environmental welfare through its built environment and landscape.

Built Form

The objective is to connect the site with the existing urban context, creating a place which is legible for its users and in keeping with the vernacular of Huddersfield.

Future Campus

The objective is to create an academic campus which can project and adapt to the needs of future users as well as to users today.



3.1 Walkability

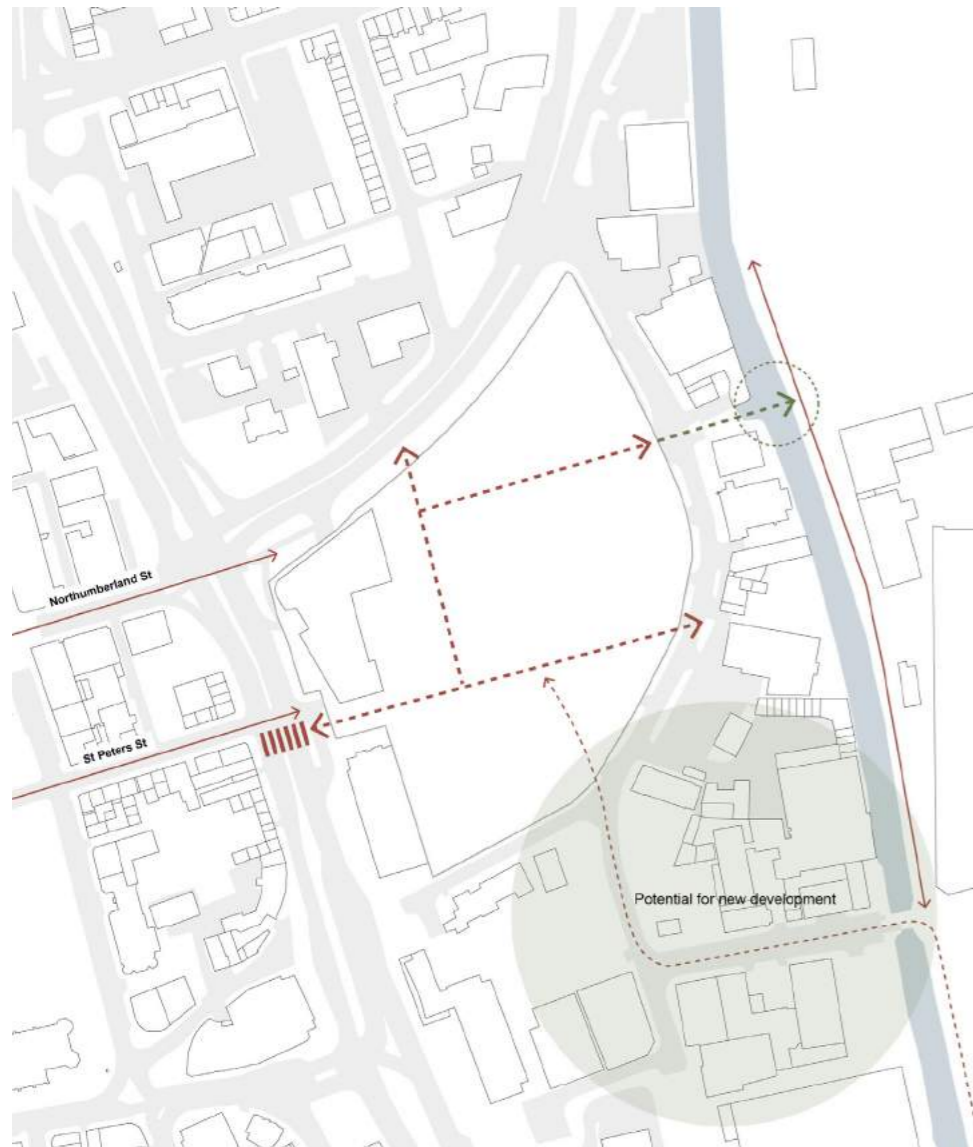
Creating a walk-able campus is a key aspect of designing a sustainable place where people want to be and where people want to engage. The scale of Huddersfield town centre and its proximity to the The University of Huddersfield Queensgate Campus allows for the site to easily be accessed by foot. The site is also within walking distance of key landmarks throughout the Town Centre, including Queensgate Market and Huddersfield train station, as well as being situated on the Station to Stadium route. The southgate site is also of an ample size that every point can be reached easily by foot from a number of locations throughout the town centre.

A walk-able campus will promote the health and well-being aspect of the innovation campus and encourage healthy lifestyles for all its users. Walkability has been considered throughout every aspect of this framework, from the public realm through to the built form.

Pedestrian routes have been considered as the primary routes through the site, stretching from east to west and north to south. A boulevard will become the connective avenue, connecting public spaces and buildings along the route. Key public spaces have been placed at specific points so that when the user is walking through the site, they can access a variety of spaces which connect into each other.

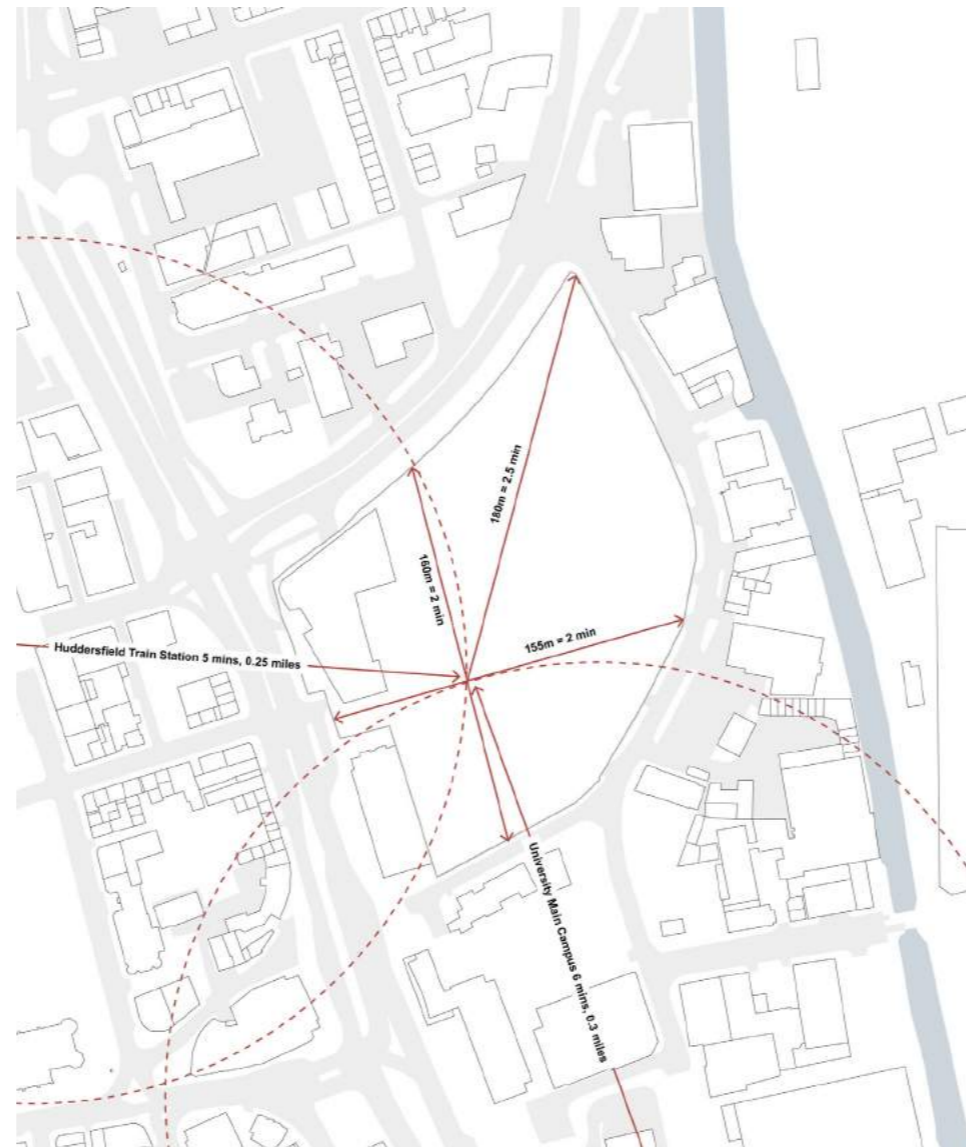
Within the built form of the building walkability will also become a factor. Buildings at ground level should be permeable and open, allowing for visual connection as well as physical. Opportunities to walk through covered spaces should also be present, as well as opportunities to walk through buildings as a connective route. Building heights become a key consideration in terms of walkability. Building heights should be no more than 6 storeys so that buildings can be walk-able and users able to use stairs to access every floor. At this height building users can still be connected to those at ground level and that activity happening on the street.

Pedestrian Routes



- ■ ■ Primary pedestrian routes through site
- Existing pedestrian routes
- · · Temporary access route, initial phases
- ■ ■ Primary pedestrian routes through site
- Proposed new pedestrian bridge over canal
- ▨ Proposed location for a new pedestrian crossing

Walking Distances



- Key walking distances through site
- · · Walking radius to key places

Hierarchy of Public Space



- Primary space
- Secondary space
- Tertiary space

3.2 Sustainability

Sustainability strategies are at the core of the masterplan design. When promoting health and well-being within the masterplan, it is vital that sustainable methods are implemented across the site and are therefore woven into multiple elements of the strategic framework.

Connecting into the local biodiversity and promoting green space will be key. The strategies implemented throughout the masterplan will provide a range of green space throughout both the public realm and the built form. This in turn will encourage the development of local plants and wildlife, as well as supporting and actively encouraging ecosystems.

The masterplan will strive to meet the University of Huddersfield's 2030 carbon zero/neutral strategy. Therefore, all building processes involved in the development of the National Health Innovation Campus will target these standards. Where possible, buildings should meet environmental standards such as WELL and BREEAM, and aim to be carbon zero/neutral in their output.

Building design will play a key role. A minimum width of all buildings is set out so that all buildings can be naturally ventilated. The layout of building blocks in relation to each other will be considered so that each building can maximise natural daylighting. This will also be a consideration for public space, with primary public spaces facing southwards and being uninterrupted by the shadows of buildings nearby.

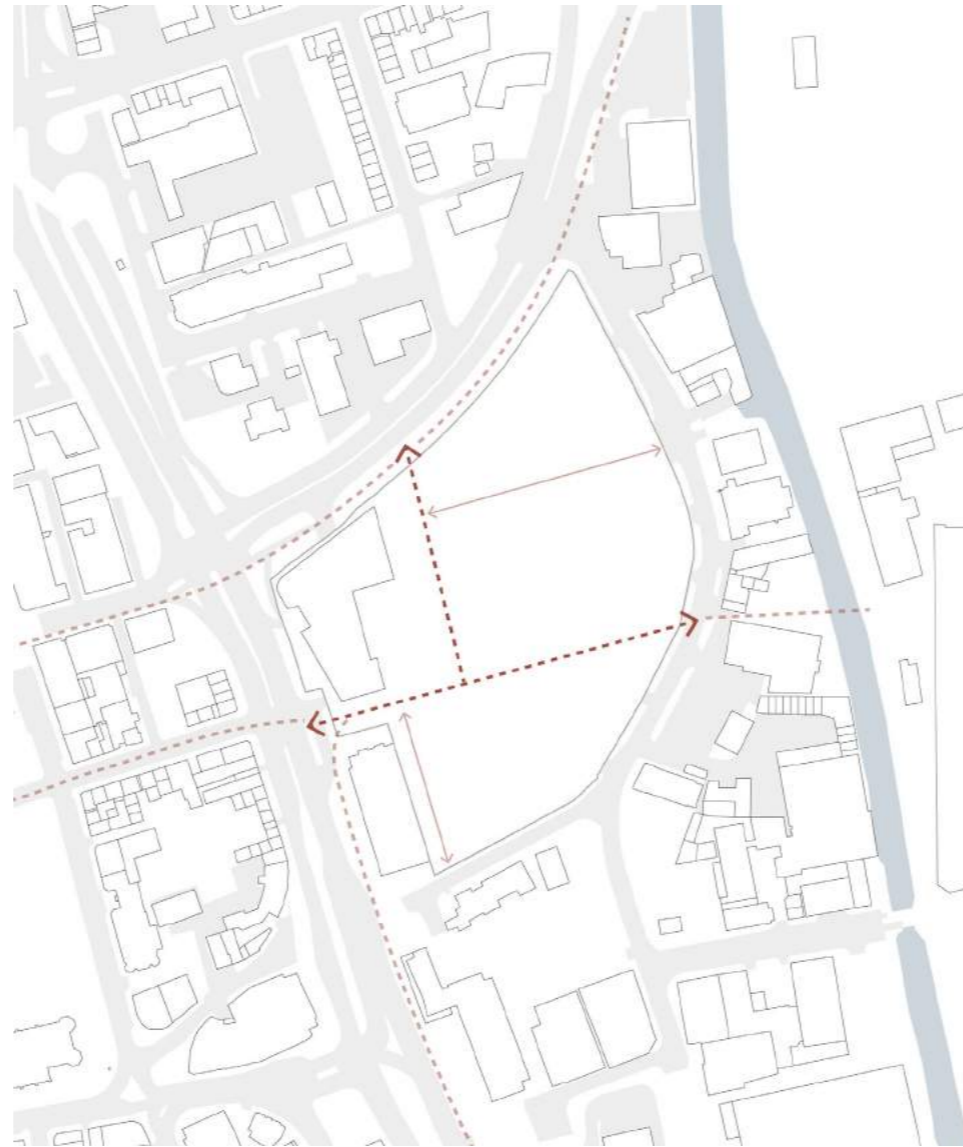
Sustainable transport methods other than walking will also be accommodated for on site. A sustainable transport hub will sit central to the site and provide cycle storage, scooter hire and electric car charging points. Cycle lanes will pass through the site which connect into existing cycle lanes in Huddersfield. Opportunities for parking bikes will also be available across the site as well as the sustainable transport hub.

Green and Blue Infrastructure



- Green Routes
- Water Routes
- Trees on the streets

Social Sustainability



- Public routes through the site
- Local pedestrian routes

Sustainable Transport



- Key cycle routes through the site
- Local cycle routes
- Sustainable transport hub
- Cycle/Scooter parking

3.5 Sustainable Drainage

Incorporating sustainable methods of drainage within the masterplan is a simple and effective way of preparing the campus for resilience against the effects of climate change. As the ground slopes down towards the canal from the town centre, the site becomes a good opportunity to introduce drainage solutions.

Providing a variety of sustainable drainage methods throughout the site, allows the site itself to become an educational and academic opportunity to learn about these types of systems. The elements can be studied by both students and academics and become test beds for advancing technologies and systems.

Bioswales

Bioswales are shallow channels designed to capture and infiltrate stormwater run off as it moves. The bioswales maximise the amount of time water spends in the swale which then aids the collection and removal of pollutants, silt and debris. These channels are typically vegetated and can therefore contribute to increasing biodiversity within the masterplan.

Rainwater Gardens

Rainwater gardens are smaller than bioswale channels but act in a similar way for collecting rainwater and drainage. These gardens can be implemented in strategic areas across the masterplan. Whereas the bioswale channel will run through the core of the site, rain-gardens will be able to support sustainable drainage throughout.

Permeable Paving

Throughout the masterplan permeable paving can be implemented into areas that would otherwise be paved. By reducing the amount of hard impermeable surface across the site, drainage is encouraged.

Green Roofs

An additional level of consideration for sustainable drainage throughout the site is to provide green roofs. Green roofs allow for rainwater to be absorbed into its system and can significantly reduce the amount of rainwater that would otherwise run off the roof quickly.

