



SDSC2162 - Lot 4 Phase One Stations Design Services Contract Birmingham Curzon Street - Design And Access Statement

Document no.: 1SN04-WSP-AR-STA-NS08-000001

Revision	Author	Checked by	Approved by	Date approved	Reason for revision
Co1	Max Fawcett	Diane Metcalfe	Chris Hayter	30.10.19	Issued for Acceptance to HS2
Co2	Max Fawcett	Diane Metcalfe	Chris Hayter	17.12.19	Issued for Information to BCC

Max Fawcett

D Metcalfe

CH

SECURITY CLASSIFICATION: OFFICIAL

Handling instructions: Uncontrolled when printed

Code 1 - Accepted

Revision History

Revision	Author	Checked by	Approved by	Date approved	Reason for revision
Co1	Max Fawcett	Diane Metcalfe	Chris Hayter	30.10.19	Issued For Acceptance to HS2
Co2	Max Fawcett	Diane Metcalfe	Chris Hayter	17.12.19	Issued for Information to BCC

Birmingham Curzon Street Design & Access Statement



Code 1 - Accepted
HS2

Contents

1.0 Introduction 07

1.1	Executive Summary	10
1.2	HS2 Project	12
1.3	Schedule 17	13
1.4	Application Boundaries	14
1.5	Visualisation Viewpoints	16
1.6	References	19

2.0 Context 21

2.1	City Wide Context	22
2.2	Local City Context	23
2.3	Historic Development	24
2.4	Historical Assets	26
2.5	Green Infrastructure	28
2.6	Environmental Context	29
2.7	Planning Context	30
2.8	Future Opportunities	32

3.0 Design Vision 35

3.1	HS2 Design Vision	36
3.2	Design Evolution	38
3.3	Curzon Street Design Vision	40

4.0 Arrangement 51

4.1	Overview	52
4.2	Urban Realm Design Drivers	54
4.3	Site Arrangement	60
4.4	Active Frontages	74
4.5	Arts & Culture	76
4.6	Station Arrangement	80
4.7	Servicing & Safety	98

5.0 Appearance 105

5.1	Station Form & Materials	106
5.2	Lighting	152
5.3	Urban Realm Finishes & Materials	158

6.0 Accessibility & Inclusivity 201

6.1	External Accessibility	202
6.2	Internal Accessibility	205
6.3	Intermodal Connectivity	210

7.0 Sustainability 219

7.1	Overview	220
7.2	BREEAM	222
7.3	Sustainable Drainage	224
7.4	Biodiversity	226
7.5	Renewable Strategy	228

8.0 Engagement 231

8.1	Curzon Station Independent Design Review Panel	232
8.2	Stakeholder Engagement	238
8.3	Public Engagement	239

9.0 Appendices 241

9.1	Figure Contents	242
9.2	Curzon Station Independent Design Review Panel Report	245

Abbreviations

- **BCC** Birmingham City Council
- **BCS** Birmingham Curzon Street
- **BOH** Back of House
- **BREEAM** Building Research Establishment Energy Assessment Method
- **CBD** Central Business District
- **CCTV** Closed-Circuit Television
- **CRT** Contract Requirements Technical
- **CZS** Curzon Street Station
- **DAL** Delivery Assurance Level
- **EMZ** Environmental Mitigation Zone
- **ESC** Environmental Services Consultant
- **FFL** Finished Floor Level (internal areas)
- **FOH** Front of House
- **GFRC** Glass Fibre Reinforced Concrete
- **GL** Gridline
- **HGV** Heavy Goods Vehicles
- **HS2** High Speed Two
- **HVM** Hostile Vehicle Mitigation
- **IDRP** Independent Design Review Panel
- **LLAU** Limits of Lands to be Acquired or Used
- **LOD** Limits of Deviation
- **LZC** Low or Zero Carbon
- **MMA** Midland Metro Alliance
- **OCS** Overhead Contact System
- **OCSS** Old Curzon Street Station ('Hardwick Portico')
- **PRM** Persons with Reduced Mobility
- **PRS** HS2 Project Requirements Specification
- **PV** Photovoltaic (electric power generation panels)
- **RBS** Rugby Birmingham Stafford Line
- **RHS** Rectangular Hollow Section
- **RIBA** Royal Institute of British Architects
- **SuDS** Sustainable Urban Drainage Systems
- **UHPC** Ultra High Performance Concrete
- **UK** United Kingdom

1.0 Introduction

This section summarises the purpose and scope of the project together with Schedule 17 submission requirements.

Code 1 - Accepted

HS2 Birmingham Curzon Street Applications

1.0.1 Application Boundaries

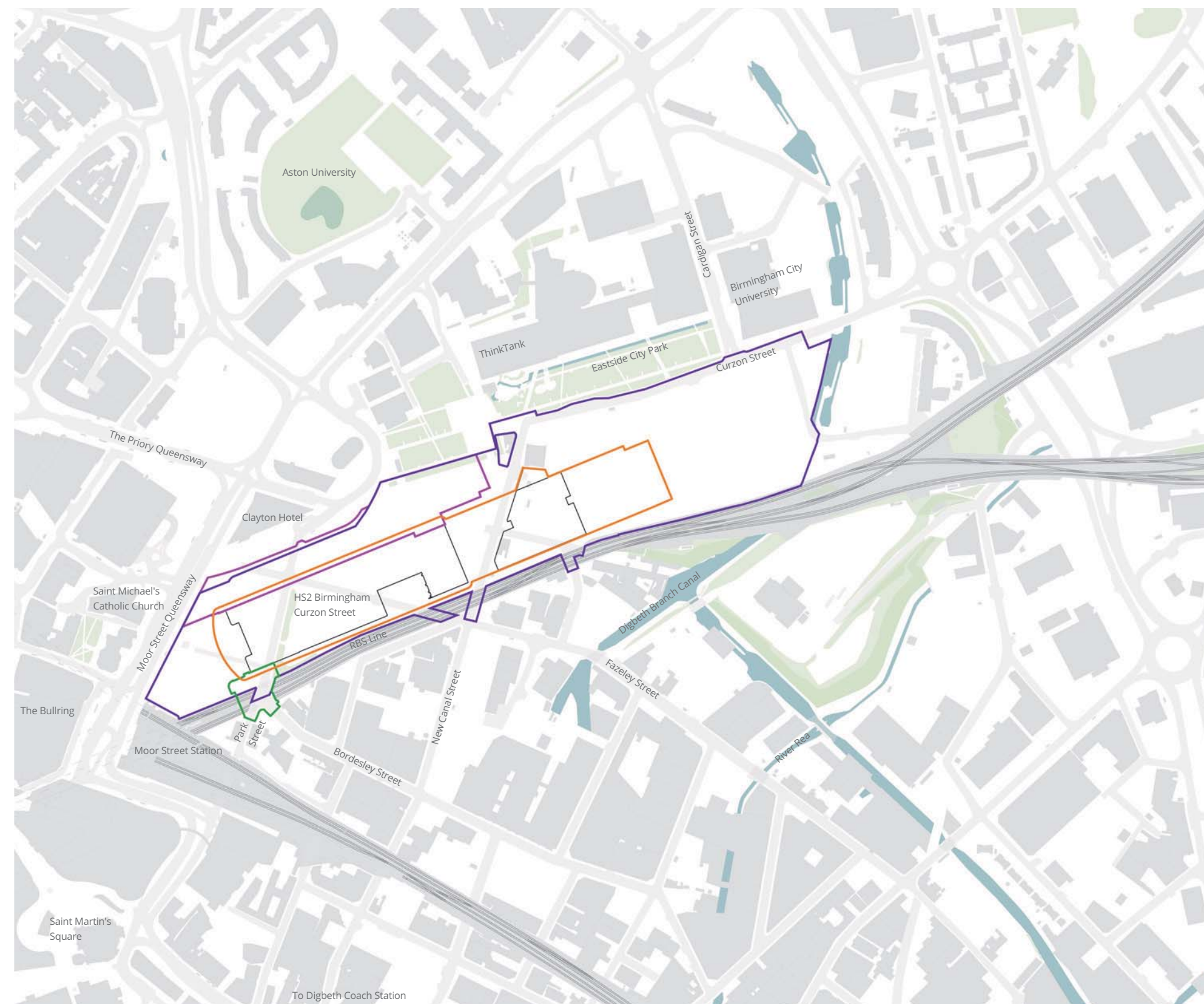
There are four Applications that are being submitted for Approval in relation to the HS2 Birmingham Curzon Street (BCS) Scheme, as listed below:

- BCS Station - Schedule 17 Application
- BCS Urban Realm - Schedule 17 Application
- BCS BCC Enhanced Urban Realm - Schedule 17 Application
- Paternoster Place - Town and Country Planning Act Application

This Design and Access Statement has been prepared in support of the BCS Station and BCS Urban Realm Schedule 17 Applications.

The boundary lines for each Application are illustrated in the Figure 1.1, and an overview of the documents prepared for each Application is provided in Section 1.0.2.

Refer to Section 1.3 for further information on Schedule 17.



- Key
- BCS Station - Schedule 17 Application Boundary
 - BCS Urban Realm - Schedule 17 Application Boundary
 - BCS BCC Enhanced Urban Realm - Schedule 17 Application Boundary
 - Paternoster Place - Town and Country Planning Act Application

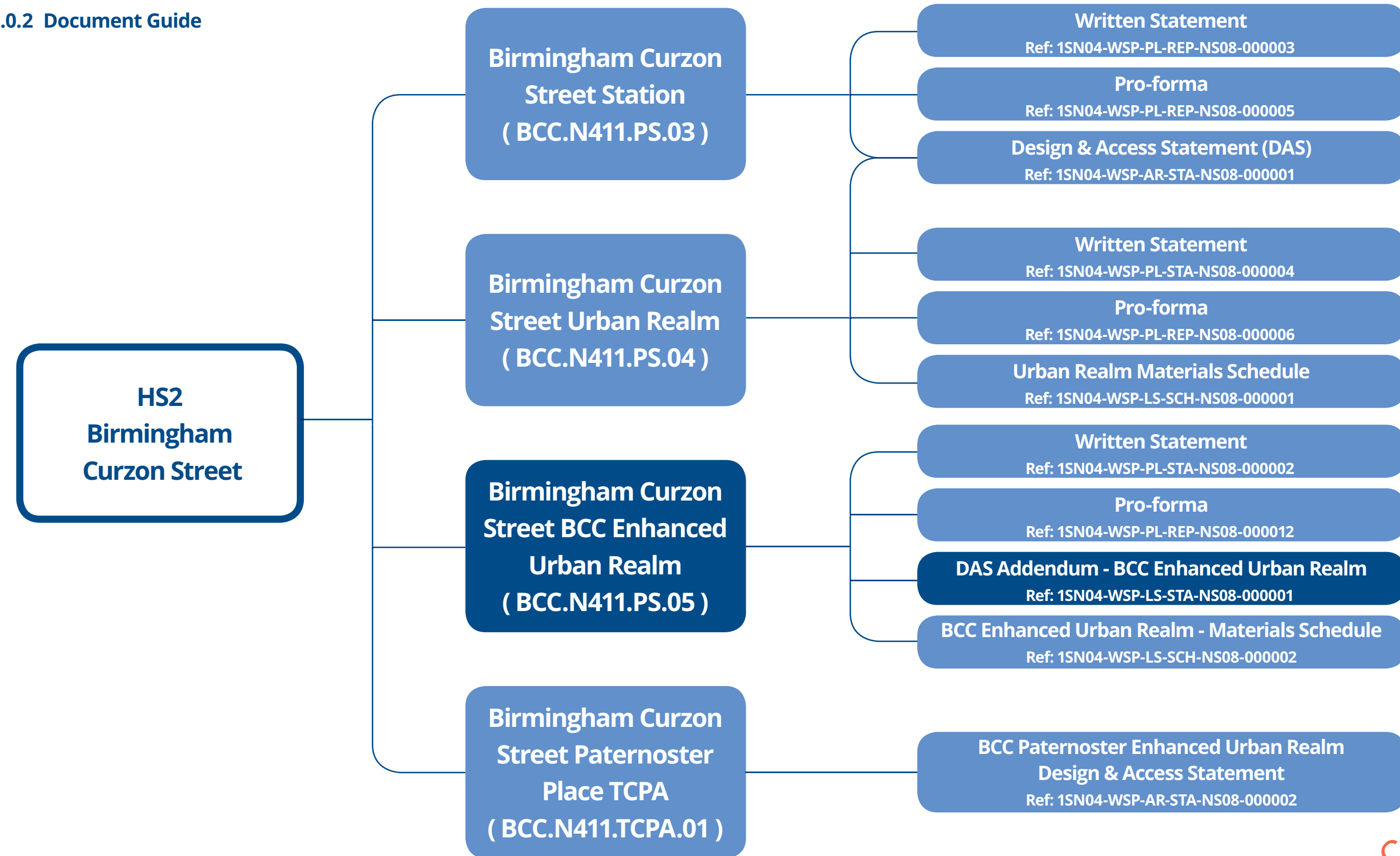


Fig.1.1 Application Boundaries

Schedule 17 Application Documents

1.0

1.0.2 Document Guide



Code 1 - Accepted

Executive Summary

1.1.1 Purpose of Document

This Design and Access Statement supports the submission to Birmingham City Council for approval, under paragraphs 2 and 3 of Schedule 17 of the High Speed Rail (London – West Midlands) Act 2017 for a new HS2 station in central Birmingham.

1.1.2 Document Structure

This report has been subdivided into the following sections:

- **Introduction:** This section summarises the purpose and scope of the project together with Schedule 17 submission requirements.
- **Context:** This section sets the scene in terms of the project location, accessibility, connections and planning policy.
- **Design:** The broad principles and big moves that determine the primary responses to context, site and brief.
- **Layout:** This section addresses the organisation, distribution and management of the functional parts of the station and public realm across the site. This includes the means of access and connection to and from the site and the management of building and environmental configuration at an urban scale.
- **Appearance:** This section concerns the form, scale, aesthetics and use of materials in the proposed scheme.
- **Accessibility & Inclusivity:** This chapter summarises how movement has been considered both around and within the station, and the facilities provided for HS2 customers and the community.
- **Sustainability:** Summary of how environmental, social and economic considerations have influenced and guided the design proposals.
- **Engagement:** Summary of consultation that has been undertaken in support of this application. Key feedback from engagement with local authorities, stakeholders, the local community and the HS2 Independent Design Panel.

1.1.3 Birmingham Curzon Street

The design proposals described within this document have taken cognisance of the following key criteria and have been developed in consultation with HS2, the HS2 Independent Design Review Panel and Birmingham City Council.

The Birmingham Curzon Street design proposal has taken cognisance of the HS2 Design Vision. In particular the core design principles of creating a new network of HS2 Stations to serve:

- people
- place
- time

The Curzon Street Project Vision requires the creation of a new transport terminal which is:

- simple
- elegant
- refined

The design approach for the public spaces around the station is aligned with the Curzon Street Station Design Ambition Report. Development of Public Realm to the new station approaches which creates:

- civic space to the Western entrance
- cultural spaces to the Eastern entrance

Refer to Section 3.3 for more information.

1.1



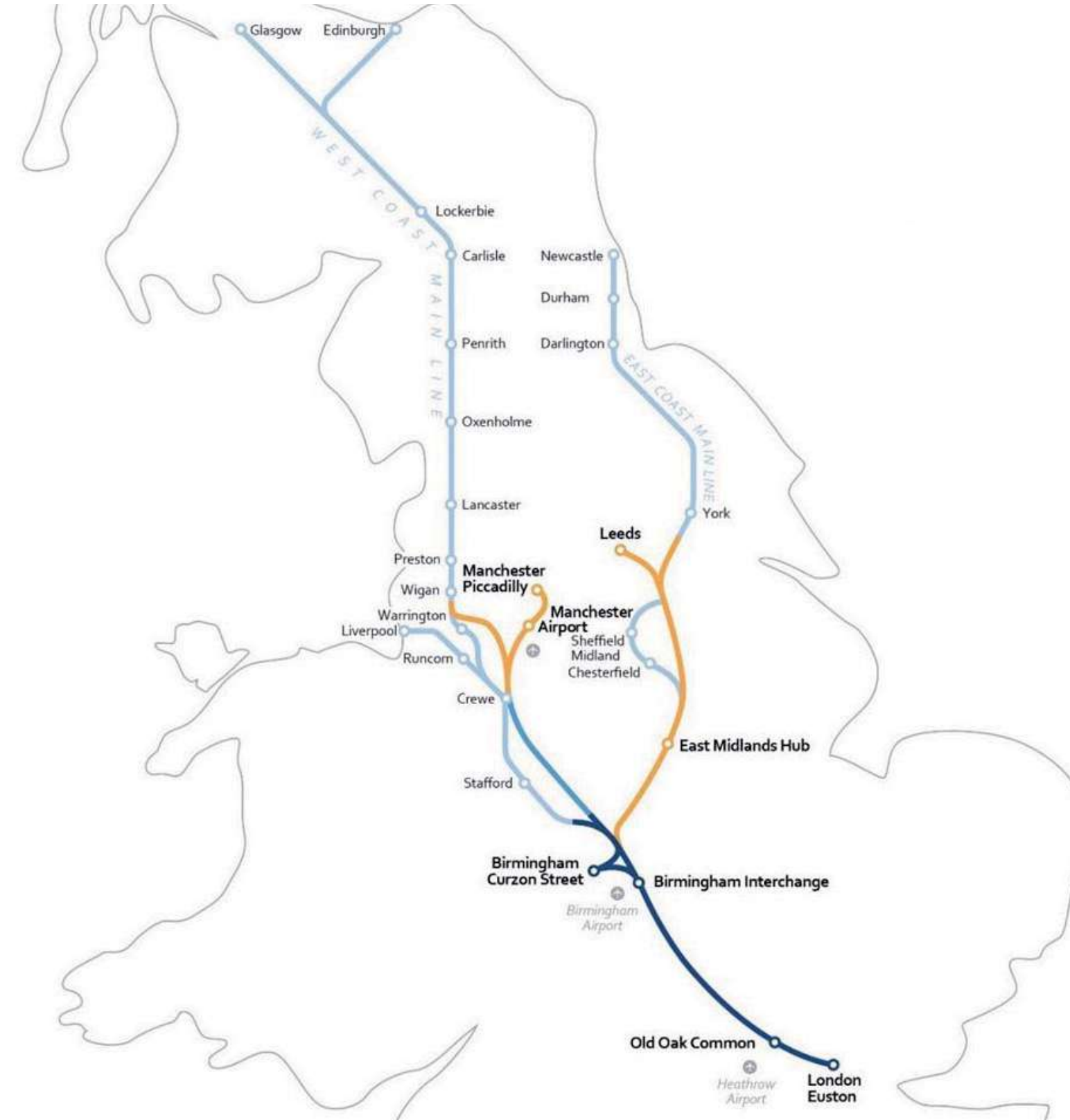
Fig.1.2 Visualisation (View 4) - Station Square

HS2 Project

1.2.1 Project Introduction

HS2 is a new high speed railway network that will connect major cities in Britain. It will bring significant benefits for inter-urban rail travellers through increased capacity and improved connectivity between London, the Midlands and the North. It will release capacity on the existing rail network and so provide opportunities to improve existing commuter, regional passenger and freight services.

Phase One of HS2 will provide a dedicated high speed rail service between London, Birmingham and the West Midlands. It will extend for approximately 230km (143 miles). Just north of Lichfield, high speed trains will join the West Coast Main Line for journeys to and from Manchester, the North West and Scotland.



Key

- New Station (Phase One)
- New Station (Phase 2b)
- Destinations served by HS2 services on existing network
- HS2 line (Phase One)
- HS2 line (Phase 2a)
- HS2 line (Phase 2b)
- HS2 services on existing network



Fig.1.3 HS2 Route Map

1.2

Schedule 17

The HS2 Act grants deemed planning permission for Curzon Street station. Under Schedule 17 of the HS2 Act, HS2 is required to obtain planning approval from BCC for the following matters of detail:

- Plans and specifications;
- Site restoration scheme;
- Bringing into Use; and
- Construction arrangements.

Further detail on Schedule 17 of the Act can be found in the Written Statement accompanying this Schedule 17 submission, for information.

In accordance with the HS2 Planning Memorandum, the HS2 Phase One Planning Forum has been established. The Planning Forum has agreed certain procedures including the requirement for, and content of Design and Access Statements (DAS). Planning Forum Note 1 states that a DAS will accompany, for information only, the Plans and Specification requests for approval under Schedule 17 of the HS2 Act for key design elements and new stations. This DAS has been prepared in accordance with Planning Forum Note 3 which sets out the scope and content of DAS.

Code 1 - Accepted

Application Boundaries

The HS2 Limits of Deviation (LoD) established in the HS2 Act are illustrated in this section. It should be noted that the LoD is identified in both plan and vertically.

Permanent Curzon Street Station works must be wholly within the LoD.

The published Hybrid Bill Limits of Deviation (LoD) drawings are available on the HS2 website (www.hs2.org.uk). They describe the physical limits within which the HS2 works must be built (vertical and horizontal).

The relevant vertical and horizontal limits are shown in Figures 1.3 and 1.4 respectively.

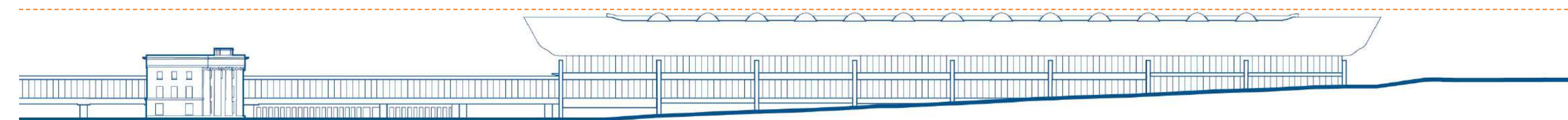
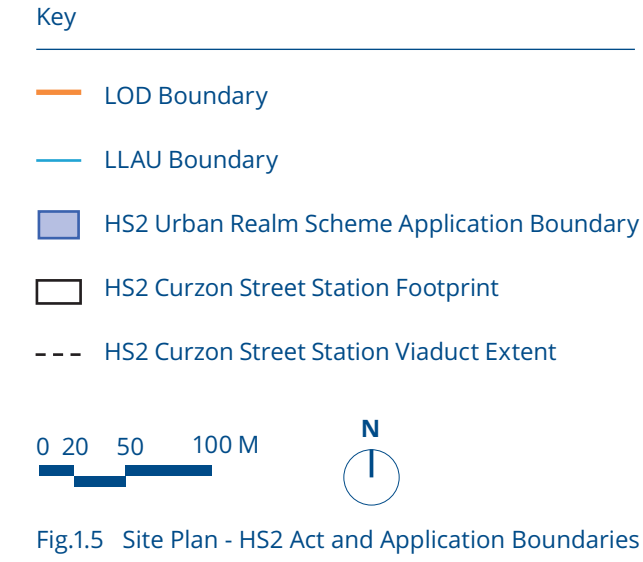
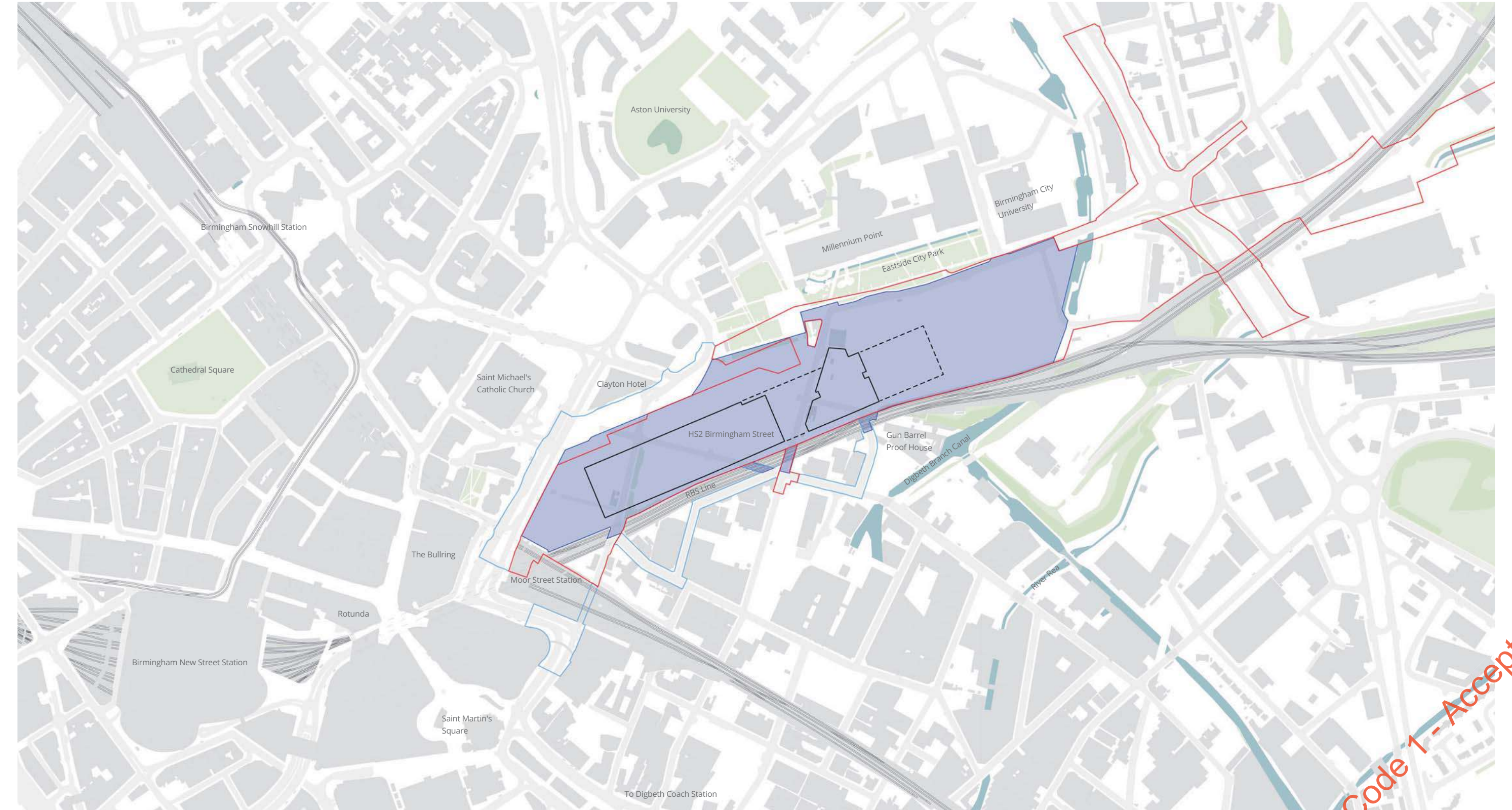


Fig.1.4 Limits of Deviation vertical boundary

1.4



Code 1 - Accepted

Visualisation Viewpoints

1.5.1 Overview

Within this Design and Access Statement, a selection of computer generated visualisations of Birmingham Curzon Street have been included for illustrative purposes. Viewpoints have been selected to present key design features.

1.5.2 Viewpoint Schedule

The viewpoint locations, weather conditions, time of year and time of day are listed and numbered below:

1. Aerial view from North West, Summer, Sunrise
2. Aerial view from North East, Summer, Sunrise
3. Eye level view from North West to Main Entrance Summer, Day
4. Eye level view from Station Square to Main Entrance, Summer, Night
5. Eye level view from Station Square under roof canopy, Summer, Night
6. Eye level view from Curzon Promenade East to OCSS Summer, Day
7. Eye level view from Northern platform to East gable, Winter, Day
8. Eye level view, From North East toward West, Spring, Day
9. 4m elevated view from South West to Paternoster Steps, Spring, Day



Fig.1.6 Site plan - Viewpoint locations

Key External Visualisations



Code / Accepted

Visualisation Viewpoints

1.5.3 Viewpoint Schedule Continued

The viewpoint locations, weather conditions, time of year and time of day are listed and numbered below:

- 10. Eye level view, Curzon Square/ viaduct view toward OCSS, Summer, Day
- 11. Eye level view, Curzon Square/ viaduct view toward West, Summer, Day
- 12. Eye level view, view toward East Concourse East Entrance, Summer, Night
- 13. Eye level view, view toward East Concourse South Entrance, Day
- 14. Eye level view, view through RBS viaduct along New Canal Street, Day

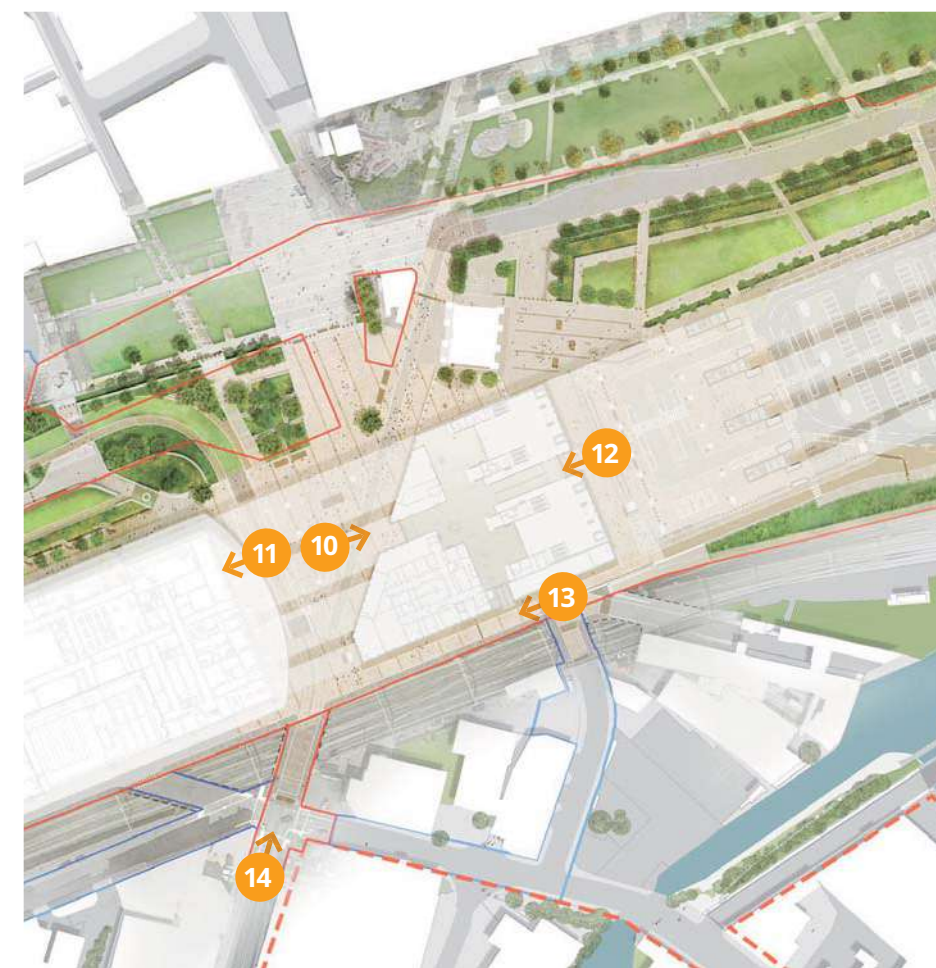


Fig.1.7 Site plan - Viewpoint locations cont.



Key External Visualisations Continued



1.5

Document References

1.6.1 Document list

This Design and Access Statement should be read in conjunction with the submitted drawings and Written Statements as listed below:

- Schedule 17 – BCS Station - Written Statement
15N04-WSP-PL-STA-NS08-000001
- Schedule 17 – BCS Station - Plans and Specifications Pro forma
15N04-WSP-PL-REP-NS08-000005
- Schedule 17 - Written Statement – Urban Realm
15N04-WSP-PL-REP-NS08-000004
- Schedule 17 – BCS Urban Realm - Plans and Specifications and Site Restoration Pro forma
15N04-WSP-PL-REP-NS08-000006

Gridline References

1.6.2 Station Building Gridline References

Throughout this document references are made to gridline numbers and letters. These are used as an orientation method to locate specific zones of the station building proposals. Gridlines running North / South are numbered GL-01 to GL-17. Gridlines running East / West are labelled GL-A to GL-D.

Please refer to figure 1.8 below.

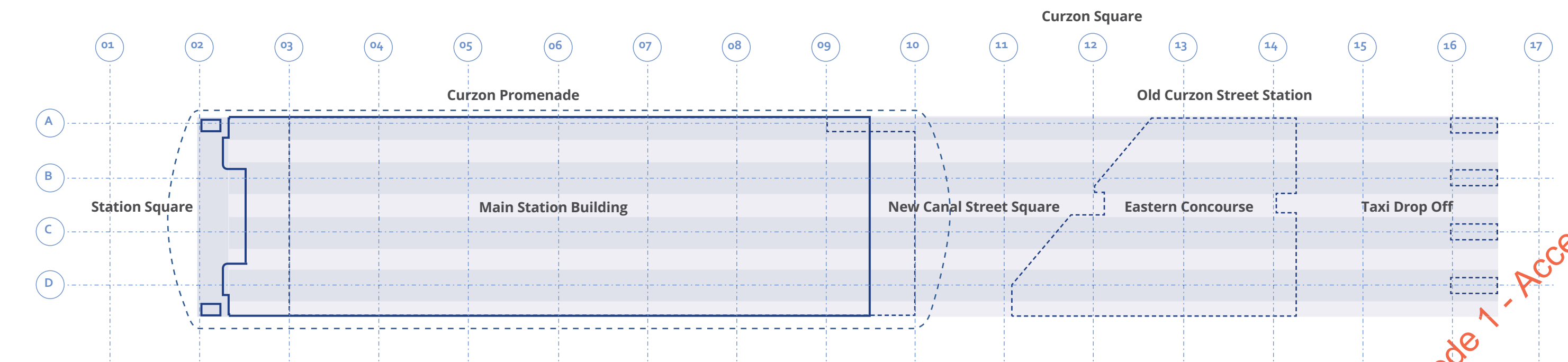


Fig.1.8 Gridline references diagram

Code 1 - Accepted

1.6

2.0 Context

This section sets the scene in terms of the project location, accessibility, connections and planning policy.

Code 1 - Accepted

City Wide Context

2.1.1 City Wide Context

The HS2 Birmingham Curzon Street Station will be the northern terminus of the Phase 1 HS2 line, connecting central Birmingham with London Euston, and two new stations along the route at Birmingham Interchange and Old Oak Common. In future phases the route continues northwards connecting to major destinations in the north of England and Scotland.

The Curzon Street spur of the line takes the high speed railway right up to central Birmingham within easy walking distance of the Central Business District and stations for railway interchange. The western part of the site adjoins Moor Street Queensway, part of the inner ring road completed in the 1970's which the city is now working to restore as a pedestrian-friendly urban street. The HS2 scheme represents an important move in breaking down the divide between the inner and outer districts of central Birmingham and will be integral to future development within the eastern part of the city.

Strategically the site is located between the areas of Eastside to the north and Digbeth to the south, with the Digbeth Branch Canal and outer ring road of Lawley Middleway located to the east.

Whilst existing green spaces are limited within the city centre, the recent development of Eastside City Park has introduced an extensive new park to the area, just north of the HS2 site. The canal network is an asset to the city and key to future green infrastructure links. There is potential to create better connections between these open spaces and city destinations through creation of new open spaces within the HS2 Urban Realm Scheme.

Key

-  Application Boundary
-  HS2 Curzon Street Proposed Station Building footprint
-  Urban Centres
-  Open Green Space
-  Canals and River

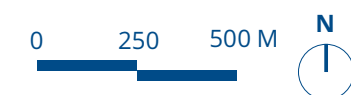
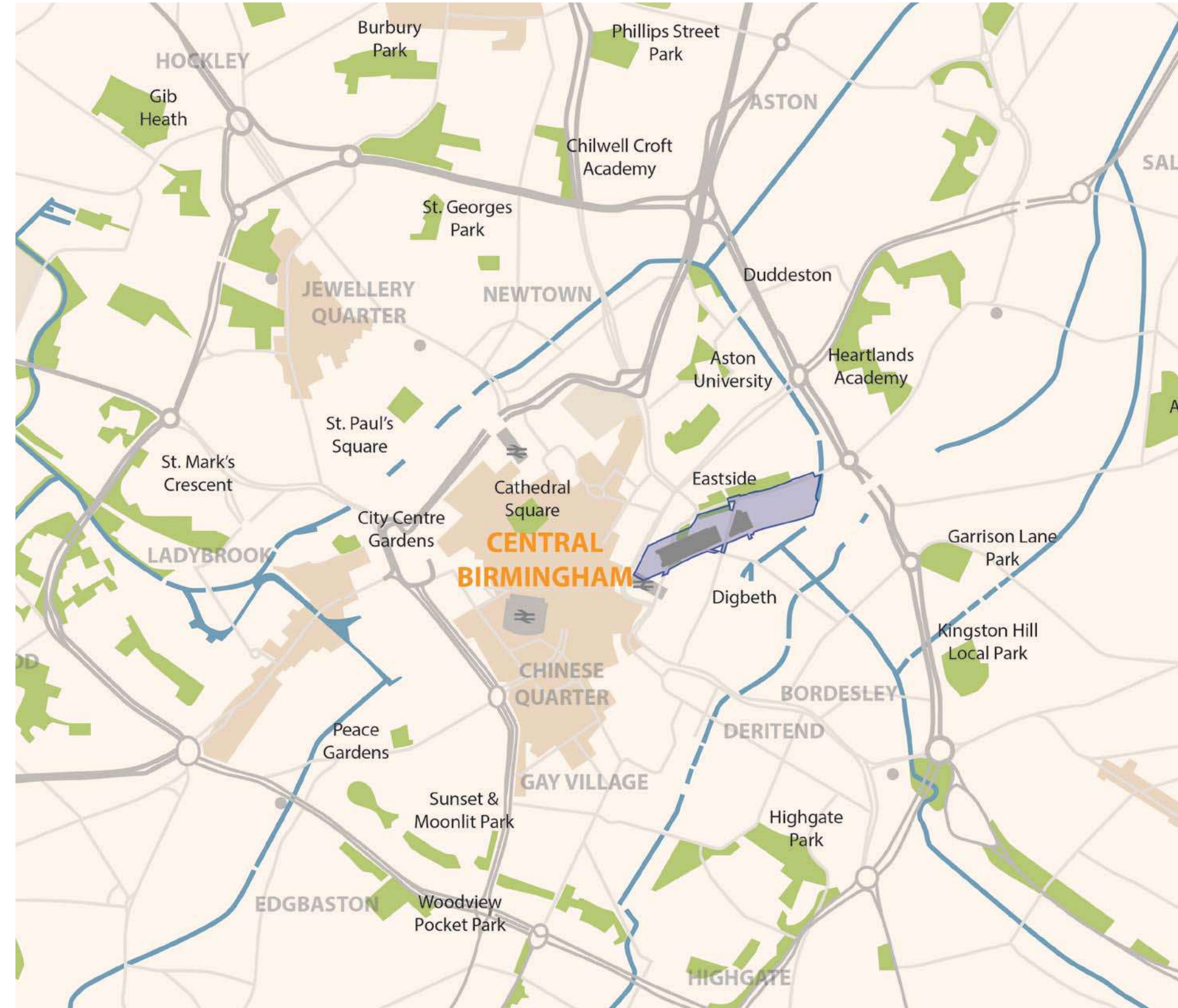


Fig.2.1 City-wide context plan



2.1

Local City Context

2.2.1 Location

Eastside and Digbeth are located to the east of the city centre, within the River Rea valley at a lower level than the core of the city to the west. It is the original industrialised area of the city and historically became one of the most heavily industrialised areas with firstly the arrival of the Grand Union Canal in the 18th and 19th Centuries and subsequently the railways in the 19th Century.

Eastside is an area focused on learning and innovation, and is the location of Birmingham City University, Aston University and the ThinkTank science museum. Digbeth is an historically important Conservation Area with distinct character formed by the many industries based there since industrial revolution. The spirit of industriousness has been revived in recent years through the emergence of Digbeth as a vibrant arts and technology hub. The Digbeth Branch Canal is located to the east of the site connecting to the wider city network.

In recent years, a large proportion of the site has been undeveloped brownfield, and it retains remnants of its previous industrial use. It also features a number of interim uses such as grade-level car parking situated to the western end of the site bordering Moor Street Queensway.

The site was also the location of the Park Street Gardens Burial Grounds which has been removed as part of the site remediation works. The loss of this area of locally important open space and heritage is acknowledged in the proposed public realm design and heritage strategy.

Key



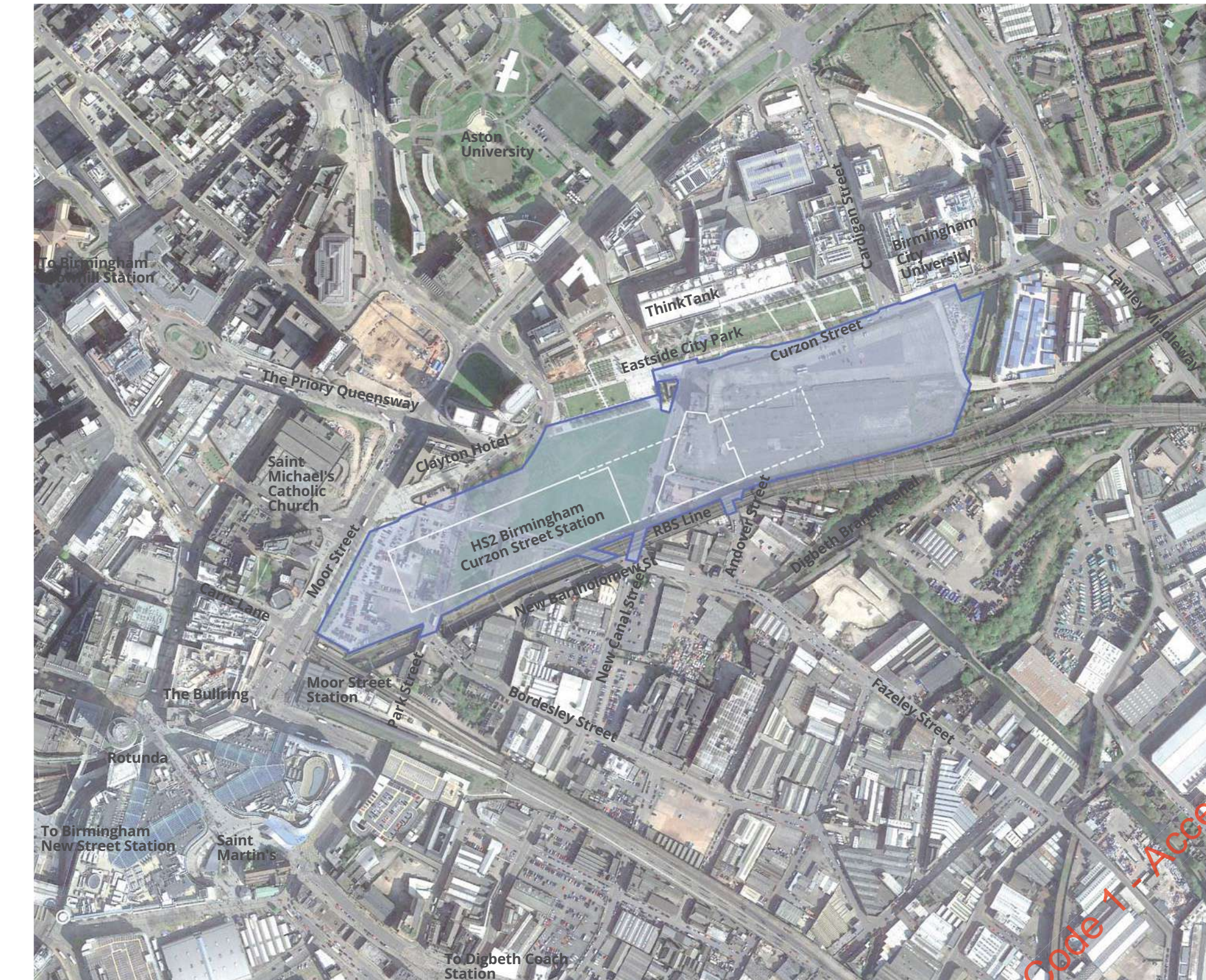
-  Application Boundary
-  HS2 Curzon Street Station Footprint



Fig.2.2 Aerial photograph - Birmingham Curzon Street Station site



2.2

Historic Development

2.3.1 Overview

Historically the HS2 Curzon Street site is located to the eastern edge of the market town of Birmingham, where there has been recorded settlement prior to the time of Domesday (1086).

The underlying geology and topography of the site is based in its position in the valley of the nearby River Rea, with the city centre perched on a higher ridge of Bromsgrove Sandstone. The land falls away through the site location where the meandering and braided course of the Rea exploited more easily eroded Mercian Mudstone, and a series of springs and wells occurred at the junction of the two geologies. The landscape has also been much influenced by man's intervention, particularly the major canal and rail engineering of the later 18th and 19th century, of which Curzon Street illustrates the topographical limitations, stopping short of the incline to the city centre. A long heritage of industrial use in the Birmingham area includes tanneries, dye works, metal-working, water mills and textiles.

During the late 18th century Birmingham became a significant industrial city, known as the 'city of a thousand trades.' The urban population expanded close to the area that is now Park Street, which was still parkland at the time. The 1890 plan shows the Old Curzon Street Station and the still existing grain of New Canal Street, Banbury Street, Curzon Street, Fazeley Street, Bartholomew Street and Moor Street Queensway. The geological ridge determined the location of the first passenger railway with the line terminating at Curzon Street before the topography began to rise towards the city centre. The line connected Birmingham with Euston Station in London.

Park Street Gardens, located within the application boundary, was originally part of a larger deer park, (the medieval Little or Over Park) the land was purchased in 1807 to become a detached burial ground for St Martin's Church. The first burial was in 1810 and it was used extensively for this purpose until 1863 when the number of burials dropped dramatically due to the opening of Witton Cemetery. In 1873 the neglected burial grounds were acquired in order to meet the growing need for open space in Birmingham and it was transformed into a public park in 1880.

SOURCES

1. <https://hs2inbirmingham.commonplace.is>
2. BCC Warwick Bar Conservation Area Character Appraisal



Fig.2.3 The River Rea in Digbeth illustrated in Bernard Sleight's Picture Map of Birmingham 1730



Fig.2.4 Thomas Jefferys' 'A Plan of Birmingham 1750', with Application Boundary overlay



Fig.2.5 Ordnance Survey Map (Warkwickshire, 1:2500) of Birmingham 1890, with Application Boundary overlay

2.3

2.3.2 Existing Infrastructure Legacy

Historically Birmingham has evolved to accommodate a series of major infrastructure projects which provide a valuable study of the benefits and adverse effects that such projects can bring to the city. The most prominent examples include the 18th-century canal networks, the 19th-century rail networks and the A4400 Inner Ring Road of the 1960s and 1970s.

Canal Network

The canal navigations were initiated by local industrialists to improve trade connections and brought forth an economic boom to the city, sparking its heyday as the 'city of a thousand trades.' From a contemporary perspective the legacy of the canal network is particularly significant, for whilst the commercial use of the network has waned the remaining infrastructure has provided Birmingham with a valuable asset that combines amenity space, ecological corridor, water management, pedestrian and cycle-friendly routes, heritage and tourism, and focal point generating many regeneration schemes.



Fig.2.6 The canal network at Digbeth Branch Canal



Fig.2.7 Curzon Street Goods Station

Rail and Tram Network

The rail network advanced Birmingham's status as the UK's second city, with its central location acting as a natural transport hub connecting to destinations across the country. However though the wider links were successful, its fragmented implementation in the city resulted in three major railway stations, and consequently interchange between networks is necessary. This example highlights the need to consider interconnectivity between rail networks as a vital aspect of the HS2 design, as well as the quality of connections to other modes, particularly the MMA Tram network, both of which will be defined within the public realm design.

Road Network

In more recent history the A4400 'concrete collar' demonstrated the divisive nature of infrastructure by physically severing the public realm and prioritising motorists above other users. The impact of this showed very clearly how sensitive the function and economic wellbeing of a city are to its public realm design and serves to illustrate the importance of maintaining good connections through the HS2 BCS site so that the station acts as a catalyst for connections between the city districts rather than a barrier between them. Recent successful interventions have sought to re-integrate the street to the city network, however the legacy of this piece of engineering remains in the constraints of sections of the artificially raised of Moor Street Queensway where it adjoins the BCS site.

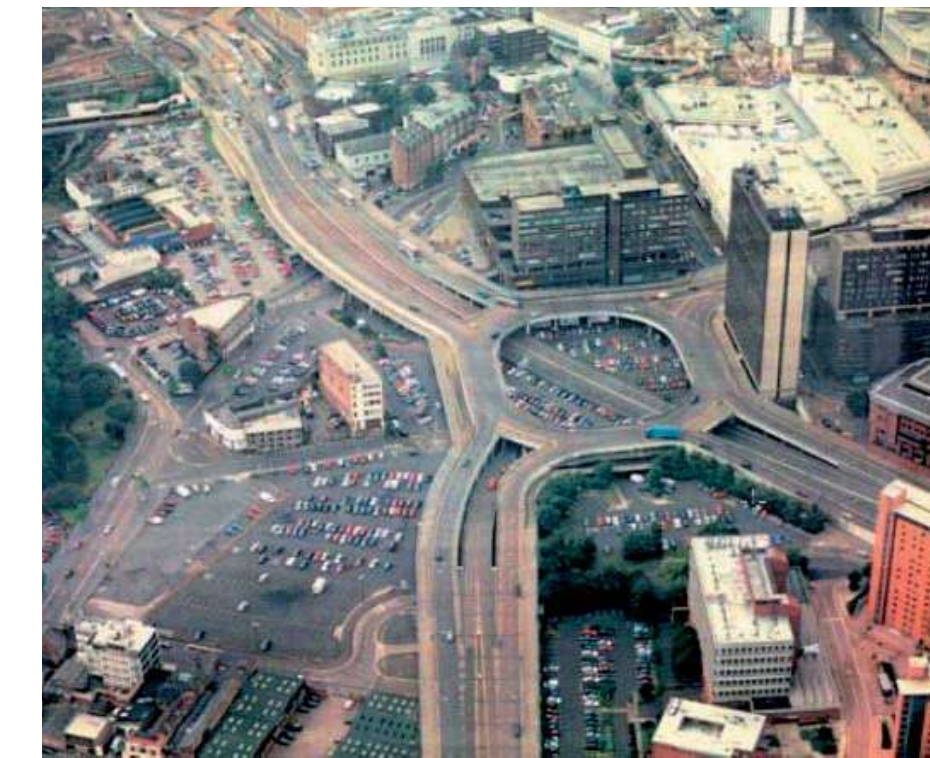


Fig.2.8 Aerial view looking south-west of the historic A4400 Inner Ring Road



Fig.2.9 The 1854 New Street Station, rebuilt in 1964 and refurbished in 2015

Historical Assets

2.4.1 Built Heritage

The principal historical assets in close proximity to the station are as follows:

- Old Curzon Street Station (1838) Grade I Listed. Architect: Philip Hardwick. (List Entry Number: 1343086).
- The Woodman Public House (1896-7) Grade II Listed. Architect: James & Lister Lea. (List Entry Number: 1234088).
- Moor Street Station built 1911-16 (Grade II listed in 1998). Architects: W.Y. Armstrong. (List Entry Number: 1375972).
- The 1838 section of railway bridge into Curzon Street Station over Digbeth Branch Railway bridge built 1837-38 (Grade II listed 1982). Architects: Joseph Locke. (List Entry Number: 1075609).
- Birmingham Gun Barrel Proof House – original building 1813, added to in 1860, 1868-70, 1876 and 1883. (Grade II* listed in 1970). Architects: John Horton. (List Entry Number: 1291262).
- Locally listed canal locks to Digbeth Branch Canal (1799).
- The Eagle & Tun Public House. Locally listed.
- Warwick Bar Conservation Area.



Fig.2.10 Old Curzon Street Station



Fig.2.12 Birmingham Moor Street Station

The HS2 Curzon Street Station design proposals seek to create an appropriate setting for the existing heritage assets near to the station in terms of scale, urban grain and material selections. The design proposals consider both the station building design and the improvements to public realm and landscaping to the station approaches including where this interfaces with the existing locations of each listed structure itemised above.

The Old Curzon Street Station (OCSS) will be incorporated into the Eastern Entrance of the new station and connected by use of a new masonry 'colonnade' screen which will wrap an external landscaped space mediating between the historic structure and the new HS2 station viaducts and Eastern Concourse at New Canal Street. This places the OCSS at a key entry point to the station and will thereby generate footfall and opportunities for an active re-use of the listed building.

A further carefully configured design proposal is to maintain the existing street pattern of New Canal Street as a design driver for the layout of the eastern entrance, thereby enabling preservation of sight-lines to the OCSS from the southern approach from Digbeth.

The Woodman Public House will be integrated into hard and soft landscape proposals within the Application Boundary as part of a new piece of Public Realm north of New Canal Street, and Curzon Square.



Fig.2.11 Woodman Public House

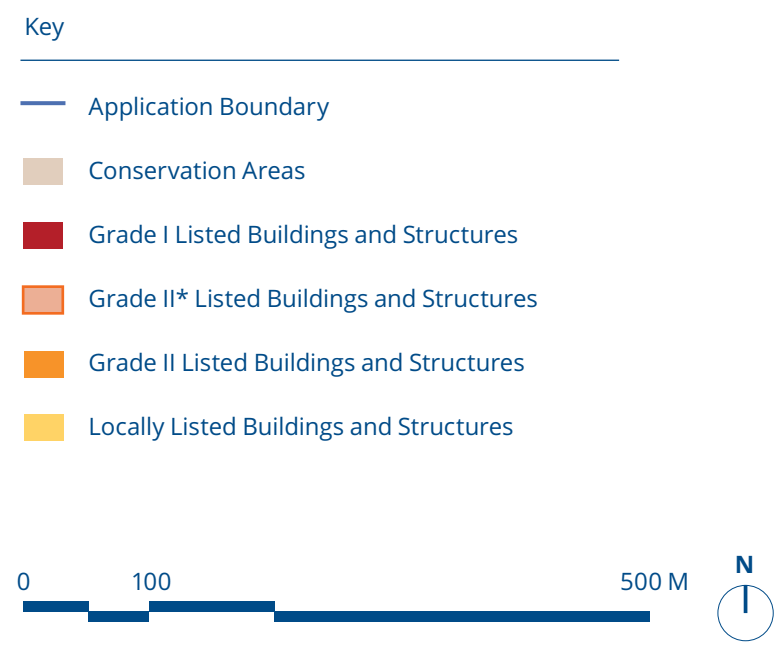
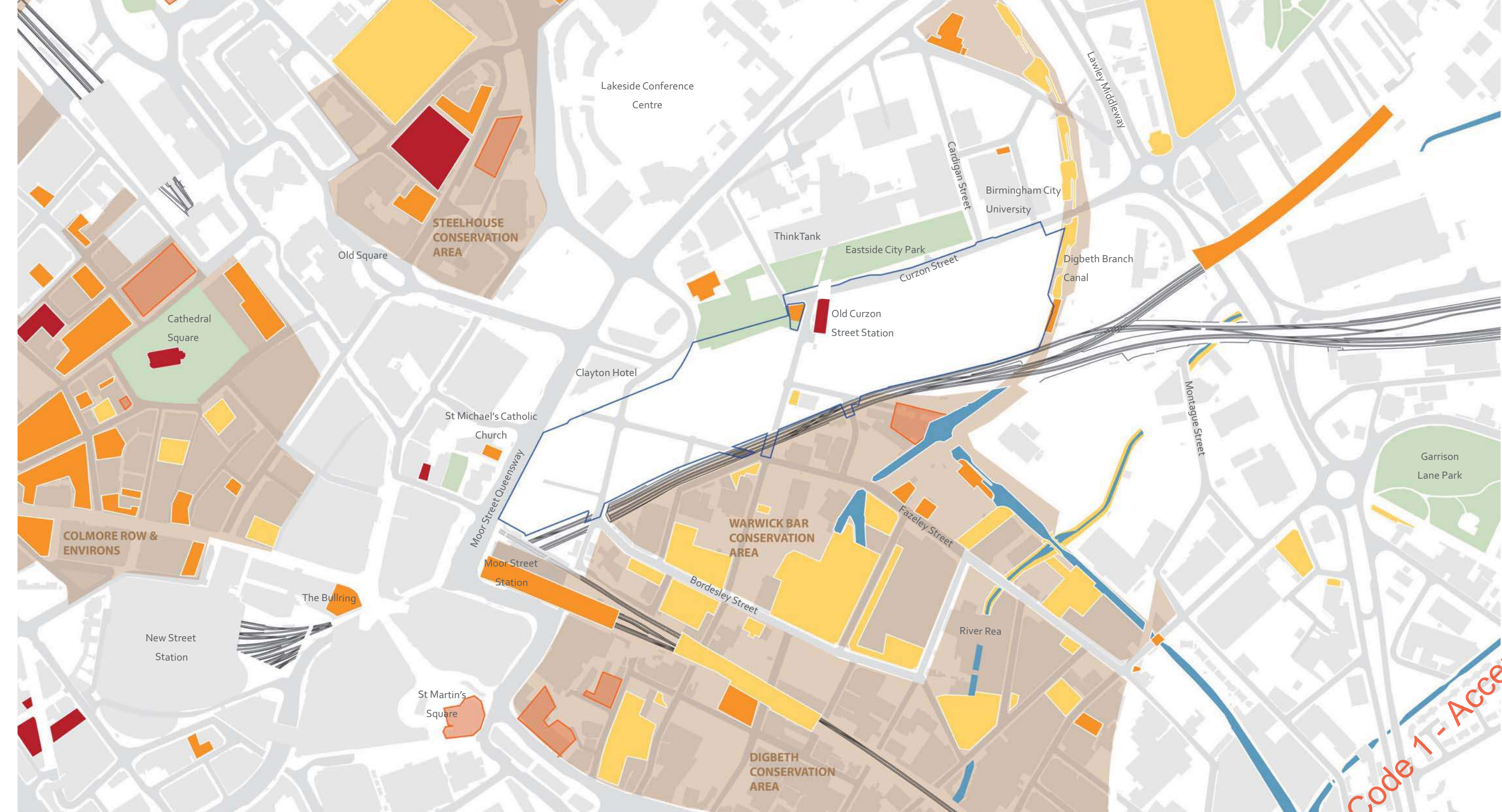


Fig.2.13 Existing Built Heritage Plan



Code 1 - Accepted

Green Infrastructure

2.5.1 Existing Green Infrastructure in Birmingham

A review of the existing green infrastructure within the wider city demonstrates the relative lack of green open space to the city centre in comparison with the network of green space distributed closer to the outer ring road of the city. These green spaces are varied in type and function but collectively contribute to forming the green infrastructure of the city, facilitating routes for sustainable transportation, promoting healthy lifestyles and providing vital biodiversity corridors which enable people to encounter nature as part of their daily lives.

The blue infrastructure network of the city similarly takes a radial form with the canal network that provides the primary cycle route through the city and an important leisure amenity and ecological corridor connecting out into the wider countryside.

The existing railway infrastructure forms another interesting ecological corridor with a combination of planted embankments and spontaneous ruderal vegetation bringing ecological value to some heavily urbanised areas.

The scale and strategic position of the HS2 Birmingham Curzon Street site offer excellent opportunities to enhance the green infrastructure of the city, creating a strong connection between the city centre and outer zones, which can be used to create new sustainable transport connections, new leisure and recreation space, and a significant green corridor to support biodiversity.

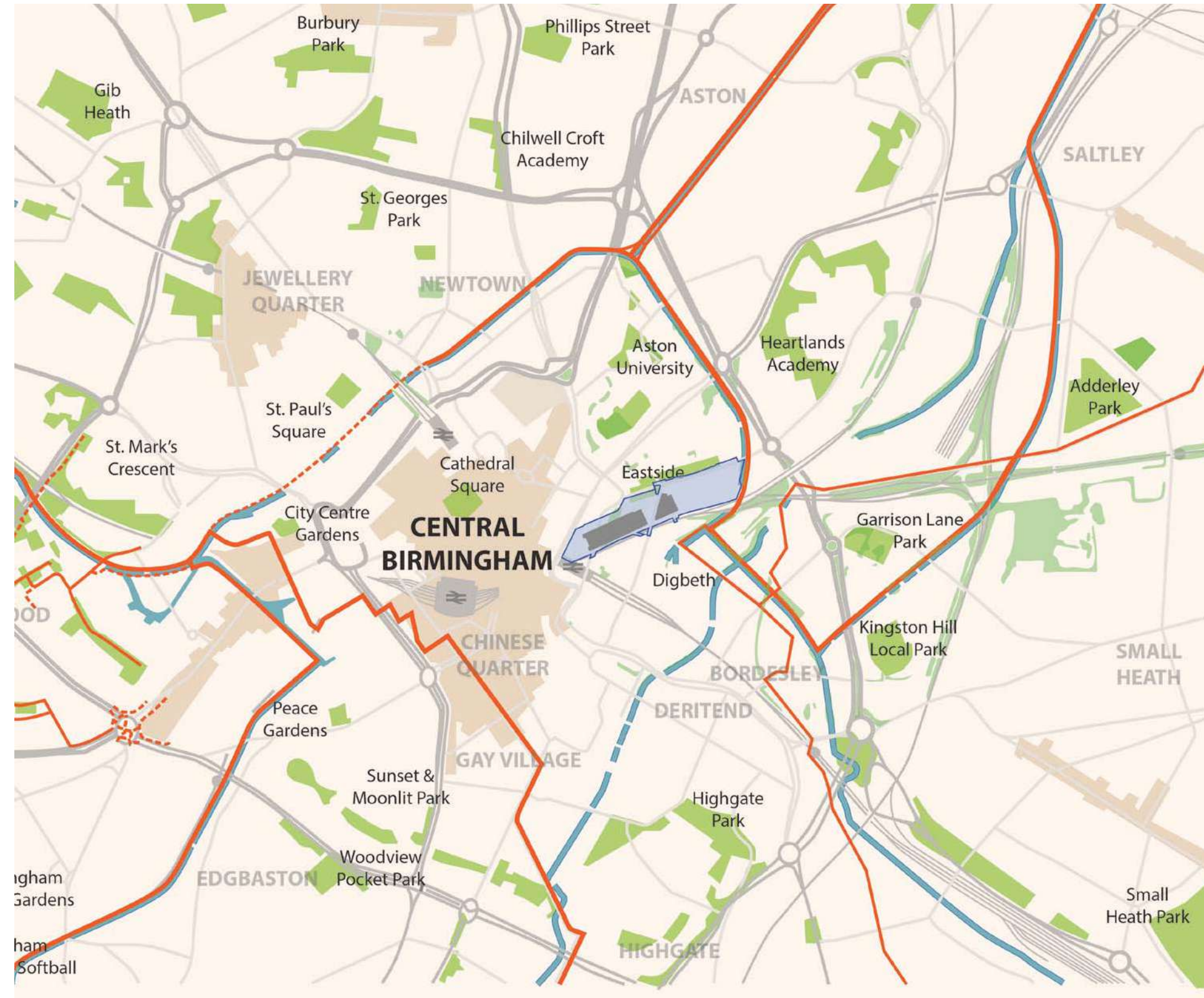
Key

- Application Boundary
- City Centre
- Green Spaces
- Canals and River
- Strategic Cycle Network
- HS2 Curzon Street Proposed Building footprint

0 250 500 M



Fig.2.14 Site plan - existing green infrastructure



2.5

Environmental Context

2.6.1 Environmental Constraints

The existing environmental context of the site points to a number of significant constraints and opportunities to which the proposals must respond.

Key considerations:

- Site Topography: There is a level change of approximately 15m between the western end of the site at Moor Street Queensway and the centre of the site at the location of the Old Curzon Street Station (OCSS).
- Physical constraints of the Rugby Birmingham Stafford (RBS) Railway infrastructure and wide road of Moor Street Queensway.
- The low level of the site forms a catchment to flood water paths coming from the higher ground to the north and west.
- The history of industrial land-use has resulted in the presence of contaminated soils requiring remediation.
- The existing tree framework within the area is fragmented with pockets of mature tree planting to a number of main roads and newer developments (notably Eastside City Park). Mature tree planting is present within established open green spaces including Cathedral Square and the Aston University Campus. An informal network of trees and understorey vegetation has also developed along parts of the canal and railway infrastructure. The removal of trees at Park Street Gardens is to be mitigated through a robust proposal for tree planting within the scheme which ensures a diverse range of resilient and long-lived species will be planted.

Key

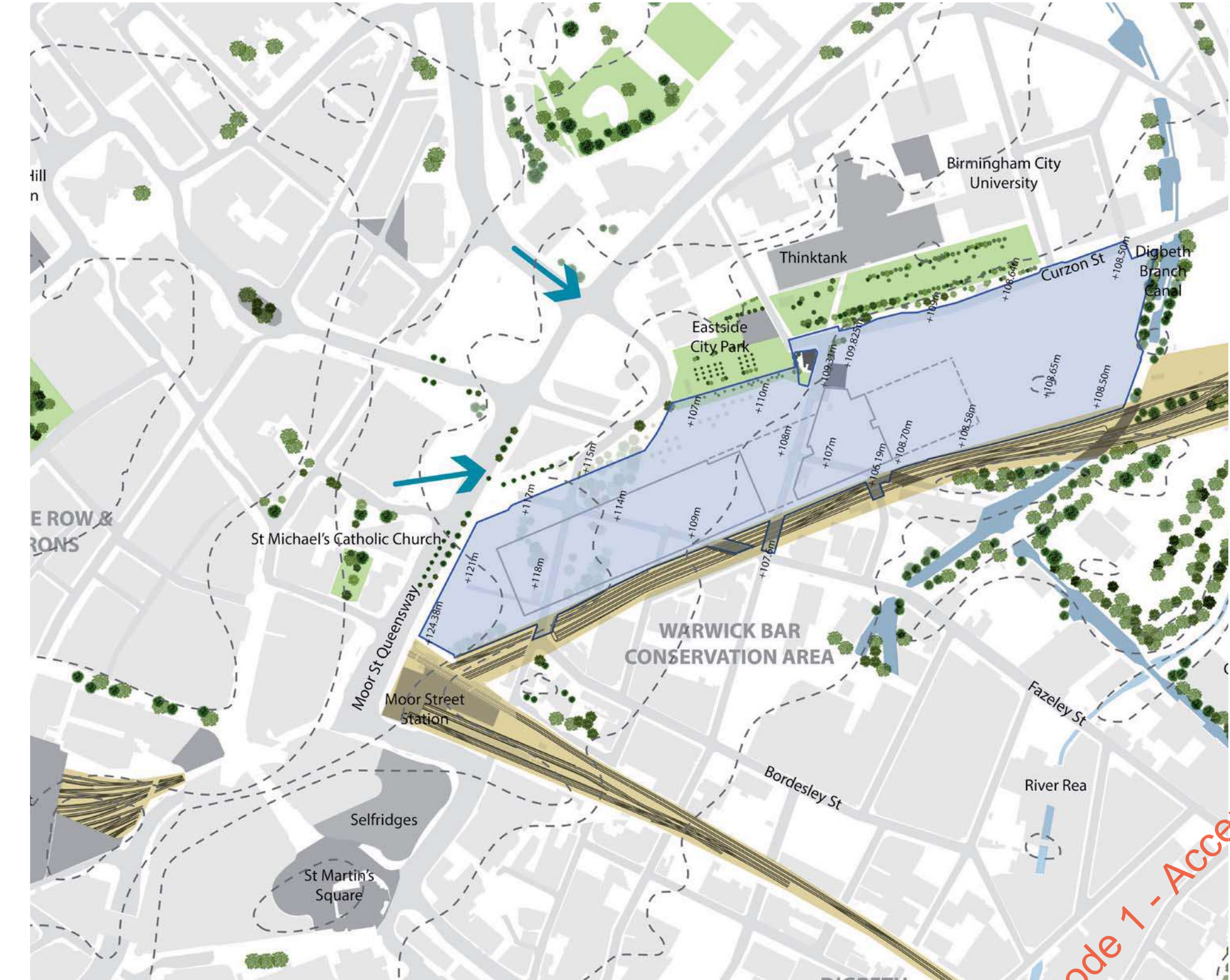
- Area within Application Boundary
- Existing Railway Land
- Public Open Green Space
- Canal / River Network
- Indicative Contours
- Landmark Buildings
- Flood Event Surface Water Flow
- Existing Tree Framework
- Trees Removed from Site as part of Remediation Works

0 100 500 M



Fig.2.15 Environmental constraints plan

2.6



Code 1 - Accepted

Planning Context

2.7.1 Planning Context

The HS2 Act is the principal planning context for the Curzon Street station. The Act grants deemed planning permission for Curzon Street station subject to approval under Schedule 17.

The Birmingham Development Plan 2031 (BDP)

The Birmingham Development Plan was adopted by Birmingham City Council on 10th January 2017. It sets out our vision and a strategy for the sustainable growth of the City for the period up to 2031.

The BDP sets out a framework that will guide future development across the City, in particular how the City addresses climate change, quality of life, delivery of infrastructure, creation of an inclusive economy and Birmingham's national and international role.

Big City Plan

In September 2010 Birmingham City Council launched the Big City Plan, a twenty year framework that establishes a strategy to create a world class city centre: significant areas of growth and development, sustainable regeneration, new infrastructure and the creation of high quality environments. To support this growth, the Greater Birmingham and Solihull Local Enterprise Partnership identified Birmingham City centre as its first Enterprise Zone which entails an investment plan to incentivise and encourage development, funding for enabling works and a simplified planning process. In addition, the development and progress of HS2 makes clear the need for accelerated investment, acting as the catalyst and opportunity to rapidly transform the areas of Eastside and Digbeth to meet the Big City Plan aspirations.

Eastside Masterplan 2011

This document sets the opportunities for promoting the expansion of the City Core into the Eastside Area and builds on the Big City Plan's identification of Eastside as an 'area of transformation'. It allows for the development of residential, leisure and tourism around a new City centre park.

Birmingham Curzon HS2 Masterplan

In July 2015, the City Council adopted a new masterplan for the Eastside, Digbeth and eastern side of the City centre Core. In addition to the City's aims to create a world-class station, and building upon the work of the Eastside Masterplan (2011), the Curzon HS2 Masterplan seeks to maximise the potential by:

- Identifying a range of development and regeneration opportunities providing the spatial, economic and design framework to capture and promote the area's growth potential;
- Promoting the City's expectation of HS2 station as a world-class 21st century landmark building that further strengthens a positive image for Birmingham and its economic role;
- Seeking to ensure the station is fully integrated into the urban fabric of the City centre and opens up accessibility between the City centre Core, Eastside and Digbeth;
- Setting out the key requirements and proposals for ensuring that high quality and efficient walking, cycling and public transport connections continue into and throughout the City centre;
- Promotes the importance and potential of the wide range of heritage and ecological assets in the area;
- This is supported by the Curzon Investment Plan (June 2016) which highlights capital projects to support the aims of the masterplan.

Surrounding Development

HS2 Curzon Street Station is central to a surrounding new development context coming forward within Birmingham's City core. To the north of the site new developments will form the northern perimeter of the scheme and serve as a focal point for station users upon alighting through the western concourse entrance. Further to the east Birmingham City University and Aston University's continue to expand their campuses offering a world leading level of education and facilities serving over 50,000 students travelling to and from the campus daily. This education context compliments a wider transformation of Digbeth due to be one of the key beneficiaries of the HS2 development.

Today Digbeth is home to an established and growing creative sector that utilises the historic buildings and streets as a hub for digital media, gaming and arts companies complemented by a diverse cultural and night-life scene. If the right catalysts are applied, Digbeth will provide employment in the future industries which are critical to Birmingham's economy allowing Digbeth to act as a geographic focal point for the digital industries outside London.

Exchange Square (currently under construction) will provide over 800 Private Rental Sector units and 50,000 sqft of leisure led retail accommodation 200m from the station entrance. Formed around a new public square it will serve as an animating development for footfall along Masshouse Lane and Moor Street Queensway to the station's entrances.

The redeveloped Martineau Galleries site will act as a fulcrum, connecting the business district of Snowhill to the west, the City's established retail core to the south and the emerging HS2 Station development to the east. Forming the main development opportunity immediately opposite the station's western concourse the site is currently under design development for a mixed use masterplan to bring forward a transformation of this key city centre location.

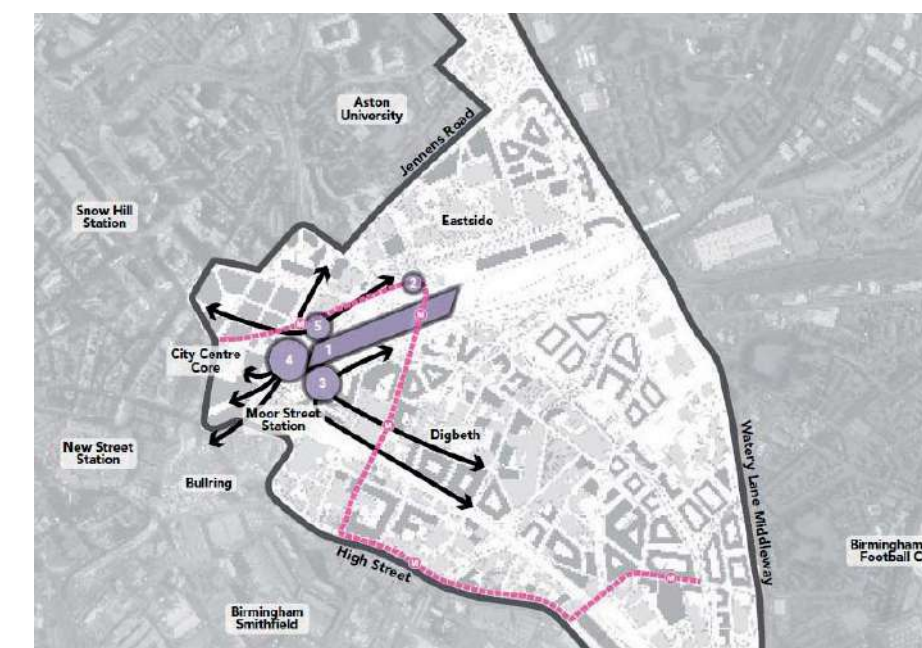


Fig.2.16 Birmingham City Council Birmingham Curzon Masterplan for Growth: The Big Moves

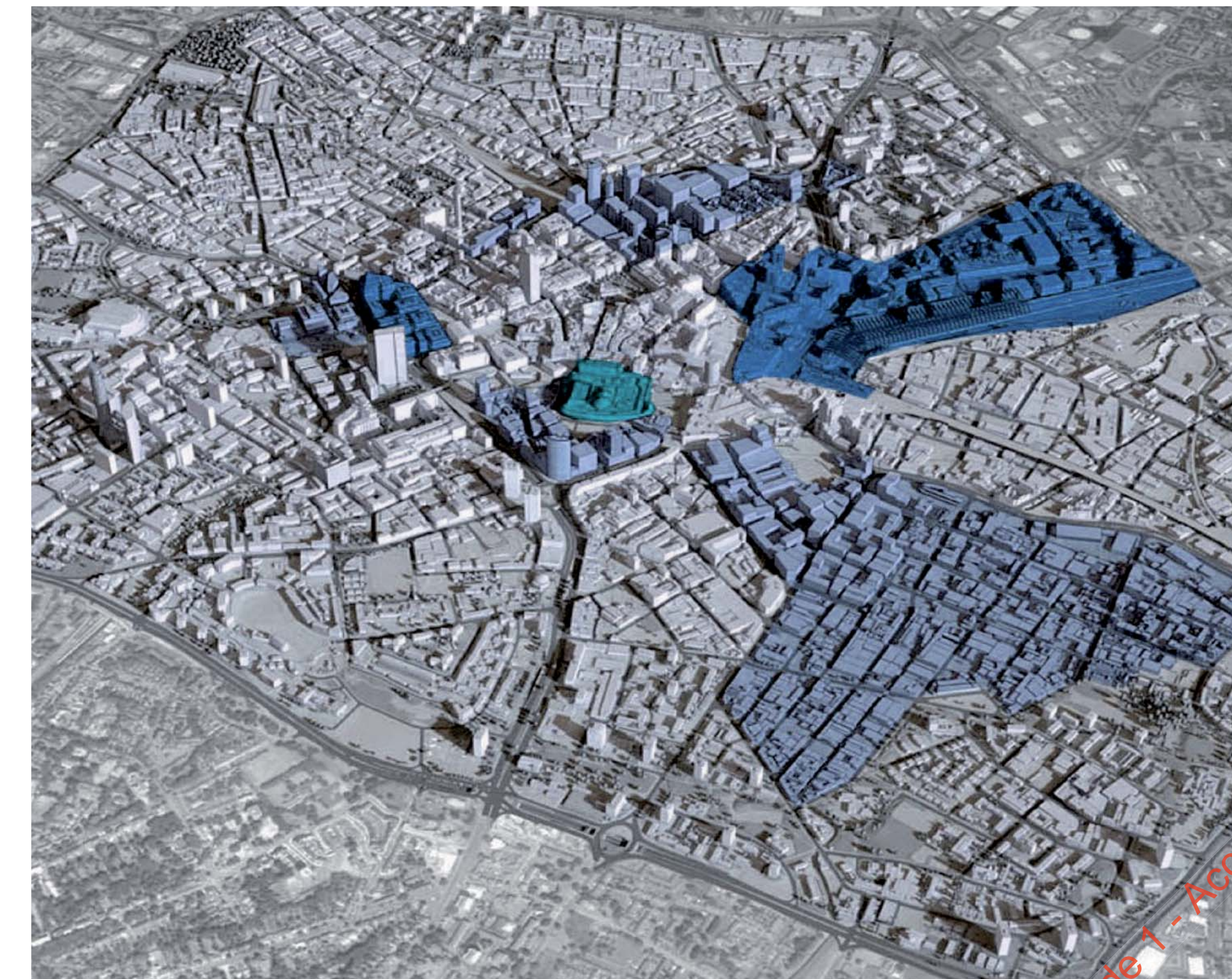


Fig.2.17 Birmingham City Council Big City View

Code 1 - Accepted

3.0 Design Vision

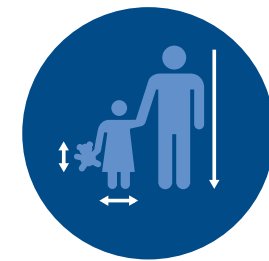
The broad principles and big moves that determine the primary responses to context, site and brief.

Code 1 - Accepted

HS2 Design Vision

3.1.1 HS2 Core Design Principles

The Design Vision sets out the role that design can play in making High Speed Two a catalyst for growth across Britain. HS2 is based on three core design principles of people, place and time. These have informed the design process for the Birmingham Curzon Street at every stage and provide a basis against which design solutions have been tested.



People

Design for everyone to benefit and enjoy

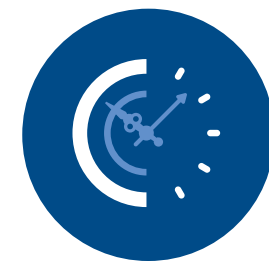
1. Design for the needs of our diverse audiences
2. Engage with communities over the life of the project
3. Inspire excellence through creative talent



Place

Design for a sense of place

4. Design places and spaces that support quality of life
5. Celebrate the local within a coherent national narrative
6. Demonstrate commitment to the natural world



Time

Design to stand the test of time

7. Design to adapt for future generations
8. Place a premium on the personal time of customers
9. Make the most of the time to design

Fig.3.1 HS2 core design principles - People, Place and Time

3.1.2 Other Key Design Principles

Other key aspects of the HS2 Design Vision that have influenced the design of Birmingham Curzon Street are summarised as follows:



Identity

The HS2 Arts Strategy is an opportunity to foster HS2's vision to enhance national and civic pride through one-off expression and local design stories.



Environment

The HS2 Sustainability Strategy promotes an environmental rationale to deliver imaginative, appropriate and environmentally sensitive solutions.



Innovation

HS2 Ltd has brokered partnerships with industry bodies and centres of excellence, to create an ecosystem of resources to encourage and support innovation across the programme of work.

3.1

3.1.3 HS2 Strategic Goals

From an early stage of the project, core strategic goals were established as key outcomes for the new high speed line. These goals have guided the design approach to the Birmingham Curzon Street (BCS), with the following acting as key drivers for the design;

HS2 will create an environmentally sustainable solution and be a good neighbour to local communities:

- To design every part of HS2 and its service to be sympathetic to the people and places we affect and to stand the test of time
- To actively communicate with neighbours and interest groups to minimise the impact of HS2 construction and operation on people and the environment

HS2 will set new standards in passenger experience

- To deliver passenger experience and customer service that is recognised worldwide
- To place people at the heart of our design, setting new standards for travel

3.1.4 HS2 Sustainability Goals

Sustainability is an important component to making HS2 an exemplar project. Therefore designing out and reducing waste, minimising our carbon footprint and protecting Britain's heritage shall be key drivers for BCS. The HS2 sustainability goals are set out in Fig. 3.3.



Fig.3.2 HS2 strategic goals



Spreading the benefits

Economic growth and community regeneration

Being a catalyst for regeneration and economic growth across the UK, maximising the benefits to communities and individuals and minimising the negative impacts.



Opportunities for all

Skills, employment and education

Providing rewarding jobs and careers that are open to all in society, setting new standards for equality, diversity and inclusion and providing a legacy of skills, learning, expertise and experience.



Safe at heart

Health, safety and well-being

Creating a world-class 'safe at heart' culture where no one gets hurt, and which prioritises the health and well-being of those who build, operate, use and host HS2 services and infrastructure.



Respecting our surroundings

Environmental protection and management

Being a catalyst for breaking new ground wherever possible on environmental standards including resource use, waste, carbon minimisation, the protection of the natural and historic environment and safeguarding communities.



Standing the test of time

Design that is future-proof

Designing a network that is resilient to climate change, adaptable to future trends and demands, and built around the needs of the people who will use it.

Fig.3.3 HS2 sustainability goals

Code 1 - Accepted

Design Evolution

3.2.1 Overview

The station design has developed and evolved since the Hybrid Bill stage having undergone a number key strategic design studies. These developments have been undertaken in order to optimise the design and further implement the HS2 principles of people, place and time.

3.2.2 Station Massing

- The Hybrid Bill Scheme was planned on a diagonal grid layout. The application scheme follows an orthogonal grid that increases planning efficiency and counteracts urban severance through optimisation and creation of new public places. The overall footprint has been reduced.
- In the east, this development has allowed for the enlargement of New Canal Street Square and Curzon Square addressing severance between Eastside and Digbeth.
- In the west, the previous footprint position blocked the main desire line from Bordesley Street to the station and beyond to Martineau Galleries and the CBD. The current design moves the concourse eastward and connects Bordesley Street directly with Station Square.
- Since the Hybrid Bill Scheme the station's massing has been developed to minimise the impact on local Heritage by instating a margin of over 90m between the arch's north east corner and the south west corner of the listed Old Curzon Street Station building.
- The contextual design strategy ensures that the OCSS remains visible on the skyline and not dominated in scale by the station.

