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SCIENCE AND INDUSTRY MUSEUM

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1
INTRODUCTION

Project Background

In 2022 A Public Realm Options and Feasibility Study was commissioned by the Science Museum Group. The study sought to enhance the quality of the Science and Industry Museum site through the potential of its external spaces, or public realm.

The heart of the project was to consider the site through the public realm allowing consideration the collective nature of the site, the relationships between the different buildings, spaces and experiences, and the wider connections.

Planit and Jane Simpson Access were appointed to undertake the Public Realm Feasibility works proposals which focussed on complementing the Museum's offerings through improvements to visitor experience, particularly in terms of accessibility around the estate. Key to the design development were the outputs aimed at producing a strategy that identified a range of potential site interventions to complement the wider changes within the Museum's estate. Building on this initial strategy,

The Public Realm Design Proposals. in 2023, Planit partnered with a consortium of consultants, including Buttress Architects, Buro Happold Engineers, Deloitte Planning Consultants, Appleyard and Trew, KOK Surveyors, and Rachel Hacking Ecology, to advance the project. Together, they developed detailed landscape proposals for multiple phases outlined in the application:

- Phase 1 - the Upper Yard,
- Phase 2 - the Station Approach,
- Phase 3 - Temporary Route in Heart Space, and;
- Phase 4 - Former Location of the Vehicle Ramp.

Science and Industry Museum in the City

The Science and Industry Museum is situated within a prominent historic site in Manchester.

It is the place of the world's first steam powered inter-urban railway linking Manchester to Liverpool, designed to transport passengers, as well as imported goods which arrived in the flourishing port of Liverpool including slave-produced goods such as cotton. The museum is formed by a number of railway warehouses and ancillary buildings and there the public realm sits within the core space between the built forms.

The Science and Industry Museum is a key focal point in this area of the City and acts as a key link between a number of cultural destinations. The Museum is situated on the western side of Manchester city centre between the River Irwell and

Deansgate. Water Street to the west provides the main connection between Salford and Manchester. This street is also subject to significant alterations with the development of the new Aviva Studios building.

Train Stations providing regular train services to Manchester are at walking distance to/from the site: Deansgate Train Station and Metrolink are within 5mins walking distance providing connections to/ from the region and Greater Manchester whilst Salford Central and Victoria Stations are within 15mins walking distance, providing regional and national connections.

The Museum's heritage as the site of the first inter-city railway in the world, shapes the inherent character and built form of the Site today, such as the level changes across the Site, the red brick materiality and features such as arches, metal colonnades, cobbles and tracks. These elements bear witness of what was once the Station and working yards.

.

The Site is relatively self-contained within the surrounding built context, due to the nature of the Site's historical development and the presence of a boundary wall, surrounding the extent of the Site.The boundary to the north is more porous as it was once integral to the whole site, currently security fences delineate the different ownerships and access.

The Site is located within an area of cultural destinations, including the newly developed Aviva Studios, Castlefield Viaduct, Castlefield Basin, Castlefield Bowl, St John’s Gardens, Spinningfields and the commercial district of Deansgate.

Please refer to chapter 2 for further details of contextual development.

Phasing

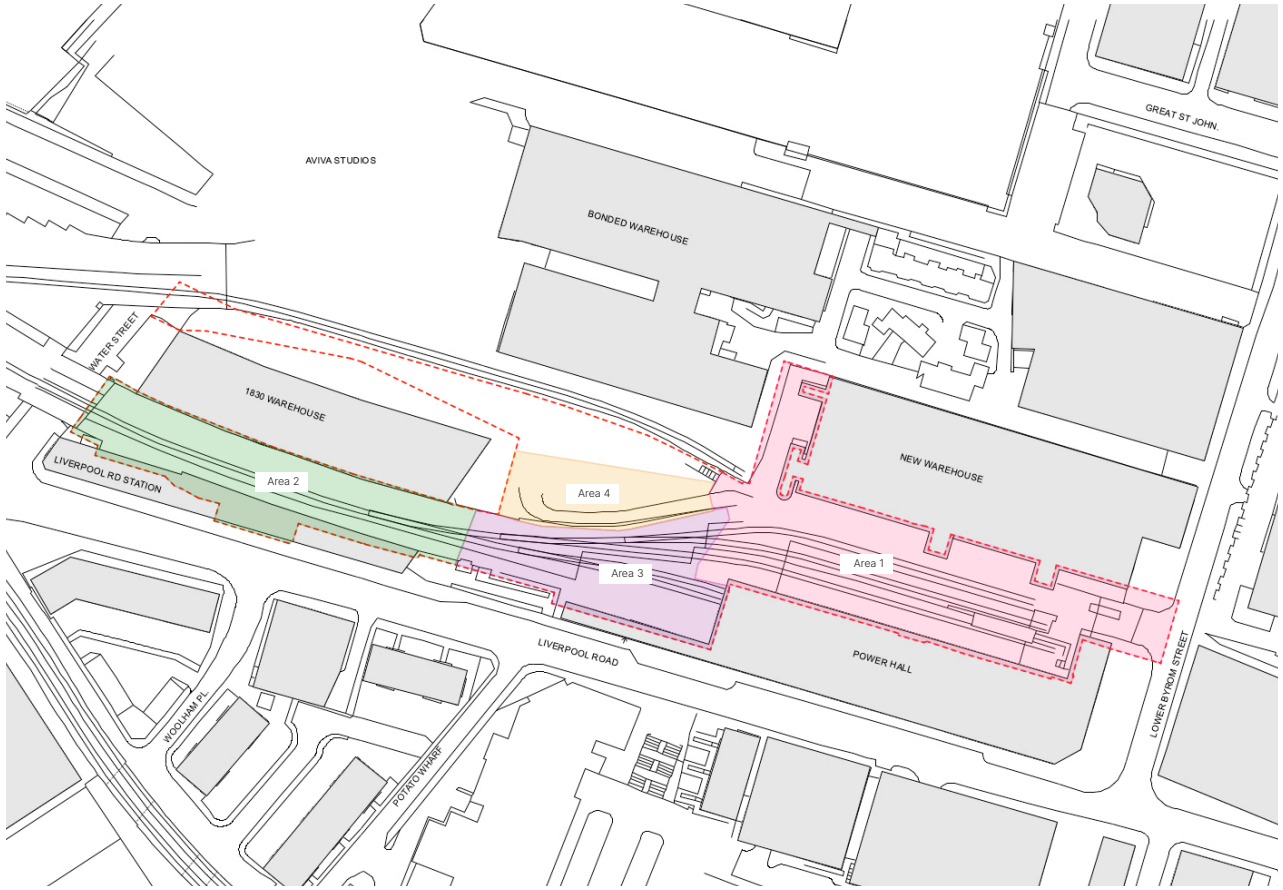
The strategies and approaches outlined throughout the document have been prepared for the whole museum site. It will be delivered as a series of projects, prioritised and considered in the context of their impact on visitor experience, access and cost.

Starting with the Upper Yard, the more permanent projects would mark the beginning of the ambitious plans for the site transformation. The project will dovetail the renovation of the Power Hall in order to complete the most operational section of the site.

The Station Approach will be considered around the same time to coincide with waterproofing works implemented within this area.

The temporary route in the Heart Space connecting both these spaces will form the next phase.

The former location of the Vehicle Ramp will form the last phase of the proposals subject to this planning application.



Area 1 -4 Phasing Diagram

Key

- Planning Boundary
- Area 1 - Upper Yard (including Plant Deck)
- Area 2 - Station Approach
- Area 3 - Temporary Route in Heart Space
- Area 4 - Former Location of the Vehicle Ramp

Structure of this Report

The Public Realm Options and Feasibility Study outlined a series of projects, prioritised and considered in the context of their impact on visitor experience, access and cost.

This application is for the first phase of works identified as part of that study, the Upper Yard and Station Approach.

Within the Appendices are indicative costs provided by Appleyard and Trew. These high level costs represent the emerging designs and are summarised for indicative purposes only. Further review and development of these costs are essential with the scope and phasing of any potential project/s. Consideration is required of assumptions, basis and exclusions.

The report is structured into six sections to provide a comprehensive overview of the project design proposals:

Chapter 1 - Introduction: Introduces the project background and objectives.

Chapter 2 - Context: Considers the broader context of the site and detailed site analysis, including adjacent developments, heritage significance, and accessibility.

Chapter 3 - The Masterplan: Highlighting the site's rich heritage, the masterplan section presents an overarching vision for the entire public realm, outlining design principles and approaches to inform the landscape character. This section also identifies key considerations and constraints shaping the site's development, along with specific opportunities for intervention and adaptation in the Upper Yard and Station Approach areas. Strategy diagrams illustrate the proposed impact on various aspects, including access, visitor experience, materials, permeability, and sustainability, culminating in a site-wide public realm masterplan vision.

Chapter 4 - Detailed Design Proposals: This chapter delves into detailed design proposals for the initial phase of works, focusing on the Upper Yard and Station Approach. Beginning with an analysis of key area aspects, the chapter progresses to summarize design development and explore materiality, such as hardworks, drainage, utilities, furniture, boundary treatments, and softworks. The chapter concludes by outlining emerging proposals for these character areas.

Chapter 5 - Access: This section describes the evolving designs and final proposals for the detailed areas, incorporating strategies for pedestrian and service movement, and discussing implications of the levels strategy on accessible routes.

Chapter 6 - Framework Management Plan: The report concludes with a section addressing framework management planning, providing a structured approach to oversee and maintain the site's development over time.

2
CONTEXT

Snapshot of the Place

The museum is part of a wider complex of transportation and storage Warehouses, viaducts, railway lines and arches, which bear witness to the industrial revolution.

To understand Science and Industry Museum as a place, we need to understand its surrounding context.