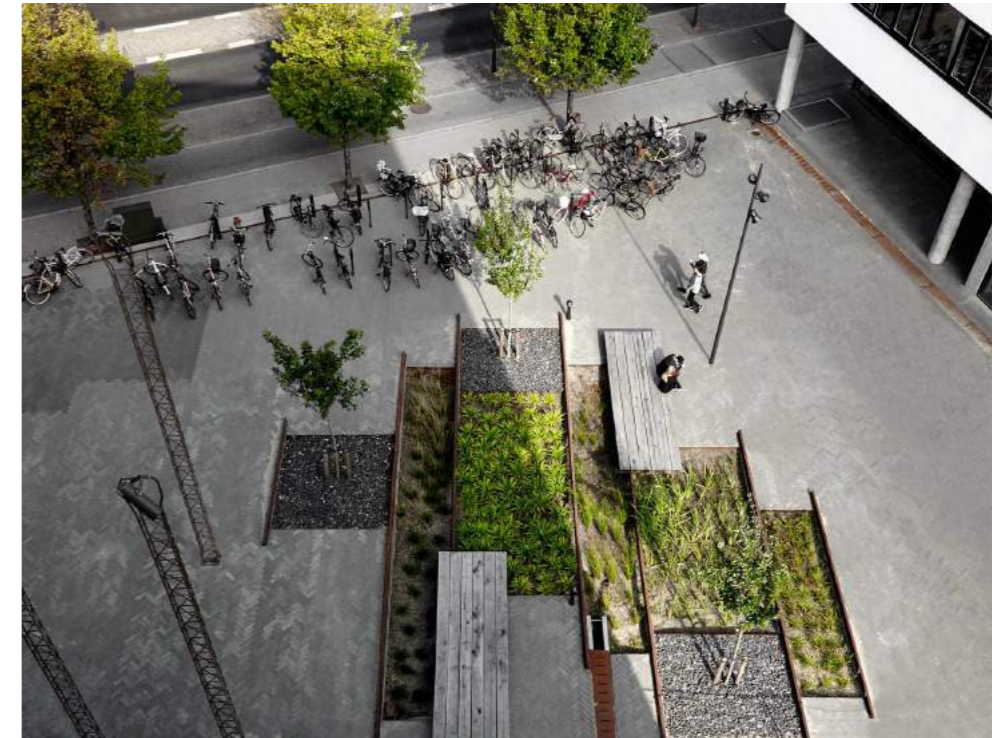
Example 1: The Hive Worcester Library, Grant Associates



The Hive is a unique academic, educational learning centre which is a joint university and public library for the University of Worcester and the City of Worcester. This shared public realm has to respond to the concern of seasonal flooding from the nearby River Severn.

The water meadow is a low maintenance landscape solution which deals with sustainable urban drainage. Rainwater and surface water is filtered through the reed bed swales. It is planted with locally sourced seeds so it can bloom when not in use for drainage.

Example 2: Godsbanearalet, Polyform



Godsbanearalet which translates to 'freight train area' is a sustainable city district in Aalborg, Denmark. The industrial heritage of the area has contributed to its identity, and these spaces have been transformed to accommodate sustainable landscaping methods for its future.

Rainwater management is incorporated throughout the masterplan. SUDs are integrated into the site, with lawns and sports facilities placed at specific levels and rain-gardens throughout the site to capture rainfall. Green roofs are placed around the site to help delay water.

Proposed Bioswales

Drainage for trees

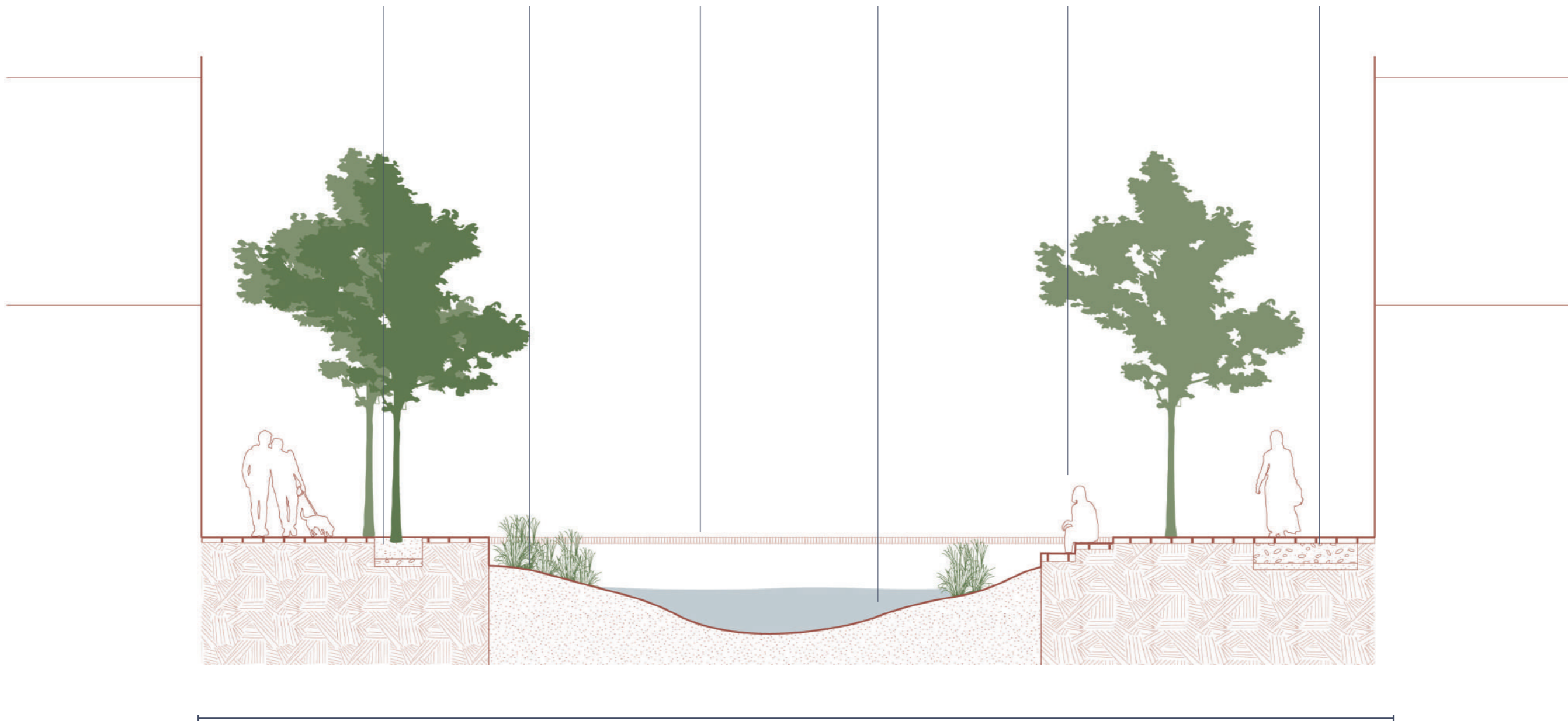
Local species planted within the bioswale

Walkways across the bioswale

Bioswale fills with rainwater

Stepped seating along the swale

Permeable paving



Pedestrian Boulevard

3.3 Built Form

The built form is a key consideration for the formation of place. The masterplan will sit within the context of Huddersfield and will aim to integrate itself into the existing urban structure. The built form will also contribute to the overall health and well-being appeal of the masterplan. Through strategic design, micro-climates can be formed, pleasant spaces created and buildings which encourage biophilia be present across the site.

Building heights is a key consideration throughout the masterplan design. Heights should be respectful of those in the immediate surrounding context. Taller buildings should line Southgate, acting as a acoustic barrier for the site. It is proposed that shorter buildings should be placed at the centre of the site, with slightly higher buildings at the edge. This is to minimise the impact of wind within the masterplan, aiming to create pleasant spaces within the masterplan.

Asymmetrical building footprints are also encouraged strategically across the site. This contributes to the formation of a range of different types of spaces, promoting smaller micro-climates and interest within the public realm. Fronts and backs of buildings should also be well defined, thus allowing the masterplan to be clearly legible for all users. Building service access should be placed in strategic locations, allowing ease of access with minimal disruption.

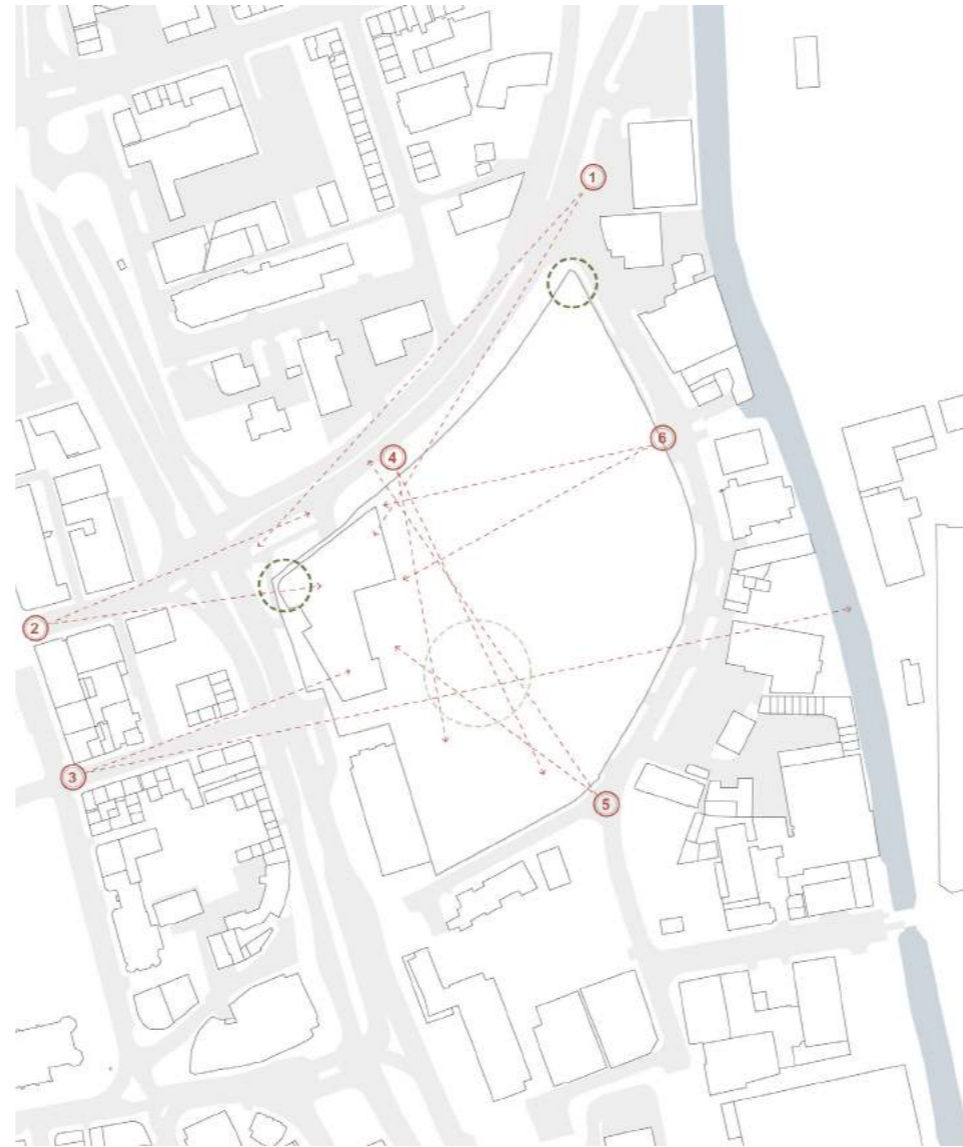
Throughout the buildings, space should be created for a range of external spaces. This, in turn, will promote positive health and well-being through providing opportunities for access to the outdoors and green spaces within the masterplan. Building roofs should also be considered as opportunities for green spaces to allow a connection to nature on various levels.

Building Heights



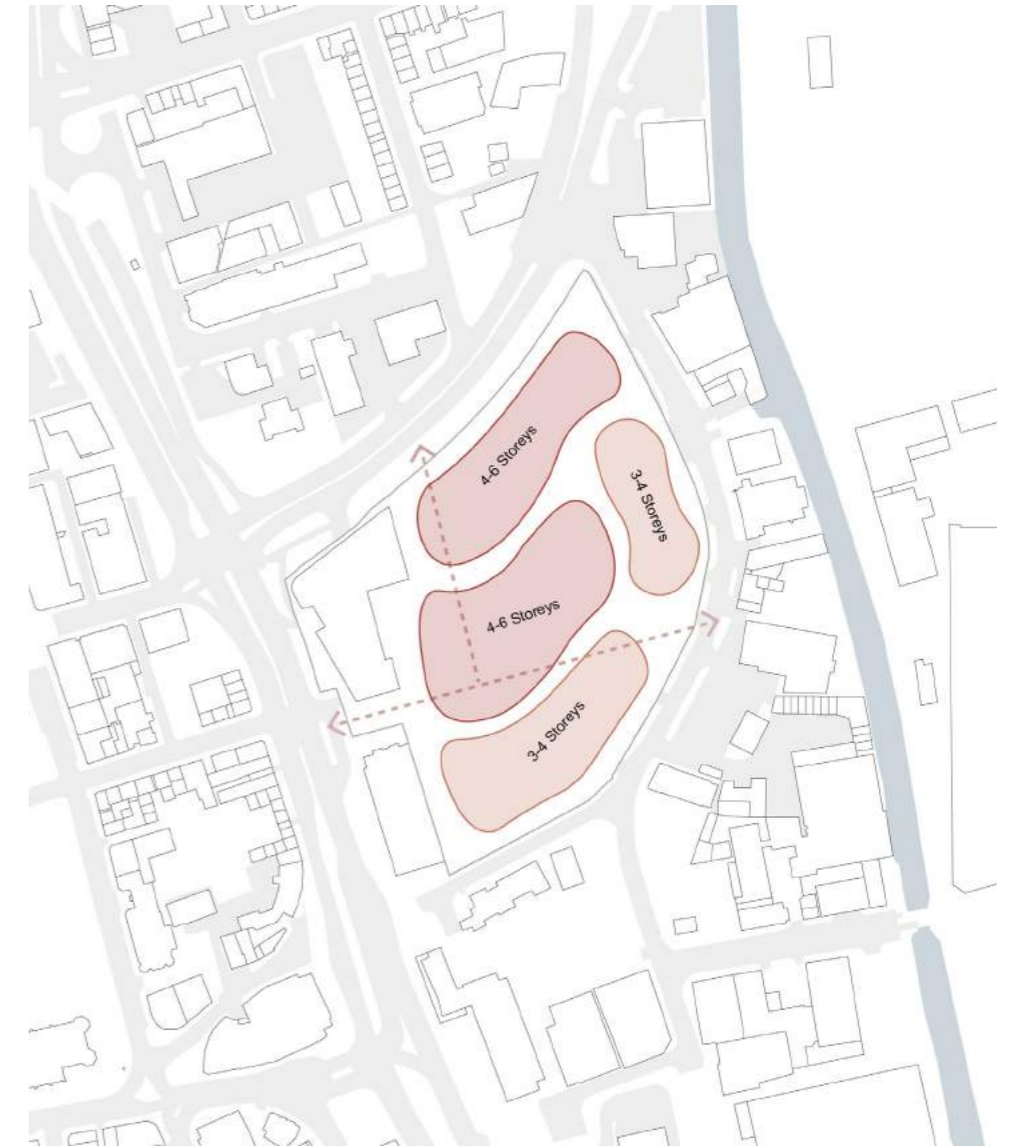
- 1-2 Storeys
- 3-4 Storeys
- 5-6 Storeys
- 7+ Storeys

Maintaining key Views



1. View along Leeds Rd
2. View down Northumberland Street
3. View down St Peter's Street
4. View from Leeds Rd
5. View from Old Leeds Rd
6. View up Pine Street

Height Strategy



- Proposed 3-4 Storeys
- Proposed 4-6 Storeys

3.4 Human Dimension

Designing spaces catered to the human dimension places value on people and how they will use the space. A series of strategies will be applied throughout the masterplan which will allow the users to subconsciously and consciously experience the spaces in between the buildings and the relationship between these spaces in a positive way. These strategies will therefore encourage accessibility for all throughout the masterplan and enable Southgate to become a place filled with activity and engagement.

In creating a space tailored towards human dimensions, one of the key considerations should be the size of spaces created. Public spaces should be designed around how the user feels in space. In order to allow users of the space to maintain visual and auditory connection to other users, dimensions should be kept to an optimum size. Through providing a variety of spaces utilising different shapes and sizes, and with differing levels of privacy, a diverse landscape will be created which gives options for all types of user.

As the user moves through the site, legibility will be clear. An established road hierarchy will reflect the streets within Huddersfield to create a familiarity within the streetscape, allowing the masterplan to compliment and sit well within the existing urban structure. Pedestrian routes will have priority throughout the site, with Pine St becoming the only access road for servicing buildings. Pine St will still however be designed for the pedestrian and cyclists to promote access through the site.