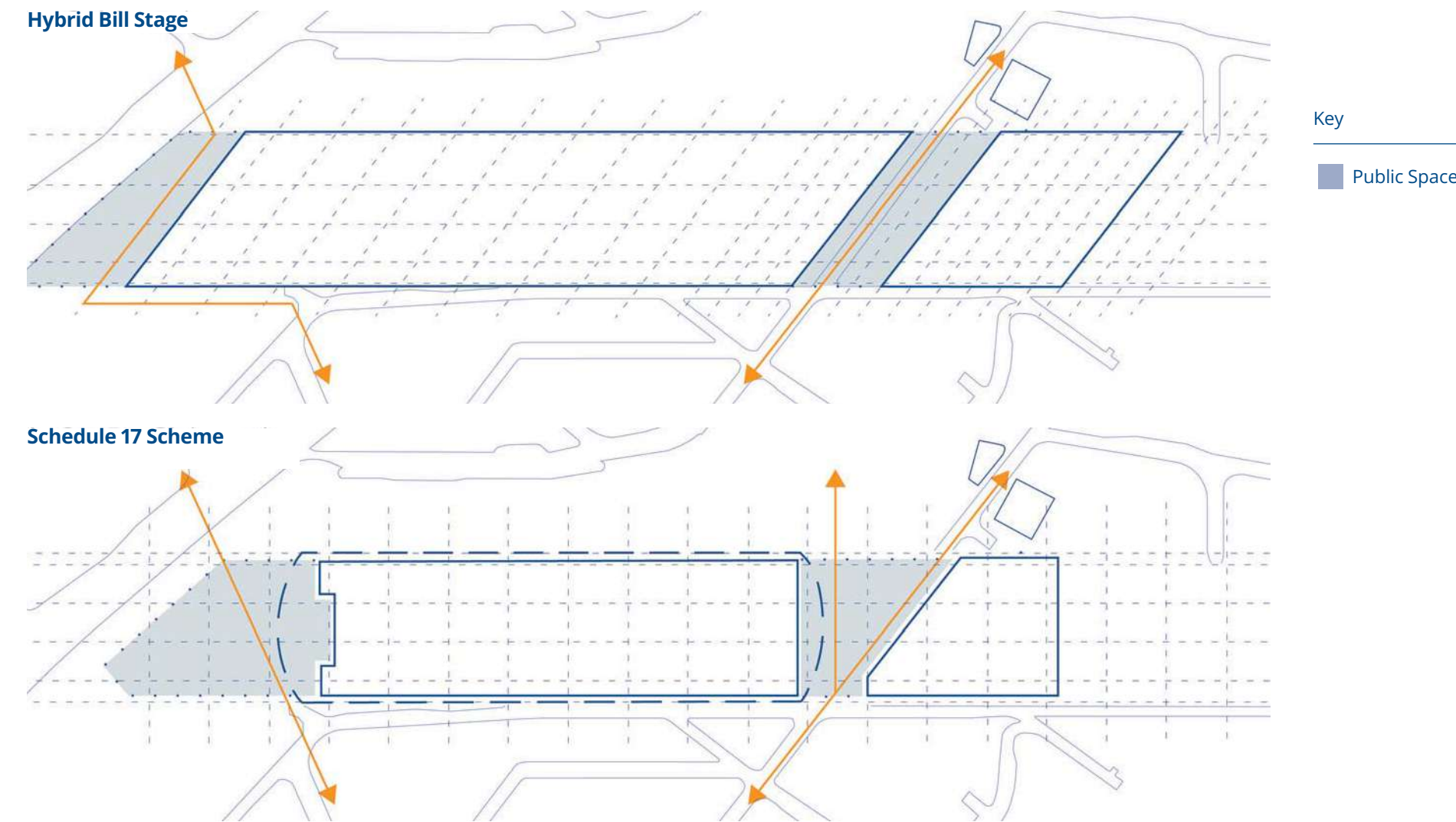
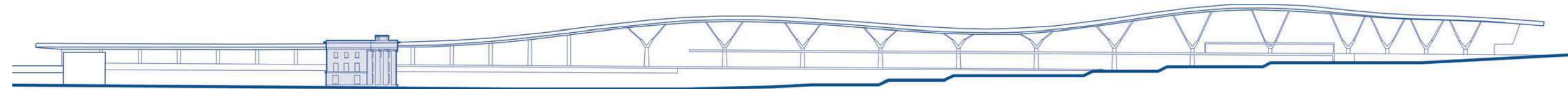


Fig.3.4 Plan diagrams showing footprint and pedestrian routes

Hybrid Bill Stage



Schedule 17 Scheme

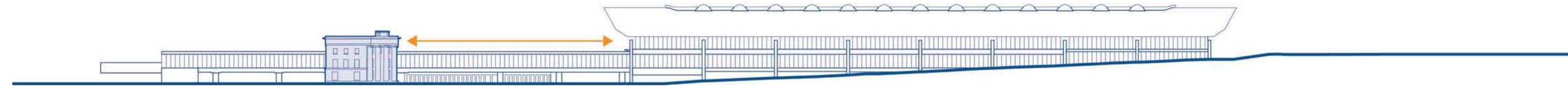


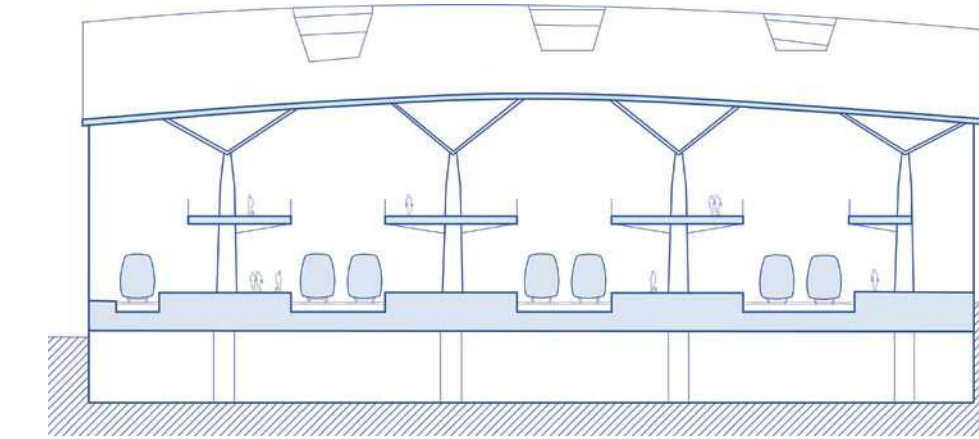
Fig.3.5 Long elevations showing roof extents

3.2

3.2.3 Station Spatial Organisation

- A major design change since the Hybrid Bill stage is the roof form. The station presents a simple, elegant and refined arched surface where the roof structure and warm timber soffit are integrated into a single modulated whole. This surface peels away from its supports at its long sides so that it appears to float, creating a strong identity for the new HS2 station.
- The roof has been efficiently engineered to allow for a column-free concourse to maximise visibility and improve the passenger experience.
- Train roofs are now covered while platforms and concourse are visually connected so that passengers at both levels experience the warmth conveyed by the arched soffit. All east/west circulation routes within the main concourse are aligned directly over the trains while voids around escalators and lifts are created in between. Overhead electric cables are therefore completely covered, and it is impossible for anything to fall on them from above.
- Back of House areas have been consolidated centrally at low level allowing for efficient servicing and significantly reducing scope of excavation. The Loading Bay has been relocated to low level from platform level which has allowed for the expansion of Station Square and eliminates conflicts between pedestrians and service vehicles on Park Street.

Hybrid Bill Stage



Schedule 17 Scheme

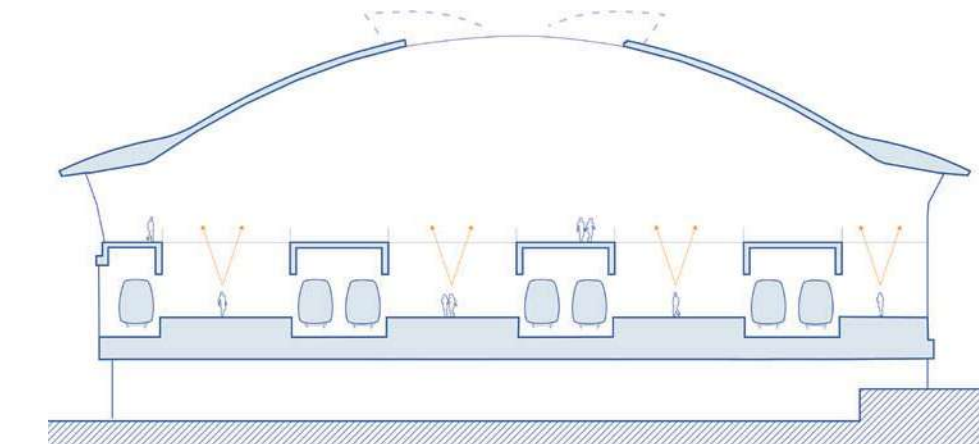


Fig.3.6 Short sections showing internal arrangement and roof form

Hybrid Bill Stage



Schedule 17 Scheme



Fig.3.7 Long sections showing BOH zoning

Code 1 - Accepted

Curzon Street Design Vision



Fig.3.8 Visualisation (View 2) - Birmingham Curzon Street from Millennium Point

3.3

City Facing

Birmingham Curzon Street station will create a major new gateway for the city at the heart of an emerging transport interchange. Defining a whole city block, the multi-functional urban realm reflects the importance of the station as a mechanism for the regeneration of Birmingham. The landscape drives a '360' response that will stitch the station into the existing and planned city environs, adding a missing piece into the city's urban jigsaw and allowing the city centre to grow and develop.

Code 1 - Accepted

Connected

Birmingham Curzon Street station resolves potential urban severance between the City Core, Eastside and Digbeth through the creation of a dynamic public square and new pedestrian routes beneath the HS2 station viaduct. The design proposals respond to the human scale by providing permeability and generating animation at street level through the use of active frontages, landscape details and quality of materials that will support local regeneration.



Fig.3.9 Visualisation (View 10) - New Canal Street Square

Place Making

Birmingham Curzon Street station will create an animated and contextual setting; a new place. The design will provide a sympathetic and activated backdrop for the Old Curzon Street Station, promoting viable reuse of this Grade I Listed historic asset. The station facade is articulated through a strong vertical rhythm which echoes the classical language of the Old Curzon Street station. The level changes across the site are respected and reinforced by means of a masonry 'plinth' which emerges at ground level along Curzon Promenade. The 'plinth' is a robust base to the building which supports a varied, responsive façade that interacts with human-scale activity within the urban realm.



Fig. 3.10 Visualisation (View 6) - Curzon Promenade

Engineering as Architecture

Birmingham Curzon Street station marks its identity on the city's skyline with a simple, elegant and refined arch. A clear destination point for both passengers and the local community alike. A highly efficient design solution is expressed as a modern reinterpretation of 19th century station architecture and engineering. Attention to detail and well crafted elements underpin the design, anchoring it within the industrial heritage of the West Midlands. At the western station entrance, a welcoming portico and glazed facade creates a seamless civic response connecting city and station. The roof canopy and distinctive timber soffit are integrated into a modulated whole that floats above the concourse conveying conviviality and warmth to the public below.



Fig.3.11 Visualisation (View 5) - Station Square

People Centered

Birmingham Curzon Street station prioritises the passenger experience through a design that is both humanised and intuitive. The proposals will set a new benchmark for a fully inclusive and accessible station design, coupled with a high level of comfort and quality for public facilities. The station layout has been designed around people, to be easy to use and to promote both visibility and transparency. Openings throughout the proposed station will allow daylight to permeate within the building and will increase visual connectivity to assist with intuitive wayfinding.



Fig.3.12 Internal Visualisation - Platforms

4.0 Arrangement

This section addresses the organisation, distribution and management of the functional parts of the station and public realm across the site. This includes the means of access and connection to and from the site and the management of building and environmental configuration at an urban scale.

Code 1 - Accepted

Overview

4.1.1 Site Arrangement

The station building stretches nearly half a km across the east side of Birmingham City centre encompassing multiple urban blocks and a 15m level change between Moor Street Queensway and Old Curzon Street Station.

In arranging the volumes of the building on the site the design's principle responsibility is to enable permeability and access across the site with a sense of conviviality and human scale to befit the HS2 Project Vision of 'People Place and Time'. The design of the station building seeks to enhance existing urban spaces, contribute new places and routes and provide a positive contribution for both users of the building and the surrounding area.

The stations overall plan is organised with the principle entrance at the top of the hill, addressing the city centre to the west as a bold civic gesture. This entrance links a new city Square, Station Square, with a new public concourse - itself conceived as an extension of the public square.

The second concourse at the east activates the lower level of the site adjacent to the historic landmark of Old Curzon Street Station and facilitates connections with Digbeth to the South along New Canal Street. At this level the spaces beneath the platforms defined by the eastern concourse façades and the main western concourse building create a 'square under a viaduct' with the viaduct split into ribbons overhead permitting natural light to spill down. This area creates onward connections to the tram network.

Active frontages to the north elevation enliven the ribbon of landscaping that runs the length of the 15m slope to the North facade of the station links the two concourses.

4.1.2 Urban Realm Concept

The Birmingham Curzon Street Station and Urban Realm have been conceived as an holistic response to the specific urban environment of the central Birmingham site. This approach is manifested through the response to site topography, city connectivity, spatial hierarchy, cultural function, Historic Assets, and green infrastructure needs. The experience of both passengers and city dwellers through the site is central to the design of station and landscape, focusing on legibility, intuitive use and placemaking qualities.

HS2 Curzon Street will create a step change for station design and experience through a simple and elegant architectural design. The vision for the landscape and urban realm builds on these principles and will play a key role in creating a sense of character and place. A multi-functional urban realm with a hierarchy of spaces that reflects the importance of the station as a mechanism for the regeneration of Birmingham; stitching it into the existing and planned city environs, making it an attractive and enjoyable place to travel, live and work.

A series of conceptual diagrams exploring some of the key design principles that have guided the development of the landscape and urban realm proposals throughout the design stages.

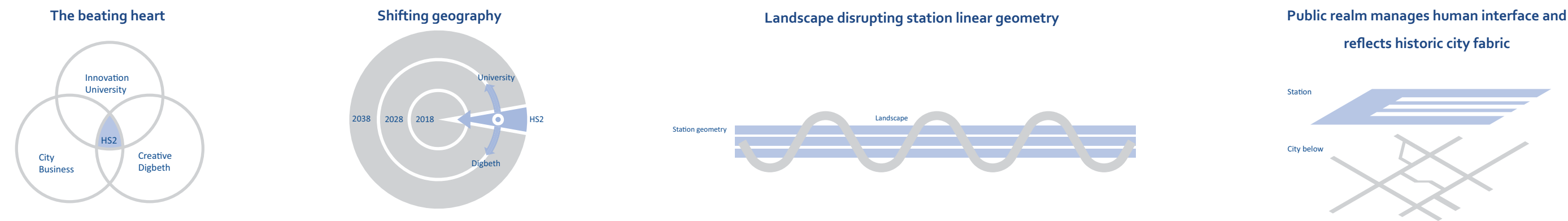


Fig.4.1 Conceptual diagrams illustrating key urban realm design principles

4.1

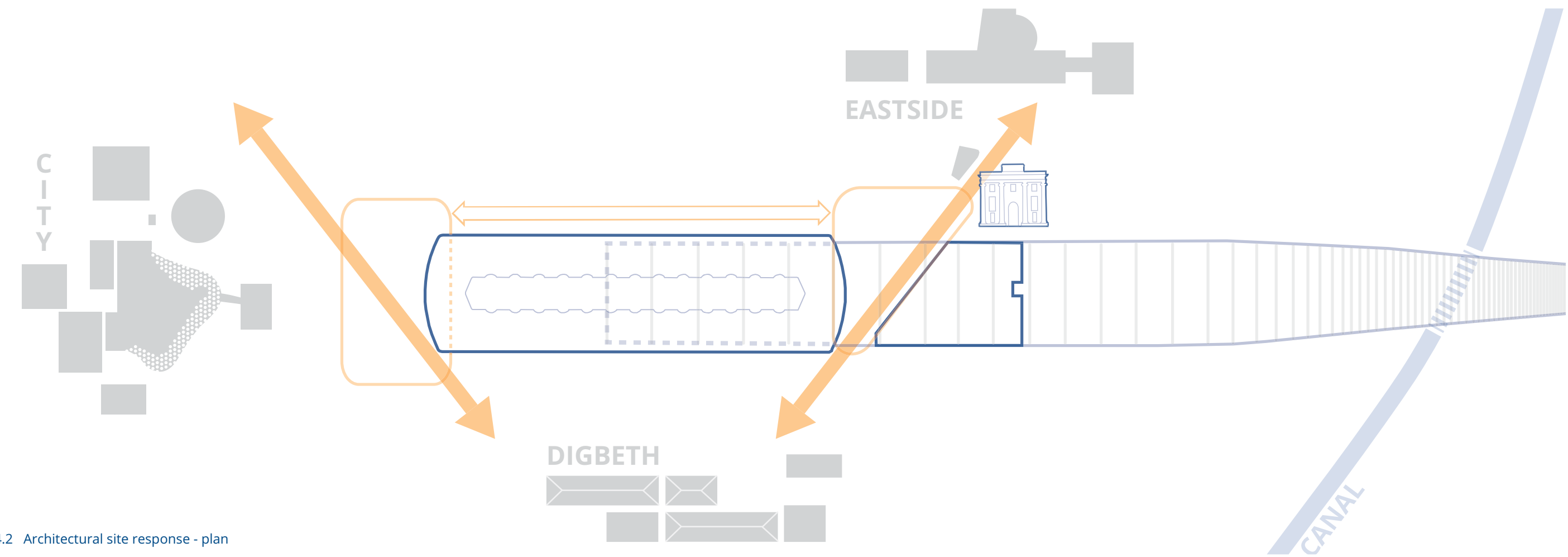


Fig.4.2 Architectural site response - plan

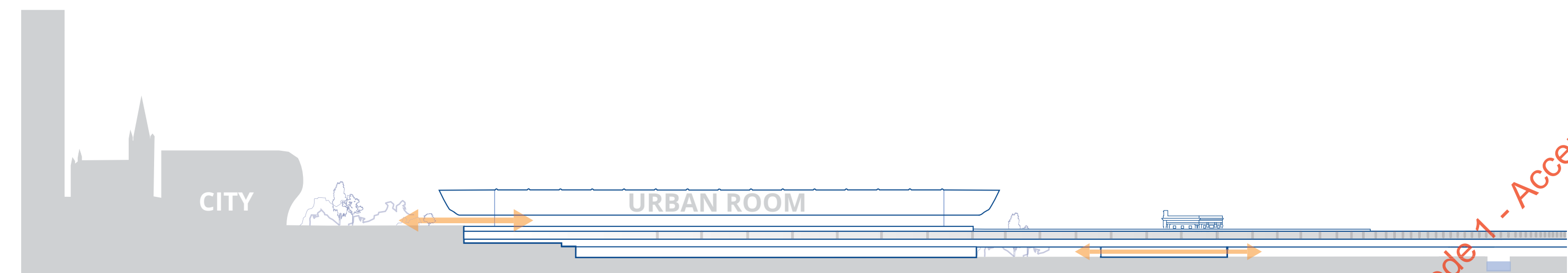


Fig.4.3 Architectural site response - section

Code 1 - Accepted

Urban Realm Design Drivers

4.2.1 Sense of Place

The urban realm and landscape proposals are focused on building a strong identity and sense of place both as a destination in the city and in order to create a stimulating sense of arrival for passengers with a design which announces Birmingham as a progressive, forward-thinking city. The experience is to be warm, welcoming, legible and provide a sense of relief and calm before continuing on a journey.

4.2.2 Connecting People

A key driver for the urban realm proposals is the imperative to maintain and create connections through this part of the city to enable the economic benefits of the new high speed rail link to drive regeneration to the local and wider area. Physical connections and wayshowing, integrated with a site-wide Arts and Culture Strategy, are also planned to draw people to the site, and a variety of new public open spaces places are proposed offering different scales of dwell space and opportunity for larger gatherings and cultural events where the diverse talents of the city can be celebrated.



Fig.4.4 - Visualisation (View 3) of the landscape and urban realm proposal looking east along Curzon Promenade

Code 1 - Accepted

4.2.5 Multi-functional

The site is planned to be legible and intuitive to move through, promoting connections within the local area and providing clear and direct routes to onward destinations by other transport modes. The proposals prioritise pedestrian and cyclist movement as suited to the urban context of the station whilst also accommodating a convenient and efficient provision for taxi and drop-off and building servicing and maintenance.

4.2.7 Biodiverse

The opportunity to enhance local biodiversity is central to the soft landscape strategies for the site with a diverse range of planting typologies spanning the length of the site that feature both native species and species which provide food and habitat for wildlife whilst also maintaining an attractive, robust and easy to maintain planting scheme. Measures such as inclusion of insect boxes and bird boxes will also be incorporated through the scheme together with specific features to target species identified in the Birmingham and Black Country Biodiversity Action Plan, described in more detail in Chapter 7.0. The Environmental Mitigation Zone, to the south-east of the site, will be a new broad-leaf woodland dedicated to supporting ecology.



Fig.4.7 Visualisation (View 6) - Curzon Promenade



Fig.4.8 Illustration of the landscape layers designed to provide manage microclimate, and surface water and enhance biodiversity

Code 1 - Accepted

Site Arrangement

4.3

4.3.1 Landscape and Urban Realm Masterplan

The landscape proposals seek to represent a step-change in station design achieving the HS2 vision for high-quality urban realm. A unique, car-free public realm is created for Birmingham that extends green infrastructure from Moor Street Queensway to Eastside City Park and the Digbeth Branch Canal via a series of squares, gardens and groves of trees that will activate the interface with Digbeth and the eastern side of the city.

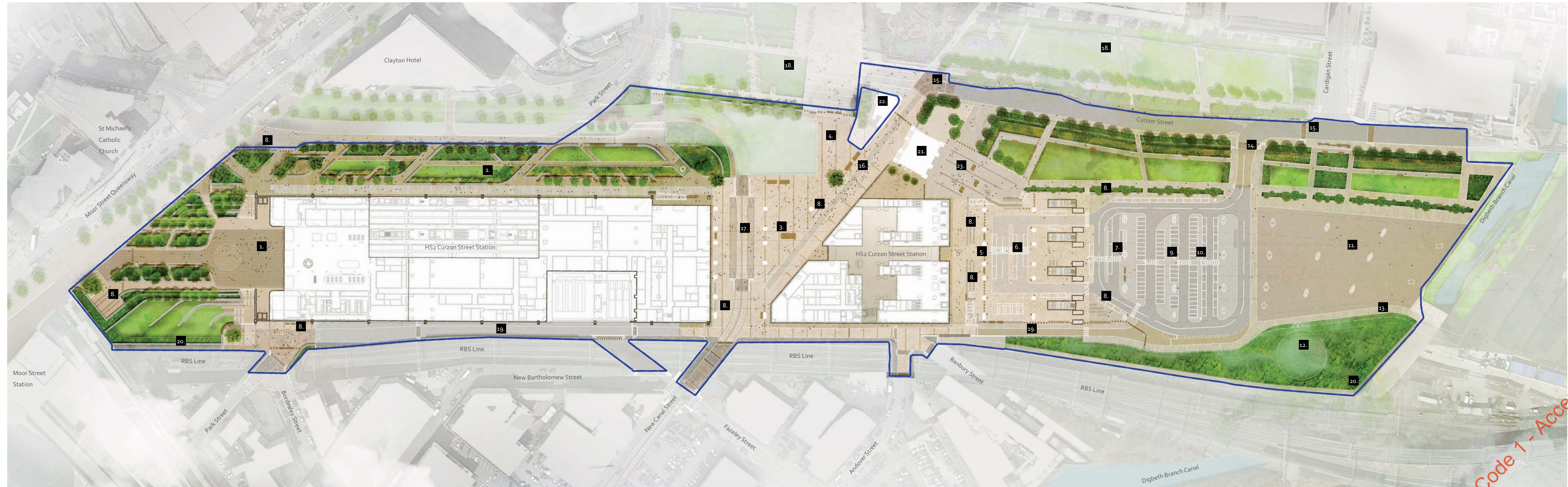
The proposals create an urban realm that responds to the requirements of the HS2 station and provide functional spaces that allow pedestrian, cycle and vehicular access and facilitate inter-modal transfer to tram, bus, SPRINT and Moor Street Station. The design is cognisant of the fire and service vehicle access requirements and maintenance needs of the building whilst dealing with the constraints of level change across the site. Through an integrated approach the proposed landscape features are also utilised to deliver the urban realm safety strategy.

The following section illustrates the key strategies which have informed the landscape and urban realm proposals.

1. Station Square
 2. Curzon Promenade
 3. New Canal Street Square
 4. Curzon Square
 5. Eastern Arrival Space
 6. Taxi Drop-off/Pick-up
 7. Kiss and Ride
 8. Cycle Parking
 9. Short-Stay Car Park
 10. Staff Car Park
 11. Canalside Meanwhile Space
 12. Environmental Mitigation Zone
 13. Future Works to provide Network Rail and Balancing pond access (Not for Approval)
 14. Vehicular Access
 15. Curzon street - localised improvements
 16. New Canal Street
 17. MMA Proposed Tram Stop
 18. Eastside City Park (existing)
 19. Pedestrian, Cycle and Controlled Vehicular Access Route
 20. Network Rail Maintenance Access
 21. Old Curzon Street Station (OCSS)
 22. The Woodman Public House
 23. OCSS Feature heritage garden
- Application Boundary



Fig.4.9 Landscape and urban realm masterplan



Code 1 - Accepted

4.3.2 Existing and Future Constraints

The existing site and necessary functions of the proposed station presents a number of technical constraints which are taken into consideration in the urban realm proposals. The design is also cognisant of associated and adjacent developments that are likely to have an impact on or interact with, the proposed HS2 Birmingham Curzon Street scheme as listed below:

- Existing constraints
- Heritage constraints
 - Existing railway infrastructure
 - Existing utility routes
 - Servicing requirements to existing properties

- Future developments:
- Proposed Midland Metro Alliance tram route through New Canal Street Square and to the north of Curzon Promenade
 - Moor Street Queensway public realm improvement scheme
 - Proposed Transport for West Midlands Bus and SPRINT stops north of Curzon Promenade
 - Potential future developments within the BCS site

- Station constraints
- Emergency access
 - Servicing vehicles
 - Proposed utility routes
 - HS2 No. 3 viaduct connecting into the HS2 Curzon Street Station scheme
 - Requirement included within the Environmental Statement to provide an Environmental Mitigation Zone of wooded habitat within the scheme

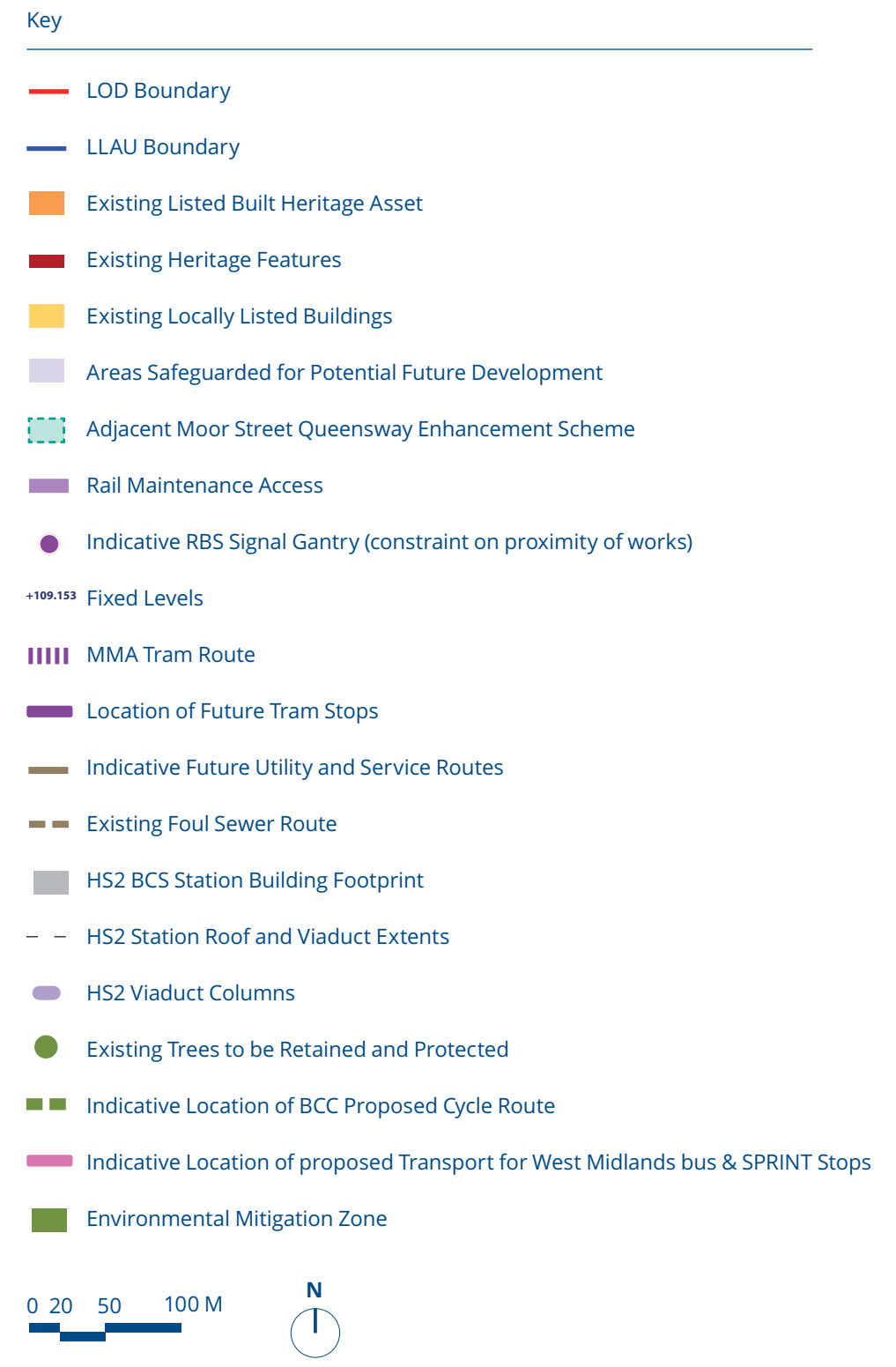
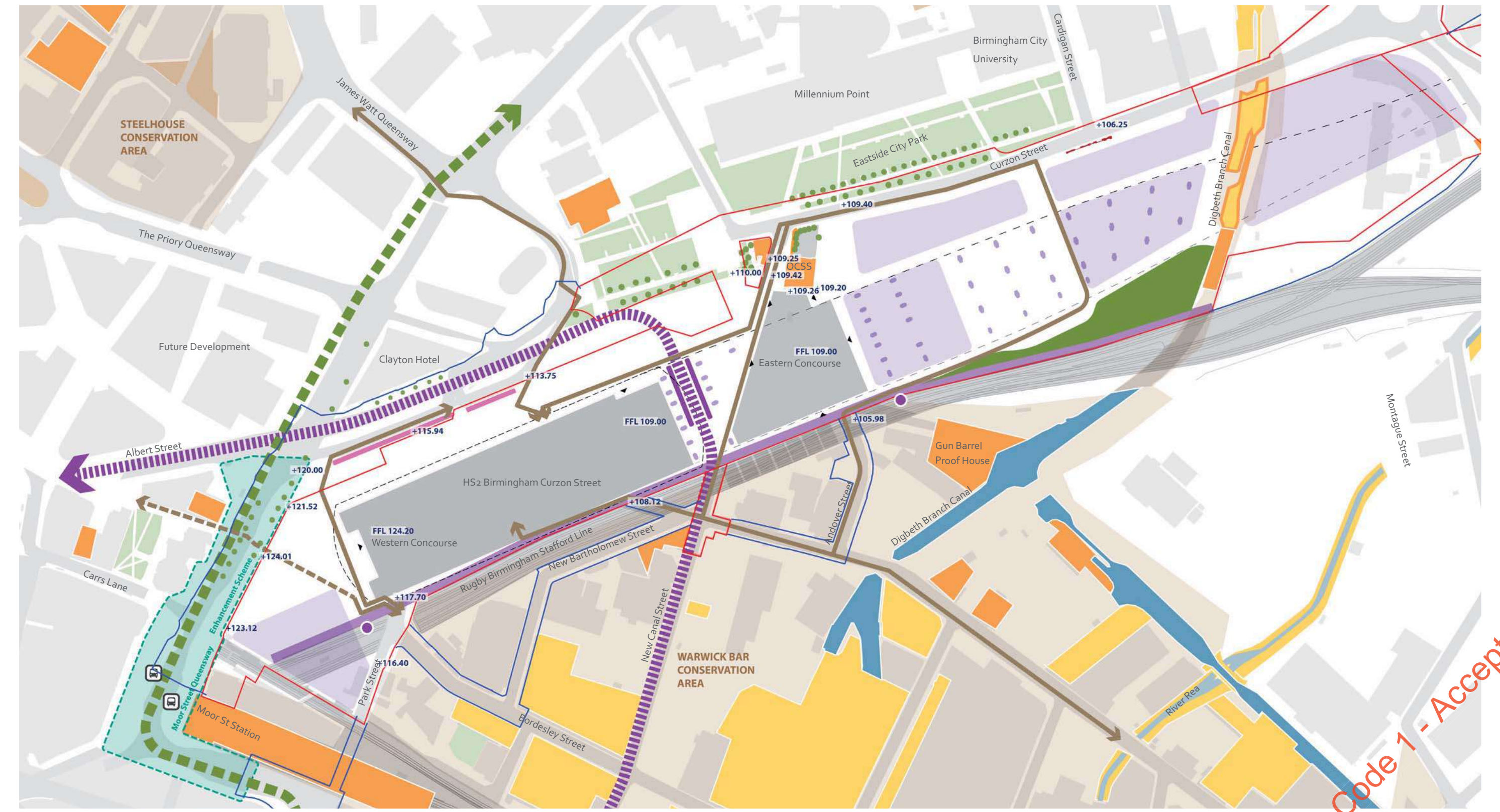


Fig.4.10 Existing and future site constraints plan



Code 1 - Accepted

4.3.3 Opportunities

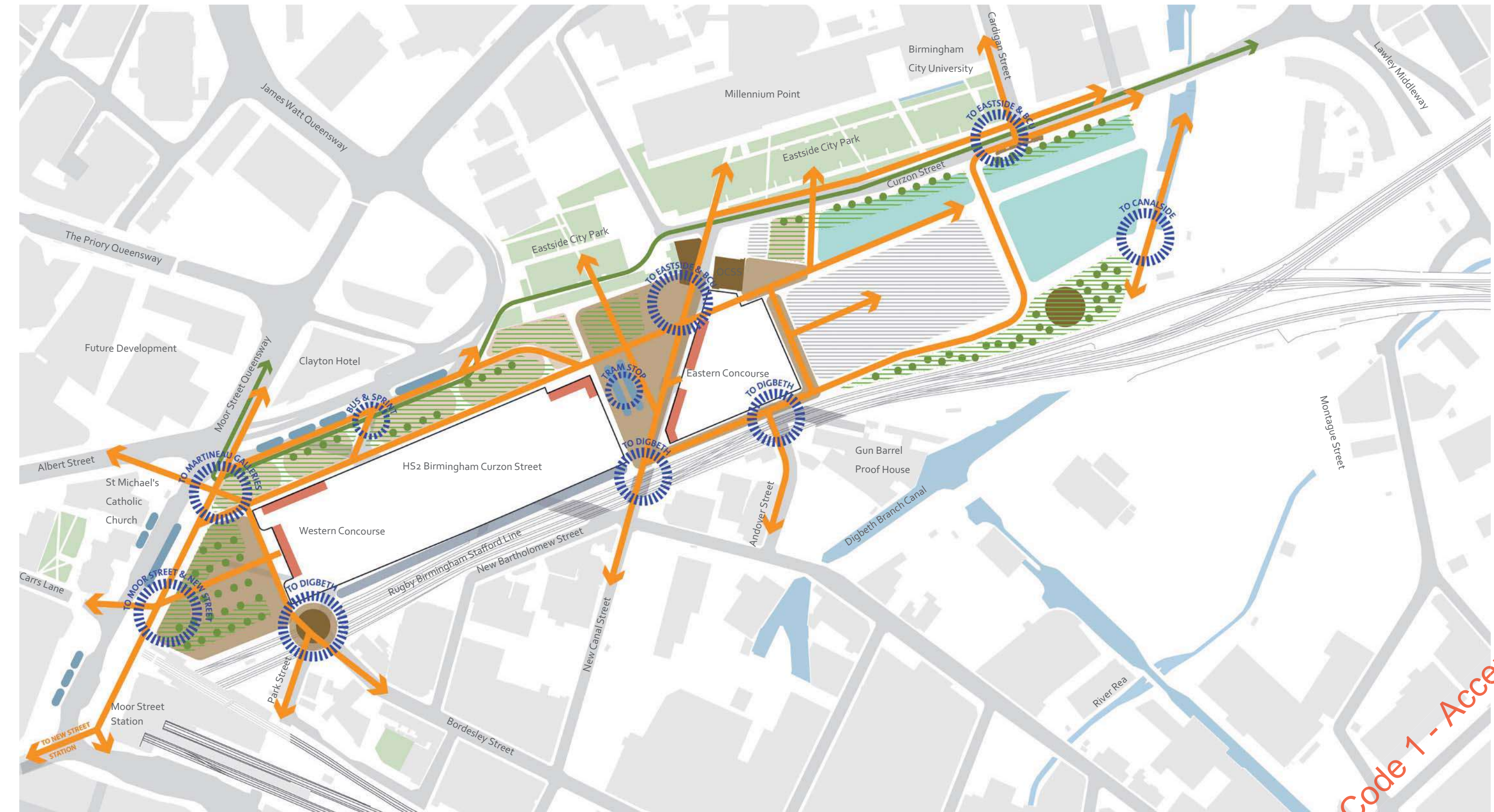
The key opportunities for the site from a landscape and urban realm perspective are summarised as follows:

- Facilitate good connectivity through the site to maximise benefits of the HS2 scheme as a catalyst for regeneration
- Create good intermodal transport connections
- Locations for new primary public spaces
- Locations for secondary public spaces and gardens and connecting landscape
- Locations for event spaces including meanwhile spaces where a flexible events programme can be used to bring activity to the site and connect with the local community
- Optimum locations for servicing and passenger drop-off to ensure efficiency whilst maintaining a urban realm which is predominantly car-free
- Opportunity to celebrate heritage as a strong theme in the designs
- Creation of a diversely planted corridor which enhances local biodiversity

- Key
- Key connections
 - ⊙ Gateways
 - ▬ Active Frontages
 - Primary New Public Space
 - Secondary New Public Spaces, Gardens and Connecting Landscapes
 - ▨ Opportunities for Ecological Enhancement
 - Meanwhile Spaces
 - ▨ Zones for Vehicular Use
 - Opportunities to incorporate site heritage
 - ▬ Opportunity to Link Cycle Network through the Site
 - Key opportunity areas for significant new tree planting
 - ▬ Key intermodal transport connection



Fig.4.11 Landscape and urban realm opportunities plan



Code 1 - Accepted

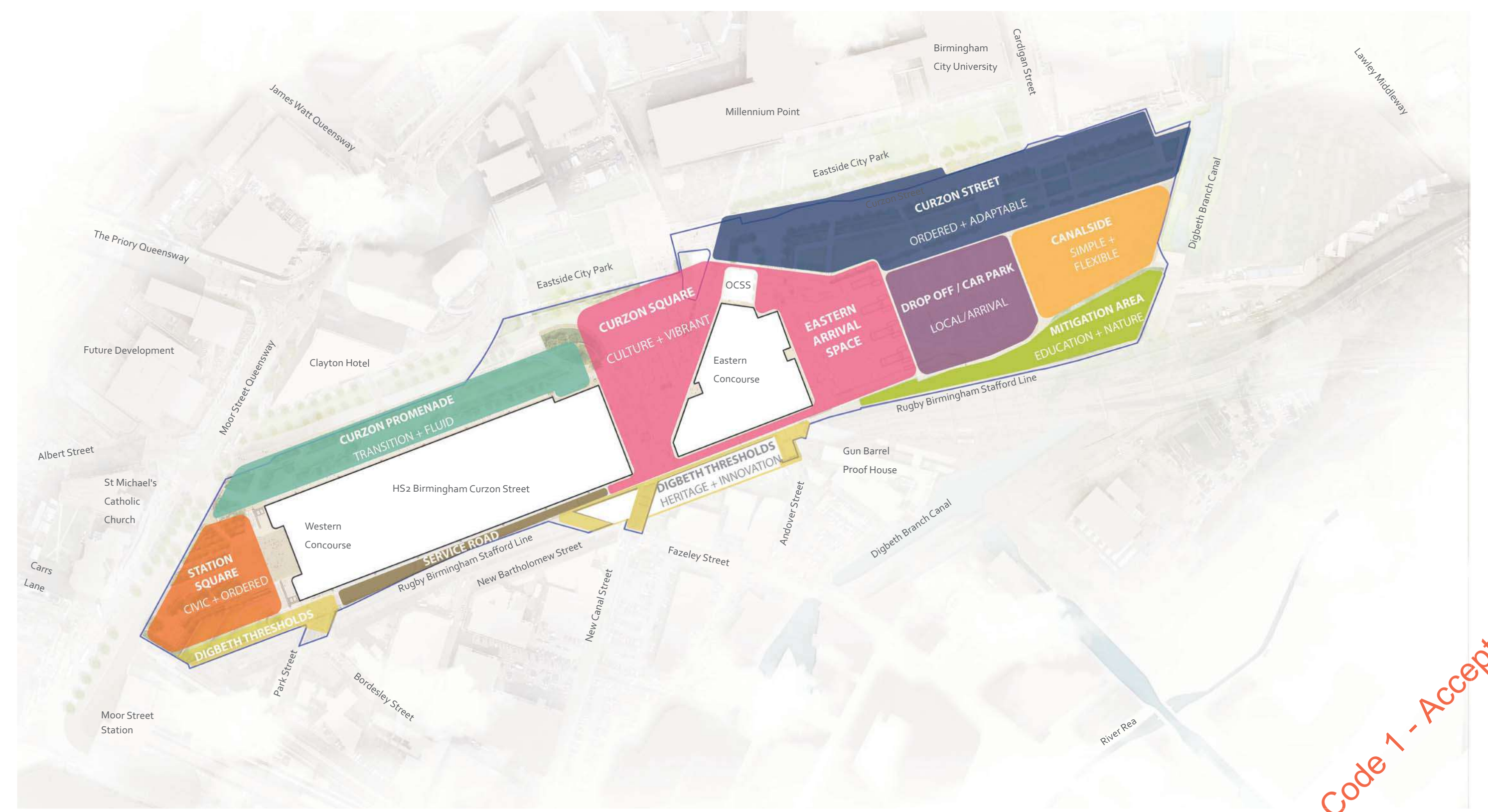
4.3.4 Hierarchy of Spaces Character Areas

The landscape and urban realm strategy for the new HS2 Curzon Street Station responds to HS2's ambition to help transform the Digbeth and Eastside area into a vibrant, creative and stimulating environment for both residents and visitors to enjoy: a place where people will aspire to travel, work, live and visit, time and time again.

The proposals also seek to respond to Birmingham City Council's Big City Masterplan five drivers for urban success which comprise of innovation and skills, cultural and economic diversity, connectivity, place quality and strategic decision making.

With this in mind, the spatial framework for the landscape and urban realm sets out to address a number of key goals:

- Creation of a distinctive, inspiring setting for the new HS2 Curzon Street Station and surrounding developments.
- Creation of a series of attractive, inclusive outdoor spaces that encourage use by residents, commuters, visitors, students and travellers, young and old, alike.
- Development of a clear hierarchy of spaces and routes, with clearly defined purpose and access. Station square being the primary space in this hierarchy.
- Provision of legible, instinctive, accessible routes through and around the station; for pedestrians, cyclists, taxis, servicing, and private vehicles.
- Connectivity with neighbouring streets and public open spaces; stitching the station into its surroundings.
- Integration with nearby public transport providers to create an efficient, effective hub allowing easy access to and from a comprehensive range of travel options.
- Transformation of the site into a sophisticated urban ecosystem that weaves nature, ecology, environmental design and sustainability into the heart of the scheme.
- Response to HS2's functional, technical, and aspirational requirements.



Code 1 - Accepted

4.3.5 Gateways and Nodes

This strategy establishes key gateways, points of arrival experience, secondary gateways and dwell spaces that structure the purpose of the landscape and urban realm and provide clear orientation and reference points to the station user.

Gateways are to be seen as spaces which will signify a point of arrival and this is reflected in the way-finding, lighting, street furniture and soft and hard landscape proposals.

Nodes and decision points are focused on establishing a strong way-showing strategy that connects the station and environs with the wider landscape and contextual connections.

- Site arrival and threshold points
- Primary and secondary station entrances
- Multi-modal transport transfer points such as bus and tram stops
- Orientation points with wider views to city spaces
- Key intersections of primary and secondary pedestrian and cycle routes

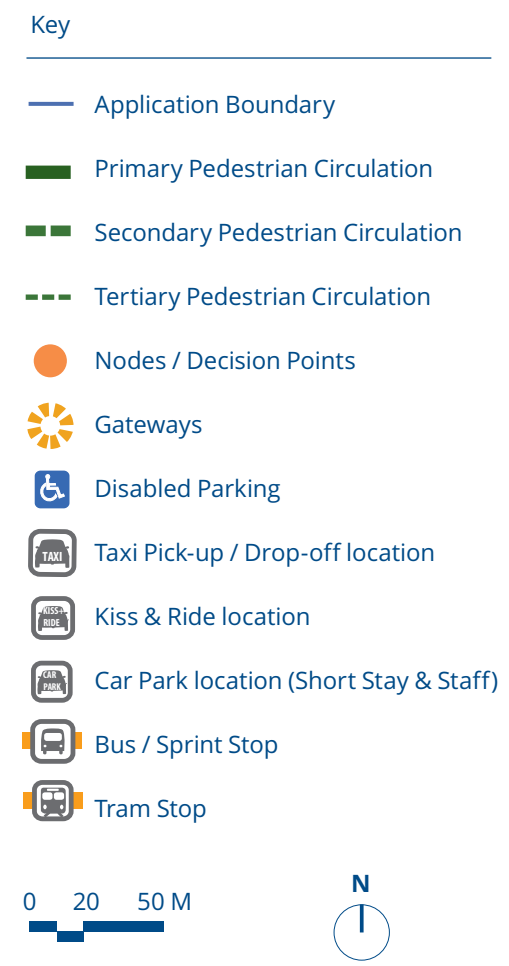
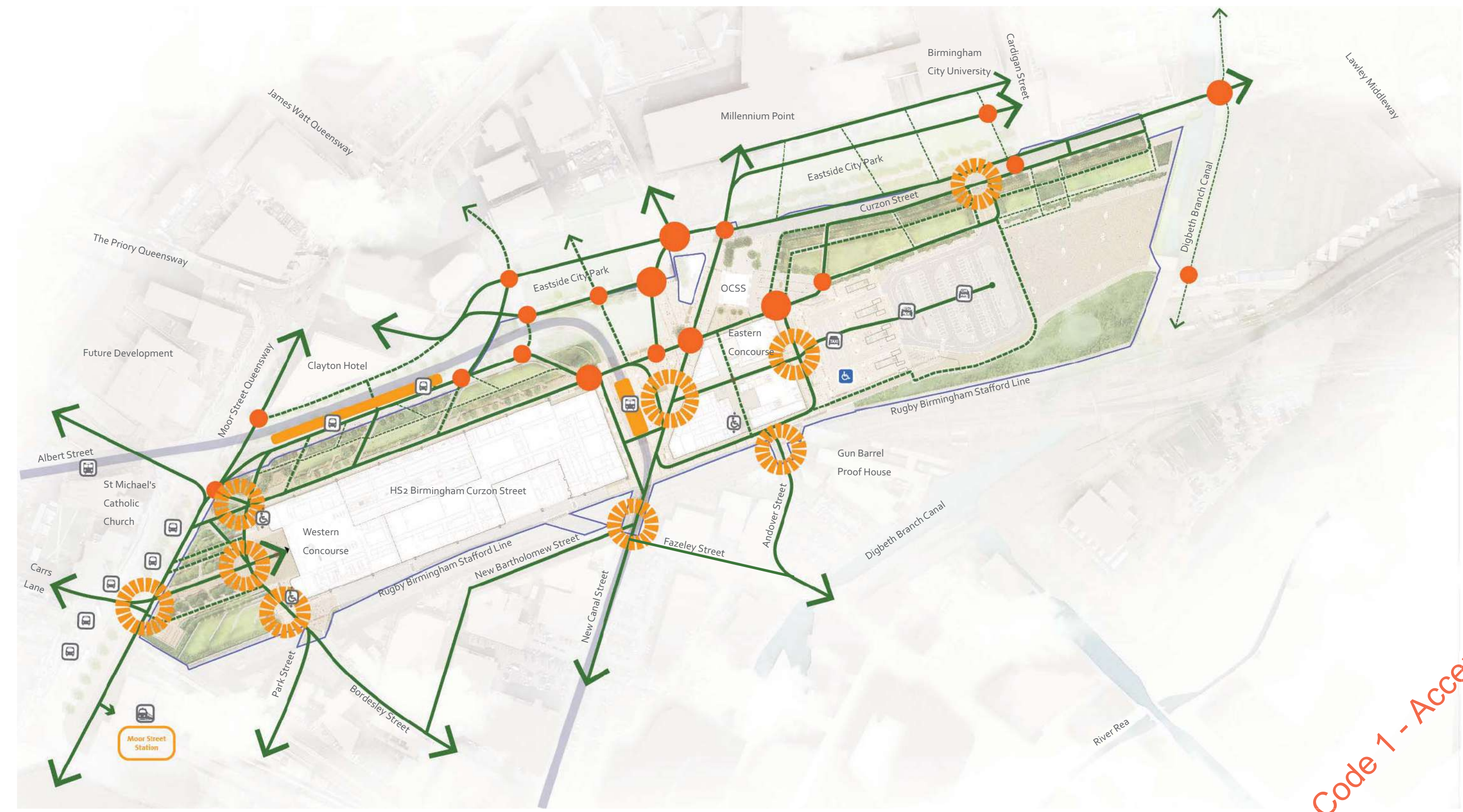


Fig.4.13 Gateways and key nodes



Code 1 - Accepted

4.3.6 Green Infrastructure and Environment

The green infrastructure strategy establishes the proposed landscape contribution to the wider environment, green and blue infrastructure connections and habitat connectivity within the site and the wider area.

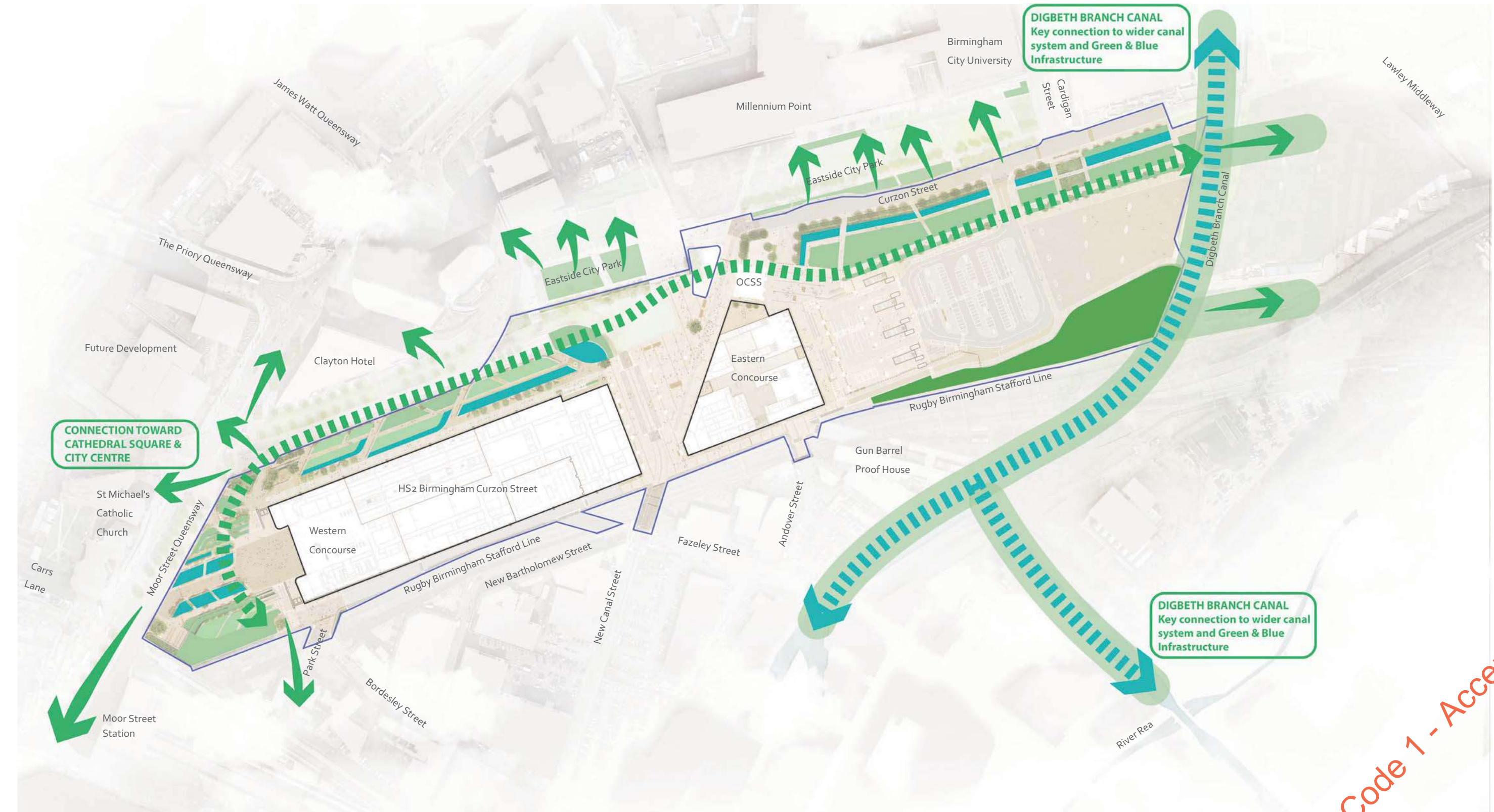
- Station Square forms a principal gateway to HS2 Curzon Street Station and functions as a first impression place for passengers arriving into Birmingham. The landscape approach to this space includes a series of naturalistic planted beds and terraces, also functioning as Sustainable urban Drainage Systems (SuDS) rain gardens and complemented with 'forest scale' tree planting.
- The landscape treatment of Curzon Promenade includes terraced lawns, tree planting, and planted rain garden SuDS conveyance features that extend multi-functional green infrastructure links from Station Square through Eastside City Park to the wider green infrastructure corridors of the canal and railway corridors.
- Open green space, tree planting and damp grassland habitats are extended between Curzon Street and the viaduct to the east of the site.
- An Environmental Mitigation Zone (EMZ) of broad-leaf woodland is proposed to the south of the car park and viaduct.

Following Green Infrastructure principles the new green spaces are used to form links through the city promoting walking and cycling and supporting healthy lifestyles.

- Key
- Application Boundary
 - Green Public Open Space
 - Rain Gardens
 - ||| Existing Canal Corridor
 - ||| Proposed Enhanced Green Infrastructure Connections
 - Environmental Mitigation Zone
 - ➔ Connections to Wider Green Infrastructure



Fig.4.14 Green infrastructure



Code 1 - Accepted

4.3.7 Heritage Strategy

This strategy explores opportunities for referencing the heritage of the site and Birmingham's industrial past into the landscape and urban realm proposals for HS2 Curzon Street Station. Opportunities have been identified for the following spaces and the diagram opposite illustrates those incorporated into the design:

Heritage Proposals

Park Street

Garden terrace design to incorporate interpretation demonstrating the contribution of Park Street burial ground to science and beliefs, its role in medical education, burial practices and superstition.

This could also include reference to the C19th Park Street burial ground and the range of people who were buried there and make reference through use of hard and soft landscape features, for example using species which stood in the gardens (Cherry, Tulip Tree, Oak, Birch).

New Canal Street

This street is an integral element of how the building and site are planned and whilst it will become fully pedestrianised through the site the historic road alignment is maintained and interpreted through the paving design including use of reclaimed granite setts.

OCSS Plaza

The public plaza to the east of the Old Curzon Street Station (OCSS) building is orientated to respond to its historic facade and hard landscape details are to reflect elements of the 1838 London & North Western Railway (L&NWR).

Grand Junction Railway Wall

The former screen wall of the Grand Junction Railway is to be removed and its heritage significance reflected through meaningful visual interpretation within hard landscape elements, potentially incorporating material from the original wall. The location south of Cardigan Street features one of the most intricate sections of the existing wall, and will also form a gateway landmark between the Birmingham City University site and future development within the Curzon Masterplan.

L&NWR Round House

The 1838 Engine Round House was situated to the south-east of the site and may still be located beneath the proposed Environmental Mitigation Zone. There is an opportunity to interpret this unusual feature within the EMZ whilst maintaining the ecological objectives for the area through careful coordination and detailing. A woodland glade meadow is proposed at the approximate location of the Round House. Pending further archaeological investigation there may be opportunities to bring elements of the existing structure to the surface and incorporate these into the landscape proposals.

Digbeth Threshold

Detail within the hard landscape design of the gateway space at Paternoster Row is to reflect the light industries, products and materials which were key to Birmingham's development, for example bone, leather, and metalwork.

Station Square

The terraces of the southern side of Station Square form an interesting location for a feature reflecting the historic time-line of the site from prehistoric activity up to creation of the new high speed railway illustrating HS2's role in the continued story of Birmingham's development.

Opportunity for Future Heritage Interpretation

OCSS Garden

At this location there is a future opportunity to incorporate a play feature referencing elements of the 1838 L&NWR station.

The heritage references identified present opportunity to explore these themes through meaningful and high quality works as part of the arts and culture strategy.



Fig.4.15 Examples of heritage referenced through interpretive hard landscape features

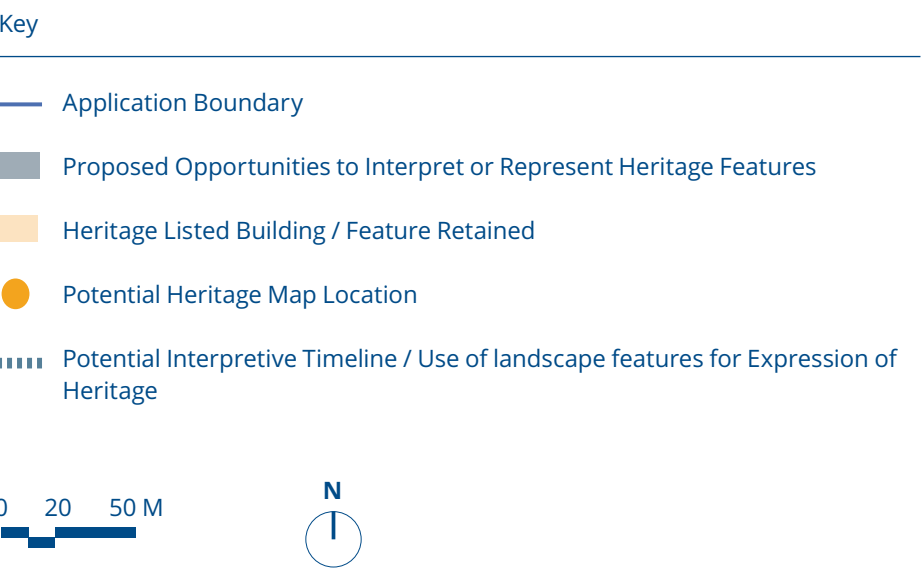
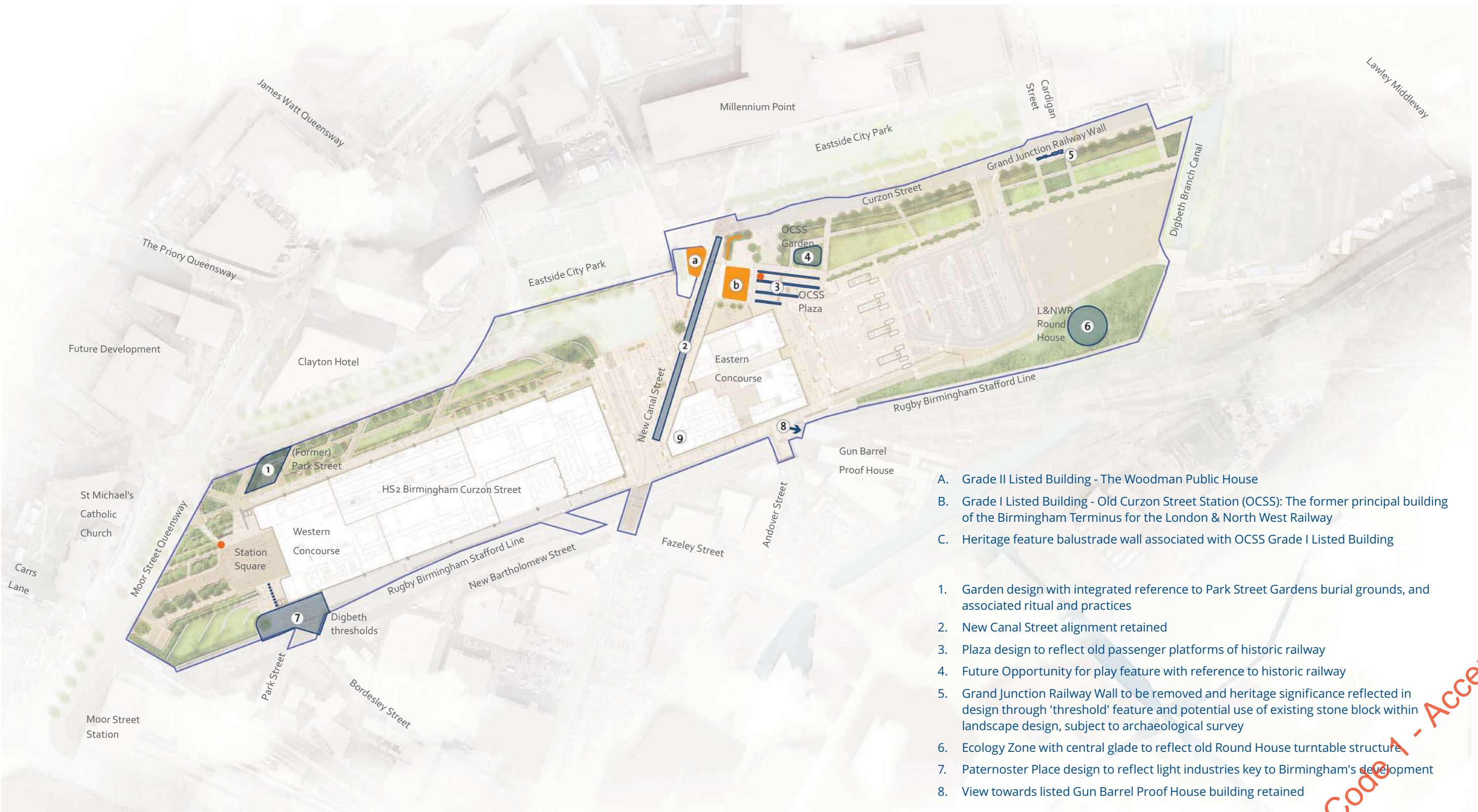


Fig.4.16 Heritage strategy



- A. Grade II Listed Building - The Woodman Public House
 - B. Grade I Listed Building - Old Curzon Street Station (OCSS): The former principal building of the Birmingham Terminus for the London & North West Railway
 - C. Heritage feature balustrade wall associated with OCSS Grade I Listed Building
1. Garden design with integrated reference to Park Street Gardens burial grounds, and associated ritual and practices
 2. New Canal Street alignment retained
 3. Plaza design to reflect old passenger platforms of historic railway
 4. Future Opportunity for play feature with reference to historic railway
 5. Grand Junction Railway Wall to be removed and heritage significance reflected in design through 'threshold' feature and potential use of existing stone block within landscape design, subject to archaeological survey
 6. Ecology Zone with central glade to reflect old Round House turntable structure
 7. Paternoster Place design to reflect light industries key to Birmingham's development
 8. View towards listed Gun Barrel Proof House building retained

Code 1 - Accepted

Active Frontages

4.4.1 Active Frontages Overview

The Birmingham Curzon Street station layout responds to the key character areas in the urban realm by encouraging animation through maximised provision of active frontage.

Physical active frontages are established in the forms of retail spaces and entrances to both concourses and Back of House (BOH) zone. The cruciform configuration of the Eastern concourse creates active entrances to address each side of the building, with the primary entrance connecting directly to the MMA Tram stop in New Canal Street Square.

Visually active frontage also occurs through maximising glazed façades and openings / lightwells so that the movements and animation of both trains and people within the station are visible from the wider urban realm.

4.4.2 Curzon Promenade

Although Curzon Promenade is understood as a transition space in the wider urban context, there are 'intervals' of active frontage and interest along the northern station facade to animate this section of the HS2 development.

Strategic narrowing of the promenade width at the eastern and western gateways helps to create a more vibrant and characterful landscape treatment, a series of garden spaces and encourage a shared public realm used by pedestrians and cyclists whilst still facilitating the needs of the station concourse.

Retail spaces have been established at platform level which open onto the northern end of the Curzon slope at ground level, with a major new Station Staff entrance and reception zone at the southern end. Servicing requirements have been focused on the southern edge of the station to provide a 'clean' frontage addressing Curzon Promenade to the North. At platform level, support accommodation has been rationalised and clustered to maximise transparency and thereby provide views of station animation (escalators, stairs, people and trains) and generally add interest to the urban scene.

4.4.3 New Canal Street & Curzon Square:

The station frontages facing directly onto the new public space and tram stop at New Canal Street below the proposed HS2 station viaducts are also seen as key transition zones linking Digbeth to the south and requiring façade animation and uses to promote activity at street level. Scope for retail and amenity spaces has therefore been planned and safeguarded for these areas, in conjunction with glazed façades to station office zones, with BOH and service spaces located further back within the body of the station.

The strategic location of the main western access points to the Eastern Concourse will help to generate footfall and activity to the New Canal Street area. The cruciform layout of the Eastern Concourse will also drive pedestrian movement between the tram stop on the west to the taxi drop-off in the east.

Provision of daylighting via platform canopy rooflights directly to the new public spaces below the station viaducts in New Canal Street will assist in animating and uplifting the quality of public realm in this area.

The new pre-cast masonry colonnade to the eastern side of New Canal Street provides a controlling element within which active frontages (either glazed or fully open) can be integrated.

The colonnade also acts the urban design device to link the station to the existing Grade I listed Hardwick portico of the OCSS in terms of scale and materiality. The station design proposals create a landscaped space between the eastern Concourse and the OCSS which can be used as an amenity and linking space with the station to help promote viable commercial re-use of the OCSS (as part of a separate project).

Key

- Application Boundary
- Physically active frontages
- Visually active frontages
- Entrances

Entrances

1. Main Entrance
2. Staff Entrance
3. Eastern Concourse/ OCSS
4. Eastern Concourse West
5. Eastern Concourse East
6. Eastern Concourse South

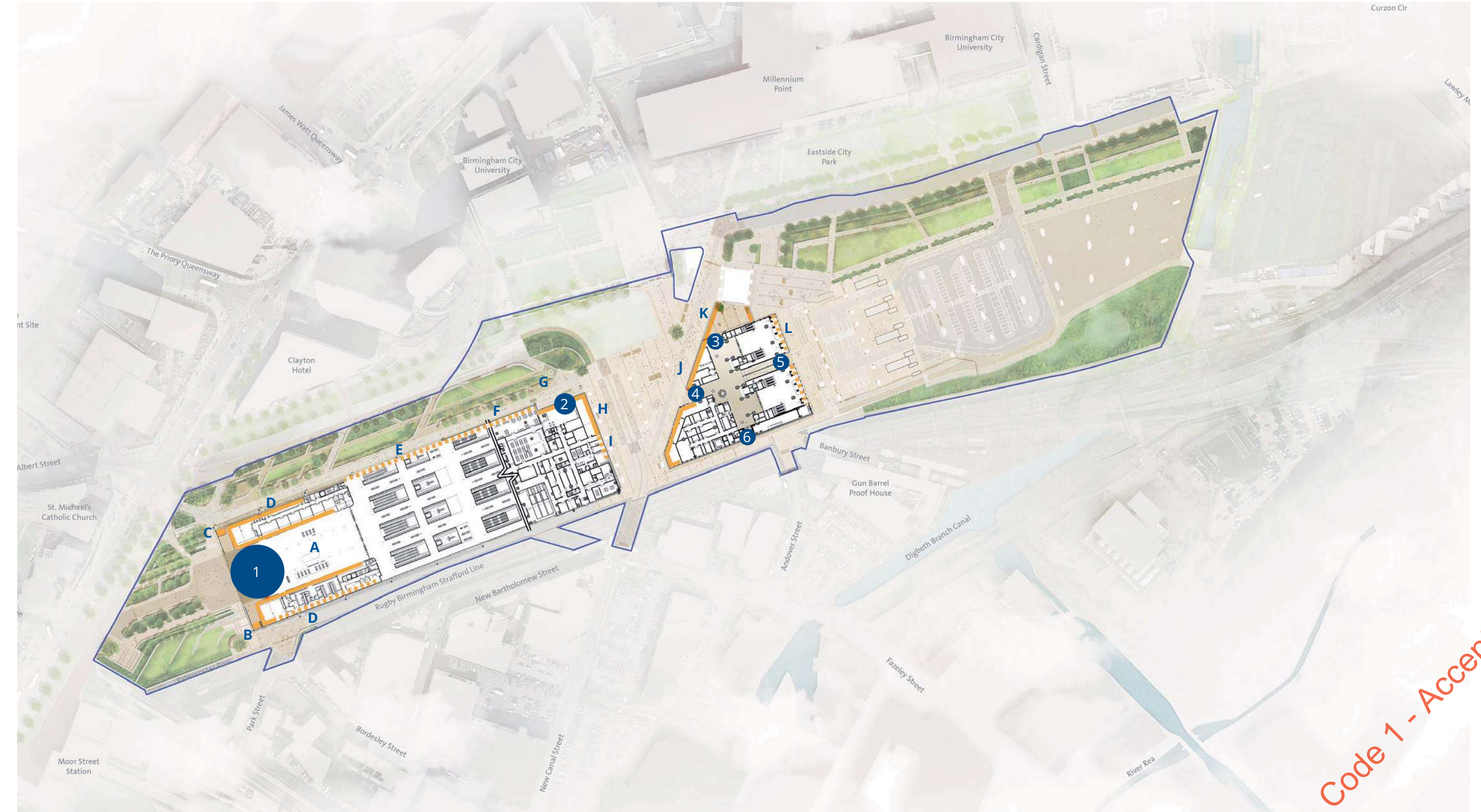
Frontages

- A. Concourse shop front
- B. Paternoster lift
- C. Promenade lift
- D. Curzon Promenade shop front
- E. Platform/ concourse circulation
- F. Staff offices
- G. Staff reception
- H. Curzon Square shop front
- I. Staff offices
- J. Eastern Concourse shop front
- K. Courtyard screen
- L. Eastern Concourse

0 20 50 M



Fig.4.17 Active frontages plan



Code 1 - Accepted

Arts & Culture

4.5.1 Public Realm

The diagram on the adjacent page identifies opportunities for temporary or permanent events spaces and potential art/sculptural interventions within the landscape and the station building. Arts and culture can take many forms including through; play, signage and way-finding, street furniture and interactive elements that can all contribute to creating a sense of place. Whilst opportunities have been created for future installations, events and interventions, these do not form part of the Schedule 17 submission.

There are many ways in which the spaces and built elements of the scheme could potentially incorporate artwork and cultural events and a wide range of opportunities are identified in order to give flexibility to the curation of the site, however it is not intended that each location must incorporate artwork and understood that in order to provide a powerful response the artwork for the site must be strategically planned so that a considered and high quality series of commissions are undertaken.

The Arts Strategy developed for the HS2 Curzon Street site recognises that there is great opportunity for the scheme to play an important cultural role in the city and that it is appropriate to consider the site as a location for art and culture throughout its phasing as described below. For each of these phases it is possible that both temporary and permanent works may be produced.

- Design phase work undertaken during the design development and pre-construction phases which seeks to record and respond to the emerging change in context that the scheme will bring about.
- Works which play a part in the public interaction with the site during construction.
- Works which are embedded into the design of the scheme, through appropriately integrated elements of the landscape, architecture, lighting, wayfinding or play features. This may also include specially commissioned stand-alone works where appropriate.
- Future cultural life of the site supported through provision of spaces for temporary works, events or performances.

The following opportunities have been identified for arts and culture interventions in the landscape:

- Integrated artwork into landscape features - There are abundant opportunities across a large area of landscape- refer to the precedent images in this section of report including small scale potter, tree grilles and paving works as well as wayfinding objects.
- Artefacts - Consideration should be made to Birmingham Museums Trust's proposal for wayfinding through artefacts, especially industrial objects (e.g. manufacturing machinery) drawn from their collection. This proposal also applies to inside of the station building and is repeated below.
- Garden - Many artists have made gardens - from Leonardo through Monet, Niki de Saint Phalle and Ian Hamilton Finlay to Fischli & Weiss, with an idea of continuing this tradition, an area could be set aside (e.g. Curzon Promenade, Curzon Square, Eastside City Park, the environmental mitigation area) to be distinguished through an innovative combination of flowers, grasses, shrubs, trees, water and wild-life etc.
- External lighting - Lighting in the landscape around the station building also could give rise to ingenious artistic solutions.
- Drinking fountains - There are a growing number of campaigns for public drinking fountains to be installed in major cities across the world, to reduce the environmental impact of single-use-plastic.
- Service Road gates - opportunity for bespoke metalwork piece.
- Playgrounds - There is an increasing number of artists working more freely with a sense of play, less inhibited in making work that engages people of all ages.
- Temporary works/events within - e.g. within the Curzon Street area.

4.5.2 Station Building

The design proposals promote opportunities inside the station building for arts and culture. There are opportunities specifically for exhibitions, installations and integrated components to the public concourse areas including specifically the 'character zones' at the end of the platform escalator lightwells. The non-station retail areas facing Curzon Promenade and Curzon Square could be devoted to cultural or temporary 'pop-up' uses.

The diagrams overleaf illustrate potential sites for exhibitions to the public and passenger concourse areas. These may provide excellent opportunities for exhibits from local museums and arts organisations.

In line with the HS2 Curzon Street Station Art Strategy some of the following opportunities could be considered to integrate art into the fabric and building components:

- Artefacts - Consideration should be made to Birmingham Museums' proposal for wayfinding through artefacts, especially industrial objects (e.g. manufacturing machinery) drawn from their collection. These could provide landmarks for meeting places, as well as wayfinding, especially towards the new museum of science and industry, superseding Thinktank proposed for a nearby location in Digbeth. This partnership would be compatible with the Art Strategy's acknowledgment of heritage - i.e. the marriage of Art and Industry.
- Seating - Paul de Monchaux's benches at Euston Station and Birmingham's Brindley Place, provide inspiration for artistic involvement in seating both inside and around the station building.
- Internal walls - There are many precedents for successful artistic wall treatments in transport architecture, sometimes symbolic of location and useful for wayfinding e.g. Eduardo Paolozzi and Giles Round for London Underground.
- Sound - Birmingham has a strong tradition in music and experimental sound.
- Station floor tiles and way showing - The two primary station floor surfaces (the public concourses and platform areas) present an exciting opportunity for artistic treatment, although visual clarity should be considered a priority in these congested spaces. Very large planes of material, they could embody a broad design that assists wayfinding, especially towards and away from building entrances. Tess Jaray's paving for Birmingham's Centenary Square (1980s) is an important precedent.
- Manifestations to glazing - there are large areas of glazing across the design, manifestations could be deployed artistically in some of these areas.
- Vertical mullion fins to the north façade at platform level (potentially with lighting).

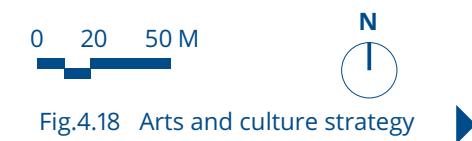
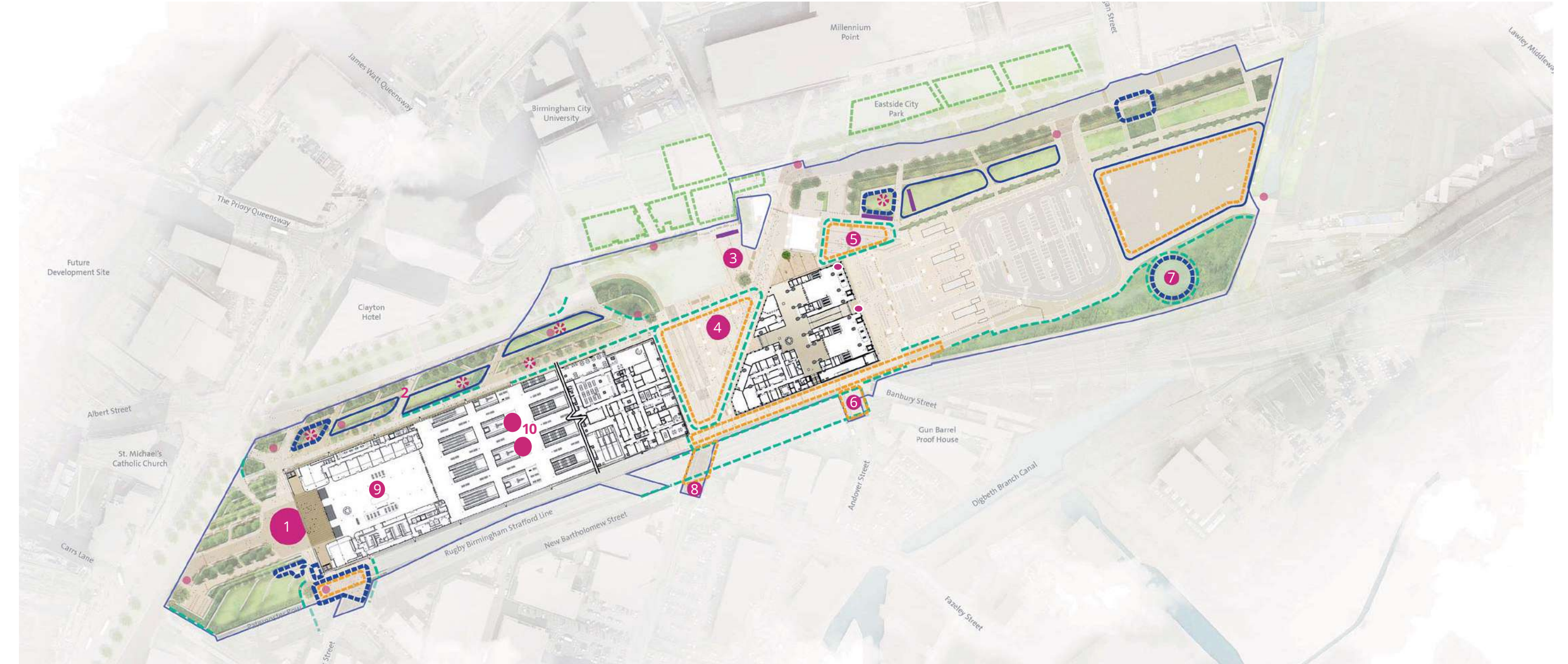


Fig.4.18 Arts and culture strategy

4.5



Key

- | | | |
|---|--|---|
| Application Boundary | Opportunity for integrated Arts & Lighting | 1. Station Square- Birmingham Big Art Project 'Station Clock' |
| Programmable Space for Events | Potential Temporary Screen Location | 2. Curzon Promenade |
| Opportunity for combined Art & Heritage Intervention | Potential Location for Primary Arts & Culture Intervention | 3. Curzon Square |
| Opportunity for Arts & Culture Intervention associated with Architectural / Landscape feature | Potential Location for Secondary Arts & Culture Intervention | 4. New Canal St Square/ Eastern Concourse |
| Opportunity for integrated Arts & Play Intervention | Existing Programmable Space for Events within Wider Public Realm | 5. OCSS East forecourt |
| | | 6. Digbeth threshold (Andover street) |
| | | 7. Environmental Mitigation Zone |
| | | 8. Digbeth threshold (New Canal Street) |
| | | 9. Unpaid concourse |
| | | 10. Paid concourse |

Code 1 - Accepted

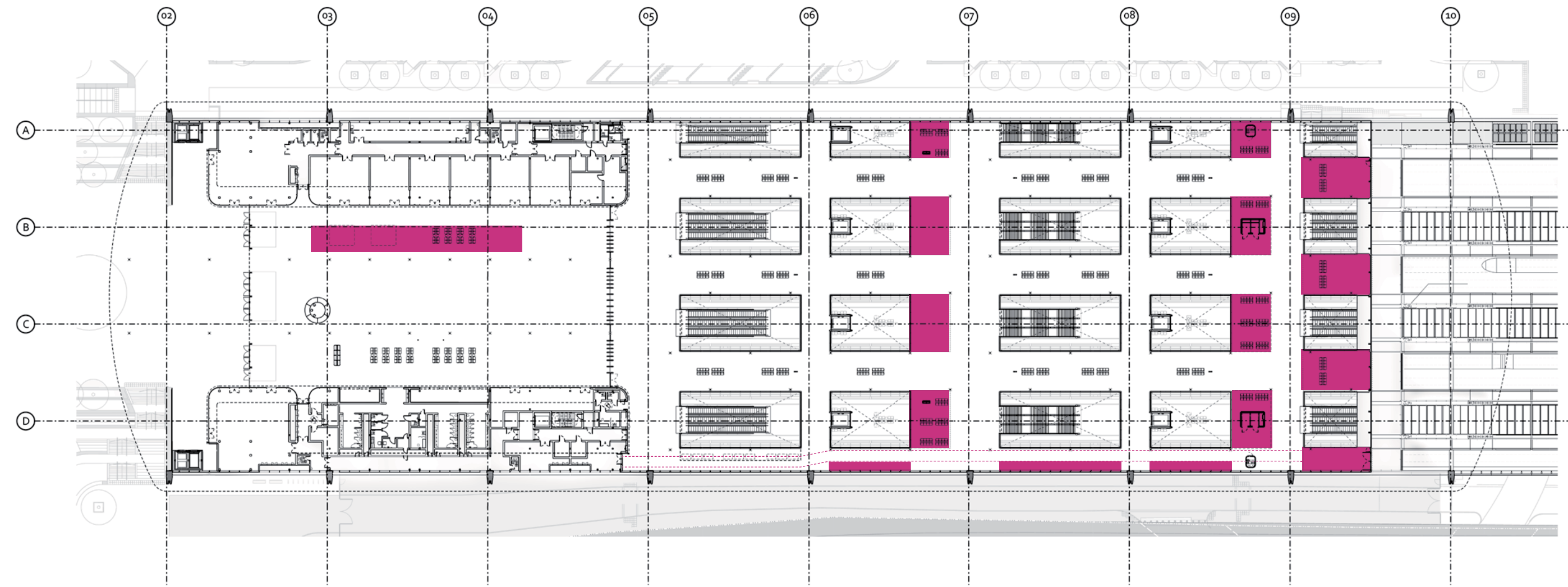


Fig.4.19 Western Concourse Arts and Culture Strategy - plan shows potential space use for exhibitions and the display of heritage collections such as those at Birmingham Museum



Fig.4.20 Potential for installation in the Western Concourse of Birmingham Curzon Street



Fig.4.24 Eva Rothschild, 'This and This and This'



Fig.4.28 Tree grills, Old Mill Street



Fig.4.32 David Nash 'Ash Dome'



Fig.4.21 Heritage Collections, Birmingham Museum



Fig.4.25 Alison Wilding 'Herm' Water fountain



Fig.4.29 East, 'Wood Green Lanes' (acorns used as wayfinding)



Fig.4.33 KLA, Drapers Field, Water play jets



Fig.4.22 Heritage Collections, Birmingham Museum

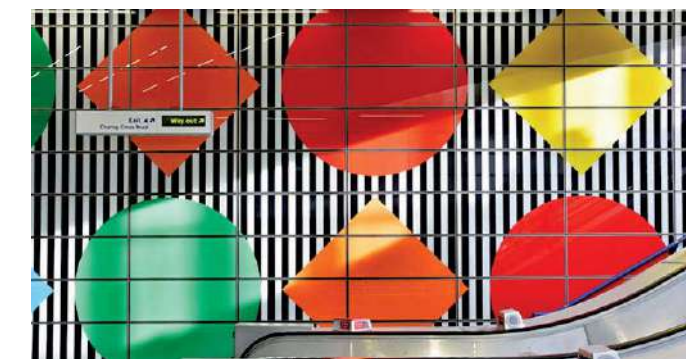


Fig.4.26 Daniel Buren 'Diamonds and Circles', Tottenham Court Road



Fig.4.30 Heritage, Potters field



Fig.4.34 Sector Landscape Architects



Fig.4.23 Heritage Collections, Birmingham Museum



Fig.4.27 Janet Cardiff and George-Miller, sound installations



Fig.4.31 Susan Philippz, 'Station Clock'

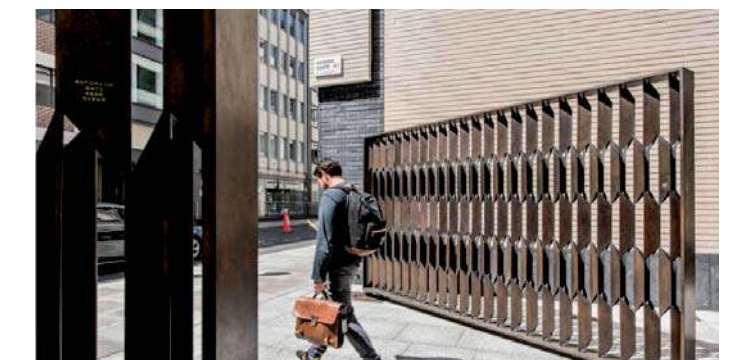


Fig.4.35 Robert Orchardson, 'Three gates for Rathbone Place'

Code 1 - Accepted

Station Arrangement

4.6.1 Overview

The station building arrangement itself is configured simply and efficiently, while responding contextually to site level changes, pedestrian routes and Historic Assets.

Two concourses, each of a different character, address Birmingham. The Western Concourse faces onto Station Square and acts as the 'front' door to the station. The Eastern Concourse is multi-facing, addressing station drop-off/parking areas to the east, New Canal Street Square and the tram stop to the west, in addition to pedestrian routes to the north and south. It is designed to add structure to and blend into surrounding urban realm and architecturally celebrate the OCSS.