Science and Industry Museum features

1. Power Hall and office
2. New Warehouse
3. 1830 Warehouse
4. 1830 Station
5. Station House
6. Viaduct and Pineapple Line and Colonnades
7. Upper level (outside of Science and Industry Museum ownership)
8. Ordsall chord
9. Bonded Warehouse
10. Upper Campfield Market Halls
11. Castlefield Basin and viaducts
12. St John's Gardens
13. Great Northern Warehouse
14. Castlefield Urban Heritage Park



Science and Industry Museum site and surrounding significant structures

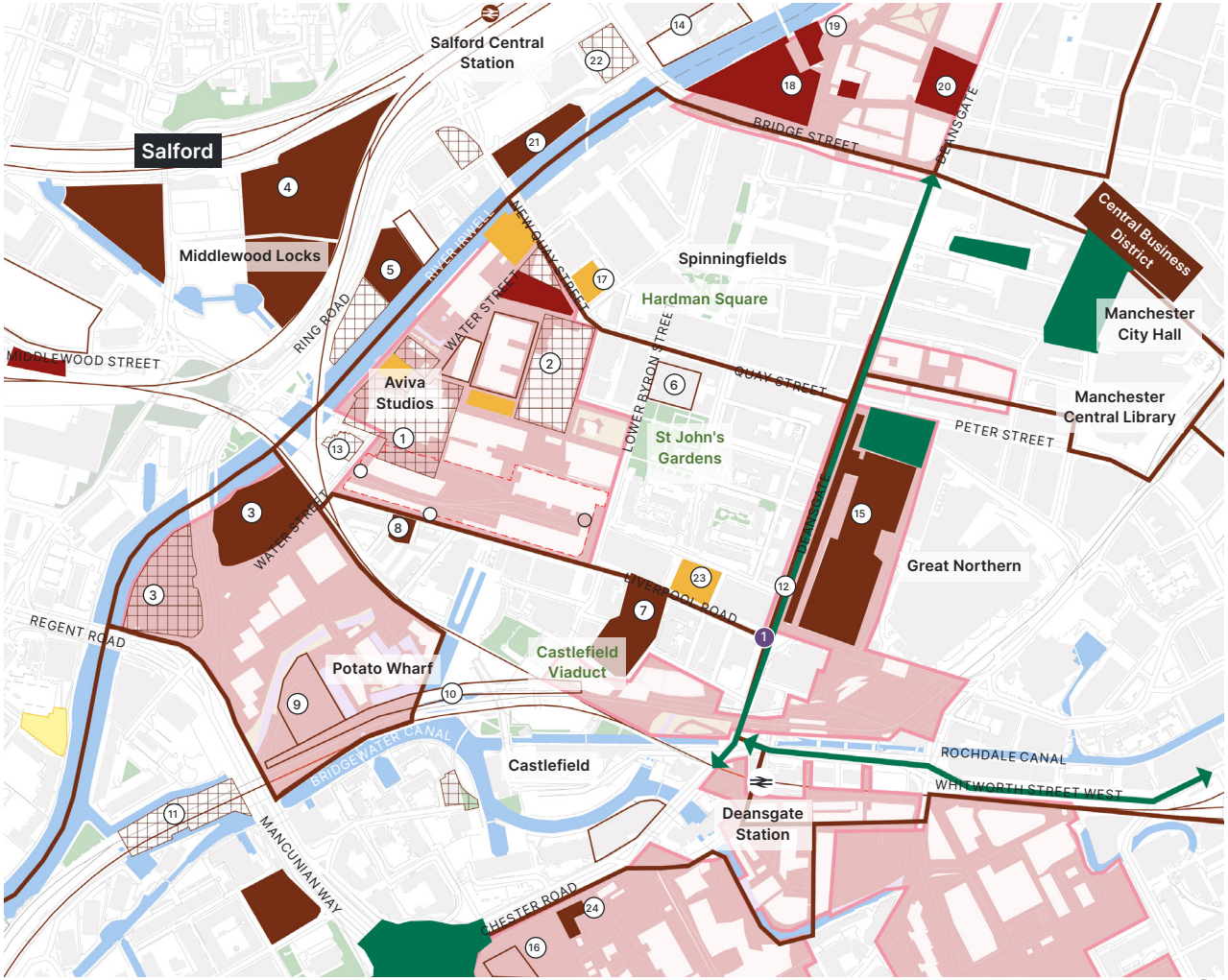
Spatial Regeneration Frameworks, Townscape Character and Major Developments

Science and Industry Museum has a great role to play within this emerging context, in term of uses and accessible open space, but also in the narrative of the place, and Manchester's unique history.

Key

- Development project recently completed
- Development project under construction
- Development project planning application approved
- Development project planning pending
- Development project pre-planning
- TfGM Street For All
- Strategic public realm projects
- Strategic Junction improvement
- Townscape Characters
- Spatial Regeneration Frameworks

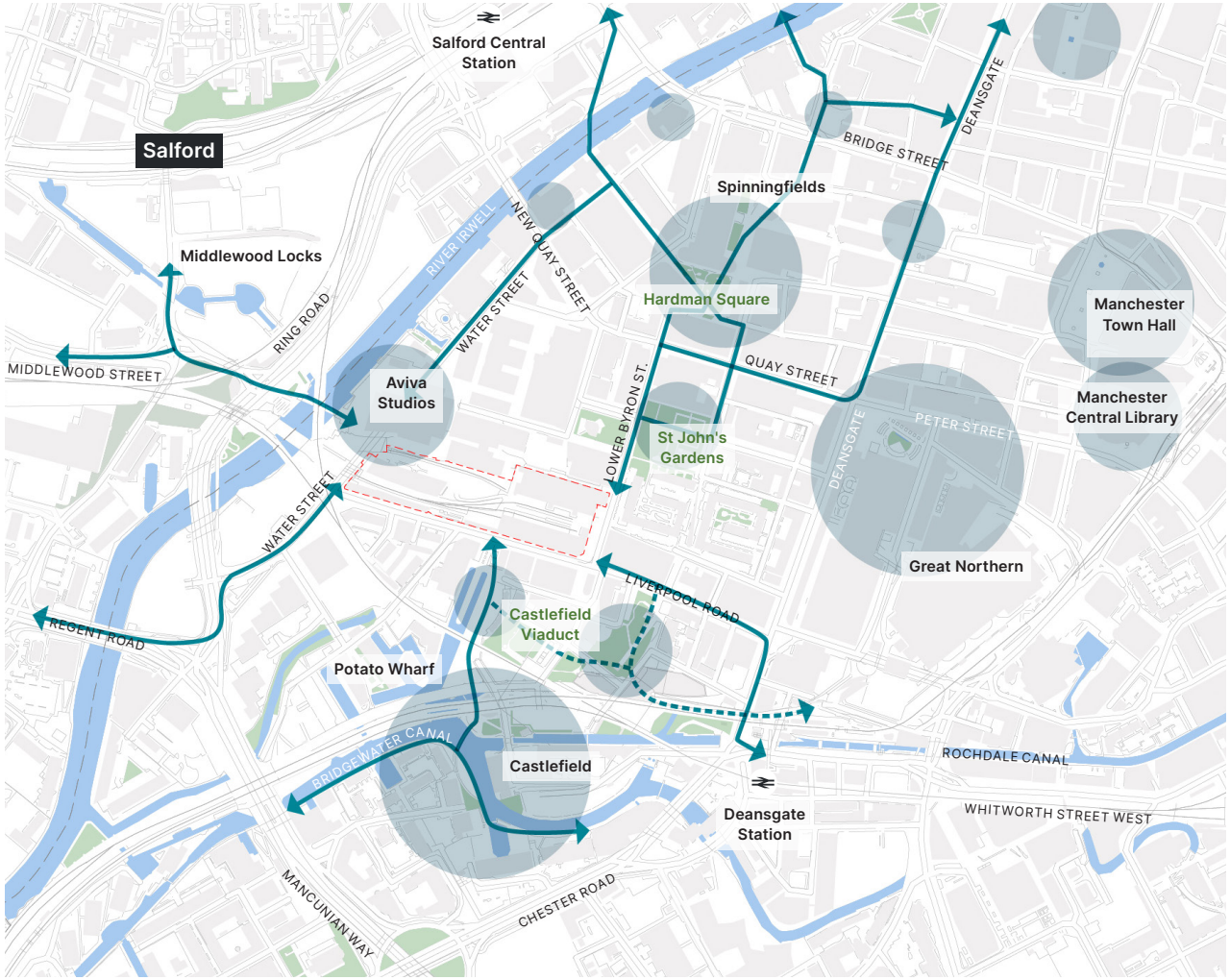
1. Aviva Studios
2. St John's Masterplan
3. Trinity Islands
4. Middlewood Locks
5. Salford Central
6. ABC building completed in 2020
7. Landscaping the Roman Gardens
8. Zoe hotel Castlefield
9. Potato Wharf complete in 2022
10. Castlefield Viaduct High Garden
11. Embassy Village
12. Deansgate Street for All
13. Ordsall Chord Arches
14. Affinity Living Riverview
15. Great Northern Warehouse
16. Elizabeth Tower
17. 'Colloco'
18. Albert Bridgehouse
19. The Alberton
20. Kendals and Fraser
21. Ralli Quays
22. Four New Bailey
23. Castlefield House
24. Bridgewater House



Views and approaches location plan

Journey to the Museum

There are several ways from which to approach the Museum. Some are clear and safe, and well defined, whilst others are emerging, more convoluted and in need to improvements to create safer pedestrian and cycle connections.



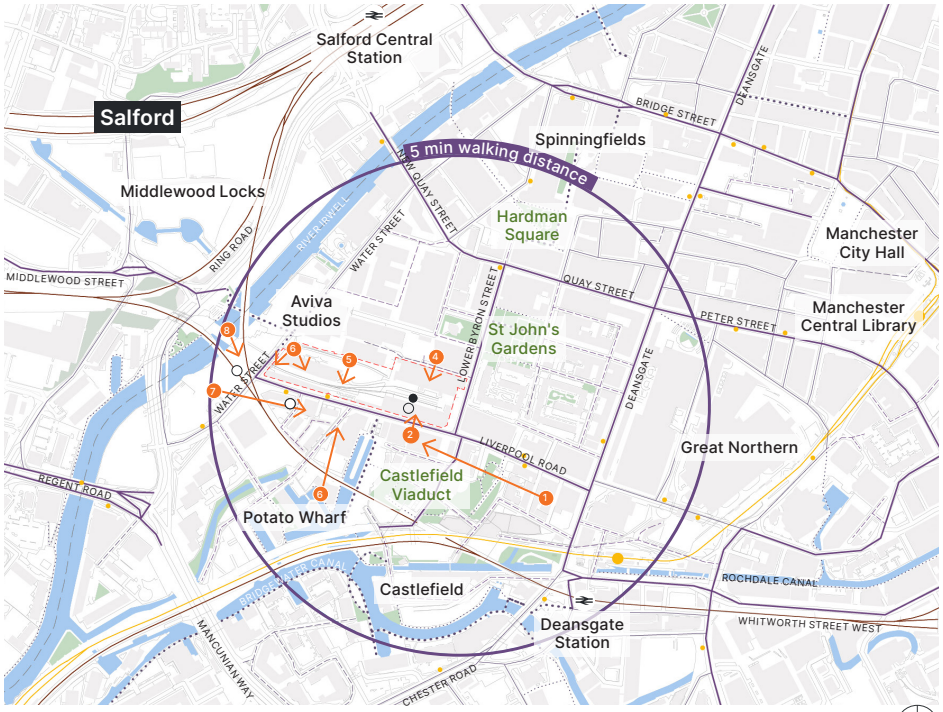
Journey to the museum

Key

- Journey to the museum from key destinations
- Key moment along the journey

Access, Movement and Views

The Science and Industry Museum's setting allows for long range views from various points within its immediate surroundings, setting this site apart as a landmark.