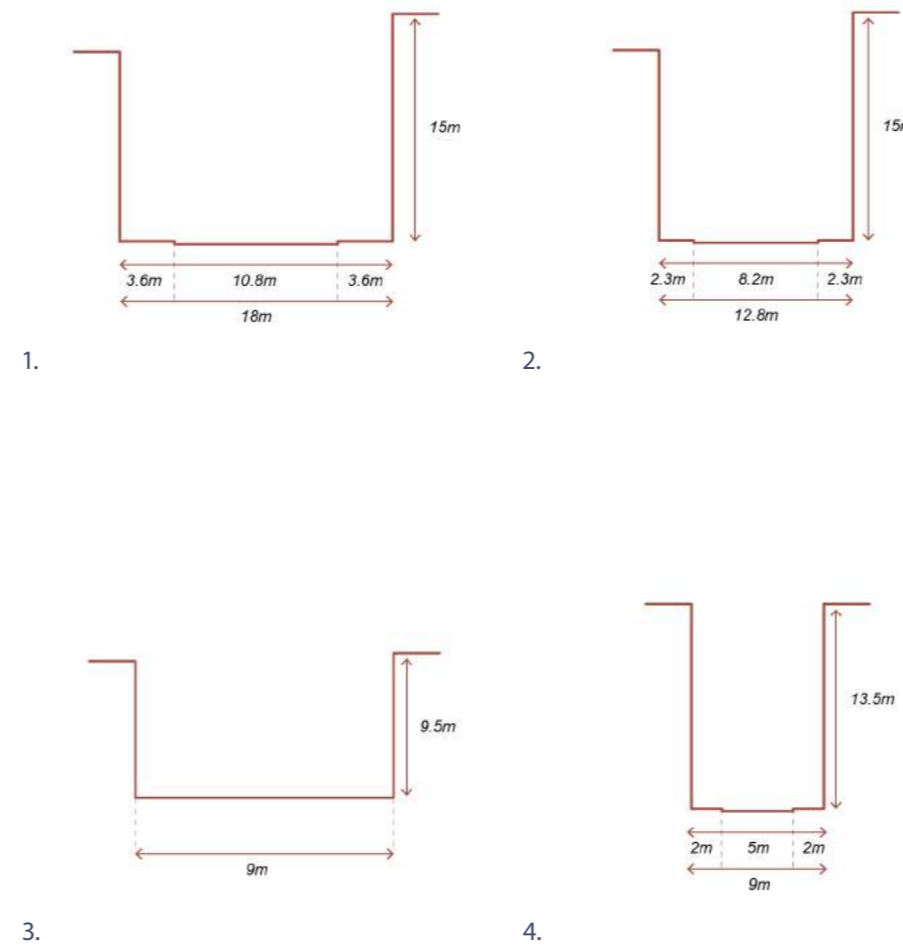
To ensure that the masterplan is active at all times which will also contribute to the security on site, mixed uses will be encouraged throughout. Uses should be well considered throughout the site and placed strategically.

Road Hierarchy



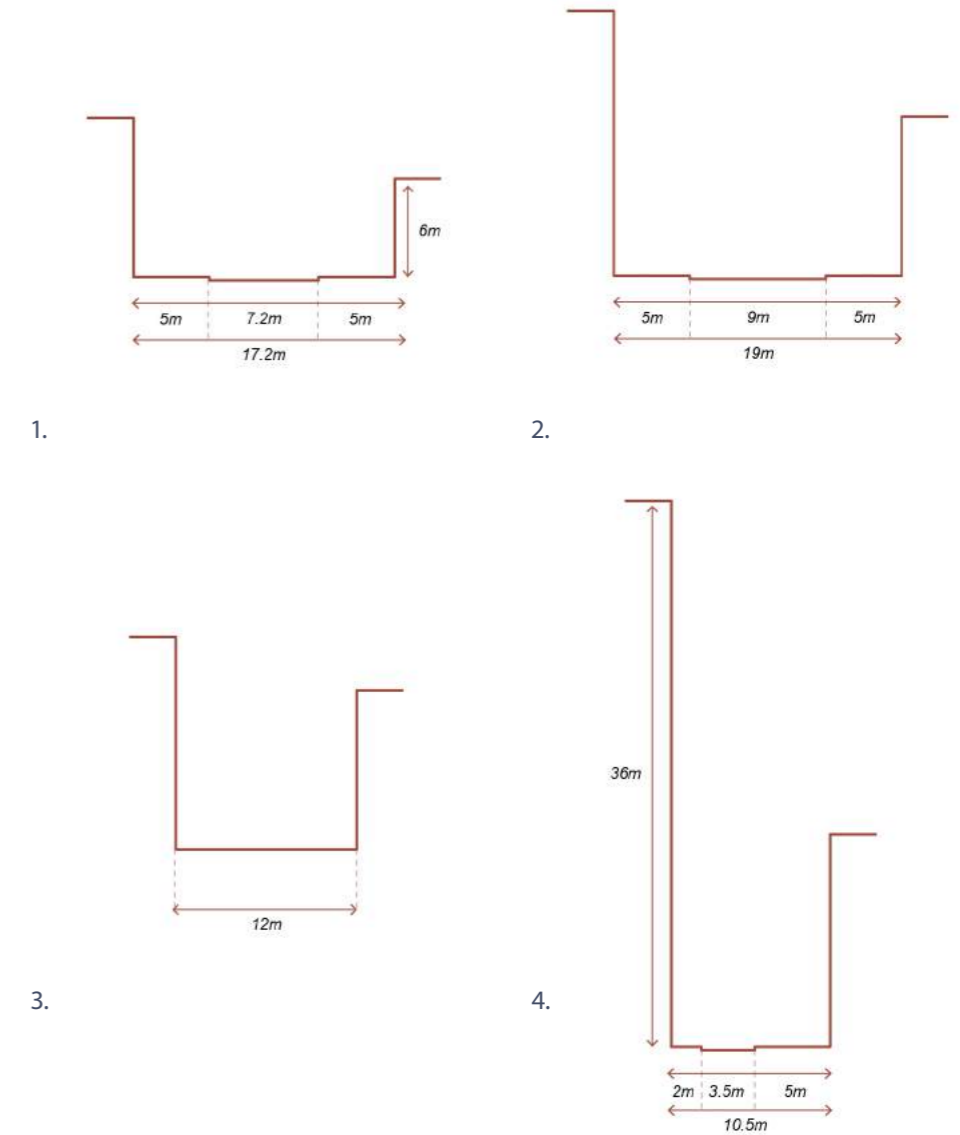
- Primary Road
- Secondary Road
- Tertiary Road

Street Ratios, Existing in Huddersfield



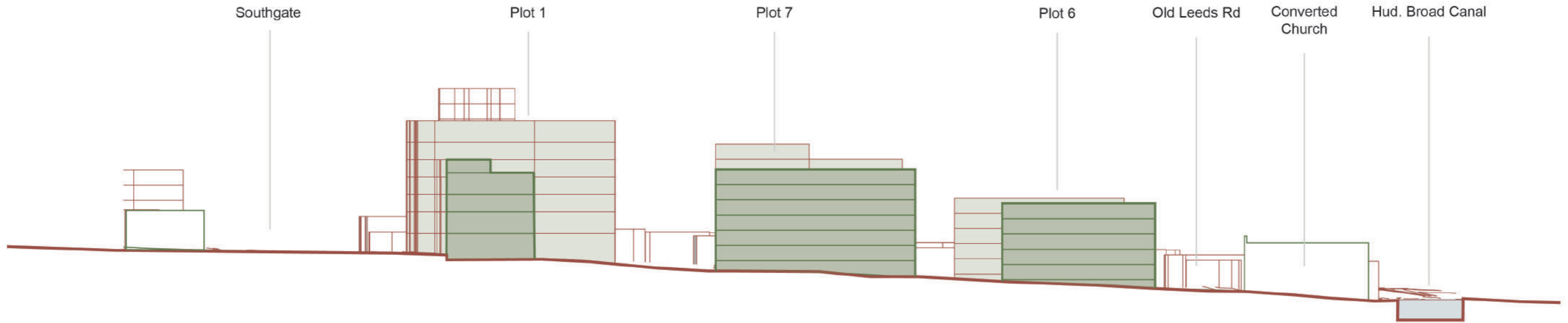
1. Northumberland Road
2. St Peter's Street
3. Church Street
4. New Street, Pedestrianised

Street Ratios, Proposed Masterplan

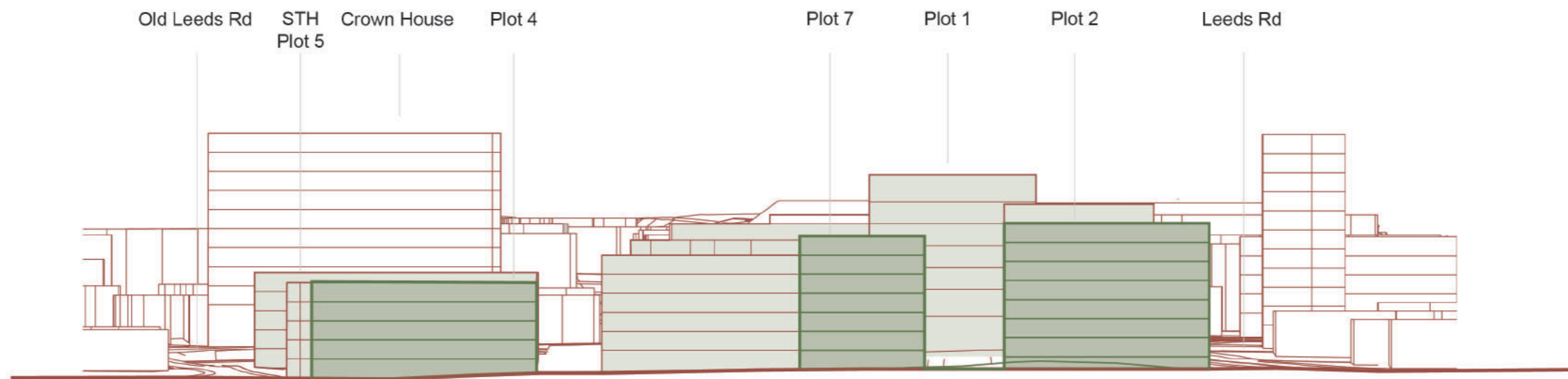


1. Primary Street
2. Secondary Street
3. Pedestrian Route
4. Tertiary Street

Building Heights, West to East

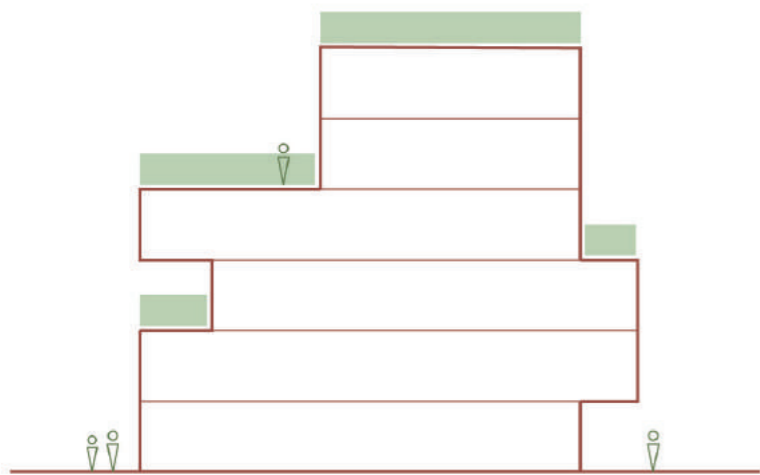


Building Heights, North to South

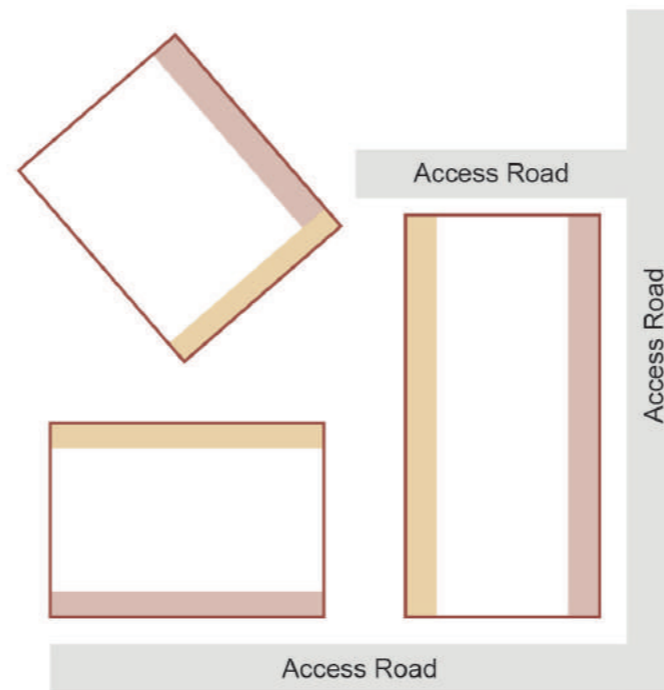


■ Proposed heights □ Existing

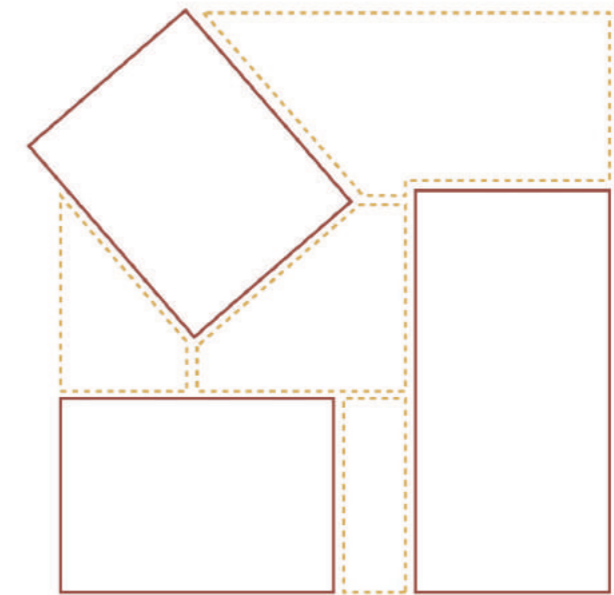
External Spaces within buildings



Front and Backs Defined



Asymmetrical Geometry

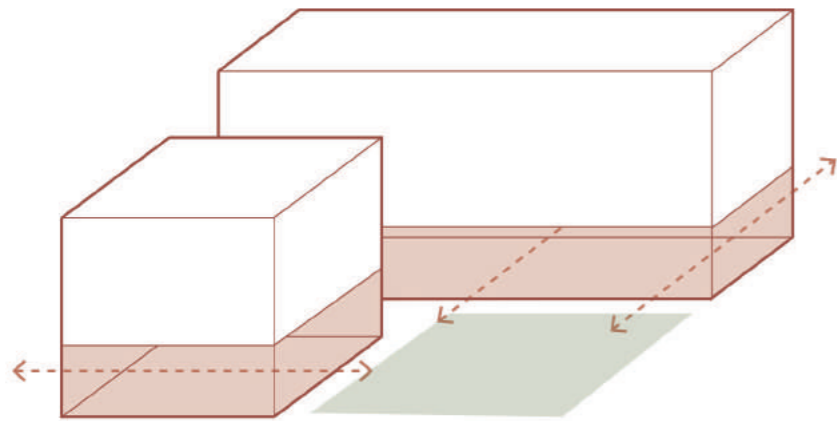


External spaces should exist within buildings as well as within the public realm. This can be achieved through roof gardens and terraces in buildings.

Fronts and backs of buildings should be obvious, with backs strategically placed where they can be easily accessible. Fronts should face onto key spaces and primary routes, whereas the backs should face onto access roads or tertiary streets.

Asymmetrical geometry creates opportunities for a range of different sizes of space. Smaller enclosed spaces can be easily created and add interest for the pedestrian.

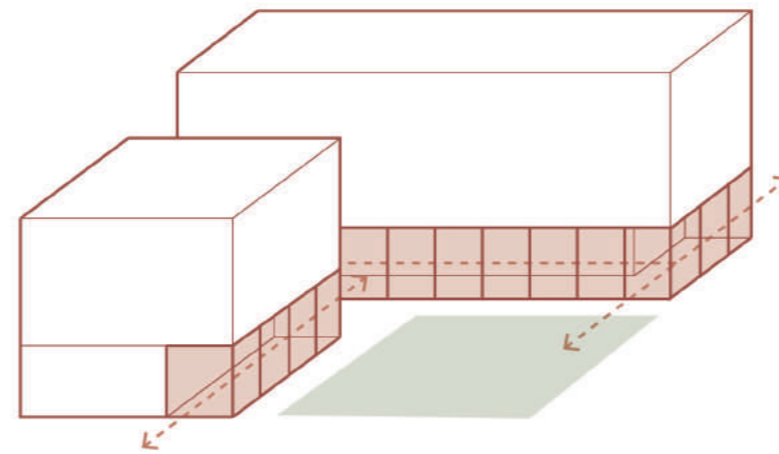
Accessible Ground Floor



- Active ground floor
- Key public realm

An active and accessible ground floor allows pedestrians ease of access to buildings, or to be able to use buildings as a through route. Transparency within façades will also increase visual connection.