Both concourses have been sized to the anticipated passenger capacity which is 85% to the Western Concourse and 25% to the Eastern Concourse (these percentages are oversized taking into consideration customer comfort and a sense of spaciousness as well as use of station facilities by non HS2 customers).

The platform level acts as the common denominator across both concourses. All platforms are located below the Western Concourse and 'float' above the Eastern Concourse. Both concourses and platform level will provide a high quality of materials and finishes once again enhancing the customer experience and further establishing Birmingham Curzon Street as an asset to the city.

The Back of House (BOH) level is consolidated centrally below platforms and Western Concourse enabling vertical alignment and efficient servicing of both concourses and platforms.

Key

- Roof
- Concourse
- Platforms
- Back Of House

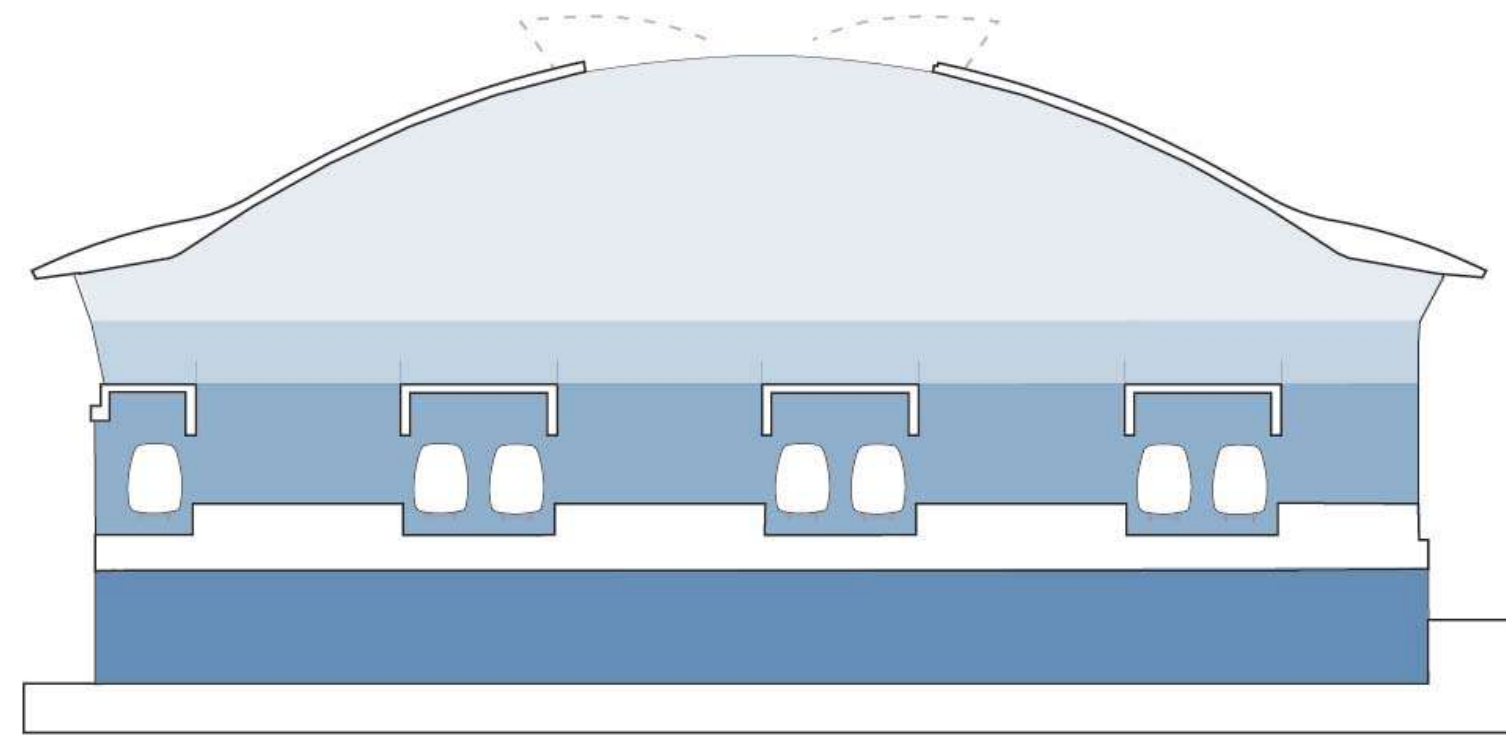


Fig.4.36 Zoning short section

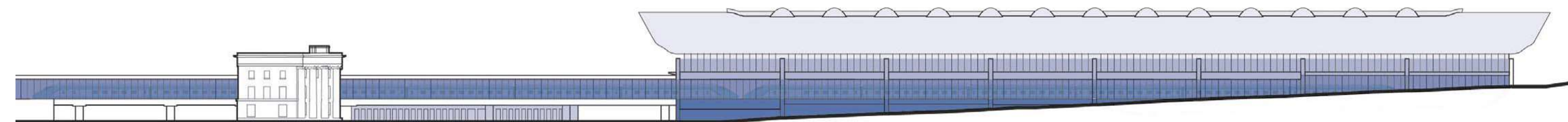


Fig.4.37 Zoning elevation

4.6

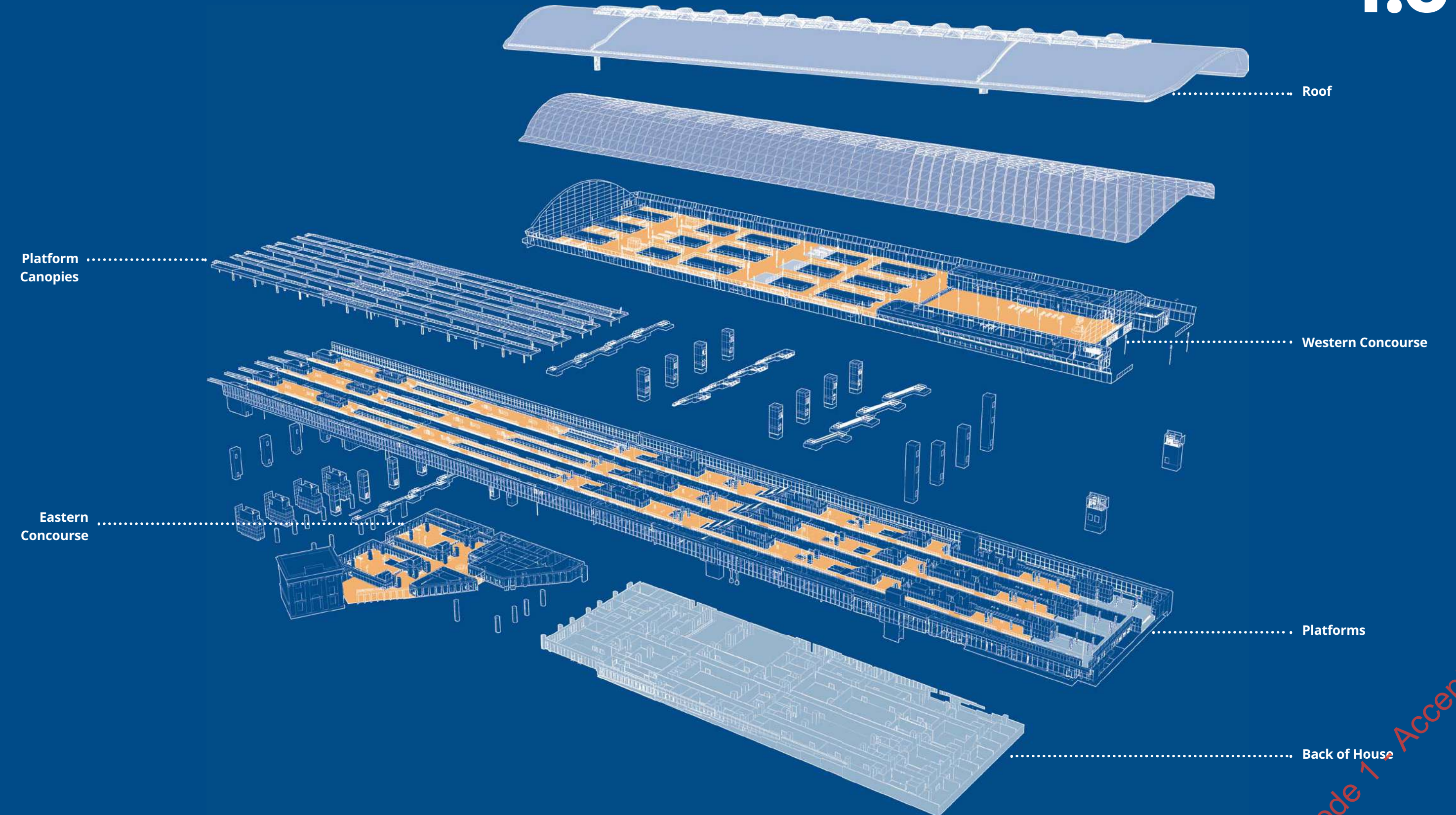


Fig.4.38 Station exploded axonometric

Code 1 Accepted

4.6.2 West Concourse

Covered by the single arched roof, the Western Concourse area provides key customer-facing accommodation and services, together with retail and BOH zones for staff accommodation and servicing. Natural daylight is provided throughout from the rooflights and glazed elevations.

Two main wings of accommodation frame a welcoming 'Public' Concourse, which sits east of the ticket gateline. These units extend forward of the western gable end glazing to promote potential 24 hour operations accessible from both the inside and outside of the station. The high visibility and accessibility of retail is also designed to enable non-ticketed customers to benefit from the concourse facilities.

Customer facilities are located in the southern wing of concourse accommodation. Administrative offices have been located within the north section of accommodation. This location provides views and daylighting for staff and also presents an active frontage to Curzon Promenade.

Clear sightlines are maintained through the ticket gateline towards the 'Passenger' Concourse, which sits west of the ticketing control line and provides all means of vertical transportation down to platforms. Spacious and well-lit, the Paid Concourse area seeks to promote longer dwell times by allowing passengers to wait as close as possible to their platform and designated train car, thereby acting as a customer lounge, similar to those typically found within modern airports. The concourse layout provides seating areas, potential for grab and go retail and customer information evenly distributed throughout the space. Customers will have access to cityscape views through all concourse elevations, with glazed 'gable' ends being the primary viewing windows onto the city of Birmingham.

The track and overhead catenary system (OCS) zones are covered to form linear East-West circulation routes. This has meant that a 'safe by design' solution is achieved whereby customers and maintenance staff are protected from moving or working at height above the live railway and OCS.

Space has been allocated for the development of 'character zones' that would, via the utilisation of lighting, furniture and finishes, further promote customer comfort and interest together with art, cultural and commercial opportunities throughout the concourse.

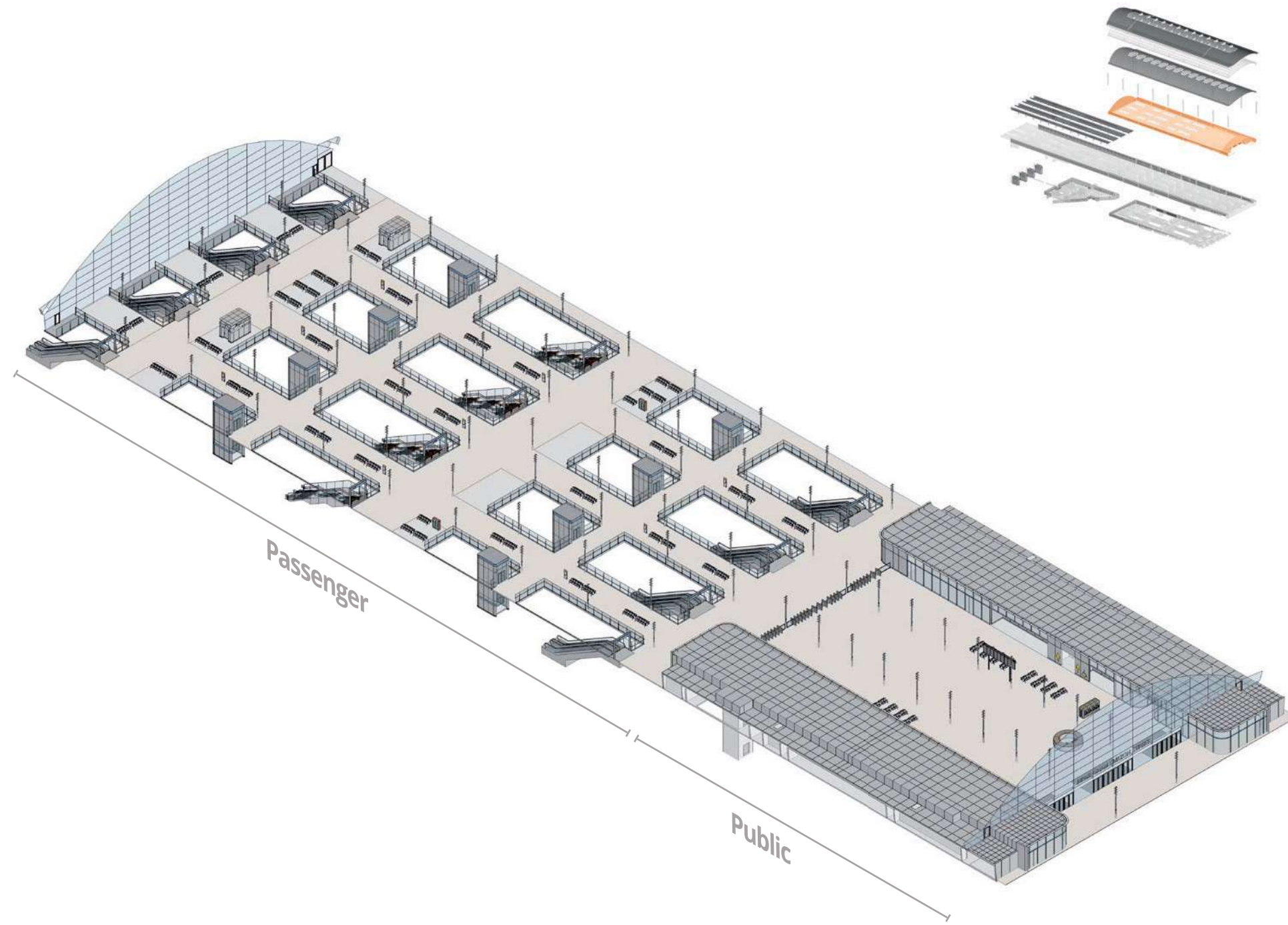


Fig.4.39 Axonometric of Western Concourse



Fig.4.40 Internal visualisation - public concourse



Fig.4.41 Internal visualisation - public concourse

Code 7 - Accepted

Western Concourse

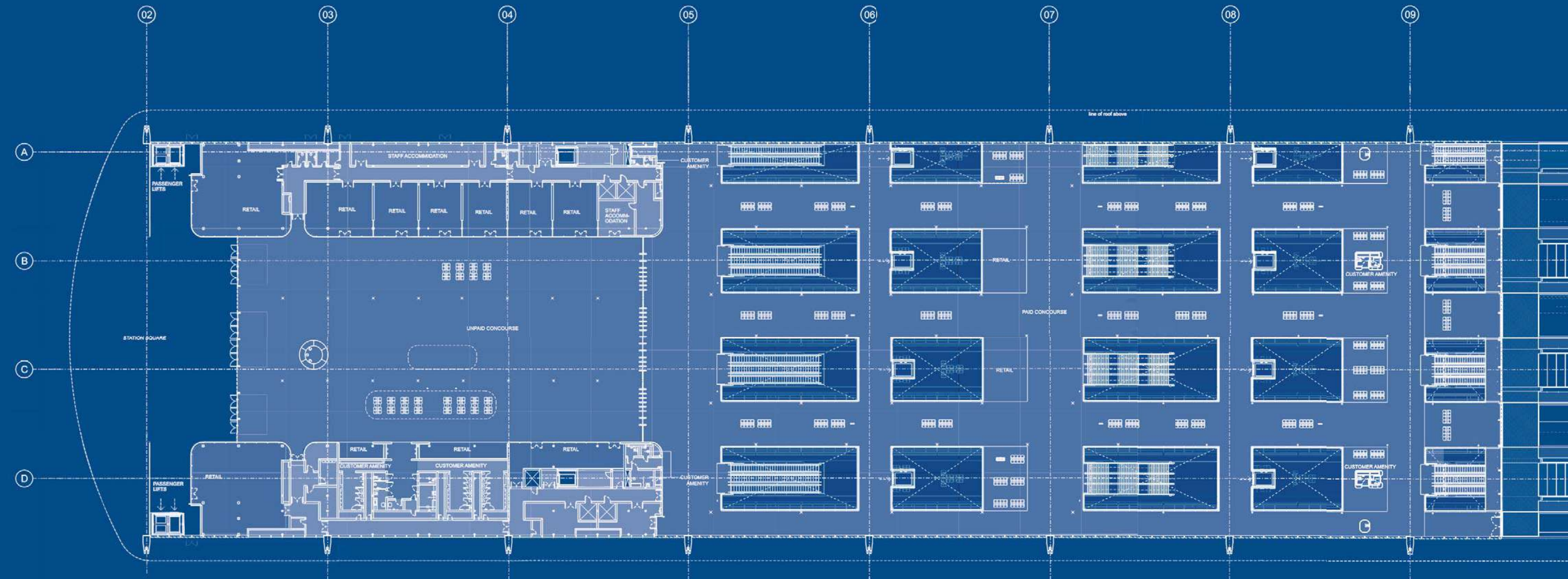


Fig.4.42 Western Concourse plan

4.6



Fig.4.43 Internal visualisation - passenger concourse

Code 1 - Accepted

4.6.3 Platforms

There are seven platforms at Birmingham Curzon Street Station, each configured to a total overall length of 455m. This length includes a safety zone behind the Train Stopping Position (TSP) along with customer facilities, such as WCs and waiting areas, vertical transportation and staff accommodation.

All platforms are located below the Western Concourse and above the Eastern Concourse. Each platform is served by 3 sets of escalators, 1 set of fixed stairs and 3 sets of PRM lifts. Voids within the paid concourse promote natural light to filter down to platform level whilst also providing clear views of the 'warm' and articulated main roof soffit for arriving passengers. The platform voids also enable customer sightlines to and from the platforms, thereby promoting intuitive wayshowing.

Voids in the platform level allow natural light to permeate down into the Eastern Concourse via linear rooflights to the platform canopies. These voids also accommodate escalator and PRM lift clusters, thereby permitting grouping of vertical transportation elements, consistent with the Western internal zones of the platforms.

In addition, the platforms bridge over New Canal Street and the Taxi drop-off zone, at which points voids / lightwells between the viaducts once again allow natural light penetration to the spaces at ground level below.

Platform accommodation has been rationalised in order to 'plug' into the back of escalator banks and thereby permit maximum cross-platform visibility. This also allows for views in and out of the building by concentrating accommodation away from façades where possible.

Retail and amenity provision addresses the external public realm at the top of Curzon Promenade. These retail units will be served from the BOH zone at platform level via the service core.



Fig.4.44 Axonometric of platform level

4.6



Fig.4.45 Internal visualisation - platforms

Code 1 - Accepted

Platforms

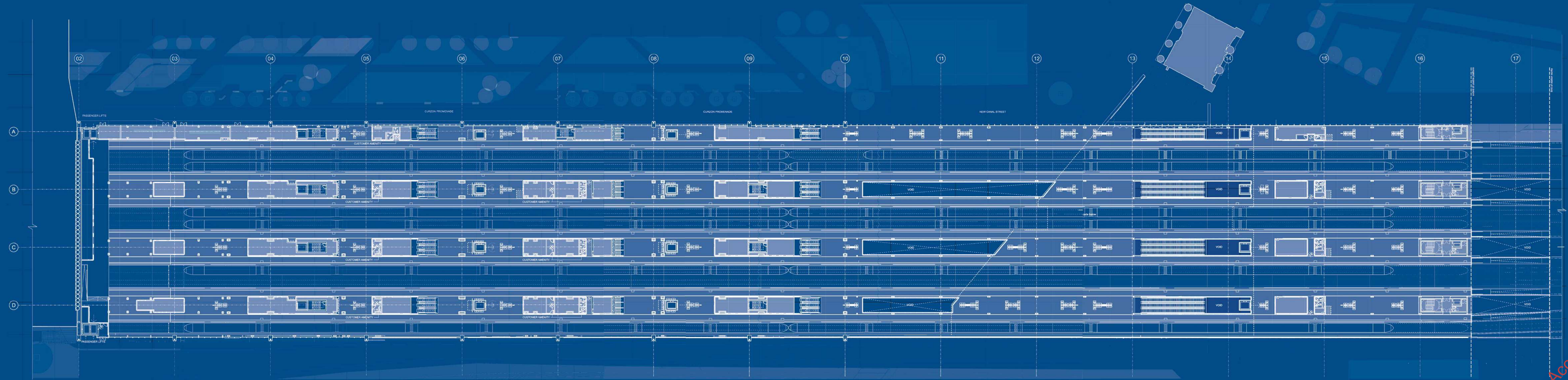


Fig.4.46 Platforms plan

Code 1 - Accepted

4.6.4 Eastern Concourse

The Eastern Concourse acknowledges the existing sightlines and layout of the urban grain, primarily New Canal Street and the location of the Grade I Listed Old Curzon Street Station.

The alignment generates:

- Clear, unobstructed sightlines towards the prominent Grade I OCSS Portico from the southern approach via New Canal Street.
- A logical and sympathetic alignment of the existing OCSS frontage and the new masonry colonnade frontage of the eastern entrance to Curzon Street station.

The concourse seeks to provide permeability through the use of cruciform 'arcade' routes linking strategic axis points North, South, East and West of this part of the station, most significantly East-West, where the entrance from station drop-off/parking areas has been enhanced on the eastern side, and direct access to the proposed West Midlands Metro tram stop serving New Canal Street Square is provided on the western side.

The concourse provides key customer-facing accommodation and services, together with retail and BOH zones for staff accommodation and servicing. Retail units are located to the west in order to benefit from greater anticipated footfall along New Canal Street, Curzon Square and the tram stop. Location of BOH for the Eastern Concourse has been carefully planned on the south to maximise active frontage flexibility to the New Canal Street and Taxi drop-off frontages of the Eastern Concourse.

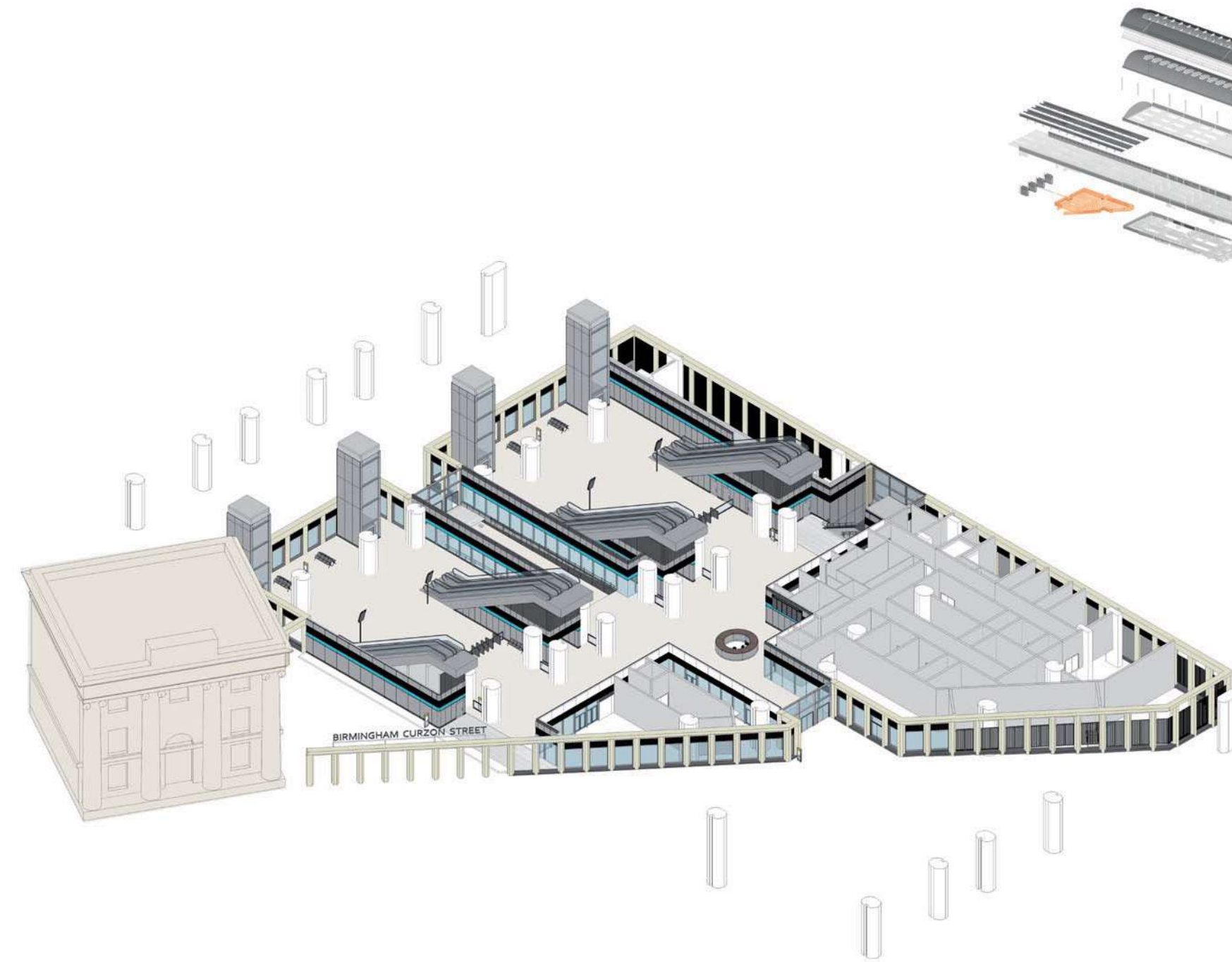


Fig.4.47 Axonometric of Eastern Concourse



Fig.4.48 Visualisation (10) - New Canal Street Square

Code 7 - Accepted



Fig.4.49 Internal visualisation - Eastern Concourse



4.6

Fig.4.50 Internal visualisation - Eastern Concourse

Code / Approved



Eastern Concourse



Fig.4.51 Eastern Concourse Plan

4.6.5 Back of House Zone

The main BOH zone is strategically located in the centre of the station footprint. This position is designed to enable central servicing of platforms above and efficient servicing of both concourses.

The BOH zone provides an area to enable accommodation of the more sizeable station operational assets such as the loading bay. This location enables service vehicle access along the southern flank of the station from a new service road running which runs east-west between New Canal Street in the east and Park Street in the west, parallel to the existing Rugby Birmingham and Stafford railway line (RBS) viaduct. The location of station servicing to the south permits a 'clean' and people focussed edge to the north along Curzon Promenade.

A retail unit is located to the north-east corner of the footprint in order to benefit from footfall along New Canal Street, Curzon Promenade and the tram stop.

Staff accommodation spaces are located to the perimeter of the station footprint to derive benefits from natural daylighting, views and natural ventilation. This reduces reliance on artificial lighting to reduce energy use, and improves occupant health and well-being. It also creates an attractive, accessible and prominent staff entry reception accessed directly from Curzon Promenade forming part of the active edge of the station and helps to enhance the quality of the working environment for HS2 staff in the new station.

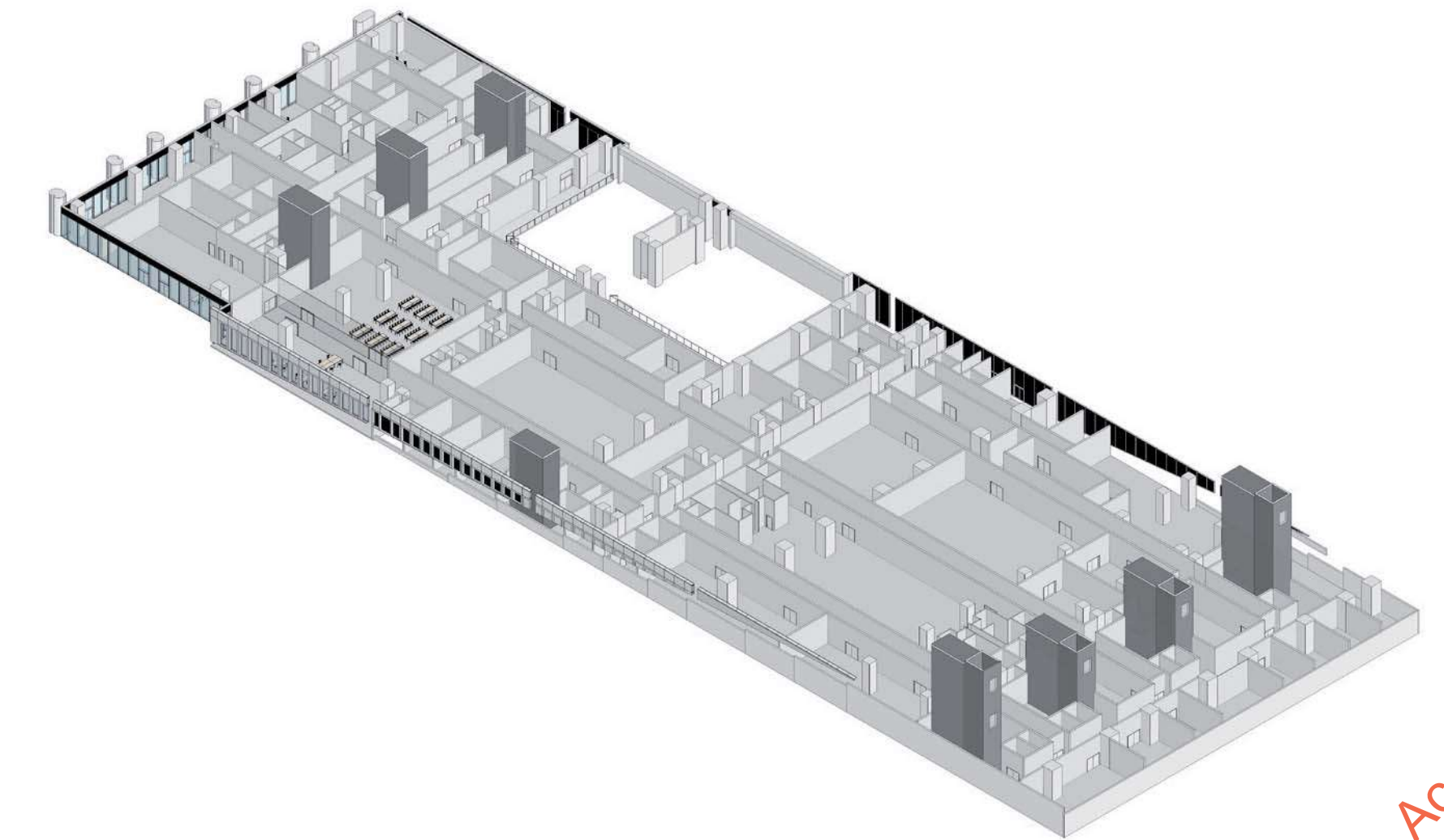


Fig.4.52 BOH office accommodation to the perimeter of the building to maximise daylighting and views to occupants to improve health and well-being and to reduce reliance on artificial lighting to limit energy consumption

Code 1 - Accepted

Servicing & Safety

4.7.1 Station Servicing and Maintenance

The Station is serviced via a loading area located to the southern side of the main building. This is accessed via a controlled point at Fazeley Street and to avoid potential conflict between service vehicles and pedestrians the service road is not publicly accessible between Grid Line 03 and Grid Line 10.

A minimum 5m wide zone for façade maintenance and emergency vehicle access is provided to the northern and southern façades of the Western Concourse building by the hard standings of Curzon Promenade and the southern access road respectively. A 3m wide maintenance zone for facade access and cleaning is defined between Grid Line 02 to Grid Line 10 and coordinated with proposed tree planting. Self-levelling maintenance plant / equipment will be necessary in order to access and operate along the predominately 1:21 sloped gradient of the path and paving depth build-up designed accordingly to support this load.

Provision for a 4m wide corridor to the northern and southern façades between Grid Line 10 to Grid Line 16 is also allocated as hard-standing within the public realm to facilitate access and maintenance of this lower section of facade.

A provision for occasional crane access to the main station roof for replacement of fans and skylight glazing is provided within the areas of hard standing within Station Square and Curzon Square

The paved spaces of New Canal St Square and the Arrival Space of the Eastern Car Park facilitate occasional access to the viaduct and soffit and these activities are to be planned to ensure minimal disruption to pedestrian circulation, for example undertaking works outside of station operational hours.

Occasional maintenance and service access will also be provided to the southern facade of the Eastern Concourse building to facilitate access to the plant room in the south-east corner of the building.

For additional information on the Maintenance Access Strategy refer to Section 5.1.22.

4.7.2 Loading Bay and Associated Functions

The loading bay is organised in two primary logistical areas:

- The loading dock which includes no.3 bays and the deliveries storage area.
- The waste operations zone which includes 3no. static compactors (1 for refuse and 2 for recycling) and an interim waste store.

Access will be via the new southern service road, which is currently proposed as a single direction (East to West) non-adopted roadway with barrier at entry and exit / monitored security control between the junction with Fazeley Street and Park Street. Service vehicle access has been auto-tracked in a reverse-in / forward out configuration which avoids crossing the proposed new pedestrian / tram-only public space (New Canal Street Square) located below the HS2 viaducts.

4.7.3 Eastern Concourse waste strategy

The eastern concourse is separated from the western concourse by the tram line and public realm. This means that there is no back of house access from the eastern concourse to the main storage areas beneath the western concourse.

It is therefore proposed that the eastern concourse will be provided with a small interim waste store to which the retail units (as the principal waste generation source) will transport their waste during operational hours (04:59 and 23:59).

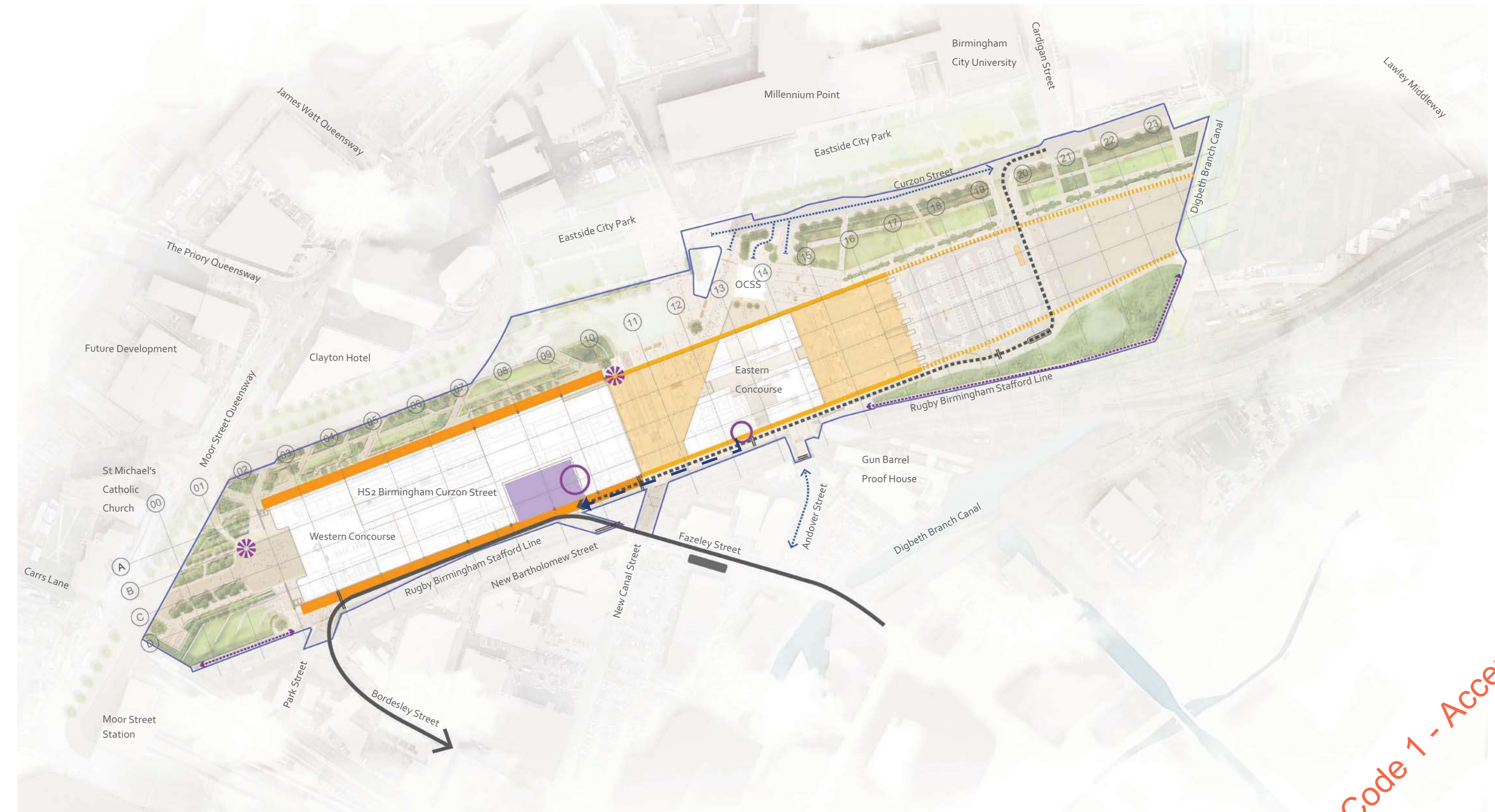
Waste will be transferred from the eastern interim waste store to the main waste compactors located in the loading bay, outside of operational hours (23:59 to 04:59).

Key

- Application Boundary
- Loading Area
- ➔ Service Access
- ⋯ Non-station Service Access
- ➔ Station Occasional Maintenance Access
- ▬ Control point for vehicle access
- ⋯ Network Rail Access
- ➔ Access and turning for existing businesses on Andover St
- 4m width zone for facade maintenance
- ▬ 4m width available for viaduct access/ maintenance
- 5m width zone of facade maintenance
- Access to viaduct accommodated within hard-standing
- ⊛ Roof Access Point
- Refuse Collection Point
- ▬ Utilities Maintenance Lay-by
- ▬ Proof House Lay-by
- ▬ Service Access Lay-by
- ① Architectural Grid Line



Fig.4.53 Urban realm servicing strategy



Code 1 - Accepted

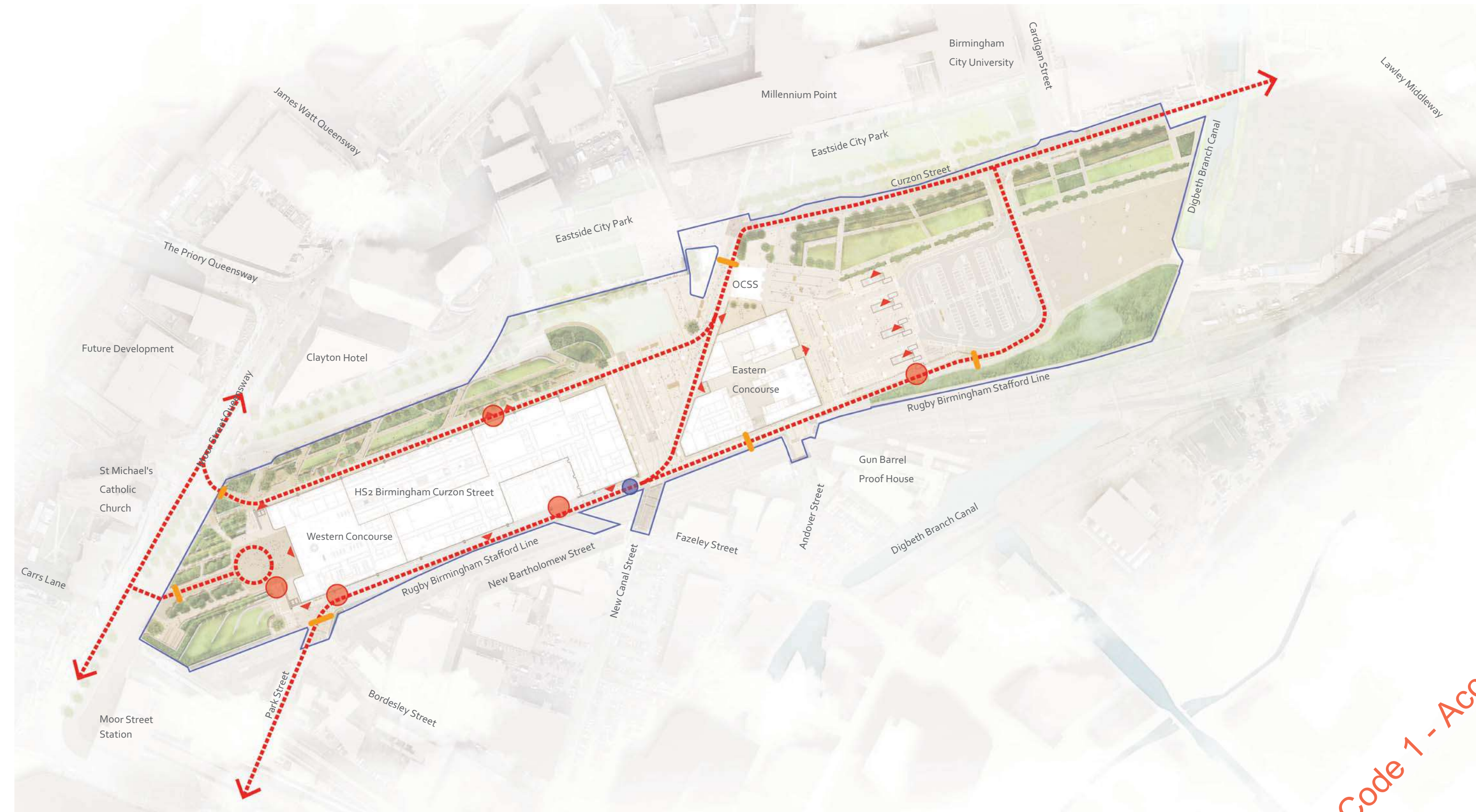
4.7.4 Fire and Evacuation

The fire and evacuation strategy allows for fire tender access within the urban realm along the length of the northern and southern façades of the building and to the main façade and entrance at the west of the station. Within the constraints of the site there is provision for areas of hard standing for free movement and level thresholds are provided within the urban realm at key evacuation points.

- Key
- Application Boundary
 - Fire Access Route
 - ⊗ Fire Access Turning Area
 - Fire Personnel Access Points / Tender Stop
 - ▲ Fire Escape
 - Rendezvous Point
 - ▬ Location of Operable Vehicle Barrier to Facilitate Fire Tender Access



Fig.4.54 Urban realm fire and evacuation strategy



Code 1 - Accepted

4.7.5 Urban Realm Safety Strategy

As part of a coordinated urban realm safety strategy developed for the station and urban realm, a primary defensive line has been established for the Station where vehicle barriers are required. The intent is to develop a coherent and integrated approach to accommodating a defensive line of vehicle barriers within the urban realm layout, reducing visual clutter whilst providing a safe and secure environment.

The urban realm safety strategy proposals for HS2 Curzon Street Station seek to strike an appropriate balance between integrating both passive and rated safety measures, to create an aesthetically pleasing, multi-functional and safe urban realm.

Bespoke landscape elements such as walls, steps and raised edges that form part of the safety line will need to be reviewed and designed to the required specification rating in coordination with the security team, civil and structural engineers as part of detailed design. Bespoke landscape element proposals represent current assumptions on aspects such as feature dimensions, to be reviewed and developed in more detail as part of the detailed design stage.

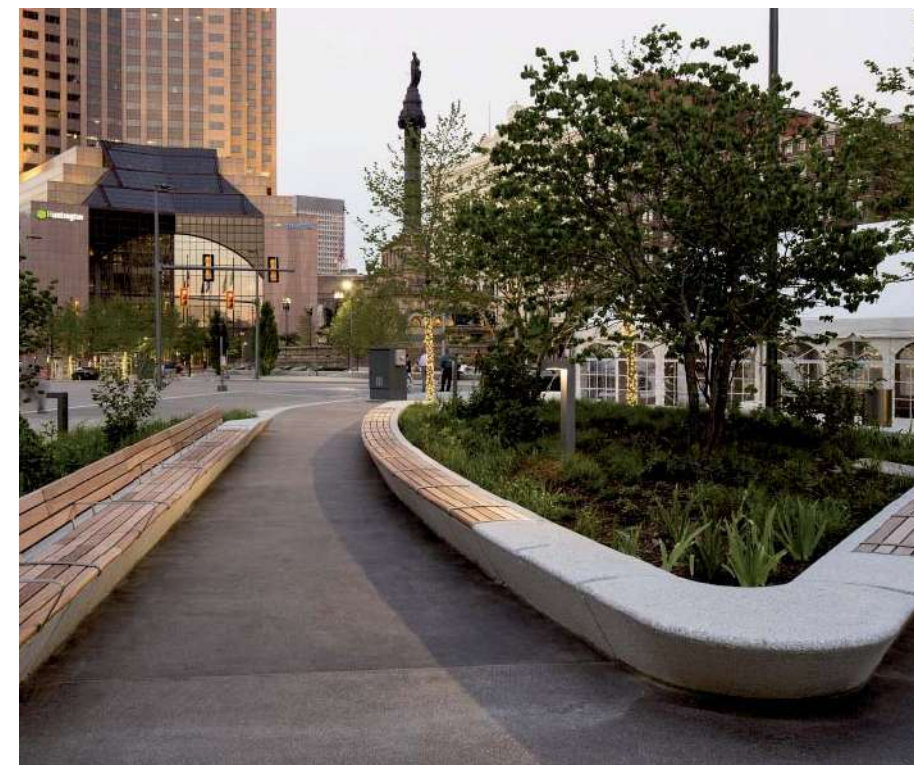


Fig.4.55 Example of robust street furniture suited to providing additional safety function



Fig.4.56 Example of hard and soft landscape safety features at the Scottish Parliament



Fig.4.57 Example of bollards located to facilitate pedestrian permeability

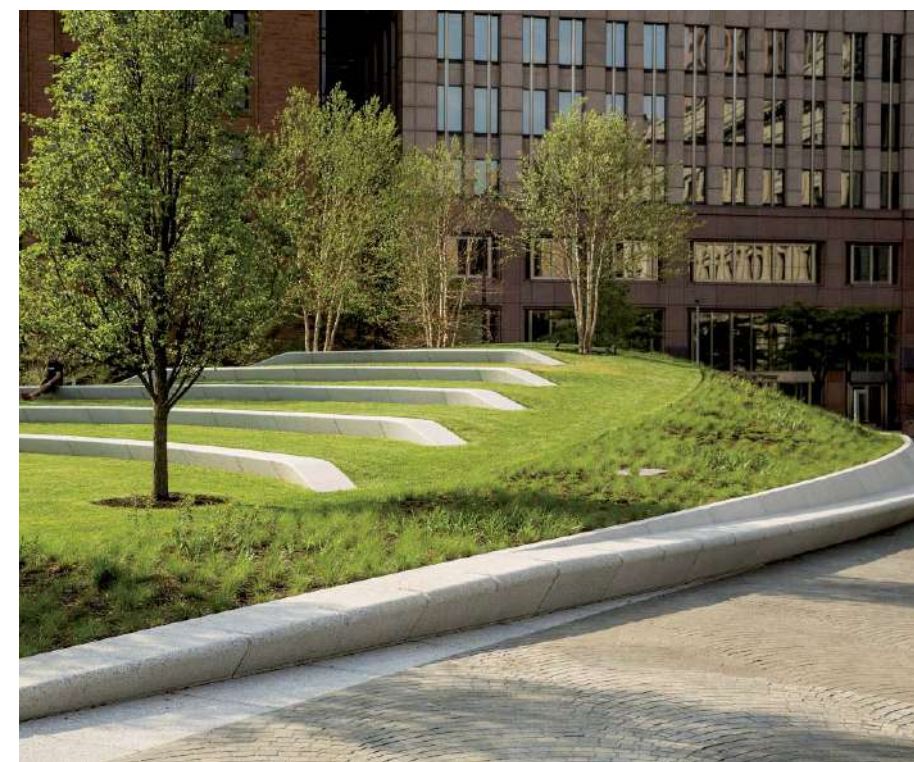


Fig.4.58 Example of Cleveland Public Square safety features integrated into the landscape

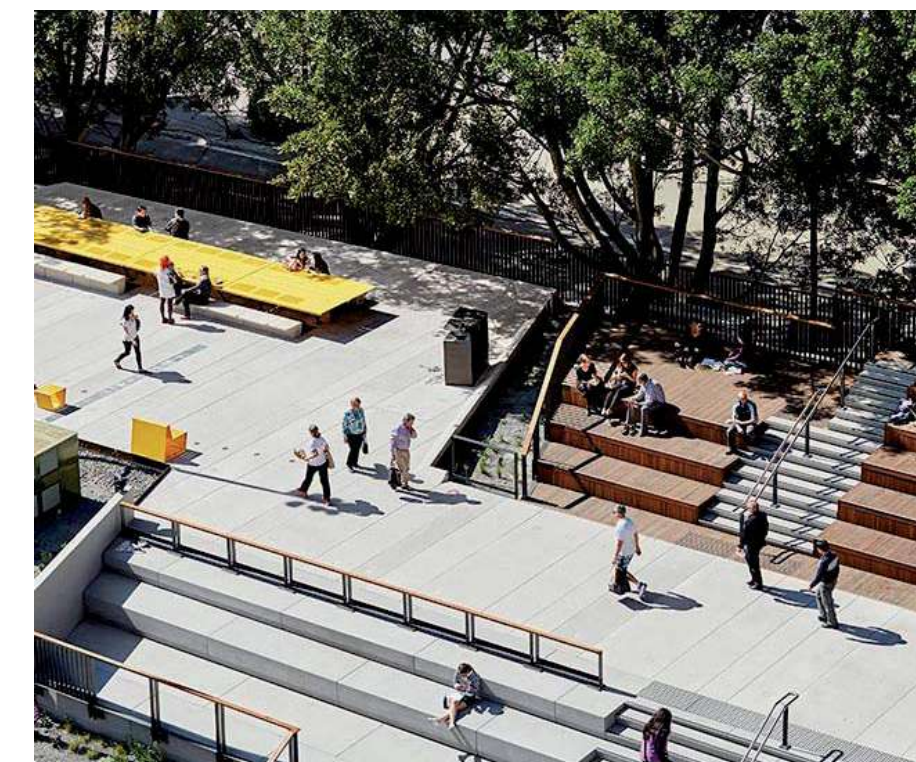


Fig.4.59 Example hard landscape steps and terraces that can also be used as safety features



Fig.4.60 Example of operable features that can be coordinated with below ground utilities

Code 1 - Accepted

5.0 Appearance

This section concerns the form, scale, aesthetics and use of materials in the proposed scheme.

Code 1 - Accepted

Station Form & Materials

5.1.1 Building Form

The proposed building's form is derived from a response to the site; the functions of the station and its expression as a 21st century train shed. The design seeks a simple, legible articulation of the constituent parts of the building, whilst seeking to create an inspiring piece of modern architecture. The great length of the building and the desire to facilitate connections across the site and between transport nodes give rise to a two-concourse arrangement. The secondary Eastern Concourse provides the link to the Old Curzon Street Station building utilising a form and expression appropriate to its historic neighbour.

At high level, the building can be understood as three primary architectural volumes: the expressive roof; ground bearing building blocks and a linear viaduct. These are respectively: the western concourse; the eastern concourse and the viaduct platforms. The treatment of the façades and the use of materials further reinforce this formal diagram. At a simple level the roof is defined by steelwork and timber, the ground bearing elements architectural concrete; and the viaduct aluminium.

The western concourse is the largest and most formally complex part of the station composition having to accommodate a fifteen metre level change across the site. Its exterior is first understood through its roof-form; expressed as a lightweight, softly curved grid-shell. The form cantilevers at its edges and is supported by 'primary', sculpted concrete piers and separated from the main body of the station building by a transparent band of glazing.

Beneath the roof's eaves level the facade is articulated as a series of horizontal glazed bands that represent the vertical organisation of the building. The platform level band continues beyond the main station building to become the viaduct screen and is given visual prominence by incorporation of a horizontal array of vertical structural fins into which glazed panels are inserted.

Below the viaduct at New Canal Street and adjacent to the Old Curzon Street Station the eastern concourse envelope is presented as a continuous colonnade of pre-cast concrete post and lintel walling with a rhythm, proportion and simplicity that is sensitive to the adjacent historic Grade I listed building.

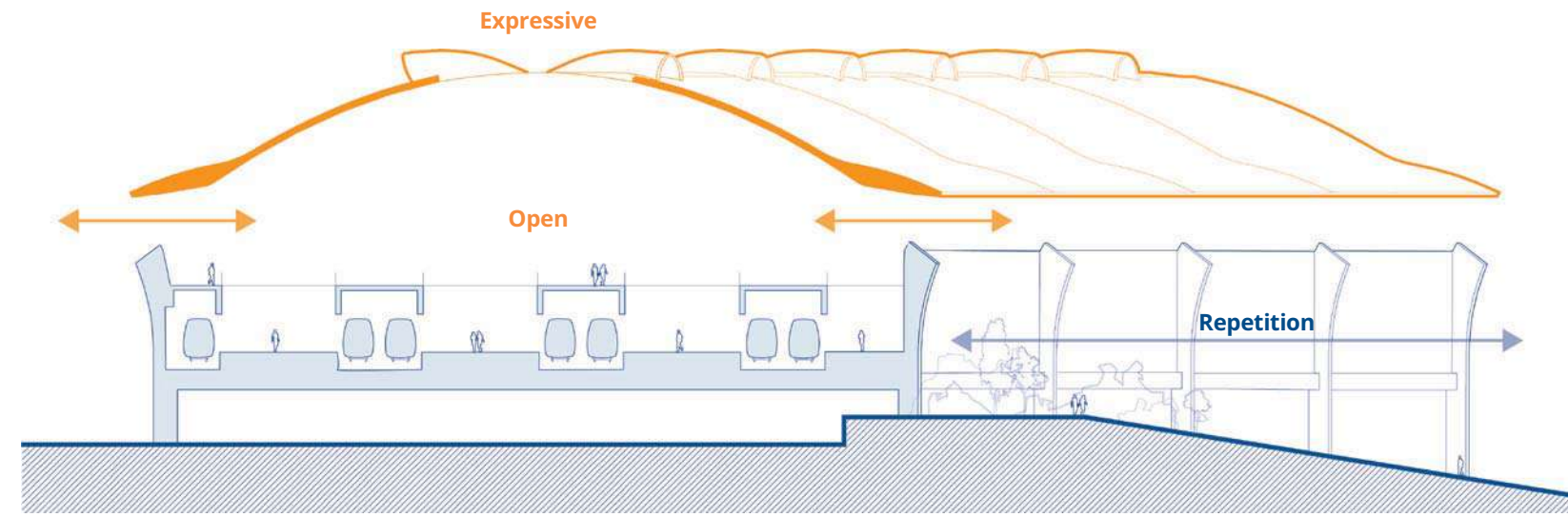


Fig.5.1 Diagram expressing the formal rhythm of the scheme

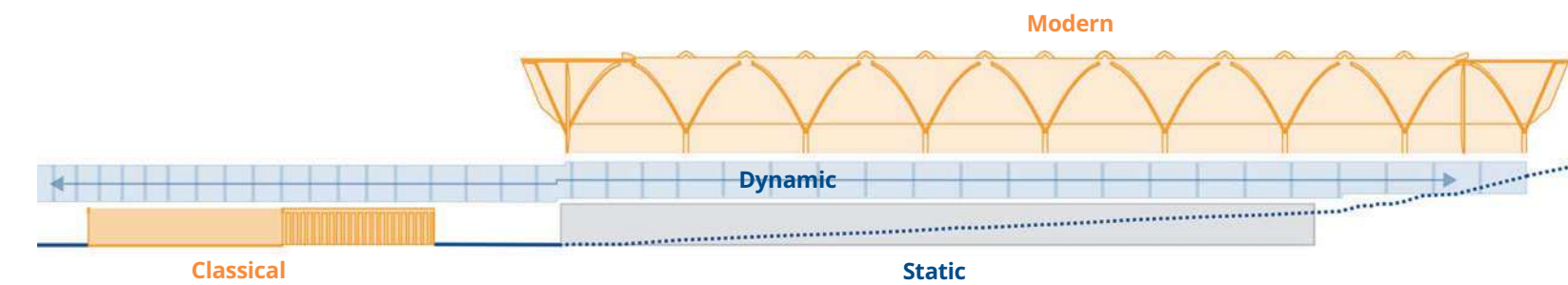


Fig.5.2 Diagrammatic section describing the main volumes of the scheme

5.1



Fig.5.3 Visualisation (View 1) - Birmingham Curzon Street from city centre

5.1.2 Main Arched Roof Canopy

In the tradition of the iron and glass 19th century train shed, the defining architectural feature of Birmingham Curzon Street station is the building's overarching roof canopy. Attention to detail and well crafted elements underpin the design, anchoring it within the industrial heritage of the West Midlands. The quality of design, material construction of the building's roof arch is considered imperative in placing the new terminus building as a significant landmark in the city of Birmingham for future generations.

The roof is symmetrical and comprises a single span parabolic arch consisting of a 'diagrid' of steel providing cover to a footprint encompassing the main western concourses and platforms below. The steel work has a mid grey satin paint finish.

The two-pin parabolic arch structure is designed to be highly material efficient and achieves stiffness through relatively small steel section sizes.

The arched roof profile is raised at its eaves; the roof surface here is separated from the structural parabola that continues to the pin. This results in raised 'wings' along the length of the building. This aspect of the design works twofold: in providing an added formal interest to a traditional station arch - particularly evident at the resultant double curved corners - and in providing a clerestory band of glazing along the full length of the west concourse.

The pin and base plate detail - a component of articulated steel plates and bolts - is an important juncture in the design configuration: this is the point where the steel roof structure and primary concrete pier connect. It is intended as a legible expression of the elegance of architectural engineering; an important theme in the proposed design for the station.

This detail occurs at each pier and is most visible on the western-most structural bay at grid line 02. At this point the westernmost buttress aligns with pre-cast cladding to the retaining wall between platform level and station square, which forms the eastern edge of public realm access stairs to the northern and southern sides of the western station entrance.



Fig.5.4 Visualisation of station roof (trees removed for clarity)

ROOF OF THE SAINT PANCRAS STATION—MIDLAND RAILWAY.

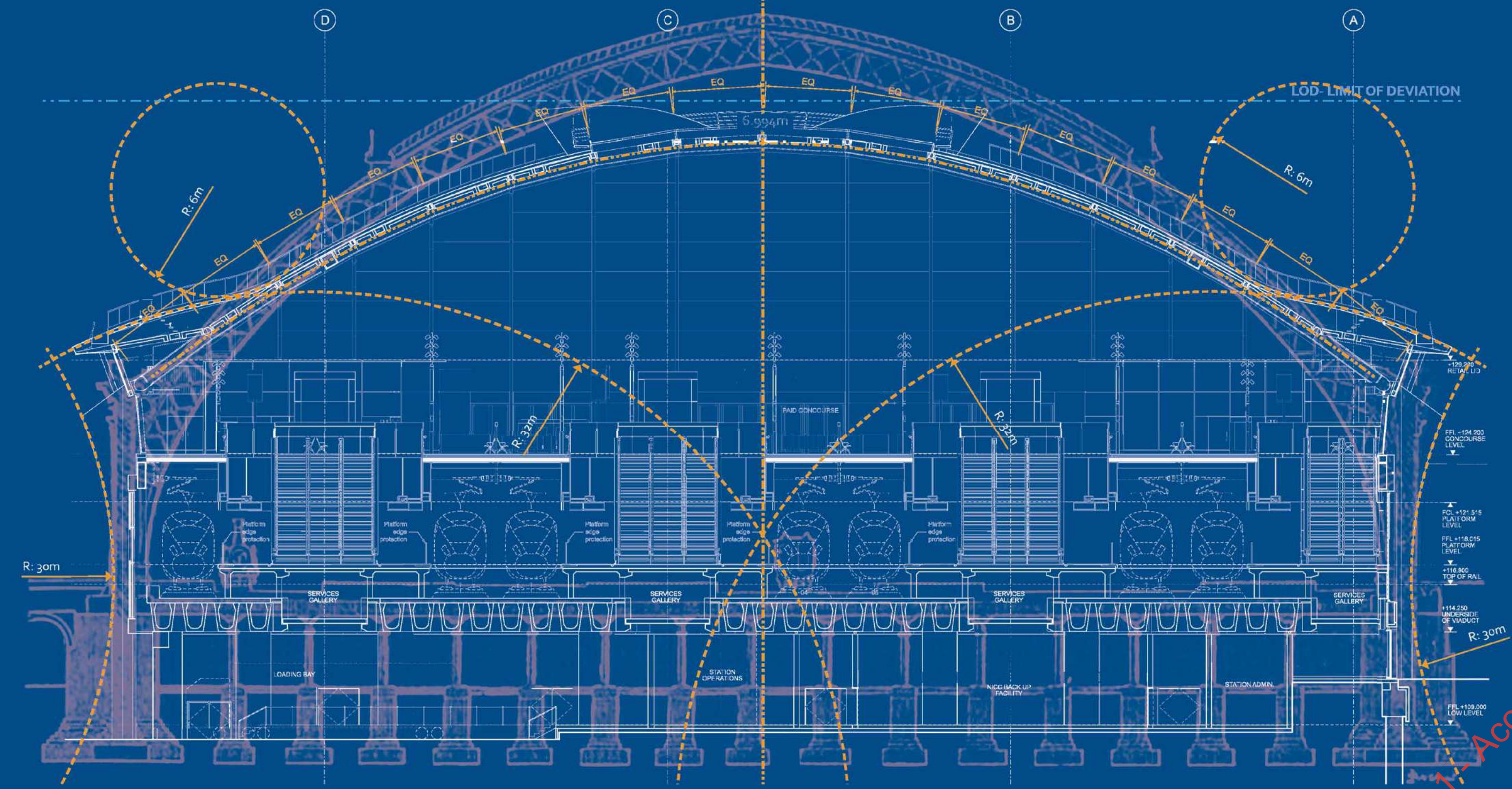


Fig.5.5 Short section of Birmingham Curzon Station superimposed with that of St Pancras Station. St Pancras station's Gothic pointed arch roof canopy has a similar span to Birmingham Curzon's parabolic arch.

5.1.3 Roof Covering

The covering of the roof is a natural finish metal standing seam system. This is a lightweight, low maintenance covering that is suited to both the expanse and curvature of the roof arch. The metal roofing sheets are clipped to a structural metal deck using proprietary stainless steel cleats with minimal offset. At the eastern and western ends the seams begin to taper after the last rooflight so that the final seam to runs parallel to the UHPC edge trim. This allows water from the overhanging roof section to be channelled back to the rainwater outlets at gridlines 02 and 10 without the need for a gutter or upstand detail on the eastern and western edges of the roof.

5.1.4 Roof Pods

The means of smoke ventilation for the station through the roof is a series of mechanically powered ventilation fans housed within UHPC-clad enclosures, located in the central field of the roof between adjacent hexagonal rooflights.

The ventilation pods are designed to visually relate to the form of the main station roof, but the form also provides a practical shape to allow drainage of the enclosure onto the main roof and to minimise wind resistance. The recessed face of the pods - the vent - has an outer perforate architectural screen providing protection to the access walkway and an inner louvred screen connected through internal ductwork to the ventilation fan assembly inside the pods.

5.1.5 Roof Lights

Double glazed fixed roof lights run the full length of the western concourse block. These lights provide sky views and natural lighting.

The overall arrangements, shape and the modular dimensions of the roof lights are derived from the triangular geometry inherited from the diagrid structure. The roof light comprises a steel framed curtain wall with triangular double-glazed panels. The rooflights are based on a 2.5x 2m triangle with 4 panels per 4.5m x 4m structural module. The finish to the frames will be a light grey-white for contrast with the primary roof grid.

The rooflight framing is set above and spaced off the steel diagrid below, thereby allowing the two to be visually separated. Bird roosting deterrent measures will be incorporated at the top surface of the diagrid profiles throughout the glazed area.



Fig.5.6 3D views of roof pods

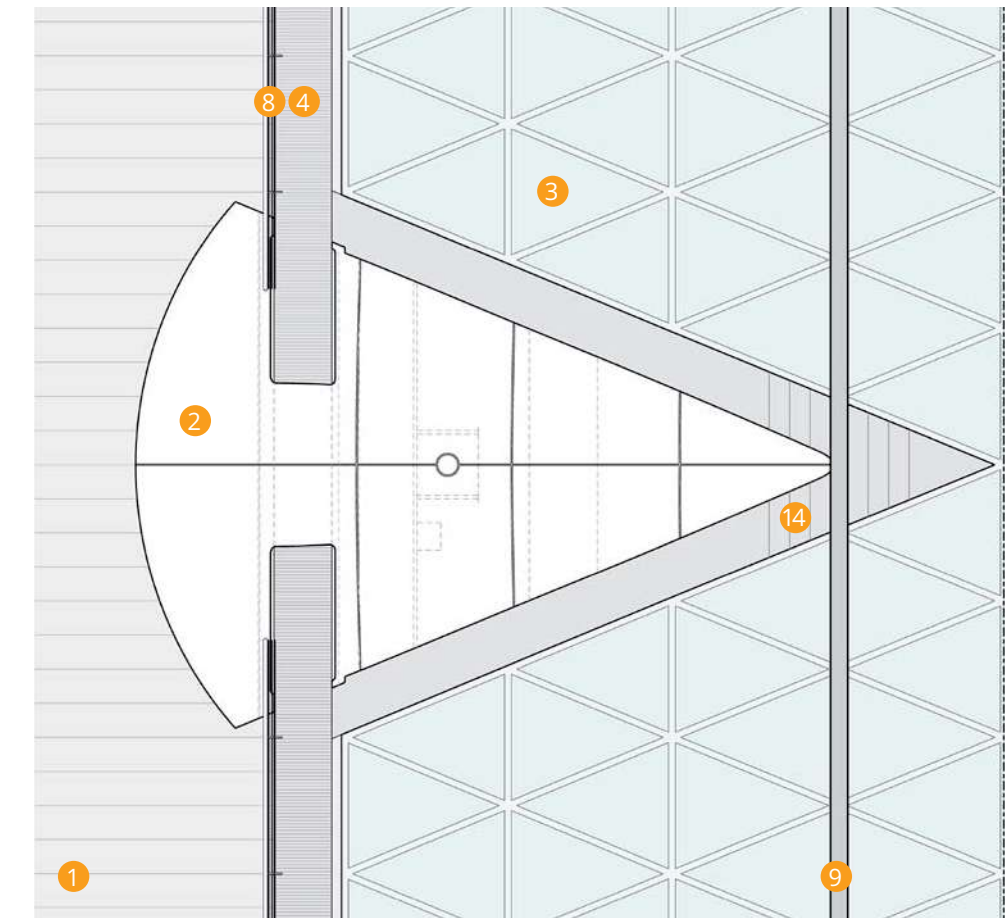
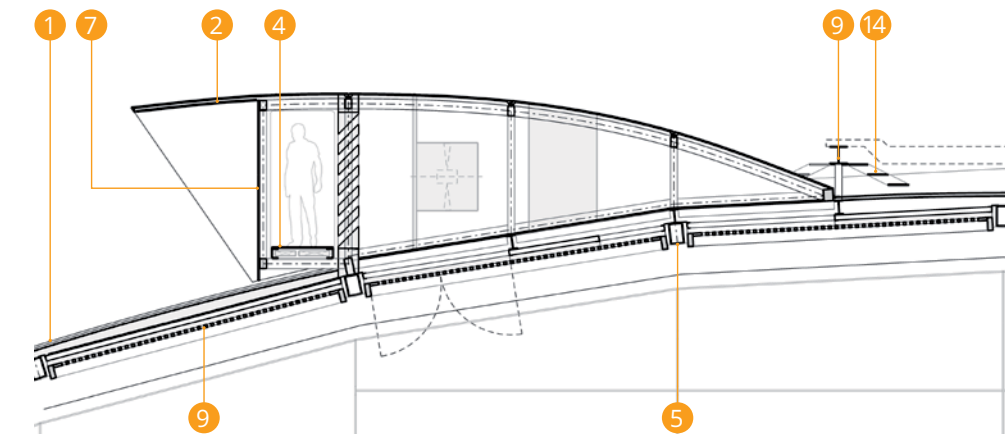
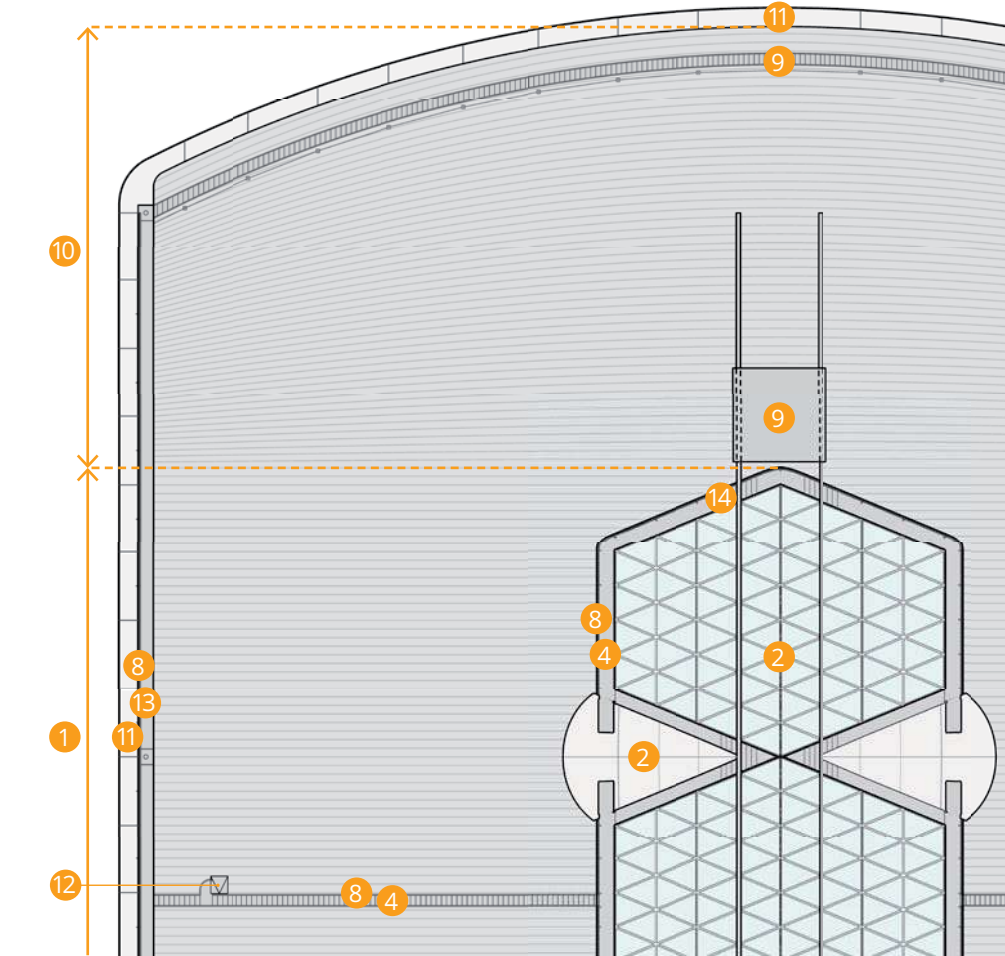
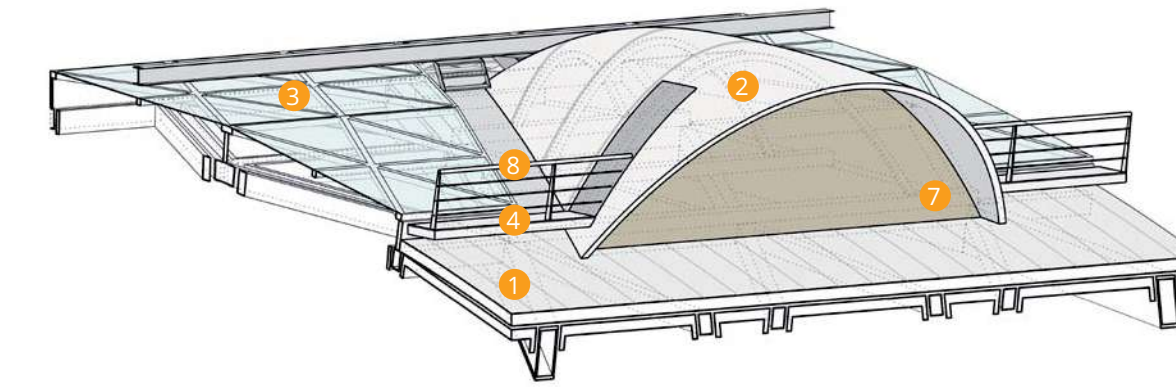
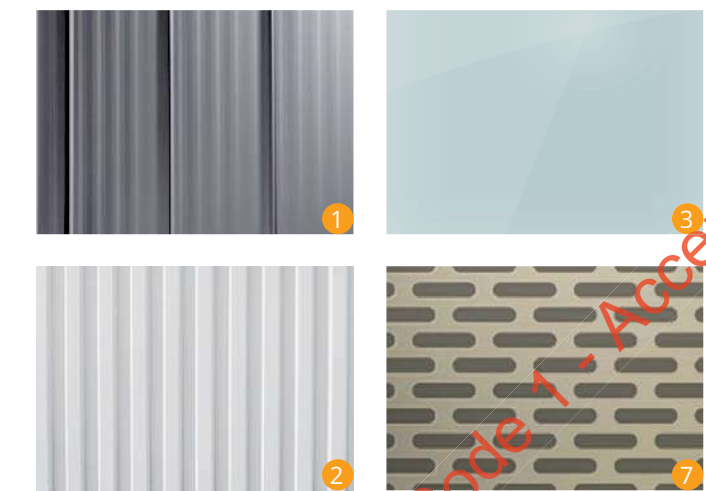


Fig.5.7 Roof fan pod and maintenance access details



- 1 Metal standing seam roof, natural matt finish
- 2 Curved and molded cementitious panel (UHPC), light grey ribbed satin finish
- 3 Rooflight glazing, clear low-iron, anodised aluminum framing, light grey satin finish
- 4 Metal access walkway, natural finish
- 5 Architectural steel work, mid grey satin finish
- 6 Timber slatted soffit with dark grey woven backing (Oregon Pine or equivalent appearance)
- 7 Perforated aluminum screen, bronze anodised satin finish (Anolok 541 or equivalent)
- 8 Stainless steel cable balustrade, natural finish
- 9 Steel maintenance track for traversable maintenance access platform
- 10 Metal standing seam roof, seams tapered to match end curve, natural matt finish
- 11 Curved and molded cementitious panel (UHPC), light grey satin finish
- 12 Stainless steel roof access hatch, natural finish
- 13 Walk in gutter, liquid applied membrane finish
- 14 Walkway step-over

Materials



Code 1, Accepted

5.1.6 Roof Soffit

The warm timber soffit is comprised of 2 x 2.5m triangular soffit panels with composite steel / timber 'picture frame border' and timber batten cladding on aluminium mounting frame. The timber soffit extends beyond the western and eastern gable ends of the main station arch so will be visible externally. The timber should achieve an equivalent colour and finish to the Oregon Pine Soffit used in Amsterdam Bijlmer ArenA station (refer to photo on opposite page).

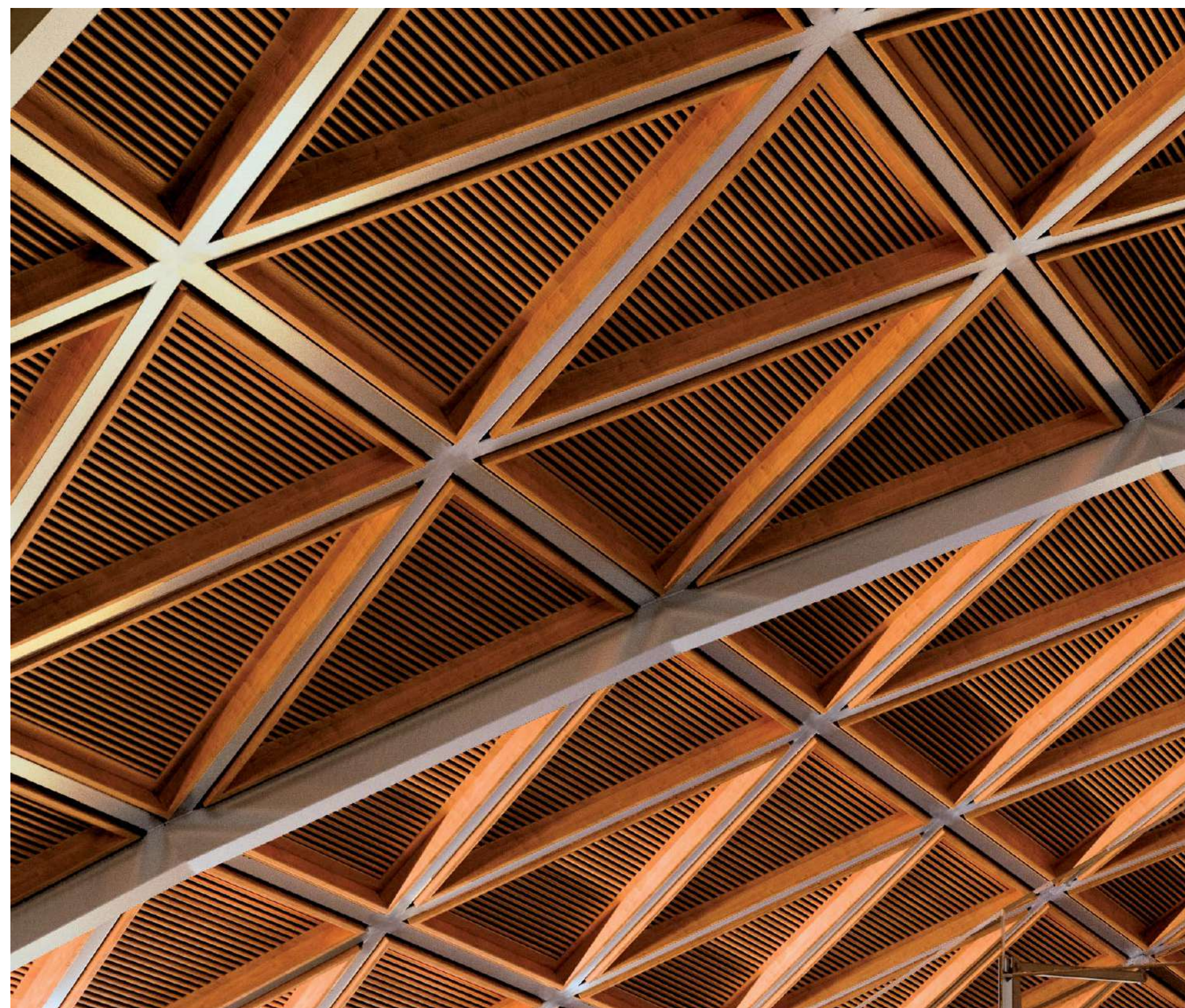


Fig.5.8 Rendering of roof soffit

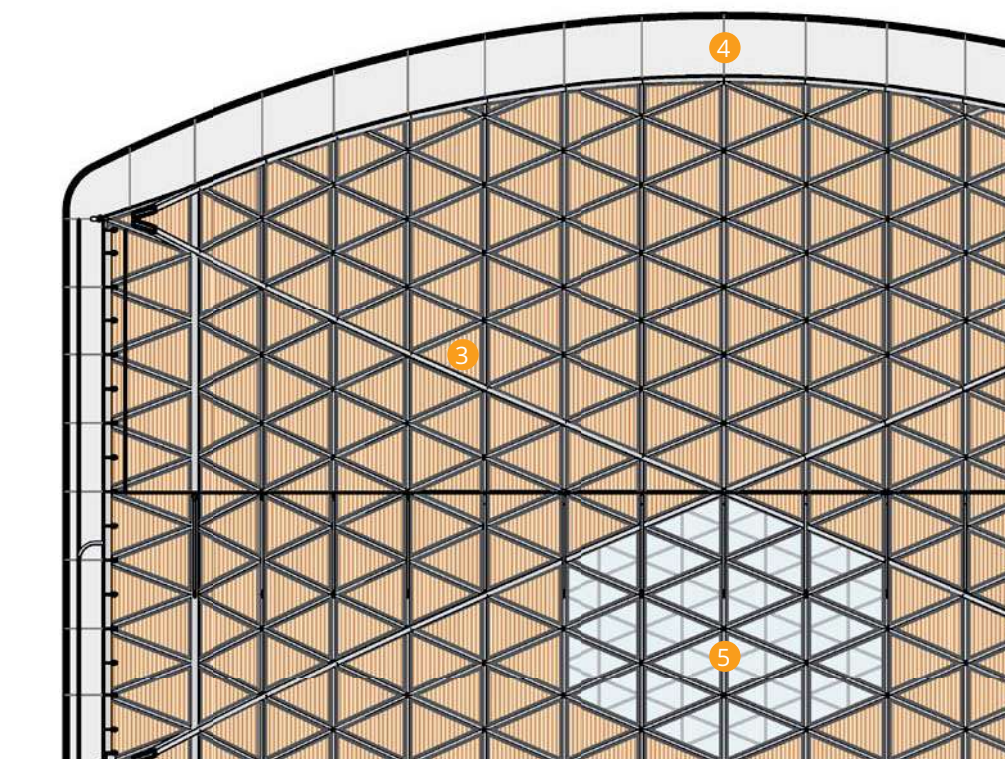
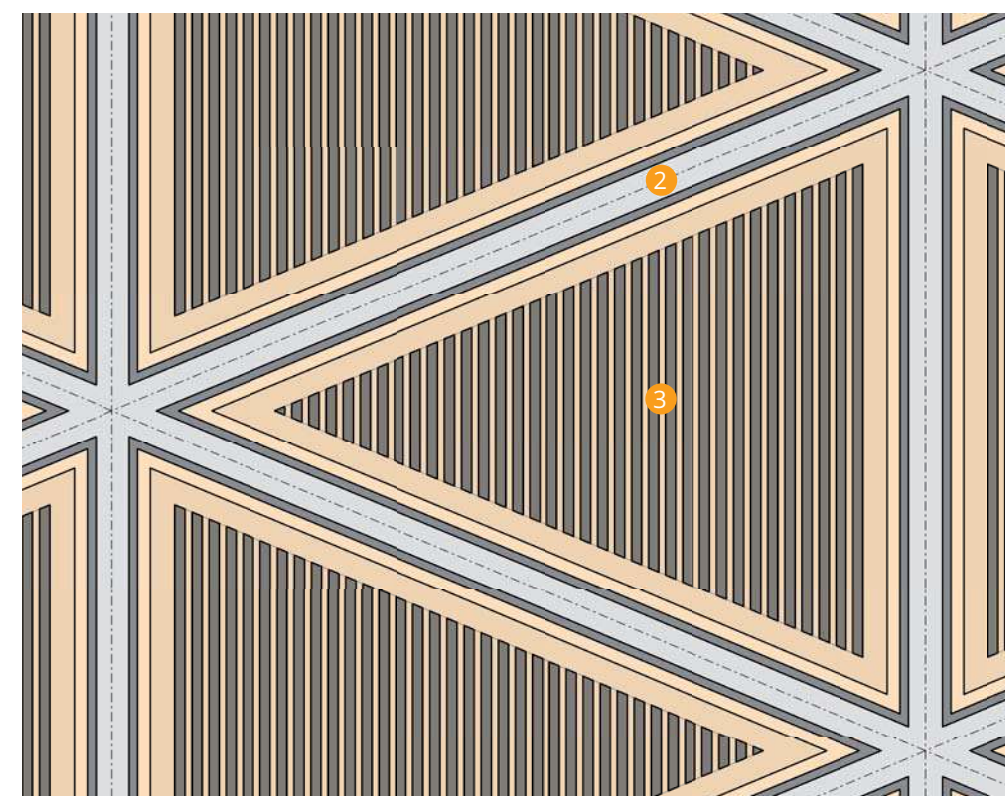
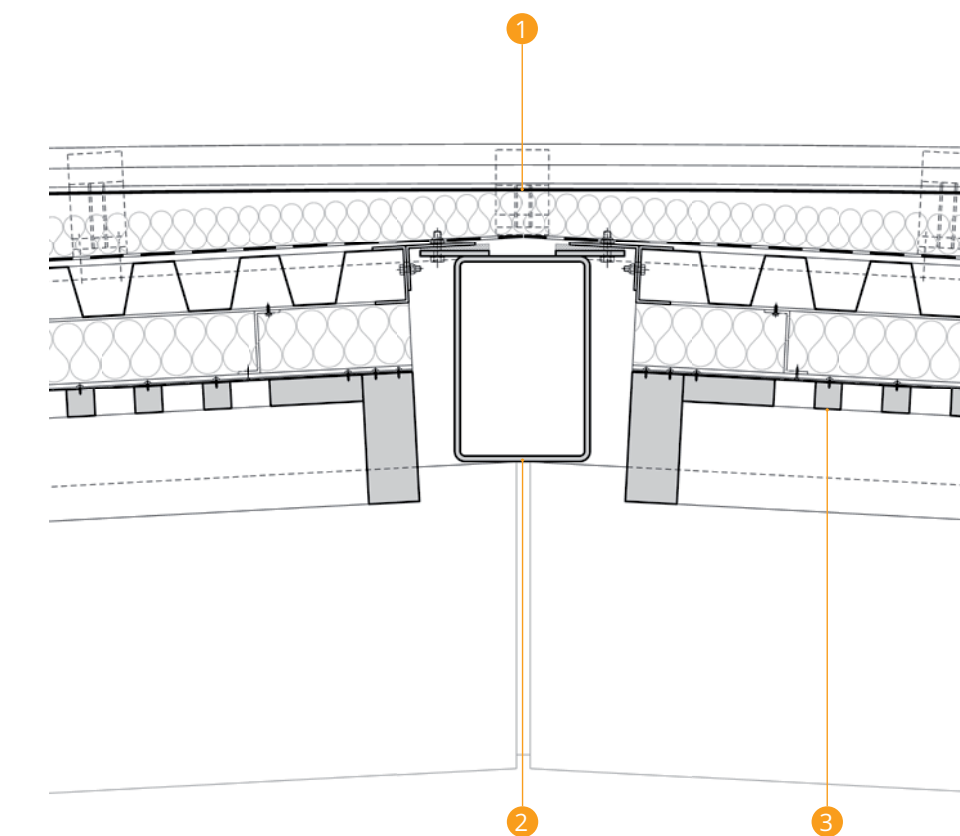
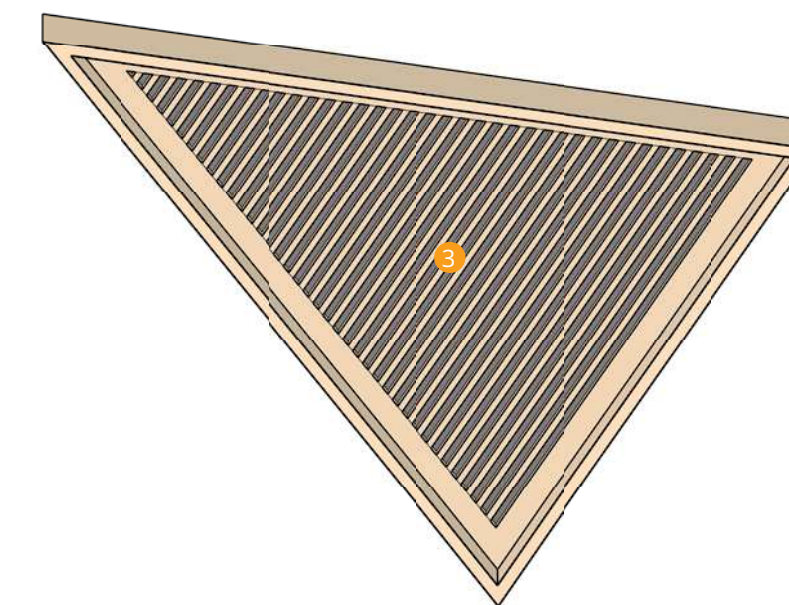


Fig.5.9 Timber roof soffit details



- 1 Metal standing seam roof, natural matt finish
- 2 Architectural steel work, mid grey satin finish
- 3 Timber slatted soffit with dark grey woven backing (Oregon Pine or equivalent appearance)
- 4 Curved and molded cementitious panel (UHPC), light grey satin finish
- 5 Rooflight glazing, clear low-iron, anodised aluminum framing, light grey satin finish

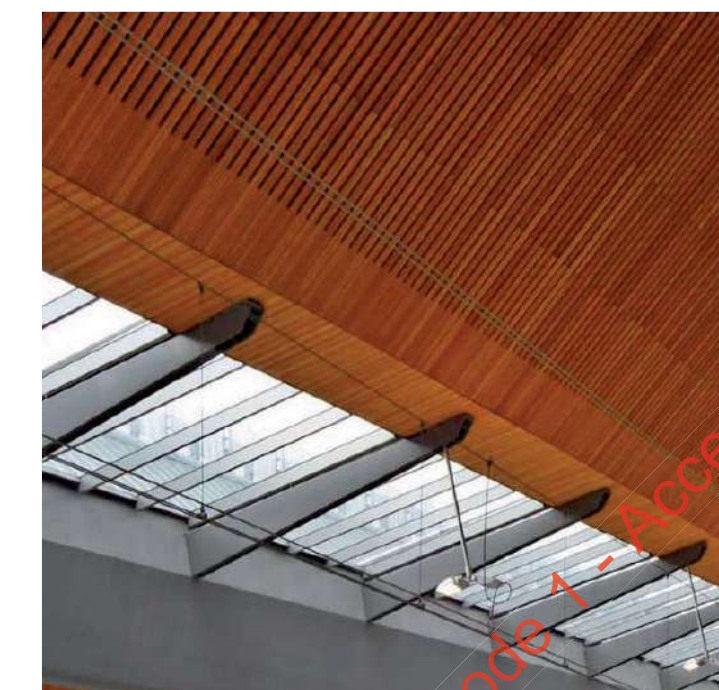


Fig.5.10 Oregon Pine soffits, Amsterdam Bijlmer ArenA station

5.1.7 Roof Perimeter Cladding

The perimeter roof fascia is a critical architectural feature incorporating a profile which combines the junction of the soffit, the gutter and the metal seam roof. At the corners of the roof the fascia connects the eaves and verge into a single compound curve comprising double curved panels.