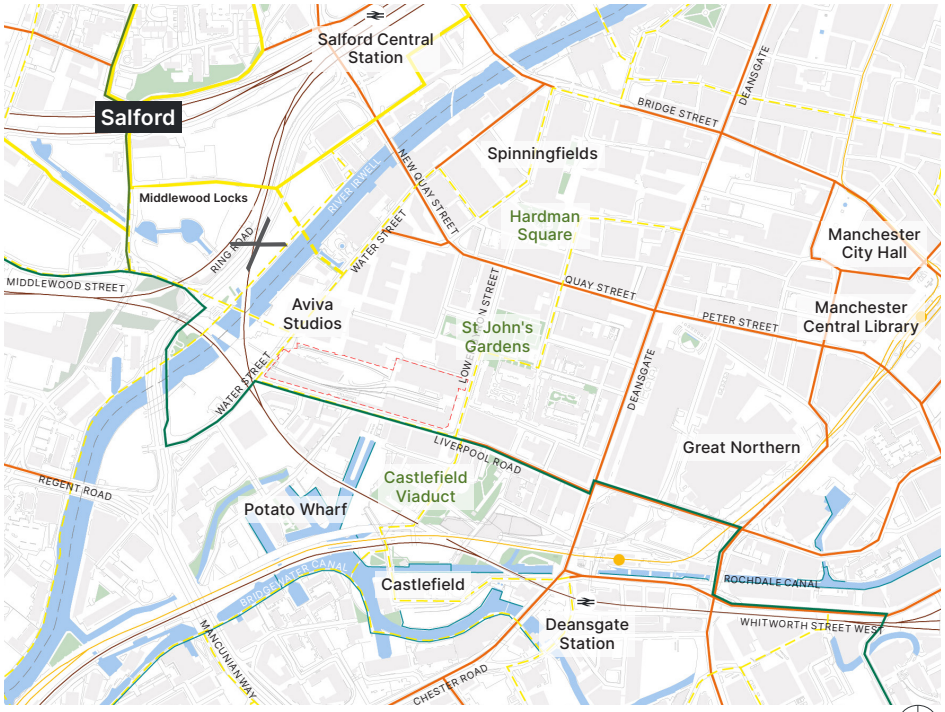
Access, Pedestrian and traffic free movement plan

Key

- Primary movement
- Secondary movement
- Local access movement
- Key views to the site
- Main traffic free movement
- Traffic free movement
- Main entrance
- Metrolink
- Trainline
- 5mins walking radius
- Bus stops
- Service entrances

Bee Network and Active Travel

Proposed Bee Network circle the Science and Industry Museum site, along Water Street, Liverpool Street and Lower Byrom Street putting the Museum right in the heart of local cycle network.



Bee Network and active travel plan

Key

- Delivered Bee network
- Proposed Bee network
- Busy Bee network
- National Cycle Route 6
- Metrolink
- Trainline
- Towpaths

Open spaces, Blue and Green Infrastructure

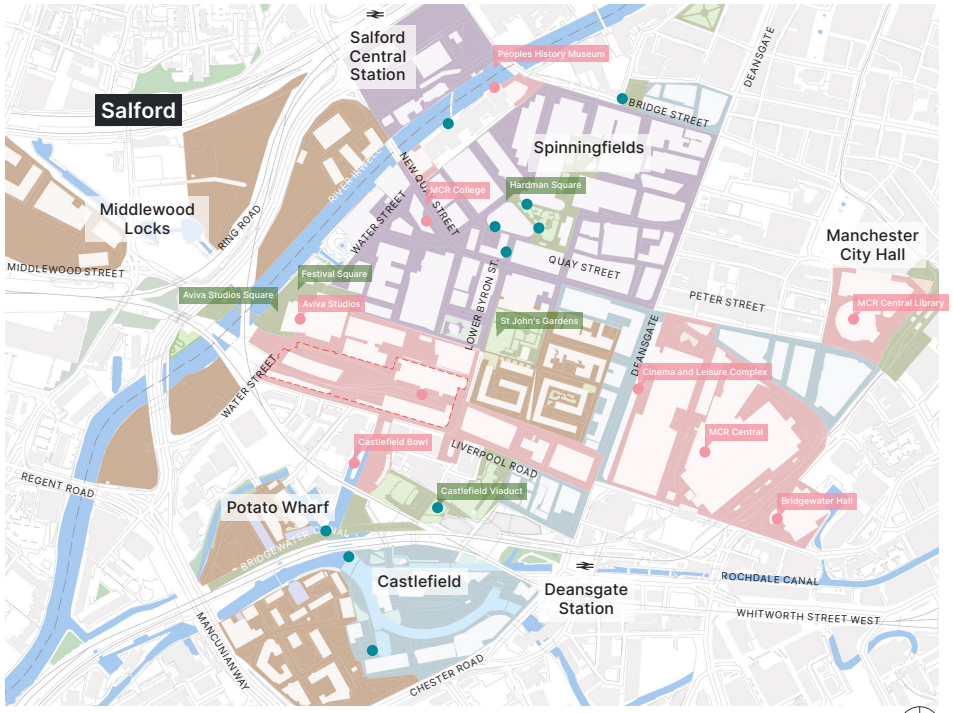


Open space and blue and green infrastructure plan

Key

- Green spaces
- Hard traffic free spaces
- Flood risk high
- Flood risk medium
- Flood risk low
- Flood by surface water low

Land Uses



Land uses plan

Key

- Existing and emerging residential neighbourhood
- Cultural and Leisure
- Key commercial and employment district
- Retails
- Open Public / Accessible Spaces
- Cultural Destination
- F&B hotspot

A Snapshot Through Time

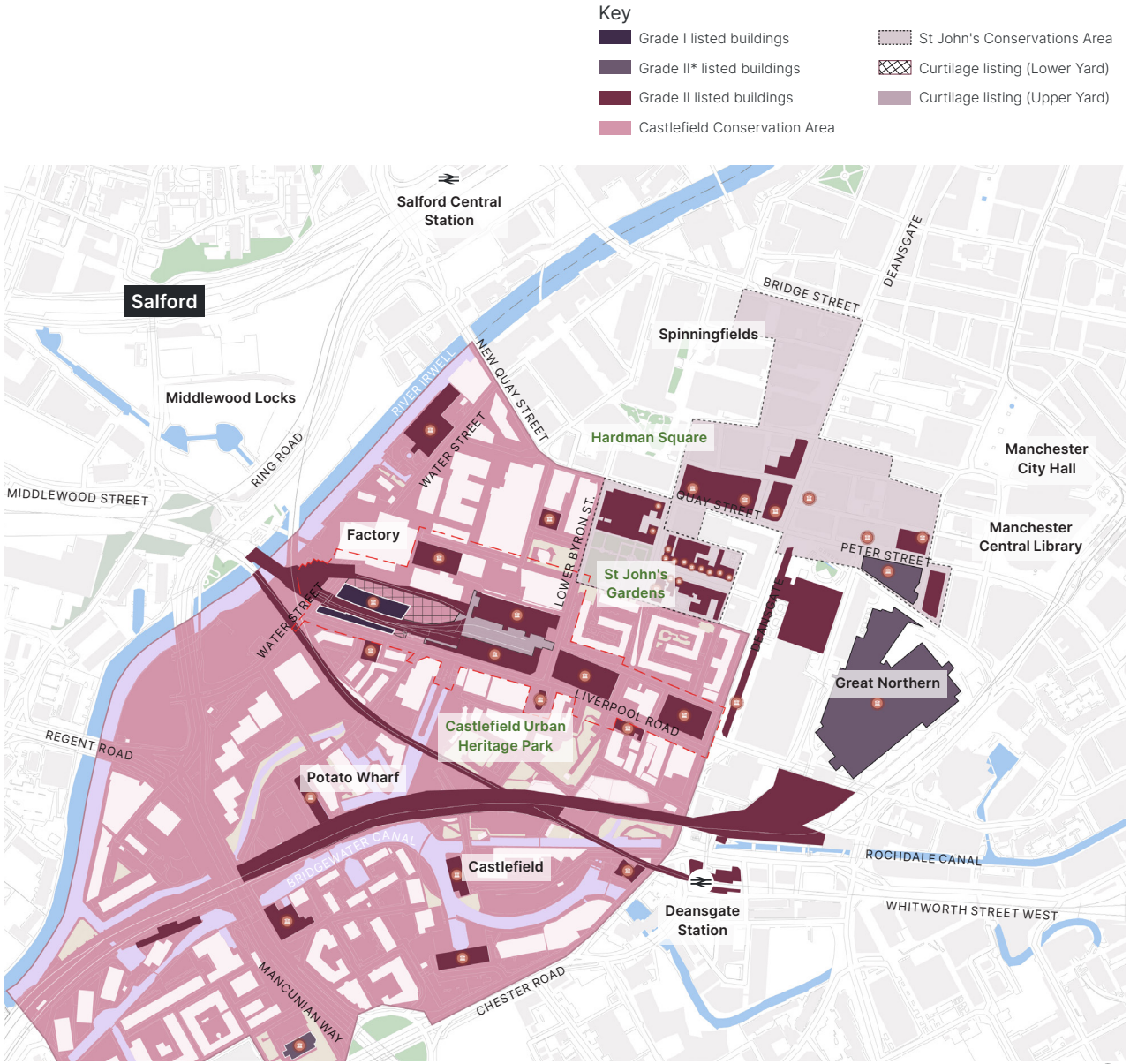
The Science and Industry Museum sits within Castlefield Conservation Area and includes a number of Grade I and II listed buildings and structures.

Castlefield was designated Britain's first Urban Heritage Park in 1983, which led to significant public sector investment, contributing to the cultural tourist destination we see today.

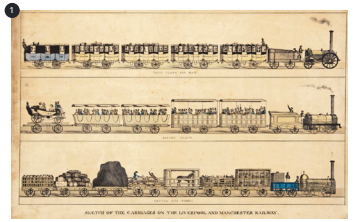
At present, the 'Urban Heritage Park' feels disjointed and fragmented, lacking a clear trail or sequential journey from key arrival points and through the area. This lack of flow or legibility is exacerbated by the 'inward facing' nature of the site, presenting blank elevations and limited activity along key boundaries, including Water Street and Liverpool Road.

Furthermore, the highway treatment along Liverpool Road segregates the museum from its historic setting to the south, with limited crossing potential and low quality public realm.

Beyond the boundary of the conservation area, the site is linked by rail viaduct with former Central Station to the east and Deansgate Station to the southeast; part of a wider historic network which once powered the industrial revolution.