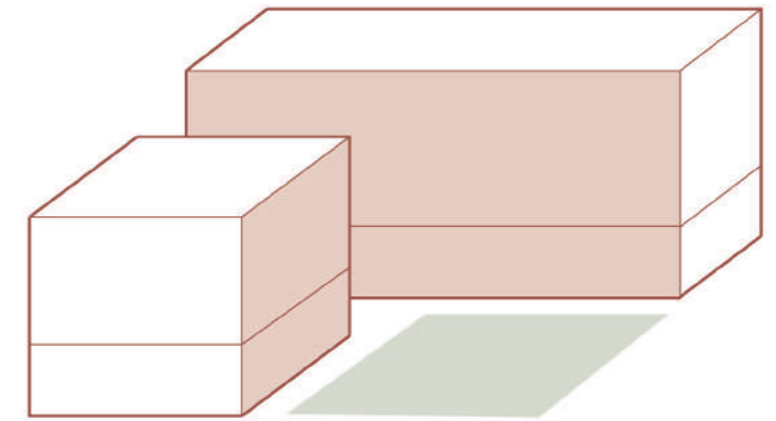
Covered Walking Routes



- Covered walking route
- Key public realm

Covered walking spaces to be used at key points to allow for pedestrians to travel through the site with protection from the elements.

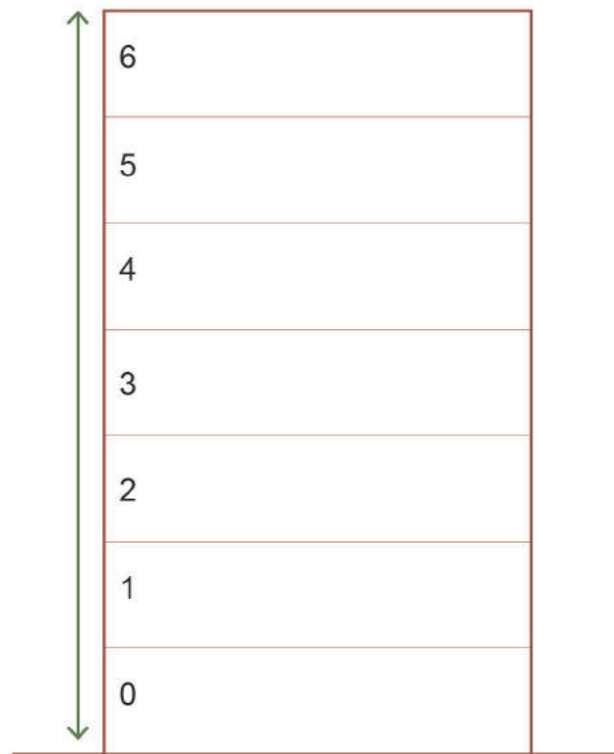
Active Frontages



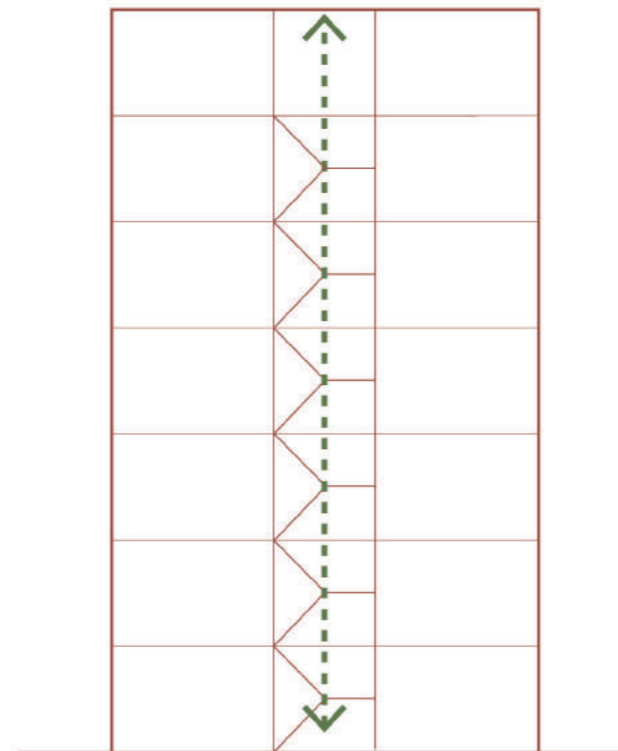
- Active frontage
- Key public realm

In relation to the hierarchy of public space, key frontages should line the primary and secondary spaces to activate the space. Entrances should be clear throughout the site.

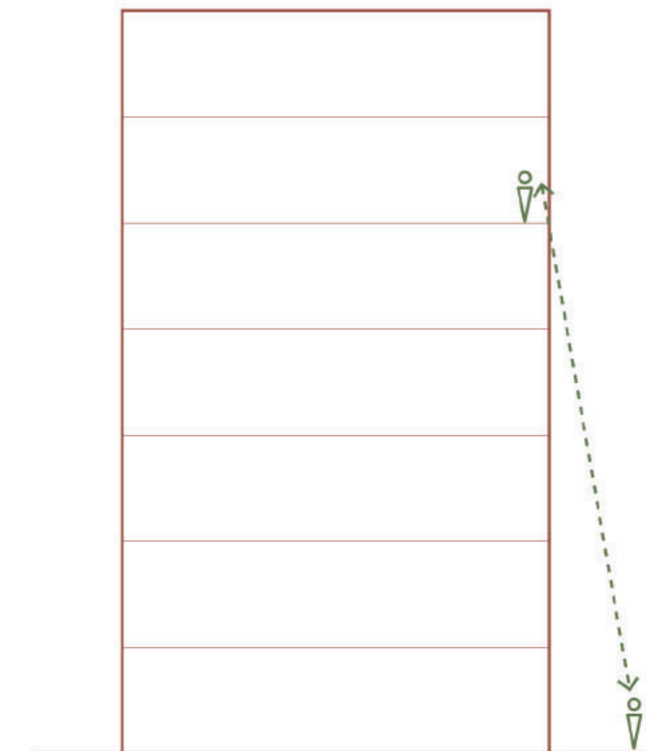
Maximum 4-6 Storey



Accessible Buildings



Connection to the street



Building heights should be between 4-6 storeys. Buildings at this height are generally more legible to people at ground level and give opportunities to achieve high densities without reverting to less efficient tall buildings.

With the buildings limited to 4-6 storeys this allows for access to all floors to be walk-able and accessed by stairs.

By maintaining a 4-6 storey maximum height for all buildings, users will feel as though they have a continual connection to activity and nature within the street.

3.4 HUMAN DIMENSION

Clarity of Building Silhouettes

The creation of a set-back on the uppermost floor, can greatly help to reduce the overall mass and scale of a building.

An upper level set back can greatly enhance the provision of amenity space, in order to promote bio-diversity through the introduction of rooftop planting, which can also provide health and well-being benefits for building occupants.

A set-back is encouraged where roof top plant is required and this should be appropriately designed with screening, so that its appearance is diminished as a result of viewing angles from ground floor level. Roof top plant should be suitably screened utilising mesh, louvred or cladding panel systems, that complement the materials used for the primary facade of the building.

Suitable edge protection, to prevent risk of falling, should be considered, when composing the elevations to create attractive, safe and accessible roof top terrace areas. Key clamp and ballast mounted edge protection should be avoided.

1. Roof top garden amenity space to promote well-being.
2. Set-back to incorporate amenity space & conceal plant on the roof & reduce overall massing.
3. Set-back to reduce appearance of overall massing.
4. Combination of green space and glazing.



1.



2.



3.



4.

Set Back Upper Floor

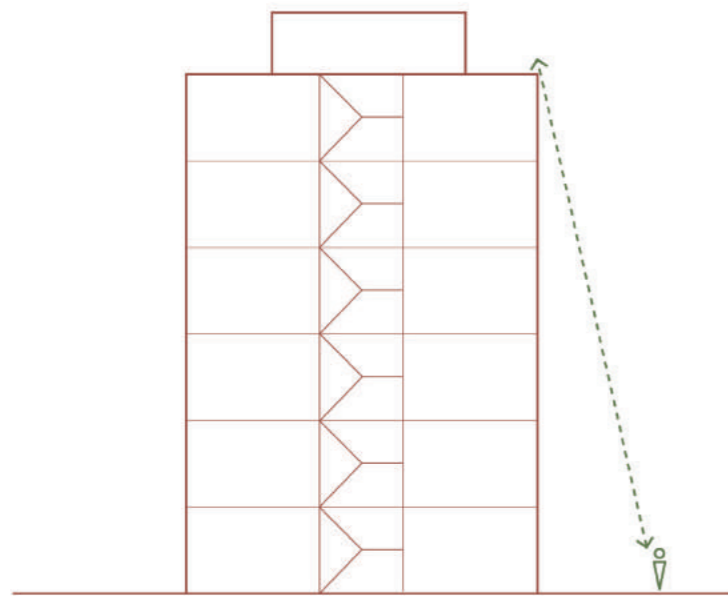
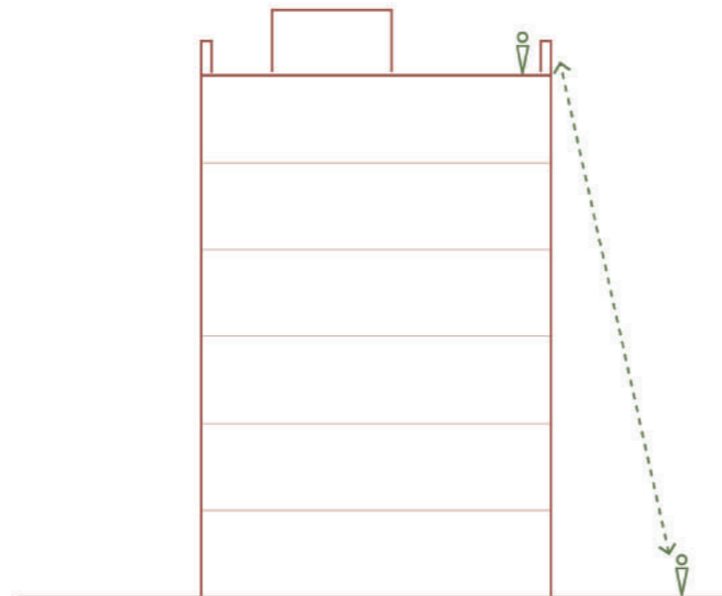


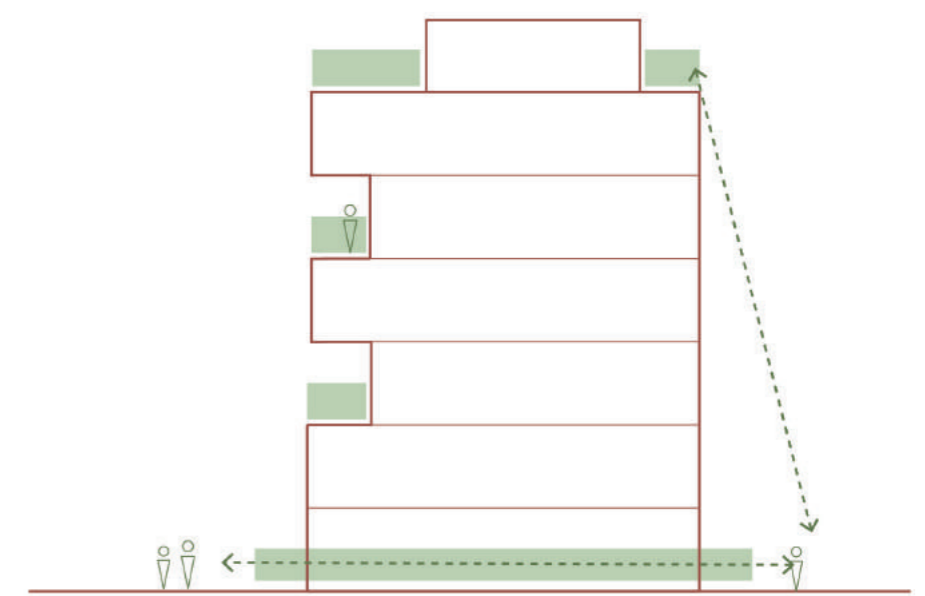
Diagram illustrates how external amenity space can be designed integrally to the building at multiple levels, providing access to occupants at all levels, whilst enhancing opportunities for bio-diversity and improving the appearance of a building.

Incorporation Roof Gardens to Screen Plant



Creation of a set-back for masking roof-top accretions, such as plant rooms and equipment, with suitable screening, helps to reduce their impact on the elevation treatment and composition of a building.

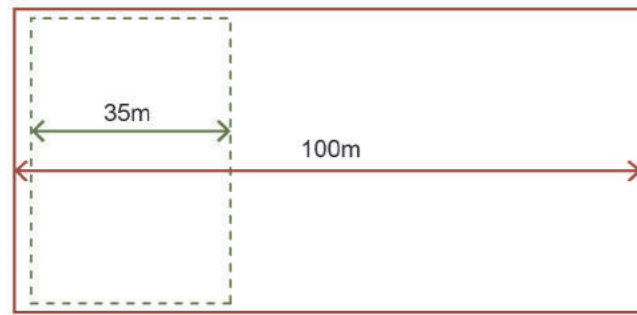
Incorporation Green Space & Roof Gardens



Suitable edge protection, to prevent risk of falling, should be considered, when composing the elevations to create attractive, safe and accessible roof top terrace areas. Provision of parapets, designed integrally within the facade should be considered at the outset of the project.

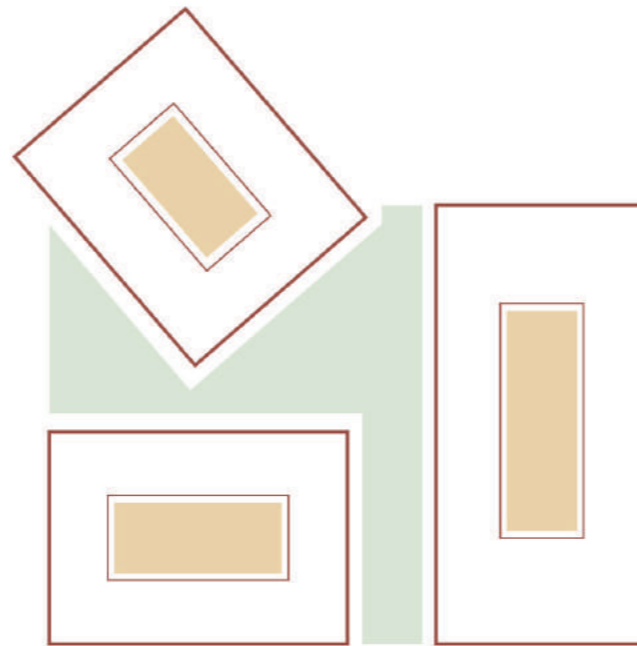
Key clamp and ballast mounted edge protection should be avoided.

Optimum Public Space Dimensions



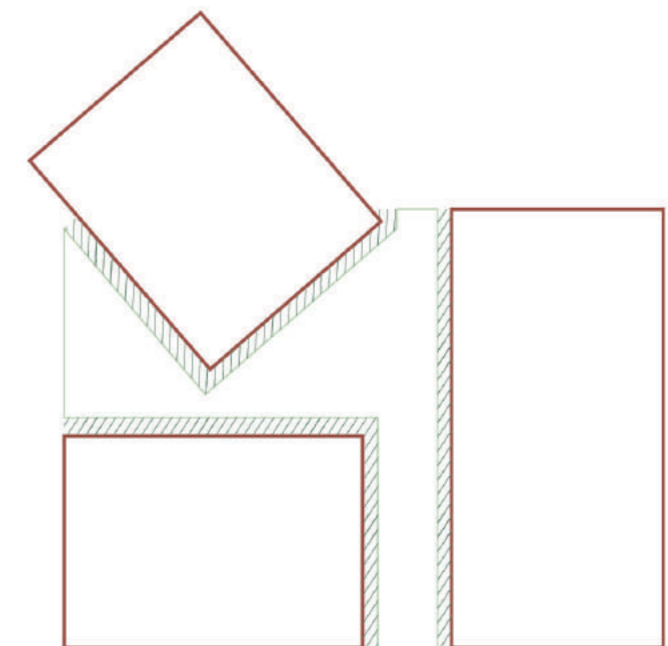
The maximum size for a public space is 100m, and the optimum size is 35m. These dimensions link to the ability for the human eye to appreciate detail at a particular scale.