Architecturally this sweeping curve of the building must be smooth and avoid a faceted construction; the panels comprise a mould formed cement composite, in a material called 'ultra high performance concrete' (UHPC).

The roof perimeter on each side (North/South/East/West) is finished by an eaves profile (North/South sides) or verge (East/West sides) profile formed in durable and smooth ultra-high-performance-concrete panels (UHPC). Bird roosting deterrent measures will be incorporated in to the UHPC profiles within a continuous recess at the roof perimeter.

This material represents the latest in concrete technology for construction, being thinner and stronger than glass fibre reinforced concrete (GFRC). The cladding is installed in large panels modules with a relatively joint-less appearance to give an overall impression of a monolithic surface.



Fig.5.11 Perimeter fascia - Illustration of double curved corner

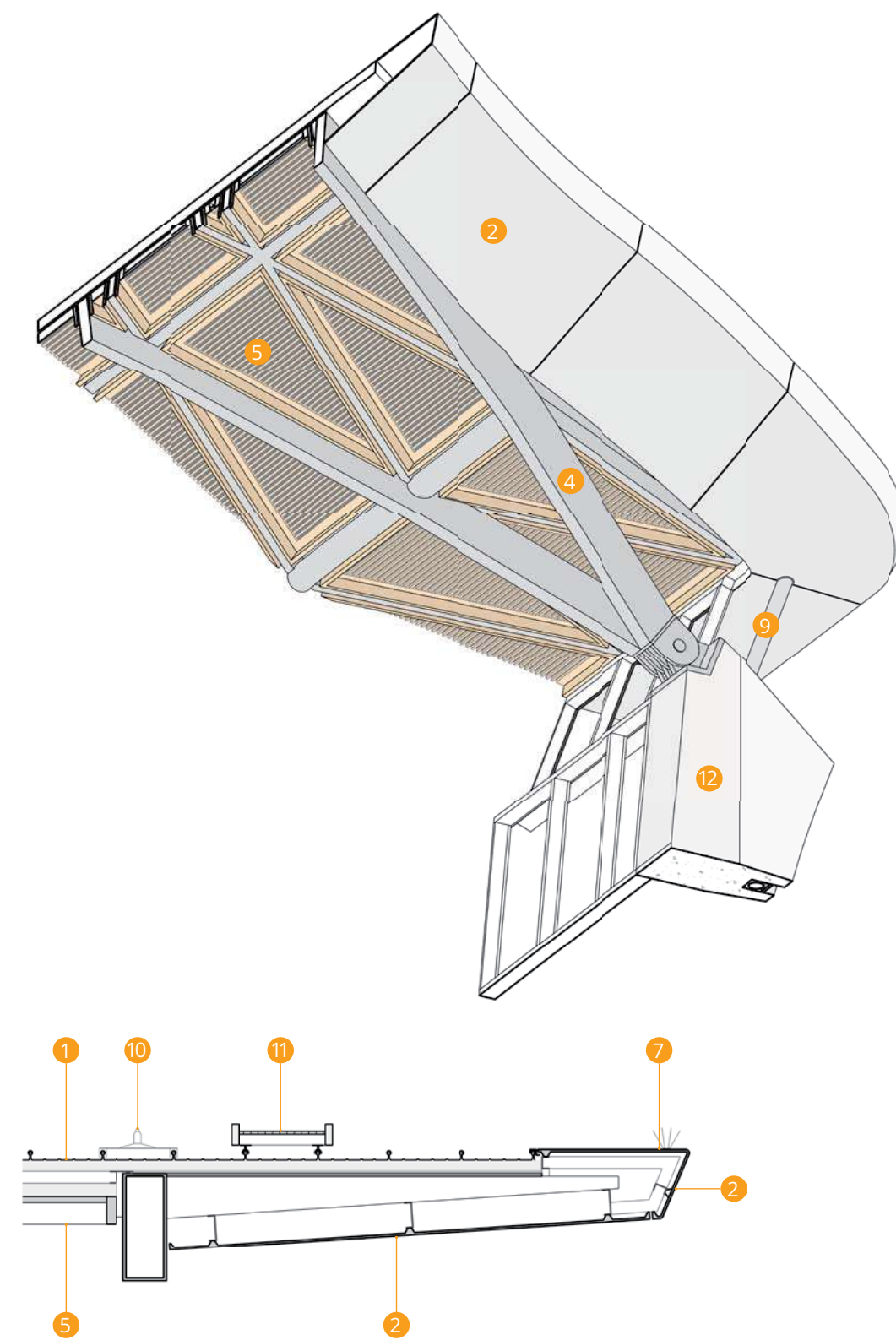


Fig.5.12 Perimeter fascia details

- 1 Metal standing seam roof, natural matt finish
- 2 Curved and molded cementitious panel (UHPC), light grey satin finish
- 3 Stainless steel cable balustrade, natural finish
- 4 Architectural steel work, mid grey satin finish
- 5 Timber slatted soffit lining with dark grey woven backing (Oregon Pine or equivalent appearance)
- 6 Walk in gutter, liquid applied membrane finish
- 7 Stainless steel bespoke bird protection
- 8 Steel maintenance track
- 9 Stainless Steel rainwater pipe, natural finish
- 10 Fall restraint system
- 11 Metal access walkway, natural finish
- 12 In-situ concrete pier, light grey architectural finish

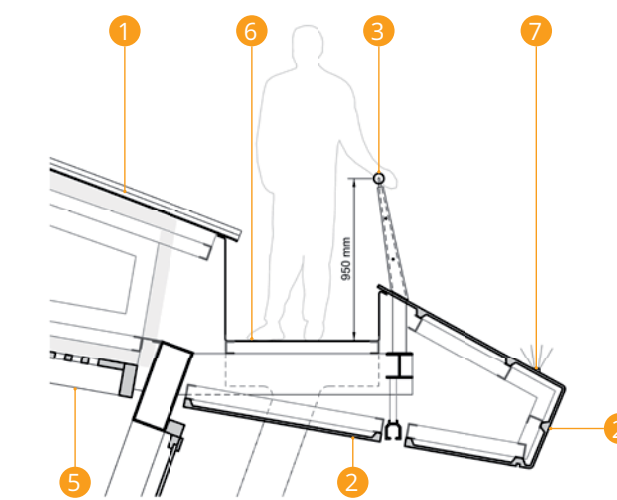


Fig.5.13 Examples of UHPC

Code 1 - Accepted



Fig.5.14 Internal visualisation - public concourse

5.1.8 Main Roof Gable-Ends

The architectural function of the east and west facing gable walls is to maximise transparency into and from the main western concourse.

These façades are a subservient infill to the overhanging roof. The fully glazed gables are set back from the cantilever-edge of the roof and shaped at the head to suit the faceted segments of the arched roof profile.

The vertical grid of the gable-end façades is derived from that of the linear diagrid of the segmented roof. The primary mullions and their respective restraint arms also align with the projected grid of the roof above. The roof grid is composed of equal segments in section which translates to a slightly unequal spacing of gable mullions and glass panels, but these are symmetrical about the centre-line of the gable wall and arched roof.

The single glazed system is fully bonded and mechanically secured at all panel edges but does not have any visible external framing and incorporates large landscape format panels.

There are 10 double doors located at the main station entrance to the western concourse. The doors are power automated swinging doors and are steel framed and single glazed.

At the head of the western concourse entrance doors is an architectural metalwork integrated signage band which provides a mounting point and provision of equipment: CCTV and lighting and emergency signage.

The West gable supports the building name sign which would be discretely supported by a stainless steel horizontal rail back to the primary gable framework. The signage comprises brushed stainless steel cut-out lettering.



Fig.5.15 Visualisation of Birmingham Curzon Station entrance from Station Square

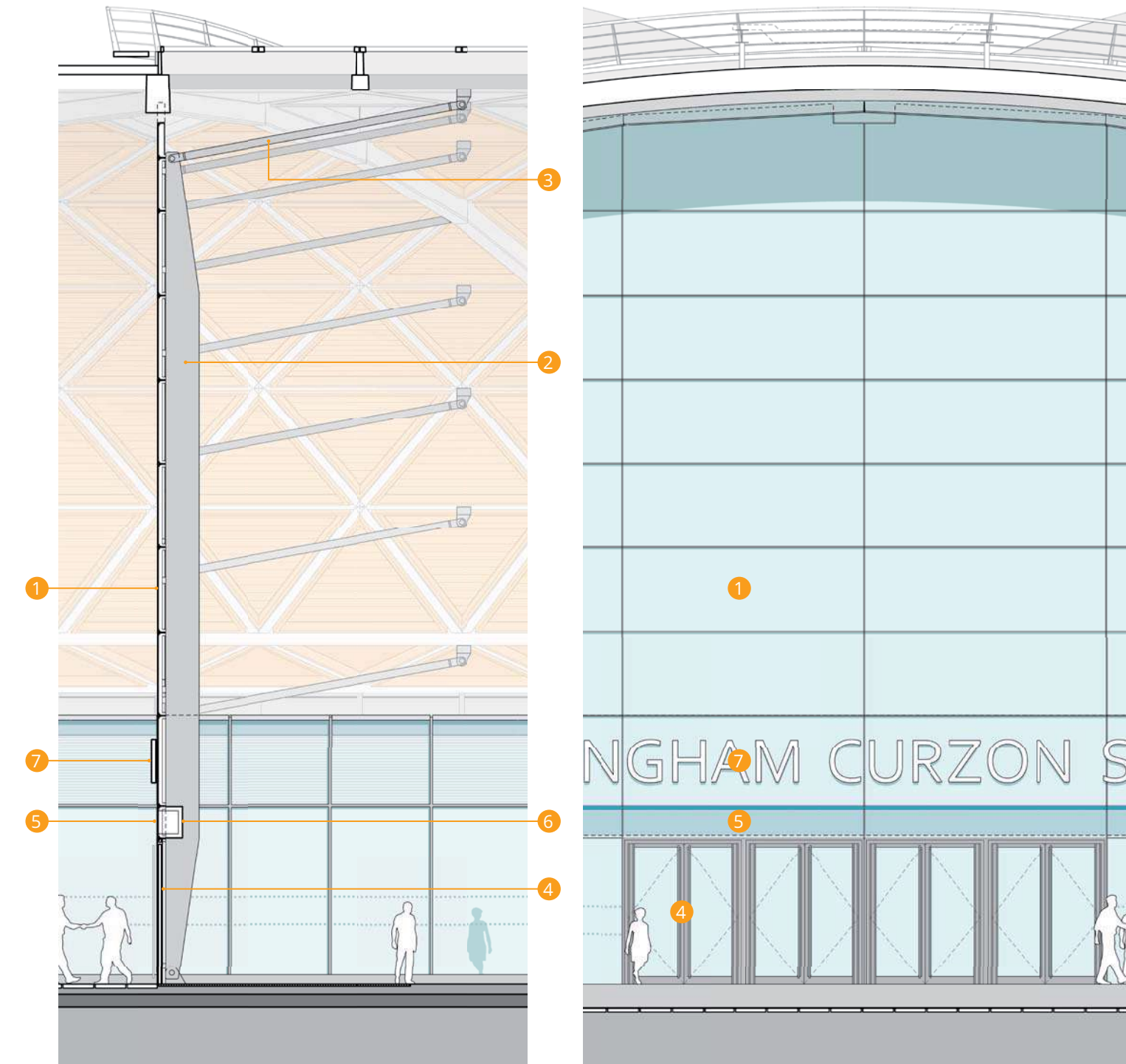
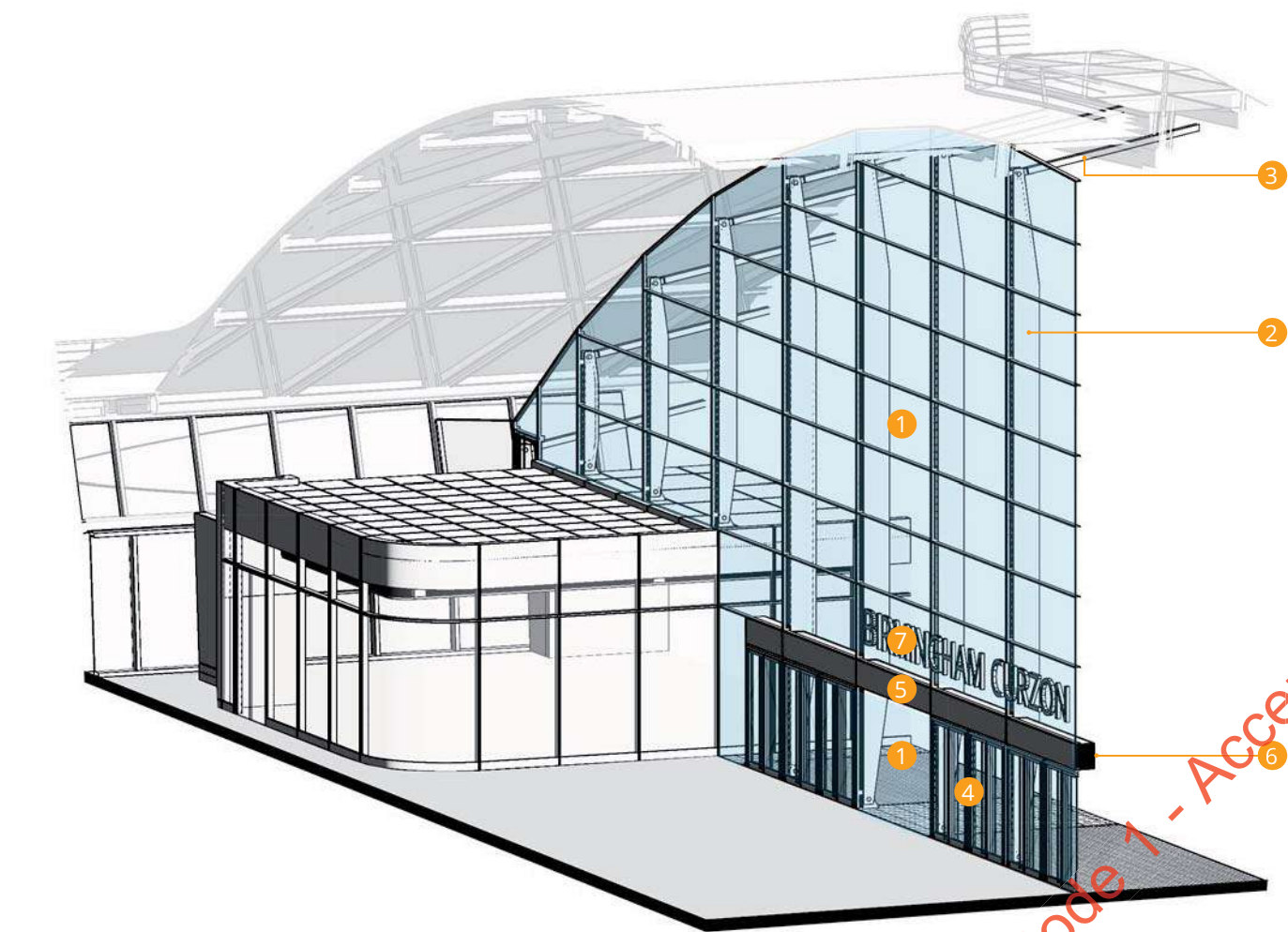


Fig.5.16 Western gable section, elevation and axonometric

- 1 Internally framed glazing with flush external joints, clear low iron
- 2 Steel plate mullion fins, mid grey satin finish
- 3 Mullion restraint arms, mid grey satin finish
- 4 Fully framed, stainless steel glazed automatic opening doors
- 5 Opaque glazed signage band (external)
- 6 Stainless steel signage boxing (internal)
- 7 Station name illuminated monumental lettering



Code 7 - Accepted

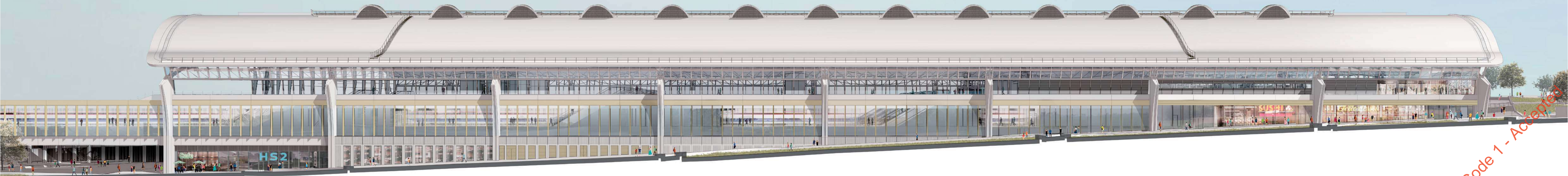


Fig.5.17 North elevation

5.1.9 Roof Piers

The primary roof structural piers are set-out at 32m spacings which range in height from 19m at the lower level of the site to 8m at the top by the public lifts. The piers are constructed in architectural quality reinforced in-situ concrete to ensure a monolithic non-panelised appearance that would otherwise come from a pre-cast solution. The piers are shaped in section in relation to the load forces directed from the roof pins. The piers have a recess running down the outer face which integrates the drainage pipework which sits behind dark grey anodised aluminium cladding. The piers are tapered in plan moving away from the building to minimise their profile in respect of public realm.

The concrete roof piers will require bespoke steel shuttering to achieve a high-quality visible in-situ finish.

The roof drains into an edge gutter which follows a consistent offset from the roof edge to the northern and southern roof perimeters. The gutter is sized to allow it to also function as a walkway with a walkable grating sitting across the top level of the gutter. In order to only have drainage pipes every 32m drainage box receivers have been provided above each downpipe which allow the downpipes to function at a higher capacity. The downpipes are expressed as architectural elements as they span between the underside of the soffit and the head of the roof piers.



Fig.5.18 Visualisation of roof piers

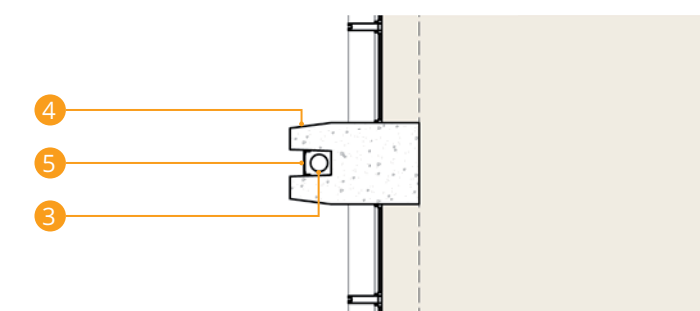
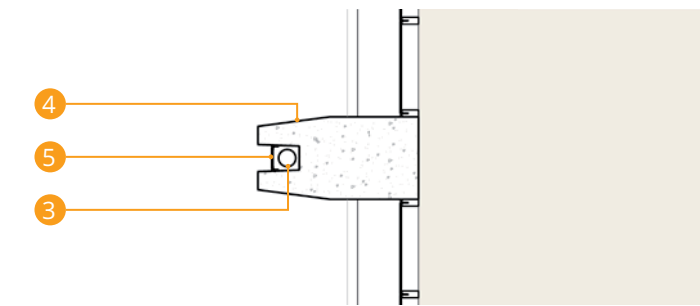
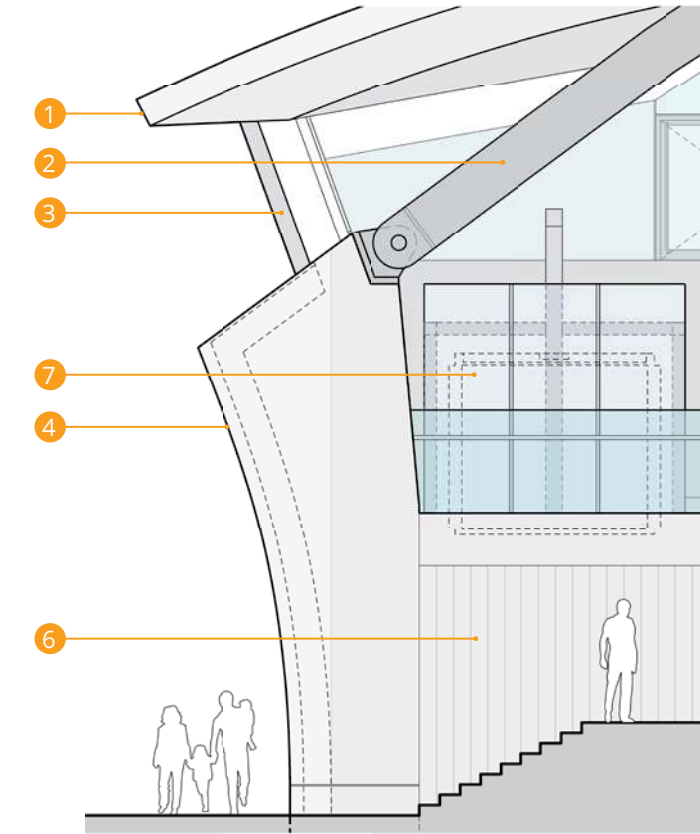
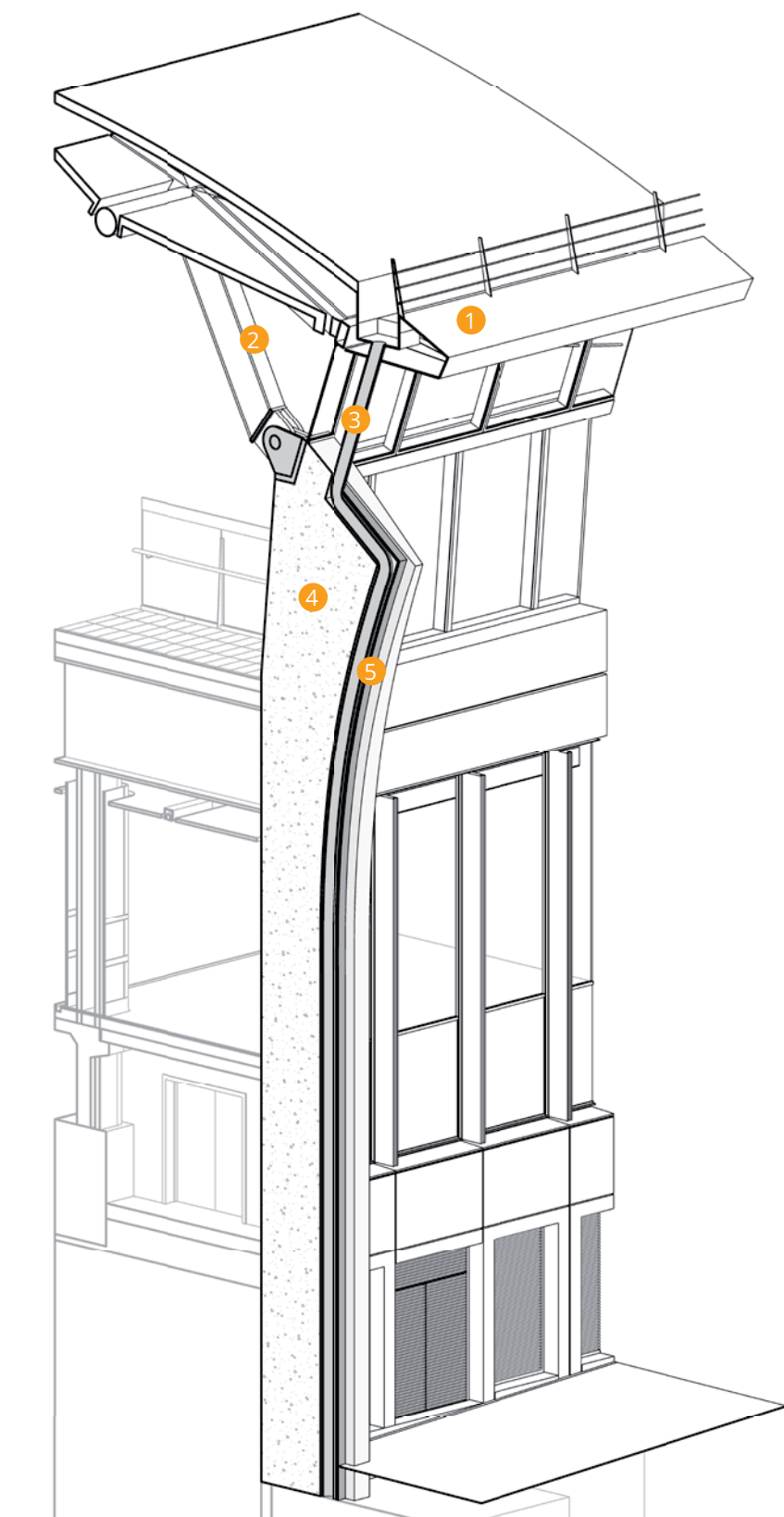


Fig.5.19 Section, plans and axonometric of roof piers



- 1 Curved and molded cementitious panel (UHPC), light grey satin finish
- 2 Architectural steel work, mid grey satin finish
- 3 Stainless steel rainwater pipe, natural finish
- 4 In-situ concrete pier, light grey architectural finish
- 5 Aluminum cladding panels, dark grey anodised satin finish
- 6 Pre-cast concrete cladding panels, light grey sand-blasted finish, vertical ribbed finish
- 7 Glazed hydraulic lift

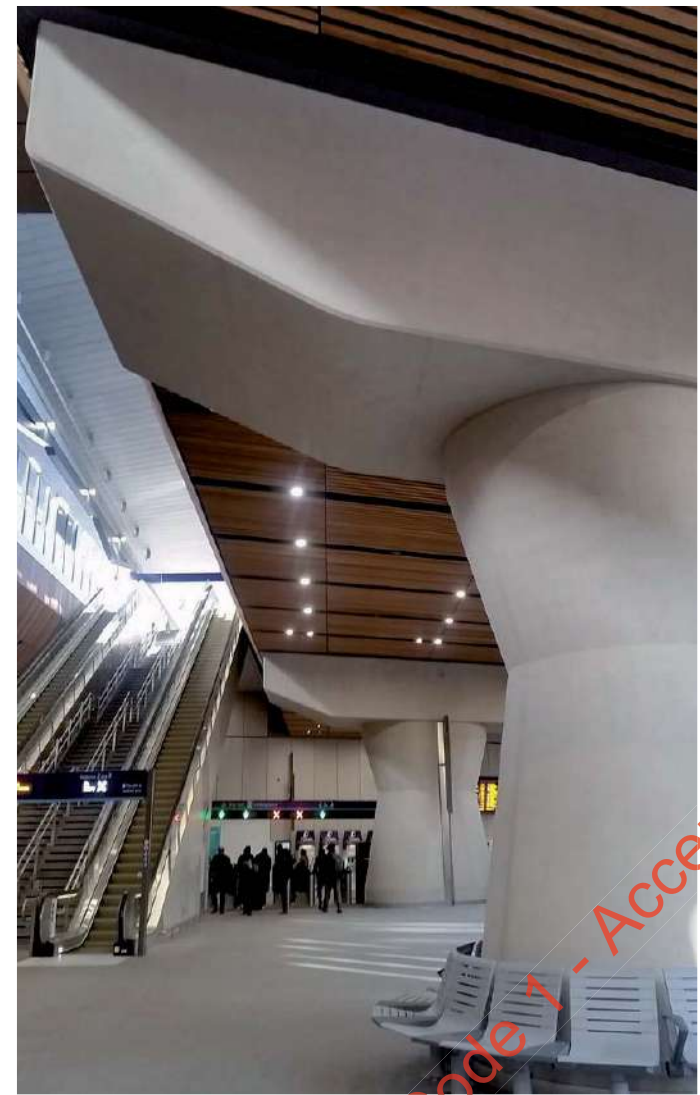


Fig.5.20 In-situ concrete viaduct columns, London Bridge Station

5.1.10 Main Longitudinal Walls (Grid Lines 02-10) - Upper Level

Roof Truss Level Glazing

The uppermost 'clerestory' band of glazed cladding below eaves level along the long North and South elevation walls is affixed directly to the outside face of the roof trusses that sit between the main roof piers. The wall is inclined outward at 20 degrees from vertical, the cladding panelised on a 2m c/c grid with a panel height of approximately 2.3m.

This section of cladding provides most of the natural ventilation requirement for the concourse; the panels alternate as fixed and top hung automated-opening-vents (AOVs). The framing system is aluminium.

Concourse Level Cladding

Gridlines 02-05

The northern and southern façades of the station building at concourse level between Gridlines 02-05 enclose a variety of functional spaces including open zones such as PRM lifts, open concourse spaces, staff offices, BOH circulation corridors and lobbies, and closed zones such as fire stairs, good lifts, services risers, store rooms and ventilation plenums.

The façade treatment is carefully controlled and rationalised in the design proposals to meet this variety of internal spaces. This is achieved as either 1) clear glazing or 2) louvre in order to avoid a potential 'patchwork' elevation treatment and to avoid the generation of multiple materials to meet station functional requirements. The louvre treatment has been selected in order to provide dual function for both accommodation ventilation requirements and the screening of solid walls.

Gridlines 05-10

The concourse level glazing is a band of fixed steel frame curtain walling. It is externally frameless with a toggle fixing. The glazing is set aligned flush with the inner face of the concrete piers. The wall is inclined outward at 5 degrees from vertical, the cladding panelised on a 2m c/c grid with a panel height of approximately 3.4m. Architecturally the intent is to maximise transparency hence the glass is to be single glazed, clear low-iron and externally frameless.



Fig.5.21 Visualisation of longitudinal walls - North facade (trees removed for clarity)

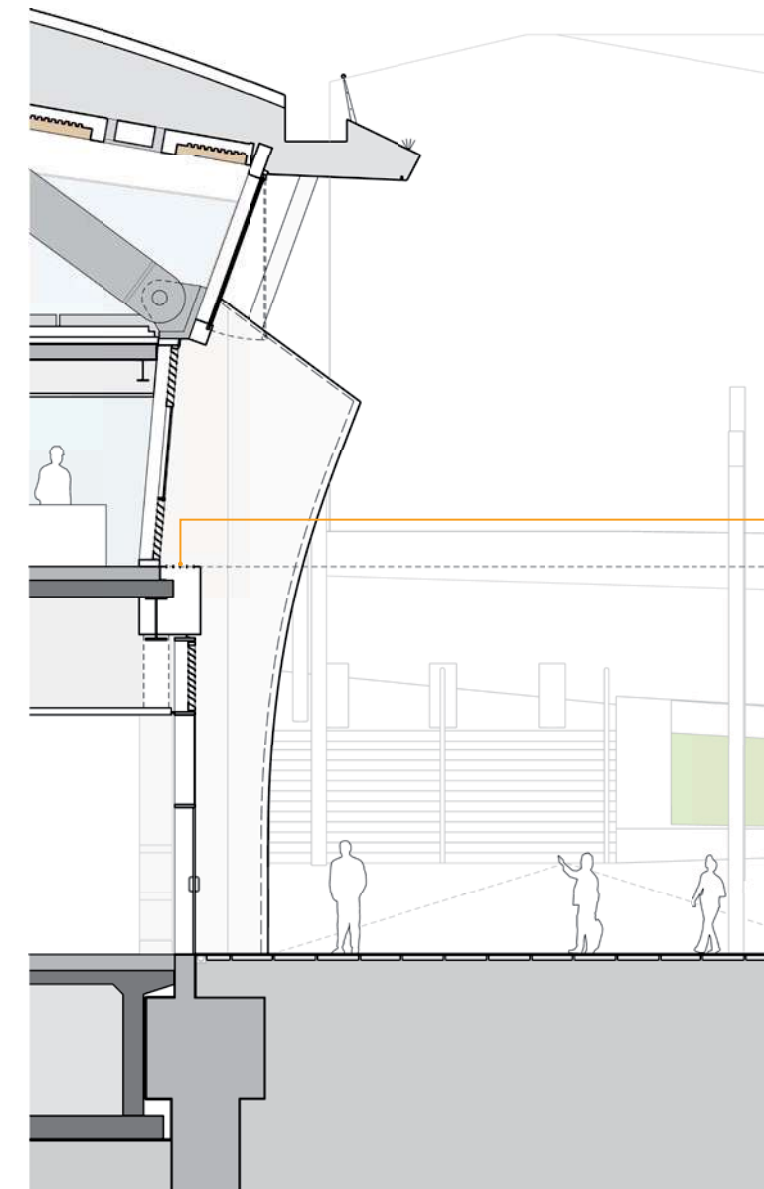
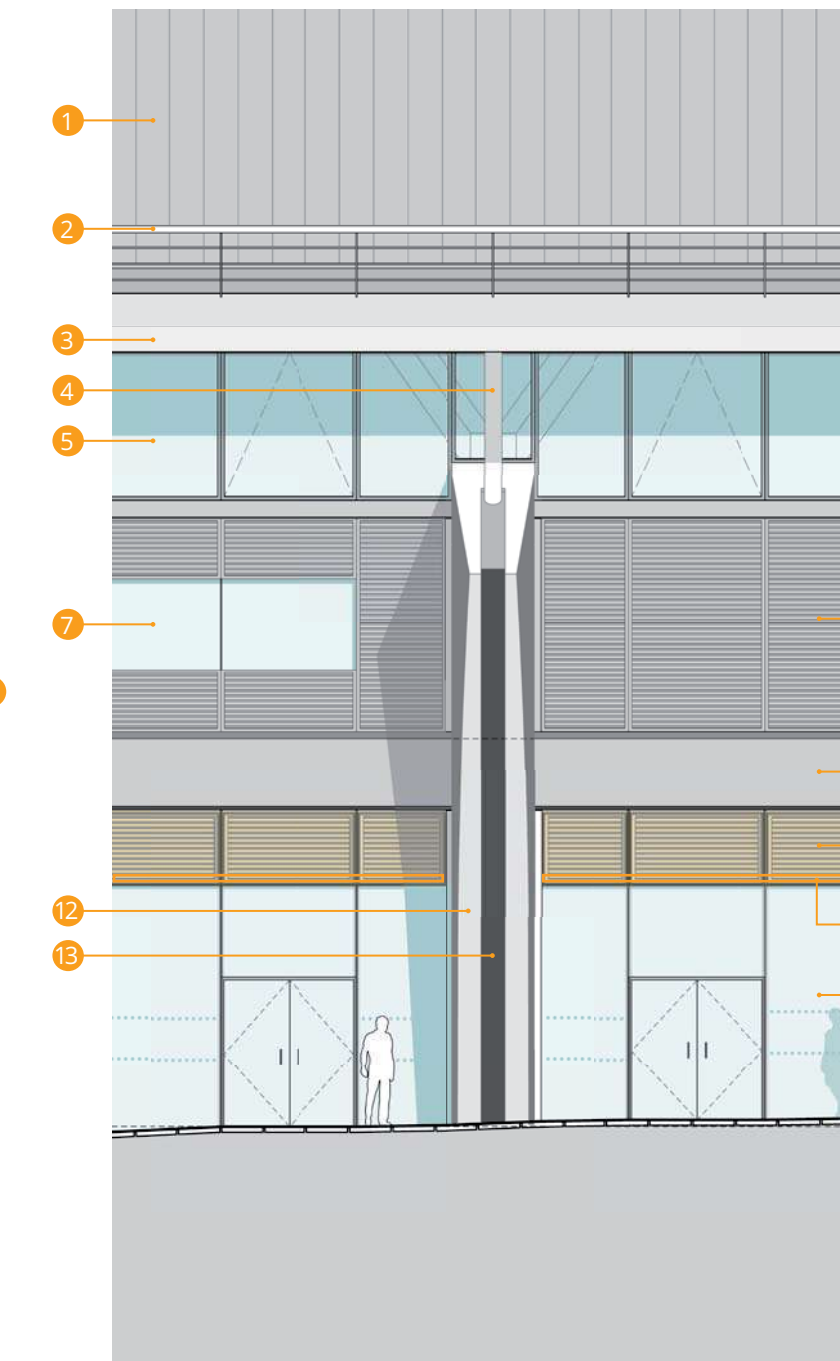
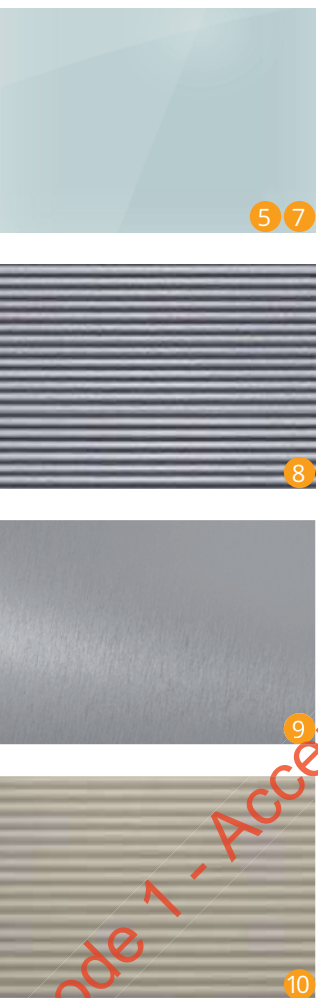


Fig.5.22 North facade - retail unit section and elevation



- 1 Metal standing seam roof, natural matt finish
- 2 Stainless steel cable balustrade natural finish
- 3 Curved and molded cementitious panel (UHPC), light grey satin finish
- 4 Stainless steel rainwater pipe, natural finish
- 5 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 6 Bird protection measures to facades comprising of discreet stainless steel vertical fins on horizontal surfaces to deter roosting
- 7 Internally framed glazing with flush external joints, clear low iron
- 8 Steel louvres, mid grey satin finish
- 9 Aluminium cladding panels, mid grey anodised satin finish
- 10 Aluminium louvres, champagne anodised satin finish (Regency Gold I or equivalent)
- 11 Designated facade zone for mounting of CCTV and other end-devices
- 12 In-situ concrete pier, light grey architectural finish
- 13 Aluminum cladding panels, dark grey anodised satin finish

Materials



Code 1 - Accepted

5.1.11 Main Longitudinal Walls (Grid Lines 02-16) - Platform Level

The platform level cladding runs the entire length of the station project and is architecturally responsible for bringing together the two main volumes of the building: the viaduct and eastern concourse located between gridlines 10-16 and the main station volume located between concourse grid lines 05-10. For this purpose, the visual appearance must be consistent across gridline 10 (refer to section 5.1.16).

Gridlines 02-05: This section of façade interfaces with vertical circulation access to Station Square via steps incorporated into the public realm and two passenger lifts (refer to section 5.1.13). There are emergency egress and access doorways serving platform level, east of which is a fully glazed façade serving two retail units. East of the retail units the platform level façade commences, articulated with a combination of clear and opaque glazing.

Gridlines 05-10: The formal and structural approach to this band of facade is to express the vertical structural aluminium mullion fins on the outer side with minimal internal framing at platform side. The mullions will be at 2m centres, oversized at 500mm deep.

The glass panels cover the fields of 5.8m high X 1.9m wide which would be sub-divided to two silicone jointed single glazed panels: the transparent top section of 4X1.9m and the lower ceramic fritted spandrel panel of 1.8X1.9m. The vertical mullions will be anodised aluminium in champagne colour finish and have a two-part split nosing profile.

Following stakeholder feedback comments, opportunities were explored to increase animation and activation to the northern platform level façade facing Curzon Promenade, through incorporation of vision panels to stair shafts and staff welfare spaces, in addition to translucent glazing panels to staff and customer sanitary facilities. These amendments have been taken forward in the final design proposals.



Fig.5.23 Visualisation of longitudinal walls - North facade (trees removed for clarity)

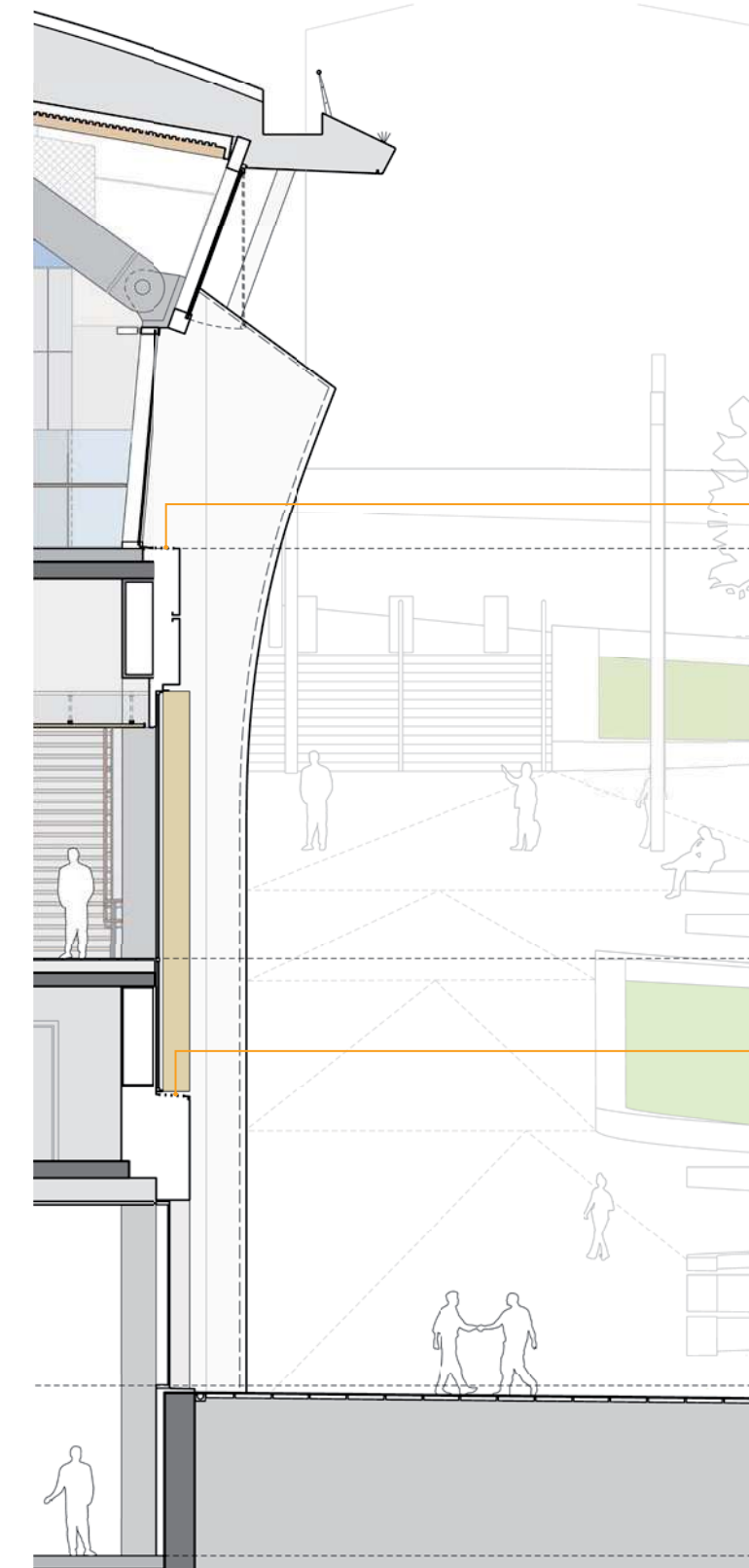
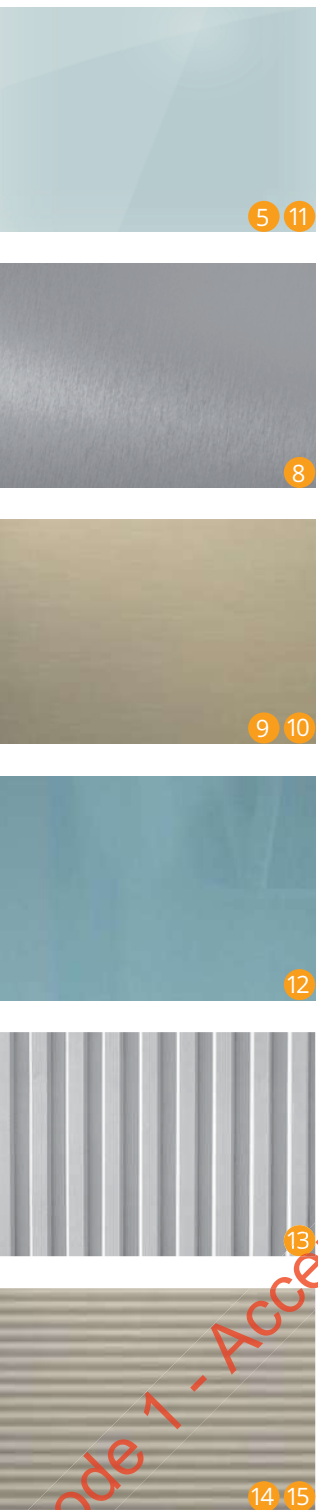


Fig.5.24 North facade - typical section and elevation



- 1 Metal standing seam roof, natural finish
- 2 Stainless steel cable balustrade natural finish
- 3 Curved and molded cementitious panel (UHPC), light grey satin finish
- 4 Stainless steel rainwater pipe, satin finish
- 5 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 6 Bird protection measures to facades comprising of discreet stainless steel vertical fins on horizontal surfaces to deter roosting
- 7 Internally framed glazing with flush external joints, clear low iron
- 8 Aluminium cladding panels, mid grey anodised satin finish
- 9 Aluminium cladding panels, champagne anodised satin finish (Regency Gold I or equivalent)
- 10 Aluminium structural glazing mullion, champagne anodised satin finish (Regency Gold I or equivalent)
- 11 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 12 Framed glazing, opaque, dark grey anodised aluminium framing satin finish
- 13 Pre-cast concrete cladding panels, light grey sand-blasted ribbed finish
- 14 Aluminium louvres champagne anodised satin finish (Regency Gold I or equivalent)
- 15 Aluminium louvered door, champagne anodised satin finish (Regency Gold I or equivalent)
- 16 Designated facade zone for mounting of CCTV and other end-devices
- 17 In-situ concrete pier, light grey architectural finish
- 18 Aluminium cladding panels, dark grey anodised satin finish

Materials



Code 1 - Accepted

5.1.12 North Longitudinal Wall (Grid Lines 02-10) - Ground Level

North Elevation: Curzon Promenade: Ground Level Treatment

A unifying device across this façade is the articulation of a pre-cast concrete base or 'outcrop' to the station building which emerges from grid line 06 eastwards as the Curzon slope descends. The interaction between this façade at ground level and the public realm / landscaping layout emerged as an important consideration for BCC Planning Department in relation to the Schedule 17 application. The pre-cast masonry cladding panels are finished with vertical ribs to add interest at ground level, mitigate against graffiti and to control weathering.

The treatment of this façade at ground level can be grouped into three distinct zones which respond to the twin constraints of the 15m level change across the elevation and the fixed track and platform level. From west to east, high level to lower level, these zones can be clearly defined as follows:

Gridlines 05-08: Within this zone, the façade serving the basement below platform level emerges as a masonry plinth in partially fluted pre-cast concrete. Parts of this plinth provide emergency egress / access doors to platform and BOH level, and access doors and finned louvres to small-scale incoming electrical supply rooms.

Gridlines 08-10: The final eastern zone provides glazing to the main station administration offices (gridlines 08-09) and the staff entrance (gridlines 09-10).

Staff Entrance – North Elevation, Ground Floor

The staff entrance is located between gridlines 09-10 and set-back from the typical facade line to provide a recessed entrance area. This section of envelope acts as the public face of the Curzon Street Station staff offices. It comprises a fully glazed 'shopfront' with an upper frieze of dark grey aluminium vertical finned louvres coinciding with the internal ceiling height. The architectural intent is for this facade system to contrast from those adjacent to enhance the sense of activity and transparency to the building's staff entrance and reception. The staff entrance and New Canal Street glazing is a fixed curtain wall system. The louvres are a proprietary aluminium weather louvre.

New Canal Street - East Elevation, Ground Floor

The retail shopfront on the corner of New Canal Street and Curzon Promenade is a continuation of the staff entrance facade system and provides the critical corner between Curzon Promenade and New Canal Street.



Fig.5.25 Visualisation of longitudinal walls - North facade (trees removed for clarity)

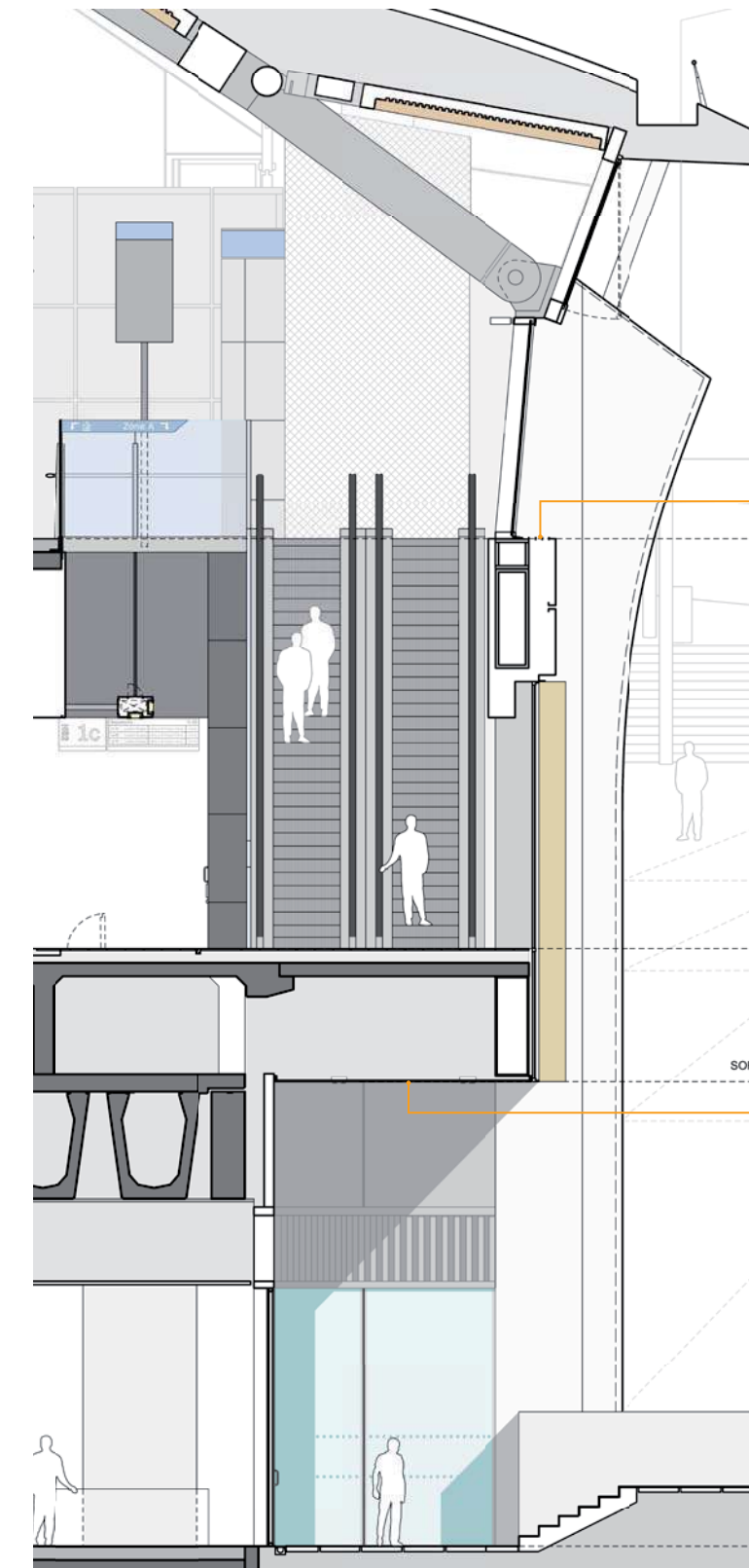
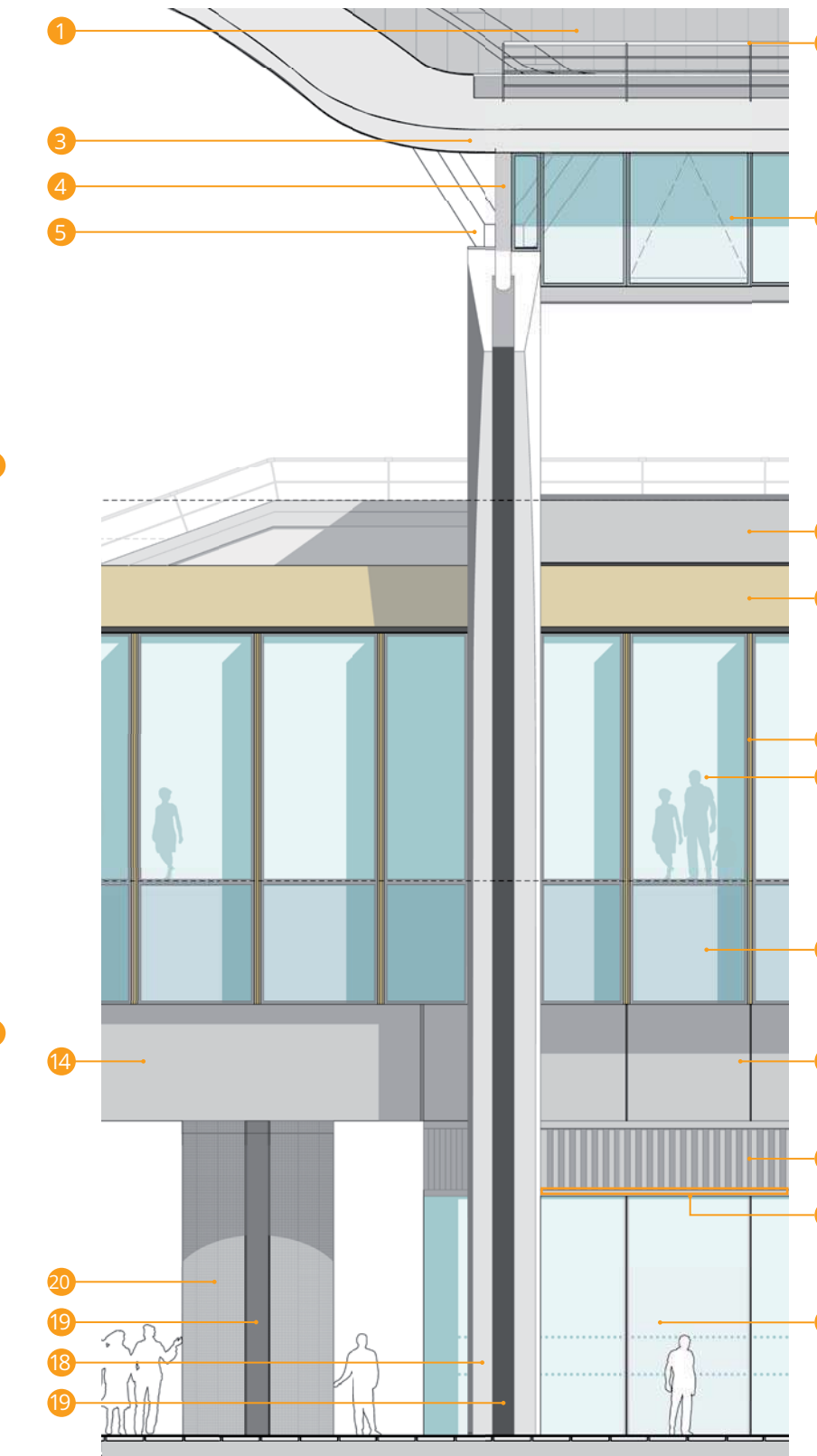


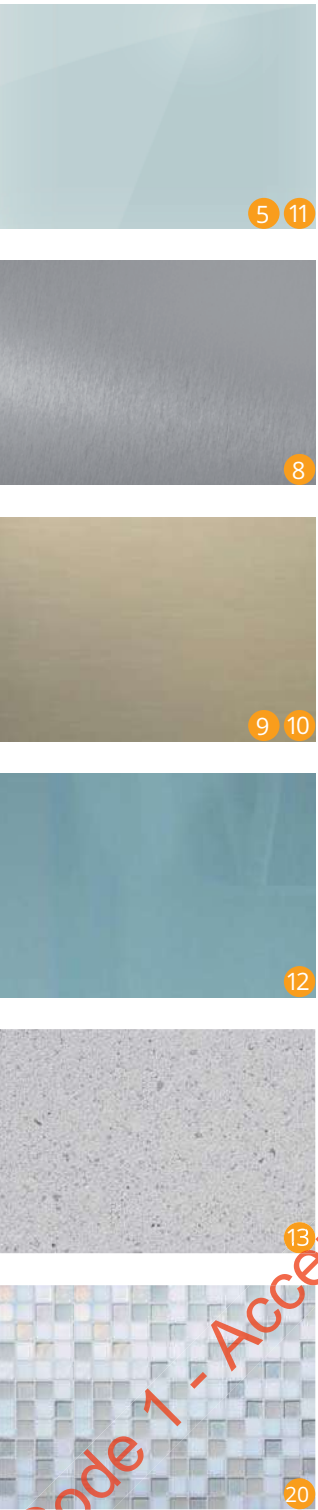
Fig.5.26 North facade - staff entrance section and elevation



- 1 Metal standing seam roof, natural finish
- 2 Stainless steel cable balustrade, natural finish
- 3 Curved and molded cementitious panel (UHPC), light grey satin finish
- 4 Stainless steel rainwater pipe, natural finish
- 5 Architectural steelwork, mid grey satin finish
- 6 Bird protection measures to facades comprising of discreet stainless steel vertical fins on horizontal surfaces to deter roosting
- 7 Aluminium cladding panels, mid grey anodised satin finish
- 8 Aluminium cladding panels, champagne anodised satin finish (Regency Gold I or equivalent)
- 9 Aluminium structural glazing mullion, champagne anodised satin finish (Regency Gold I or equivalent)
- 10 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 11 Framed glazing, opaque, dark grey anodised aluminium framing satin finish
- 12 Aluminium soffit panels, mid grey anodised satin finish
- 13 Pre-cast concrete cladding panels, light grey sand-blasted finish
- 14 In-situ concrete, light grey architectural finish
- 15 Aluminium louvres mid grey anodised satin finish
- 16 Designated facade zone for mounting of CCTV and other end-devices
- 17 Internally framed glazing with flush external joints, clear low iron
- 18 In-situ concrete pier, light grey architectural finish
- 19 Aluminum cladding panels, dark grey anodised satin finish
- 20 Mosaic tile, light grey, satin finish

5.1

Materials



Code 1 - Accepted

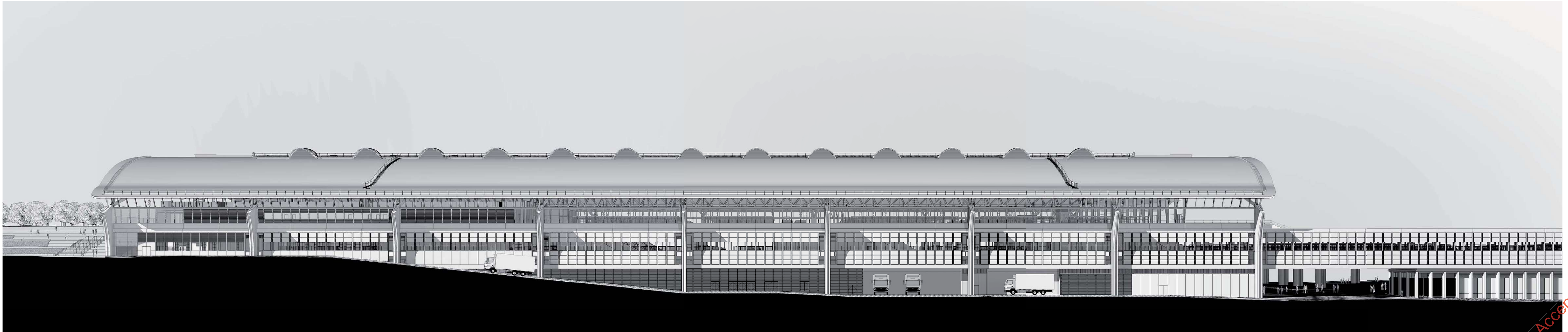


Fig.5.27 South elevation

Code 1 - Accepted

5.1.13 Public Realm Lifts (Gridine-02) North and South Façades

Two pairs of PRM lifts form a key component of a new western pedestrian link created by the HS2 Birmingham Curzon Street proposals. This connection runs through Station Square and will link Digbeth in the south with Moor Street and Birmingham central business district (CBD) to the north. The northern pair of lifts provides direct access to Curzon Promenade, whilst the southern lifts open out directly onto a pedestrianised zone on Park Street at the junction with Bordesley Street (Paternoster Place).

The PRM lifts are located on both the southern and northern edges of the building and are configured as open glazed lift cars at Station Square (upper) level which benefit from the protection of the station roof portico located directly above. Both sets of lifts are integrated into the glazed façade of the station at street (lower) level. Pedestrian access to these lifts is adjacent to the station but separate from it. This enables provision of pedestrian PRM access when the station building is not operational.

The architectural treatment of open, glazed access at both upper and lower levels is designed to maximise visibility of the lifts and thereby support intuitive wayshowing.



Fig.5.28 Visualisation (View 9) of South facade - urban realm lift Paternoster Place

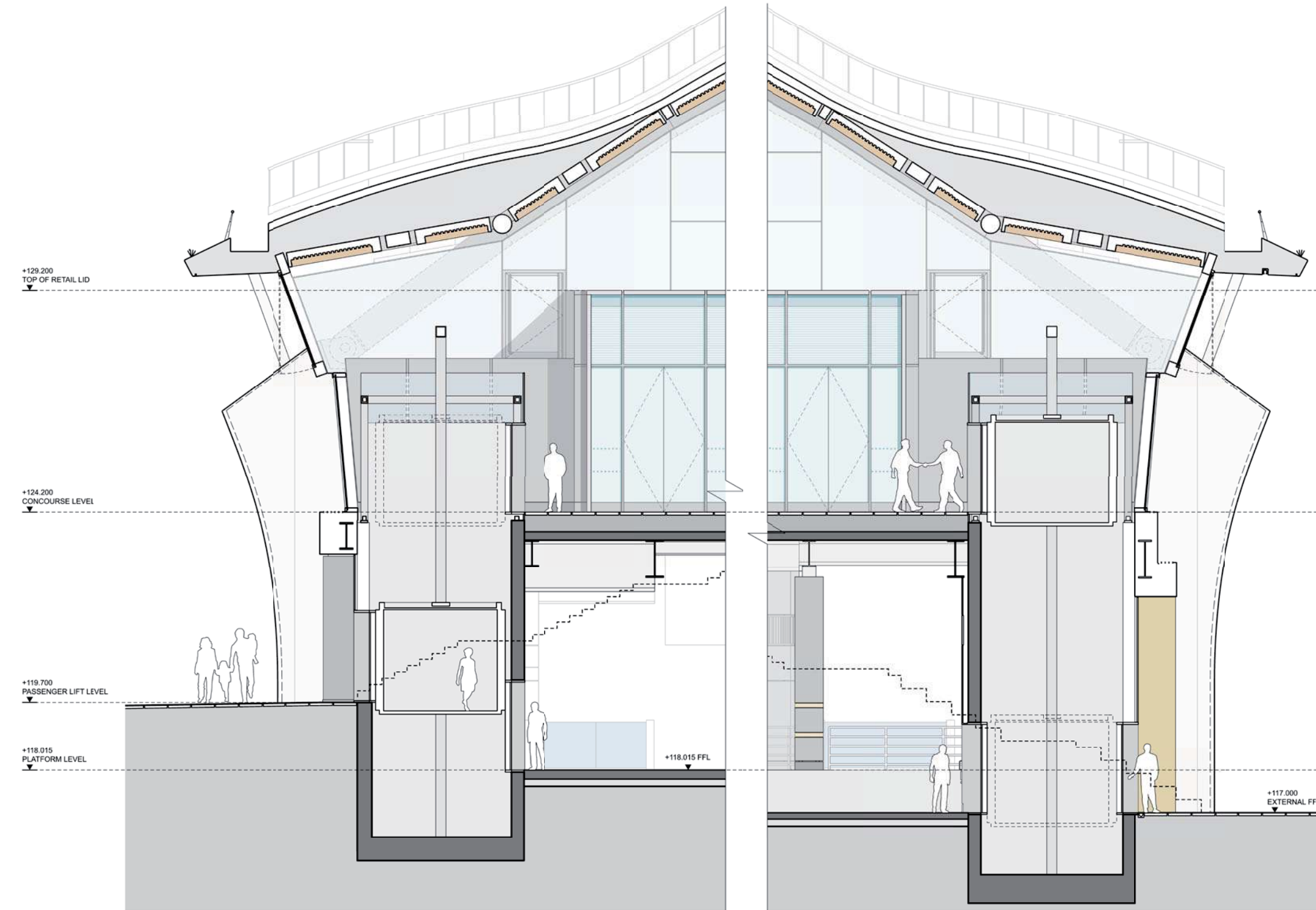


Fig.5.29 Detail sections of public realm lifts on North (left) and South (right)

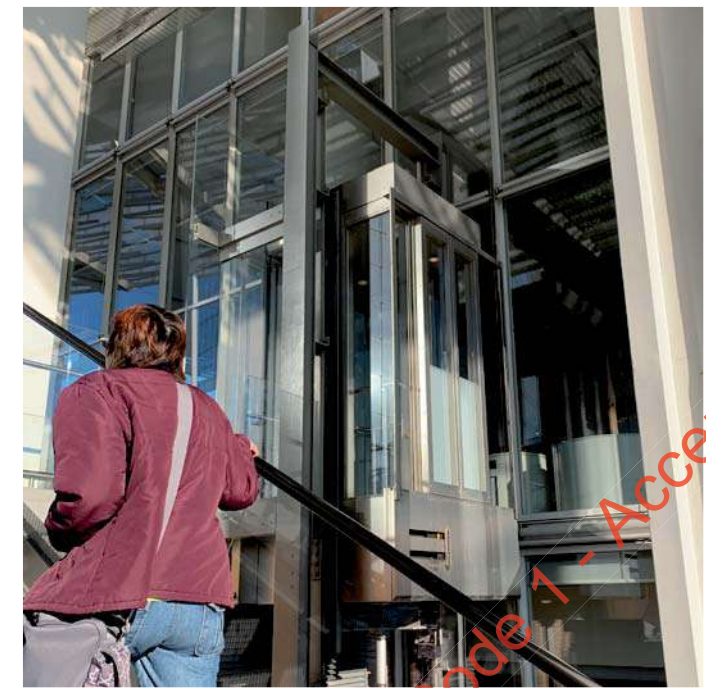
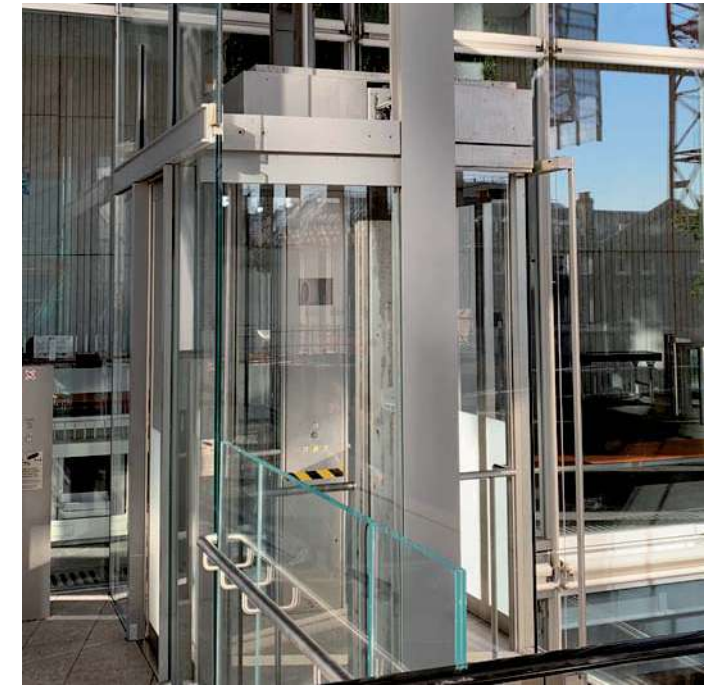


Fig.5.30 Example of open hydraulic lift adjacent to the Shard in London

5.1.14 South Longitudinal Wall (Grid Lines 02-16) - Ground and Platform Level

Platform Level Cladding - South Elevation

The south elevation at platform level differs substantially from the North elevation due to the performance requirements imposed upon it, but it results in a similar rhythmic language of vertical mullions containing bays of cladding panels. The platform façade is framed at head and base by a champagne coloured aluminium cornice band of equal height containing an array of solid panels and a continuous horizontal band of glazing that runs the full length of the building providing views in and out to and from the trains.

The facade system along the full length is a curtain wall comprised of champagne coloured, paint finished, cold formed 300X100 steel RHS mullions. The head of these mullions will be fixed back to the concourse slab downstand beams and at the base they would be taken down to the slab level of the viaduct structure.

To the westernmost half of this band of facade, between grid lines 02-10 on the main West Concourse building, the solid cladding panels that frame the slot window comprise proprietary black glass faced PV panels. This makes for an innovative and expressive use of low carbon technology.

Beyond the main Western Concourse volume from grid line 10-16 the PV panels are replaced with dark grey anodised aluminium panels (refer to section 5.1.16).

BOH South Walls & Loading Bay - South Elevation, Ground Floor

The southern elevation at ground floor encloses back of house plant rooms and contains the loading bay. There is a requirement for a high degree of open area for mechanical venting across this area of external wall. This area fully clad the wall with aluminium louvres as a solution to unite the facade treatment and avoid a 'patchwork' arrangement of louvred and non louvred panels.

It will be necessary to protect the louvred façade at low level from service vehicle impacts with bollards.

The loading bay encompasses a large 48m wide clear opening in the facade between the locations of gridlines 07-09. This opening is divided into two parts corresponding to the main primary concrete pier at grid line 8. The openings will be achieved by large motorised painted steel roller shutters with a high security specification.

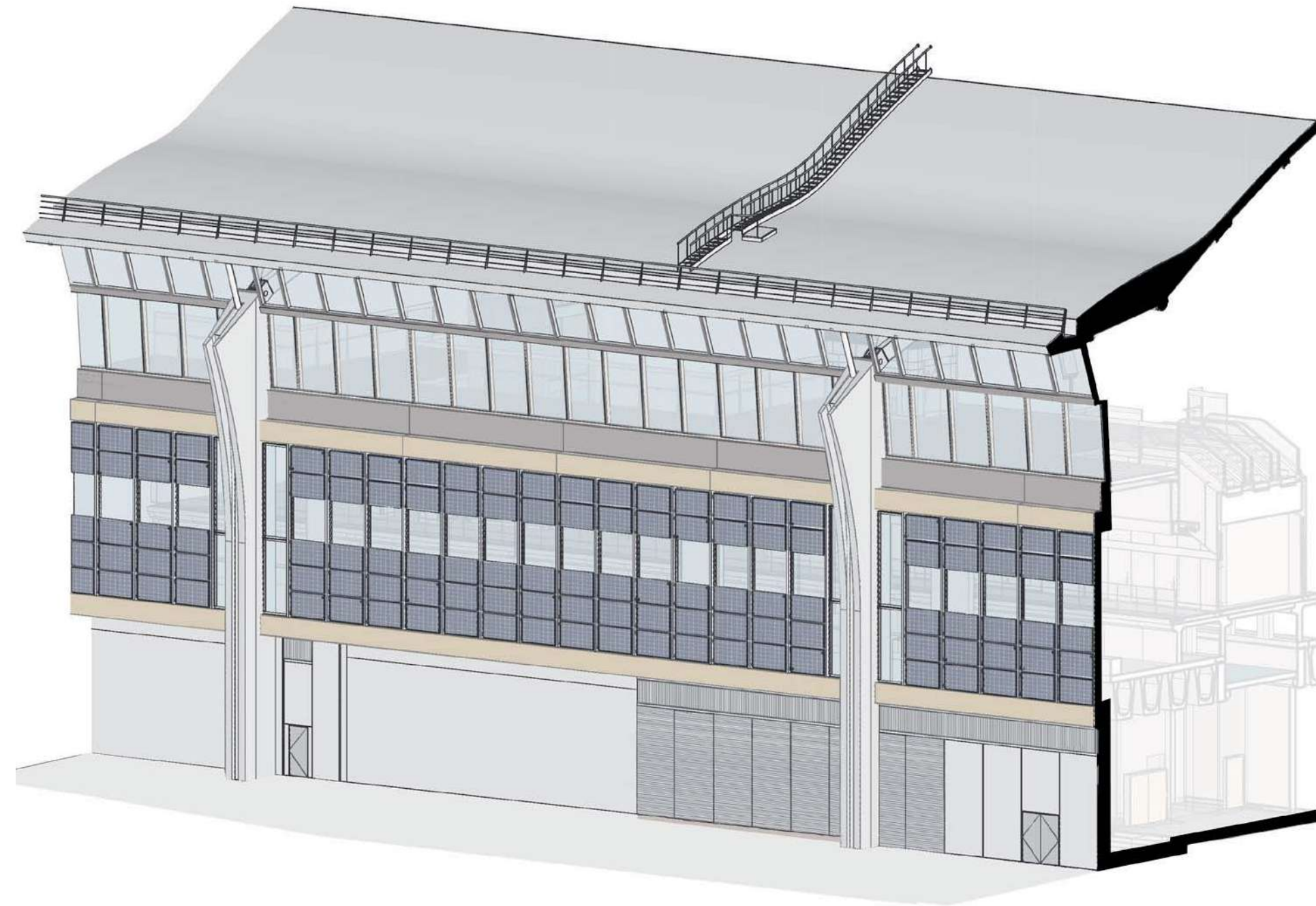


Fig.5.31 Axonometric of south elevation

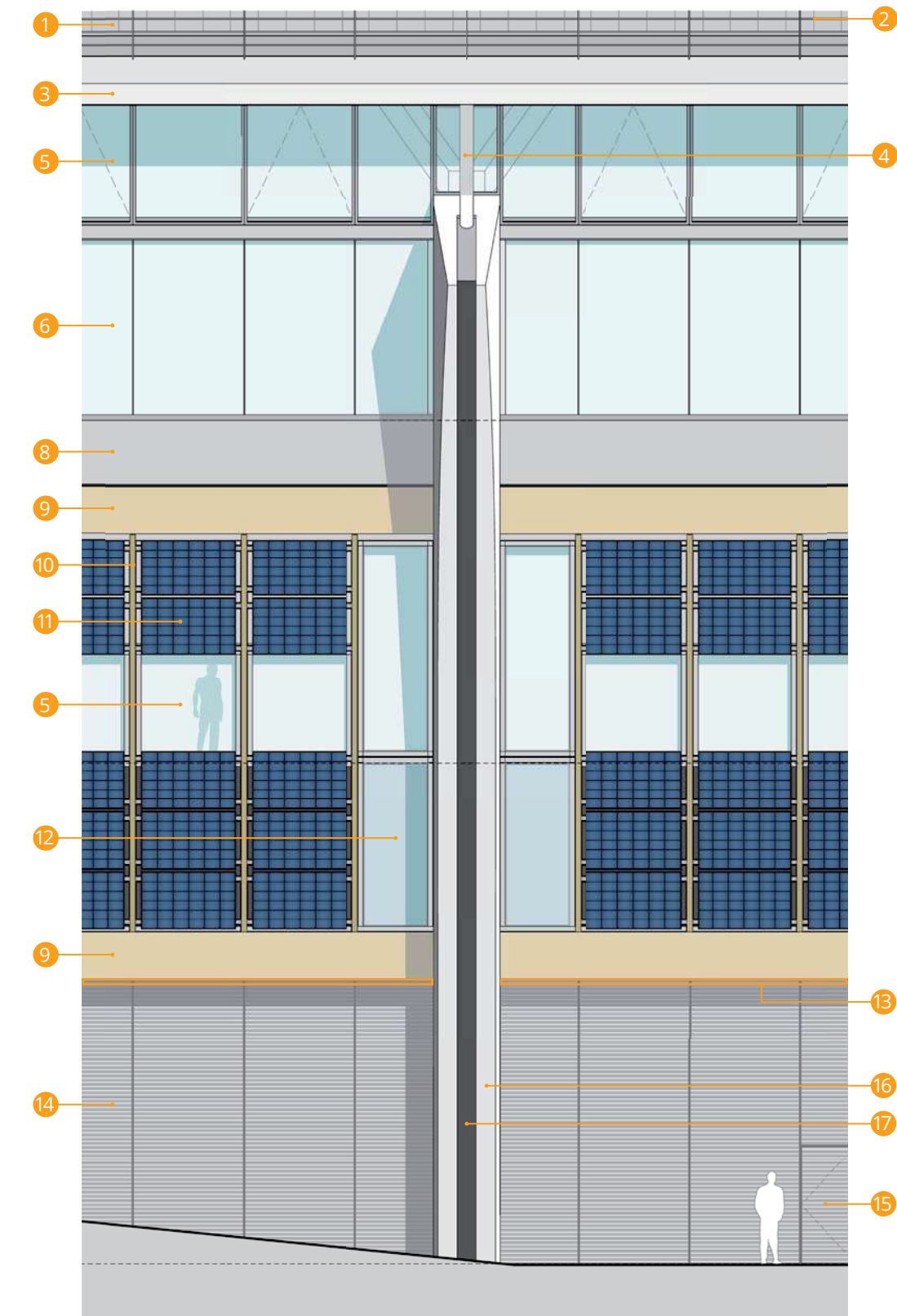
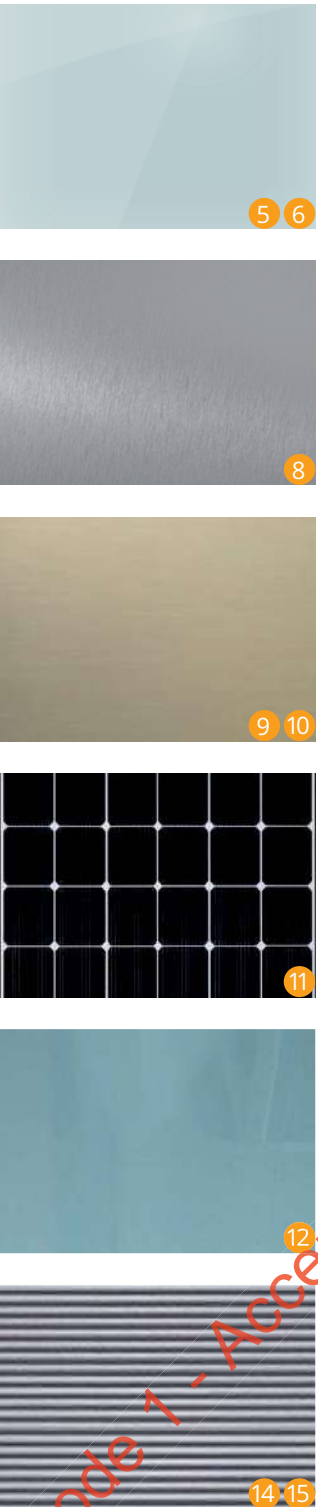


Fig.5.32 South facade - typical elevation and section

5.1

Materials



- 1 Metal standing seam roof, natural finish
- 2 Stainless steel cable balustrade, natural finish
- 3 Curved and molded cementitious panel (UHPC), light grey satin finish
- 4 Stainless steel rainwater pipe, natural finish
- 5 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 6 Internally framed glazing with flush external joints, clear low iron
- 7 Bird protection measures to facades comprising of discreet stainless steel vertical fins on horizontal surfaces to deter roosting
- 8 Aluminium cladding panels, mid grey anodised satin finish
- 9 Aluminium cladding panels, champagne anodised satin finish (Regency Gold I or equivalent)
- 10 Aluminium structural glazing mullion, champagne anodised satin finish (Regency Gold I or equivalent)
- 11 Photovoltaic panels, black glass finish
- 12 Framed glazing, opaque, dark grey anodised aluminium framing satin finish
- 13 Designated facade zone for mounting of CCTV and other end-devices
- 14 Steel louvres, mid grey satin finish
- 15 Steel louvered door, mid grey satin finish
- 16 In-situ concrete pier, light grey architectural finish
- 17 Aluminum cladding panels, dark grey anodised satin finish

Code 1 - Accepted

5.1.15 Platform Canopies

The external platform canopy roofs cover a 200m long section of the building from gridlines 10-16. They align with the platform down stand inside the main building west of gridline 10. The canopies are designed in a manner that consolidate the diagram of the building, that is: a viaduct structure blending with a station building. It is the architectural role of the canopies to provide a calm linearity in contrast to the dramatic curve of the main station roof canopy.