Conservation and heritage plan



1. Sketch capturing the carriage typologies used to segregate classes and goods along the railway

18th Century

Water

- In the 1720s the River Irwell was made navigable, sparking industrialist interest in Manchester as a strategic destination.
- 1734 - Edward Byrom financed the first quay on the Irwell for loading and unloading goods. This led to the construction of Quay Street between Deansgate and the river.
- 1758 - 1761 - The Duke of Bridgewater employed James Brindley to construct the first canal in Britain, The Bridgewater Canal, which halved the price of coal.
- By the end of the 18th Century, Castlefield was a hub for a new canal network across the City, which brought with it opportunistic industrialists looking to take advantage of the networks ability to move goods - creating an industrial landscape of Warehouses, factories and mills.
- The development of the waterways marks the start of the Industrial Revolution where Manchester's textiles Industry begins to boom.

1800 - 1830's

Rail and engineering'

Blending of Science and Industry

An era of scientific innovation - new machines, new energy sources (coal and steam), new materials and new modes of transport. Already a strategic destination for industry, the arrival of the rail and an innovation drive powered Manchester as the industrial location. Liverpool Road Station became a pioneer and catalyst for Manchester's industrial expansion.

- Society was moving from an Agrarian to an industrial society, powered by new methods of transport.
- In the early 19th Century science was becoming fashionable, as upper class entrepreneurs and industrialists began to invest in science in order to deliver more efficient (and more profitable!) industry. It is important to note here that the great majority of scientific endeavours of the century were enabled and funded by the wealth that enslavement, exploitation and transatlantic slave trade triggered.
- 1820s - Off the back of the success of rail elsewhere in the north of England, George Stephenson designed and delivered the first inter-city passenger railway in the world connecting Manchester and Liverpool. The locomotives were the first solely powered by steam in the world.

1800 - 1820

Working class retaliation

The automation of industry and innovation in industrial machinery resulted in the loss of working class jobs within Manchester's textile industries.

This resulted in working class uprising and rebellion. It is important the narrative captures the innate inequality that science, innovation and industry created in society.

- 1811 - The Luddites were formed in Nottingham. A group of working class mill staff who destroyed machinery in factories as a retaliation to innovation (and resultant loss of employment).
- 1816 - The Peterloo Massacre - an iconic moment in Manchester History only 1 km away.

"Moving from entrance to platform level, actual and metaphorical sensation of being lifted above the activity of the city and therefore disconnected from the urban milieu" **(Beeston, 2020)**

Schivelbusch, argued in his seminal work *'The Railway Journey'* that railway Stations acted as a *'gateway'* connecting two realms (...) the traveller experienced the Station as an intermediary of industrial space, in preparation for their journey in *'actual'* industrial space on the railroad. **(Schivelbusch, 1977)**

1830 - 1844

The Station as a dividing entity

The Station building itself acted as a physical and symbolic social divider, raising middle and upper class rail passengers above the dirt, overcrowding and nuisance of Liverpool Road and Campfield along its edges.

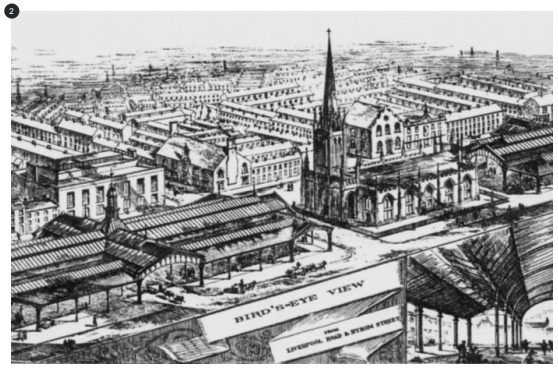
- The experiences of upper class rail passengers describe the journey through the Station and as a journey of separation from the street - *"in this sudden change in our altitude – this alteration in our relative position with our fellowmen"*
- The Station operated separate physical spaces for first class and second class passengers, never did they intermingle.
- The Station building acted as a facade to the realities of industry within the compound to the north. A visual and physical barrier disconnecting the compound with its working class urban context.

1830 - 1850's

Economic growth and expansion

Powered by unrivalled connectivity and scientific advances in transport via rail, water and road, Manchester grew to become the centre of the Industrial world. Liverpool Road Station was crucial to this success, as the gateway to the City for both people and goods moving from the Port of Liverpool and beyond. The Station continued to expand.

- The site operated as both a passenger and goods Station until 1844- consistently modernising to include new machinery such as cranes and hoists for lifting (negating the level changes on the site).
- 1831 - Added extra floors to the 1830 Warehouse and installed a steam engine to power its lifting gear.
- 1844 - Passenger services were relocated to Victoria Station, argued to be a more 'suitable' location for the travelling classes than the "peripheral slums" of Campfield. Liverpool Road Station became a Goods Station.
- Two large cotton Warehouses were built adjacent to the 1830 Warehouse addressing the Lower Yard, connected by bridges so wagons of goods could be shunted between at the upper level.
- A wide variety of goods travelled through the Station on a daily basis, including a bustling live stock trade. The Pig Landing Station was located along Charles Street. Pigs were an essential commodity and source of food for working class families in the locality.
- The Station now operates at the heart of a wider rail network delivered across the city, linked to Central Station, Deansgate Station and junctions to the west.



1. 1877 - Lower and Upper markets developed over 'The Camp Field'

19th / early 20th century

'Squalor, Erosion, Displacement'

The Station developed within the established working-class, industrial neighbourhood of Campfield (now Castlefield), housing dock workers and their families in slum housing. The Station had a significant impact on the neighbourhood socially, physically and politically.

The social history of Campfield and its relationship with the Station is a forgotten element of the narrative, and should be recognised within public realm proposals.

- The neighbourhood was formed around the 'Camp Field' - an open space to the east of the Station which used to play host to unruly events such as the Knott Mill Fair and a weekly second hand clothes market.
- The neighbourhood contained a plethora of land uses in close proximity, including pubs, gin palaces and hotels along Liverpool Road linked to the movement of rail passengers along the street using omnibus and taxi facilities.
- The neighbourhood played host to key social venues. Such as 'The Hall of Science', an Owenite meeting hall regularly attended by Friedrich Engels on a Sunday. In 1853, the hall became Manchester's first council library.
- The Station resulted in the steady erosion of Campfield as it expanded north and east beyond its original boundaries. Housing was demolished and open space developed as part of the attempted 'municipalisation' or 'civilisation' of the area, a direct result of the neighbourhoods proximity to the Station.

1860 - 1975

An efficient and innovative Goods Station

A major fire at the Station in 1866 resulted in the loss of the Cotton Warehouses; a catalyst to create a site which operated as a specialist goods Station on two levels until 1975. There are opportunities to interpret the movement and storage of different types of good within and across the site in the public realm, as well as its constant process of modernisation and strive for automation.

- 1855 - The Power Hall was constructed. Known as the Shipping Shed and designed with its railway gantry to speed up the distribution of fresh goods across the city It originally ran by hydraulic power, using high pressure water, and was later powered by electricity.
- 1866 - A huge fire destroyed Cotton Warehouses triggered the great 'pig escape' from the Pig Landing Station to the north.
- 1867 - Named after a local pub on Water Street, the railway viaduct known as the Pineapple Line was built to carry goods across the River Irwell and into the Station. The Bonded Warehouse opened two years later to store goods which required an import duty. The capacity of Station was dramatically increased.
- 1878 - Lower Campfield Market developed to the East.
- 1882 - New Warehouse in by now at it's height as a booming goods depot. Trains came into the Warehouse in what is now the Textiles Gallery and workers used hoists to unload and fill a constant stream of cargo wagon. A whole floor of the Warehouse stored cotton.
- The site continued to innovate in order to operate as efficiently as possible, with a wide range of mechanical and engineering advancements reducing the requirements on human labour on the site.
- By 1912, there were 93 cranes at Liverpool Road Station, driven by steam engines and hydraulic power, a system of high pressure water.

1975 - Present

An 'Urban Heritage' Park and Museum

The site has been reborn as a museum as part of the wider 'Urban Heritage Park' covering much of the Castlefield Conservation Area. Erin Beeston argued the narrative has been selective of the Station's history, placing great focus on the 'passenger' element and less on its freight and goods history, which has been restricted to the 1830 Warehouse. Further, there is little to no mention of the relationship with Campfield and its working class social history.

- Sequential movement through the public realm, furniture, light instillations, materials and outdoor exhibitions must interpret all of the site's varied history, avoiding selectivity and achieving authenticity.
- 1975 - Goods stopped moving at Liverpool Road. The City Council purchased this site in 1979 from British Rail for £1.
- 1983 - On the Station's 153rd birthday, the museum opened and has continued to expand and operate.
- 2021 - Power Hall refurbishment, special exhibitions gallery, 1830 Warehouse refurbishment and estate decarbonisation will provide a new physical context.



Photo approximately taken in 1979 - Rewilding taking place on the Station Approach



Photo approximately taken in 1950s & 60s. Long view down the Station Approach



Photo approximately taken in 1985 - Historic view of the Upper Yard railway tracks and gantry



Created in 1980 - Historic dipiction of the Station Approach in use



Photo approximately taken in 1993 - View of the steam train and Gantry between the Power Hall and Warehouse