Division of Public and Private



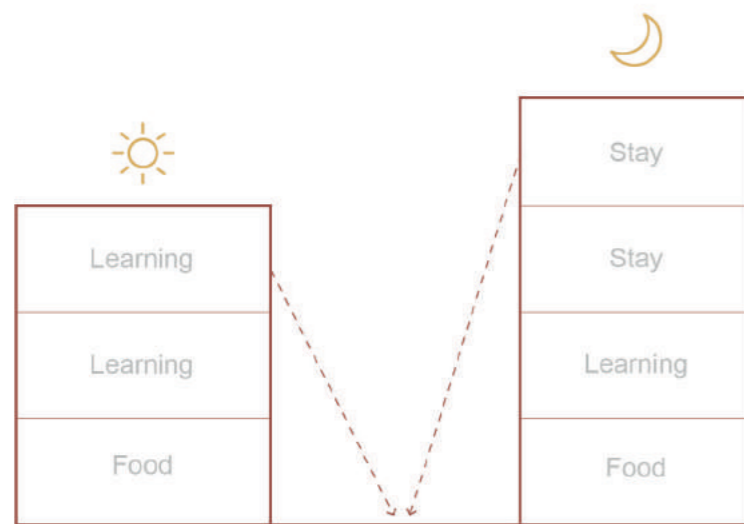
The division between public and private should be properly defined. The boundaries between the two must be clear, distinct and legible so as to be easily read within the urban landscape. Internal courtyard to the perimeter block is a good example of how private spaces can exist within the masterplan. These can then be accessed internally or through ground floor connections.

Creating Soft Edges

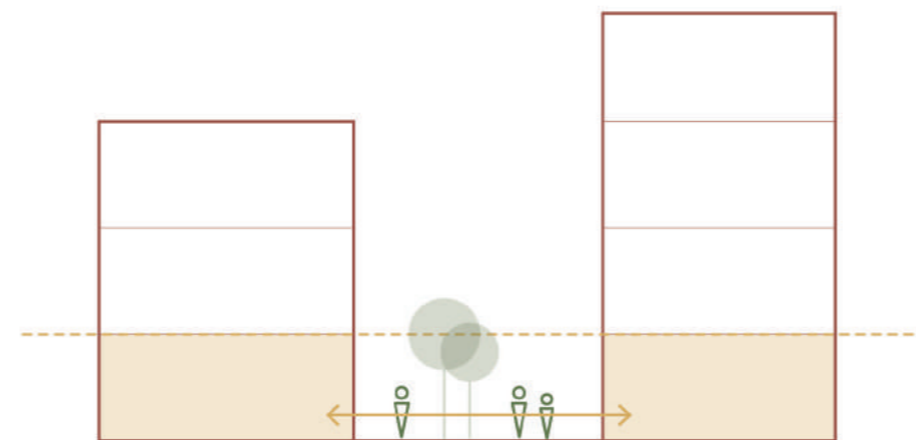


Within the public spaces consideration should be made for the edges of the space. These should be designed to be soft and create a fluid transition between the external and internal. Throughout the site, soft planting strategies can be implemented to blend edges into the existing context.

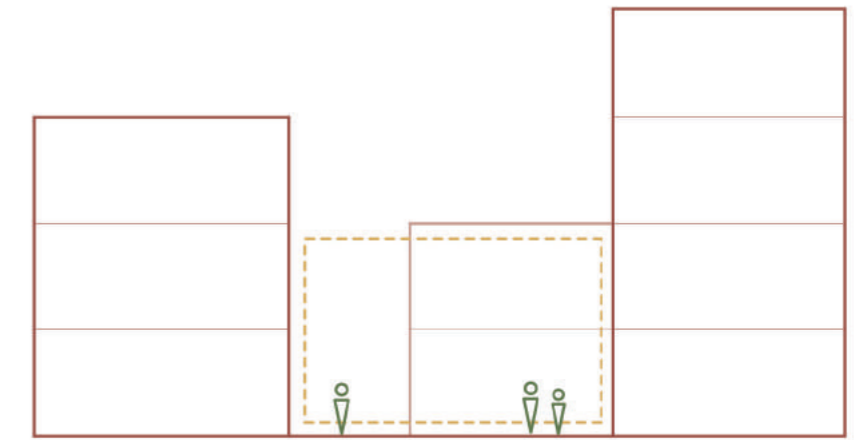
Mixed Use



Activity at Ground Level



Enclosed Spaces

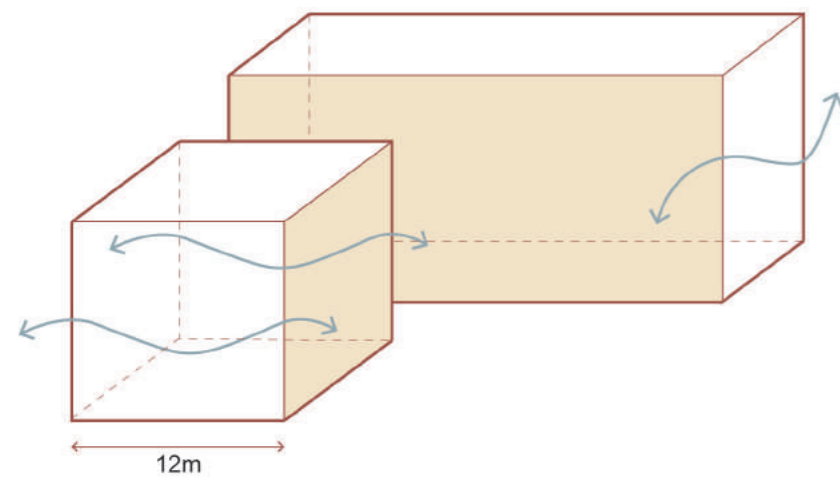


Throughout the site mixed use is encouraged, vertical mixed use is optimal but mixed uses throughout the site is also acceptable. This will create a sense of security within the masterplan.

As the pedestrian walks through the site, activity at eye level should be clear. This should attract people to walk through the site and use amenities which the masterplan has to offer. This can be achieved through strategic eye level planting or ground floor activity.

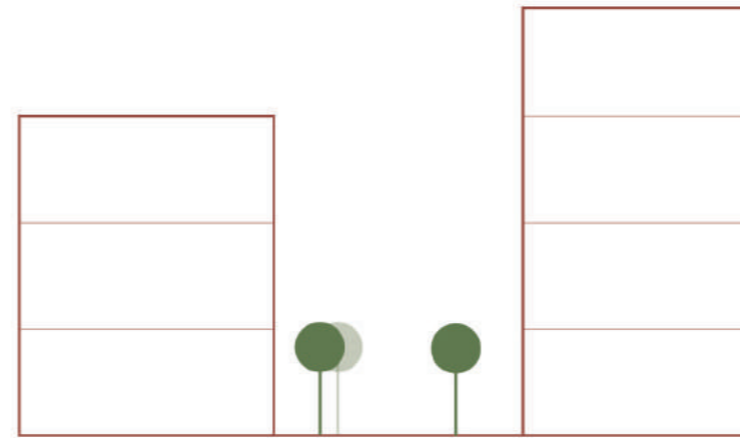
There is a natural human desire to seek spaces which are more enclosed and offer a sense of refuge. These spaces help increase levels of activity and can provide weather protection easily allowing them to be used from season to season. Enclosed spaces should be provided throughout the masterplan and integrated into the pedestrian strategy.

Natural Ventilation and Daylighting



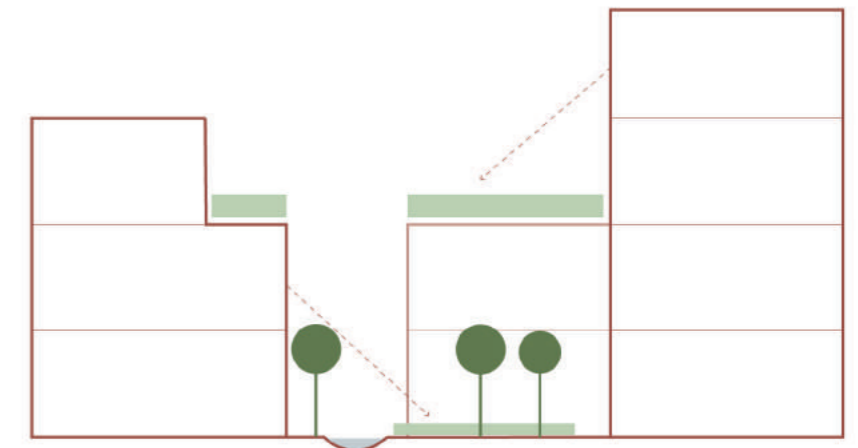
The maximum width of a block should be 12m to allow for natural ventilation and daylighting. Space between blocks should be considered to allow for optimum daylight with minimal obstruction from nearby buildings. This will create comfortable thermal levels within all buildings across the site allowing for healthier learning and social environments.

Trees in the Street



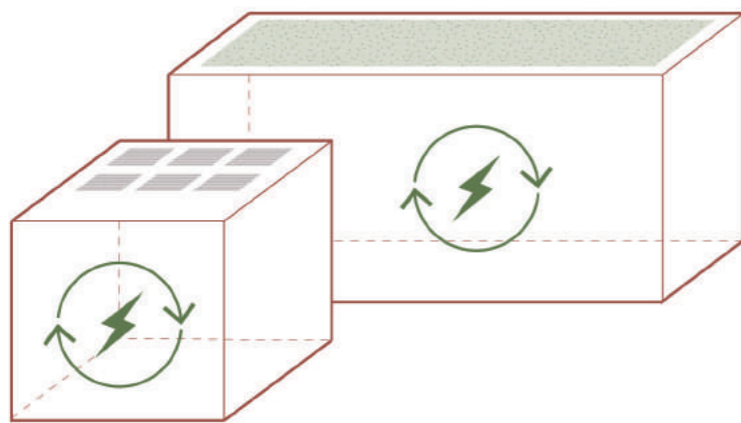
Trees within the street have a positive impact for visual connection with nature as well as providing shade during the summer and shelter in the winter.

Connection to Nature



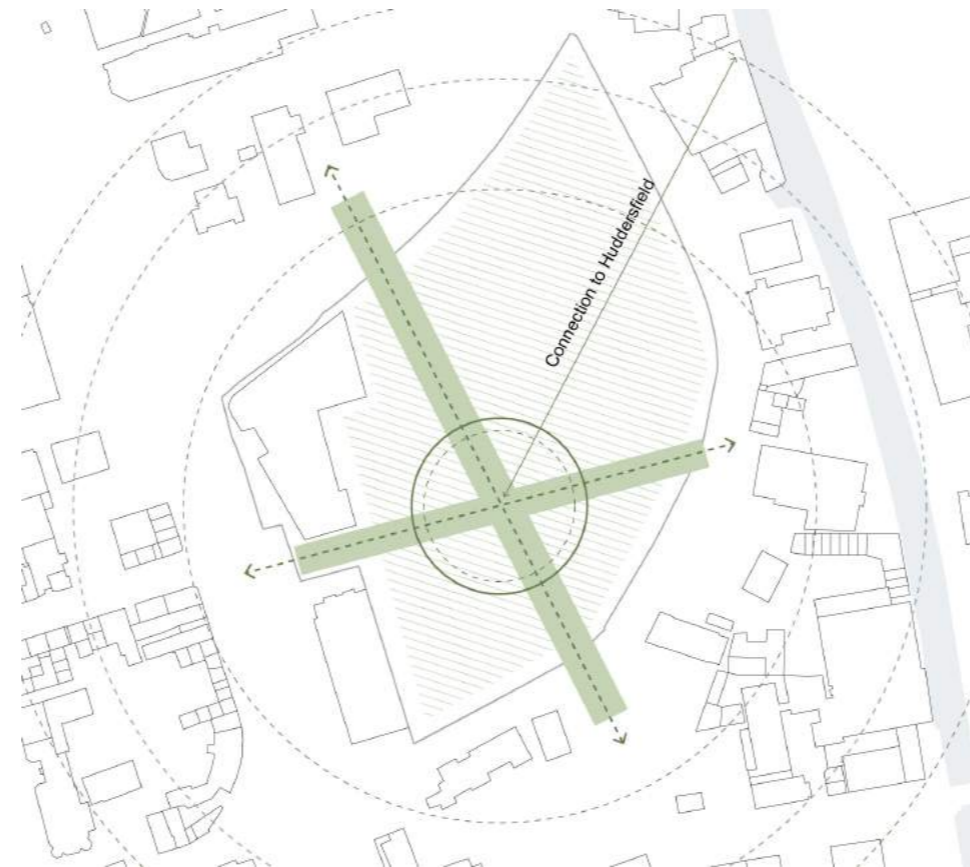
Throughout the site connection to nature from different points will be key, both externally and internally. Connections to nature generally reduces stress and can improve our heart rate, having an almost instantaneous positive impact.

Carbon Zero Building Processes



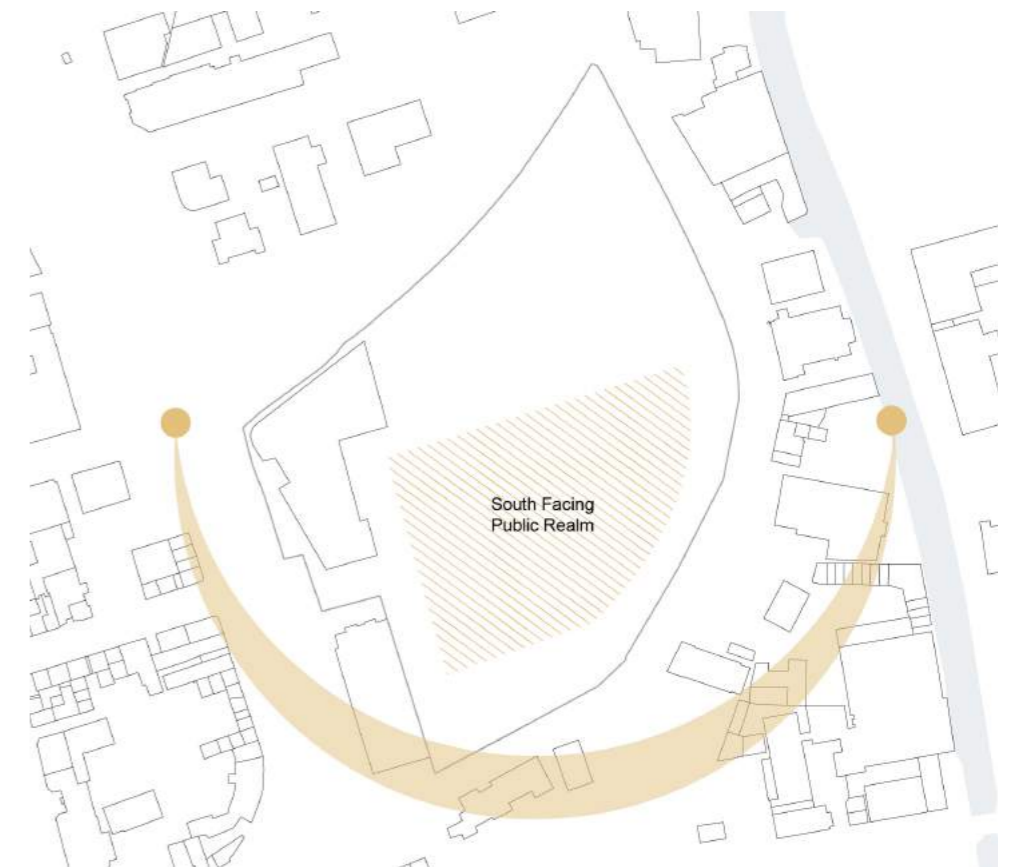
Throughout the building process on site a goal for carbon zero/neutral within the building process should be encouraged in order to build on the University of Huddersfield's 2030 strategy by designing blocks which are capable of using as little energy as possible.