The canopies have multiple functions:

- Provide shelter to passengers
- Permit views and transparency to aid way-showing
- Permit daylight and transparency over the New Canal Street lightwells
- Distribute services including power, data, comms and drainage
- Provide a source of artificial lighting
- Provide a support for signage and end-devices such as CCTV and PAVA speakers
- Provide structural support for the OCS catenary structures and systems
- Provide a surface for PV panels

Each canopy has a symmetrical structural arrangement with a central section and two cantilevered wings that cover the platforms. The central portion is top-lit with either glazed panels or and aluminium seam roof clad with PV panels set on a south facing monopitch. The roof glazing will provide daylight and views to assist way showing. The solid sections of roof over the cantilevered sides at trackside are covered with an aluminium standing seam to match the main station roof.

The canopies are expressed with a language not dissimilar to the main roof canopy: exposed steel framing with timber infill. The steelwork is finished with a dark grey multi-coat metal paint system. The soffits to the wings located over the trackside platform zones are clad with a warm timber soffit with a coffered language.

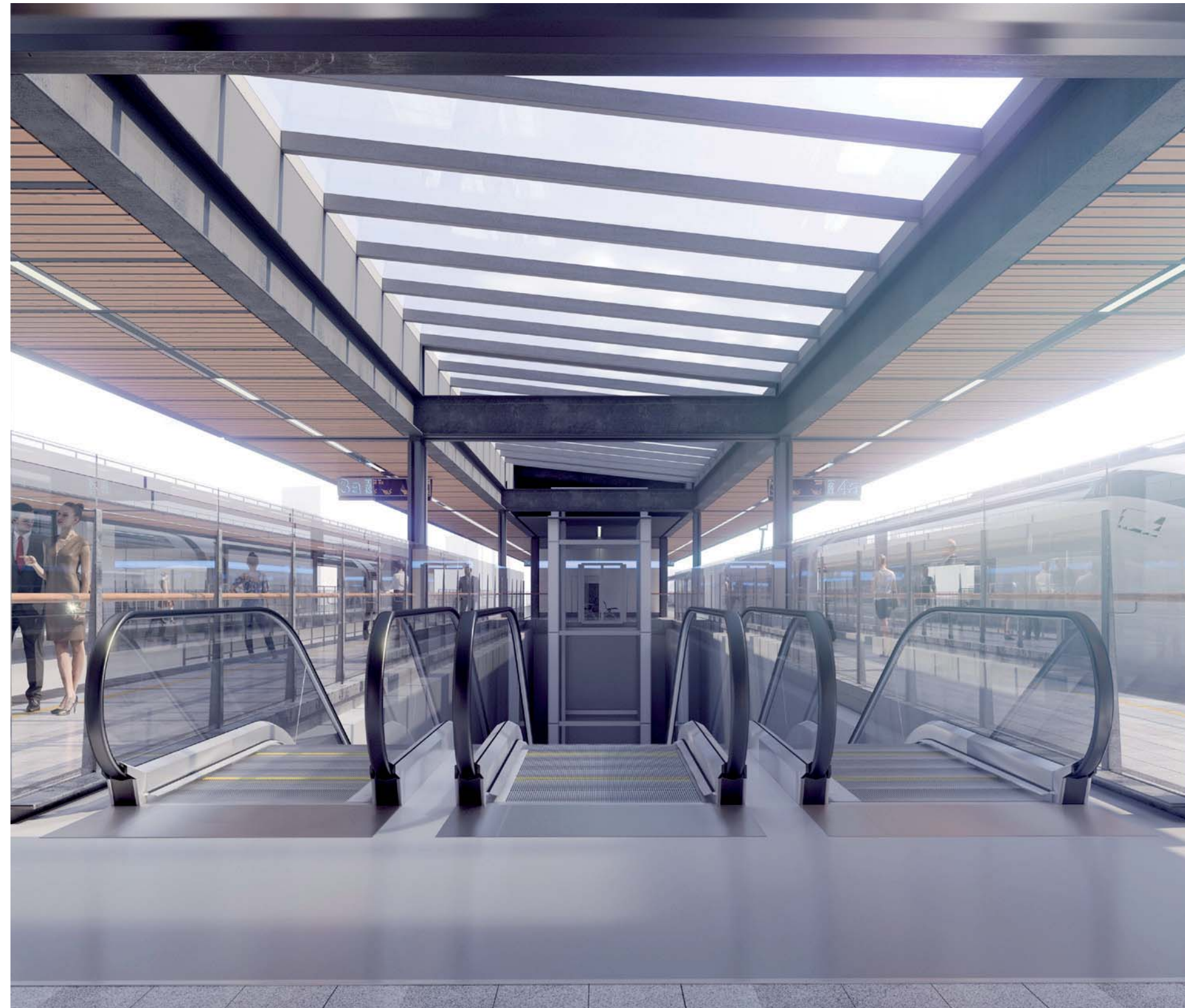


Fig.5.33 Visualisation of canopy from platform level

- | | | |
|--|--|---|
| 1 OCS supports shown indicatively | 5 Steel maintenance track | 10 Timber slatted soffit lining with dark grey woven backing (Oregon Pine or equivalent appearance) |
| 2 Indicative location of photovoltaic panels on solid areas of canopy roof | 6 Stainless steel balustrade, natural finish | 11 Lighting, Comms and CCTV service strip |
| 3 Rooflight glazing, clear low-iron, dark grey anodised aluminium framing satin finish | 7 Gutter with raised access walkway | 12 Glazed balustrade with stainless steel supports |
| 4 Metal standing seam roof, natural matt finish | 8 Aluminium cladding panels, dark grey anodised satin finish | 13 Platform edge protection shown indicatively |
| | 9 Architectural steel work, mid grey satin finish | |

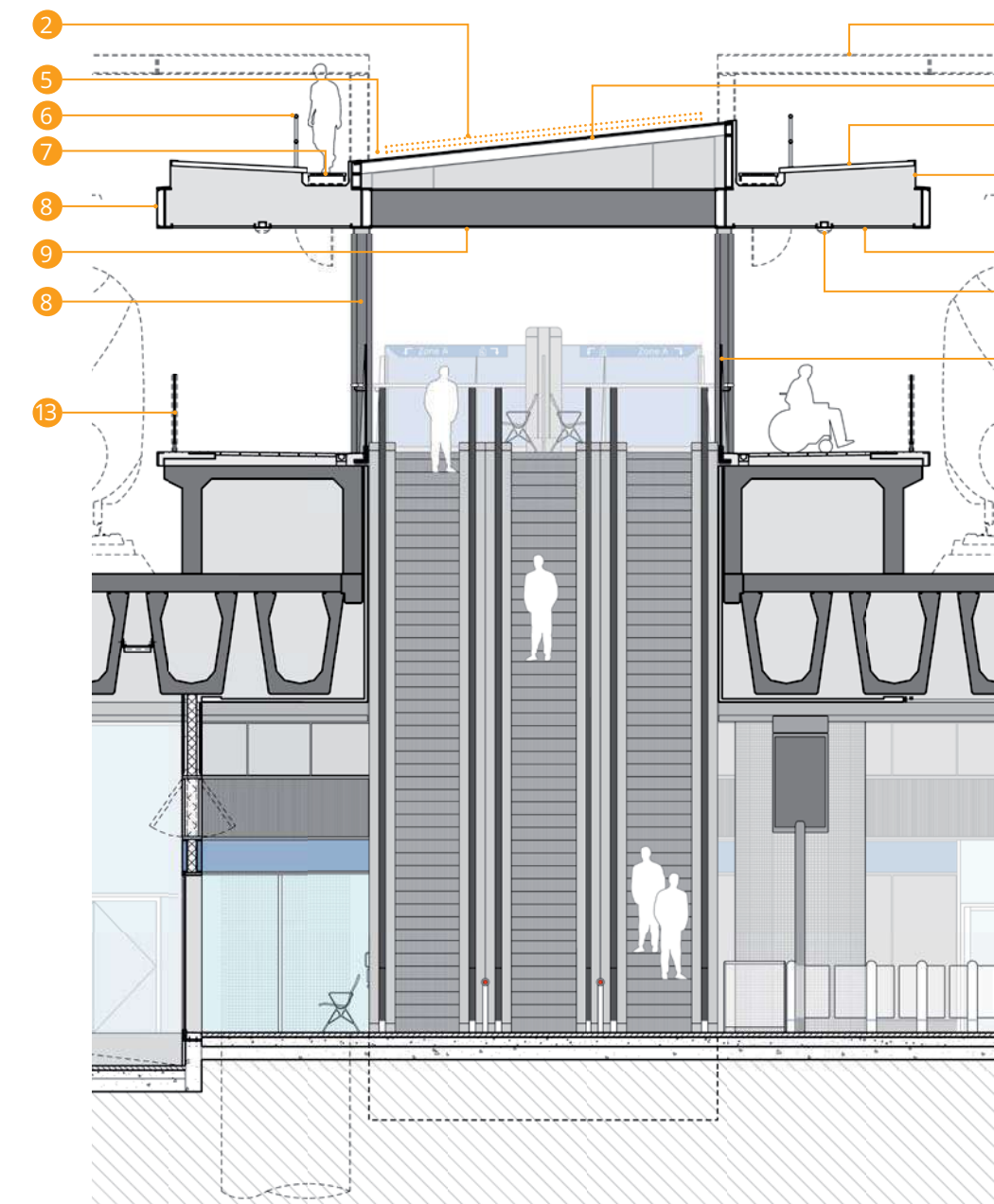


Fig.5.34 Typical section through canopy

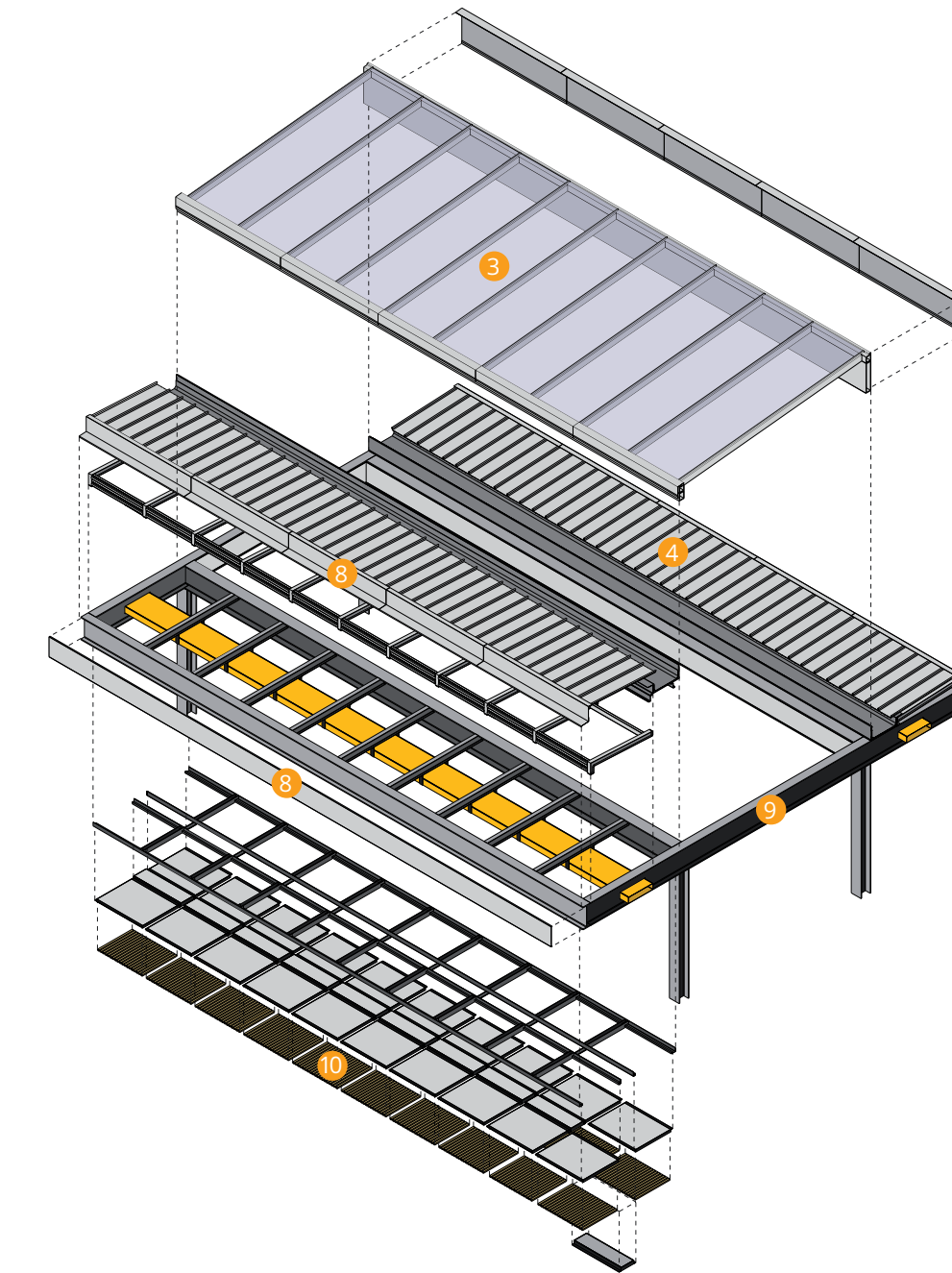


Fig.5.35 Oregon Pine soffits, Amsterdam Bijlmer ArenA station

5.1.16 Viaduct Edge Screens (Grid Lines 10-16.5)

Architecturally the viaduct edge screens east of gridline 10 are expressed as a continuation of the platform level cladding treatment west of gridline 10.

Northern viaduct edge

The rhythm of the structural aluminium glazing mullions continues along the north side of the station, tying the viaduct into the station building and framing views of the incoming/ departing trains from the public realm (refer to 5.1.11). The 500mm deep vertical mullions on 2m centres will be anodised aluminium in champagne colour finish and have a two-part split nosing profile. The glazing panels that sit between the verticals are clear glazing from platform level upwards with an opaque spandrel panel concealing the side of the platform structure. From gridline 10 to the eastern end of the station the northern viaduct edge screen ties into the edge of the canopy above the northern single platform at the head.

Southern viaduct edge

On the south the facade system is a continuation of the panelised grid of the PV panels west of gridline 10 (refer to 5.1.14). The facade system is a curtain wall comprised of champagne coloured mullions at 2m centres framed at the head and base by an champagne coloured aluminium cornice band. Between these mullions sit an array of solid panels and a continuous horizontal band of glazing. This glazed slot aligns with platform level and allows for views in and out across the single track on the south side of the station. The cladding panels above and below the glazed slot are a dark grey anodised finish to harmonize with the black glass finish of the PV panels west of gridline 10.



Fig.5.36 Visualisation (View 7), platform looking towards the eastern facade of the main building

5.1

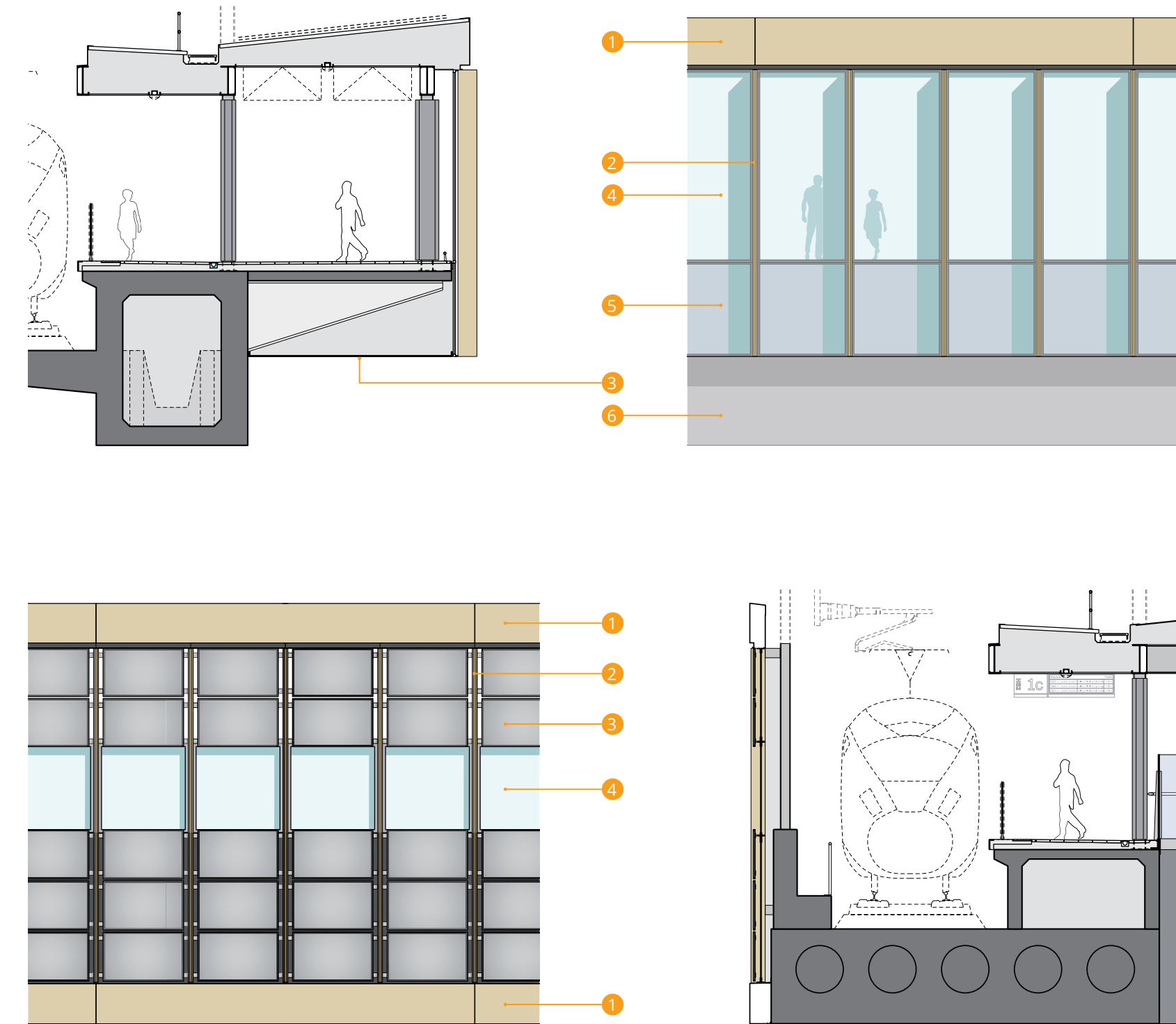
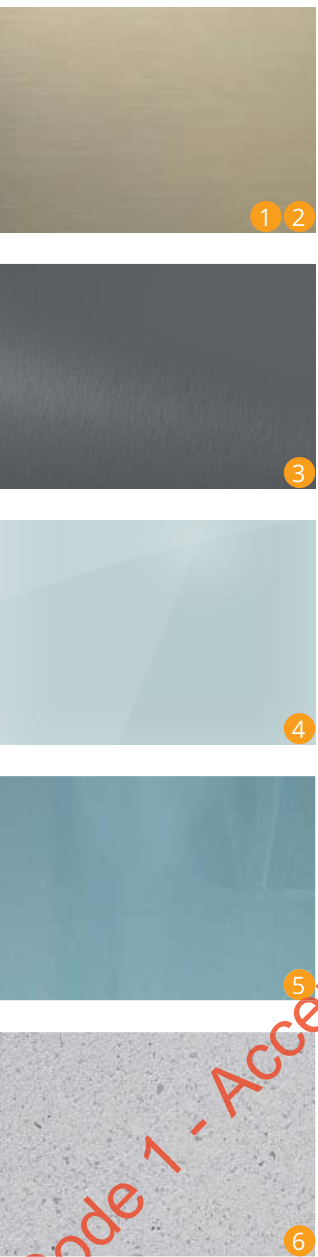


Fig.5.37 Typical section through viaduct edge screens

Materials



- 1 Aluminium cladding panels, champagne anodised satin finish (Regency Gold I or equivalent)
- 2 Aluminium structural glazing mullion, champagne anodised satin finish (Regency Gold I or equivalent)
- 3 Aluminium cladding panels, dark grey anodised satin finish
- 4 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 5 Framed glazing, opaque, dark grey anodised aluminium framing satin finish
- 6 In-situ concrete viaduct, light grey architectural finish

Code 1 - Accepted

5.1.17 Eastern Concourse External Walls

The Eastern concourse block reads a standalone building detached from the main station but articulated below the HS2 track and platform viaducts. The building assumes a design language complementary to the Old Curzon Street Station and physically links into it creating a small public courtyard between the two. The external walls of the eastern concourse block are located below the viaduct which runs overhead. The alignment of the external walls to the eastern concourse is derived from the existing New Canal Street streetscape alignment and the HS2 platform viaducts alignment.

The block's envelope is conceived as a colonnade, a free-standing screen wall enveloping the different functional conditions and geometries of the eastern concourse accommodation. The wall incorporates a post and lintel construction with a structural core of in-situ concrete clad with an architectural pre-cast concrete shell.

The structural openings typical of the open condition are 4m X 2.2m. Within these openings there are a number of types of 'infill' that pertain to the function of the accommodation including:

Type 1 - Open colonnade, to the external 'garden wall' space by Old Curzon Street Station

Type 2 - Glazed frontage - Glazed panels to 3m height with a 1m high band of vertically orientated dark grey aluminium weathered louvres above. This type occurs to the retail spaces or concourse facilities and includes glazed access doors

Type 3 - Openable metal screen, to the future retail units

Type 5 - Metal panel facade - Anodised aluminium panels to 3m height with a 1m high band of vertically orientated dark grey aluminium weathered louvres clad in vertical anodised aluminium fins. This façade type serves primarily BOH rooms

Type 4 - Louvered facade - Full panels of vertically orientated dark grey aluminium weathered louvres to mechanical plant rooms

There are two further façade types which are not framed by the pre-cast colonnade, as follows:

Type 6 - Entrance façades - Frameless Glazed Screens with aluminium framed doors. This type occurs at each of the three main entrances

Type 7 - Metal cladding panels (anodised aluminium), to northern façade of eastern concourse to match internal FOH cladding

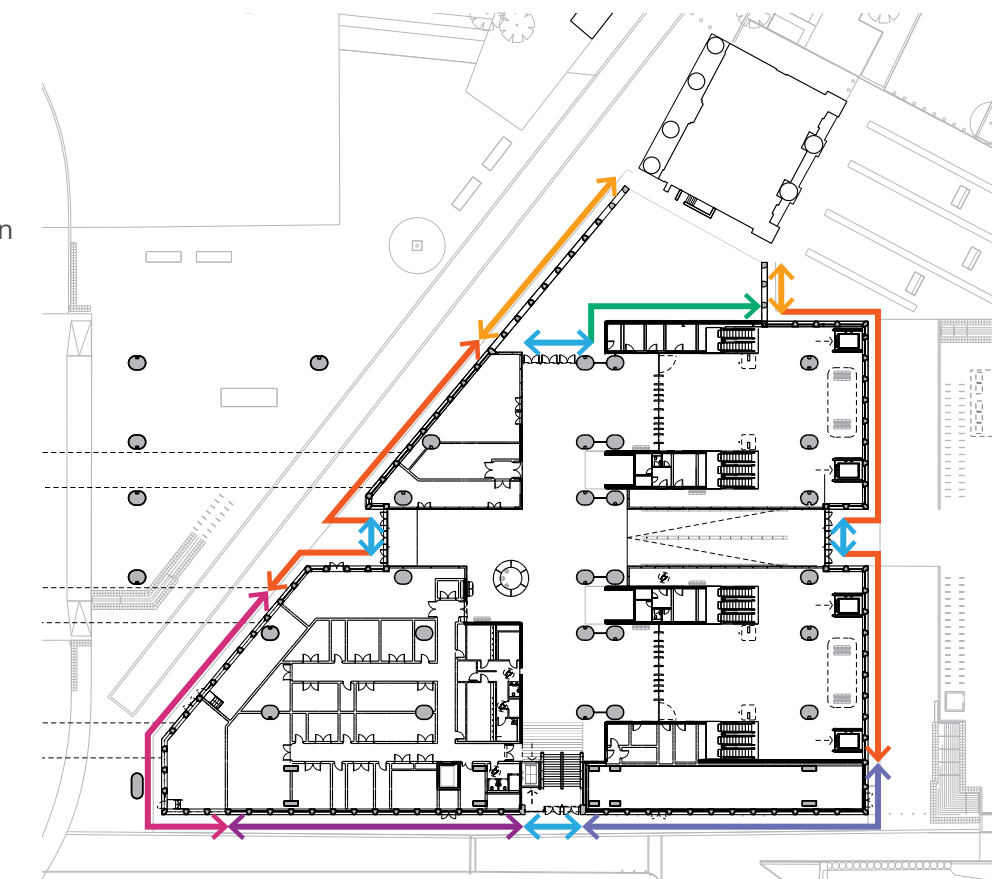


Fig.5.38 Eastern Concourse New Canal street frontage

5.1

KEY

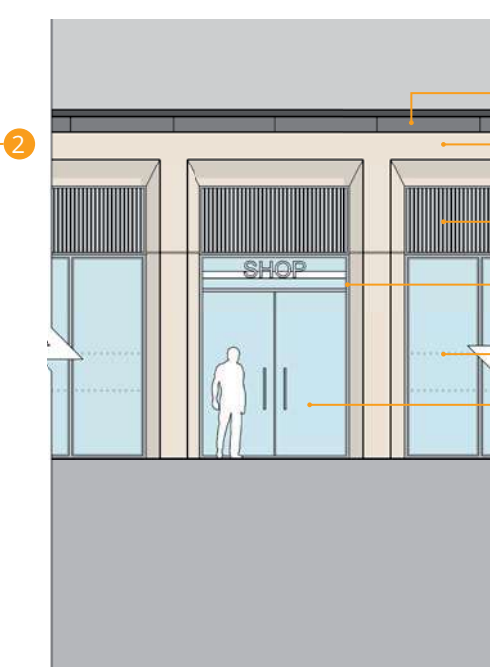
- Type 1 - Open Colonnade
- Type 2 - Glazed Facade
- Type 3 - Openable Metal Screen
- Type 4 - Metal Panel Facade
- Type 5 - Louvered Facade
- Type 6 - Entrance Facades
- Type 6 - Metal Cladding Panels



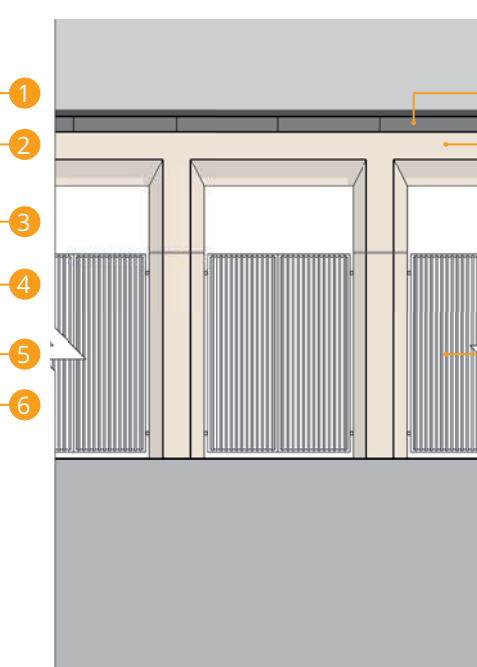
Type 1 - Open Facade



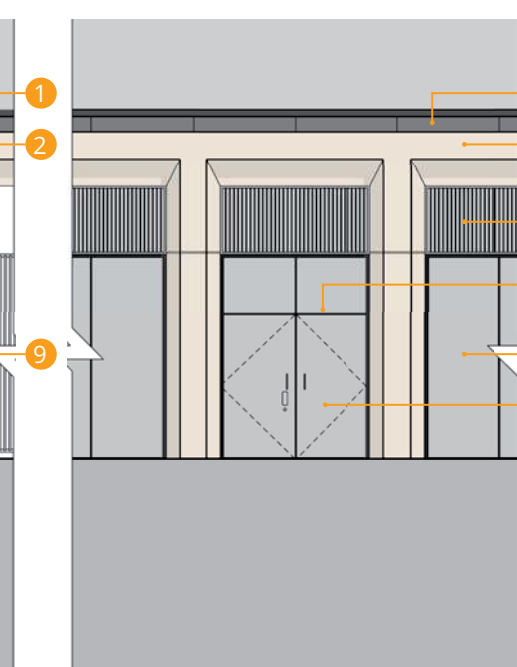
Type 2 - Glazed Facade



Type 3 - Openable Metal Screen



Type 4 - Metal Panel Facade



Type 5 - Louvered Facade

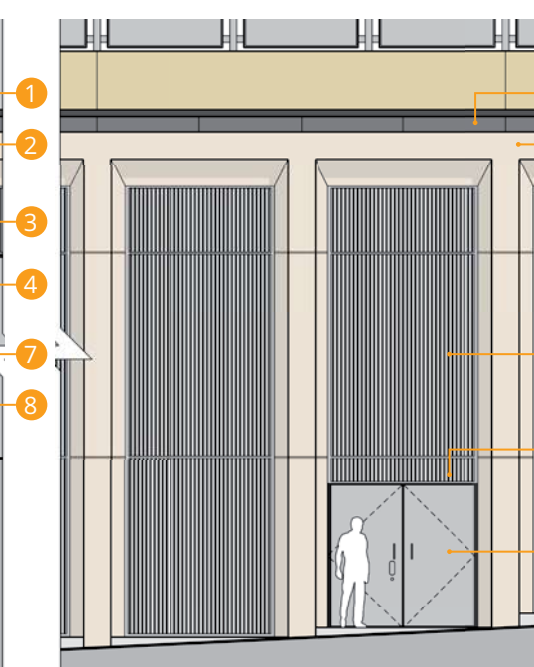
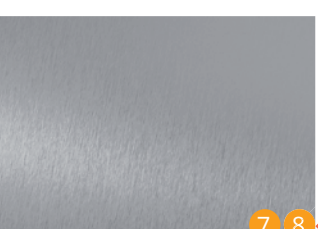
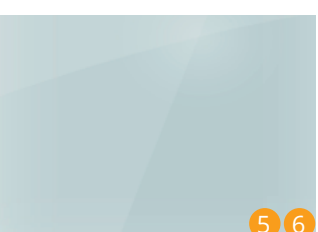
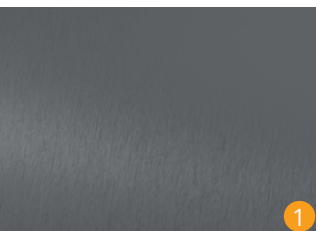


Fig.5.39 Eastern Concourse - facade types

Materials

- 1 Aluminium cladding panels, dark grey anodised satin finish
- 2 Pre-cast concrete cladding panels, sand coloured sand-blasted finish
- 3 Steel louvres, mid grey satin finish
- 4 Designated facade zone for mounting of CCTV and other end-devices
- 5 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 6 Glazed door, clear low-iron, anodised dark grey aluminium framing satin finish
- 7 Aluminium cladding panels, mid grey anodised satin finish
- 8 Steel door, mid grey satin finish
- 9 Openable metal screen to retail units, mid grey satin finish



Code 7 - Accepted

5.1.18 Eastern Concourse Entrances

In design terms, the entrances are treated as a clearly identifiable glazed 'breaks' in the rhythm of the pre-cast colonnade 'wrapping' the eastern concourse building. Each entrance would be clearly marked with the illuminated monumental letters of the station name as well as a horizontal signage band above the doors which provides a mounting point for CCTV, lighting, emergency signage and other end-devices.

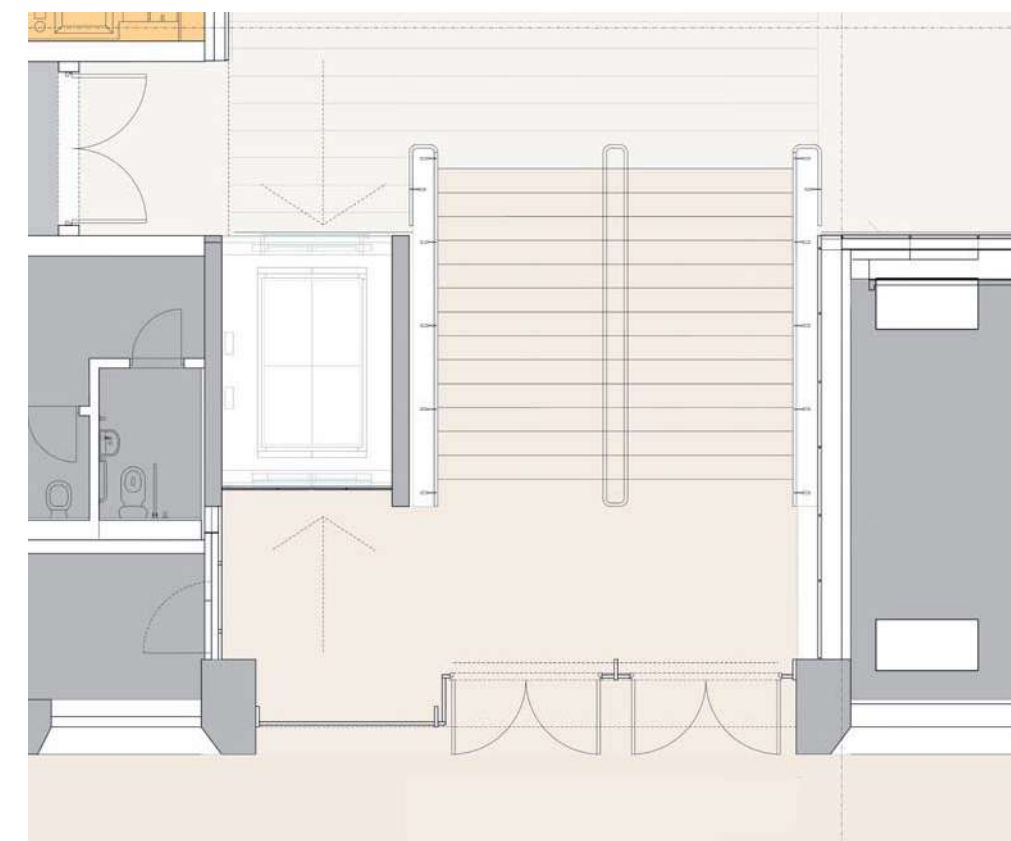
Southern Entrance

This entrance provides an important access point from Andover Street and Digbeth in the south to Birmingham Curzon Street eastern concourse. During the pre-application consultation phases, the importance of this entrance in relation to both maintaining and enhancing north-south pedestrian connectivity was underlined by all stakeholders. This entrance will in particular support regeneration of the Digbeth area and provides a link not only to HS2 services but also to the new tram stop, taxis, station retail areas and the Knowledge Quarter.

The width of the southern entrance has been optimised on order to maximise visibility from station approaches. Accessibility and passive security of the entrance has been maximised by providing a shared lift and stair landing at both lower level (street) and upper level (concourse).



Fig.5.40 View approaching Andover street entrance from the South-East



Type 6 - Entrance Facades - South

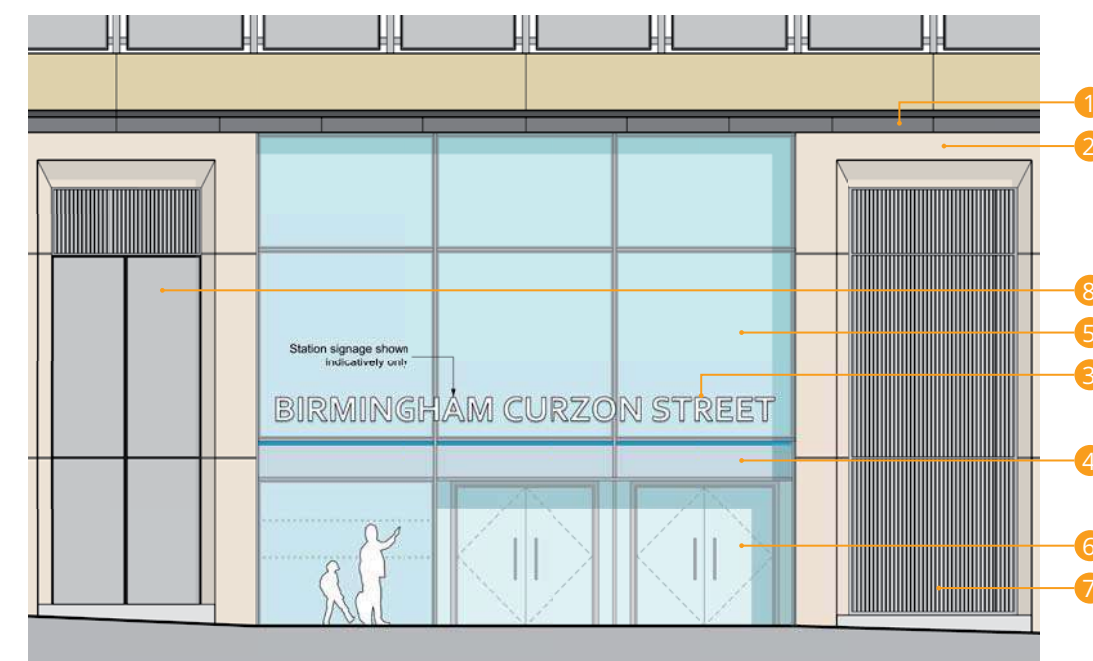


Fig.5.41 Entrances - southern entrance (left), eastern entrance (right)

Type 6 - Entrance Facades - East



- 1 Aluminium cladding panels, dark grey anodised satin finish
- 2 Pre-cast concrete cladding panels, sand coloured sand-blasted finish
- 3 Station name illuminated monumental lettering
- 4 Opaque glazed signage band (zone for mounting of CCTV and other end-devices)
- 5 Framed glazing, clear low-iron, dark grey anodised aluminium framing satin finish
- 6 Glazed door, clear low-iron, anodised dark grey aluminium framing satin finish
- 7 Steel louvres, mid grey satin finish
- 8 Aluminium cladding panels, mid grey anodised satin finish

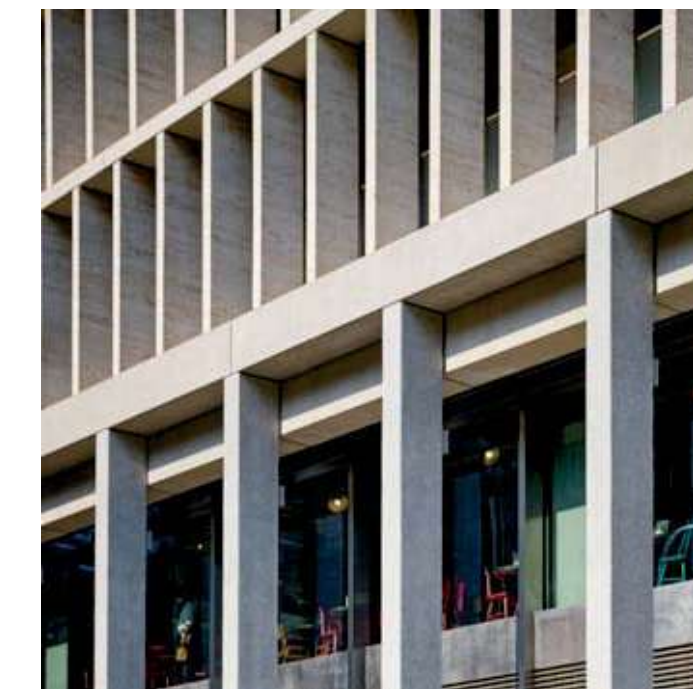


Fig.5.42 Examples of pre-cast concrete colonnade

5.1.19 Viaduct Soffit Profiling

The underside of the viaducts forms a profiled soffit to New Canal Street and the Eastern Concourse with a consistent materiality. This achieved through a combination of pre-cast concrete structure and glass fibre reinforced concrete (GFRC) cladding which together form a series of “ribbed” profiles running in the East-West axis. In the central East-West axis of the eastern entrance, the ribbed soffit will act as a clear continuous intuitive way showing element to orientate passengers through the concourse between the taxi drop off in the east and the tram stop in the west.

Soffit profiling also allows for integration of twin-function task and ambient lighting and acoustic infill panels where required.

In order to maintain consistency across the viaduct soffits to public areas across gridline 13 in terms of materiality, the under-side of soffit level and the perimeter vertical edges of the box-girder viaduct profiles, the north and south perimeters of the pre-cast viaduct sections are clad in GFRC. These areas of GFRC viaduct cladding between gridlines 13-16 comprise of either A) flat panel soffit cladding or B) 'L' profile cladding to escalator voids between gridlines 13-14.

At gridline 11, to enable train toilet waste pipework to reach column rebates GFRC cladding will be provided at a 'crosshead beam' location with stainless steel access panels providing maintenance to rodding points.



Fig.5.43 Visualisation (View 10), from New Canal Street looking towards the OCSS

Key

GFRC cladding panels

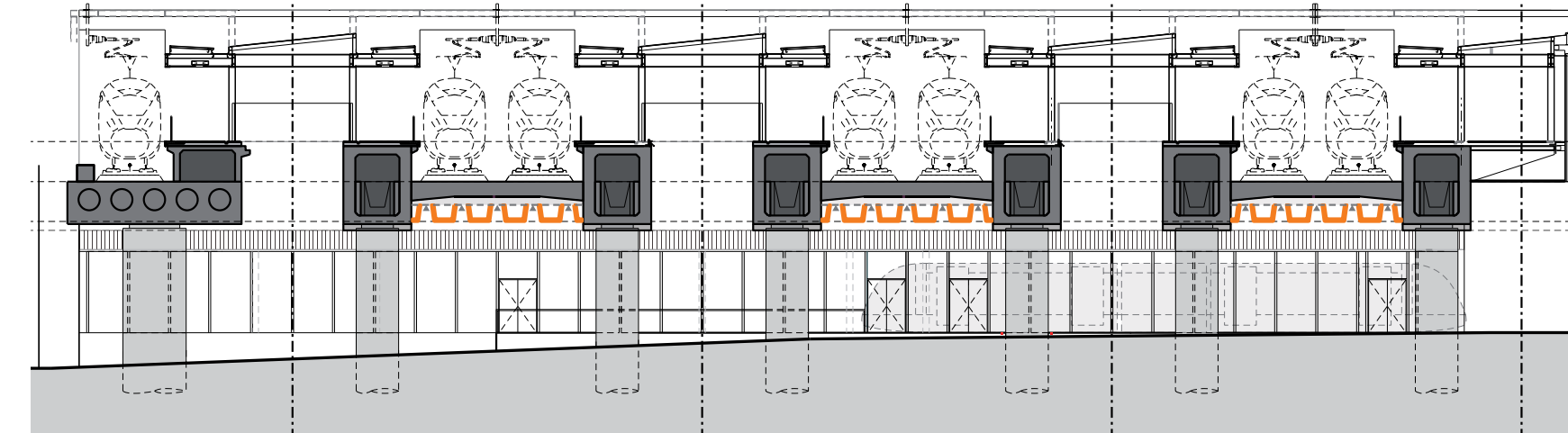


Fig.5.44 Cross section at New Canal Street

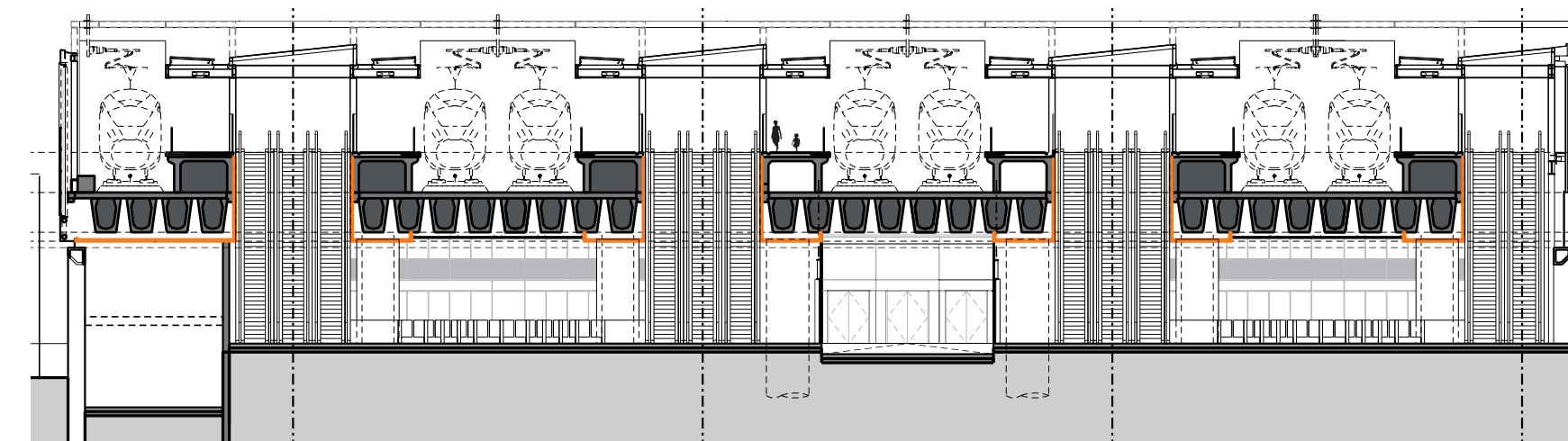
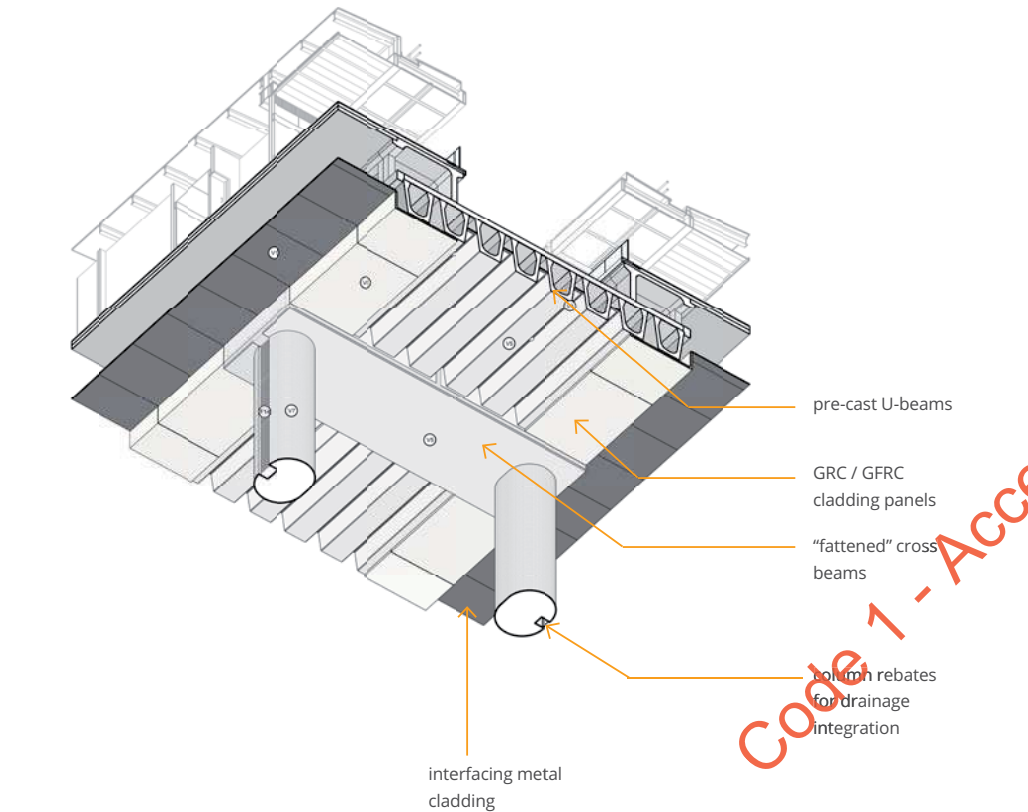
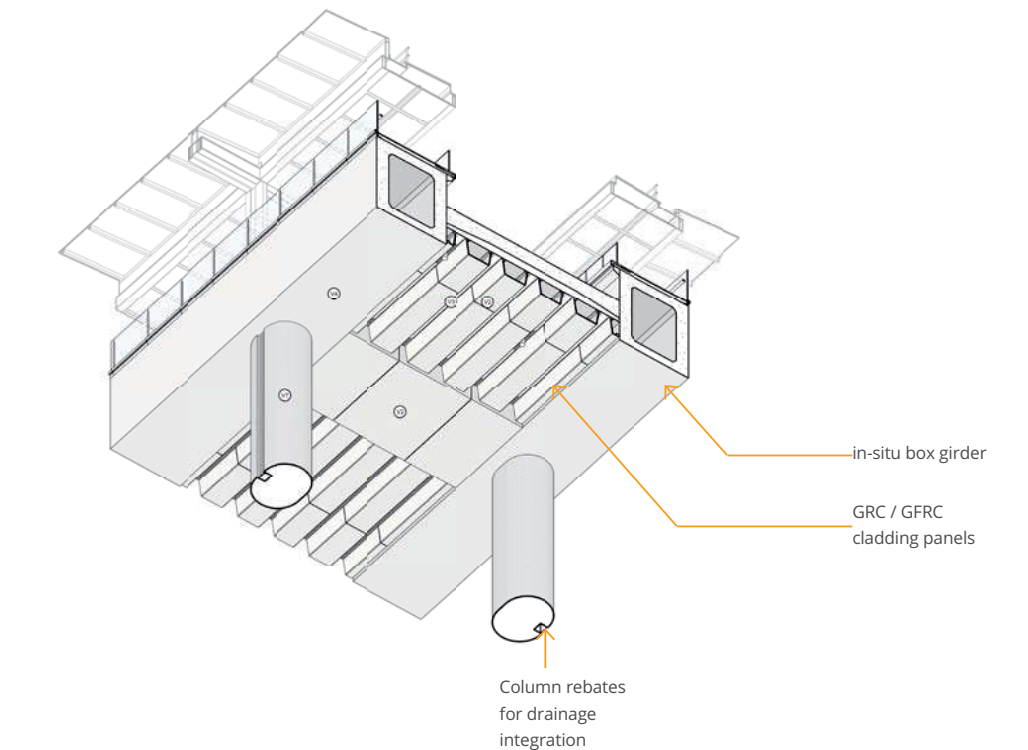


Fig.5.45 Cross section at Eastern Concourse



COPY 1 - Accepted

5.1.20 Columns

The cylindrical column profiles permit better integration with the public realm in terms of free-flowing movement. The choice of cylindrical columns is also to provide a visual connection and consistency with the adjacent Grade I listed Old Curzon Street Station building's portico.

Viaduct elements between platforms 2-7 are supported by two columns centred on box girder profiles. At the single-track southern viaduct, a single column centred is on the flat soffit. This approach deals with the proportional shift between the typical double track viaduct structure and the narrower single track viaduct.

Column profiles will have rebates to allow for integration of train waste, platform, track and canopy drainage downpipes. The rebates will be finished with brushed stainless steel cladding panels.

Columns will be clad in small scale mosaic tiles, this acts a deterrent for vandalism and is easier to clean. See images on opposite page for further visual reference.



Fig.5.46 New Canal Street Crop looking west

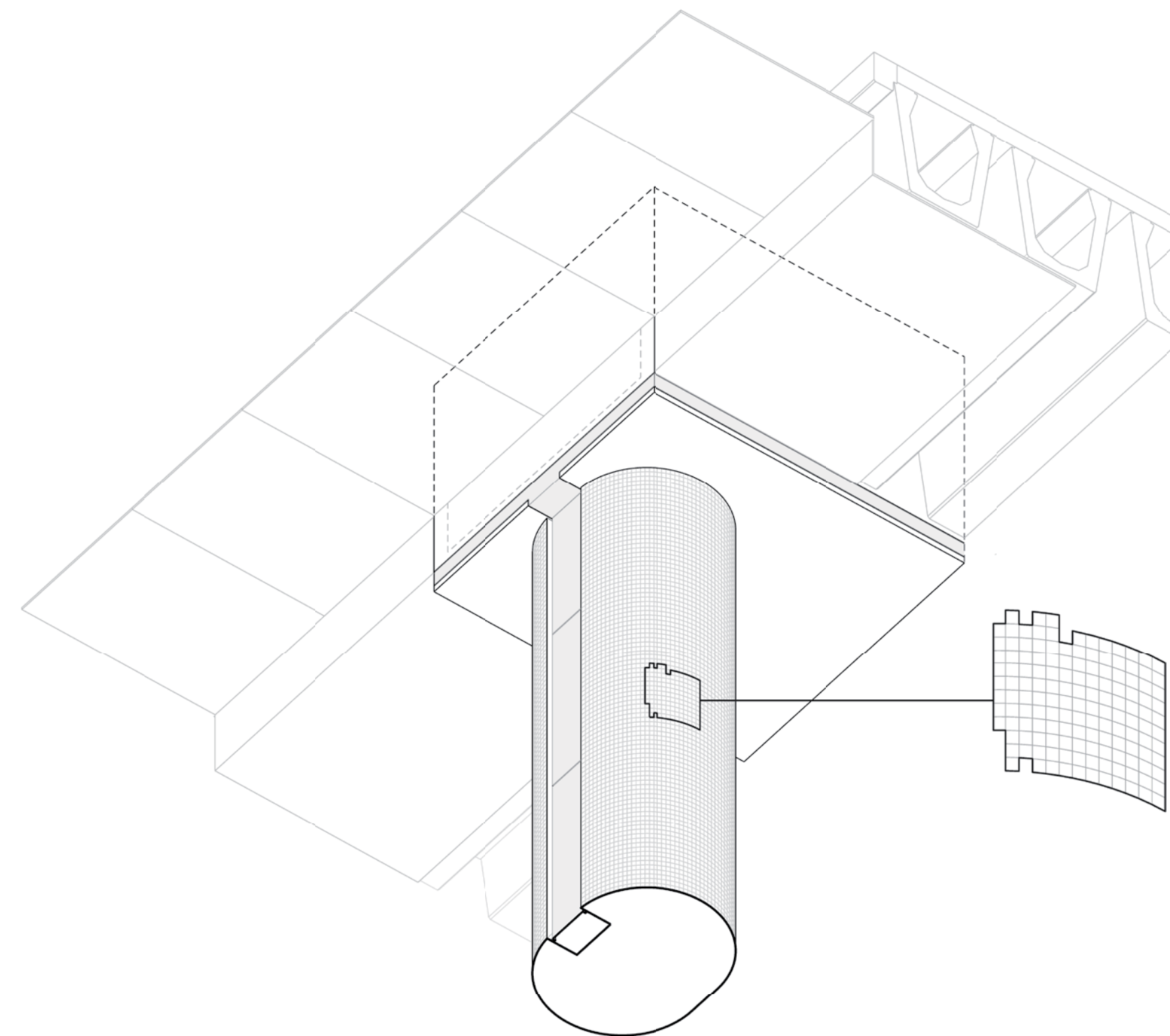


Fig.5.47 Column profiles under New Canal St showing mosaic tile finish

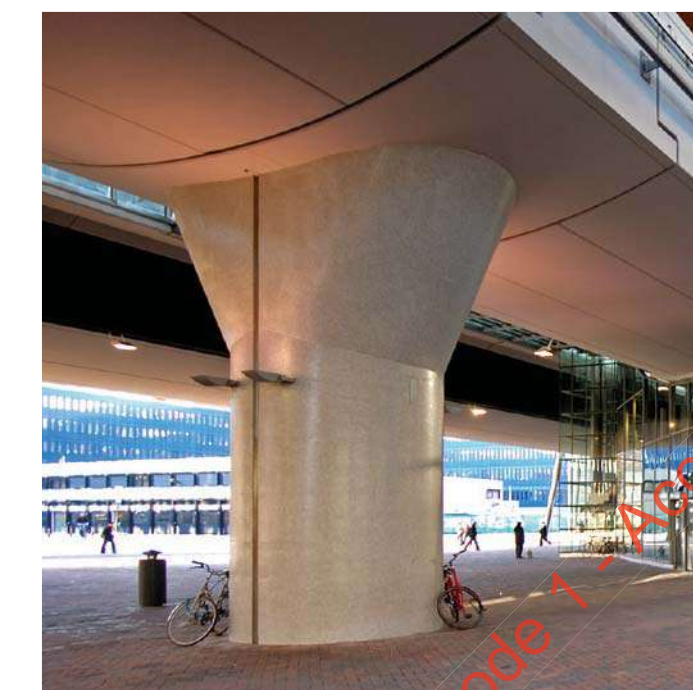
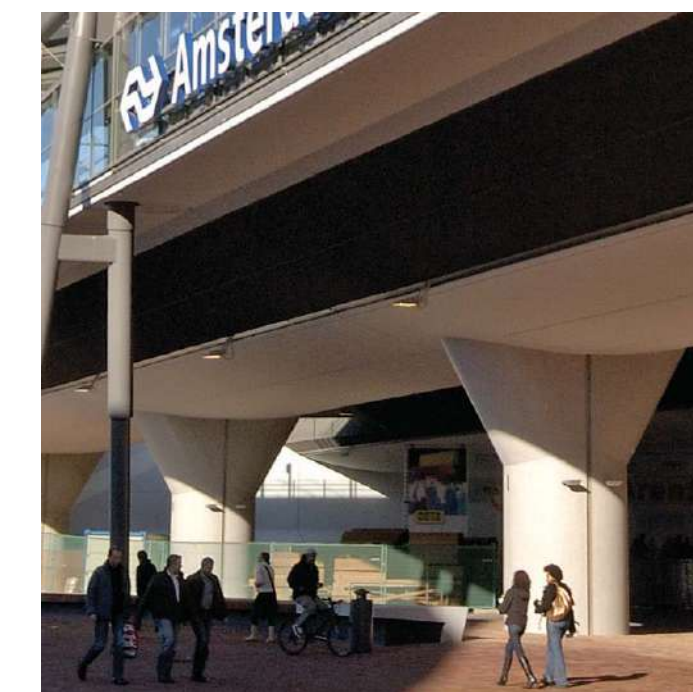


Fig.5.48 Mosaic tile columns, Amsterdam Bijlmer Arena station

5.1.21 End of Station Platforms to Approach Viaduct Interface

The station transition zone starts at the eastern end of the station platforms and extends to the limit of the approach viaduct. This zone is approximately 26m in length and resolves the junction of two different viaduct designs in terms of profile and column geometry.

The station design intent is to carry through the approach viaduct profile to meet the end of platform. The two viaduct types are supported by large scale concrete “portals” – the intention being to mark clearly the shift change in geometry with solid framing elements and to provide support for viaduct bearing elements.

The concept at low level is to create a clearly defined drop-off zone between the edge of the Eastern concourse and the portals. The portals are treated visually as “book-ends” forming a logical edge to the overall public realm strategy.



Fig.5.49 Views East of Eastern concourse towards approach viaduct and interface

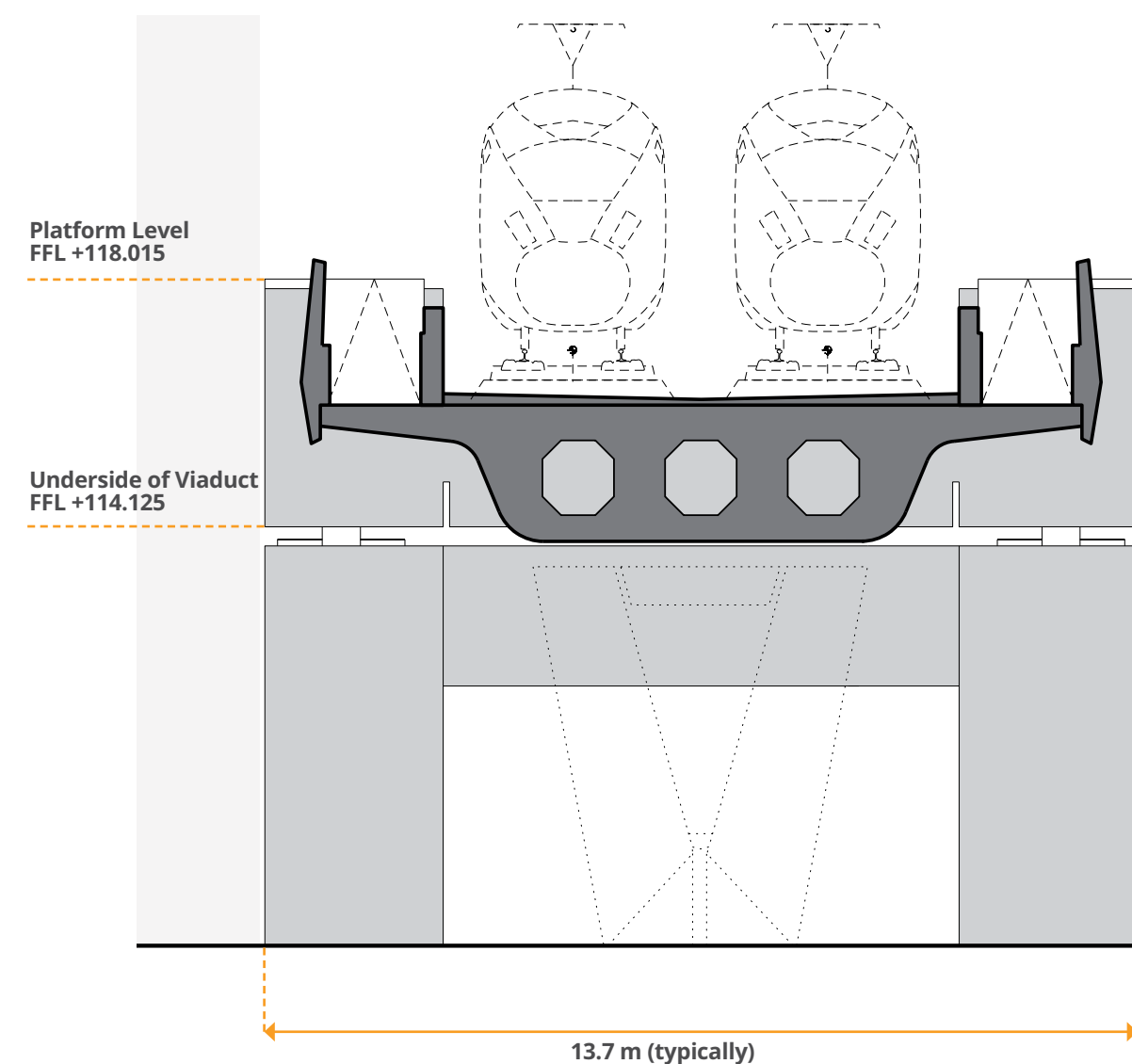


Fig.5.50 Cross section diagram of interface viaduct profile and “bookend” structure

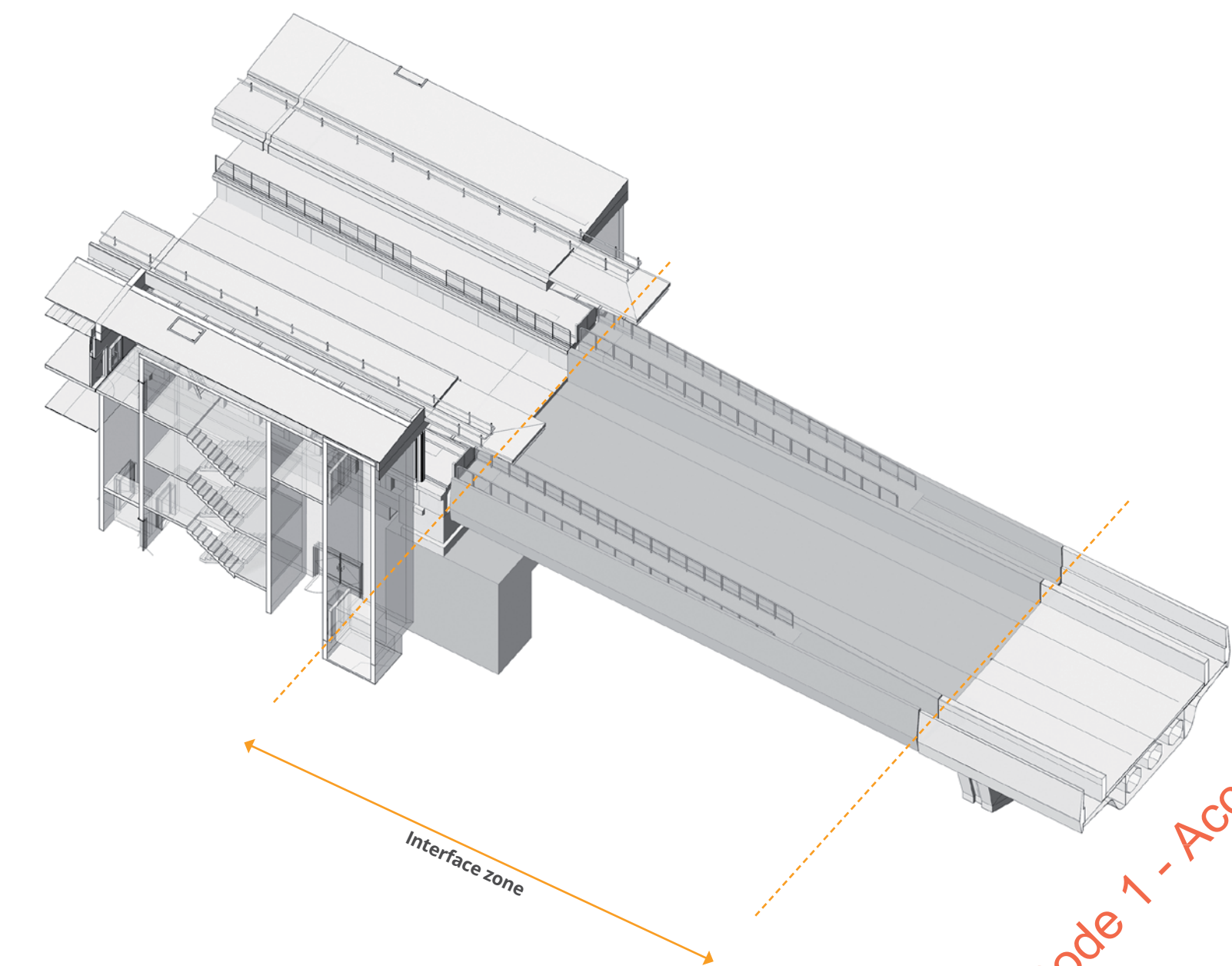


Fig.5.51 Axonometric views of interface

Code 1 - Accepted

5.1.22 Maintenance Access

Summary

It is a design priority that the station fabric is accessible and maintainable. The design incorporates integrated maintenance access solutions that do not detract from the appearance of the building: Monorails are recessed where feasible; gables, edge protection, steps and restraints are visually integrated into the envelope design. This detailed and technical design consideration is intended to prevent potentially unsightly equipment being added to the building post completion and during operation.

Main Roof Canopy

The extent of access fixtures and systems to the main roof canopy are minimal; the design has sought to reduce the extent and complexity of the assets to this location and incorporates the following:

- Minimal mechanical equipment to the roof
- Highly durable standing seam roof finish
- Roof gutters are limited to the long sides of the roof and not the curved ends
- The roof glazing is fixed thus preventing the need to maintain powered actuators
- The fully accessible areas of the roof have full balustrade edge protection and are limited to the gutters line to the eaves and the perimeter of the roof lights

The fixed access equipment to the main roof canopy include:

- Permanent tracks for a permanent, traversable maintenance access platform integrated along the centre of roof
- Perimeter roof balustrades to the long sides of the roof (gutters only)
- Stepped access routes with balustrades to each side of the roof arch
- Stepped access routes with lanyard restraint to the short ends of the arch (this avoids the need for edge balustrading in highly visible locations at the roof verge)

The eaves balustrades comprise stainless steel posts and cables and are inwardly inclined to reduce the visual impact from street level.

All regular maintenance operations at roof level (inspection, rooflight cleaning) can be undertaken from the permanent access walkways without the requirement for additional special equipment.

Rooflight glazing replacement is expected to be infrequent in the lifetime of the building. The rooflight glazing replacement strategy is to utilise permanent fixed tracks and a permanent travelling deck that runs the

length of the rooflights. Temporary maintenance equipment would be lifted on to the roof deck when required for rooflight replacement. The tracks will sit directly above the longitudinal lines of the rooflight framing and will not be visible from inside of the station and are also not visible externally from street level (refer to section 5.1.5).

Façades

The façades are designed to be fully accessible externally from ground-based access equipment; maintenance vehicle access routes are integrated within the public realm.

All façades except for the eastern gable are accessible via by mobile elevated work platforms (MEWPs). The south façade of the western main station volume is provided with a fixed monorail to be architecturally recessed to the eave's soffit for the temporary rigging of a cleaning cradle to facilitate access and window cleaning. The East gable glazing is not accessible from street level and is provided with a monorail to the soffit of the main roof arch to facilitate the fixing of a gondola cradle.

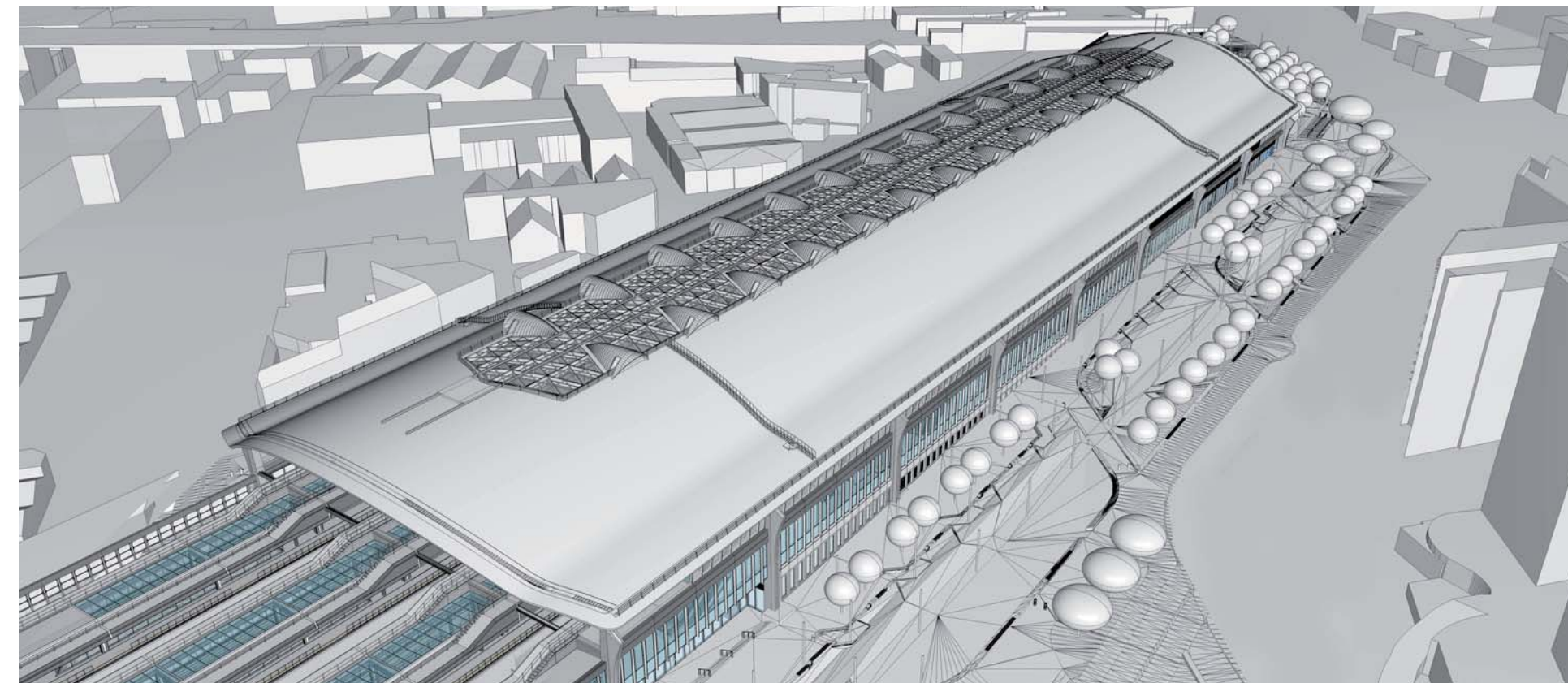
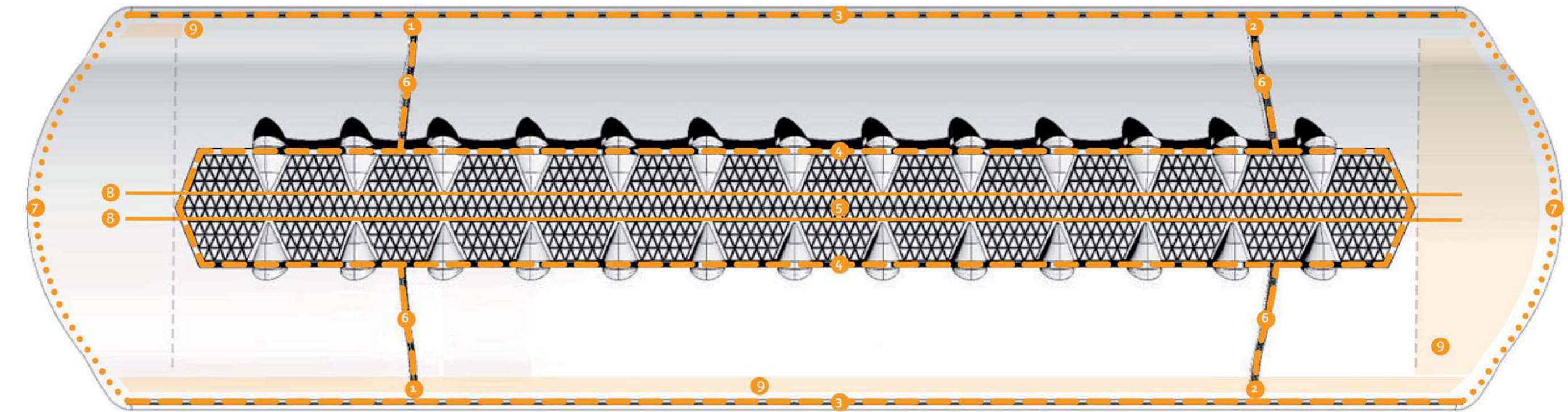
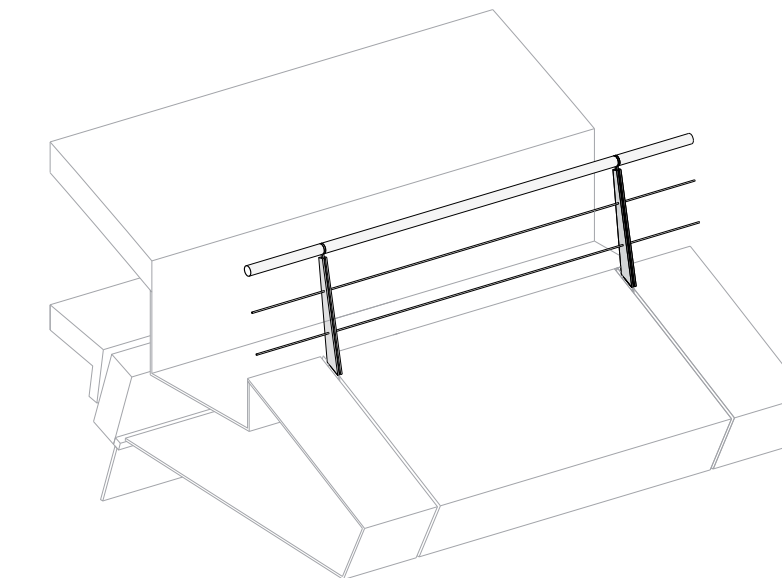


Fig.5.52 Roof maintenance access view from north east

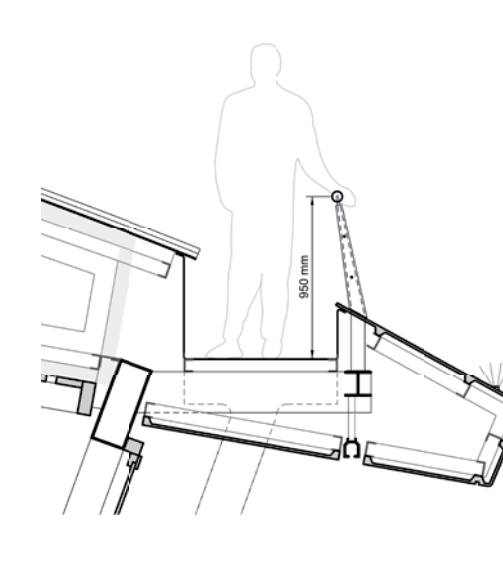
- 1 Stair from retail lid level to roof access hatch (primary roof access routes)
- 2 Ladder from concourse level to roof access hatch (secondary roof access routes)
- 3 Walkable gutter with permanent guarding for access to gutter/ drainage outlets (primary roof access routes)
- 4 Access walkway around perimeter of rooflights with permanent guarding for access to rooflights/ fan pods (primary roof access routes)
- 5 Rooflights designed to be walked on when necessary from maintenance/ cleaning
- 6 Stepped access walkways with permanent guarding for access to rooflights/ fan pods (primary roof access routes)
- 7 Stepped access walkways with fall restraint system for infrequent access to roof edge (secondary roof access routes)
- 8 Fixed tracks
- 9 Fixed tracks attached to underside soffit



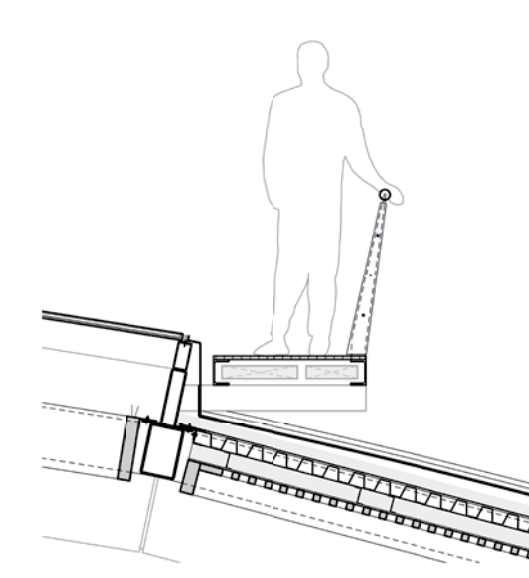
3 Walkable gutter with permanent guarding



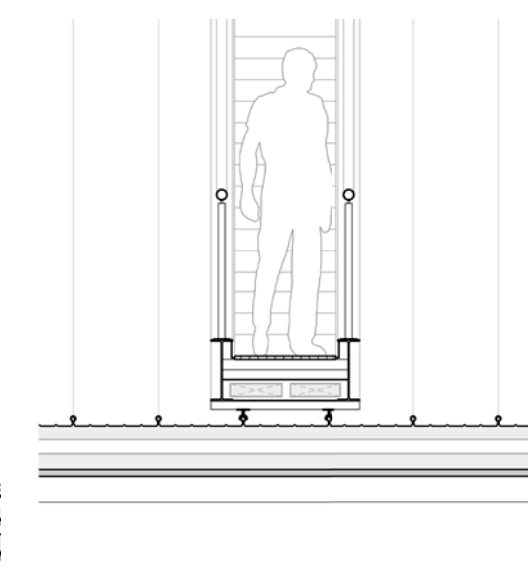
3 Walkable gutter with permanent guarding



4 Access walkway around perimeter of rooflights



6 Stepped access walkways with permanent guarding



6 Stepped access walkways with permanent guarding

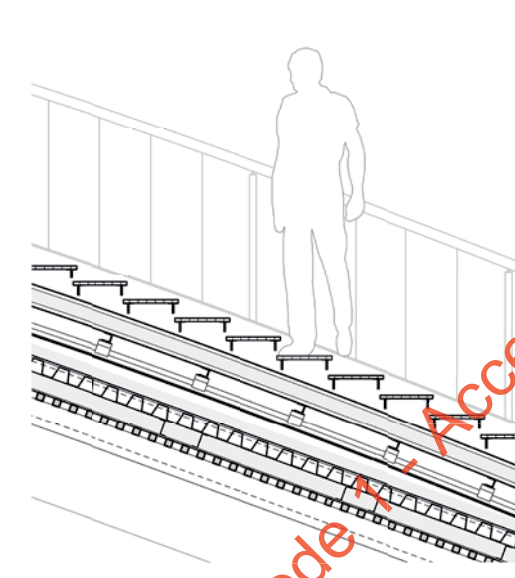


Fig.5.53 Roof maintenance access plan (above and detail sections (below)

Code 44 Accepted

Lighting

5.2.1 Urban Realm Lighting Strategy and Night-time Activation

The night time use of the station and its environs will be an essential part of the story of the station's life. The urban realm proposals can contribute to the creation of safe and welcoming environments for station users and staff as well as for other nearby modes of transport such as the adjacent tram and bus stops.

The external lighting strategy is fully aligned lighting strategy with the architectural lighting proposals in order to create a complementary in-and-out of station lighting approach. The proposal established for the internal concourse space utilising multi-functional lighting columns that accommodate LED lighting and CCTV is continued into the public realm demarcating key routes.

Whilst working toward a unified site wide lighting strategy, the primary and secondary arrival destinations of Station Square and New Canal Street Square will have their character identities of Civic and Creative respectively reflected in the lighting approach.

Key principles are as follows:

- Creation of a safe, comfortable and energy efficient environment
- Lighting strategy responds to the landscape character areas within the site and connections to the wider urban realm
- Proposals developed in cognisance of the accessibility and way-showing principles of the scheme
- A well-considered lighting strategy will facilitate good quality connections between the City, University and Digbeth, particularly for parts of the urban realm which pass beneath the new station and viaduct
- Focus of atmospheric lighting intensity on the principal spaces of Station Square, Curzon Square and New Canal Street Square
- Use of lighting to highlight key thresholds, gateway and 'decision point' nodes to assist with navigation of the site and creating variety and moments of delight in the night time experience
- Opportunity to integrate arts and culture at targeted locations for example at the existing RBS viaduct arches forming the gateway to Digbeth, and to highlight Historic Assets such as the Old Curzon Street Station (OCSS) facade



Fig.5.54 HS2 Station column extends into urban realm at Station Square



Fig.5.55 Discreet light fittings will be well integrated into urban realm

Key

- Primary Pedestrian Space - P1 (Eav 15lux, Emin 5lux, Esc 5lux)
- Secondary Pedestrian Space - P2 (Eav 10lux, Emin 3lux, Esc 2lux)
- Feature Areas - No specific standard
- New Canal street Square beneath Station - C0 (Eav 50lux, Uo 0.4)
- Car Park, Drop-off Zone and Curzon Street Area - C3 (Eav 15lux, Uo 0.4)
- Service Road - C4 (Eav 10lux, Uo 0.4)



Fig.5.56 Conceptual diagram of urban realm lighting zoning

5.2



Code 1 - Accepted

5.2.2 Lighting New Canal Street

The lighting strategy over New Canal Street and the Eastern Concourse has been developed in response to the U-beam profiled viaduct soffit. The key design driver is to lighten and illuminate the viaduct soffit to enrich the spatial quality in the public spaces below and above all to avoid the creation of a dark underside to the viaducts.

Key general functional lighting will be provided by continuous lightboxes to the recesses of viaduct soffit profiles giving a uniform diffuse ambient light output. This is offset by a series of "scattered" spotlights - set out by the angle of the defined "view corridor" to Old Curzon Street Station and the Eastern Concourse facade. This lighting is continuous through the Eastern Concourse through to the taxi pick-up / drop-off area. The soffit lighting will also act as a clear wayshowing device to and from external areas of the eastern concourse.

Within lightwells over New Canal Street, strip lights will be incorporated for a continuous downlit "wash" across the face of the in-situ concrete box girder. This strategy is then replicated within the Eastern concourse at escalator voids.