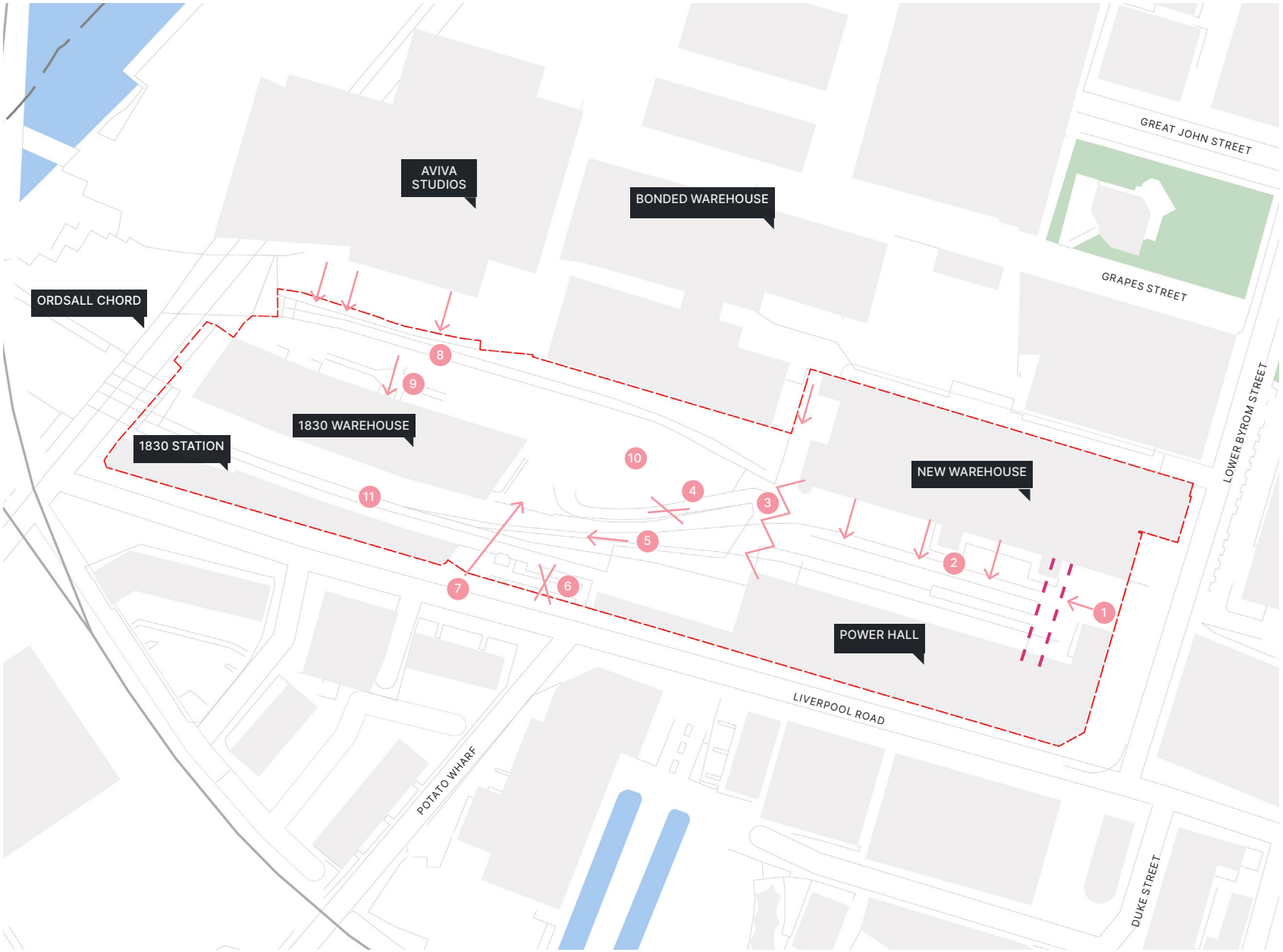


Photo approximately taken in 1985 The entranceway gates providing vehicle access to the Upper Yard

Barriers to Access

Identifying Access Challenges: The following outlines the design team's assessment of access barriers across the site.

1. Movement Analysis: Examining how people navigate the site, we note: The slope leading down, possibly with a ramp and steps, lacks tactile protection or handrails, necessitating a wide (up to 2m) ramp for vehicle access with coordinated steps.
2. The slope between the New Warehouse and Power Hall requires a level landing (1:60) of 1500mm x 1500mm at each entry/exit point, clear of barriers.
3. The significant level change between Upper and Lower Yard (exceeding 3m) mandates steps and a ramp.
4. The existing vehicle ramp fails to meet current regulations.
5. Former Platform Ramp: The ramp leading to the former train platform no longer complies with regulations, necessitating a reassessment considering historical context.
6. Ramp does not comply with current regulations.
7. Road Access: A 300mm drop from the road followed by a slope to the Lower Yard poses accessibility challenges, especially regarding the emergency exit door potentially serving as public access in the future.
8. Aviva Studios Building: Unclear changes in level within the Aviva Studios building may require internal alterations or external level adjustments. Current access into the 1830 Warehouse does not meet regulations. This is a considerable change in level. This entrance provides access to the lifts and will need to remain.
9. 1830 Warehouse Access: The current access into the 1830 Warehouse falls short of regulations despite the considerable level change. This entrance is crucial for lift access and must be addressed.
10. Inter-level Access: Considerations must include access at both lower and upper levels, as well as potential traversing between them.
11. Station Building Connection: Establishing level access between the Station Building and the 1830s Warehouse would enhance accessibility throughout the site.



Existing barriers to equal access



1. Level change within the Upper Yard



2. Uneven surface of cobbles provide challenges for accessibility



Existing site infrastructure blocking routee



Site furniture is a relatively modern intervention



4. Cobbles and ramp



6. Existing zig-zag ramp does not meet part M requirements.



7. Stepped access to the 1830s Warehouse



8. Ramp within the store between Science and Industry Museum and Aviva Studios



Level, but cobbled access from Water Street



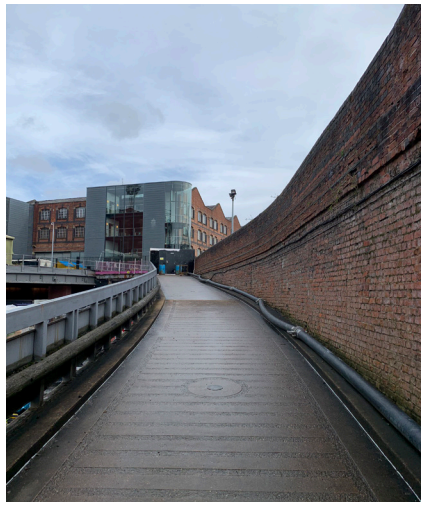
Challenging mix of materials and level change



Poorly accessible route from Lower Byrom Street



Main roads to cross to get to the site



Central vehicle ramp



Accessible ramp added - restricts usuable space to front of building



Boundary wall blocks views into site

Current Site Works

In December 2020, £4.3 million of funding from the Government's Public Sector Decarbonisation Scheme was awarded to the Power Hall and the wider Science and Industry Museum site to substantially improve energy efficiency and lower carbon emissions across this globally significant site. This grant will ensure the museum's environmental sustainability and support Greater Manchester's goal to become carbon neutral by 2038 – 12 years ahead of the national target.

Proposals forming this application are part of a wider programme of refurbishment works across the Science and Industry Museum, including works to the external fabric of the New Warehouse, the Special Exhibitions Gallery, the Gantry, and the Viaduct between the Station building and the 1830s Warehouse. This application specifically relates to public realm enhancements at the Upper Yard and Station Approach within the Museum estate. These areas have specifically been brought forward due to their strategic location at the site.

The Upper Yard directly connects the entrance of the Museum and New Warehouse building to the Power Hall building, which is scheduled to reopen to the general public in Spring 2025, following a series of refurbishment works. The public realm improvements and introduction of new accessible routes between the Power Hall and the New Warehouse are key to unlocking the Museum's long-term ambition for the site.

Although the museum has been able to undertake vital waterproofing repairs to care for the 1830 viaduct to stop surface water and water ingress into the historic buildings and structures around and below it, the complexity of historic structural and load bearing issues, together with a shortened track following the opening of the Ordsall Chord meant that trains ceased running on the site in 2018 and will not be able to run again in the future. The museum's ambition is to situate a static locomotive on Station Approach as part of its 1830 Station and Revolutionary Railroad experiences in the future that will give a sense of the sights, sounds and scale of the original Liverpool Road Station and in the lead up to the 2030 bicentenary.

3
The Masterplan

A Vision for the Public Realm

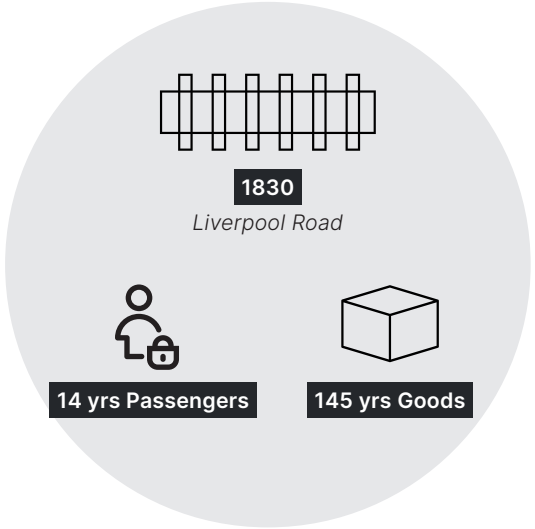
Through the place analysis, understanding of the historical narrative and conversations with the stakeholders, the design team have been able to propose a vision for the future of the Science and Industry Museum site and the role of it's public realm.

Understanding and approaching the site through the public realm, it allows us to consider the collective nature of the site, the relationships between the different buildings spaces and experiences and the wider connections.
Then ultimately what does that offer?

The way to fully appreciate all that the site has to offer, and fully understand it's history and relevance to the future, is to 'explore'. Exploration is at the heart of the Museum's offer, but currently most of this exploration takes place within buildings; and most recently just one building. Yet the site in its entirety holds the potential for an explorative walk, or wander, which would take a visitor from; inside, to out; from upper to lower levels; through buildings and spaces reflecting different eras and times; different experiences, from informative, to interactive, resting, play; different perspectives, close up or wide ranging.

Within the site alone, this 'wander' could be almost 1 km long, and that's before we consider the connection and interaction with Castlefield Viaduct and the surrounding new developments and public spaces.

A French philosopher has a name for it a '*dérive*'.



The site holds and represents many memories...

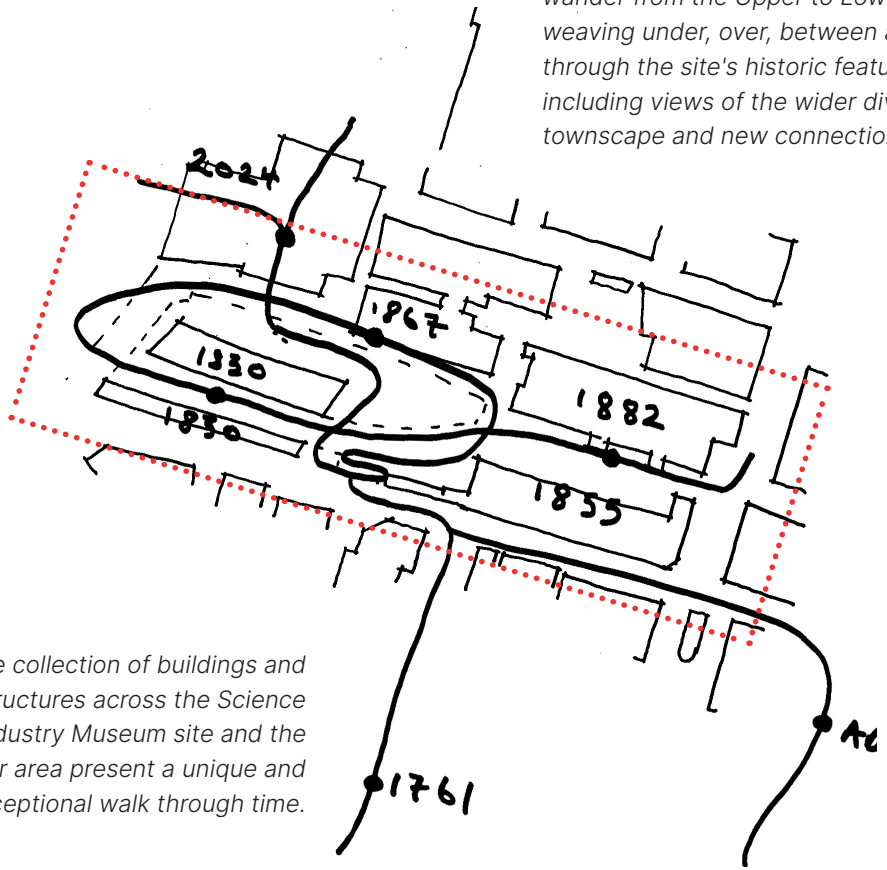


...Sometimes a narrow set of memories emerge when there is a break from the past.