Planting Strategy and Biodiversity



Within the planting strategy for the site there will be a focus on biodiversity and encouraging local wildlife and flora and fauna to inhabit the site. This will be achieved through strategic planting choices and opening up opportunities for local species to dwell within the masterplan by connecting into the local green and blue infrastructure networks.

Maximising Daylighting



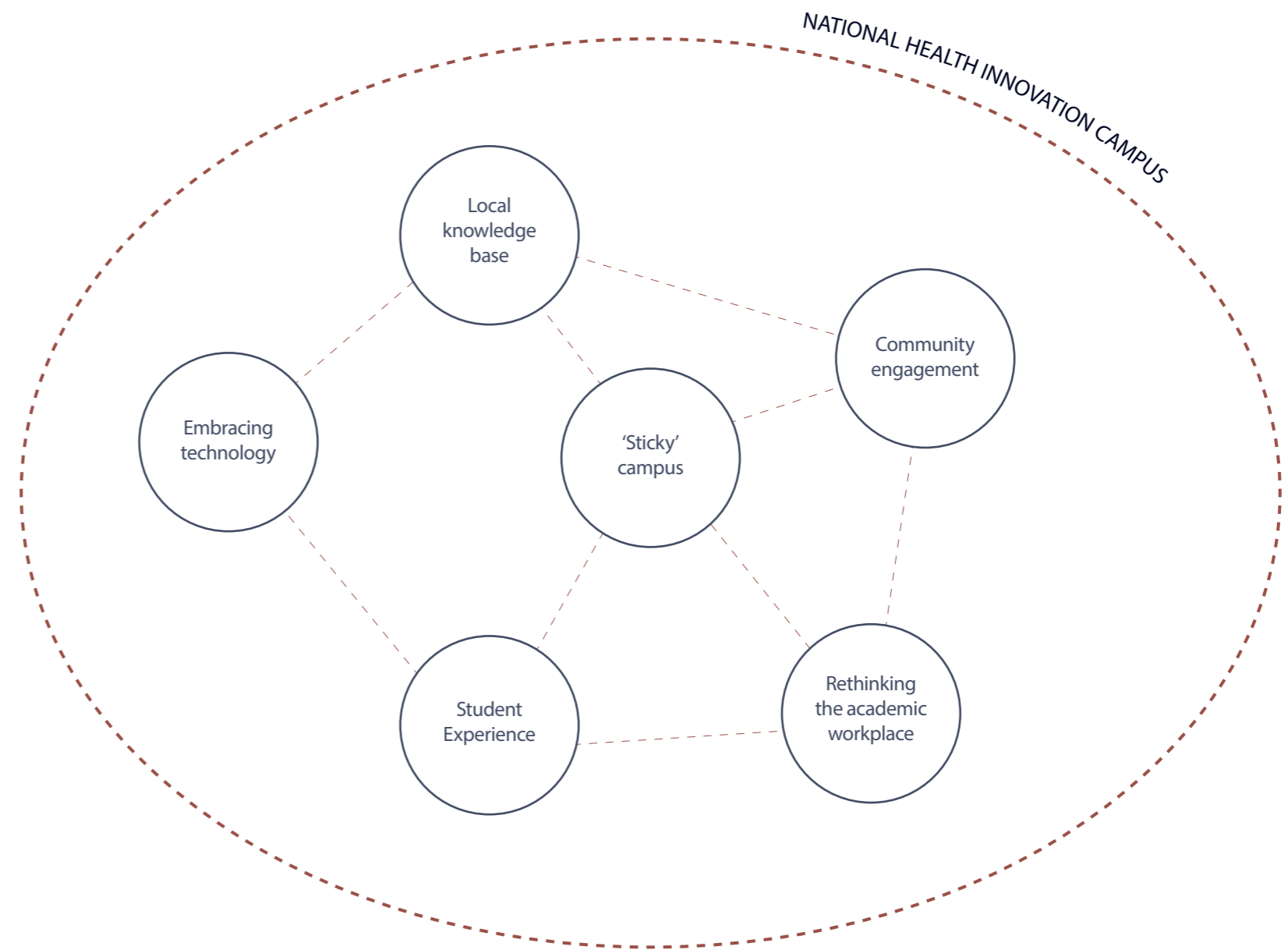
By maximising daylighting in key areas of the site, daylighting will contribute to natural daylighting of buildings as well as contributing to the creation of pleasant public realm spaces where sunlight is maximised. Key public spaces should be south facing, with no building heights shadowing. Built form should address the sun path.

3.5 Future Campus

Designing for longevity is a key aspect of this framework. As the masterplan evolves over the next 5-15 years, it is vital that it still addresses key needs of the users. In designing for the academic campus there are certain factors that need to be considered. This element of the framework sets out a series of key ingredients that should be implemented into the strategy for the masterplan.

These key ingredients are:

- A knowledge economy
- Incorporating student residential
- Embracing technology
- Rethinking the academic workplace
- Public good/Private benefit
- 'Sticky' Campus



The Knowledge Economy

University campuses are places for learning through a variety of different means. By trade they are places where the student comes to learn and gain knowledge in a chosen discipline. However, the notion for what a university is and can be has changed over the years from an insular academic institution to a place which engages with its students, community and the locality where it is situated.

There are many areas which could be incorporated into the masterplan, some of these are:

SMEs (Small Medium Enterprises)

SMEs account for 99.9% of the business population within the UK. By engaging with the small & local businesses throughout the Health Innovation Campus and wider University campus, the University of Huddersfield can greatly benefit the local economy. This could be through temporary exhibition spaces hosting local artists/musicians, or through concession stands encouraging local food and drink businesses to sell their product throughout the site. This will therefore raise awareness of businesses throughout Huddersfield, and subsequently increase footfall within the town centre (a key incentive of the Huddersfield Blueprint).

Primary Care

As part of the National Health Innovation Campus incorporating primary care could be an essential opportunity for the students of the University as well as for local people. Incorporating these types of facilities on-site will allow for students to be able to learn first hand about primary care scenarios, as well as for local people to engage with the research and development that is happening at the University. This could also be beneficial in encouraging people who take alternative routes into related employment into the University Campus and involve them in University life.

Local skills

By providing opportunities for different skill set across Huddersfield to be able to work or exhibit on campus will further the integration of knowledge and the openness and connectivity of the University.

Open studios and exhibition spaces at ground level or within buildings can become useful tools in opening skills sets to one another.

Research and Innovation

As a University which values and pursues research, opening the campus up to research professionals through collaborations or inviting research hubs and trusts.

Example 1: Paddington Village, Liverpool



Paddington Village masterplan is located within the Liverpool Knowledge Quarter. It is a city of Liverpool led masterplan which hosts a variety of different uses in collaboration with different stakeholders including the University of Liverpool. Buildings on the site include the Rutherford Cancer Centre, a hotel, student residential.

Example 2: Circle Square, Manchester



Circle Square is a new masterplan on the existing BBC site in Manchester. The site sits along Oxford Rd connecting to key academic institutions. The masterplans aim is to become one of Europe's top innovation districts. The site includes office space and innovation centres, student residential, a hotel, MSCP and a central green space.

Incorporating Student Residential

An extension of learning on campus. When university owned they can control the environment of learning within the living of their students. 70% of academic study happens within the students living space.

By owning their own student accommodation universities can gain control of this aspect of study. This can be through the design of the student bedroom and social spaces becoming an extension of the universities values.

Example 3: Birley Fields Campus, Manchester Metropolitan University



Birley Fields campus is part of Manchester Metropolitan University which sits in the heart of the local suburb of Hulme. University owned halls are integrated into the masterplan centring around a major academic development. This provides students with easy access to campus and integrates student living with learning within the development. Students are also able to integrate with the surrounding community.

Embracing technology

In the next 5 years, students who arrive at University will be younger than the iPhone, meaning that they will have grown up in a technological world. There is an expectation for advancing technology and technologies which are reliable and easily accessible.

As technology allows for studying, learning and socialising to be achieved easily outside of the university campus it is imperative that the built environment and landscaping adds value to the experience of both students and academics. There are several means of incorporating developing technologies into the Health Innovation Campus which will allow the University to thrive in both technological advances and social value.

The corona-virus pandemic has shown the possibilities of working remotely, but has also shown like students and academics alike value the experience of attending a physical campus. This provides an opportunity for the development of multi-functional spaces that can embrace technological advances, for example the use of virtual and augmented reality spaces or for use in projecting art work across campus as an interactive exhibition.

There is also opportunity for students and academics to partners with global universities to engage in advancing technologies which would allow the University of Huddersfield to be at the forefront of their respective subjects.

Example 4: Virtual Reality Space, University of Huddersfield



Rethinking the academic workplace

For many years, we have been rethinking our workplaces and how offices function. However, the academic workplace has been left behind in these advancements due its differing nature. Currently, 28% of university campuses are taken up by office space. However, academic staff only spend 30-40% of their time in these offices.

As office and commercial settings begin to evolve, so are the ways in which students are being encouraged to learn. By providing more open, approachable and collaborative settings, students are encouraged to integrate their learning.

However, approaching the design of the academic workplace is slightly different to the commercial setting. In order to achieve a successful work environment there are three key areas which need to be addressed. Within the space there has to be the ability to:

1. Focus without external distraction
2. The need to store and easily access resources such as books and files
3. The need for private meeting spaces between tutors and students

These three key areas suggest the necessity of having choice and flexibility within the academic workplace for lecturers, researchers and students. Providing spaces which are easily adaptable and multi-functional is essential to allow people the opportunities to work in a variety of settings and choose which is best for them. This can be done through creating several different types of clearly defined spaces throughout the campus, such as private learning and breakout spaces.

Example 5: Wirral College, BCA Landscape



Public good/Private benefit

The campus will be not just about the University and its students, but how they as an institution sit within the town of Huddersfield. However, for optimising the site there must be a way to incorporate how the site can be beneficial to the wider public whilst being benefiting from these aspects.

The Southgate site has been an island of unused and underdeveloped space since the demolition of the Sports Centre. This has led to the site being an undesirable place for the public, creating a disconnection between the town centre and developments in the west at both Leeds Road and the Football stadium. The University campus on this site therefore provides an opportunity to re-establish a connection between the East and West (Station to Stadium), whilst also re-establishing a connection between the town centre and its historical backbone: the canal.

This re-connects the town centre to its heritage within the textile industry, whilst also physically providing members of the public with a more desirable link to the canal-side and developments on Leeds Road, as well as any future developments at the Football Stadium. The development of the Health Innovation Campus on the Southgate site is therefore beneficial to both the public locality of Huddersfield, as well as privately for University users.

There are several ways in which private and public aspects of the campus development can be defined in order to prevent anti-social behaviour. This could include way-finding, clever lighting and the creation of semi-private

Example 6: Quatermile, Edinburgh



'Sticky' Campus

The idea of a 'sticky' campus is to create spaces which encourage students to stay on campus, spend their time in spaces during the day instead of going back and forth between home.

More than 50% of students at the University of Huddersfield live and travel from home to study. Therefore, it is of utmost importance that the campus creates opportunities for students to want to stay, engage and integrate with activities on campus.

'Sticky' spaces can include a variety of different options. Good workspace is key, allowing students options of where they can work comfortably during the day. This can be achieved through smaller student hubs in buildings throughout the masterplan, or various quiet work zones. Coffee shops, bars and cafés all play a key role in creating a sticky campus, as well as well designed public realm which allows students to want to be in the campus.

Example 7: Manchester Business School



The Manchester Business School refurbishment included new works to the public realm and creating active frontage onto this space. What was once disused back entrances to the school has now become a series of shops, cafés and restaurants which are used by students and the public. The area also accommodates a new public realm with a hotel nearby for use by the university and the public which has helped to active the area.

Example 8: UCLAN Student Social Spaces



The brief from UCLAN was to create social learning environments that were open, transparent and flexible and allow for a range of activities. The space encourages students to dwell and interact with each other on campus, and this social learning space provides a variety of opportunities to do that.

Example 9: UTS Alumni Green, Sydney



The University of Technology in Sydney offers a unique opportunity for students to socialise, learn and enjoy the campus. The alumni green provides spaces for play, seating and stretches of usable lawns. It was essential for the university that this space created a 'sticky campus'. The space also provides free moving chairs and furniture so that its users can personalise the space for their own comfort.

3.6 Biophilia

The National Health Innovation Campus is a place which aims to promote health and well-being. Therefore, incorporating biophilia into the masterplan framework is a fundamental underlying strategy. Biophilia is humankind's innate biological connection with nature. Through the implementation of natural elements into a design, biophilic design can become a tool which contributes positively to our overall health and well-being.

Within biophilic design, there are 14 patterns which articulate the relationship between nature, human biology and the design of the built environment. Several of these patterns have been integrated into the strategic framework of the National Health Innovation Campus.

These strategies include both visual and non-visual connection with nature, each being just as vital as the other. Visual connection with nature encourages nature to be seen and experienced for the duration of the day, optimised by spatial layouts and proximity to nature internally and externally. Non-visual connection with nature encourages the sounds and sense of nature to be experienced, allowing for multiple senses to be engaged throughout the day.

Another of these strategies is to establish a presence of water within the masterplan. Sounds and proximity to water can contribute positively to health and well-being - introducing moving/running water both externally and internally is encouraged.

To further enhance biophilic principles within the framework, biomorphic forms and patterns will be introduced. The objective of introducing biomorphic forms and patterns is to provide representational design elements within the built environment that allow users to make connections to nature. Precedent has been taken from the surrounding patterns that are evident throughout Huddersfield Town Centre - these patterns have been found within the local architecture, and translated into organic forms to be applied within the masterplan.

Visual connection with nature

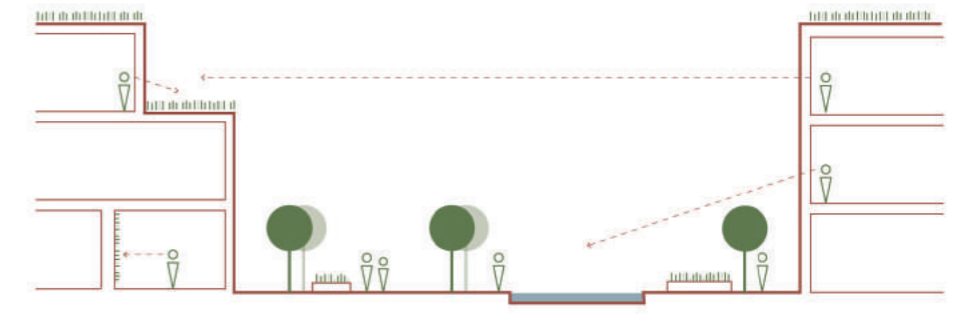
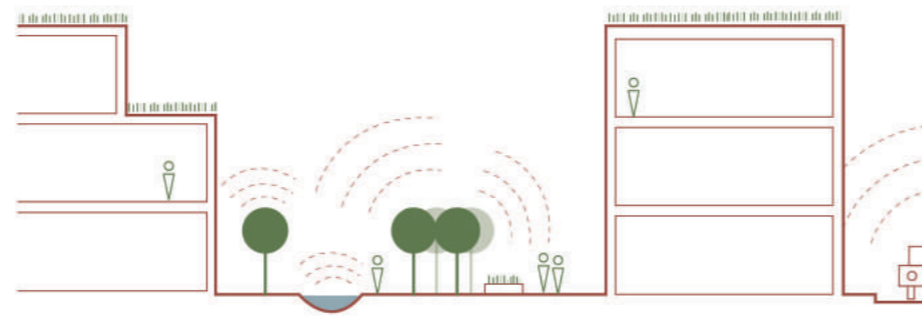
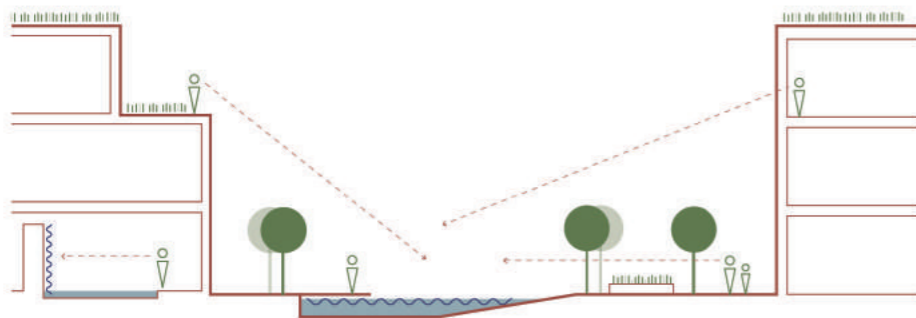
- Real nature should be encouraged above simulated throughout the site and within buildings
- Biodiversity is prioritised above
- Activities should happen in proximity to green space
- Visual connections to be able to be experienced for at least 5-20 minutes a day
- Spatial layouts of buildings should optimise connections to nature
- Digital mediums of viewing nature can be incorporated where it is not as easy to introduce real nature or views.