Space is also safeguarded within the viaduct soffits for discreet integration of end-devices such as CCTV, speakers and wi-fi / communications antennae. The zones allocated for lighting will be shared with other end-devices, including integrated but accessible cable containment routes for power and data. This strategy is consistent across the three main public-facing viaduct soffit zones: New Canal Street, Eastern Concourse and Taxi Drop-Off area.



Fig.5.57 Visualisation (View 11), New Canal Street View looking West

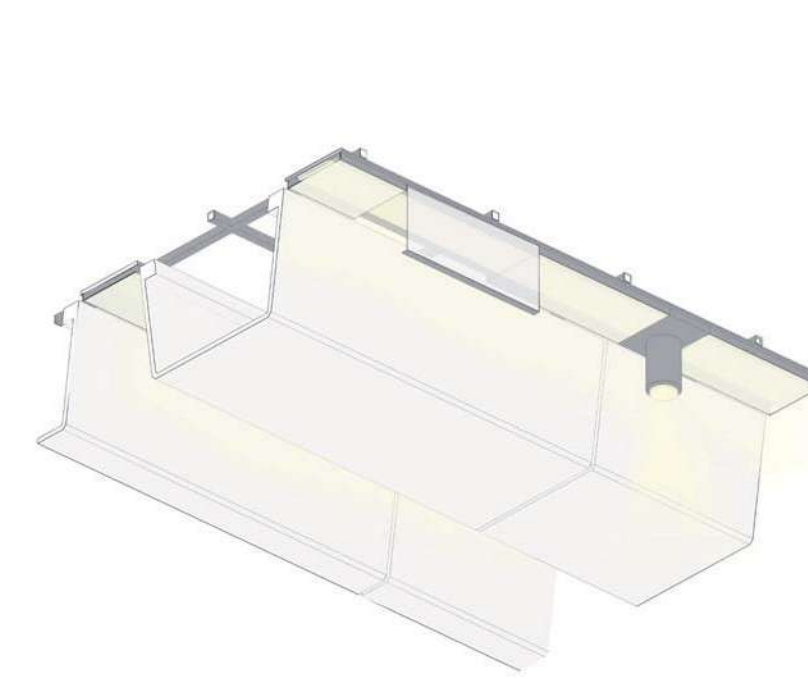


Fig.5.58 Lightbox and spotlight diagram to U-beam cladding

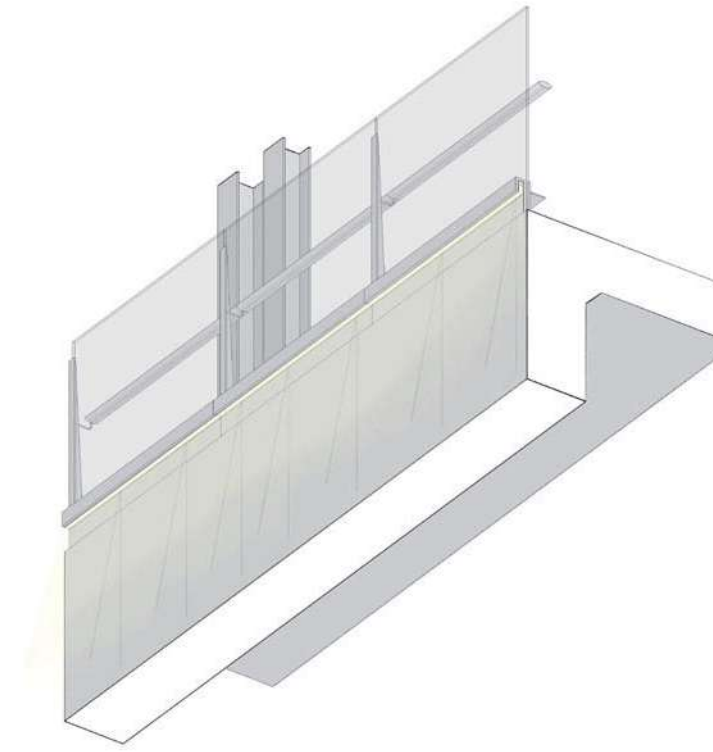


Fig.5.59 Strip downlighting diagram to lightwells

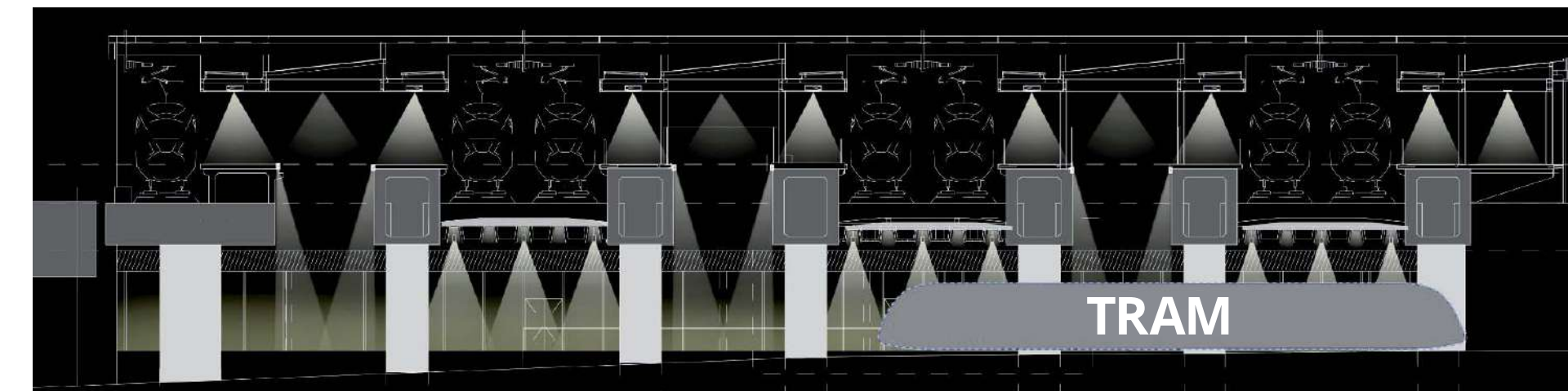


Fig.5.60 Lighting cross section diagram GL 10-13



Fig.5.61 Lighting reference image

5.2.3 Lighting Eastern Concourse

Within the Eastern Concourse architectural baffled ceilings in "paid" areas are provided with transverse strip lights as a means to provide further spatial definition.

Glazed passenger (PRM) lift shafts will be clearly identified with a graphic illuminated band, assisting with wayshowing and information provision, and providing punctuation to the station environment to enhance customer legibility of the station interior and exterior.



Fig.5.62 Visualisation (View 12), Eastern Concourse view from taxi drop off

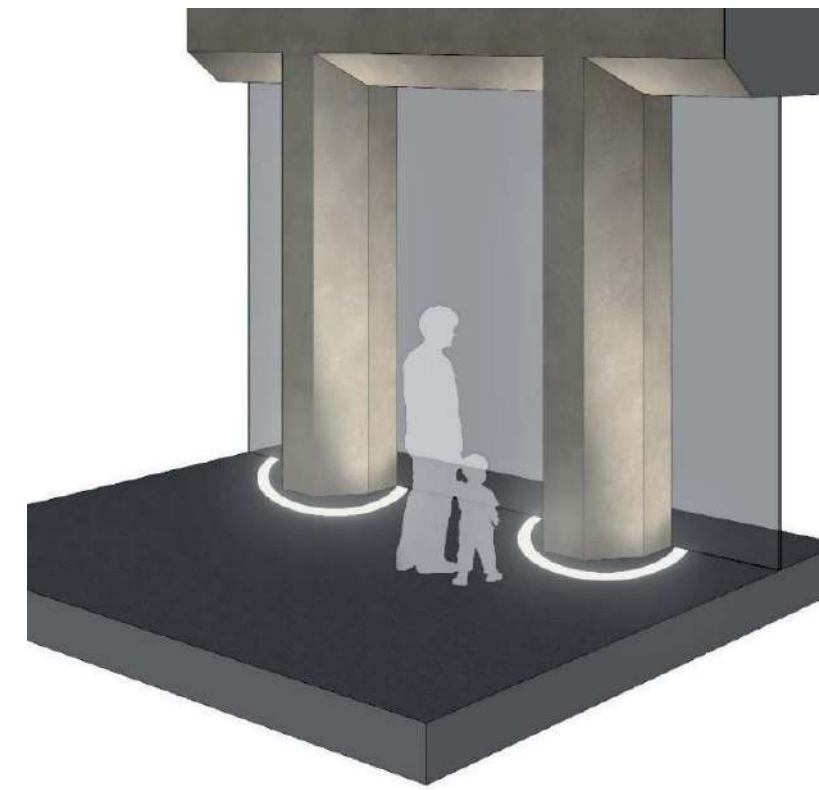


Fig.5.63 Column uplighting

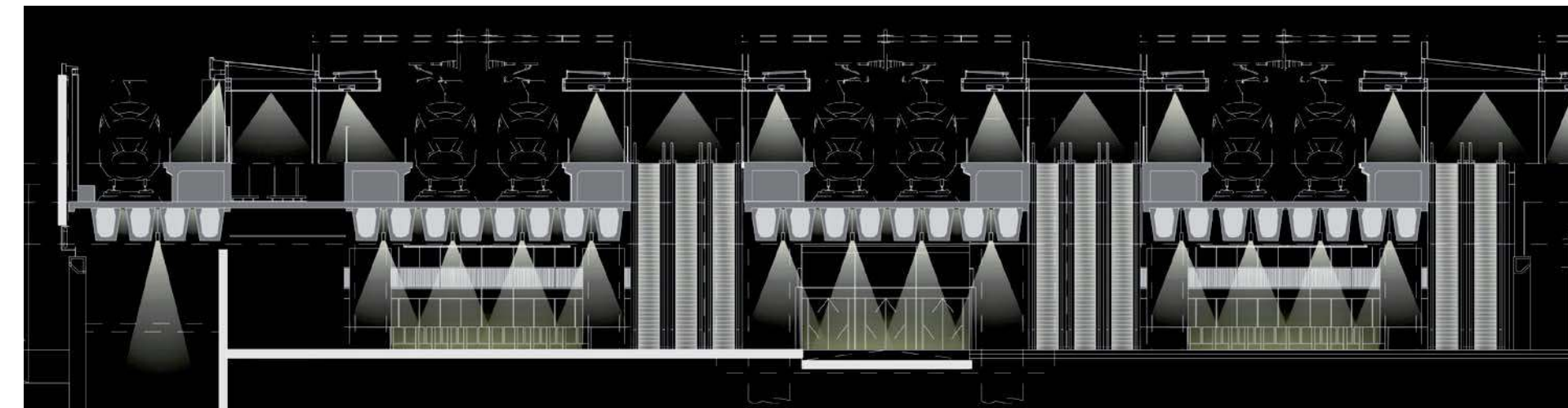


Fig.5.64 Lighting cross section diagram GL 13-end of station



Fig.5.65 Lighting reference images

Code Accepted

5.3.1 Landscape and Urban Realm Masterplan

The landscape and urban realm proposals focus on high quality hard landscape and planting materials and on two new city squares at the station entrances; the civic, city-facing Station Square at the main entrance to the west, and the combined New Canal Street Square and Curzon Square at the centre of the site. Curzon Promenade connects these two spaces along the northern facade of the building. The character of these spaces will create a unique sense of arrival and departure, facilitating movement whilst promoting dwell time and attractive places to meet and greet.

To the east of the site the arrival space of New Canal Street Square wraps around the Eastern Concourse providing a 360 degree high quality public realm environment. Beyond this, the landscape and urban realm has a lower intensity of landscape treatments with the focus being on the functional transport, access, parking and servicing requirements of the station as well as providing flexible open space in the meanwhile zones allocated to potential future development, and pedestrian and cycle connections to the north side of the eastern viaduct and canal towpath. The Environmental Mitigation Zone is a special area located within the quieter part of the site to the south-east, where creation of a diverse new broadleaf woodland habitat is proposed.

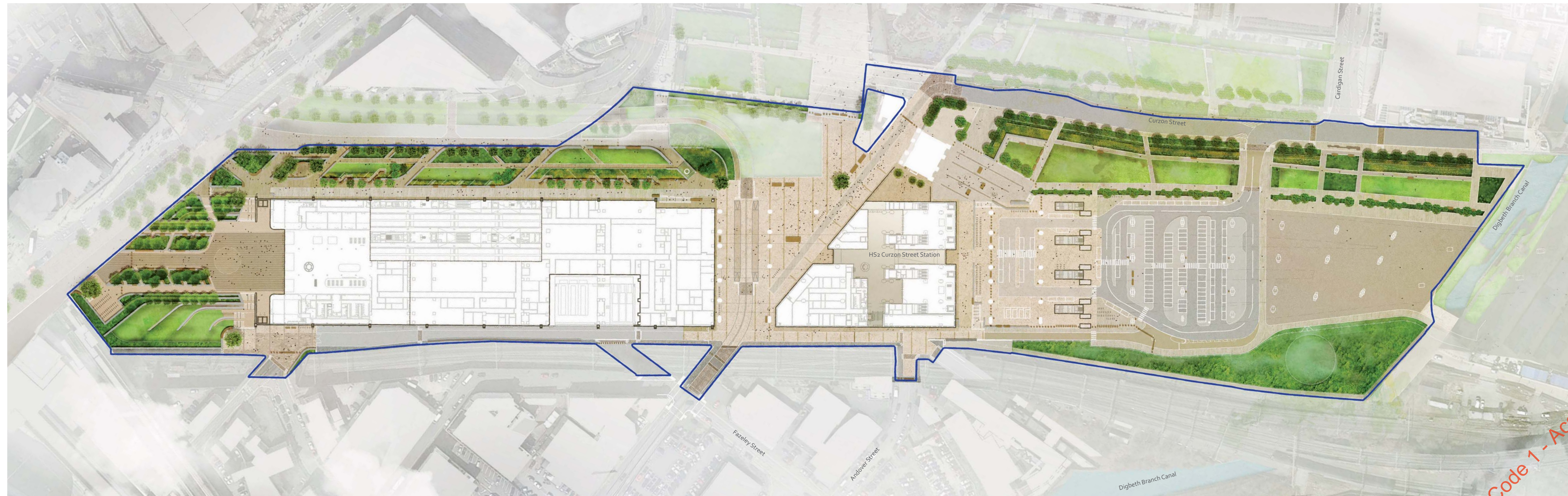


Fig.5.66 Landscape and urban realm masterplan

Code 1 - Accepted

5.3.2 Station Square and Paternoster Row

Station Square is a new city facing civic square that represents the beginning of a journey for many travellers, and forms the landscape setting to the principal western facade and main entrance of the station. It creates a sense of arrival, and is a first impression space for Birmingham with views framed by large scale tree planting towards the city. High quality stone paving materials, lighting and furniture will reinforce a sense of civic identity that defines Station Square as the primary city space in the hierarchy of new spaces around the new station building.

A series of multi-functional soft landscaped gardens and terraces create a filtered threshold screen to the vehicular activity of Moor Street Queensway, partially enclosing a hard landscape plaza of approximately 45x60m in front of the station entrance accommodating fire access and providing space for the future Birmingham Big Art Project 'Station Clock' artwork, proposed by the artist Susan Philipsz and subject to external charity fund raising. The planted areas form rain gardens, draining surface water from the surrounding paving as an integrated component of the site-wide surface water management strategy. 'Forest scale' tree planting of semi-mature trees will promote dwell time by creating shade and shelter with seating providing opportunities to meet and greet or spend time in a sensory, exciting and welcoming environment.

To the north of Station Square, a series of planted terraces and steps descend towards Curzon Promenade to create a landscaped plinth for the station square to overlook. The terraces form a natural barrier to vehicular access helping to create a safe, pedestrian environment which will be further achieved through sensitive lighting design and use of clear stem to trees allowing good visibility and sight lines across the square.

To the south of Station Square a series of earthwork sloping meadows and south-facing seating terraces descend to Paternoster Row which forms a threshold space between Digbeth and Station Square and is a site for potential future development. From the Paternoster Row level, a wide flight of steps aligns with the steps to Curzon Promenade on the opposite side of Station Square allowing for direct pedestrian connection whilst symmetrically framing the station entrance. An inclusive route to Station Square providing access for all is achieved via the external lifts to the north and south of the square that effectively form a secondary entrance to the station.



Fig.5.67 Example of gateway experience and sense of arrival, Rotterdam Centraal Station



Fig.5.68 Example of stepped access route

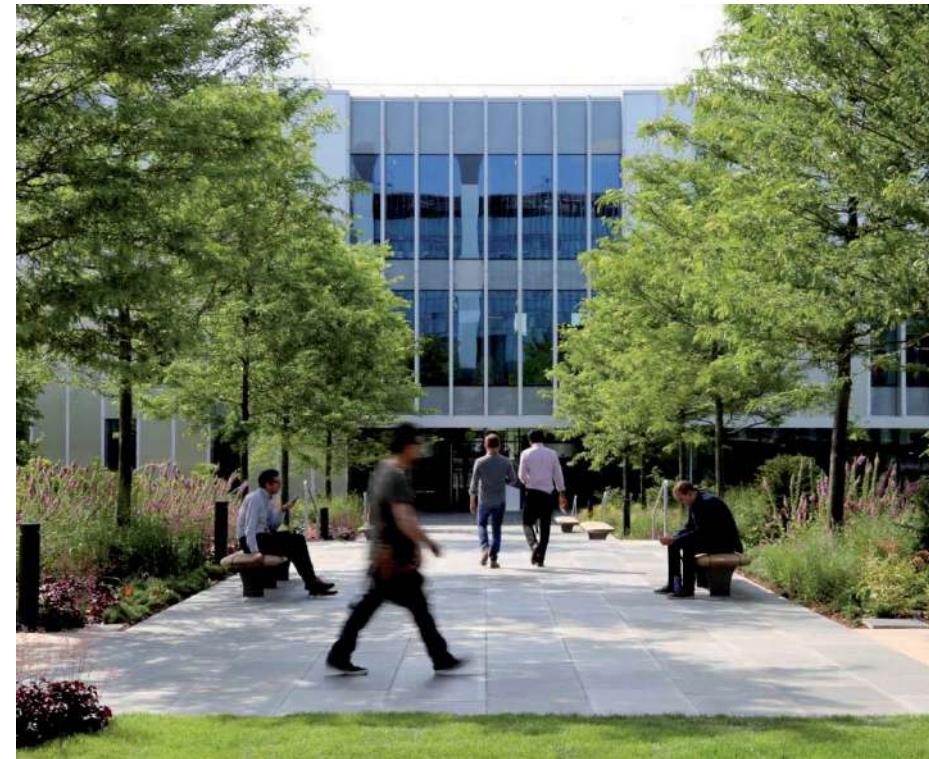
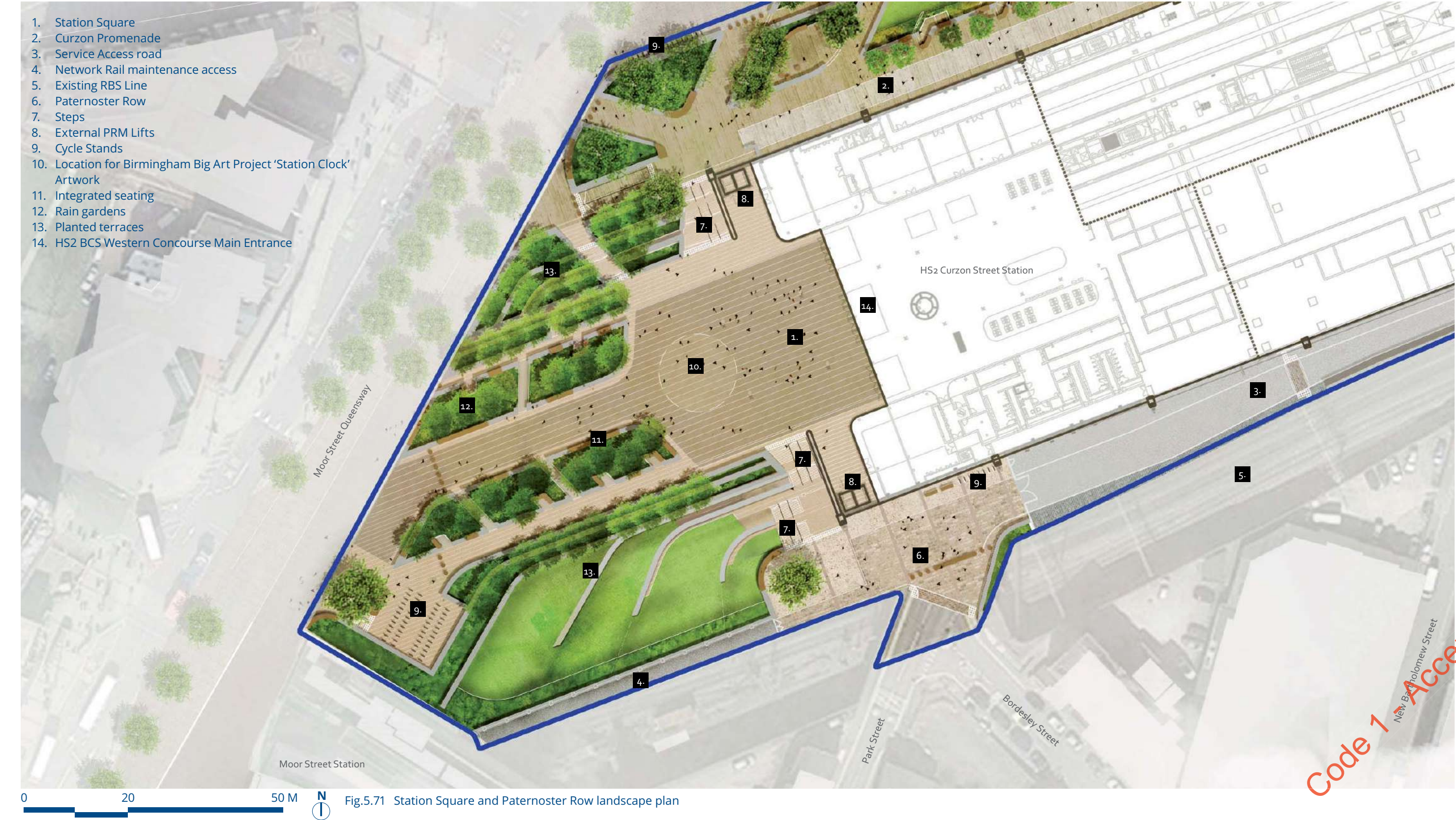


Fig.5.69 Example of sequence of garden spaces



Fig.5.70 Example of character of intimate dwell spaces created within the square



5.3.3 Station Square and Paternoster Row - Functionality

The layout of the Station Square is designed around the principal flows of pedestrian movement and desire lines from the station towards the city and forms an articulation point for pedestrian routes around the station from Digbeth to the city centre, to Moor Street and New Street Stations and the Birmingham Eastside hub via Curzon Promenade.

These routes delineate and structure the hard and soft landscape areas. In front of the main entrance an area of approximately 45x60m provides flexible space and focal point for the Birmingham Big Art Project 'Station Clock' piece proposed by the artist Susan Philipsz which is to be a major new piece of public art for the city. This naturally forms a meeting and gathering space and whilst also functioning as a rendezvous evacuation point and facilitating emergency vehicle access.

Multi-modal transport and onward connections are promoted through clear pedestrian links from the 'key node/decision points' and station entrances to the nearby bus, tram and SPRINT stops. Cycle parking facilities are provided to the southwest corner of Station Square and at the Paternoster Row and Curzon Promenade levels.

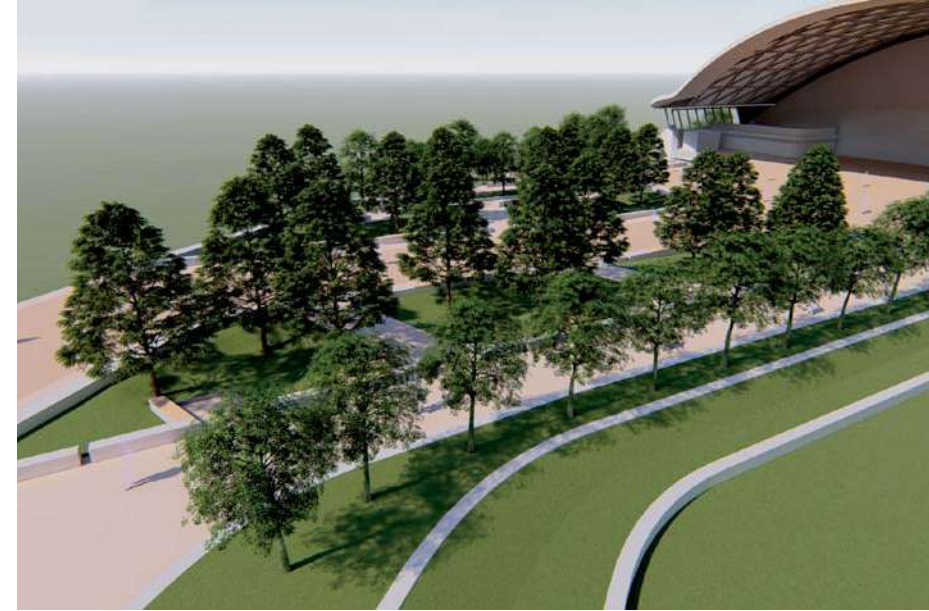
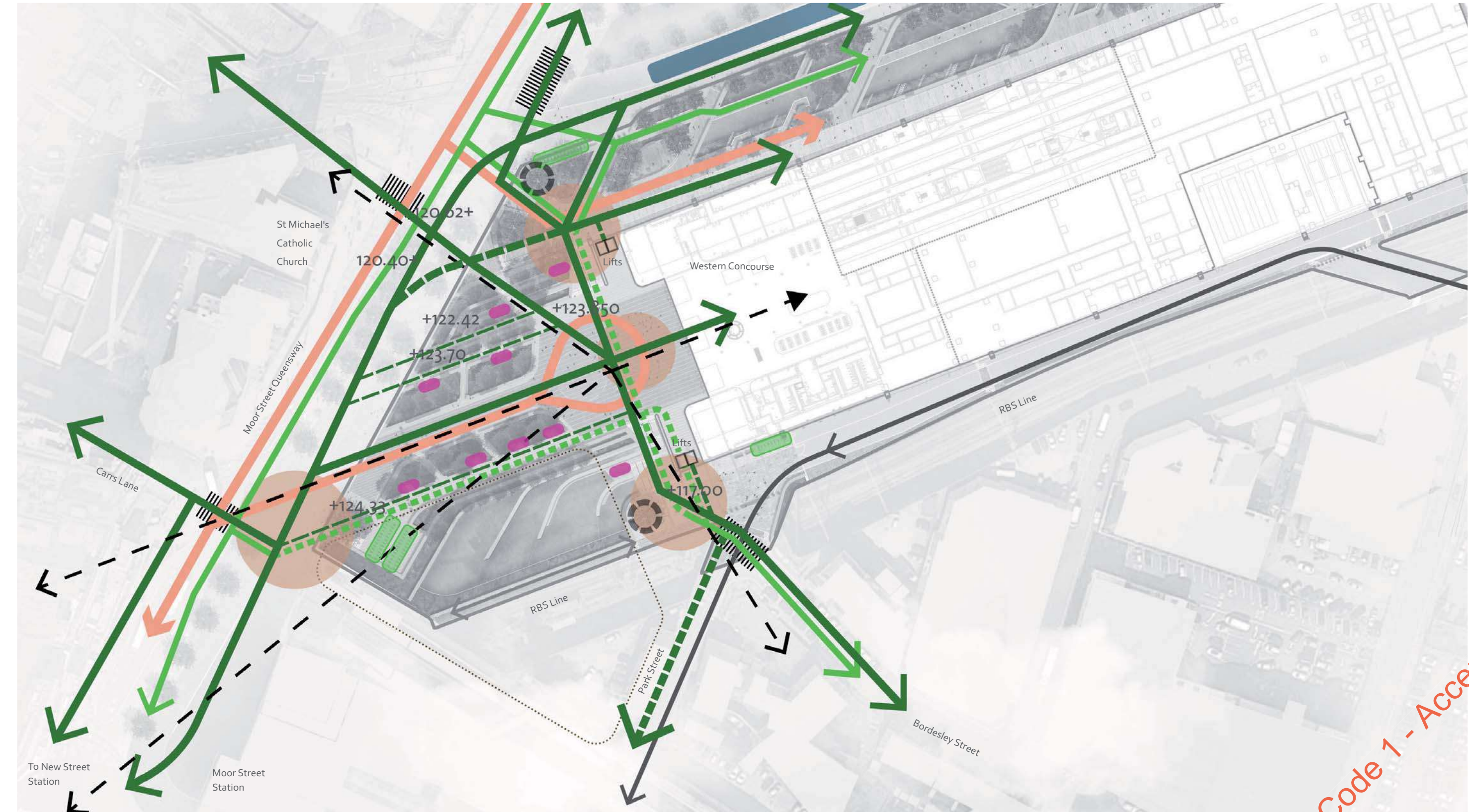
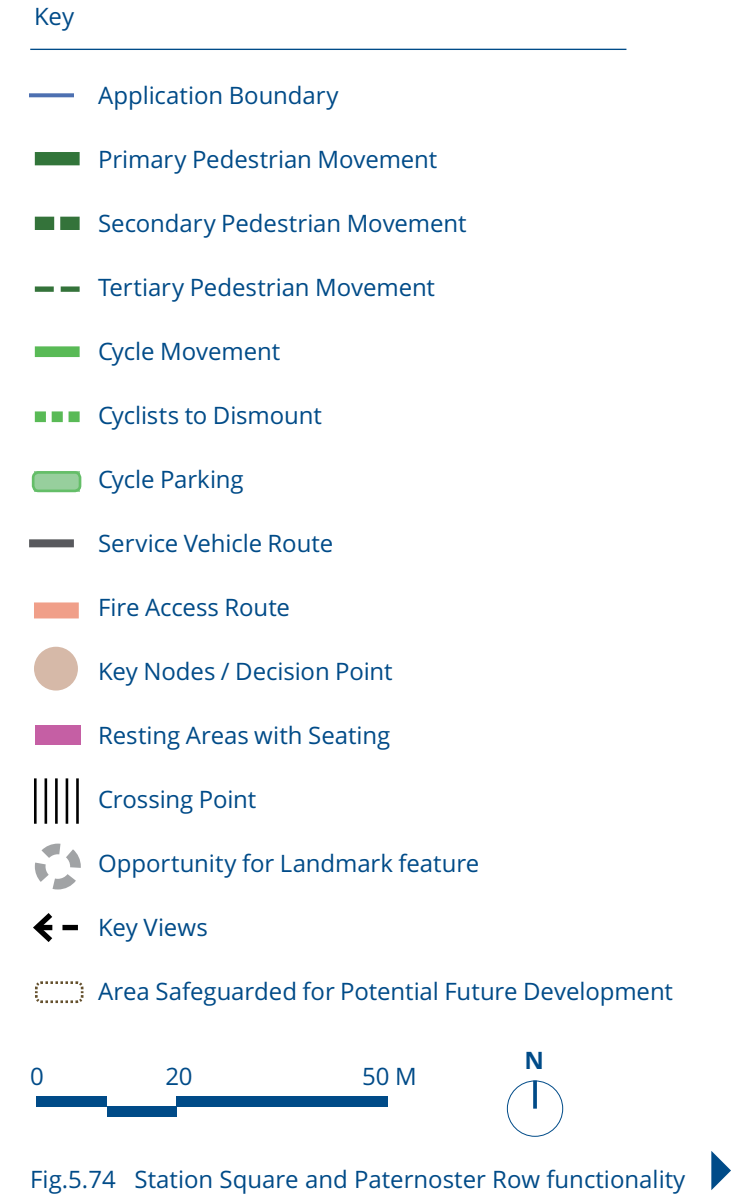


Fig.5.72 Illustrative model view of Station Square looking north east



Fig.5.73 Illustrative model view of Station Square looking west towards Moor Street Queensway



Code 1 - Accepted

5.3.4 Station Square

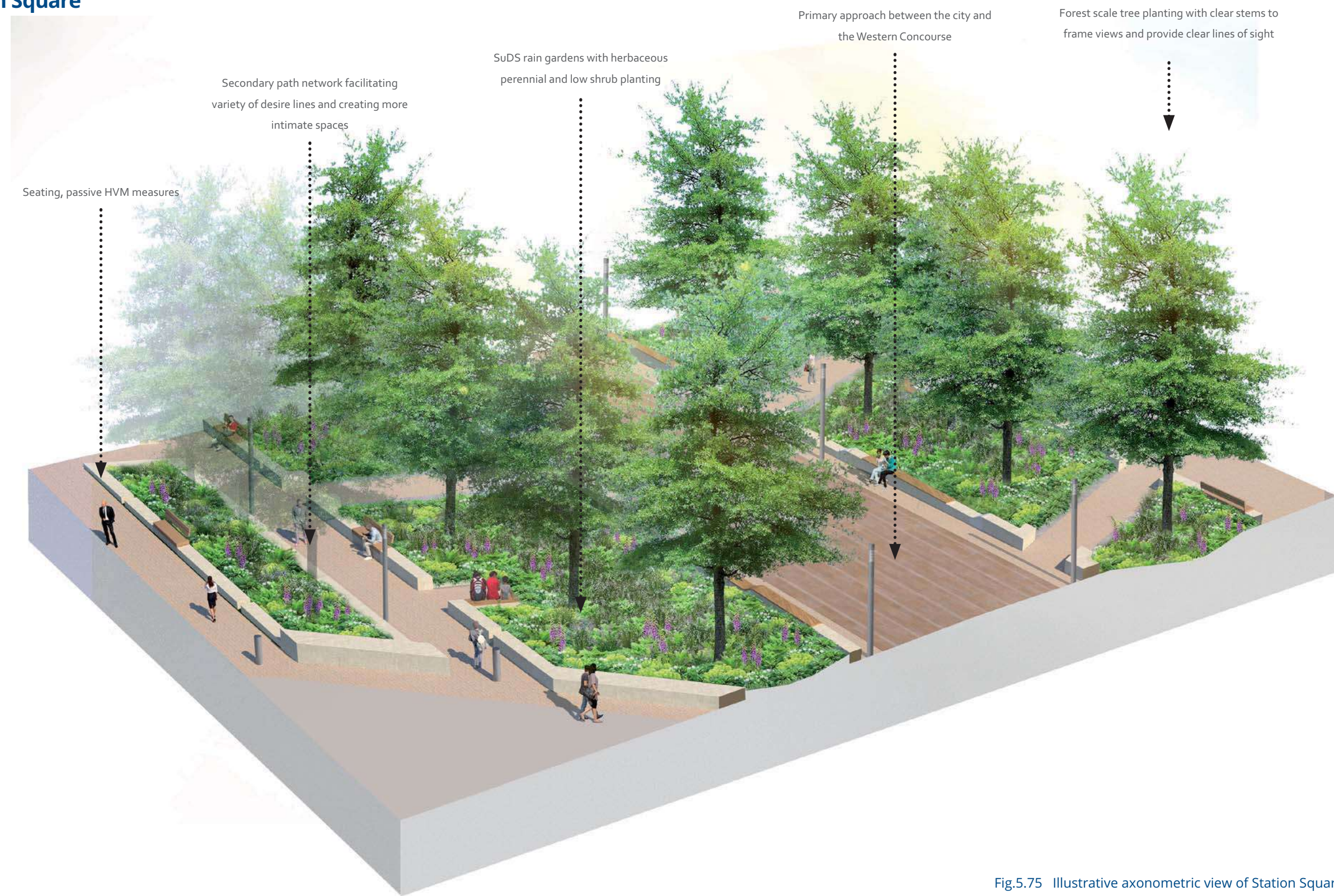


Fig.5.75 Illustrative axonometric view of Station Square

5.3



Fig.5.76 Station Square illustrative view

Code 4 - Accepted

5.3.5 Station Square Sections

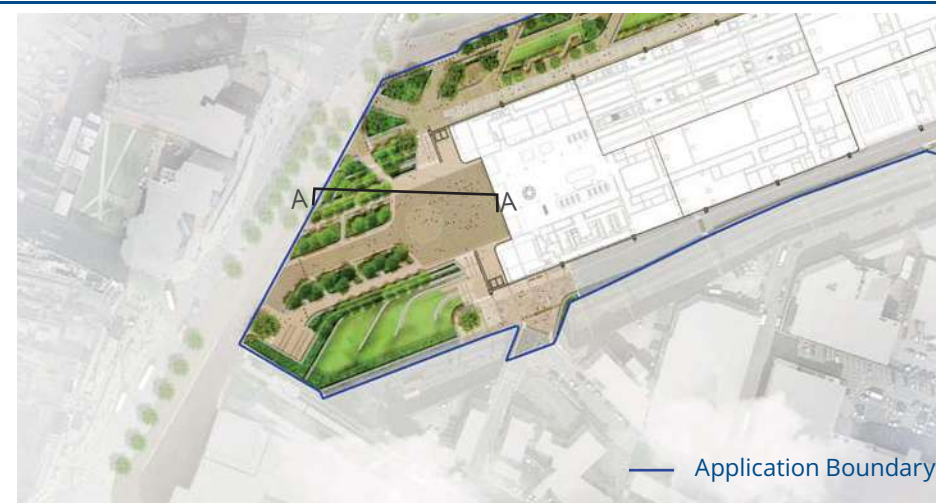


Fig.5.77 Section location plan

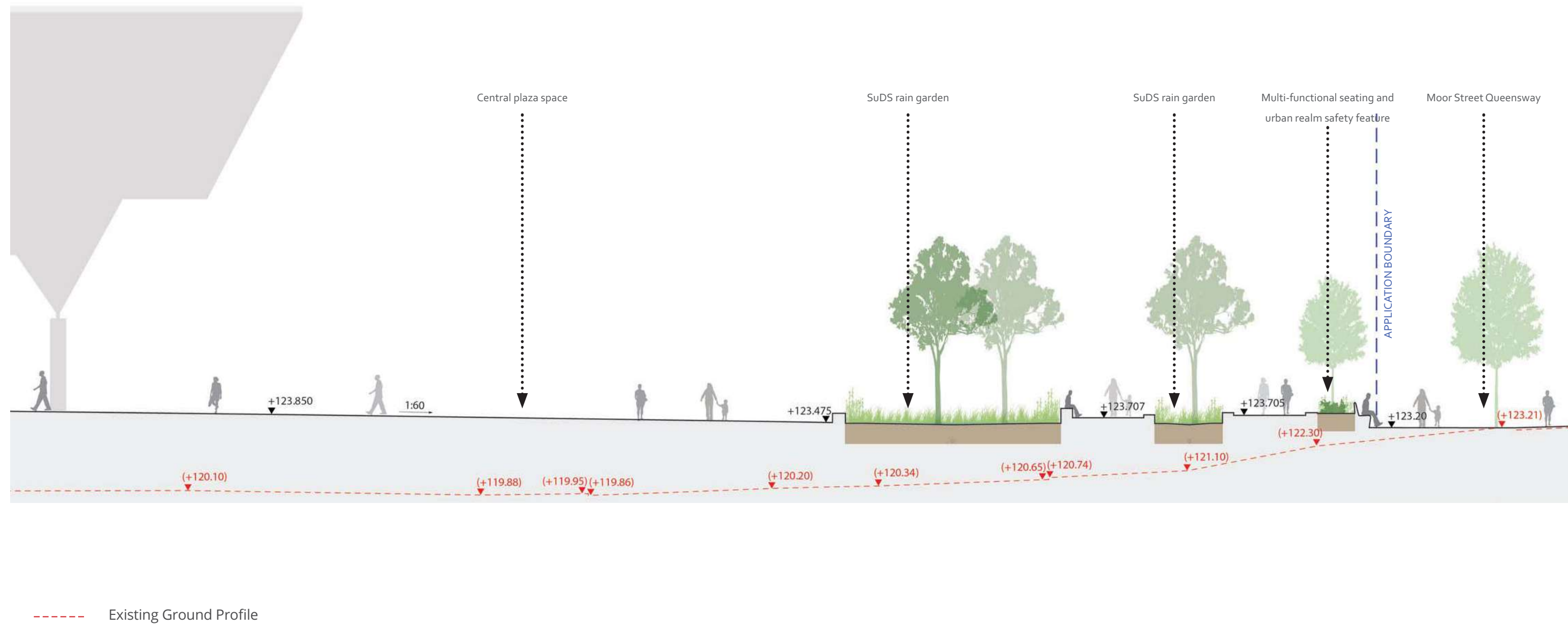


Fig.5.78 Station Square Section AA

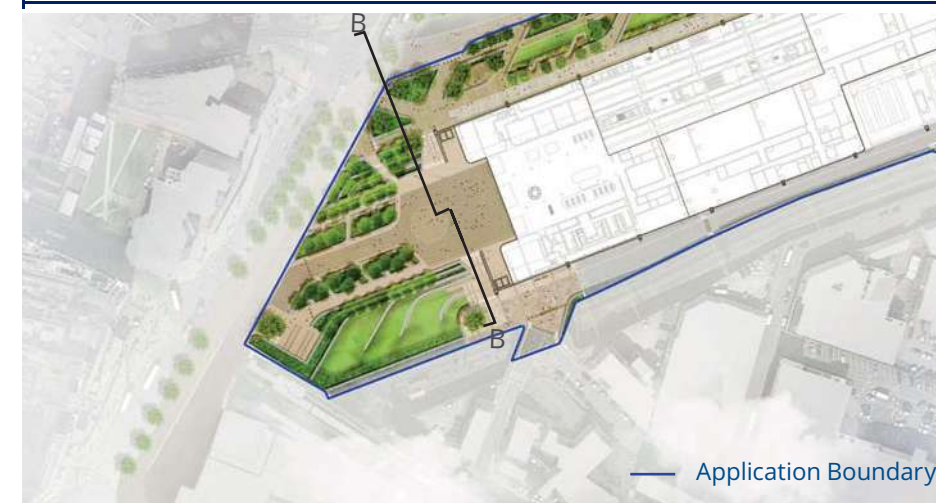


Fig.5.79 Section location plan

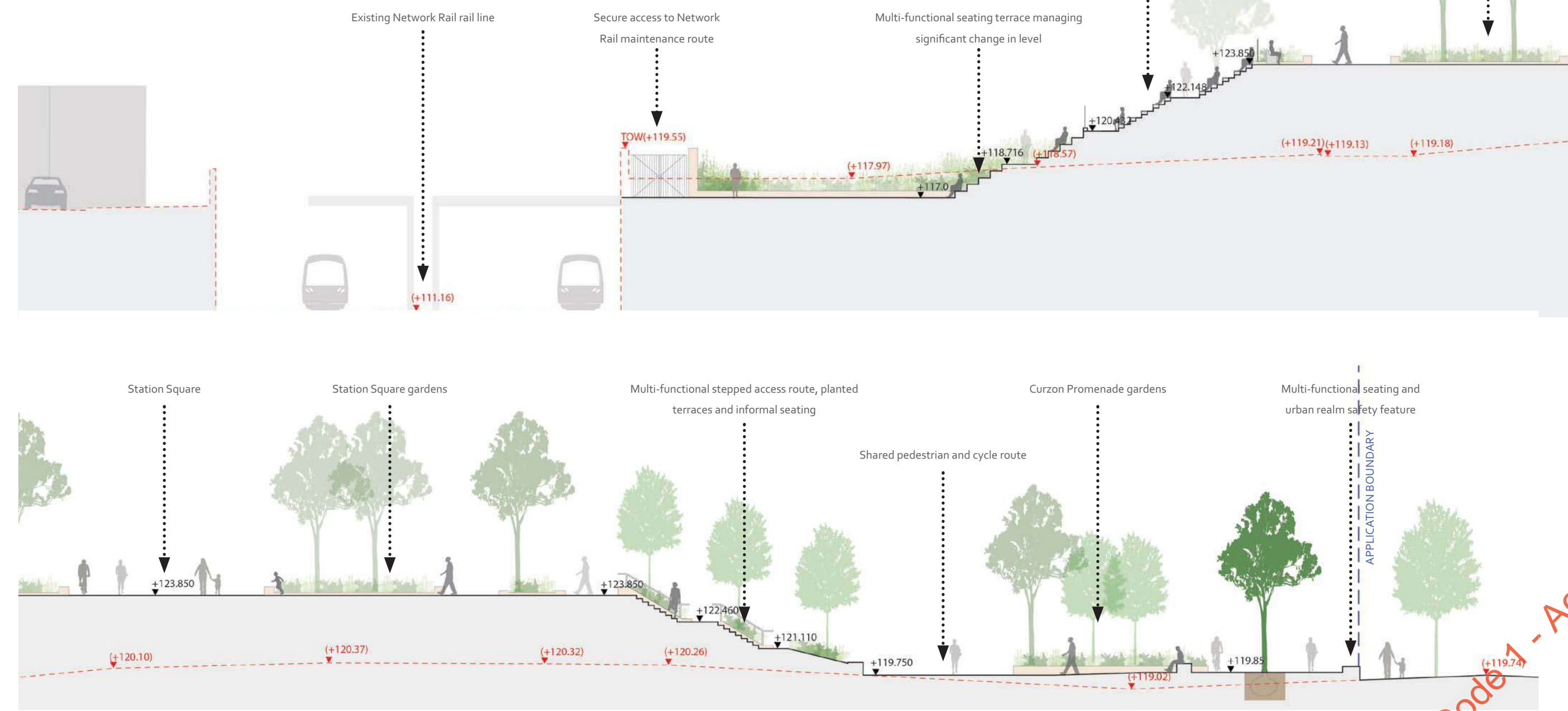


Fig.5.80 Station Square Section BB

5.3

Code 1 - Accepted

5.3.6 Curzon Promenade

Curzon Promenade is designed as a key multi-functional green infrastructure link creating a continuous green space from Eastside City Park as far as Moor Street Queensway. The proposed parkland character of gently terraced and sloping landscape lawns, semi-mature tree planting and rain gardens are connected by a wide hard landscaped pedestrian promenade that runs along the northern facade of the main station linking the two concourse entrances of Station Square in the west to New Canal Street Square at the centre of the site.

The open promenade allows the visitor to experience a series of views celebrating the neoclassical façades of the Old Curzon Street Station (OCSS) to the east and St Martin's Church to the west, with filtered views through trees also opening out across Eastside City Park towards Millennium Point.

Sunlight studies have shown that during the summer months, Curzon Promenade will benefit from afternoon sun and seating opportunities are provided by the low retaining edges of the rain gardens that control surface water run-off and frame the terraced gardens of lawns and herbaceous planting. These hard landscape features are intended to creatively express level change and promote dwell time in what is otherwise a transitory space, whilst also providing a framework onto which activities such as play can be introduced if desired in future. The hard and soft landscape also provide separation from the vehicular route of the bus way to the north of the promenade, and function as part of the urban realm safety strategy to create a generous pedestrianised area. A route for cyclists is created through the centre of the gardens away from the main pedestrian path of the promenade. The route is designed to slow cyclists at points intersecting with other pedestrian paths.

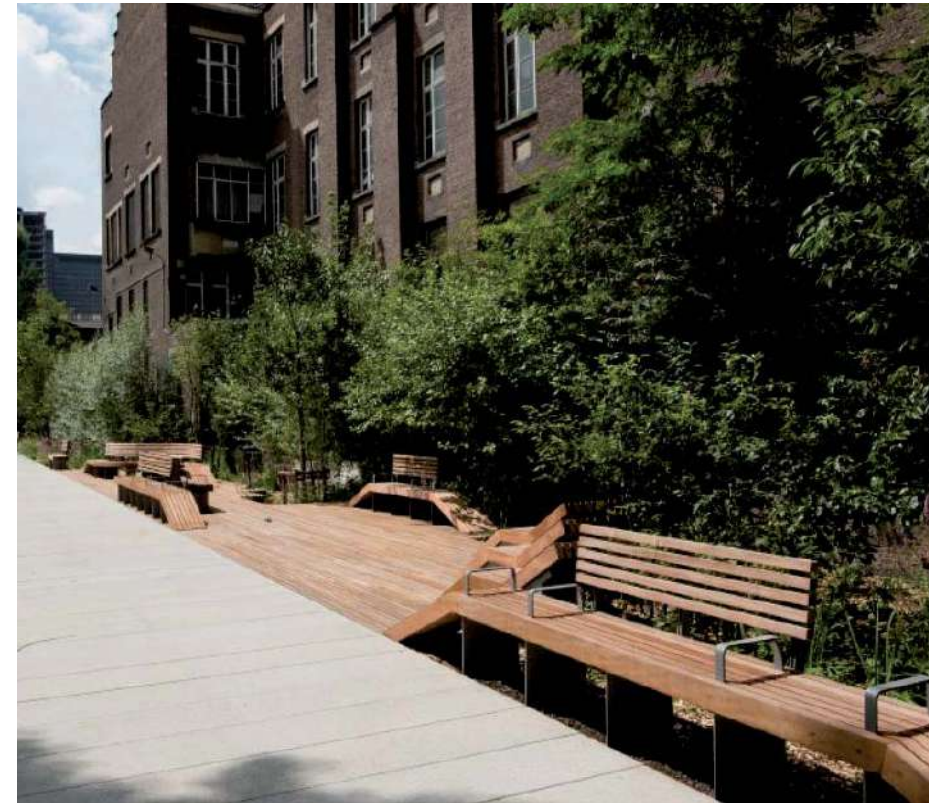


Fig.5.81 Example of resting area adjacent to main pedestrian route



Fig.5.82 Example of naturalistic planting character



Fig.5.83 Example of public realm with opportunities to sit and dwell

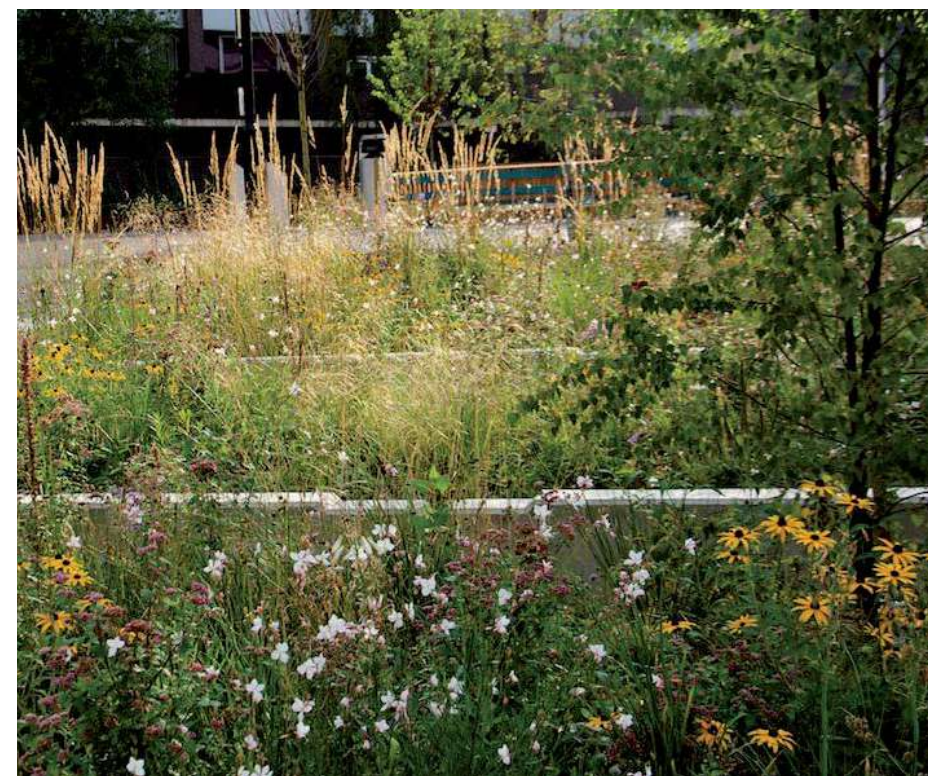


Fig.5.84 Example of SuDS rain gardens

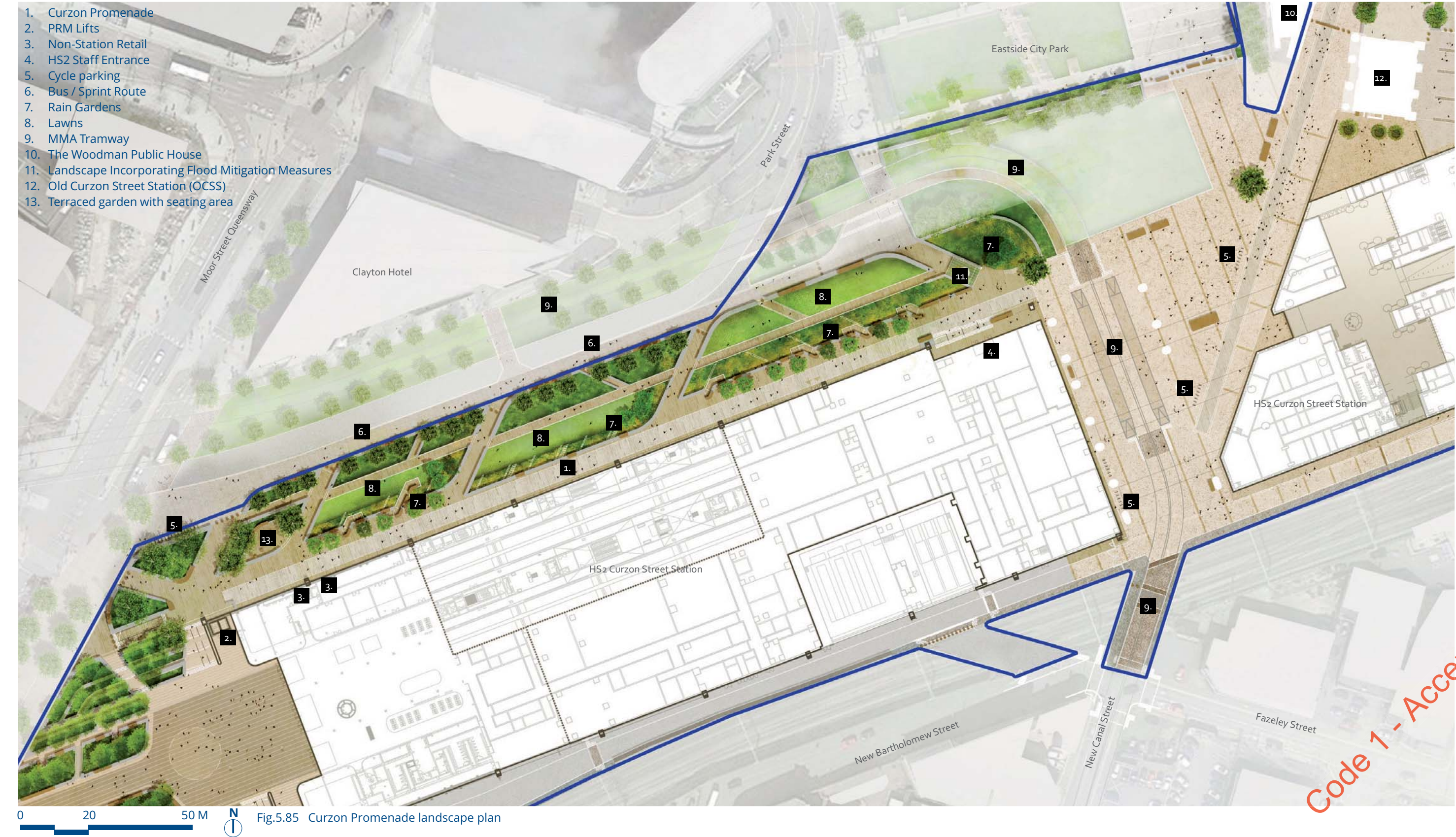


Fig.5.85 Curzon Promenade landscape plan

Code 1 - Accepted

5.3.7 Curzon Promenade - Functionality

The soft landscape of the promenade is crossed by paths orientated along key desire lines that link activated frontages such as the secondary entrance of the lifts, and retail at the north-west corner of the station to the proposed Bus and SPRINT stops, whilst also promoting onward pedestrian links to Eastside City Park, Millennium Point and the Birmingham City University campus.

The backbone of the promenade is a 6-11m wide walkway that traverses the site topography with an average gradient of 1:21 linking to a series of level landings at the heads of joining paths and at entrance thresholds formed by the retail units at the west end of the station, and service and staff entrances to the eastern end. In addition to interim landings, level resting areas and seating are located along side the sloped routes to ensure that the route can be comfortably navigated by people with a range of mobility needs. The primary route of hard standing area will also allow emergency vehicle and maintenance vehicle access.

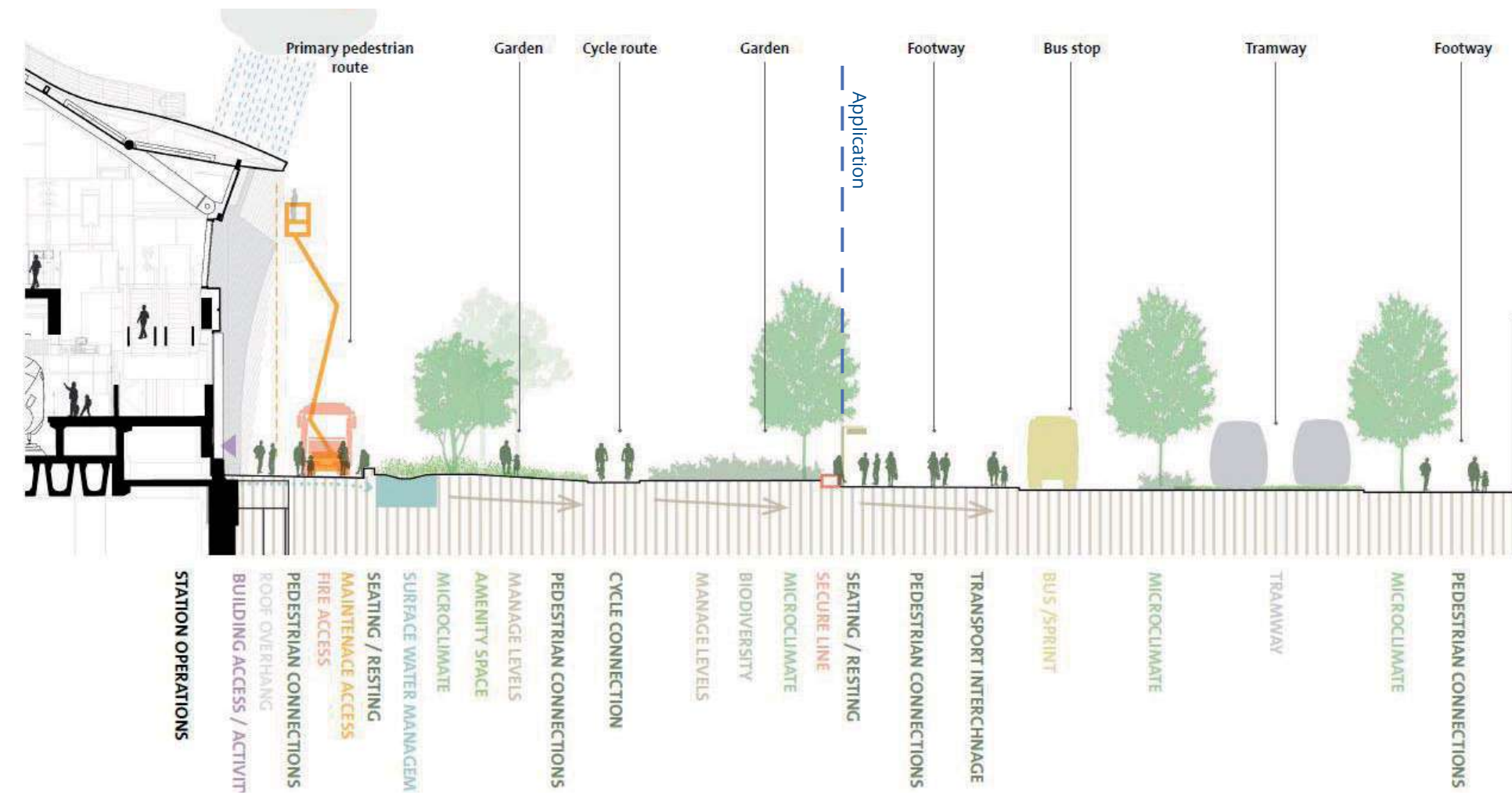


Fig.5.87 Illustrative section of Curzon Promenade multi-functional requirements

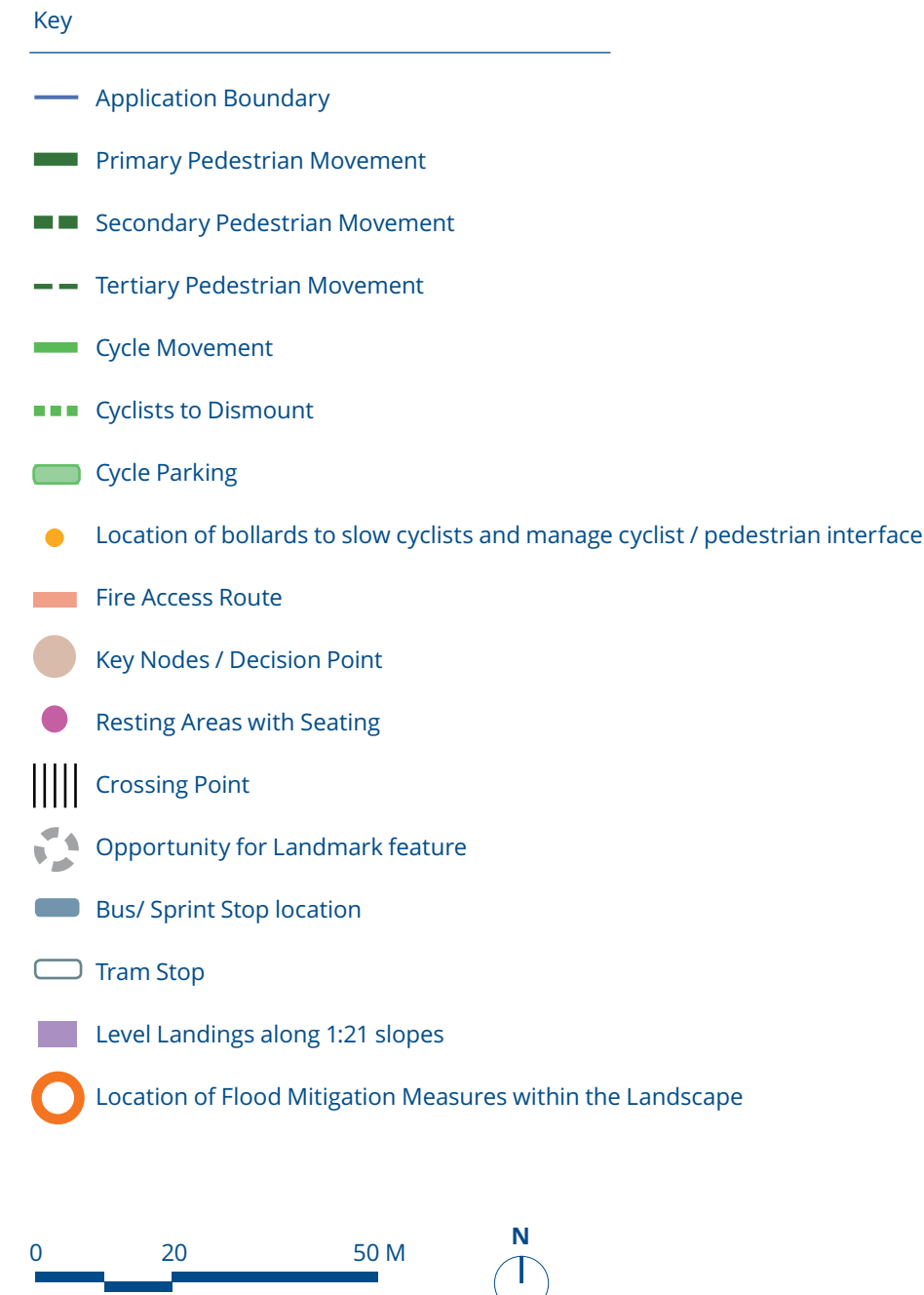
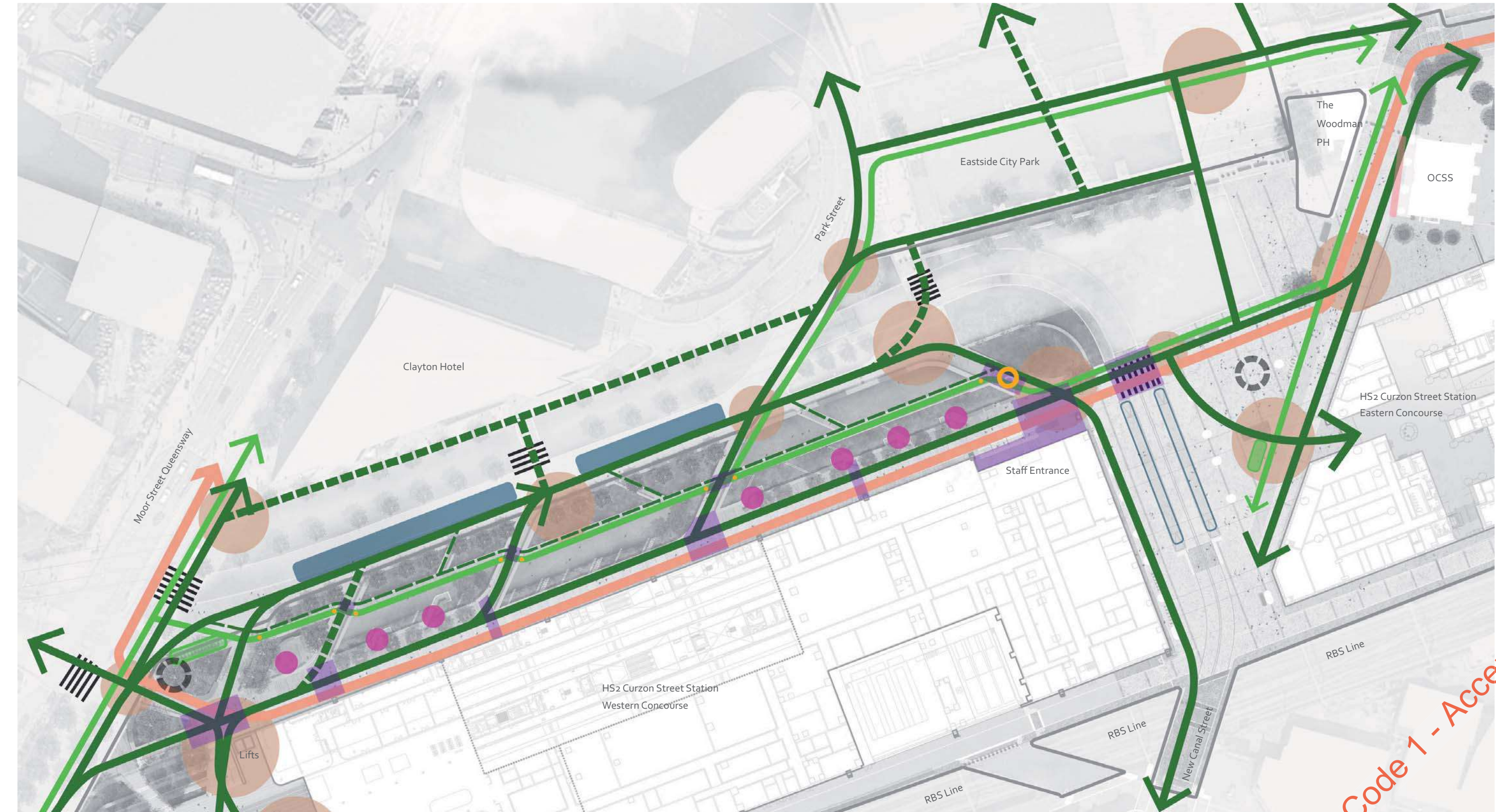


Fig.5.86 Curzon Promenade functionality

5.3



Code 1 - Accepted

5.3.8 Curzon Promenade - Functionality

The design of Curzon Promenade has been developed in response to specific feedback and engagement sessions with both the Independent Design Review Panel (IDRP), and Birmingham City Council, as well as through review of accessibility with design team Accessibility Specialists and the Built Environment Accessibility Panel (BEAP). This process has been reflected positively in the design, addressing the following aspects in particular:

Creation of better connectivity to the green spaces of the promenade through inclusion of immersive accessible seating areas situated amongst the rain garden planting. These areas also serve as resting spaces for disabled users of the 1:21 slopes as part of the access strategy.

Relationship to the northern station facade and animation of the promenade pedestrian experience are key drivers in the design. The promenade landscape responds to the location of active façades where use is expected to be high, with widening to the main route, and location of terrace seating and gardens in close proximity to these active areas. Clusters of tree planting define smaller, intimate scale spaces within the overall route.



Fig.5.88 Example of accessible resting area



Fig.5.89 View of Promenade accessible resting area and rain gardens

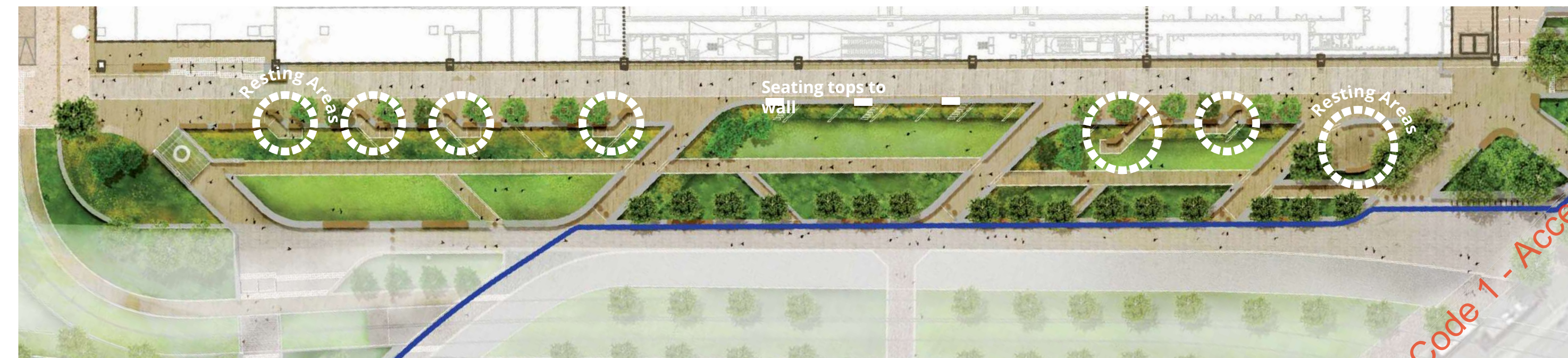
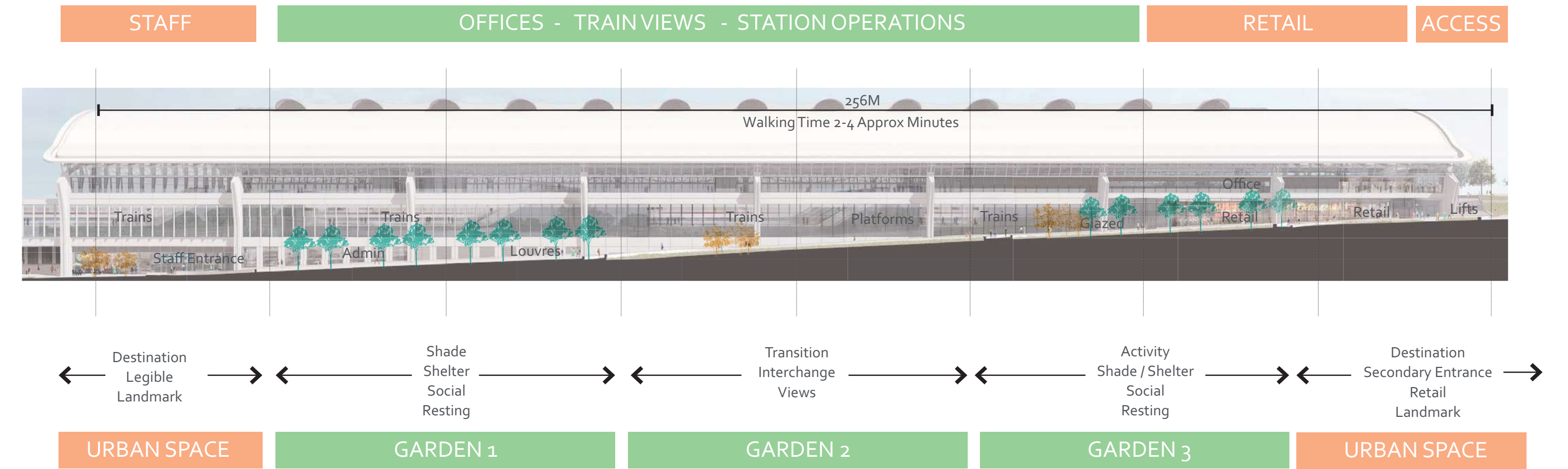


Fig.5.90 Illustration of the relationship between the station building northern facade and landscape of Curzon Promenade

5.3.9 Curzon Promenade



Fig.5.91 Illustrative axonometric view of Curzon Promenade

5.3



Fig.5.92 Illustrative visualisation of Curzon Promenade

Code 7 - Accepted



Fig.5.93 Visualisation (View 1) of the landscape and urban realm proposals looking east along Curzon Promenade

5.3.10 Curzon Promenade - Sections

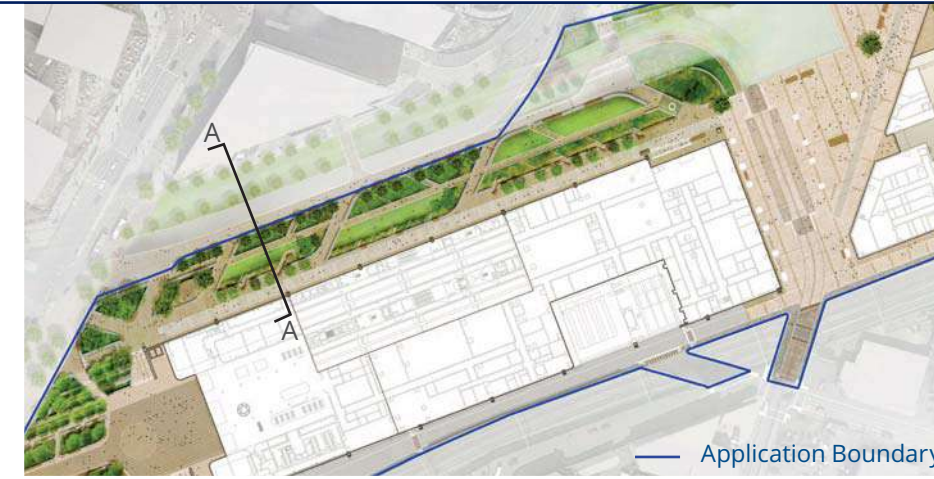


Fig.5.94 Section location plan **N**

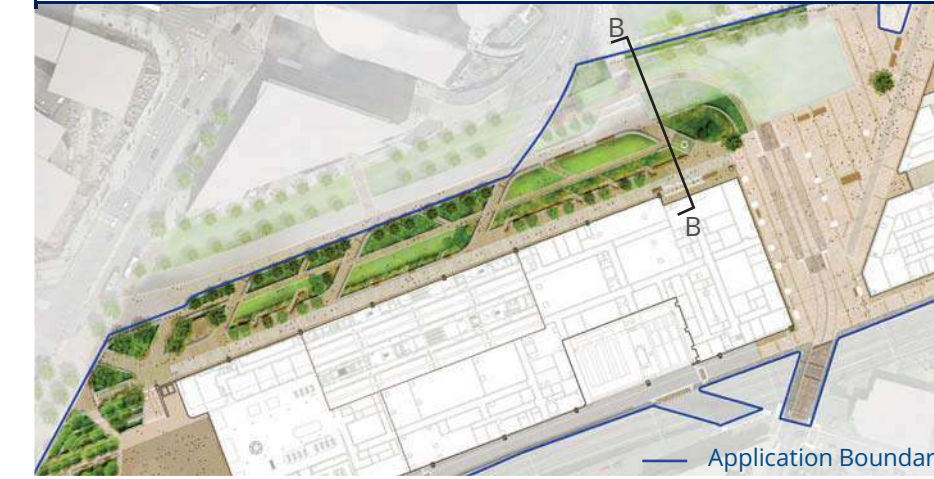


Fig.5.96 Section location plan **N**

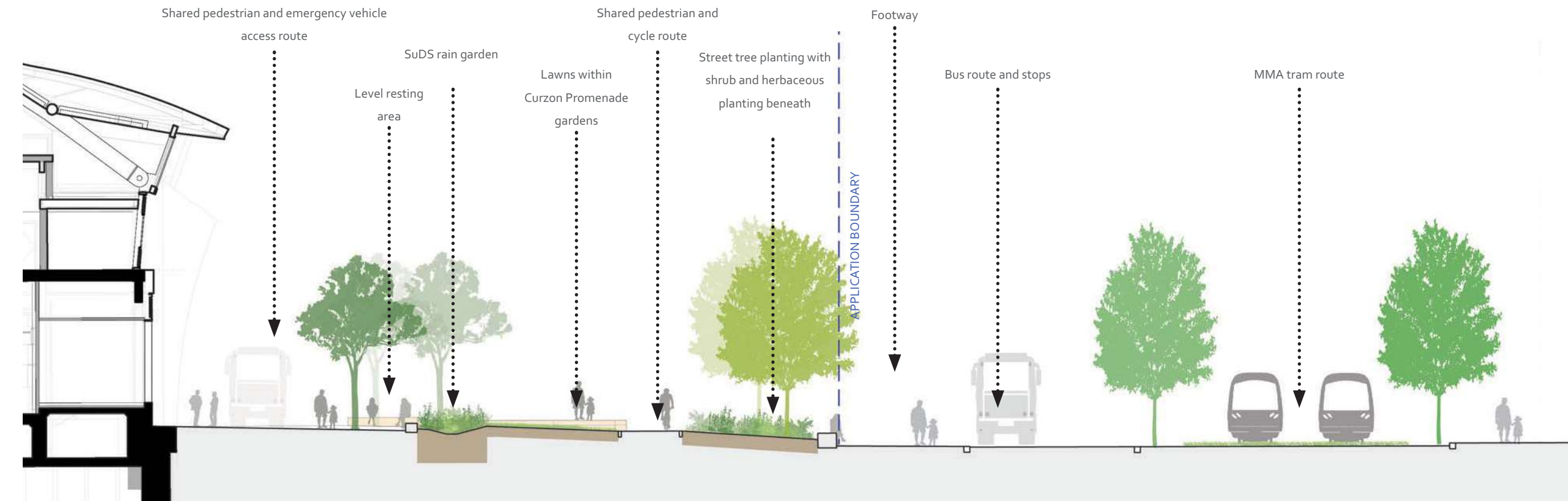


Fig.5.95 Curzon Promenade Section AA

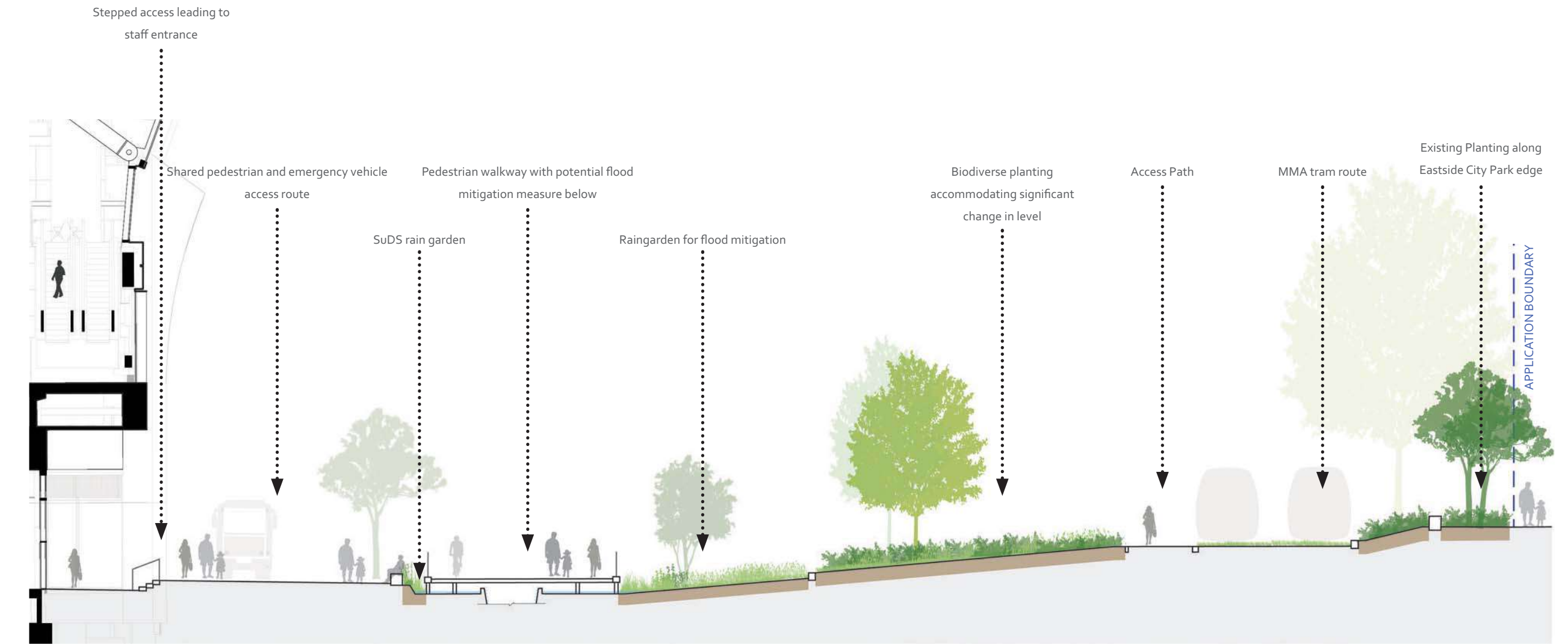


Fig.5.97 Curzon Promenade Section BB



Code 1 - Accepted

5.3.11 Curzon Square and New Canal Street Square

Curzon Square and New Canal Street square collectively form the second city scale square and frontage to the eastern concourse entrance to the station. Unified by their close links to Digbeth quarter, the Birmingham City University campus and the strong immediate heritage of The Woodman Public House, Old Curzon Street Station (OCSS) and RBS viaduct railway arches, the square is designed as an event space focused on celebrating this creative and historic quarter of the city.

Central to the site, Curzon Square is a pedestrianised streetscape that creates a new threshold to the façades of The Woodman Public House and Old Curzon Street Station (OCSS) with vehicular access restricted to essential maintenance and emergency vehicles. The historic alignment of New Canal Street will be subtly picked out by surface detailing beyond which is a large hard landscaped area forming a flexible event space, potential arts and culture location and transition to Eastside City Park. Semi mature tree planting is located so as to maintain views towards the station entrance and the historical assets and the historic balustrade wall associated with the OCSS will be retained. To the east of the OCSS building a garden square is orientated along the alignment of the former railway tracks allowing for pedestrian access from Curzon Street to the Eastern Concourse of the proposed station.

New Canal Street Square is a hard landscaped area that forms the arrival space to the Eastern Concourse of the station. Contained below the HS2 platforms and track, it integrates the proposed tram stop on the new MMA tram route and allows free flowing and sheltered pedestrian movement from Curzon Promenade and the tram stop to the Eastern Concourse. The arches of the RBS viaduct form the southern edge of the square, with potential commercialisation opportunities to activate the southern edge of the proposed square in the future.