The ***dérive***

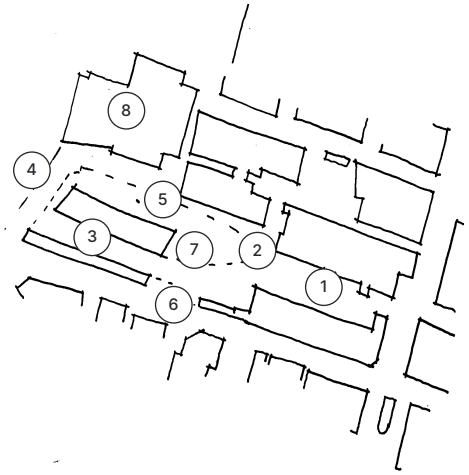
The dérive (French: [de.ʁiv], "drift") is a revolutionary strategy originally put forward in the "Theory of the Dérive" (1956) by Guy Debord, a member at the time of the Letterist International. [1] Debord defines the dérive as **"a mode of experimental behaviour linked to the conditions of urban society: a technique of rapid passage through varied ambiances."**[2] It is an unplanned journey through a landscape, usually urban, in which participants drop their everyday relations and **"let themselves be drawn by the attractions of the terrain and the encounters they find there".**

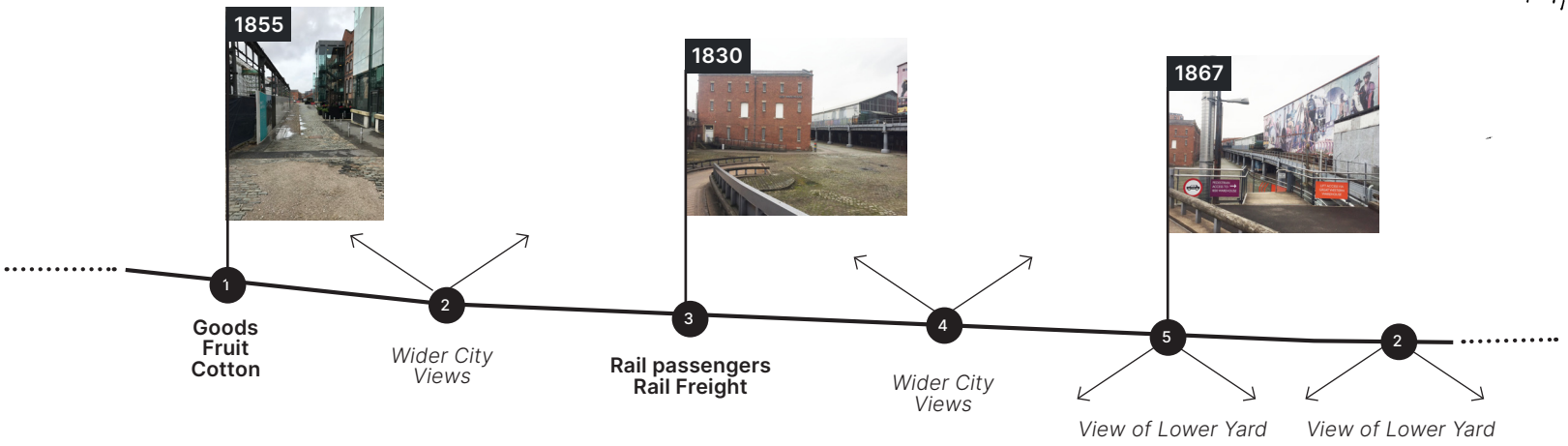
The Science and Industry Museum site offers the potential for a 1km wander from the Upper to Lower Yard, weaving under, over, between and through the site's historic features, including views of the wider diverse townscape and new connections.

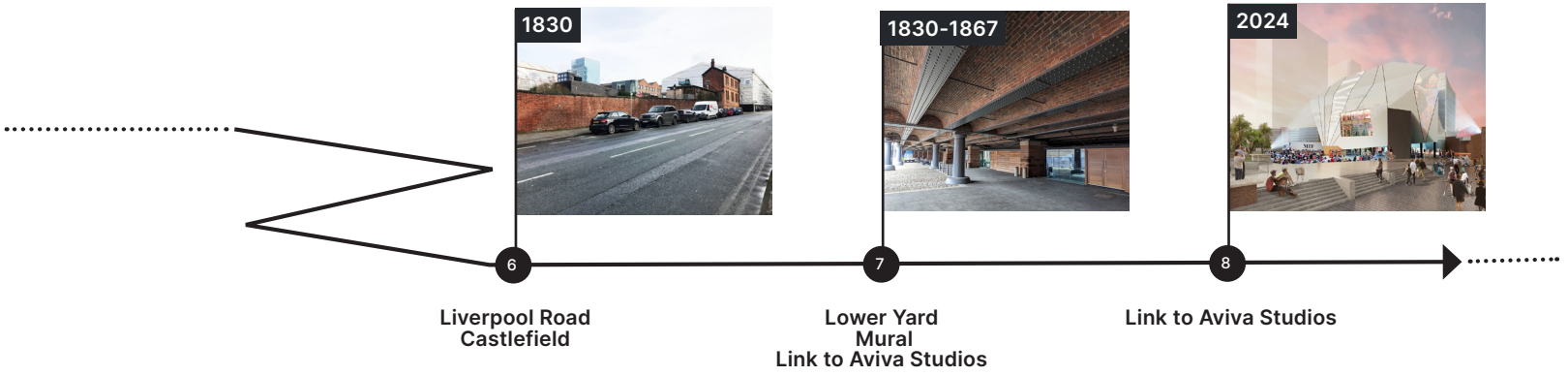


The collection of buildings and infrastructures across the Science and Industry Museum site and the wider area present a unique and exceptional walk through time.

A Connected Landscape







A fully accessible for all route through the Science and Industry Museum site connecting upper and lower levels, and past, present and future.

Design Drivers

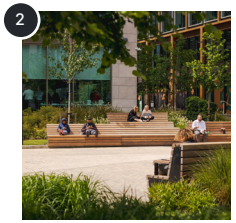
1



Exploration

The outside environment will feel like an extension of the journey that the users have started to experience inside the museum.

2



Playfulness

The landscape, will encourage engagement with the space creating a lively and fun atmosphere.

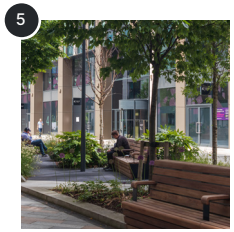
4



Celebrating Heritage

...Sometimes a narrow set of memories emerge when there is a break from the past. It is important that the landscape reflects the changes that have happened in this rich environment, merging old with the new.

5



Reflection

It will also provide needed dwell space for the users to rest and reflect on their experience within the museum.

6



Accessible journeys

Providing key accessible movement routes across the site. Across the public realm landscape, to main building access points.

Inspiration for Spaces with an Industrial Heritage at Heart

The Public Realm will celebrate the industrial heritage of the site whilst integrating planting, dwelling and learning opportunities throughout.

The precedent images express the character and design feel the site aims to achieve. A careful balance between hard and soft landscaping. Allowing ample spill out room for movement, events and rest. While greening the landscape to create a more inviting, warmer and sensory experience.

The images highlight how historical features such as railway tracks can inform the design. Used as a means to divide areas, create movement routes or to define planting edges. This is something that will work brilliantly in the scheme. Maintaining the existing track locations, to respect the historical importance, allowing the user to reflect on the journeys and past use of the site. Creating a story- telling narrative through the landscape fabric itself.

The planting also stands out within the precedent images, expressing how different typologies can evoke different emotional responses. Trees create the verticality, drawing the users attention higher. Whilst wildflower planting allows long views across.



Planting integrated with existing materials, Zollverein



Using materials to provide important historical reference



Reference of the existing railway tracks in the landscape alongside a smooth, accessible route,Germany



Dedicated paths with smooth surface leading to the main entrance, South New Zealand