Non-visual connection with nature

- Nature sounds should be prioritised over urban sounds
- Introduced non-visual connections which can be easily accessed for one or multiple locations which allows for engagement for 5-20 minutes at a time
- Interventions should be able to be experienced in multiple ways, enhancing the impact of the experience
- Allow for visual and non-visual connections to be experienced simultaneously which can maximise the potential positive health responses

Presence of water

- The water experience should be multi-sensory to achieve the most beneficial outcome
- Water should be naturally fluctuating over predictable movement or stagnancy
- Features which are high volume or high turbulence can be disruptive so proximity should be considered
- Water features can be water and energy intensive, in line with the campus sustainability strategy this should be considered throughout the design of such features



4.0 MATERIALITY

3.0 MATERIALITY

The following chapter outlines the proposed materiality that should be adhered to in the design of any development within the National Health Innovation Campus. While this is not a prescriptive list of materials, it has been created through careful analysis of the existing materiality and character of Huddersfield - using which as precedent for any new development is vital in developing a University Campus which complements and enhances Huddersfield Town Centre.



4.0/MATERIALITY

4.1 STONE

Natural Stone is the predominant material found within buildings located in Huddersfield town centre, helping to define its unique character and this should feature within the composition of the façade. Natural Stone can be used in several ways to ground the building within its context of Huddersfield. The use of natural stone should be considered within the overall composition for a future building.

- Natural stone blockwork can be used to create a robust plinth and different textures and formats should be explored.
- Natural stone is highly versatile and can be specified in a range of different sizes and formats in contemporary rainscreen cladding systems, with secret fixings.
- The Oastler Building and Joseph Priestley Building (University of Huddersfield) provide relatively recent examples of locally sourced stone, which has been used innovatively as a contemporary rainscreen cladding system.
- Stone can be used innovatively in landscape features such as walls, gabion retaining walls, steps, seating and paving features.

Here are some examples of how stone can feature within the elevation composition of a building:



Ramsden Building - University of Huddersfield



Stone Plinth Detailing



Dugdale Brothers Textile Mill



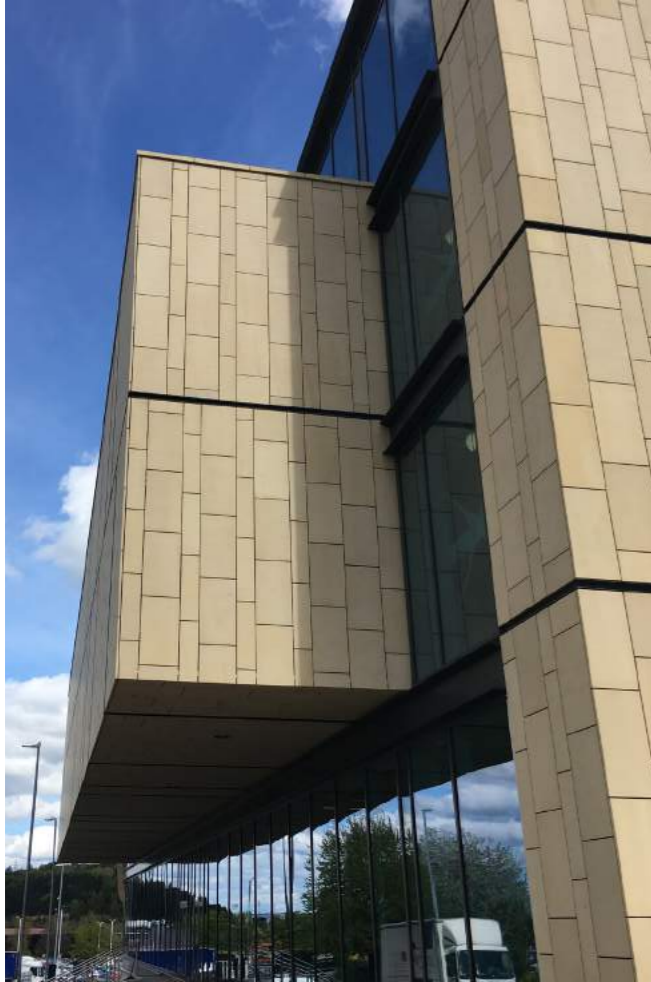
Huddersfield Spiritualist Church



Decorative Stone Tiling Detail



Huddersfield Train Station



Oastler Building - University of Huddersfield



Oastler Building - University of Huddersfield



Joseph Priestley Building - University of Huddersfield



Barbara Hepworth Building - University of Huddersfield



Integrated Stone Seating with Planters



Stone Landscaping with Integrated Stairs, Planters & Seating

4.2 FACADE COMPOSITION

Building form and facades should be designed taking into consideration the environment, sustainability and to be elegant, timeless, low maintenance and robust. The proportion and organisation of facades should pay due consideration to the surrounding context, wherever possible. The following principles will help to create a more legible and coherent masterplan development.

- Predominant material within Huddersfield is stone and this should feature within the composition of the facade.
- Restrict the use of materials to three elements whenever possible, to create simple, legible and elegant buildings.
- Consider the use of materials and introduction of colour in a sympathetic manner that compliments surrounding buildings.
- Proposed materials should be low maintenance and robust so that they remain elegant and timeless.
- Consider the rhythm and proportion of the façade treatments of the surrounding contextual and heritage buildings and how these can help to innovatively inform new building façade design with regards to fenestration and cladding panel proportions
- Biomorphic design principles on the following page illustrate how existing building details and proportions, within Huddersfield, can be effectively utilised and mapped into new contemporary architectural proposals.



Huddersfield Open Market



Ramsden Building - University of Huddersfield



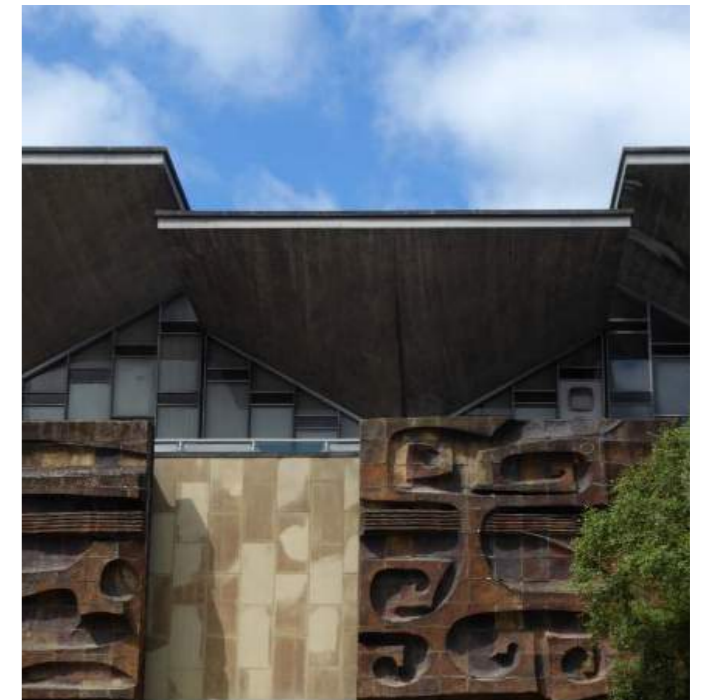
St. Peter's Church



Huddersfield Mechanics Institute



Huddersfield Train Station



Huddersfield Indoor Market - Queensgate



Barbara Hepworth Building - University of Huddersfield



The Technology Building - University of Huddersfield



Southgate Masterplan Phase 1 - Health & Wellbeing Academy



Turnmill Building - London



Royal Arena - Copenhagen

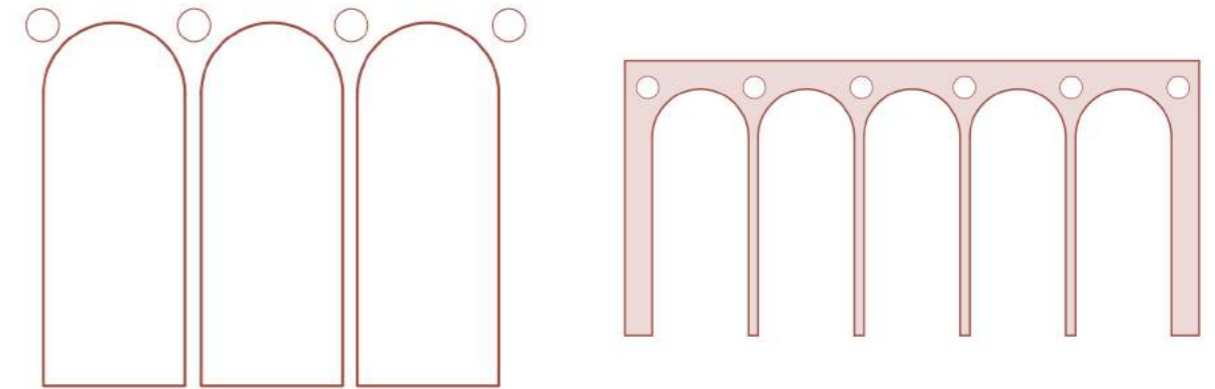
4.3 BIOMORPHIC FORMS & PATTERNS

The objective of integrating biomorphic forms and patterns is to provide representational design elements within the built environment that allows the user to make connections with nature and familiar environments. This connection enhances cognitive performance while helping to reduce stress and is therefore beneficial to the overall aims of the Health Innovation Campus.

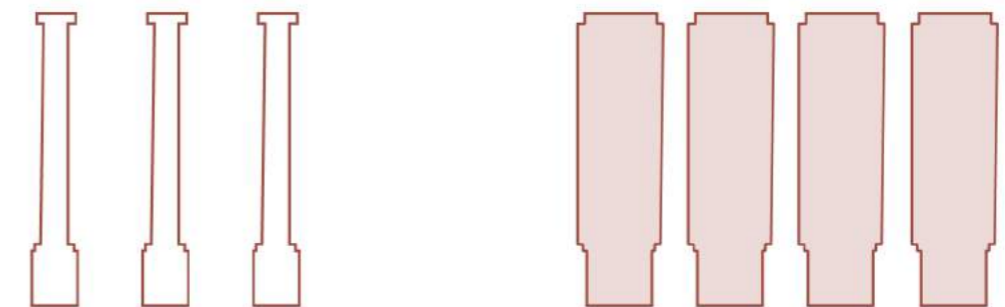
The patterns described throughout these studies could be used throughout the masterplan as either cosmetic decorative components, or as structural functional elements of a design. However, the application of these patterns should not be overused as this may lead to visual toxicity.

The patterns shown have been derived from key buildings around Huddersfield. This helps to create connection with the locality and provide a visual language which can be read across Huddersfield.

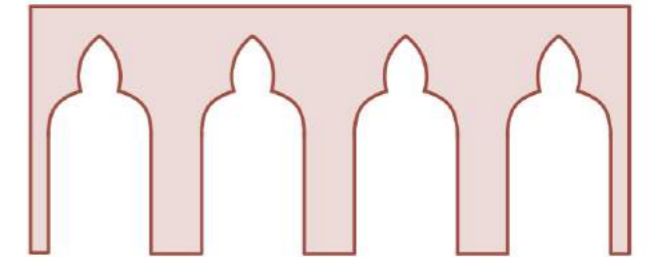
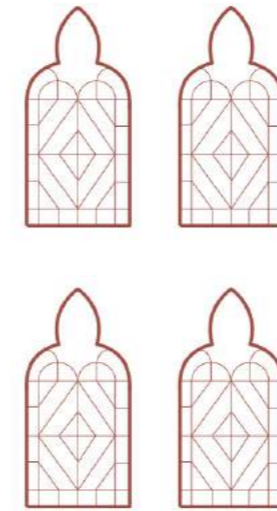
1. Huddersfield Open Market



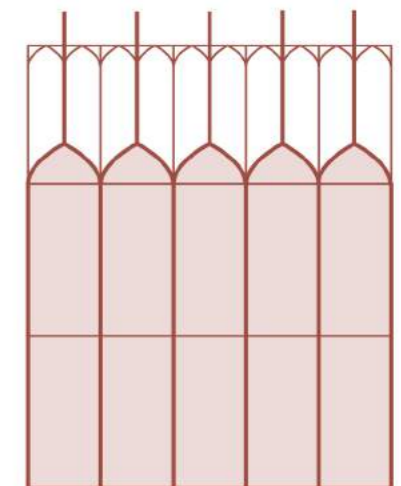
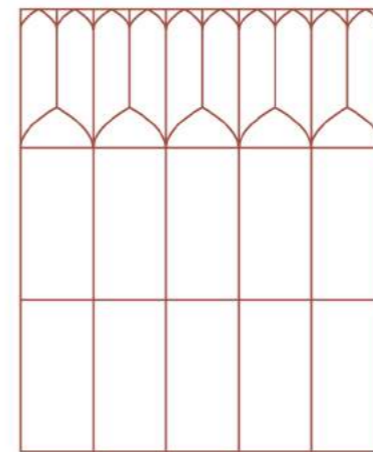
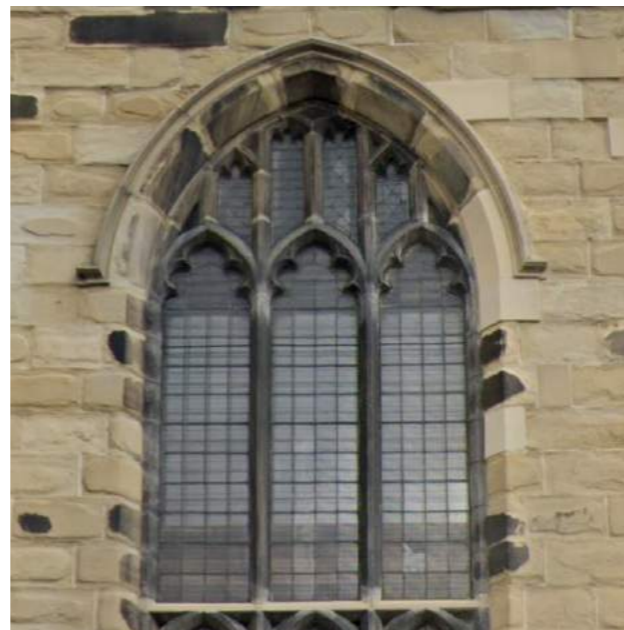
2. Huddersfield Railway Station



3. Ramsden Building, University of Huddersfield



4. St Peter's Church



4.4 FENESTRATION

- Careful consideration of orientation and the use of glass should be considered to prevent over heating and glare whilst balancing this with the benefits of natural daylight.
- Glass provides opportunities to animate the public realm areas and provide passive supervision across the masterplan creating a safer and more welcoming environment.
- Celebrate the achievements of the work and research being delivered within the buildings.
- Glazing should be utilised to define and celebrate entrances.
- Blurring the boundaries between internal and external spaces, encouraging and supporting the relationship between building occupants and the natural environment in line with biophilic design principles should be explored in all buildings.