Fig.5.98 Example of flexible lawn space



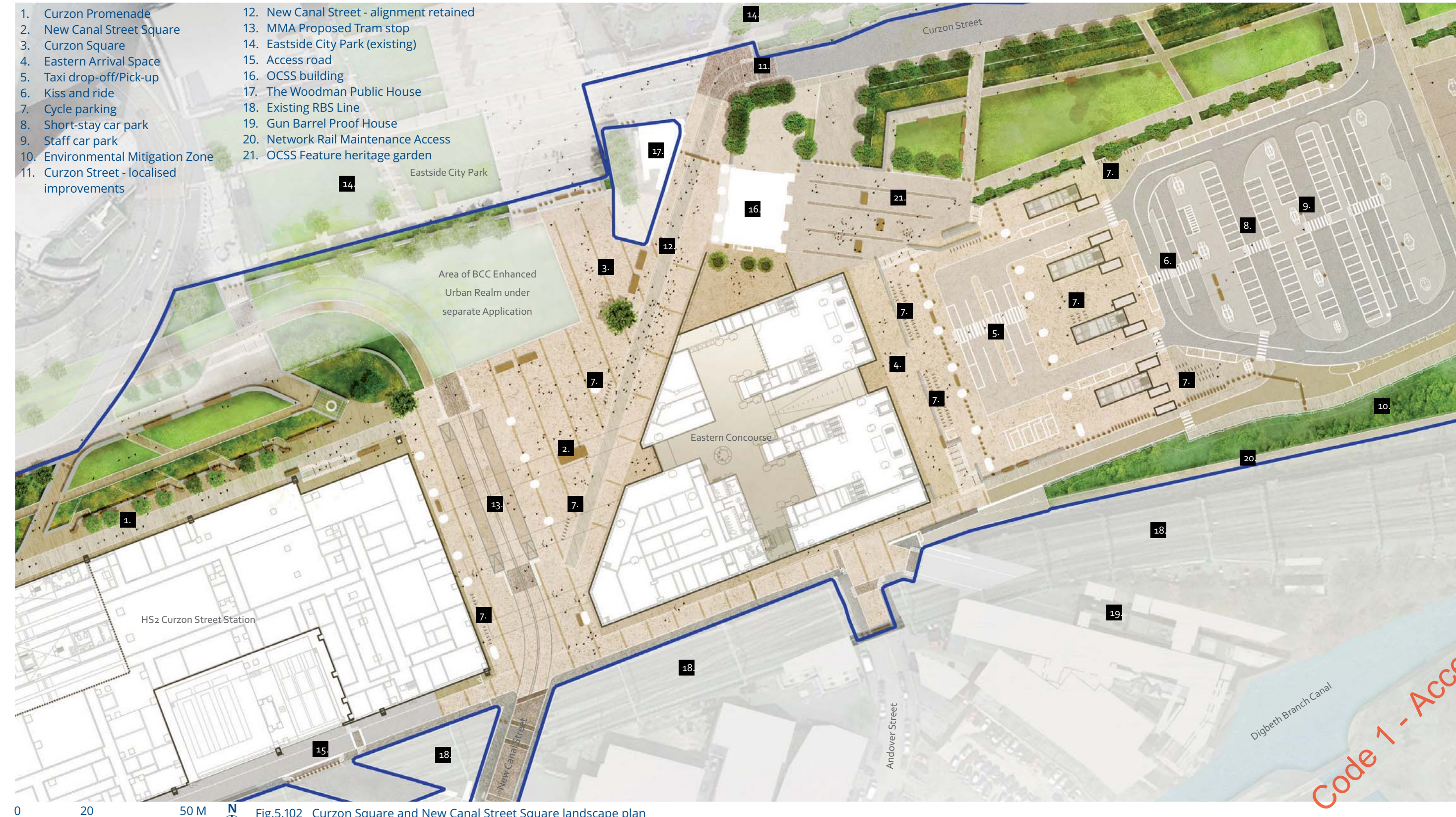
Fig.5.99 Example of temporary / permanent art and sculpture



Fig.5.100 Example of multi-functional streetscape with high quality paving



Fig.5.101 Example of high quality materials and forest scale trees creating a sense of arrival



Code 1 - Accepted

5.3.12 Curzon Square and New Canal Street Square

Functionality

Pedestrian and cycle connectivity are key drivers for the design layout of Curzon Square and New Canal Street Square. Curzon Square facilitates the transition of routes from Curzon Promenade to Eastside City Park and key routes to the Birmingham City University campus. New Canal Street Square allows pedestrian movement from Curzon Promenade and the tram stops to the eastern station entrance and concourse at a continuous +109 level between building thresholds before the gradients slope to circa +107 at the southern boundary.

The layout of the New Canal Street Square integrates the viaduct columns with light wells between the tracks allowing daylight to reach ground level. Pedestrians will be able to share New Canal Street with the proposed tram route, however engagement with Midland Metro Alliance (MMA) has identified their aspiration to partially close New Canal Street to cyclists to avoid conflict with the proposed tram line as it passes under the RBS line, and cyclists will therefore be required to dismount for this section. Cycle access to the south of the site is routed via Andover Street, and a shared pedestrian and cycle route connects Andover Street with Cardigan Street and the Birmingham City University Campus. Cycle parking is strategically provided at key points along this route and under the cover of the viaduct.

The Eastern Arrival Space creates a paved landscape threshold between the Eastern Concourse entrance and the main taxi drop-off, kiss and ride and parking area and the eastern facade of Old Curzon Street station.

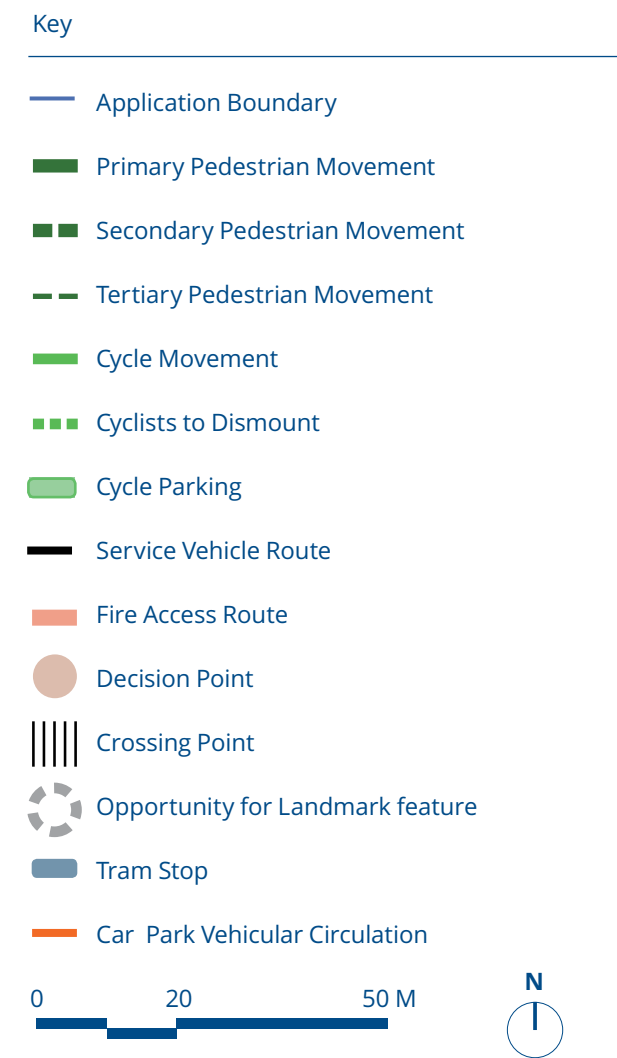
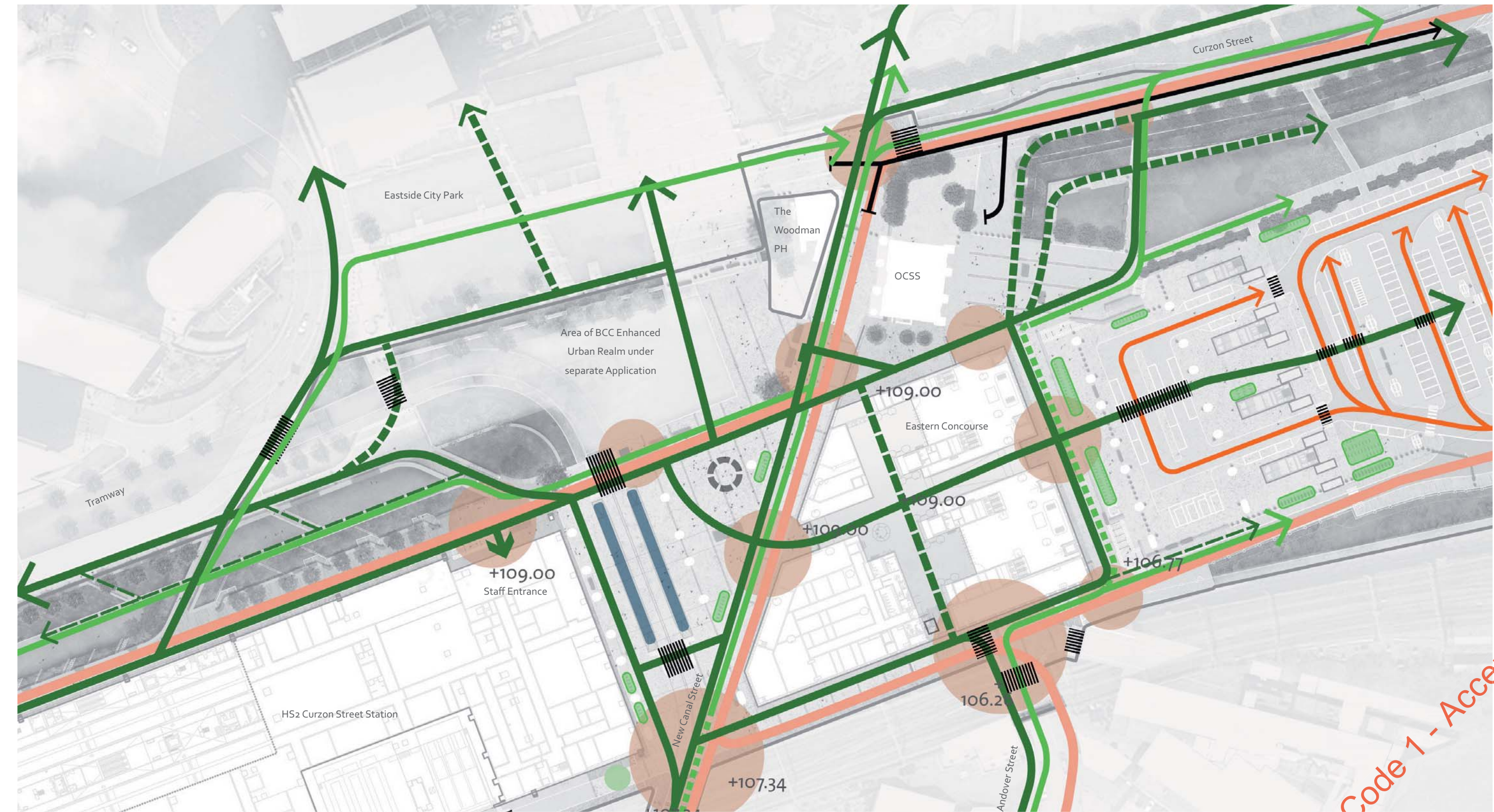


Fig.5.103 Curzon Square and New Canal Street Square functionality



5.3.13 Curzon Square and New Canal Street Square -

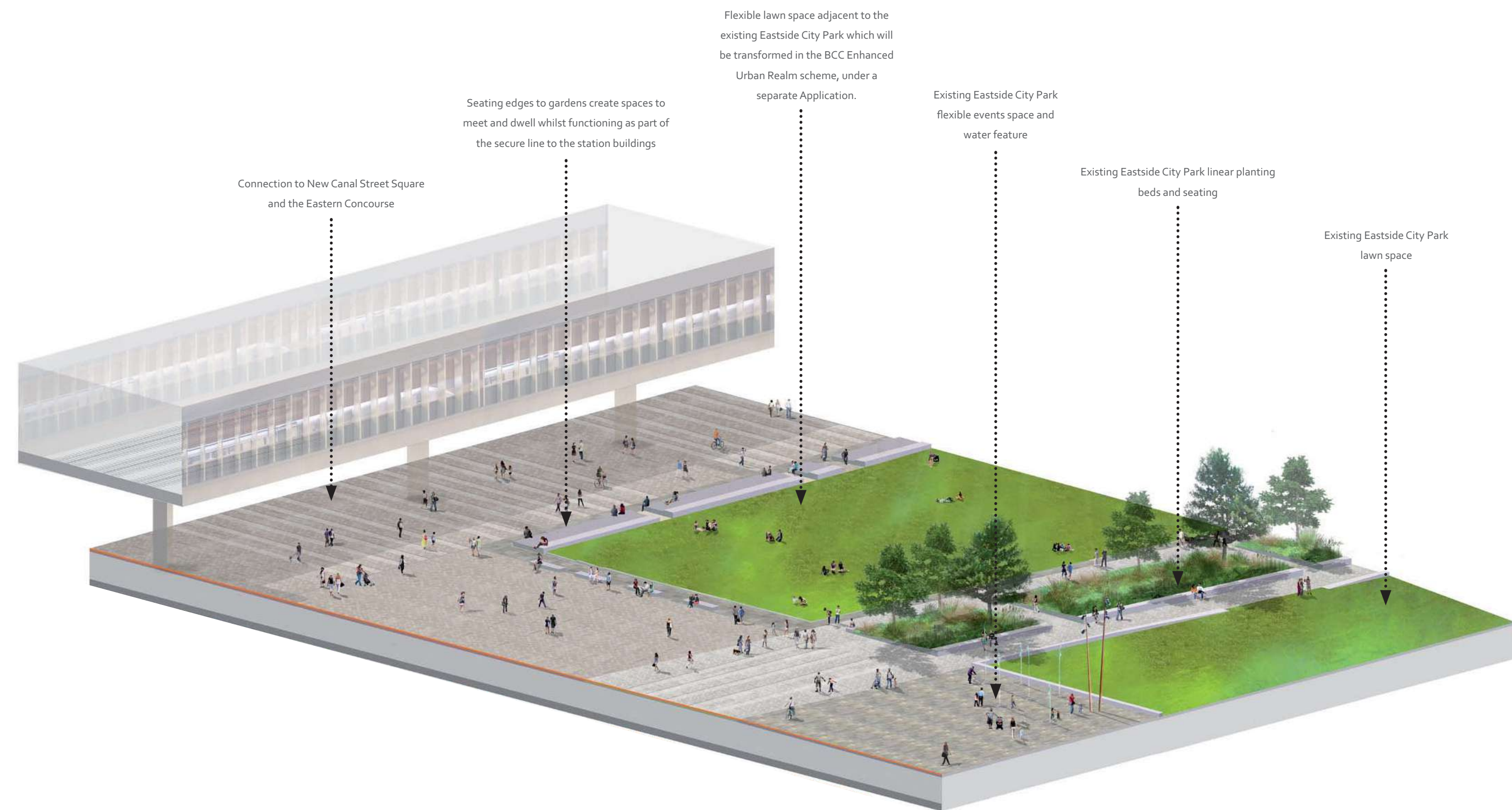


Fig.5.104 Concept axonometric view of Curzon Square

5.3



Fig.5.105 Visualisation (View 8) of Curzon Square



Fig.5.106 Concept view of Curzon Square



Fig.5.107 Concept view of Curzon Square

Code Not Accepted

5.3.14 Curzon Square and New Canal Street Square - Sections

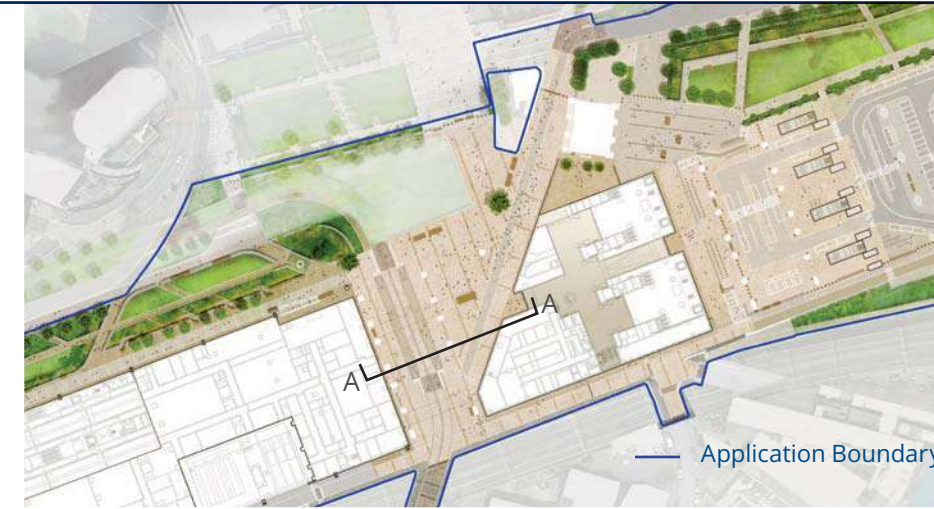


Fig.5.108 Section location plan



Fig.5.110 Section location plan

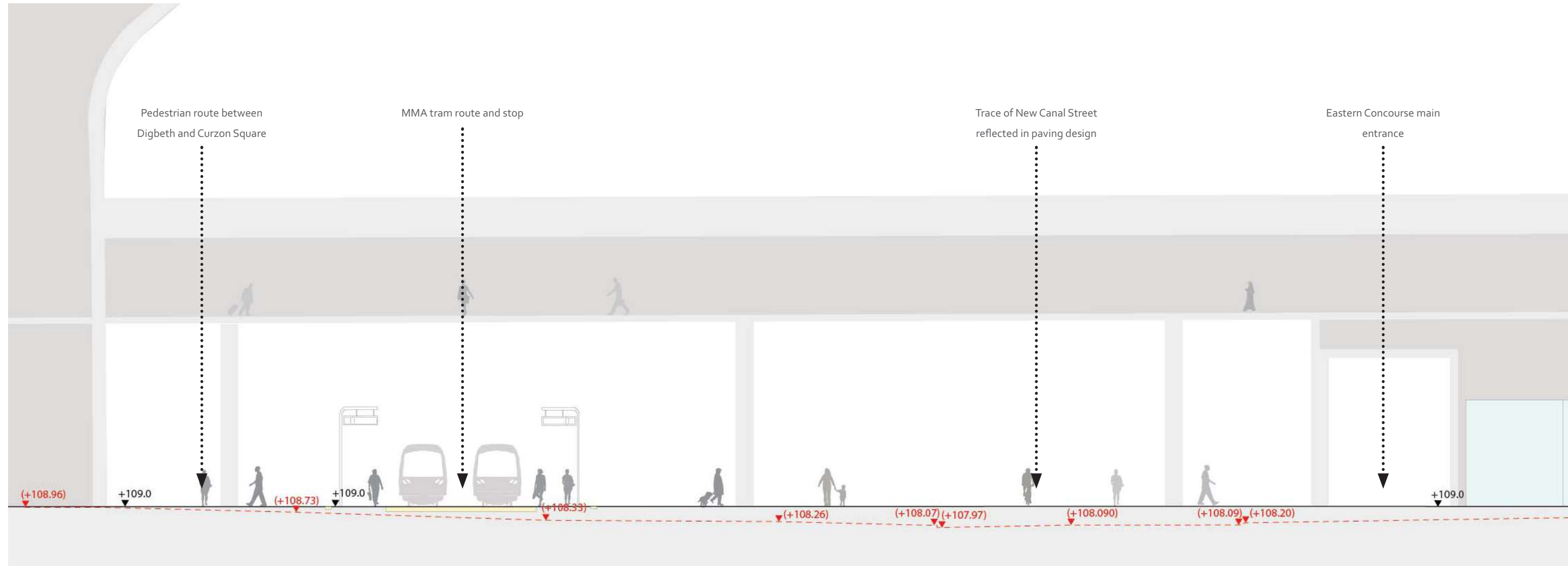


Fig.5.109 New Canal St Square Section AA

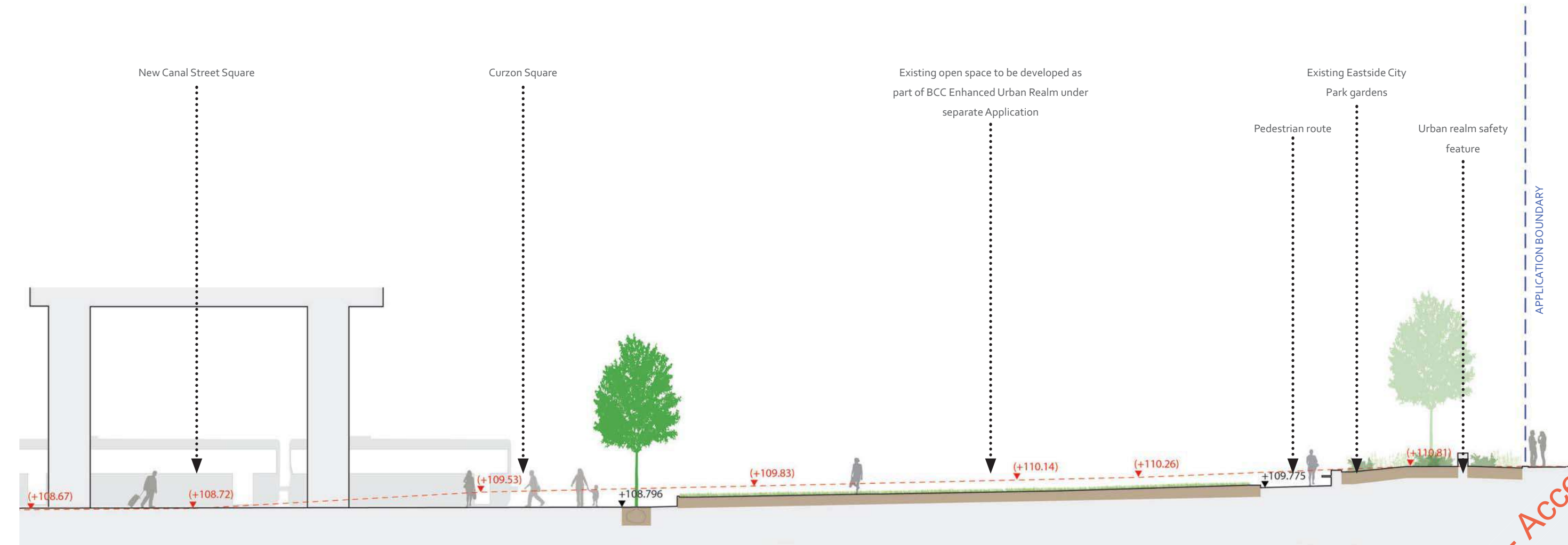


Fig.5.111 New Canal St Square Section AA

Code 1 - Accepted

5.3.15 Curzon Square and New Canal Street Square

The proposals for Curzon Street recognises the BCC Curzon Masterplan aspirations for this area of Eastside, as illustrated in Section 2.0, allowing for meanwhile uses and potential future development beyond the proposed scheme.

The proposed closure of New Canal Street to through traffic, also reduces vehicle demand on the western side of Curzon Street creating the opportunity to integrate the carriageway into the setting of Eastside City Park by reconciling people, place and traffic with clearly delineated surfaces at key crossings and junctions. The proposals follow the existing street alignment and allow for resurfacing of the carriageway and adjacent footpaths. Paving materials will be of a robust palette to adoptable standards.

Semi-mature tree planting along the south-side of the street frames the context of Eastside City Park and creates a more distinctive arrival experience for HS2 drop-off. This is reinforced by a shallow swale planted with a continuous line of damp grassland and herbaceous perennials which will help to drain the adjacent surfaces and open lawn areas. The swales will also function as important habitat connectors both within the site and to the wider landscape.



Fig.5.112 Example of street enhancements prioritising pedestrian and cyclist movement



Fig.5.113 Example of a series of linear rain gardens



Fig.5.114 Example of flexible lawn with planted boundaries enhancing habitat connectivity



Fig.5.115 Example of managed vehicular access

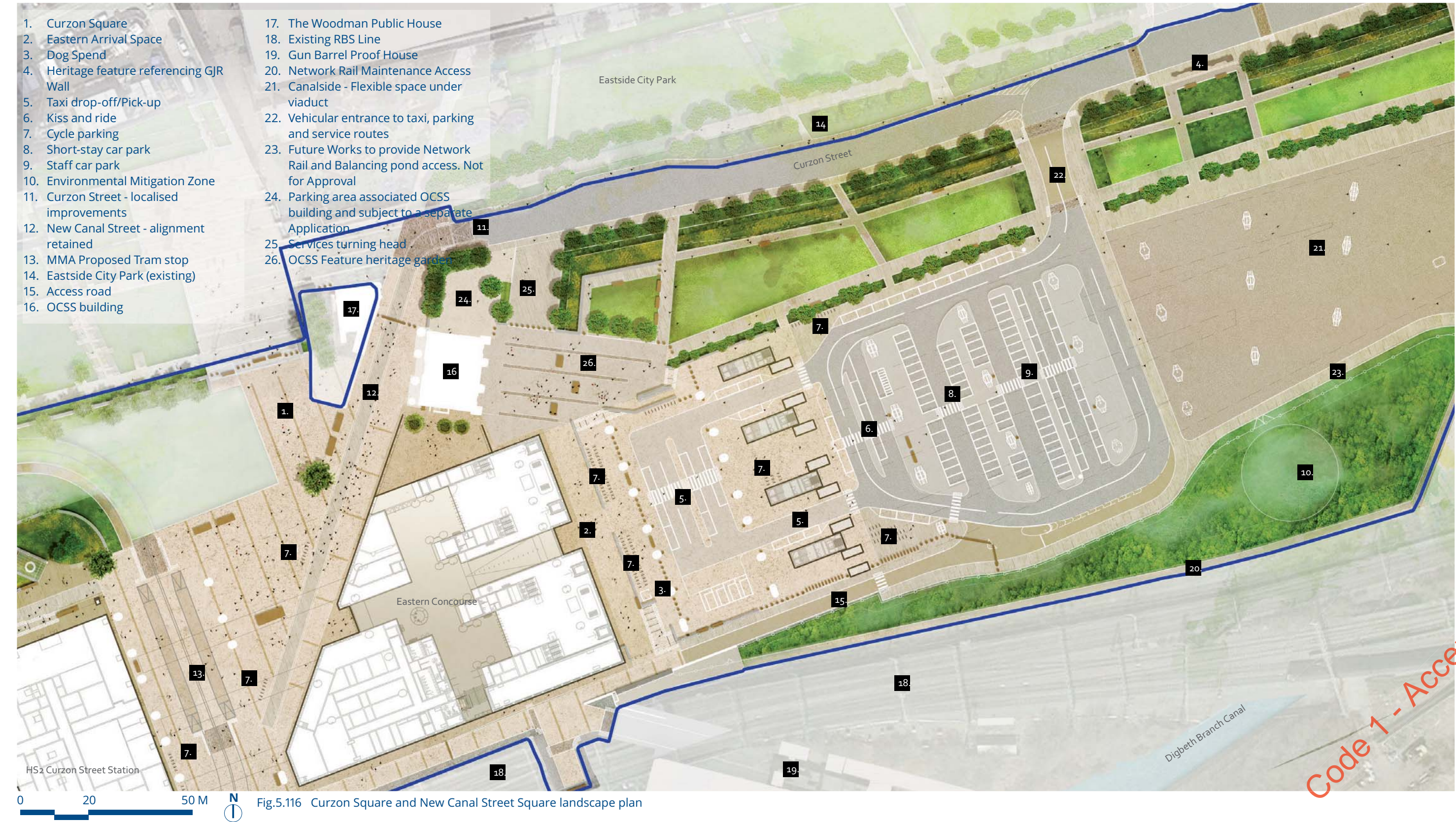


Fig.5.116 Curzon Square and New Canal Street Square landscape plan

Code 1 - Accepted

5.3.16 Curzon Street and Eastern Arrival Space

The parking, drop-off, kiss and ride and taxi ranks and cycle parking are contained below the outline of the viaduct to the east of the station and include the following provision:

Parking Type	Provision
Kiss and Ride	35m minimum kerbside drop-off with 5 bays of 7m each
Short Stay Car Park	45 spaces including 5% disabled spaces
Taxi Drop off	35m minimum Kerbside Taxi drop-off with 5 bays of 7m each
Taxi Pick Up	3 bays for simultaneous pick-up and total capacity of 39 waiting taxis
Bicycle Parking	Cycle parking provision expandable ultimately up to 556 cycle spaces across the site
Staff Car Parking	26 spaces including 5% disabled spaces

Disabled parking is within 50m of the entrance.

The following additional parking facilities are also provided within the car park area beneath the viaduct:

- Dedicated British Transport Police parking - 3no. spaces
- Dedicated maintenance vehicle parking - 2no. spaces
- Dedicated motorcycle parking - 10no. spaces
- Dedicated electric charging points - 4no. spaces
- Dedicated family parking spaces - 2no. spaces

The urban realm has been designed to facilitate sufficient space for emergency vehicles to pass or stop if another vehicle is using the route.

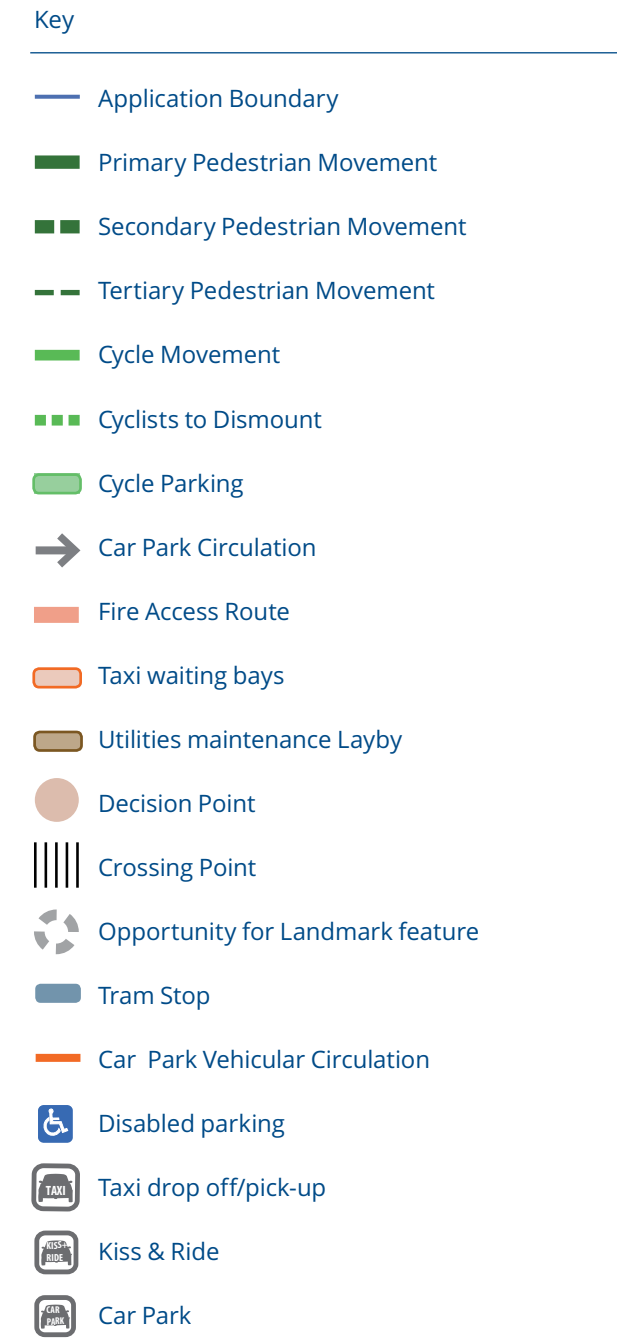
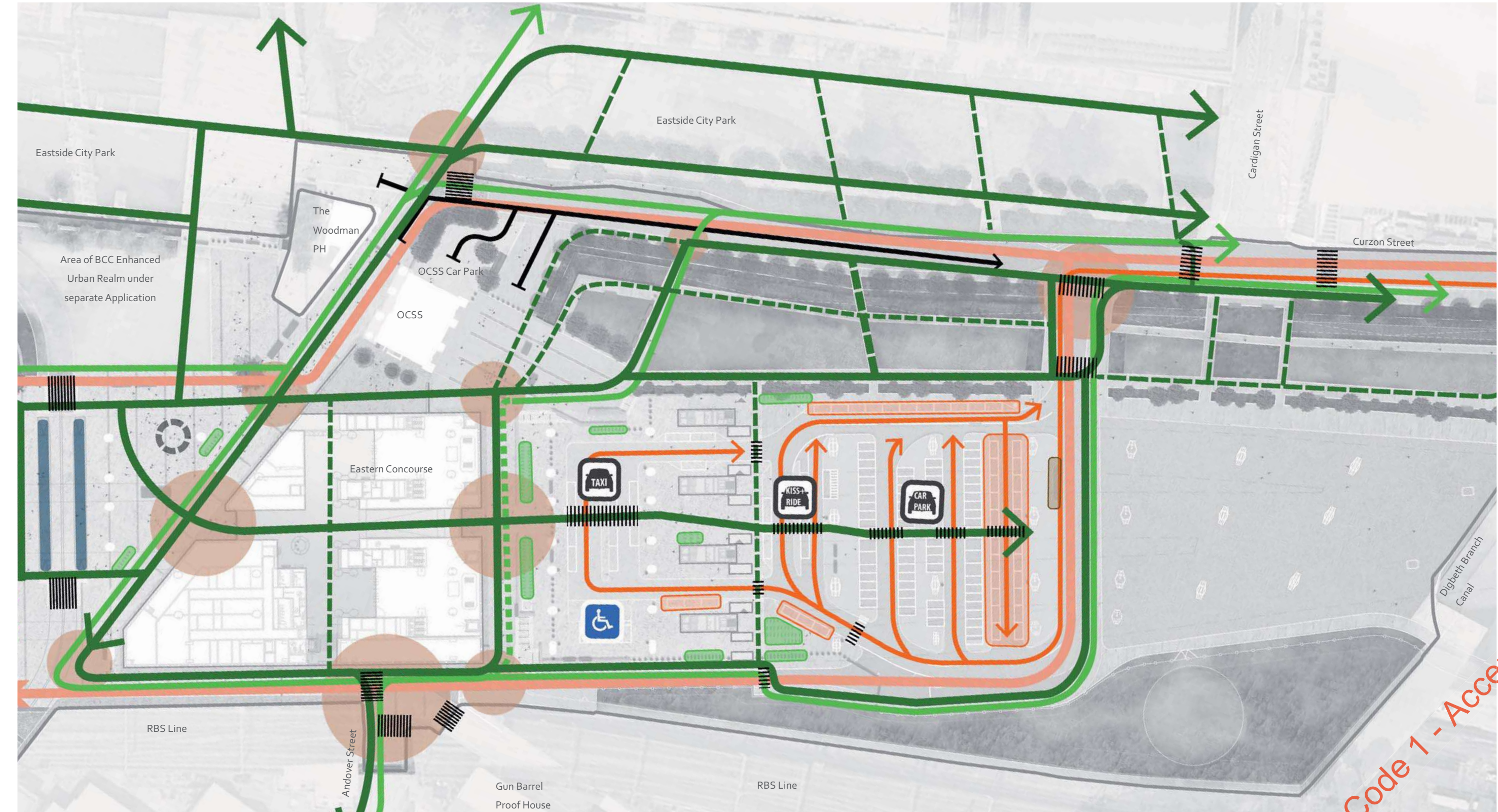


Fig.5.117 Curzon Street and eastern arrival space functionality



Code 1 - Accepted

5.3.17 Curzon Street and Eastern Arrival Space - Sections



Fig.5.118 Section location plan



Fig.5.120 Section location plan

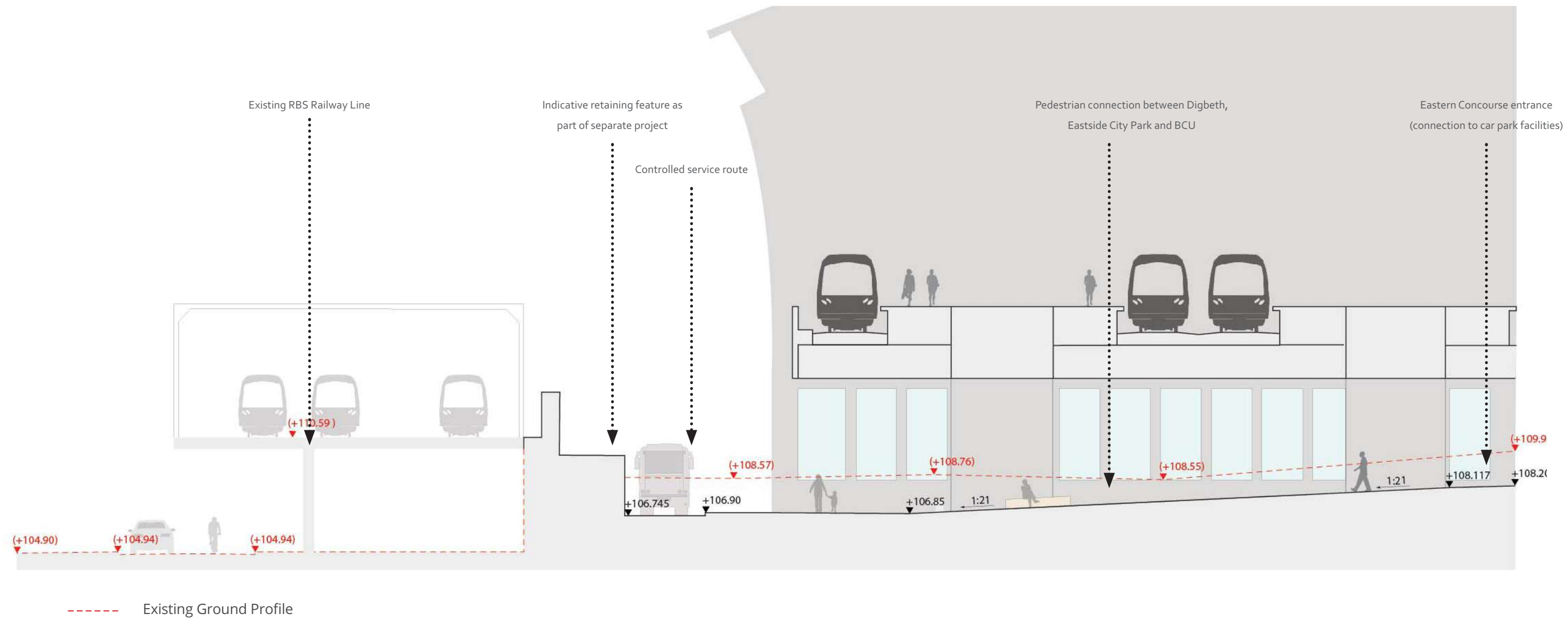


Fig.5.119 Eastern arrival space Section AA

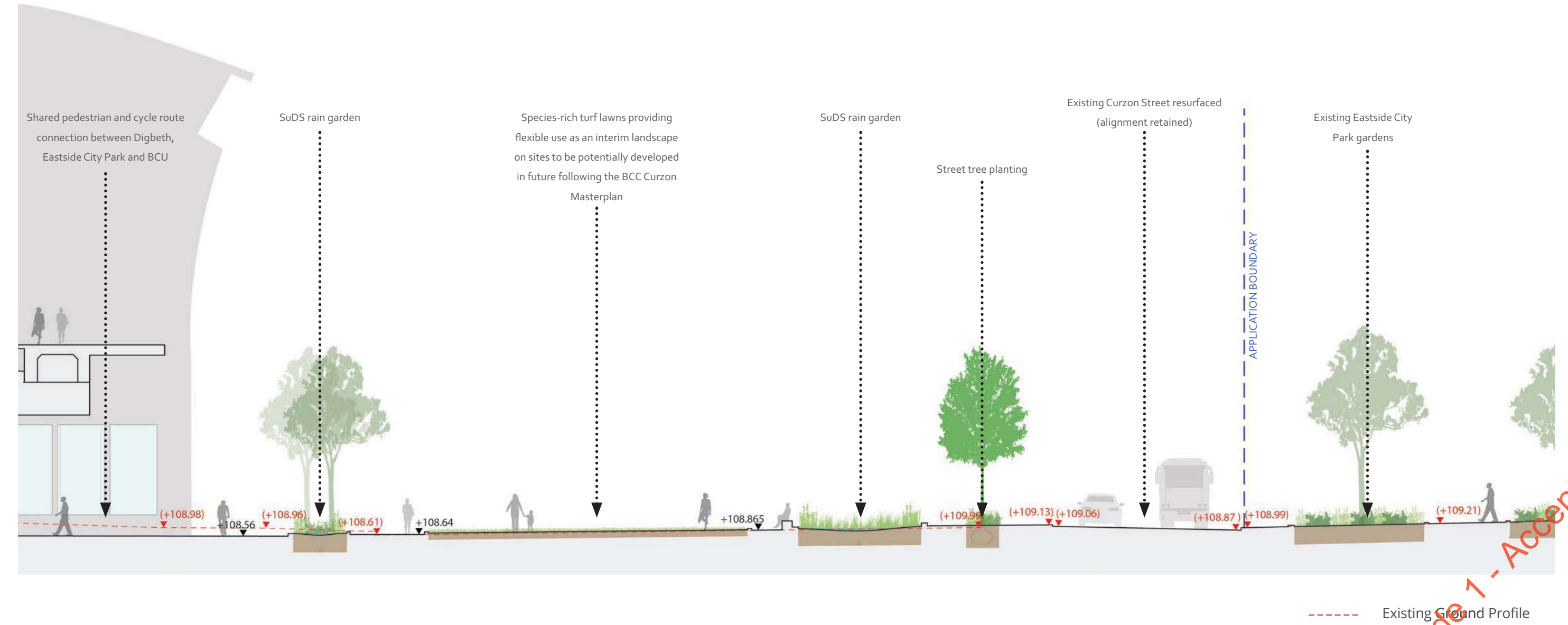


Fig.5.121 Eastern arrival space Section BB

Code 1 - Accepted

5.3.18 Canal Side and Environmental Mitigation Zone (EMZ)

Canalside

The area below the viaduct to the east of the site is proposed as an area of self-binding gravel surface which provides an economic and robust surface finish. The proposals include provision for lighting and CCTV, but otherwise remain as a flexible space suitable for meanwhile activities with clear potential for future activation and enhancement particularly in response to the Digbeth Branch Canal to the east, EMZ to the south and BCU campus to the north.

Environmental Mitigation Zone

The proposed creation of a broadleaf wooded habitat meets the requirements set out in the Environmental Statement as part of the HS2 Act.

Planting of native trees and shrubs, woodland whip and transplants and a woodland herbaceous under-layer are proposed and provision is made for a maintenance access track to the site boundary. The trace of the former engine turntable 'Round House' is marked with a circle of advanced nursery stock trees and a woodland glade grassland at its approximate location. To protect the developing woodland habitat and ensure this zone remains a safe area the EMZ is fenced off from public access with opportunity for the habitat to become a valuable educational resource via controlled access for supervised study groups.

Interpretation signage will enhance understanding and appreciation of the history and heritage assets in this area, and further archaeological survey work will determine opportunities for potentially incorporating buried archaeological features into the proposals whilst maintaining the ecological objectives for this zone.



Fig.5.122 Example of informal footpaths for maintenance and educational visits



Fig.5.123 Example opportunities for sculpture / educational trail



Fig.5.124 Example of urban woodland edget



Fig.5.125 Example of land art reference to heritage asset

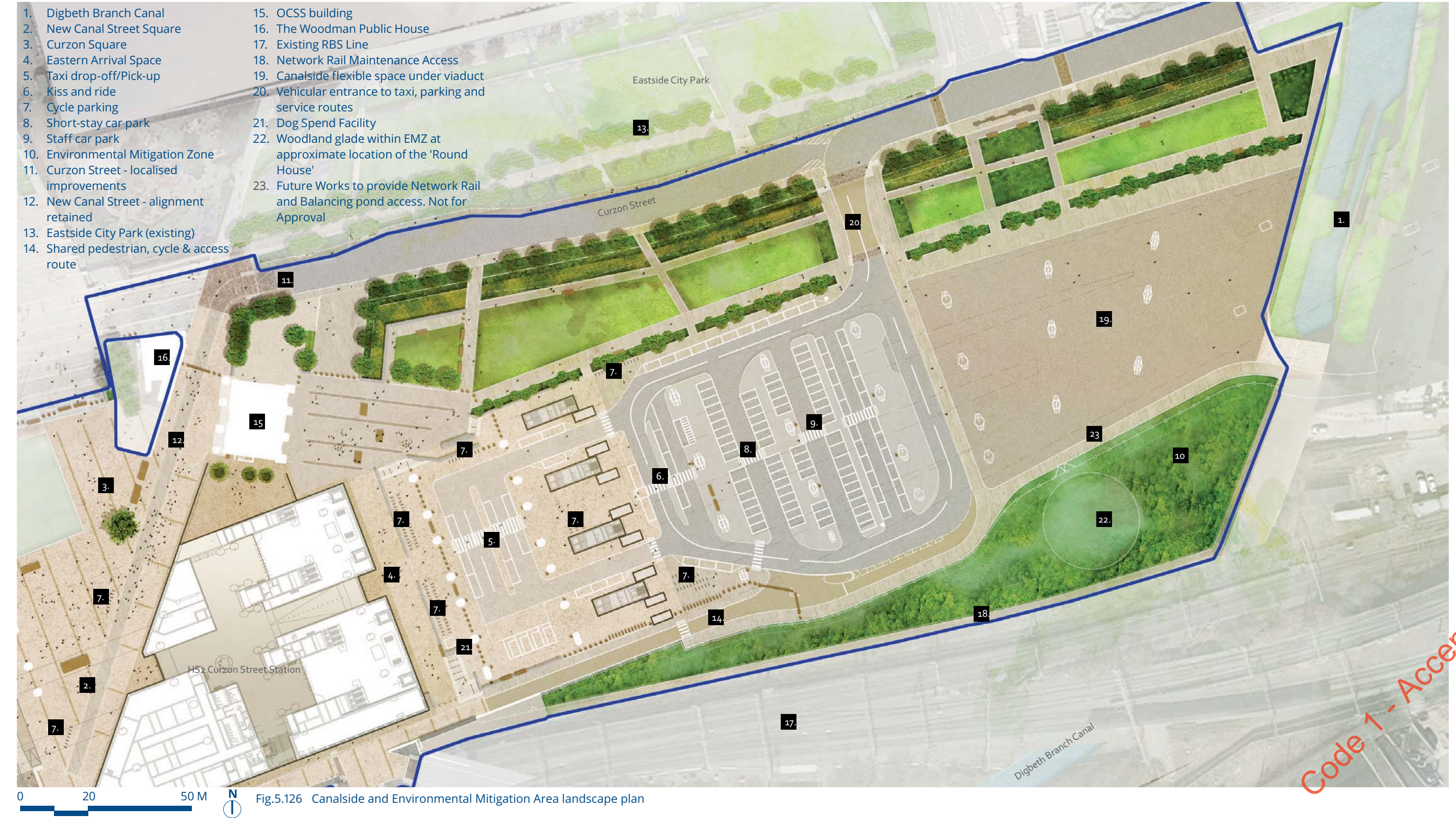


Fig.5.126 Canalside and Environmental Mitigation Area landscape plan

5.3.19 Curzon Street Landscape Character

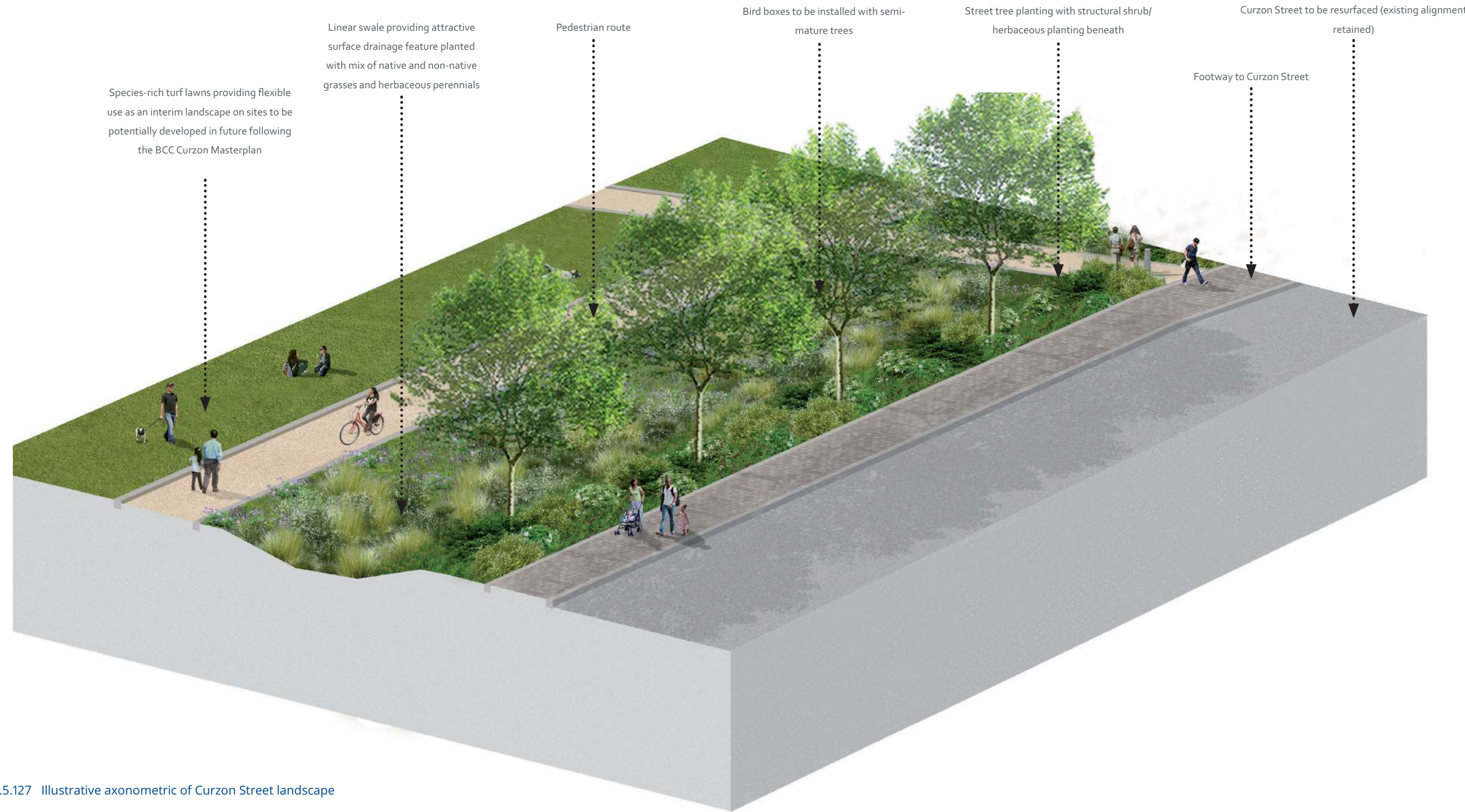


Fig.5.127 Illustrative axonometric of Curzon Street landscape

5.3.20 Environmental Mitigation Zone Landscape Character

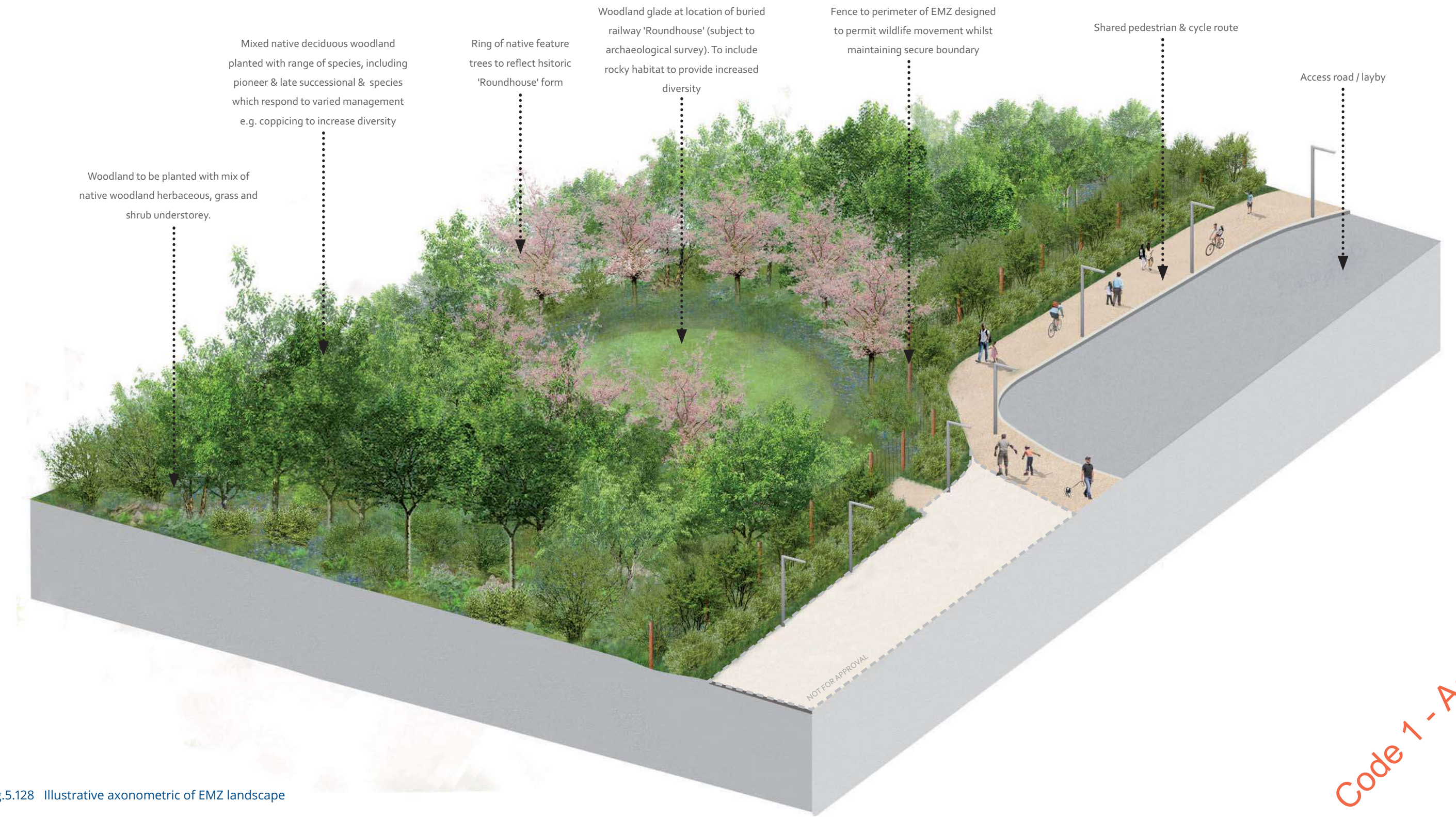


Fig.5.128 Illustrative axonometric of EMZ landscape

6.0 Accessibility & Inclusivity

This chapter summarises how movement has been considered both around and within the station, and the facilities provided for HS2 customers and the community.

Code 1 - Accepted

External Accessibility

6.1.1 Inclusivity and Accessibility

Central to the user experience within the proposed landscape and public realm scheme are the three core design principles of People, Place and Time set out within the HS2 Design Vision. It is a requirement that the design is inclusive and user-led; for everyone to benefit and enjoy, and meeting the needs of the station's diverse audiences.

There will be a wide variety of people, young and old, using the landscape and public realm associated with the new HS2 Curzon Street Station including; the local community and residents, local businesses, office and other workers, students attending the Birmingham City University nearby, commuters passing through. Additionally there will be those using the station itself; visitors, tourists and shoppers, as well as service providers, emergency vehicles and adjacent landowners.

The particular wants and needs of this diverse range of users will require careful consideration in the provision of outdoor spaces, routes and facilities; finding a solution that ensures a seamless and enjoyable experience for all.

The HS2 Curzon Street Station site undergoes a 15m level change across its length and in response to this city context two main concourse entrances are provided in both the east and west locations, at each extreme of this natural gradient.

In line with best practice, HS2 requirements stipulate that access to the building entrances must comply with both Part M of the Building Regulations, BS8300-1 'Design of an accessible and inclusive built environment', and the Department for Transport Inclusive Mobility Guide.

Studies have been undertaken to test the ability to achieve compliant access to active frontages along Curzon Promenade, the most challenging area due not only to the gradient but also the 10.7m level change over a distance of approximately 250m from 119.76m to 109.00m. This area in particular has been the focus of design review with design team Accessibility Specialists, and subsequently the proposals include mitigation measures including level resting areas and seating where access was considered to be challenging in order to ensure a wider range of users are able to navigate the route comfortably.

Where the level changes significantly between the plateau of Station Square, which is set level with the Western Concourse at +124.20, and lower level public realm to the north and south, external lifts are provided to allow step-free access up to the station.

The urban realm has also been designed to consider the needs of partially-sighted people through ensuring clear, obstacle-free routes by locating street furniture within a contrasting 'shore-line' border adjacent to main routes. In addition to the use of tactile paving to identify crossing and step locations, a materials palette of contrasting colour and texture is utilised, along with use of sensory planting to assist with legibility of the public realm. Furniture is also designed to be inclusive and cater for all abilities through inclusion of a variety of benches with and without arm-rests and back-rests and with seating suited to meet the needs of wheelchair users.

6.1.2 An Inclusive Urban Realm for a Multicultural City

The accessibility strategy ensures the experience of users from a wide range of ages, abilities and preferences is central to the station and public realm design. Complementing this, the BCS scheme also focuses on wider inclusivity, recognising in particular the importance of the station's cultural context within a major multi-cultural centre in the UK.

The public realm design is cognisant of the different ways open space is used by groups from a range of cultural backgrounds, and includes a series of flexible spaces designed to provide a range of scales, degree of enclosure, and proportion of hard to soft landscape, to provide for different user needs and preferences.

Spaces created include: restful seating areas; intimate spaces; social areas with seating to encourage interaction; lawns suited to family gatherings, play and picnics; and flexible event spaces suited to hosting different cultural events, as well as spaces with potential to be developed in future for active sports and youth recreation. The variety of spaces created, together with the opportunity to celebrate the rich cultural heritage of Birmingham through an integrated Arts and Culture programme, ensures that this significant new piece of public realm for Birmingham will become an inviting space for all to enjoy.

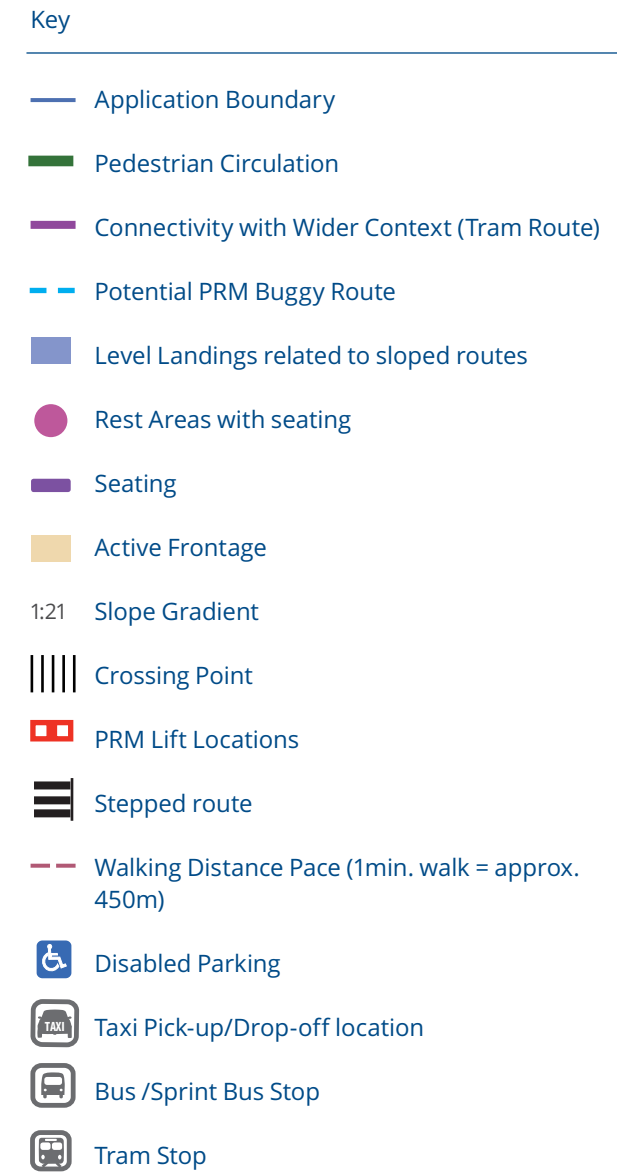
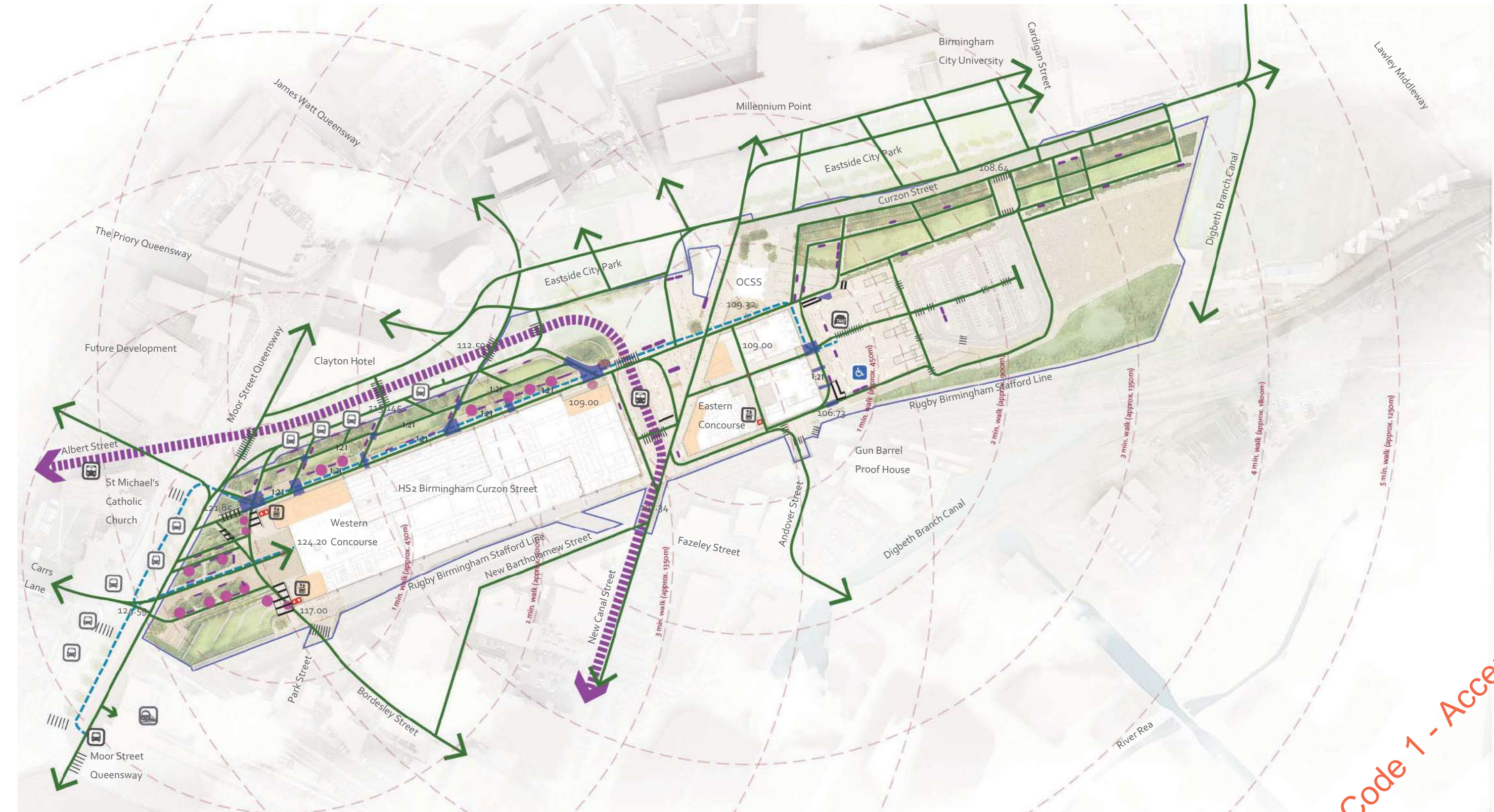


Fig.6.1 Accessibility plan



Code 1 - Accepted

Internal Accessibility

6.2.1 Introduction

An open, legible and accessible design is at the heart of the design proposals for HS2 Birmingham Curzon Street Station. Each public facing area has taken into account the requirements of different 'types' of passengers such as PRMs, commuters or those on leisure trips.

The key accessibility drivers implemented into the design are as follows:

- Careful integration of the Urban Realm and station building. This is particularly important at key gateways such as Station Square, Curzon Promenade and the Eastern Concourse.
- Provision of two entrances at the east and west of the station to provide strategic access across a wider area within the centre of Birmingham.
- Curzon Street station at the heart of an emerging transport interchange linking HS2 directly with West Midlands Rail (Moor Street Station), Tram, Bus, Sprint, Cycle and Taxis.
- Step-free access to both station entrances from multiple approaches.
- Open, accessible, permeable, spacious and well-lit station entrances and concourses with clear sightlines to and from station approaches and to key elements such as lifts and escalators.
- Integration of clear, intuitive wayshowing from street to train seat within the station architecture and station organisation.
- Strategic location of Customer Experience Hub (CX Hubs) reception spaces close to the entrances of both west and east concourses. Design of CX Hubs aligned with HS2 Station Common Design Elements guidance in terms of visibility and accessibility for all customers including PRMs.
- Co-location of customer welfare facilities adjacent to CX Hubs: seating, information, sanitary facilities, PRM mobility equipment and retail.
- Development of design to deliver eastern entrance in close proximity to tram stop, taxi and private car drop-off / pick-up hub thereby offering PRM customers an option for a convenient gateway to HS2 services. Related to this, provision of dedicated PRM buggy parking / charging areas adjacent to taxi drop-off zone serving eastern station entrance.

6.2.2 Western Concourse Customer Flows



Fig.6.2 Diagram to show main flows of pedestrian customer traffic throughout the western concourse

6.2.3 Eastern Concourse Customer Flows

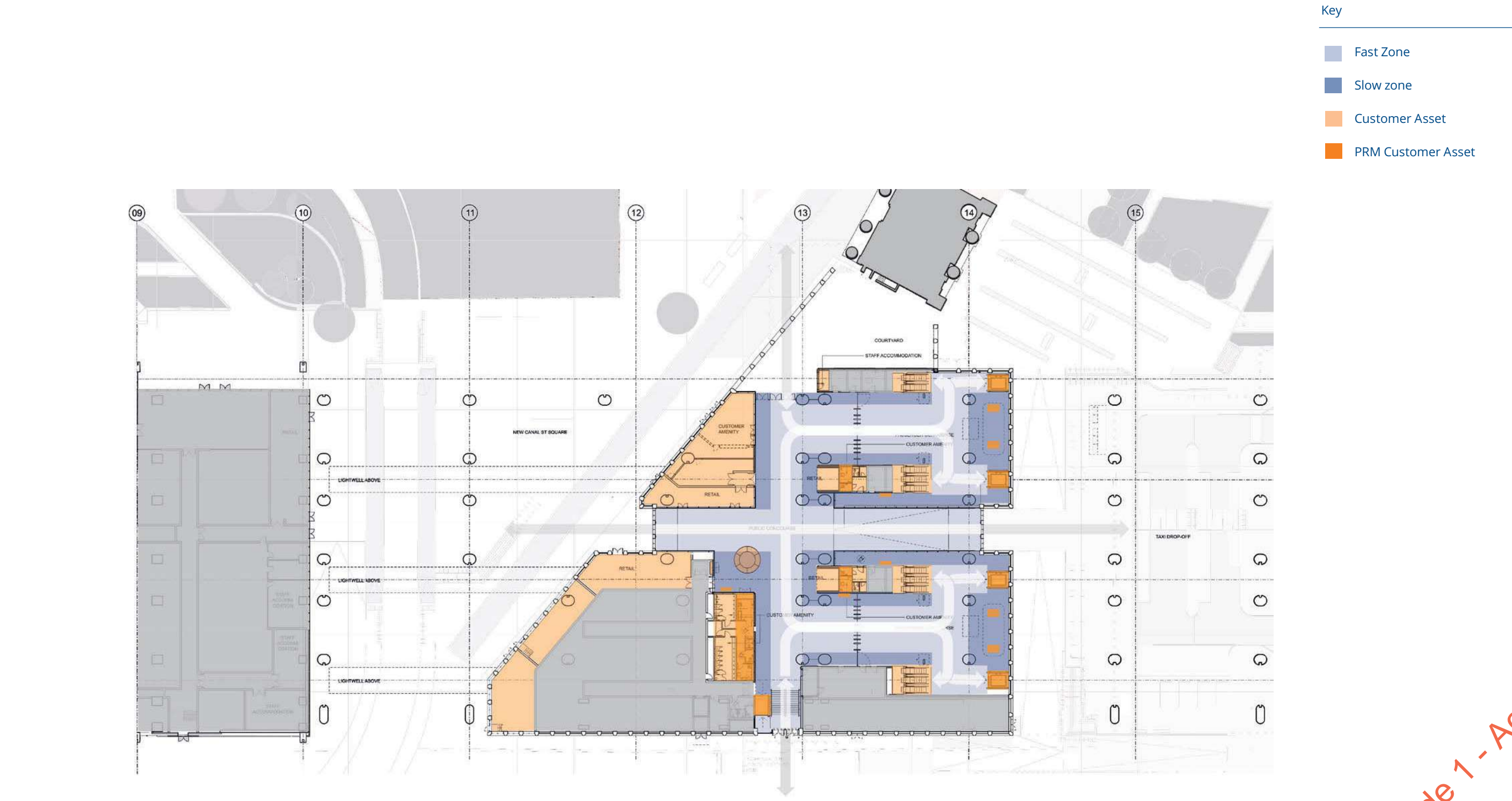


Fig.6.3 Diagram to show main flows of pedestrian customer traffic throughout the eastern concourse

Code 1 - Accepted

6.2.4 Platform Customer Flows

- Key
- Fast Zone
 - Slow zone
 - Customer Asset
 - PRM Customer Asset

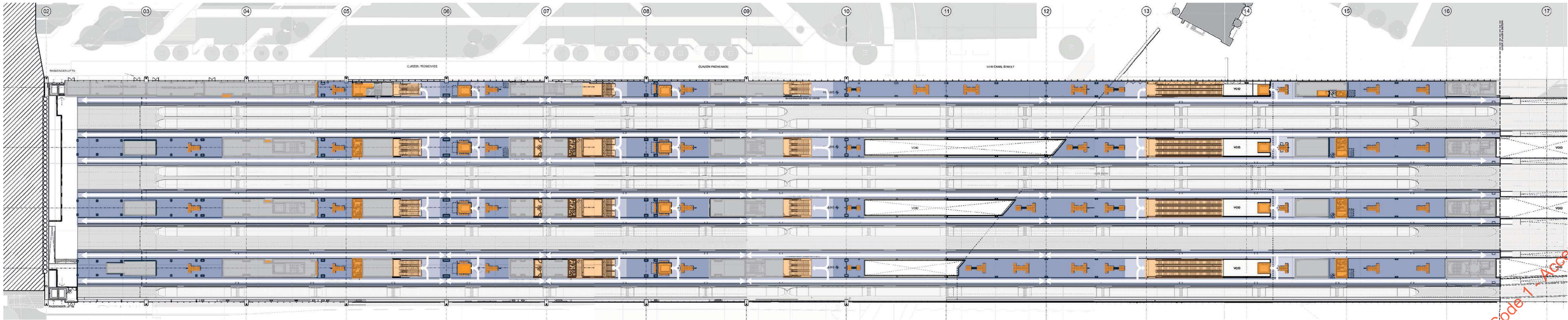


Fig.6.4 Diagram to show main flows of pedestrian customer traffic at platform level

Intermodal Connectivity

6.3.1 Pedestrian Movement

The pedestrian movement plan considers multi-modal dispersal from internal station mode transfer to external station mode transfer as a seamless strategy and fundamental to the design and operation of the station and the function and design of the urban realm. As a result the proposed pedestrian routes connect the station entrances to bus, SPRINT, tram stops and cycle parking provision in a clear and seamless way, seeking to mitigate as much as possible the severe existing topography of the site.

For the City, a potential key attribute of HS2 is its capacity to create and enhance connectivity between the City Centre, Eastside and Digbeth and thus play an integral part in the regeneration of these areas.

New pedestrian routes will be focused on the two concourse locations and associated urban realm and the Curzon Promenade. These take into consideration future development with opportunities identified to link Digbeth through Bordesley Street up to the future Martineau Galleries site, and in the opposite direction to link the Birmingham City University (BCU) Learning Quarter with the major new Smithfield development to the south-west.

While these connections are vital to ensuring that the new station design becomes a part of the city fabric, rather than an obstacle within it, each presents challenges for pedestrian movement. On the western side of the site, the level changes encountered rising up from Bordesley Street to the future Station Square and then down again to continue on to the proposed Martineau Galleries development create a huge challenge to accessibility.

For the Eastern Concourse the design considers carefully how to provide a pedestrian-friendly environment within the New Canal Street Square underpass space, and how this space can be clearly and safely shared with the various requirements of the tram and servicing vehicles. On the eastern side of the concourse the relationship between a pedestrian cycle link connecting Digbeth to Eastside City Park and the adjacent car park, drop-off, taxis and cycle parking has been carefully considered to improve permeability of the station environs through shared space access to cycle rack facilities adjacent to the concourse in the car park whilst key north to south movements between the Digbeth and the BCU Campus are promoted alongside the southern access road around the car park from the Andover to Cardigan Street junctions



Fig.6.5 Visualisation (View 13), view toward East Concourse South Entrance

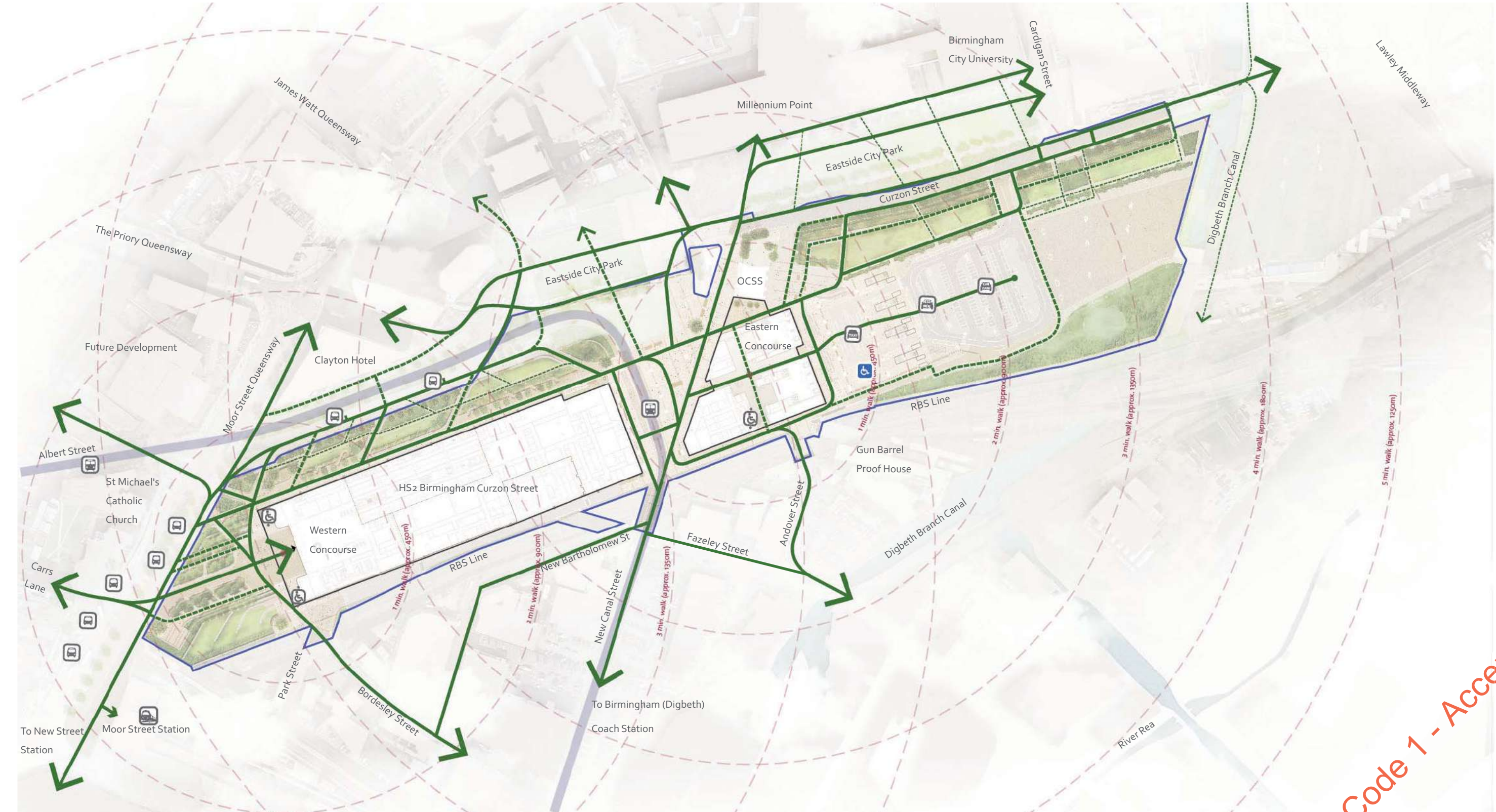


Fig.6.6 Visualisation (View 14), view through RBS viaduct along New Canal Street

- Key**
- Application Boundary
 - Primary Pedestrian Movement
 - Secondary Pedestrian Movement
 - - - Tertiary Pedestrian Movement
 - - - Walking Distance Pace (1min. walk = approx. 450m)
 - MMA Tram Route
 - Disabled Parking
 - Taxi Pick-up/ Drop-off location
 - Bus/ SPRINT Stop
 - Tram stop



Fig.6.7 Pedestrian movement



Code 1 - Accepted

6.3.2 Cyclist Movement

The Analysis of the future cycle network takes into consideration a number of proposed improvements to the surrounding routes. It reviews how key movement routes and access requirements are coordinated across the landscape and in relation to the station concourses and highlights routes with higher pedestrian/cyclist/vehicle movement demands.

As part of the redesign of Moor Street Queensway, BCC proposes the installation of a new portion of dedicated cycle highway which has potential to connect Station Square and the Western Concourse with a route northwards via James Watt Queensway. A second cycle highway is proposed along the Lawley Middleway (A4540) linking Curzon Street, just east of the site with homes and businesses beyond the ring-road. In between these routes the canal tow-path forms an important recreational and commuter route.

The Curzon Street Station site sits between these two proposed routes and therefore provides an excellent opportunity to link these networks, in a design which must be fully coordinated with the pedestrian, tram and vehicular use of Curzon Street. The Eastern Car Park design has prioritised the future cycle use of the area with a direct route connecting Andover Street to BCU planned with minimal interface with vehicular routes.

Following the loss of Fazeley Street as a convenient cycle connection through from Digbeth to Moor Street Queensway, the route from Bordesley Street up to Station Square must ensure cyclists are able to dismount and travel across this level change easily. Channels to allow cycles to be pushed upstairs, and interim resting areas are integrated into the steps connecting Paternoster Row with Station Square. A pair of external lifts are also provided.

Engagement with Midland Metro Alliance (MMA) has identified their aspiration to partially close New Canal Street to cyclists to avoid conflict with the proposed tram line. Cyclists will be able to take a route via Andover Street or alternatively be required to dismount whilst travelling beneath the RBS line on New Canal Street.

The following provision and proposed distribution is made for cycle parking within the urban realm:

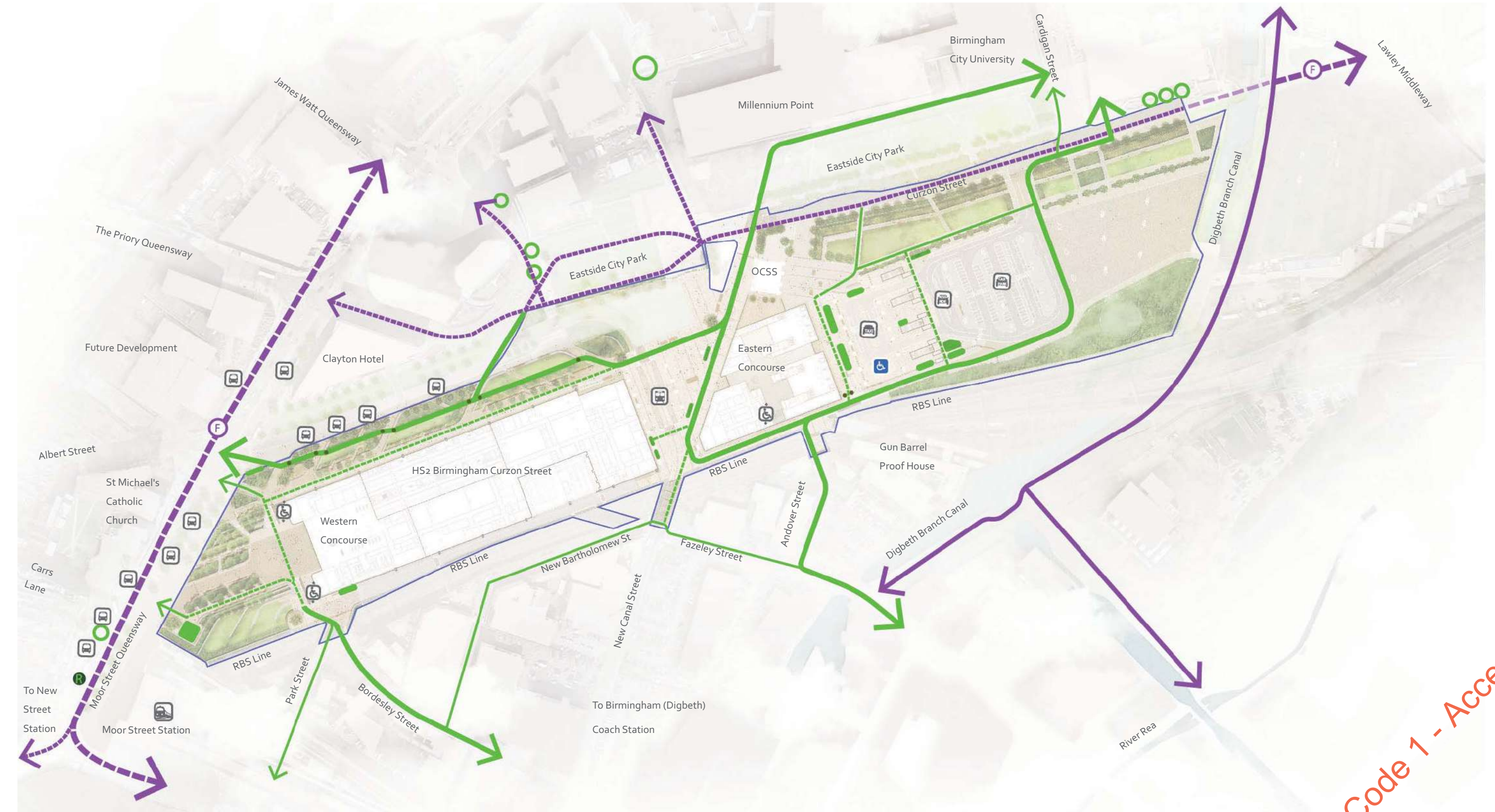
Location	Cycle Parking Provision
Station Square	Initial allocation: 56No. spaces
	Future allocation: 40No. spaces
Paternoster Row	Initial allocation: 16No. spaces
	Future allocation: N/A (Note additional spaces are proposed within the BCC Enhanced Paternoster Place Scheme, under separate TCPA Application)
Curzon Promenade	Initial allocation: 30No. spaces
	Future allocation: N/A
New Canal Street Square	Initial allocation: 24No. spaces (covered)
	Future allocation: 24No. spaces (covered)
Car Park	Initial allocation: 130No. spaces (covered)
	Future allocation: 236No. spaces (covered)

Key

- Application Boundary
- Primary Shared Cycle Route
- Secondary Shared Cycle Route
- Cyclists to Dismount along route
- Bollards to slow cyclists and manage cyclist/ pedestrian conflict
- Existing National Cycle Network Route
- Existing Cycle Route
- Opportunity to connect to wider Cycle Network (outside proposal site)
- Future Cycle Route proposed by others
- Proposed Cycle Stands
- Existing Cycle Stands
- Existing Bicycle Rental
- Disabled Parking
- Taxi Pick Up/Drop Off
- Bus /Sprint Bus Stop
- Tram Stop
- Railway Station



Fig.6.8 Cyclist movement



Code 1 - Accepted

6.3.3 Vehicular Movement

The vehicular movement strategy creates a largely vehicle free urban realm that promotes pedestrian and cycle movement and multi-modal transfer to public transport. New Canal Street is also to become a pedestrian, car-free route.

The forms of vehicular use and resultant modes of transport occupy separate areas of the urban realm to assist with clarity of use:

- Car use is restricted to the eastern side of the station urban realm with parking for staff, 'kiss and ride', disabled parking and taxis all servicing the Eastern Concourse entrance. Vehicles enter the site via the access road from Curzon Street.
- Car park numbers are as follows:
 - Kiss and Ride drop off: 5No. bays
 - Short stay car park: 45No. spaces (including 5% disabled = 2No.)
 - Staff car park: 26No. spaces (including 5% disabled = 2No.)
 - Taxi drop-off: 5No. bays
 - Taxi pick-up: 3No. bays for simultaneous pick up and a total capacity of 39No. waiting taxis
 - Bicycle parking: Initial cycle parking provision of 256No. spaces, and a further 300No. spaces allocated as future provision
- The Midland Metro Alliance (MMA) tram route has its principal stop servicing the station at the centre of the site in New Canal Street Square and also to the north west of the site adjacent to the future Martineau Galleries development.
- Bus routes service the western end of the site with bus stops and SPRINT located along Curzon Promenade and Moor Street Queensway.
- HGV access strategy facilitates primary servicing for the station at the service yard loading bays located along the southern boundary. This location allows vehicles to access directly via Fazeley Street, enabling New Canal Street Square to be a primarily car-free environment with access restricted to emergency and necessary maintenance vehicles.