Wildflower planting, rewilding the tracks



Low corten steel planters to define space and create a green central area

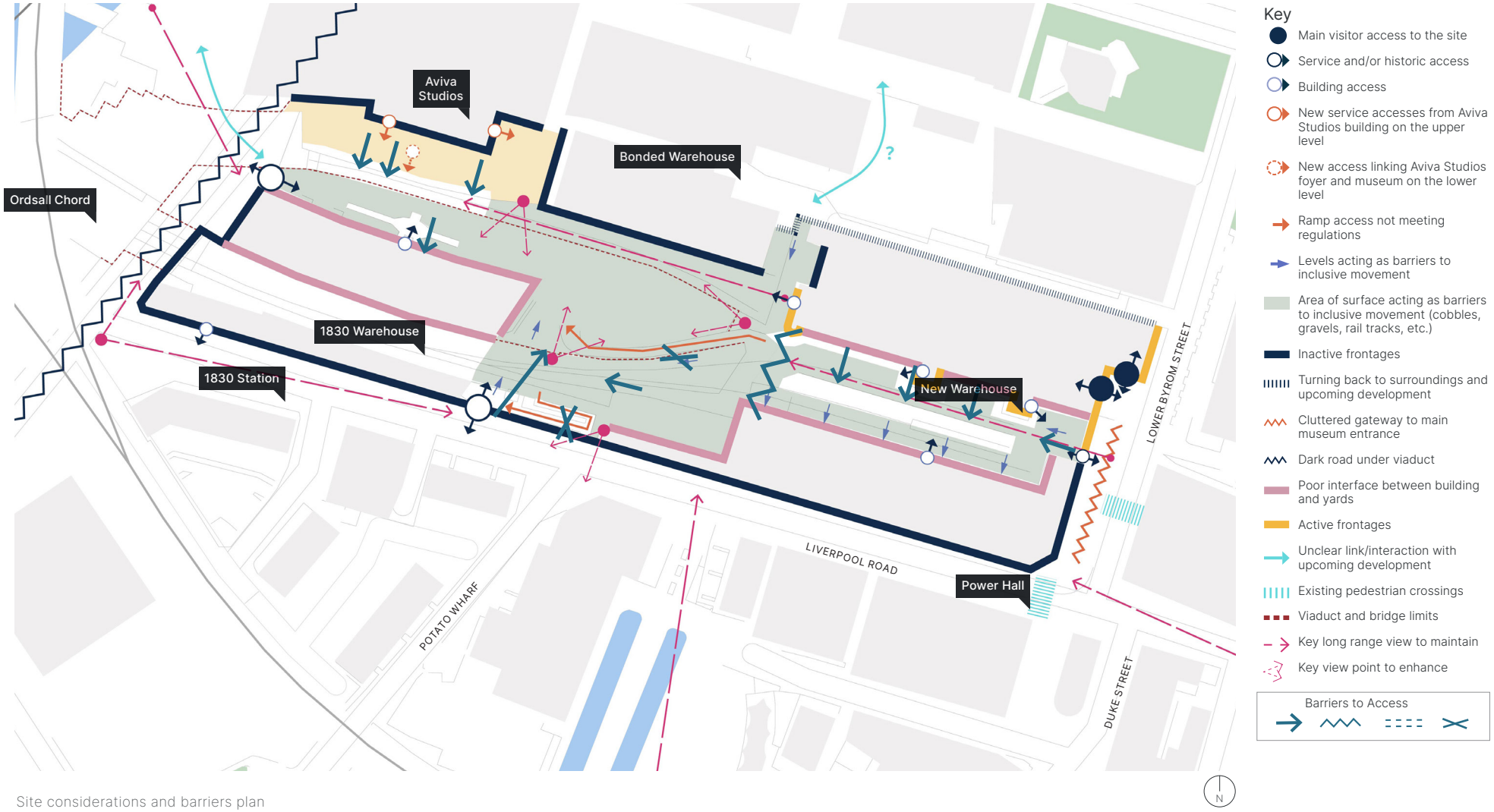


Concrete infill to railway track, Martin Luther King Park



Integrated seating throughout

Wider Site Considerations Summary



Site considerations and barriers plan

Upper Yard Opportunities

The 'front door' to the Science and Industry Museum, the Upper Yard space sits at the centre of the upper tier, linking the New Warehouse and Power Hall.

Current Conditions

Lower Byrom Street

Vehicles and carriageway dominate the entrance space to the site, squeezing the arrival space to the boundaries of the building. Limited opportunity for dwelling. Surface materials mix of cobbles and concrete and natural stone flags.

Upper Yard

Predominantly cobbled with some tarmac infill. Prominent gantry structure overhangs the space along the northern Power Hall elevation. Historic rail tracks run below gantry, with planters along edge of Warehouse.

What are we trying to achieve?

- Create an active and high-quality front door to the site along Lower Byrom Street which prioritises pedestrians.
- Connect the historic buildings in the Upper Yard through thoughtful landscape design.



Gates and view of the East end of the Upper Yard



The New Warehouse and gantry structure in the Upper Yard

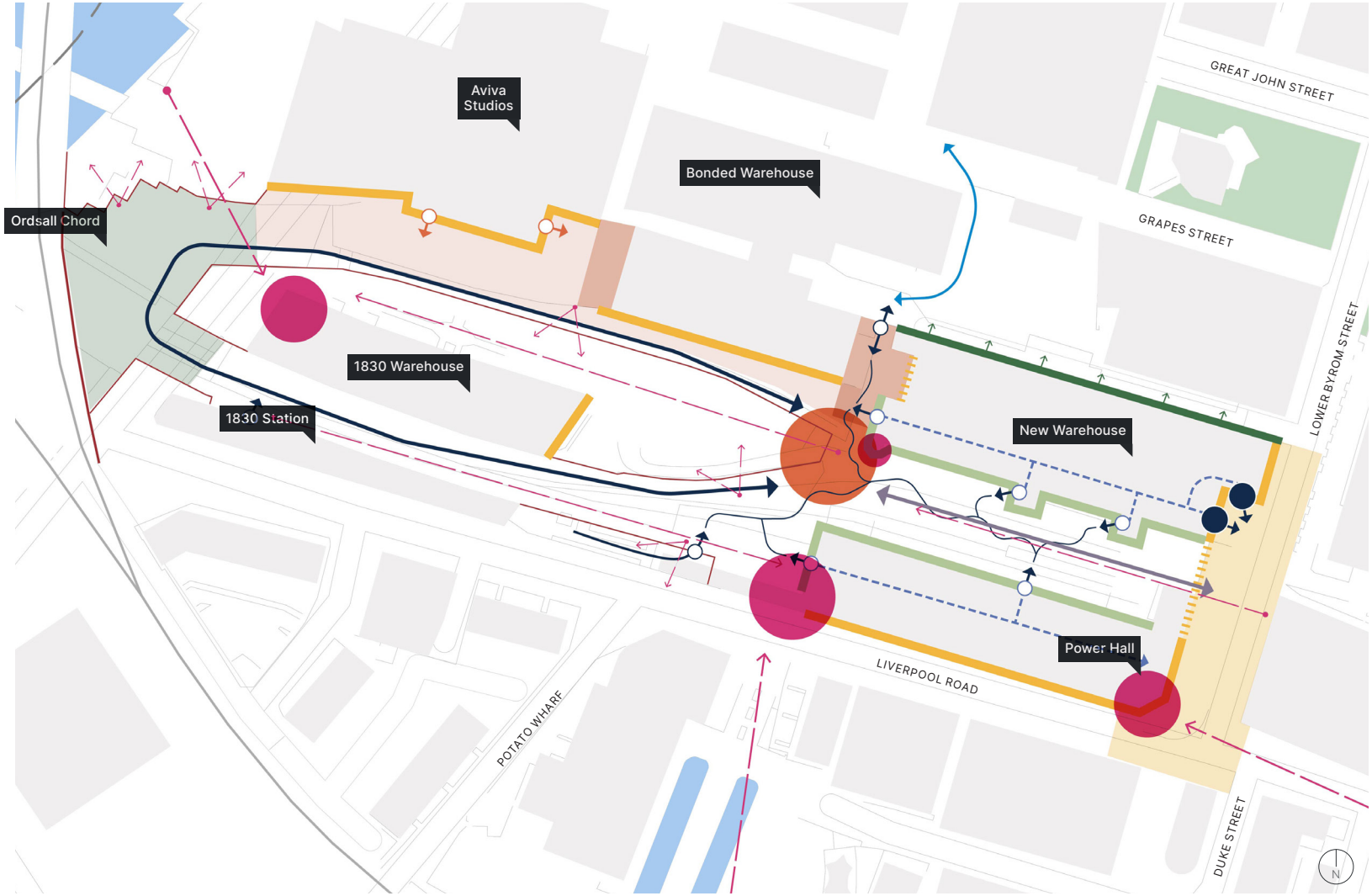


View of the Upper Yard from Lower Byrom Street



Approach towards the Upper Yard

Upper Level Opportunity



Key

- Main visitor access into the site
- Building access
- Movement through the site
- Movement through the site indoor
- Aviva Studios access
- Enhance and activate frontage
- Porous frontage
- Enhanced interface between indoor / outdoor
- Enhance public realm and gateway to the site
- New gateway within the site
- Active frontage
- Service access movement to the Gallery
- Viaduct and bridge limits
- Key long range view to maintain
- Key corner to activate
- Key moment within the Site
- Link to surrounding development

Achieving the Vision

Upper Yard

Character of the space

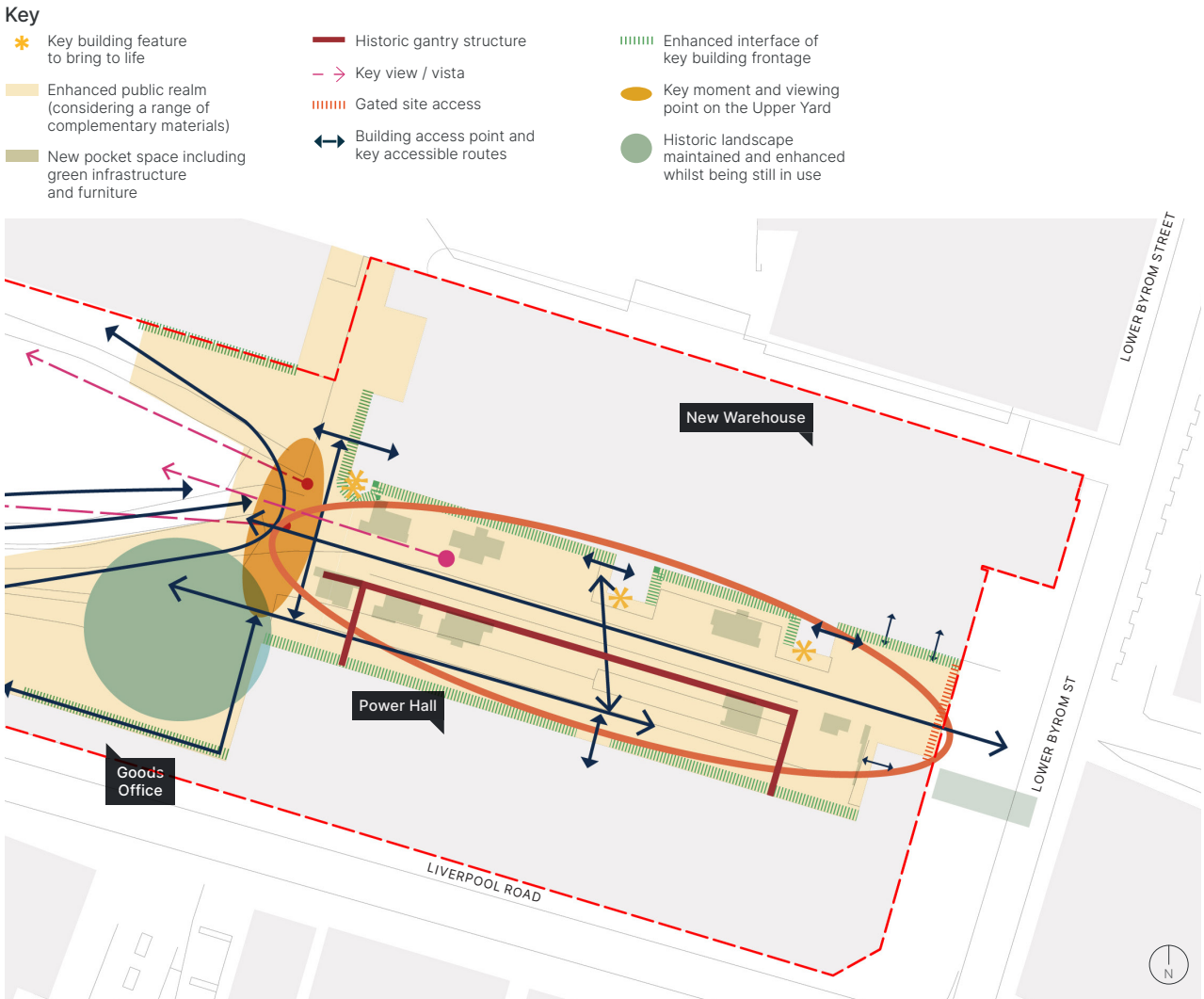
A playful, stimulating space which references the sites industrial and working-class social history, creating a fitting setting for Grade II listed assets.