Richard Steinitz Building - University of Huddersfield



Jakob Column Greening



Bestseller Office Tower



Richard Steinitz Building - University of Huddersfield



Oastler Building - University of Huddersfield



The Spine - Liverpool



Barbara Hepworth Building - UoH



Barbara Hepworth Building - University of Huddersfield



Barbara Hepworth Building - University of Huddersfield



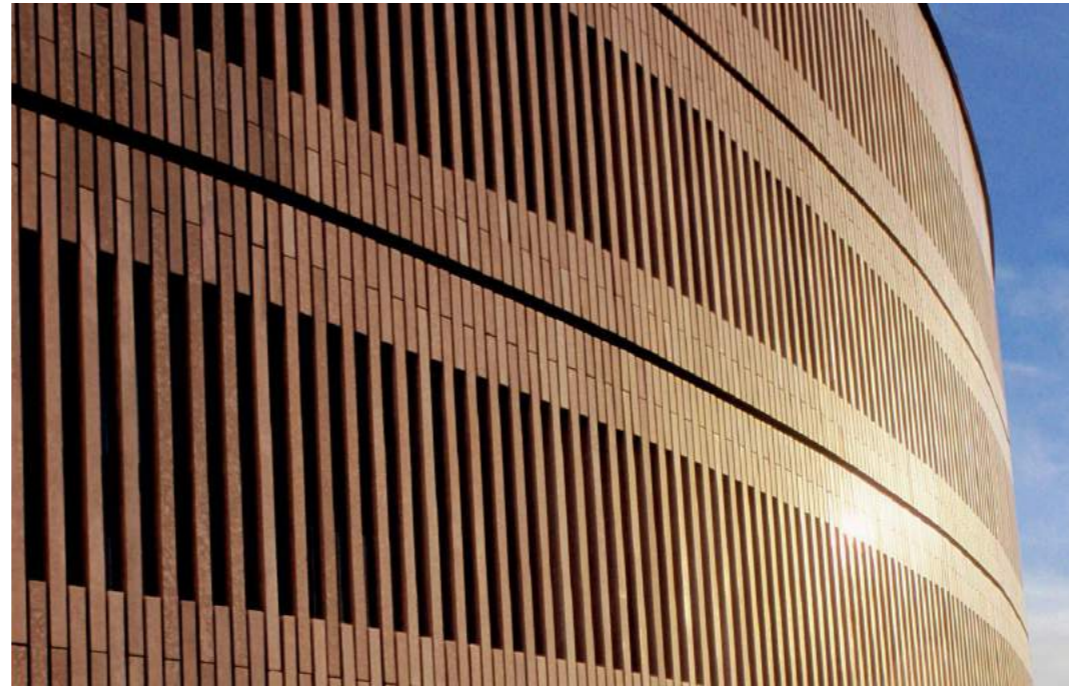
Faculty of Law, University of Cambridge



Faculty of Law, University of Cambridge

4.5 RAINSCREEN CLADDING

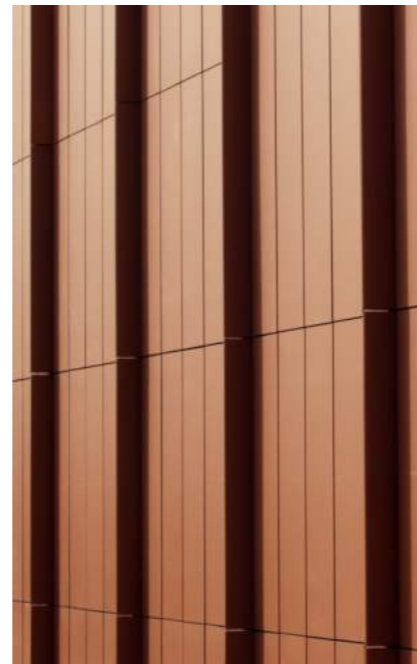
- Robust low maintenance yet highly efficient modular rainscreen cladding systems can aid in the creation of highly sustainable buildings
- Rainscreen cladding systems through careful consideration of proportion and organisation can help to create innovative facades that will stand the test of time and create a unique character and identity for each building.
- A great variety of materials, colours and textures can be explored to create beautiful and contemporary buildings that can compliment the existing built environment.



Terracotta Rainscreen Cladding



Kingspan - Pixel Panels



Favemanc Ceramic Ventilated Facade System



Broadcasting Place - Leeds



Rock Panel - Chameleon Rainscreen Cladding



Concept Image - Joseph Priestley Building - University of Huddersfield



Barbara Hepworth Building - University of Huddersfield

4.6 Brick

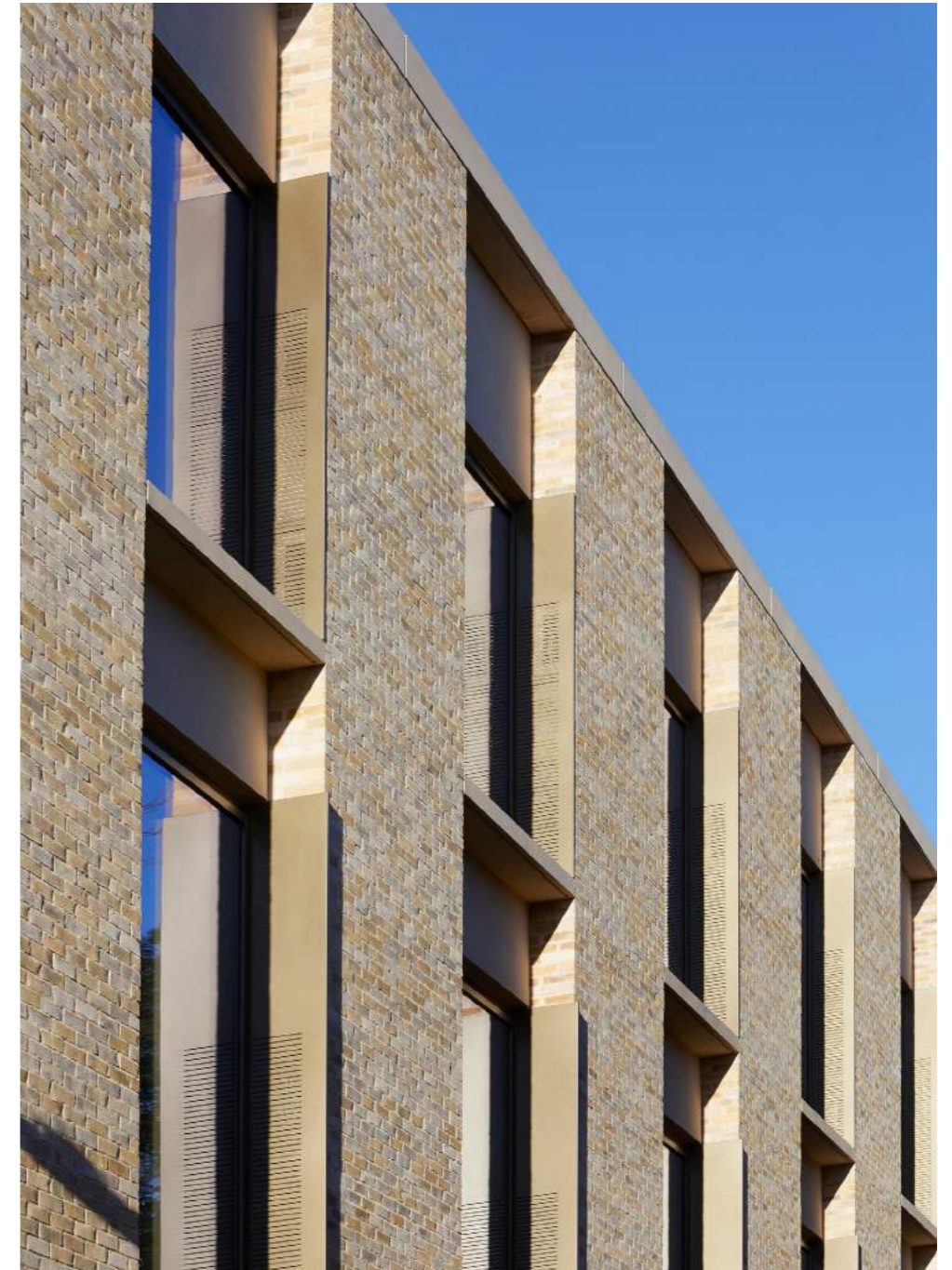
Brick is a timeless material used in the British islands since the Roman times. The physical characteristics of bricks make the facades weather well and retain the character through the building lifetime. The robustness of brick makes it suitable for ground floors and plinths where durability and safety are paramount. High thermally performing facades would lean to slip bricks in rainscreen construction, adapting the timeless characteristic of the material into sustainable buildings.

Bricks come in a wide range of colours, many complementary to the local stone hues and allows elegant detailing with a contemporary feel; making it a suitable material for the campus development.

- Brick facades are complimentary to stone dominated spaces when treated with elegant detailing and careful selection of colour, textures and coursing.
- Brick is a robust material that ages well and retains its' character over time.
- When combined with environmentally high performing façades, rainscreen solutions are compatible with brick allowing it to retain beneficial properties.



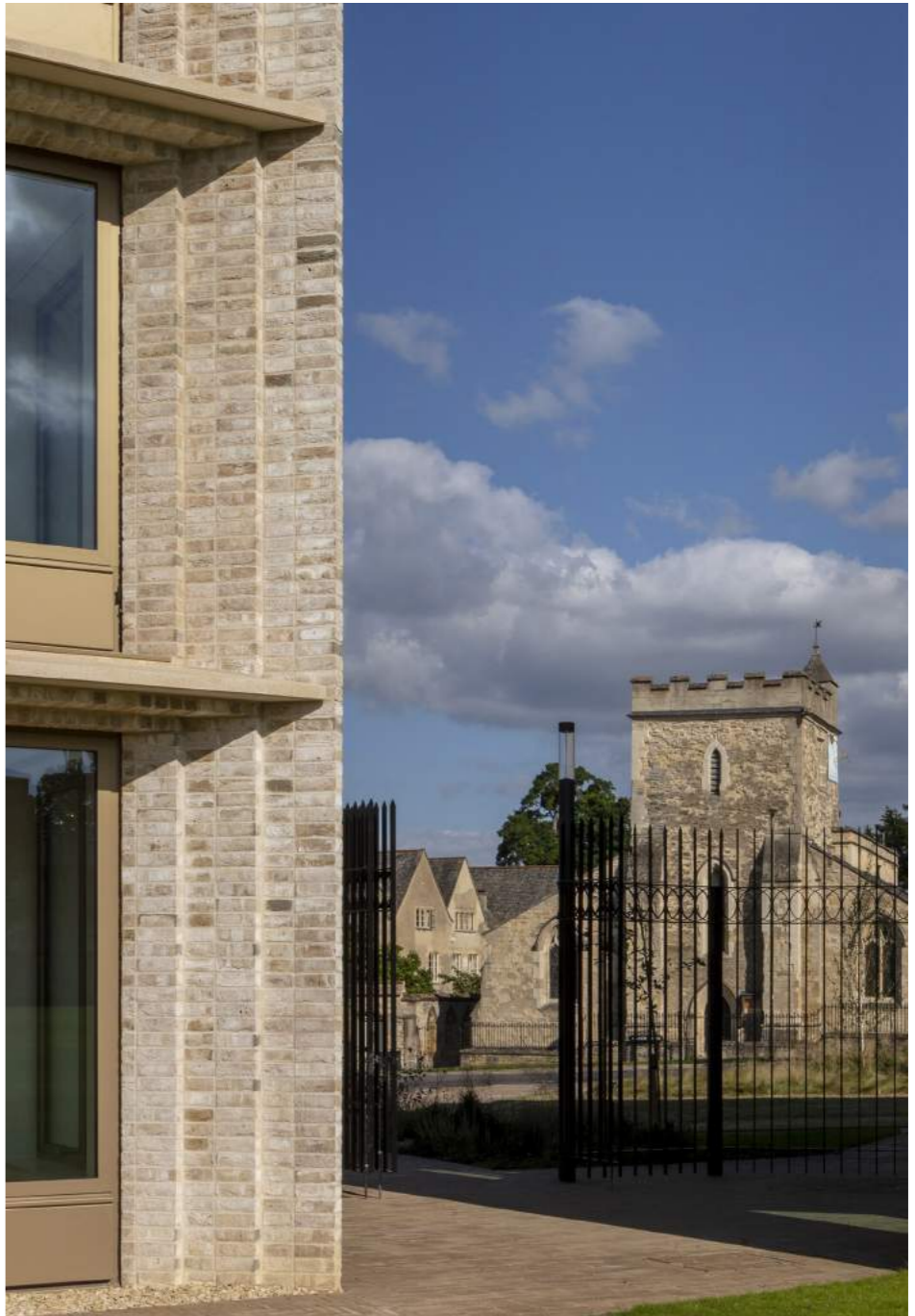
Cambridge University Campus



Cambridge



Balliol College Master's Field Development



Oxford



Dundee Council Civic Offices



Dundee



Greenhead College



Huddersfield

4.6 MATERIALITY - SUMMARY

Existing Palette

Existing materials present throughout Huddersfield Town Centre and the main university campus have been taken into consideration and used to inform the proposed palette of materials, to ensure any future development within the new health campus masterplan is contextually designed. This decision will help to ensure the unique character and heritage settings within the town centre are preserved and enhanced with complimentary yet contemporary new buildings.

The provision of a familiar material palette through all campus sites, will help to unify the sites and create a sense of familiarity between them. Stone is predominantly used throughout Huddersfield and can be used to create effect to create contemporary and robust buildings and landscapes. The selected materials will apply to all future developments of the masterplan, so that developments of varying architectural styles can be delivered, yet under a unifying theme, achieving a sense of harmony and contributing positively to the existing built environment.

Existing Palette



Northumberland Street



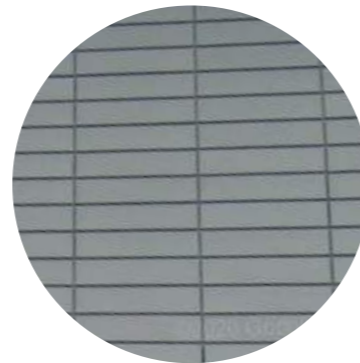
Church Street



New Street



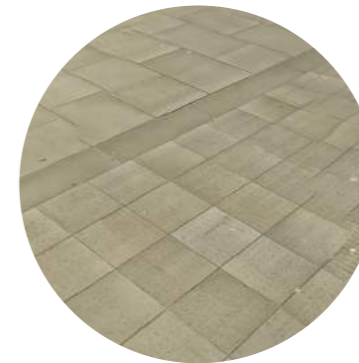
Market Street



Richard Steinitz Building,
University of Huddersfield



Media Centre, Southgate

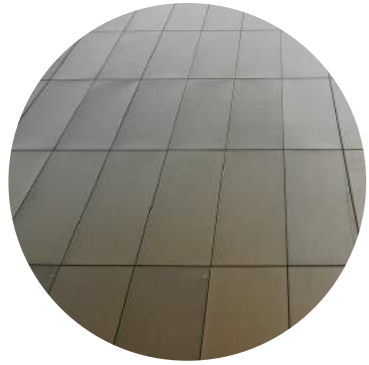


Public Realm, St Georges
Square



Public Realm, Huddersfield
Railway Station

Proposed Palette



Anodised Aluminium
Bronze Cladding



York Stone



Powder Coated Aluminium



Glazed with fritted designs



Feature stone finishes



Coloured Rainscreen
Cladding



Aluminium Fins



Engineered Stone



Brise Soleil



Silver grey pre-cast
concrete slabs



Brick



Silver granite wide curbs
and trims



Locally sourced York paving

Street Furniture

The strategy for the street furniture ties into the existing strategy set out for the University of Huddersfield. The intention is to create a language for the University to connect the campuses. The material palette incorporates the values of health and well-being. Permeable paving has been introduced as a drainage strategy throughout the site, with the use of a natural materials to promote the connection back to nature.

Seating is provided in asymmetrical forms, creating a range of opportunities for sitting and observing. The asymmetrical layout also provides opportunity for integration between users promoting a more sustainable social campus. Lighting will be well considered across the site, to provide security and interest within the landscape. This will also help to promote positive utilisation throughout the day and into the evenings and create a safer more welcoming environment, deterring negative and anti-social behaviour.

Wayfinding and signage will also be considered and compliment those strategies put in place across the main university campus, creating a sense of legibility and familiarity.

Railings and Pathways



Modern Street Bollards



Enhanced Cycle Hub



Permeable Paving



Rain Gardens



Simple Hand Rails



Simple Tree Grills



Integrated Planting



Integrated Seating

Seating

Lighting



Integrated Seating & Planting



Modern, Simple Street Furniture



Modern, Simple Street Furniture



Integrated Lighting



Modern Street Bollards



Modern Street Lighting



Integrated Seating & Planting



Integrated Seating & Planting



Modern, Simple Street Furniture



Integrated Lighting



Integrated Lighting



Modern Street Lighting

4.7 ARTISTIC REPRESENTATION

The National Health Innovation Campus / Linear Park

The Linear Park sits at the heart of the site, creating a biodiverse thoroughfare, connecting key spaces and buildings within the masterplan.

This representational collage combines the concepts, ideas and principles which have been set out within the framework, in order to imagine what this space could be like.

Early artistic exploration study for the National Health Innovation Campus Linear Park.



Early Artistic Exploration of the Linear Park



ARCHITECTURE /
BUILDING CONSULTANCY
/ INTERIOR DESIGN /
MASTERPLANNING
/ LANDSCAPE DESIGN /
VISUALISATION /
CONSULTANCY
/ PRINCIPAL DESIGNER