- Pedestrian routes within the urban realm and adjacent to the principal façades and entrances to the building will be detailed to accept emergency vehicle loading.

The following additional parking facilities are also possible within the car park area beneath the viaduct:

- Dedicated British Transport Police parking - 3No. spaces
- Dedicated maintenance vehicle parking - 2No. spaces
- Dedicated family spaces - 2 No. spaces
- Dedicated motorcycle parking - 10no. spaces
- Dedicated electric charging points - 4no. spaces
- The urban realm has been designed to facilitate sufficient stopping and temporary parking for emergency vehicles along routes, as well as an allocated utilities maintenance lay-by

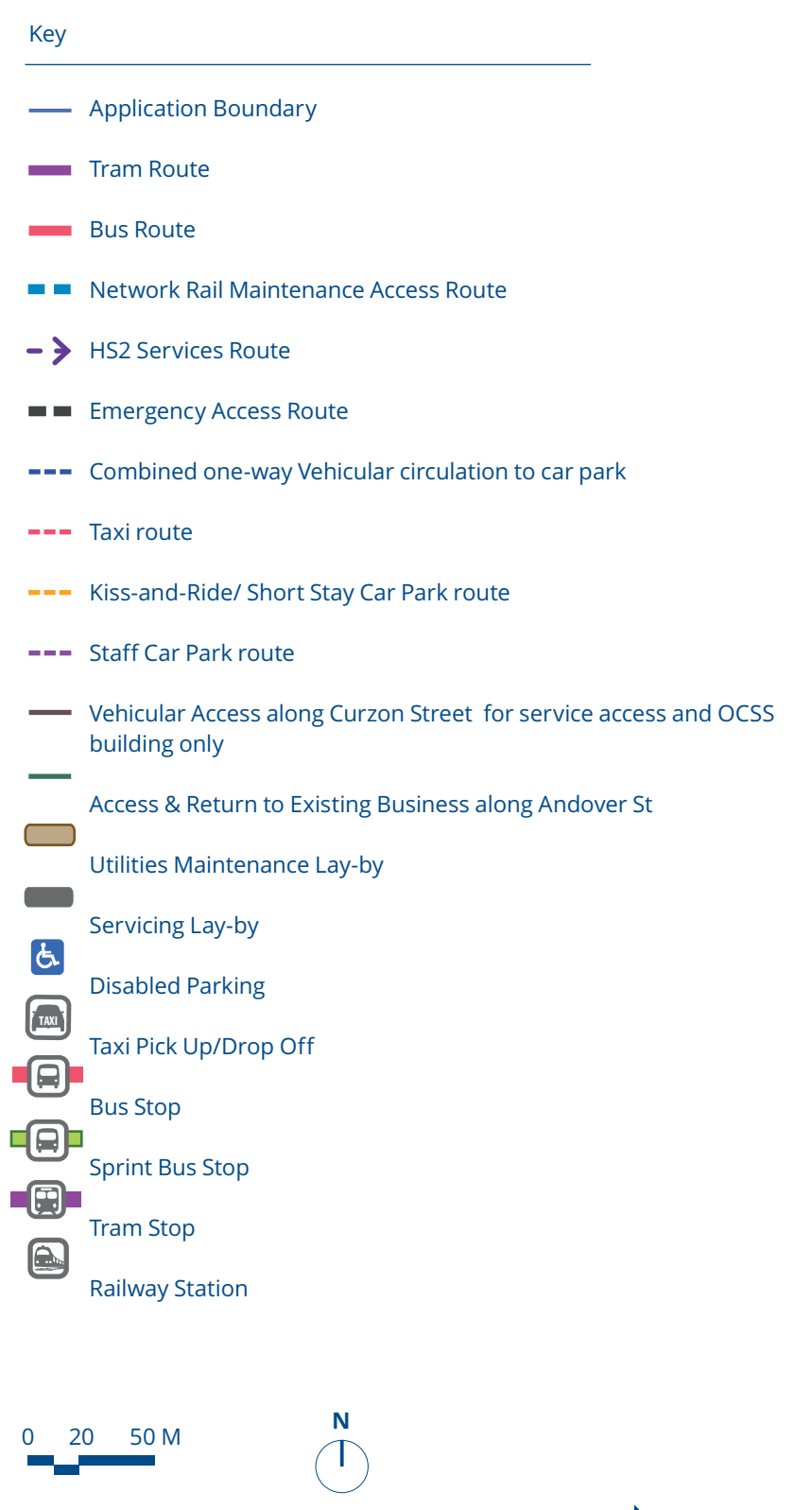
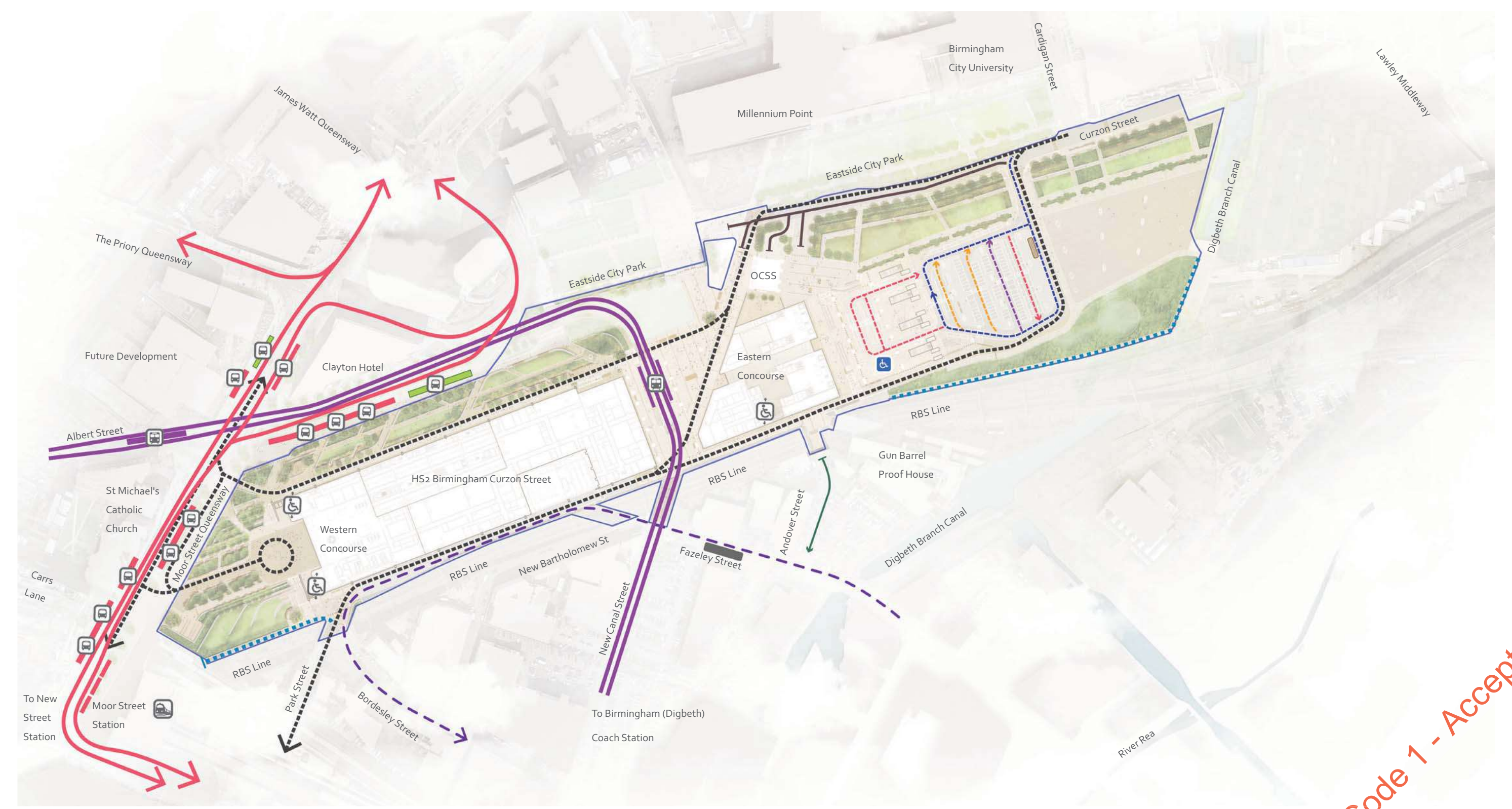


Fig.6.9 Vehicle movement and intermodal connectivity



Code 1 - Accepted

6.3.4 Night-time Movement and Activity

The strategy on the following page establishes key movement routes and spaces for night time use and potential seasonal uses. This strategy is intrinsically linked to the urban realm lighting proposals in ensuring that key routes and spaces remain well lit, accessible and safe.

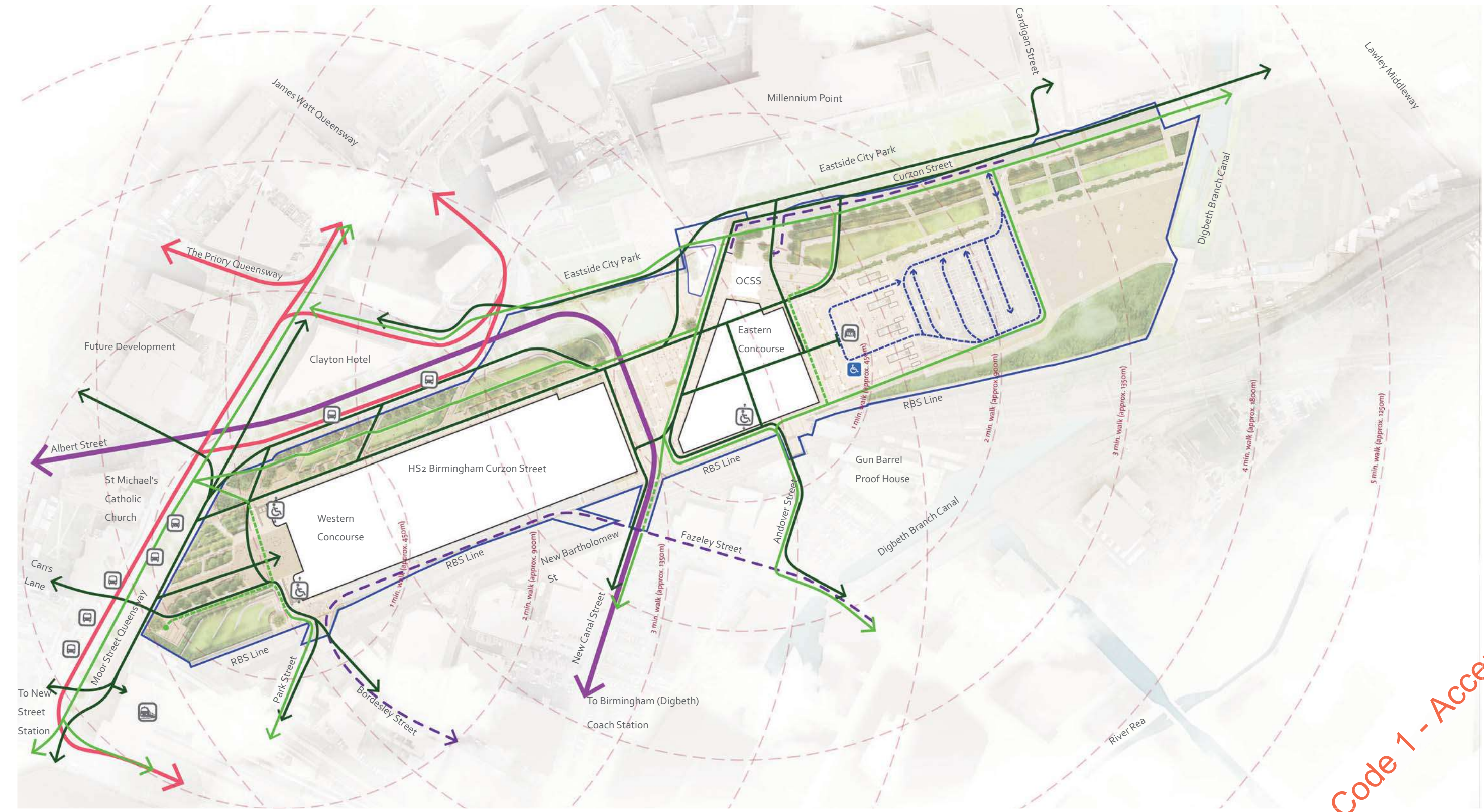
- Consideration is given to safe, well-lit and direct pedestrian routes to main entrances and staff entrances from the car park and public transport locations
- All key areas will be subject to careful consideration to ensure Secured By Design principles are followed
- The key public spaces such as the Station Square, New Canal Street Square are lit as key destination points
- Night time service routes avoid potential conflicts with pedestrian and cycle routes by servicing the building from the south side
- Car park and access roads to be lit to approved CIBSE and best practice standards

Key

- Application Boundary
- Pedestrian Circulation
- Cyclist Circulation
- - - Cyclists Dismount
- Bus Route
- Tram Route
- - - Services Routes for HS2 and other premises
- - - Vehicle Circulation to Car Park / Drop-off
- - - Walking Distance Pace (1min. walk = approx. 450m)
- Disabled Parking
- Taxi Pick-up/Drop-off location
- Bus /Sprint Bus Stop
- Tram Stop
- Railway Station

0 20 50 M

Fig.6.10 Night-time movement and activity



Code 1 - Accepted

7.0 Sustainability

Summary of how environmental, social and economic considerations have influenced and guided the design proposals.

Code 1 - Accepted

Overview

7.1.1 HS2 sustainability goals

HS2's ambition is to build the most sustainable high speed railway of its kind in the world. The aim is to develop a high speed railway network which changes the mode of choice for inter-city journeys, reinvigorates the rail network, supports the economy, creates jobs, reduces carbon emissions and provides reliable travel in a changing climate throughout the 21st century and beyond. The HS2 sustainability policy identifies five themes reflecting the economic, environmental and social aspects of sustainability.

These are:

- Spreading the benefits: Economic growth and community regeneration
- Opportunities for all: Skills, employment and education
- Safe at heart: Health, safety and well-being
- Respecting our surroundings: Environmental protection and management
- Standing the test of time: Design that is future proof



Fig.7.1 HS2 sustainability goals

7.1

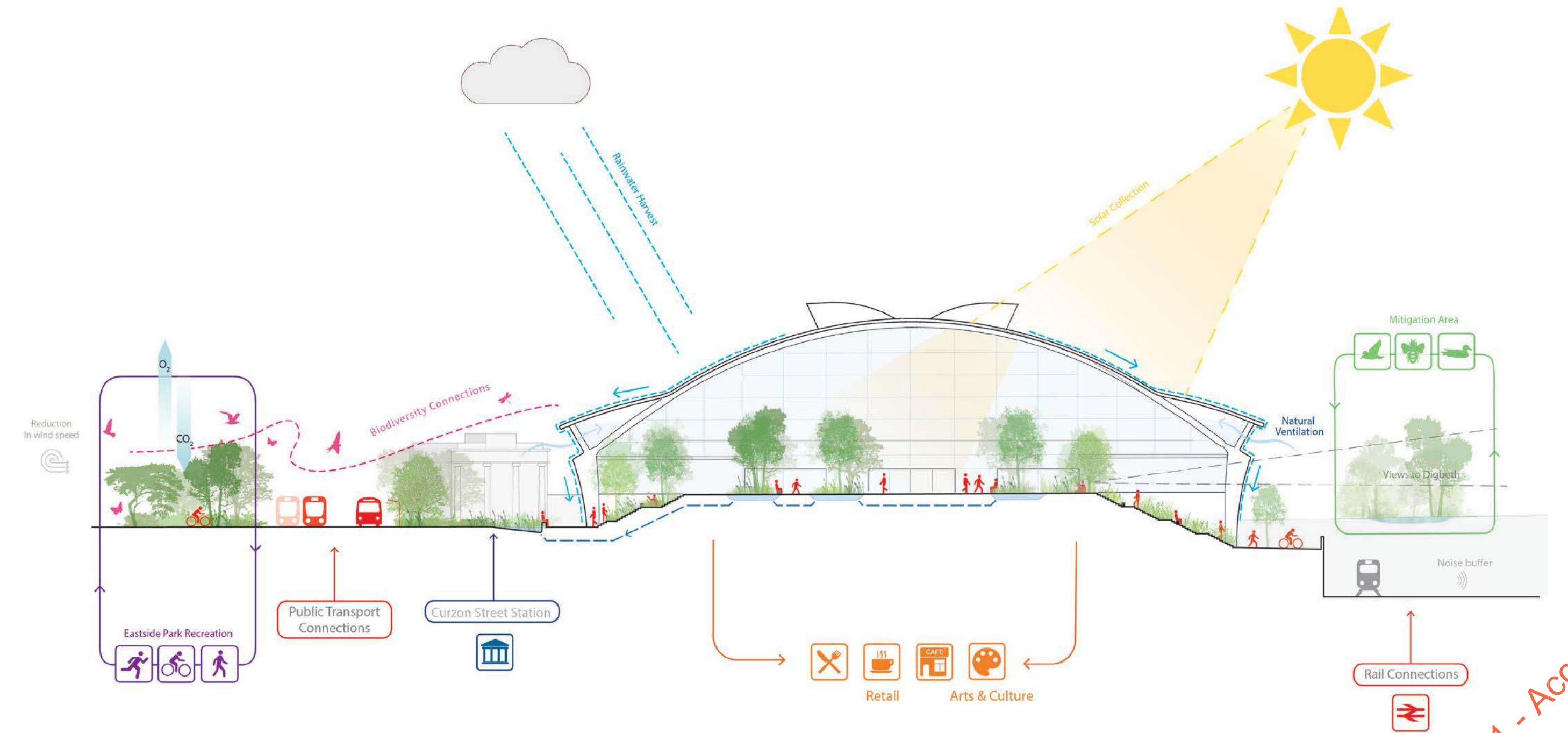


Fig.7.2 Concept section illustrating wider environmental systems of the scheme

Code 1 - Accepted

BREEAM

7.2.1 BREEAM - Landscape and Urban Realm

The urban realm proposals for the station will play a significant and meaningful part in contributing to the creation of a more sustainable and environmentally conscious design for the station and its landscape. The proposals have been developed to help deliver a climate resilient scheme including strategies for hard materials, street furniture and planting proposals.

Sustainability initiatives have been reviewed and coordinated within the design team to develop a series of proposals that can contribute to the targeted BREEAM credits to achieve a BREEAM 'Excellent' Rating. During design development there has been an increase in soft landscape areas, a decrease in impermeable paved areas and a reduction in area of hard landscape required to be tracked by vehicles. A more robust surface water management infrastructure has been developed across the site to reduce the burden on surface water drainage whilst naturally irrigating planted areas.

The diagram on the adjacent page establishes the elements of the landscape and urban realm proposals that can contribute to the targeted BREEAM credits, which include:

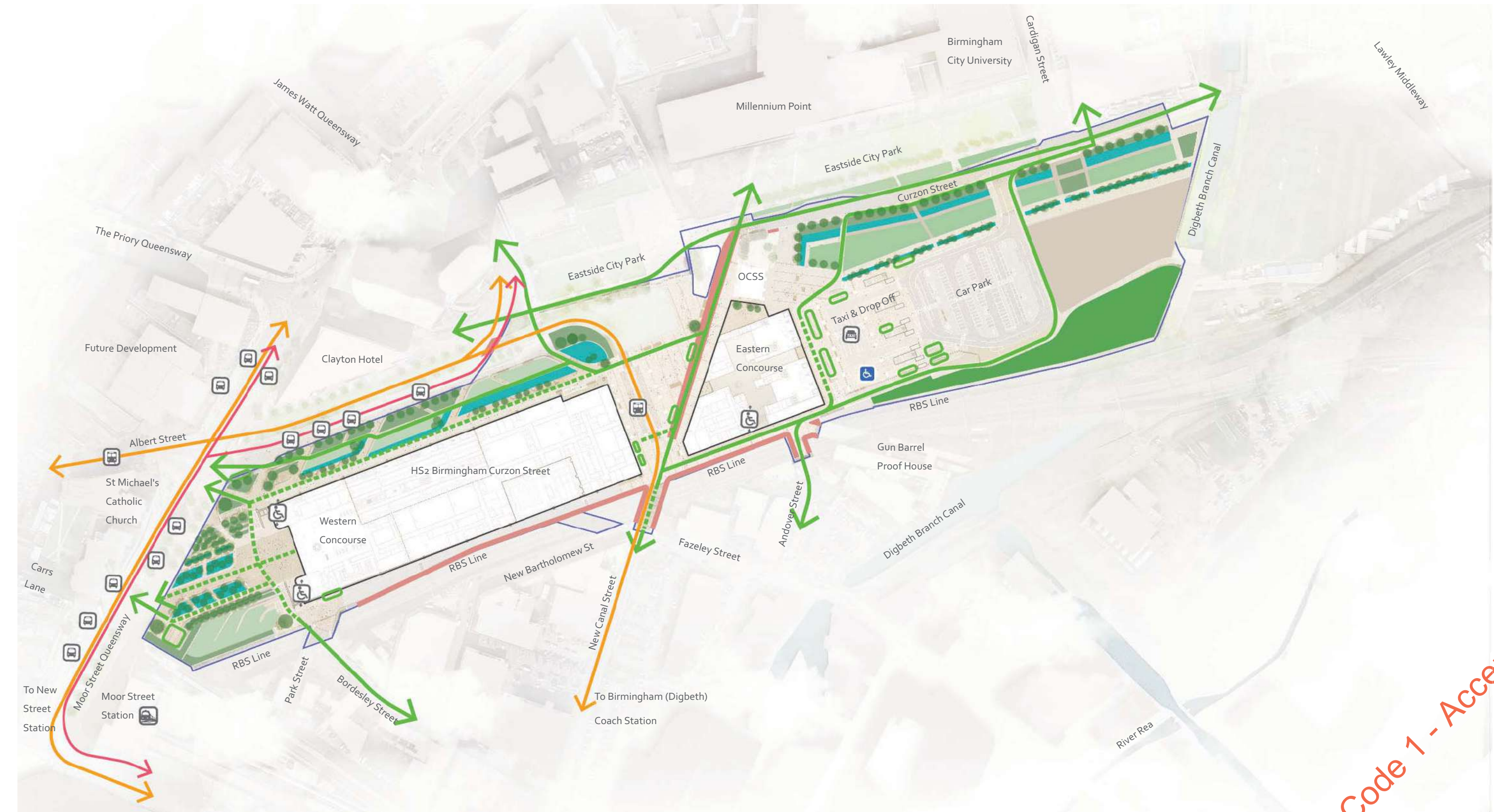
- Hea 01 Visual comfort
- Hea 06 Safety and Wellbeing
- Hea 07 Contextual design and place making
- Wat 04 Water efficiency
- Mat 05 Designing for durability and resilience
- Mat 02 Use of recycled material
- LE 03 Minimising impact on existing site ecology
- LE 04 Enhancing site

Key

- Application Boundary
 - Ecological Value & Biodiversity - Planted Rain Gardens & Swales
 - Ecological Value & Biodiversity - Naturalistic Grasses & Herbaceous Planting
 - Ecological Value & Biodiversity - Species Rich Lawn
 - Environmental Mitigation Zone - Native Woodland Planting & Native Understorey
 - Tree Planting
 - Connectivity with Wider Context - Pedestrian & Cyclist
 - Connectivity with Wider Context - Pedestrian Only
 - Connectivity with Wider Context - Tram Route
 - Connectivity with Wider Context - Bus Route
 - Cycle Storage Facilities / Stands
 - Potential to Integrate Reclaimed Material
 - Permeable Surface
 - Disabled Parking
 - Taxi Pick-up / Drop-off location
 - Bus / SPRINT stop
 - Tram stop
 - Existing Railway Station
- 0 20 50 M
- N

Fig.7.3 BREEAM and sustainability - landscape and urban realm

7.2



Code 1 - Accepted

Sustainable Drainage

7.3.1 Surface Water Management

Water is a critical component of the landscape and urban realm design for the new Birmingham Curzon Street Station. A significant aspect of this will be the careful design and integration of sustainable water management through rainwater harvesting, Sustainable Urban Drainage System (SuDS) measures and habitat creation.

A coordinated surface water management and site-wide drainage strategy has been developed across the site that takes a pragmatic yet environmentally conscious approach. SuDS elements such as urban rain gardens and conveyance swales contribute to the drainage strategy as well as creating recreational opportunities, aesthetic qualities, ecology and habitat benefits.

Management of surface and storm water is key to the site design due to its topographical position (as a result of the River Rea Valley) as a catchment for surface water coming from the higher ground occupied by the City centre area of the city to the north-west.

The landscape design features includes wet/dry planted rain gardens to collect surface run-off water from Station Square and similarly rain garden conveyance features to drain water from the landscaped areas and hard surfaces of Curzon Promenade. An enlarged rain garden swale to the eastern end of Curzon Promenade acts as mitigation measure during extreme flood events.

To the east of the site alongside Curzon Street, the intention is to create a series of connected shallow swales that will help to drain the adjacent surfaces whilst creating a rich damp grassland habitat enhanced with herbaceous and perennial species. A series of planted linear rain gardens to the north of the new viaduct also help to channel surface water during a flood event.

Drainage from the building roof will be collected via underground pipe systems draining to underground attenuation tanks located beneath the Eastern Concourse building. There is potential to re-use this water as part of the site irrigation strategy.

The diagram opposite illustrates the principles of the surface water management strategy.



Fig.7.5 Example of urban SuDS rain garden in Sheffield

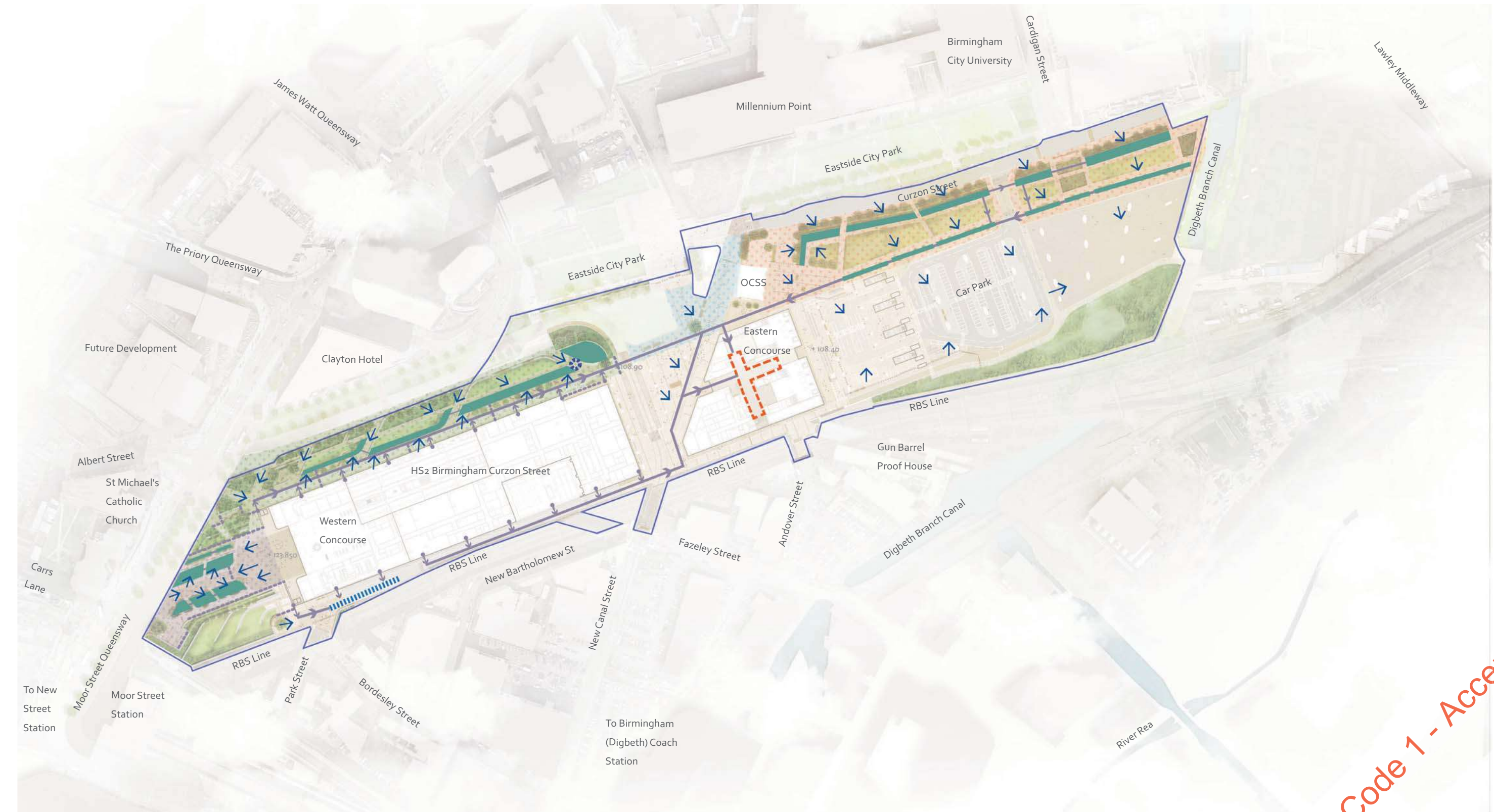


Fig.7.6 Example of SuDS meadows at the 'Grey to Green' project in Sheffield

- Key
- Application Boundary
 - Planted Rain Gardens & Swales
 - ▭ Indicative below ground attenuation
 - ▬▬▬ Indicative surface water attenuation culvert
 - Below ground drainage connection collecting roof run-off
 - Cut-off drain between public realm surface drainage features
 - ➔ Direction of fall
 - Public realm drainage to Station Square rain gardens
 - Public realm drainage to Curzon Promenade rain gardens
 - Public realm drainage to Curzon Square rain gardens (part of the BCC Enhanced Urban Realm proposals under a separate Application)
 - Public realm drainage to Curzon Street rain gardens
 - ⊙ Potential Flood Mitigation Feature



Fig.7.4 Surface water management strategy



Code 1 - Accepted

Biodiversity

7.4.1 Biodiversity

The opportunity to enhance local biodiversity is central to the soft landscape strategies for the site with a wide range of planting typologies proposed that feature both native species, and species which provide food and habitat for wildlife whilst also maintaining an attractive, robust and easy to maintain planting scheme. Measures such as insect boxes, and bird boxes will also be incorporated throughout the scheme. The Environmental Mitigation Zone will be a new broad-leaf woodland dedicated to supporting ecology.

In addition to diverse planting proposals the following measures are proposed to increase and enhance biodiversity on site form connections to the wider landscape.

- **Log piles** - focused within the proposed EMZ woodland habitat and constructed out of materials from clearance work in the local area. Min. 8 log piles should be constructed with logs at least 100mm thick, formed into a pile at least 1m depth and 2m in length, logs stacked at least 5 layers high.
- **Insect boxes** - stand alone boxes as well as features detailed and integrated into the low level landscape walls. Min. 30 insect houses installed across the site.
- **Bird boxes** - a range of bird boxes to be installed throughout the landscape attached to larger proposed semi-mature trees along Curzon Promenade and Curzon Street, additional boxes to be located within the EMZ. Bird boxes to cater for a variety of urban bird species such as Starling, Blackbird and Sparrows. It is recommended that min. 50 bird boxes are installed on site including; 10no Robin boxes, 5no Sparrow terrace boxes, 5no Cavity nesting boxes with varied opening size, and 5no Starling boxes. Boxes should be installed 3-4m above ground level to avoid being disturbed.
- **Wildflower planting** - areas of meadow planting are proposed within the Station Square southern terraces and towards the eastern side of the Curzon Street landscape. These would be managed in such a way as to allow species present to flower and set seed (to include wild mignonette for mignonette yellow-faced bee and other notable invertebrates).
- Proposed amenity lawns to Curzon Promenade and Curzon Street are also specified as a species-rich turf intended to provide both durable amenity surface and enhanced biodiversity value, with low growing broad-leafed species within the mix allowed to flower between mowing.



Fig.7.7 Yellow-faced bee, supported through planting of Wild mignonette (Reseda lutea)



Fig.7.8 Black Redstart, a species favouring rocky, open habitats



Fig.7.9 Bird boxes



Fig.7.10 Planting to support biodiversity

Key

- Application Boundary
- ▲ Bird Boxes (50no. range of types)
- 🐝 Insect boxes (min 30no.)
- ✖ Wood Piles (min. 8no.)
- Native Woodland - Shrubs and Herbaceous Understorey
- Species-rich Amenity Lawn
- Biodiversity Meadow
- Mixed Ground-cover Planting
- Rain Garden Planting - Herbaceous Perennials, Ornamental Grasses and Shrubs
- Shrub Planting
- 🐝 Priority Species - Yellow-Faced Bee (Planting Food Source Reseda lutea)
- 🐦 Priority Species - Black Redstart (Rocky Habitat)



Fig.7.11 Biodiversity strategy

7.4



Code 1 - Accepted

Renewable Strategy

7.5.1 Low and Zero Carbon Technologies

Birmingham Curzon Street (BCS) is on target to achieve a net zero carbon (regulated energy only) building, through deployment of low and zero carbon (LZC) technologies. The current split of LZC will reduce carbon emissions from the regulated load by 103%.

BCS reliance on grid and traditional energy sources will be reduced through the deployment of Air Source Heat Pumps (29%), LED lighting (20%) and PV panels (54%).

7.5.2 Connection to District Heating

Connection to the Birmingham District Energy Scheme has been fully investigated with the operating company (Engie) throughout the design development. Currently, the distribution of the BDES pipelines is not within proximity to the BCS site. Furthermore, Engie neither yet secured funding to either expand its network, nor act upon its ambitions to decarbonise its energy sources. For these reasons, connection to the BDES is not being pursued as part of the design.

However, to ensure we maximise on a Future Ready approach, the BCS substructure on the south side of the main building and adjacent to the Air Source Heat Pump (ASHP) plant rooms (which would be where the main modifications would need be made – replacing the ASHP units with plate heat exchangers) will benefit from passive ductwork and channels, and hence 'prepared' for such a time when a connection is viable.

7.5.3 A move towards 'all electric'

Research into electric vehicle (EV) charging trends and future requirements has been undertaken with much of the work being informed by the WSP paper Electric Vehicles: Guidance on the incorporation of electrical vehicle charging infrastructure (June 2018).

Currently, the purchase of non-plug in hybrid electric vehicles (HEV) vehicles outnumber plug-in HEVs (PHEV) by 4:1. With an industry move from high current 400V AC charging, towards rapid high voltage DC charging, and with the uncertainties that surround autonomous vehicle (AV) integration, it is felt that the most flexible and Future Ready solution to respond to advances to technology in the next 6-8 years (to 2026, operational commissioning), will be to design and install passive ductwork for, and an energy supply that is capable of servicing, 50% of the current (129 spaces) car park provision.

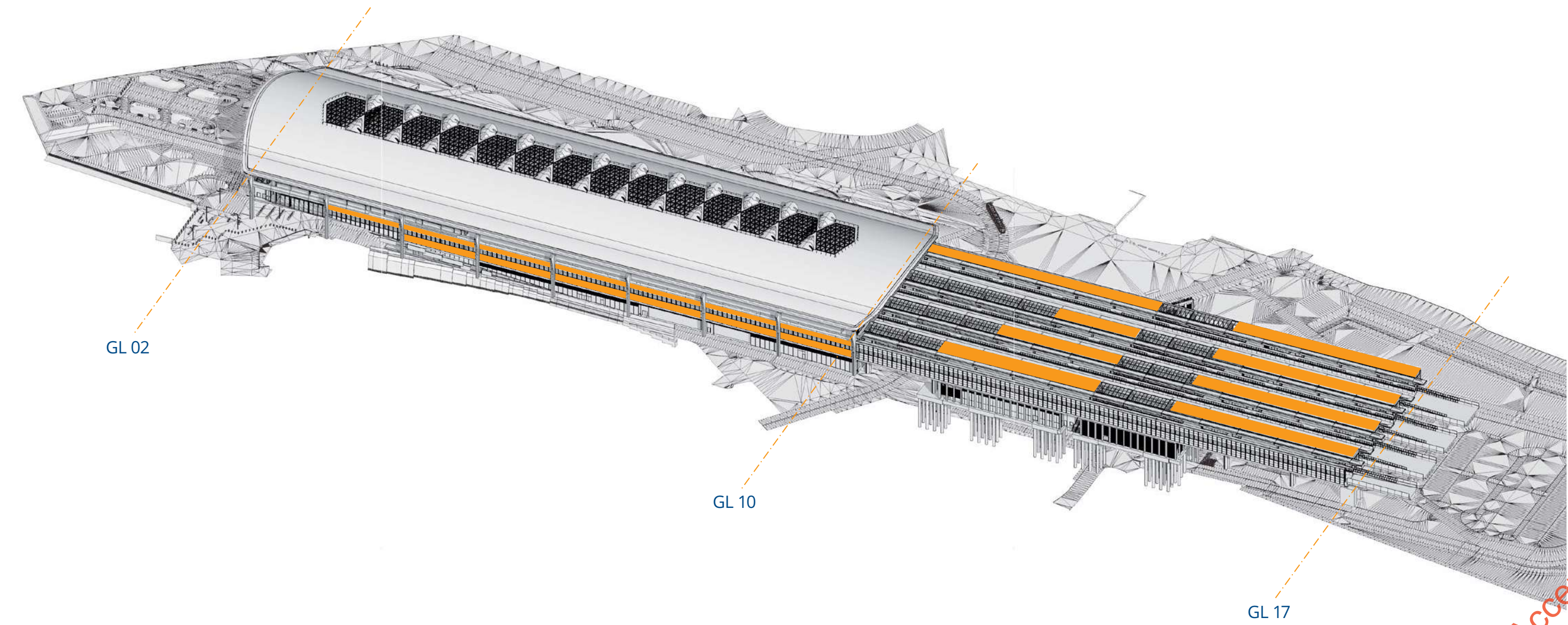


Fig.7.12 Axonometric diagram describing PV strategy

Code 1 - Accepted

8.0 Engagement

Summary of consultation that has been undertaken in support of this application. Key feedback from engagement with local authorities, stakeholders, the local community and the Curzon Station Independent Design Review Panel.

Code 1 - Accepted

Curzon Station Independent Design Review Panel

8.1.1 Overview

The Curzon Station Independent Design Review Panel is an independent body whose primary purpose is to act as a 'critical friend' to HS2. The Independent Design Review Panel is a joint panel, comprising panellists from both HS2 Design Panel, Birmingham City Council and Transport for West Midlands.

It does so by review and critique at key stages in the design process. The Independent Design Review Panel does not make any design decisions; it offers impartial recommendations and advice.

During the development of the RIBA3 design the Curzon Street station design has been subject to seven design reviews as the development of the design has progressed. In addition, the Independent Design Review Panel have undertaken six mentoring sessions and one chair review with the design team on various aspects of the design development.

The Independent Design Review Panel has produced a design report following a review of the draft Schedule 17 submission for Birmingham Curzon Street 09.09.19. This report summarises the Panel's comments and recommendations on the station design proposals which are contained herein. The full report is appended in Section 9.2.

8.1

8.1.2 Design Panel Comments

No.	Independent Design Review Panel Comment	Design Team Response
Station Architecture		
01	The panel thinks that the designs for Curzon Street Station represent a deceptively simple celebration of the building's engineering – following on in the tradition of great stations such as St Pancras.	Noted. No further comments.
02	The arch structure on which the station design is based is a simple concept, but it has been realised in a refined and subtle way. The panel thinks this is successful in creating a station design with the civic quality that Birmingham deserves.	Noted. No further comments.
03	Technical details such as the roof cowls, lighting poles, and retail frontages have all received careful thought, so that they contribute to the quality of the station overall.	Noted. No further comments.
04	The panel is particularly appreciative of the way lifts have been integrated, so that the experience of using these is equal to the experience of using escalators – which is often not the case in existing stations elsewhere.	Noted. No further comments.
05	It will be essential that the design quality promised by the current scheme is maintained through to construction stage.	Noted. Our proposed approach is to establish and agree a clearly defined process of assessing material samples, benchmarks and mock-ups at construction stage in conjunction with the Design Team in order to help maintain and support design quality. As a general principle, the design team has sought to use self-finished materials where possible to ensure both quality, longevity and durability. Material samples will be subject to approval by BCC through condition.
06	For example, where in situ concrete columns are proposed, craftsmanship at the construction stage will be critical to achieving the design intent of the Schedule 17 scheme.	Noted. Please refer to response to item 05 above.
Station Management		
07	The panel warmly welcomes the confirmation that no 'ad-hoc' commercial units will be allowed in the station and that guidelines will be developed to ensure long term management arrangements are in place to maintain the station's design quality.	Noted. Our proposed approach is to prepare a Retail Design Guide for the fit-out and ongoing operation phases for Birmingham Curzon Street Station. This has been discussed with the Project Team. This Design Guide will establish key guidelines and requirements for retail tenant fit-out in order to avoid clutter and to respect the over-arching design vision of the station. The Design Team recommend that this Design Guide is included in the Retail tenant's lease obligations.
08	Careful thought has been given to the integration of advertising space, but it will be equally essential for clear guidance to be put in place to control the way this is used – so that it does not detract from the experience of arriving in Birmingham, for example, at the entrance for the eastern concourse which will be framed by retail units.	Noted. Our proposed approach is to prepare an Advertising Design Guide for the fit-out and ongoing operation phases for Birmingham Curzon Street Station. This has been discussed with the Project Team. This Design Guide will establish key guidelines and requirements for advertising service providers' installations to avoid clutter and to respect the over-arching design vision of the station. The Design Team recommend that this Design Guide is included in the Advertising service provider's obligations.

Code 1 - Accepted

No.	Independent Design Review Panel Comment	Design Team Response
Public Realm Design		
09	The panel finds much to admire in the clear vision for the public realm surrounding Curzon Street Station, including the different typologies for each space and the emerging tree and planting strategy. Proposals are both ambitious and deliverable.	Noted. No further comments.
10	The panel suggests the team give further consideration to how the vision can communicate the influence of Birmingham's rich culture and heritage.	Noted. There are a range of opportunities in which the spaces of the scheme could potentially incorporate artwork and cultural events and a wide range of opportunities are identified in order to give flexibility to the curation of the site. Tree and plant species are selected to reflect the diverse cultural heritage of Birmingham, forming focal points, landmarks and meeting places through the site. This design layer to further reveal the culture and heritage of the place will be developed and continue to be assessed in relation to detailed design requirements.
11	During detailed design, the panel suggests a cultural narrative is developed that will help ensure the delivered scheme speaks of the place.	Noted. No further comments.
12	It thinks careful consideration should be given to usability, in particular, who will use these spaces and what their needs are. This will help ensure decisions made during detailed design and in terms of the ongoing management and maintenance, foster an environment that is welcoming and inclusive of Birmingham's broad range of communities.	Noted. The public realm design approach is cognisant of the different ways open space is used by groups from a range of cultural backgrounds, and includes a series of flexible spaces designed to provide a range of scales, degrees of enclosure, and proportion of hard to soft landscape, to provide for different user needs and preferences. Spaces created include: restful seating areas; intimate spaces; social areas with seating to encourage interaction; lawns suited to family gatherings, play and picnics; and flexible event spaces suited to hosting different cultural events, as well as spaces with potential to be developed in the future for active sports and youth recreation. The variety of spaces created, together with the opportunity to celebrate the rich cultural heritage of Birmingham through an integrated Arts and Culture programme, will help ensure that this significant new piece of public realm for Birmingham will become an inviting space for all to enjoy. The approach will be further developed during the detail design.
13	The panel notes the importance of learning lessons from projects such as the Queen Elizabeth Olympic Park, to help guide solutions to this complex but critical issue.	Noted. No further comments.
Base and Enhanced Schemes		
14	The panel is pleased that the enhanced scheme will be delivered at the same time as the rest of the public realm and that high-quality materials will be used seamlessly throughout.	Noted. No further comments.
Paternoster Place		
15	The panel understands that Paternoster Place will be the subject of a separate Town and Country Planning application. Insufficient information was presented on this space for the panel to give this its unequivocal support, and a further review would be welcomed.	Noted. Please note that Paternoster Place does not form part of this submission.
16	The move away from long security bollards to embedding security features within the landscape is positive. However, investigations are ongoing to understand the feasibility of these revised security proposals.	Noted. Please note that Paternoster Place does not form part of this submission.
Planting		

No.	Independent Design Review Panel Comment	Design Team Response
17	The panel welcomes the overall tree and planting strategy, including the focus on selecting native and local species; this will play an important role in ensuring the different landscapes are specific to Birmingham.	Noted. No further comments.
18	During detailed design, it suggests the team undertake a review of the proposed species selection to take account of any known issues. For example, pathogens affecting Plane trees, and the suitability of Digitalis plants which contain toxins harmful to humans if ingested.	Noted. No further comments.
19	The panel has some concerns about the strategy of allowing flexibility in species selection at delivery stage. Tree planting is an important element of the landscape design, and it suggests the team further considers what mechanisms can be put in place to ensure this will not be compromised.	Noted. Station Square will feature a statement grove of advanced nurse stock trees providing a distinct arrival experience for users of the station. Our proposed approach is to meet best practice principles in relation to tree procurement and to ensure that the required plant stock can be sourced, grown on, clear biosecurity checks and is available by the time of planting. In order to meet these objectives two distinctive and comparable options of species selection and specification are included in the design.
Biodiversity		
20	The panel welcomes the emerging ideas for habitat creation but thinks the team should further consider how this can be made specific to Birmingham and the West Midlands. One way in which this could be achieved would be to plant 'local' wildflowers to maximise biodiversity, for example bird life.	Noted. Species selection of plant mixes and provenance of wildflower mixes to be reviewed and developed in more detail as part of the detailed design stage.
21	During detailed design, the panel thinks further consideration should be given to how the landscape could evolve over time, and how maintenance regimes can help support biodiversity in this urban environment.	Noted. No further comments.
Landscape Maintenance		
22	The panel recognises that giving responsibility for landscape maintenance to the station operator could help ensure the landscape retains its important role in the station's operation.	Noted. No further comments.
23	However, it thinks the landscape needs to be managed by an organisation who will put their heart and soul into protecting, nurturing, and curating public spaces around the station. This might be better achieved by a local organisation, committed to maintaining the vision for what will become highly valued green spaces in Birmingham.	Ongoing discussions are taking place between HS2 and BCC regarding maintenance. HS2 has prepared a draft maintenance and management strategy that explores potential future scenarios for Landscape & Urban Realm at HS2 Stations. These urban areas are subject to a complex series of HS2 and stakeholder influences on management and maintenance regimes. As a strategic piece of work, the report sets out the issues and potential public realm management and maintenance model options. HS2 acknowledges that further work is required to apply this overarching strategy to the different contexts.
24	As detailed design work continues, the panel encourages HS2 Ltd and the City Council to investigate innovative models for landscape maintenance, that could involve the local community. This could help achieve much richer public space, that creates a lively environment around the station.	Noted. Please refer to response to item 23 above.

Code 1 - Accepted

8.1

Blank Page

No.	Independent Design Review Panel Comment	Design Team Response
Security		
25	The panel acknowledges the careful thought that has been given to integrating security requirements into the public realm – but thinks there remains scope to make this less obtrusive.	The design is considered to be a coherent and integrated approach to accommodating a defensive line of vehicle barriers within the urban realm layout, reducing visual clutter whilst providing a safe and secure environment. The urban realm safety strategy proposals strike an appropriate balance between integrating both passive and rated safety measures, to create an aesthetically pleasing, multi-functional and safe urban realm.
26	For example, on Bordesley Street the security solution has the appearance of bollards with depth, and the panel finds this cumbersome.	Noted. Please refer to item 26 above.
27	Although the use of bollards is minimised, the security line remains quite apparent. The panel would encourage further thought about how to integrate security seamlessly into the landscape designs.	Noted. Please refer to item 26 above.
28	Collaboration with the HS2 Ltd Arts and Culture team could help achieve more creative solutions.	Noted. No further comments.
Commercial Development		
29	The panel welcomes the exploration of commercial development opportunities around Curzon Street Station, recognising the potential this has to ensure that HS2 is a 'catalyst for growth'.	Noted. No further comments.
30	It appreciates these studies are a separate piece of work to the Schedule 17 stage submissions for the station, however it will also be essential that any commercial development adjacent to the main station square, does not compromise the quality of this important new civic space.	Noted. The station design team propose that a design guardian role is maintained in order that a rigorous design review and design co-ordination process can take place to protect the design vision of the new station. This holds particularly in respect of Commercial Development proposals close to the Western Entrance of Birmingham Curzon Street Station and adjacent to Station Square.
31	It suggests as this work continues HS2 Ltd give careful consideration to the impact on existing proposals, such as the 'quality' of spaces, and any necessary changes to the design, for example where new desire lines would be generated. It will be essential that the intent and design quality of the station and public realm developed to date is protected.	Noted. Please refer to response to item 30 above.
32	The panel also thinks that it is important that the public is given clarity on where commercial development opportunities are being explored. For this reason the Schedule 17 submission should make clear which parts of the public realm will be 'temporary'.	This design and access statement identifies areas for potential future commercial development opportunities and such developments will be the subject of future planning applications.

Code 1 - Accepted

Stakeholder Engagement

8.2.1 Overview

Extensive engagement has been undertaken as the design has progressed from RIBA 2 to RIBA 3 design stages. This engagement has been an integral part of the design process and critical to informing the design submitted herein as it has developed.

As part of the design development, designs have been shared and discussed with BCC and a range of other stakeholders including the Curzon Station Independent Design Review Panel (IDRP), Historic England and Network Rail. The local community and wider public have also been engaged on the development of the RIBA 3 design.

8.2.2 Birmingham City Council

Regular meetings have been undertaken with BCC since April 2018 on all aspects of the station and urban realm design. Design development has been shared and discussed in monthly meetings. BCC attended the IDRP sessions where they were able to comment on the design to members of the panel. In addition, a briefing to the council's planning committee was undertaken. The key influences in the design of the station and urban realm are as follows:

- Main roof design, materials and detailing;
- Development of the shape and materials of the roof cowls;
- Proposed external materials with a preference for concrete to ground the building;
- Tree species including preferred use of resilient and diverse species;
- Suggested robust materials for hard landscaping;
- Request to locate the proposed photovoltaics on the eastern canopies and southern elevation to avoid clutter on the roof;
- Requirement to deliver activation along key elevations of Curzon Promenade and at New Canal Street under the viaduct with views into and out of the station together with retail provision and entrances where possible;
- Detailed development of the design to the former Curzon Street Station building including the open courtyard space between the two buildings;
- Request for the provision of rooflights to canopies above New Canal Street to provide shelter;
- Integration of the tram stop and route under the station viaduct;
- Deliver a high quality sense of arrival a western end of the station

through the station architecture and high quality urban realm;

- The quality of the concourses at both the western and eastern end of the station;
- Need for two concourses to provide for the existing and growing city.

8.2.3 Historic England

Discussions with Historic England have informed the consideration of heritage in the design as it has developed. Several engagement sessions throughout design development have been held to present the design and receive feedback.

Discussions have resulted in a building which positively responds to the Historic Assets that surround the site including the Grade I former Old Curzon Street Station building (OCSS) with a colonnade and eastern concourse that follows the original alignment of New Canal Street. The colonnade runs to sit adjacent to the OCSS providing an open link to the asset.

The urban realm design responds to the Historic Assets which is set out in Section 2.4 of this DAS. Further work will be carried out in relation to the former goods yard wall to the south of Curzon Street including the reinterpretation of the design and potential to reuse materials in the urban realm.

8.2.4 Built Environment and Accessibility Panel

Network Rail's independent Built Environment and Accessibility Panel reviewed the RIBA3 station design in January 2019 offered advice to the design team on a number of topics which included:

- Gradients around the urban realm;
- Accessibility into and around the station; and
- Wayshowing and assistance strategy.

8.2.5 Network Rail

A series of meetings have been held with Network Rail in relation to specific assets including the RBS line which is situated to the south of the station, the depot to the east of the station car park and the interface with Paternoster Row and Place. Further engagement will take place during detailed design.

8.2

8.2.6 Canal & River Trust

Regular updates have taken place with the Canal & River Trust (CRT) on the design of the station and urban realm both directly and through the Curzon Station Working Group, which CRT attend. Priorities for the CRT include the regeneration benefit of the station to the canal. The urban realm design, with the viaduct above, responds by creating future opportunities for development under the viaduct.

Public Engagement

In autumn 2018 High Speed 2 (HS2) undertook a comprehensive period of public engagement which included a series of engagement activities to gather views on the developed station and public realm design. A series of eight public events took in place in a range of locations in Birmingham during October 2018, preceded by a media launch. The locations chosen provided a balance between rail stations and other public areas in order to access both current users of rail as well as residents and those who may be future HS2 customers. The engagement period ran for just under five weeks. Throughout these events, the public had the opportunities to ask questions on all aspects of the design, if a member of the team was unable to answer this query at the event it was noted, and a response was given at a later date. The public were encouraged to leave feedback on the design via a questionnaire that could be answered either electronically or on a paper copy which was supplied at the event. A total of 304 questionnaires were received, the majority being completed online.

To engage with different groups, including younger people and wider businesses, engagement sessions were arranged with institutions such as Birmingham City University and the Chamber of Commerce.

In general, stakeholders and public at events were positive about the developing design. The questionnaire respondents confirmed their interest in the design and expressed support for the design ambitions to be a station which integrates into the Birmingham surroundings and reflects the needs of the current and future rail users. In July 2019, the design team attended two HS2 contractor events to raise awareness of the design and Schedule 17 process.

In summary there was a positive response in respect of station design from members of the public. There has been a strong positive indication within this engagement that people would like a design that is focused on creating good links for the onward journey. The 'destination station' question uncovered that 75% of respondents thought that further public transport connections were vital in making the project a success. A station surrounded with useful public space was also a popular choice within the engagement questionnaire, with 38% of people indicating that this was an important factor in creating a destination station. Other question responses indicated improved air quality around the station and improved opportunities for biodiversity were also viewed as important features to have at the station site.

8.3

Code 1 - Accepted

9.0 Appendices

Code 1 - Accepted

Figure Contents

9.1.1 Figure List

- Fig.1.1 Application Boundaries, page 08
- Fig.1.2 Visualisation (View 4) - Station Square, page 11
- Fig.1.3 HS2 Route Map, page 12
- Fig.1.4 Limits of Deviation vertical boundary, page 14
- Fig.1.5 Site Plan - HS2 Act and Application Boundaries, page 14
- Fig.1.6 Site plan - Viewpoint locations, page 16
- Fig.1.7 Site plan - Viewpoint locations cont., page 18
- Fig.1.8 Gridline references diagram, page 19
- Fig.2.1 City-wide context plan, page 22
- Fig.2.2 Aerial photograph - Birmingham Curzon Street Station site, page 23
- Fig.2.3 The River Rea in Digbeth illustrated in Bernard Sleight's Picture Map of Birmingham 1730, page 24
- Fig.2.4 Thomas Jeffery's 'A Plan of Birmingham 1750', with Application Boundary overlay, page 24
- Fig.2.5 Ordnance Survey Map (Warkwickshire, 1:2500) of Birmingham 1890, with Application Boundary overlay, page 24
- Fig.2.6 The canal network at Digbeth Branch Canal, page 25
- Fig.2.7 Curzon Street Goods Station, page 25
- Fig.2.8 Aerial view looking south-west of the historic A4400 Inner Ring Road, page 25
- Fig.2.9 The 1854 New Street Station, rebuilt in 1964 and refurbished in 2015, page 25
- Fig.2.10 Old Curzon Street Station, page 26
- Fig.2.11 Woodman Public House, page 26
- Fig.2.12 Birmingham Moor Street Station, page 26
- Fig.2.13 Existing Built Heritage Plan, page 26
- Fig.2.14 Site plan - existing green infrastructure, page 28
- Fig.2.15 Environmental constraints plan, page 29
- Fig.2.16 Birmingham City Council Birmingham Curzon Masterplan for Growth: The Big Moves, page 31
- Fig.2.17 Birmingham City Council Big City View, page 31
- Fig.2.18 Future City-Wide Concept Plan - NTS, page 32
- Fig.2.18 Landscape Masterplan illustrating Potential Future Development Sites within the BCS Site, page 33
- Fig.3.1 HS2 core design principles - People, Place and Time, page 36
- Fig.3.2 HS2 strategic goals, page 37
- Fig.3.3 HS2 sustainability goals, page 37
- Fig.3.4 Plan diagrams showing footprint and pedestrian routes, page 38
- Fig.3.5 Long elevations showing roof extents, page 38
- Fig.3.6 Short sections showing internal arrangement and roof form, page 39
- Fig.3.7 Long sections showing BOH zoning, page 39
- Fig.3.8 Visualisation (View 2) - Birmingham Curzon Street from Millennium Point, page 40
- Fig.3.9 Visualisation (View 10) - New Canal Street Square, page 42
- Fig.3.10 Visualisation (View 6) - Curzon Promenade, page 44
- Fig.3.11 Visualisation (View 5) - Station Square, page 46
- Fig.3.12 Internal Visualisation - Platforms, page 48
- Fig.4.1 Conceptual diagrams illustrating key urban realm design principles, page 52
- Fig.4.2 Architectural site response - plan, page 53
- Fig.4.3 Architectural site response - section, page 53
- Fig.4.4 Visualisation (View 3) of the landscape and urban realm proposals looking east along Curzon Promenade, page 54
- Fig.4.5 Visualisation (View 8) - Curzon Square, page 56
- Fig.4.6 Illustration of the spatial hierarchy and key connections central to the urban realm design, page 57
- Fig.4.7 Visualisation (View 6) - Curzon Promenade, page 58
- Fig.4.8 Illustration of the landscape layers designed to provide manage microclimate, and surface water and enhance biodiversity, page 59
- Fig.4.9 Landscape and urban realm masterplan, page 60
- Fig.4.10 Existing and future site constraints plan, page 62
- Fig.4.11 Landscape and urban realm opportunities plan, page 64
- Fig.4.12 Character areas, page 66
- Fig.4.13 Gateways and key nodes, page 68
- Fig.4.14 Green infrastructure, page 70
- Fig.4.15 Examples of heritage referenced through interpretive hard landscape features, page 72
- Fig.4.16 Heritage strategy, page 72
- Fig.4.17 Active frontages plan, page 74

- Fig.4.18 Arts and culture strategy, page 76
- Fig.4.19 Western Concourse Arts and Culture Strategy - plan shows potential space use for exhibitions and the display of heritage collections such as those at Birmingham Museum, page 78
- Fig.4.20 Potential for installation in the Western Concourse of Birmingham Curzon Street, page 79
- Fig.4.21 Heritage Collections, Birmingham Museum, page 79
- Fig.4.22 Heritage Collections, Birmingham Museum, page 79
- Fig.4.23 Heritage Collections, Birmingham Museum, page 79
- Fig.4.24 Eva Rothschild, 'This and This and This', page 79
- Fig.4.25 Alison Wilding 'Herm' Water fountain, page 79
- Fig.4.26 Daniel Buren 'Diamonds and Circles', Tottenham Court Road, page 79
- Fig.4.27 Janet Cardiff and George-Miller, sound installations, page 79
- Fig.4.28 Tree grills, Old Mill Street, page 79
- Fig.4.29 East, 'Wood Green Lanes' (acorns used as wayfinding), page 79
- Fig.4.30 Heritage, Potters field, page 79
- Fig.4.31 Susan Philipz, 'Station Clock', page 79
- Fig.4.32 David Nash 'Ash Dome', page 79
- Fig.4.33 KLA, Drapers Field, Water play jets, page 79
- Fig.4.34 Sector Landscape Architects, page 79
- Fig.4.35 Robert Orchardson, 'Three gates for Rathbone Place', page 79
- Fig.4.36 Zoning short section, page 80
- Fig.4.37 Zoning elevation, page 80
- Fig.4.38 Station exploded axonometric, page 81
- Fig.4.39 Axonometric of Western Concourse, page 82
- Fig.4.40 Internal visualisation - public concourse, page 83
- Fig.4.41 Internal visualisation - public concourse, page 84
- Fig.4.42 Western Concourse plan, page 86
- Fig.4.43 Internal visualisation - passenger concourse, page 87
- Fig.4.44 Axonometric of platform level, page 88
- Fig.4.45 Internal visualisation - platforms, page 89
- Fig.4.46 Platforms plan, page 90
- Fig.4.47 Axonometric of Eastern Concourse, page 92
- Fig.4.48 Visualisation (10) - New Canal Street Square, page 93

9.1.2 Figure List (Continued)

- Fig.4.49 Internal visualisation - Eastern Concourse, page 94
- Fig.4.50 Internal visualisation - Eastern Concourse, page 95
- Fig.4.51 Eastern Concourse Plan, page 96
- Fig.4.52 BOH office accommodation to the perimeter of the building to maximise daylighting and views to occupants to improve health and well-being and to reduce reliance on artificial lighting to limit energy consumption, page 97
- Fig.4.53 Urban realm servicing strategy, page 98
- Fig.4.54 Urban realm fire and evacuation strategy, page 100
- Fig.4.55 Example of robust street furniture suited to providing additional safety function, page 103
- Fig.4.56 Example of hard and soft landscape safety features at the Scottish Parliament, page 103
- Fig.4.57 Example of bollards located to facilitate pedestrian permeability, page 103
- Fig.4.58 Example of Cleveland Public Square safety features integrated into the landscape, page 103
- Fig.4.59 Example hard landscape steps and terraces that can also be used as safety features, page 103
- Fig.4.60 Example of operable features that can be coordinated with below ground utilities, page 103
- Fig.5.1 Diagram expressing the formal rhythm of the scheme, page 106
- Fig.5.2 Diagrammatic section describing the main volumes of the scheme, page 106
- Fig.5.3 Visualisation (View 1) - Birmingham Curzon Street from city centre, page 107
- Fig.5.4 Visualisation of station roof (trees removed for clarity), page 108
- Fig.5.5 Short section of Birmingham Curzon Station superimposed with that of St Pancras Station. St Pancras station's Gothic pointed arch roof canopy has a similar span to Birmingham Curzon's parabolic arch., page 109
- Fig.5.6 3D views of roof pods, page 110
- Fig.5.7 Roof fan pod and maintenance access details, page 111
- Fig.5.8 Rendering of roof soffit, page 112
- Fig.5.9 Timber roof soffit details, page 113
- Fig.5.10 Oregon Pine soffits, Amsterdam Bijlmer ArenaA station, page 113
- Fig.5.11 Perimeter fascia - Illustration of double curved corner, page 114
- Fig.5.12 Perimeter fascia details, page 115
- Fig.5.13 Examples of UHPC, page 115

- Fig.5.14 Internal visualisation - public concourse, page 116
- Fig.5.15 Visualisation of Birmingham Curzon Station entrance from Station Square, page 118
- Fig.5.16 Western gable section, elevation and axonometric, page 119
- Fig.5.17 North elevation, page 120
- Fig.5.18 Visualisation of roof piers, page 122
- Fig.5.19 Section, plans and axonometric of roof piers, page 123
- Fig.5.20 In-situ concrete viaduct columns, London Bridge Station, page 123
- Fig.5.21 Visualisation of longitudinal walls - North facade (trees removed for clarity), page 124
- Fig.5.22 North facade - retail unit section and elevation, page 125
- Fig.5.23 Visualisation of longitudinal walls - North facade (trees removed for clarity), page 126
- Fig.5.24 North facade - typical section and elevation, page 127
- Fig.5.25 Visualisation of longitudinal walls - North facade (trees removed for clarity), page 128
- Fig.5.26 North facade - staff entrance section and elevation, page 129
- Fig.5.27 South elevation, page 130
- Fig.5.28 Visualisation (View 9) of South facade - urban realm lift Paternoster Place, page 132
- Fig.5.29 Detail sections of public realm lifts on North (left) and South (right), page 133
- Fig.5.30 Example of open hydraulic lift adjacent to the Shard in London, page 133
- Fig.5.31 Axonometric of south elevation, page 134
- Fig.5.32 South facade - typical elevation and section, page 135
- Fig.5.33 Visualisation of canopy from platform level, page 136
- Fig.5.34 Typical section through canopy, page 137
- Fig.5.35 Oregon Pine soffits, Amsterdam Bijlmer ArenaA station, page 137
- Fig.5.36 Visualisation (View 7), platform looking towards the eastern facade of the main building, page 138
- Fig.5.37 Typical section through viaduct edge screens, page 139
- Fig.5.38 Eastern Concourse New Canal street frontage, page 140

- Fig.5.39 Eastern Concourse - facade types, page 141
- Fig.5.40 View approaching Andover street entrance from the South-East, page 142
- Fig.5.41 Entrances - southern entrance (left), eastern entrance (right), page 143
- Fig.5.42 Examples of pre-cast concrete colonnade, page 143
- Fig.5.43 Visualisation (View 10), from New Canal Street looking towards the OCSA, page 144
- Fig.5.44 Cross section at New Canal Street, page 145
- Fig.5.45 Cross section at Eastern Concourse, page 145
- Fig.5.46 New Canal Street Crop looking west, page 146
- Fig.5.47 Column profiles under New Canal St showing mosaic tile finish, page 147
- Fig.5.48 Mosaic tile columns, Amsterdam Bijlmer ArenaA station, page 147
- Fig.5.49 Views East of Eastern concourse towards approach viaduct and interface, page 148
- Fig.5.50 Cross section diagram of interface viaduct profile and "bookend" structure, page 149
- Fig.5.51 Axonometric views of interface, page 149
- Fig.5.52 Roof maintenance access view from north east, page 150
- Fig.5.53 Roof maintenance access plan (above and detail sections (below), page 151
- Fig.5.54 HS2 Station column extends into urban realm at Station Square, page 152
- Fig.5.55 Discreet light fittings will be well integrated into urban realm, page 152
- Fig.5.56 Conceptual diagram of urban realm lighting zoning, page 152
- Fig.5.57 Visualisation (View 11), New Canal Street View looking West, page 154
- Fig.5.58 Lightbox and spotlight diagram to U-beam cladding, page 155
- Fig.5.59 Strip downlighting diagram to lightwells, page 155
- Fig.5.60 Lighting cross section diagram GL 10-13, page 155
- Fig.5.61 Lighting reference images, page 155
- Fig.5.62 Visualisation (View 12), Eastern Concourse view from taxi drop off, page 156
- Fig.5.63 Column uplighting, page 157
- Fig.5.64 Lighting cross section diagram GL 13-end of station, page 157
- Fig.5.65 Lighting reference images, page 157
- Fig.5.66 Landscape and urban realm masterplan, page 158
- Fig.5.67 Example of gateway experience and sense of arrival, Rotterdam Centraal Station, page 160
- Fig.5.68 Example of stepped access route, page 160

Code 1 - Accepted

9.1

Curzon Station Independent Design Review Panel Report

9.1.3 Figure List (Continued)

Fig.5.69 Example of sequence of garden spaces, page 160	Fig.5.98 Example of flexible lawn space, page 180
Fig.5.70 Example of character of intimate dwell spaces created within the square, page 160	Fig.5.99 Example of temporary / permanent art and sculpture, page 180
Fig.5.71 Station Square and Paternoster Row landscape plan, page 161	Fig.5.100 Example of multi-functional streetscape with high quality paving, page 180
Fig.5.72 Illustrative model view of Station Square looking north east, page 162	Fig.5.101 Example of high quality materials and forest scale trees creating a sense of arrival, page 180
Fig.5.73 Illustrative model view of Station Square looking west towards Moor Street Queensway, page 162	Fig.5.102 Curzon Square and New Canal Street Square landscape plan, page 181
Fig.5.74 Station Square and Paternoster Row functionality, page 162	Fig.5.103 Curzon Square and New Canal Street Square functionality, page 182
Fig.5.75 Illustrative axonometric view of Station Square, page 164	Fig.5.104 Concept axonometric view of Curzon Square, page 184
Fig.5.76 Station Square illustrative view, page 165	Fig.5.105 Visualisation (View 8) of Curzon Square, page 185
Fig.5.77 Section location plan, page 166	Fig.5.106 Concept view of Curzon Square, page 186
Fig.5.78 Station Square Section AA, page 166	Fig.5.107 Concept view of Curzon Square, page 187
Fig.5.79 Section location plan, page 167	Fig.5.108 Section location plan, page 188
Fig.5.80 Station Square Section BB, page 167	Fig.5.109 New Canal St Square Section AA, page 188
Fig.5.81 Example of resting area adjacent to main pedestrian route, page 168	Fig.5.110 Section location plan, page 189
Fig.5.82 Example of naturalistic planting character, page 168	Fig.5.111 New Canal St Square Section AA, page 189
Fig.5.83 Example of public realm with opportunities to sit and dwell, page 168	Fig.5.112 Example of street enhancements prioritising pedestrian and cyclist movement, page 190
Fig.5.84 Example of SuDS rain gardens, page 168	Fig.5.113 Example of a series of linear rain gardens, page 190
Fig.5.85 Curzon Promenade landscape plan, page 169	Fig.5.114 Example of flexible lawn with planted boundaries enhancing habitat connectivity, page 190
Fig.5.86 Curzon Promenade functionality, page 170	Fig.5.115 Example of managed vehicular access, page 190
Fig.5.87 Illustrative section of Curzon Promenade multi-functional requirements, page 170	Fig.5.116 Curzon Square and New Canal Street Square landscape plan, page 191
Fig.5.88 Example of accessible resting area, page 172	Fig.5.117 Curzon Street and eastern arrival space functionality, page 192
Fig.5.89 View of Promenade accessible resting area and rain gardens, page 172	Fig.5.118 Section location plan, page 194
Fig.5.90 Illustration of the relationship between the station building northern facade and landscape of Curzon Promenade, page 173	Fig.5.119 Eastern arrival space Section AA, page 194
Fig.5.91 Illustrative axonometric view of Curzon Promenade, page 174	Fig.5.120 Section location plan, page 195
Fig.5.92 Illustrative visualisation of Curzon Promenade, page 175	Fig.5.121 Eastern arrival space Section BB, page 195
Fig.5.93 Visualisation (View 1) of the landscape and urban realm proposals looking east along Curzon Promenade, page 176	Fig.5.122 Example of informal footpaths for maintenance and educational visits, page 196
Fig.5.94 Section location plan, page 178	Fig.5.123 Example opportunities for sculpture / educational trail, page 196
Fig.5.95 Curzon Promenade Section AA, page 178	Fig.5.124 Example of urban woodland edget, page 196
Fig.5.96 Section location plan, page 179	Fig.5.125 Example of land art reference to heritage asset, page 196
Fig.5.97 Curzon Promenade Section BB, page 179	Fig.5.126 Canalside and Environmental Mitigation Area landscape plan, page 197
	Fig.5.127 Illustrative axonometric of Curzon Street landscape, page 198

Fig.5.128 Illustrative axonometric of EMZ landscape, page 199
Fig.6.1 Accessibility plan, page 202
Fig.6.2 Diagram to show main flows of pedestrian customer traffic throughout the western concourse, page 206
Fig.6.3 Diagram to show main flows of pedestrian customer traffic throughout the eastern concourse, page 207
Fig.6.4 Diagram to show main flows of pedestrian customer traffic at platform level, page 208
Fig.6.5 Visualisation (View 13), view toward East Concourse South Entrance, page 210
Fig.6.6 Visualisation (View 14), view through RBS viaduct along New Canal Street, page 210
Fig.6.7 Pedestrian movement, page 210
Fig.6.8 Cyclist movement, page 212
Fig.6.9 Vehicle movement and intermodal connectivity, page 214
Fig.6.10 Night-time movement and activity, page 216
Fig.7.1 HS2 sustainability goals, page 220
Fig.7.2 Concept section illustrating wider environmental systems of the scheme, page 221
Fig.7.3 BREEAM and sustainability - landscape and urban realm, page 222
Fig.7.4 Surface water management strategy, page 224
Fig.7.5 Example of urban SuDS rain garden in Sheffield, page 224
Fig.7.6 Example of SuDS meadows at the 'Grey to Green' project in Sheffield, page 224
Fig.7.7 Yellow-faced bee, supported through planting of Wild mignonette (Reseda lutea), page 226
Fig.7.8 Black Redstart, a species favouring rocky, open habitats, page 226
Fig.7.9 Bird boxes, page 226
Fig.7.10 Planting to support biodiversity, page 226
Fig.7.11 Biodiversity strategy, page 226
Fig.7.12 Axonometric diagram describing PV strategy, page 229

HS2 INDEPENDENT DESIGN PANEL

REPORT

Curzon Street Station Design Panel Meeting to discuss the Schedule 17 Stage Design for Curzon Street Station

10.30 – 14.30 Monday 9 September 2019

Curzon Street Station Design Panel

Les Sparks (chair)
Sam Richards
Xanthe Quayle
Martin Stockley (23 July only)

Attendees

Hala Lloyd	Lead Architect, HS2 Ltd
Tom Wilne	Project Director N3 Area North, HS2 Ltd
Chris Sharp	Town Planning Manager Area North, HS2 Ltd
Biljana Savic	Urban Design and Integration Manager, HS2 Ltd
Laura Kidd	(23 rd July only)
Anne Mullins	(23 rd July only)
Nicola Henderson-Reid	(23 rd July only)
Jiten Davdra	(23 rd July only)
Steven Fancourt	(23 rd July only)
Chris Hayter	WSP
Neven Sidor	Grimshaw
Nicola Whiting	Grant Associates
Peter Higginbottom	CJ Associates
Magda Cockerill	(23 rd July only)
Simon Delahunty-Forrest	Birmingham City Council
Nicholas Jackson	Birmingham City Council
Jenny Walters (23 rd July only)	
Stuart Wiltshire (23 rd July only)	
Gary Woodward (23 rd July only)	
Sarah Ridley	Department for Transport
Deborah Denner	Frame Projects

Apologies / copied to

Gary Woodward	Birmingham City Council
Nicola Henderson-Reid	Senior Project Manager Area North, HS2 Ltd
Alice Williams	PA to Interim Design Director, HS2 Ltd
Bridget Jackson	Head of Benefits, HS2 Ltd

Delivered by Frame Projects



Christoph Brintrup	Design Director, HS2 Ltd
Clive Green	Senior Communications Manager, HS2 Ltd
Giles Thomas	Phase One Engineering Director, HS2 Ltd
Laura Kidd	Head of Architecture, HS2 Ltd
Joanna Averley	Head of Urban Integration, HS2 Ltd
Mariyam Ijaz	Assistant Project Manager, HS2 Ltd
Mike Luddy	Director of Stations Commercial Development, HS2 Ltd
Paul Gilfedder	Head of Town Planning, HS2 Ltd
Tom Venner	Commercial Development Director, HS2 Ltd
Zoe Stewart	Lead Design Manager, HS2 Ltd

Note on Design Panel process

The HS2 Independent Design Panel was established in 2015 at the request of the Department for Transport, to help ensure that, through great design, HS2 delivers real economic, social and environmental benefits for the whole country.

The HS2 Design Vision sets out nine principles grouped around three themes: People; Place; and Time. The panel uses this framework to help the HS2 Ltd leadership, project teams and other partners to make the right design choices. This also informs its advice on designs that are to be submitted under Schedule 17 of the Phase One HS2 Act.

The panel plays an advisory role, providing impartial and objective advice, to support the design process. At pre-application stage it is for HS2 Ltd to decide what weight to place on the panel's comments, balanced with other considerations. Once a Schedule 17 application is submitted, the panel's advice may inform the local planning authority's decision-making process.

The HS2 Independent Design Panel comments below follow on from seven pre-application reviews and six mentoring sessions for Curzon Street Station.

Further details of panel membership and process are available at:

<https://www.gov.uk/government/publications/hs2-design-panel>

Timing of Schedule 17 meeting

This report captures design panel comments made over two meetings, held: 23 July 2019 and 9 September 2019.

This meeting took place in advance of Schedule 17 submission for Curzon Street Station. The proposed station and public realm are intended to be split into three separate Schedule 17 consents packs and one Town and Country Planning Act submission as follows:

- Station (Schedule 17 submission)
- Public Realm (Schedule 17 submission)
- additional Birmingham City Council funded public realm
- Paternoster Place (Town and Country Planning Act submission)

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

HS2 Ltd confirmed there will be no significant design changes to Curzon Street Station building and public realm prior to applications being submitted.

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

Views of the Local Planning Authority

The Birmingham City Council (BCC) welcomes the proposals for Curzon Street Station and feels that the designs are broadly successful in delivering on the aspirations of its 'Big City Plan'. The Schedule 17 stage scheme promises to create a station that people in Birmingham can be proud of. Some issues remain to be resolved as detailed designs are developed towards construction, for example tree selection. The Council will need to be involved in decision making as this work continues.

In the area around the station, an enhanced scheme has been developed for the landscape design, which will be part-funded by BCC. In general the council supports these public realm proposals. The main area in which they feel there is scope for improvement is the design of Paternoster Square. The Council has also commissioned AECOM to produce designs for Moor Street Queensway. The intention is for these schemes to be delivered at the same time as Curzon Street Station and public realm. HS2 Ltd is also working with the Council to develop a long-term public realm management and maintenance strategy.

There are a number of commercial development opportunities around the site, and it is essential that the Council is fully engaged in the design development for these, should they be taken forward.

The Council confirmed it will make all Schedule 17 documents publicly available including the report of the Schedule 17 stage Design Panel meeting. Birmingham City Council thanked the panel for its support throughout the design process.

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

Curzon Street Station Design Panel's views

Summary

The panel applauds the design of Curzon Street Station, which has achieved an elegant simplicity that belies the complexity of its technical requirements. The huge efforts required by all involved to achieve this solution are recognised by the panel. It follows in the tradition of great railway stations like St Pancras, by celebrating its engineering. Once completed, it will offer an uplifting point of arrival and departure for Birmingham. The relationship with the historic Curzon Street Station has been handled with sensitivity and promises to be successful. The panel is supportive of the overall approach and feels the Schedule 17 stage designs meet the aspirations of the HS2 Design Vision - subject to the design quality promised by the current scheme being maintained through to construction.

The panel welcomes the clarity of the landscape vision for the public realm, including the variety of typologies developed for different spaces. It considers the proposals to be both ambitious and deliverable. Confirmation that the enhanced scheme will be delivered at the same time as the base scheme, and that high-quality materials will be used seamlessly across both, is also welcomed. The main area of the landscape design that requires further exploration is Paternoster Square, however, this will be the subject of a separate Town and Country Planning application. The panel also thinks that the Schedule 17 application should be very clear about the areas of the landscape that will become development sites in the future – so that the public understand those areas which are 'meanwhile' spaces.

Whilst offering its support to the Schedule 17 stage designs for both station and the surrounding public realm, the panel made a number of suggestions to be considered as detailed design work continues. It will also be essential that any commercial development adjacent to the main station square, does not compromise the quality of this important new civic space.

Station architecture

- The panel thinks that the designs for Curzon Street Station represent a deceptively simple celebration of the building's engineering – following on in the tradition of great stations such as St Pancras.
- The arch structure on which the station design is based is a simple concept, but it has been realised in a refined and subtle way. The panel thinks this is successful in creating a station design with the civic quality that Birmingham deserves.
- Technical details such as the roof cowl, lighting poles, and retail frontages have all received careful thought, so that they contribute to the quality of the station overall.
- The panel is particularly appreciative of the way lifts have been integrated, so that the experience of using these is equal to the experience of using escalators – which is often not the case in existing stations elsewhere.

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

- It will be essential that the design quality promised by the current scheme is maintained through to construction stage.
- For example, where in situ concrete columns are proposed, craftsmanship at the construction stage will be critical to achieving the design intent of the Schedule 17 scheme.

Station management

- The panel warmly welcomes the confirmation that no 'ad-hoc' commercial units will be allowed in the station and that guidelines will be developed to ensure long term management arrangements are in place to maintain the station's design quality.
- Careful thought has been given to the integration of advertising space, but it will be equally essential for clear guidance to be put in place to control the way this is used – so that it does not detract from the experience of arriving in Birmingham, for example, at the entrance to the eastern concourse which will be framed by retail units.

Public realm design

- The panel finds much to admire in the clear vision for the public realm surrounding Curzon Street Station, including the different typologies for each space and the emerging tree and planting strategy. Proposals are both ambitious and deliverable.
- The panel suggests the team give further consideration to how the vision can communicate the influence of Birmingham's rich culture and heritage.
- During detailed design, the panel suggests a cultural narrative is developed that will help ensure the delivered scheme speaks of the place.
- It thinks careful consideration should be given to usability, in particular, who will use these spaces and what their needs are. This will help ensure decisions made during detailed design and in terms of the ongoing management and maintenance, foster an environment that is welcoming and inclusive of Birmingham's broad range of communities.
- The panel notes the importance of learning lessons from projects such as the Queen Elizabeth Olympic Park, to help guide solutions to this complex but critical issue.

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

Code 1 - Accepted

Base and enhanced schemes

- The panel is pleased that the enhanced scheme will be delivered at the same time as the rest of the public realm and that high-quality materials will be used seamlessly throughout.

Paternoster Place

- The panel understands that Paternoster Place will be the subject of a separate Town and Country Planning application. Insufficient information was presented on this space for the panel to give this its unequivocal support, and a further review would be welcomed.
- The move away from long security bollards to embedding security features within the landscape is positive. However, investigations are ongoing to understand the feasibility of these revised security proposals.

Planting

- The panel welcomes the overall tree and planting strategy, including the focus on selecting native and local species; this will play an important role in ensuring the different landscapes are specific to Birmingham.
- During detailed design, it suggests the team undertake a review of the proposed species selection to take account of any known issues. For example, pathogens affecting Plane trees, and the suitability of Digitalis plants which contain toxins harmful to humans if ingested.
- The panel has some concerns about the strategy of allowing flexibility in species selection at delivery stage. Tree planting is an important element of the landscape design, and it suggests the team further considers what mechanisms can be put in place to ensure this will not be compromised.

Biodiversity

- The panel welcomes the emerging ideas for habitat creation but thinks the team should further consider how this can be made specific to Birmingham and the West Midlands. One way in which this could be achieved would be to plant 'local' wildflowers to maximise biodiversity, for example bird life.
- During detailed design, the panel thinks further consideration should be given to how the landscape could evolve over time, and how maintenance regimes can help support biodiversity in this urban environment.

Landscape maintenance

- The panel recognises that giving responsibility for landscape maintenance to the station operator could help ensure the landscape retains its important role in the station's operation.

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

- However, it thinks the landscape needs to be managed by an organisation who will put their heart and soul into protecting, nurturing, and curating public spaces around the station. This might be better achieved by a local organisation, committed to maintaining the vision for what will become highly valued green spaces in Birmingham.
- As detailed design work continues, the panel encourages HS2 Ltd and the City Council to investigate innovative models for landscape maintenance, that could involve the local community. This could help achieve much richer public space, that creates a lively environment around the station.

Security

- The panel acknowledges the careful thought that has been given to integrating security requirements into the public realm – but thinks there remains scope to make this less obtrusive.
- For example, on Bordesley Street the security solution has the appearance of bollards with depth, and the panel finds this cumbersome.
- Although the use of bollards is minimised, the security line remains quite apparent. The panel would encourage further thought about how to integrate security seamlessly into the landscape designs.
- Collaboration with the HS2 Ltd Arts and Culture team could help achieve more creative solutions.

Commercial development

- The panel welcomes the exploration of commercial development opportunities around Curzon Street Station, recognising the potential this has to ensure that HS2 is a 'catalyst for growth'.
- It appreciates these studies are a separate piece of work to the Schedule 17 stage submissions for the station, however it will also be essential that any commercial development adjacent to the main station square, does not compromise the quality of this important new civic space.
- It suggests as this work continues HS2 Ltd give careful consideration to the impact on existing proposals, such as the 'quality' of spaces, and any necessary changes to the design, for example where new desire lines would be generated. It will be essential that the intent and design quality of the station and public realm developed to date is protected.
- The panel also thinks that it is important that the public is given clarity on where commercial development opportunities are being explored. For this reason the Schedule 17 submission should make clear which parts of the public realm will be 'temporary'.

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

Next steps

Overall the panel feels the Schedule 17 scheme for Curzon Street Station, including public realm, meets the aspirations of the Design Vision. It trusts that this level of design quality will be followed through as detailed design work continues towards construction, and that the comments outlined above can help inform this process.

The panel suggests the Design and Access Statement included within the Schedule 17 submission refers to issues raised in this report and responds to them.

The panel would welcome an opportunity to comment on Paternoster Place, once more design information is available. It also offers its continuing support at the detailed design stage for both station and public realm, and for the adjacent commercial development.

Report of Curzon Street Station Design Panel meeting
9 September 2019
HS2-IDP-02U-Curzon Street Station

Code 1 - Accepted