Role and function of the space

- A space that maximises the central location, encouraging dwelling through planting and furniture.
- Clear routes are proposed between the Power Hall and New Warehouse, using a range of creative and subtle material changes.
- A vehicular link will be subtly integrated through the centre of the space.

Components of the space

- Integrated seating and planting elements are proposed.





Proposals for Power Hall facade at Lower Byrom Street and Liverpool Road corner



Places to dwell, Marshall's Mill, Leeds

Key

1. **Planting and seating:** Planting areas could incorporate timber seating
2. **Entrance/Arrival space:** Overview on yard, with vegetation and seating elements that follows the alignment of the existing tracks.
3. **Accessible routes**: Between building entrances and through centre of the Upper Yard.



Upper Yard - indicative layout

Greyed area is not in Science and Industry Museum ownership but an aspiration for the future, through mutual development

Station Approach Opportunities

Establishing an exploratory landscape with clear accessible routes and opportunities for rest, reflection and learning, complimenting the historic surrounds and creating a warm atmosphere.

Current Conditions

A mix of historic and low-quality materials create a matrix of tired surfacing with limited opportunity for dwelling. The main space is divided by a barrier preventing public access to the listed tracks which are a trip hazard and barrier to access. They remain under appreciated with waterproofing issues in this location.

What are we trying to achieve?

- To create a more open space centrally that allows spill out from the 1830's Station and opportunities for educational experiences linking to the revolutionary railway experience.
- Connect the historic buildings through landscape design, keeping the façades of the historic buildings mainly open for movement and appreciation.



View approaching the 1830's Station



View of the 1830's Warehouse



Approaching the end of the 1830's Station and Warehouse



Long view from the Western end of the Station Approach

Achieving the Vision

Station Approach

Character of the space

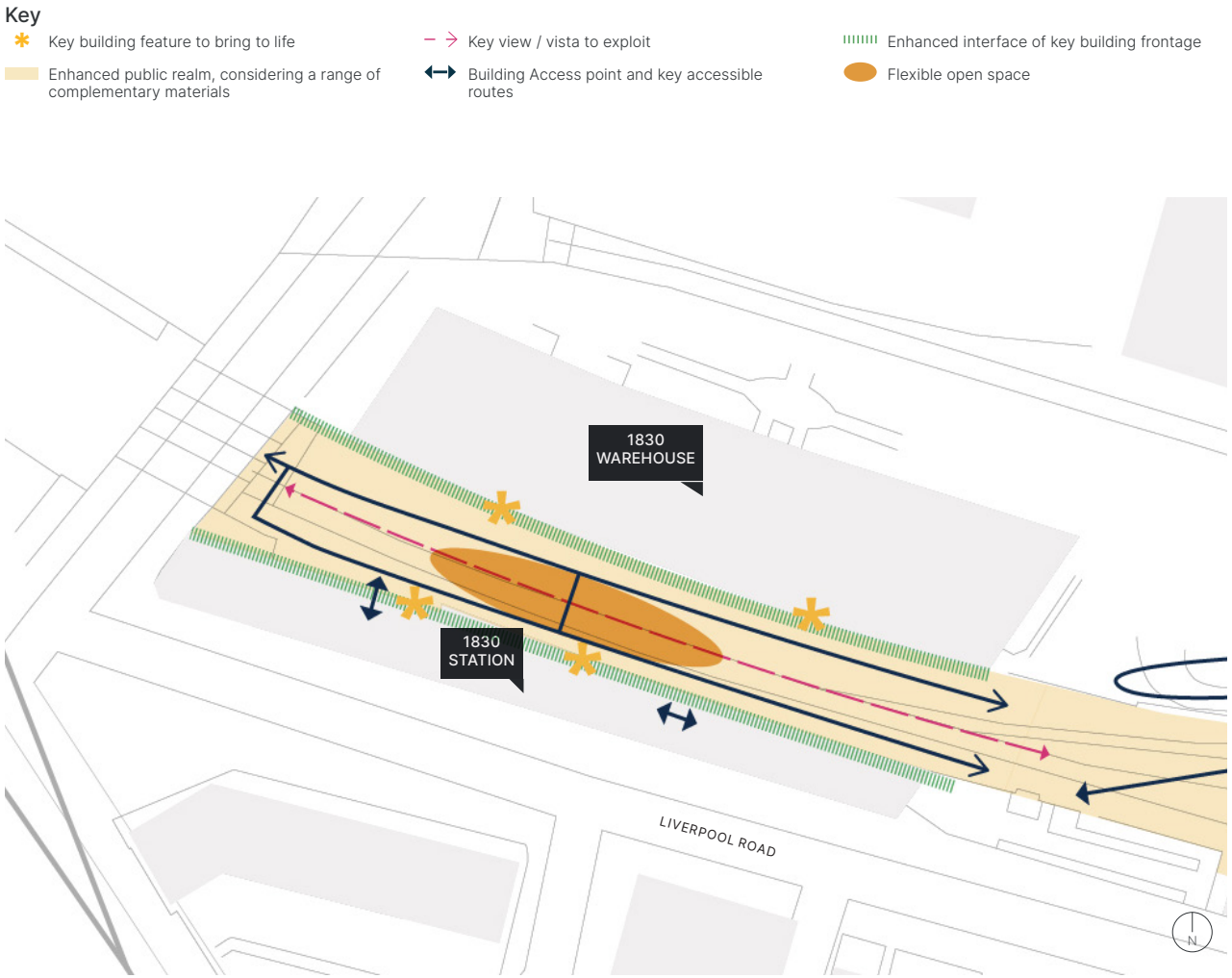
An exploratory landscape that extends the site narrative, providing clear accessible routes and opportunities for rest, reflection and learning.

Role and function - how does the space function

- Integrates the site into its immediate context.
- Creates an outdoor gathering area for the 1830's Station and Warehouse. Providing flexible space for a variety of functions.

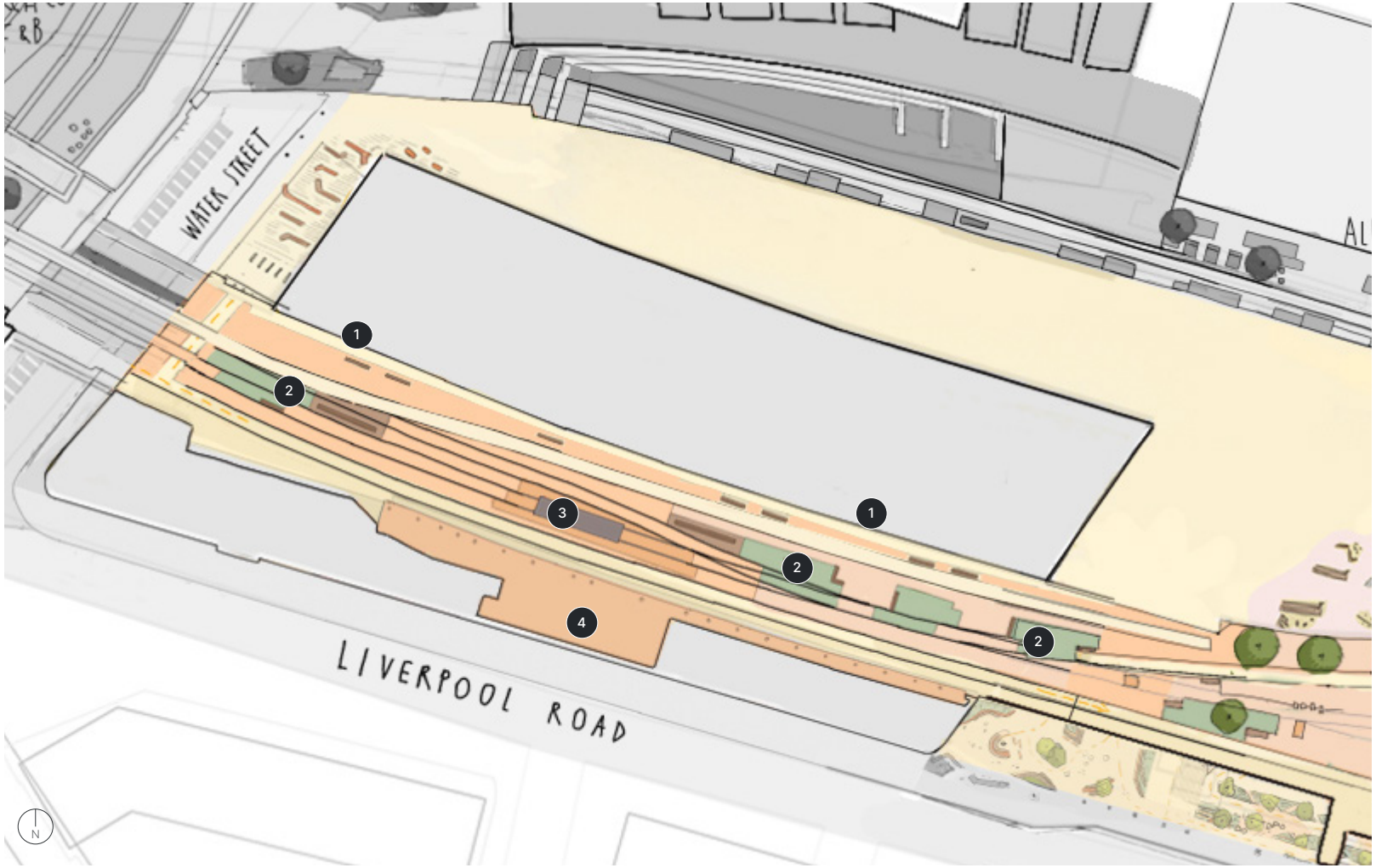
Components of the Space

- Materials should reference the industrial character of the site, retaining timber outside the 1830's Station, re-using cobbles and introducing complementary textures.
- Pre-cast concrete slabs are to be laid between railway tracks as an accessible route option whilst providing maintenance access when required.
- Planting creates a green network across the space adding interest without obstructing views across or down the Station Approach.



Key

1. **Connection with facade:** The existing facade has many big windows. Keeping the space fairly open aims to respect the historic buildings whilst establishing an easily navigational space
2. **Planting and seating:** Planting areas could incorporate timber seating. Opportunity to create green and accessible routes, connecting the Station Approach to the rest of the site. Utilising landscape design as a way to break up the space, creating further interest and improving site legibility. Space is left clear of trees to allow for historic views.
3. **Revolutionary Railway Visitor Experience**: Flexible central space has the potential to be used for events, performance or large scale exhibitions. This also provides spill out space from the 1830's Station building education rooms. The museum's ambition is to situate a static locomotive here as part of its 1830 Station and Revolutionary Railroad experience in future years (however this does not form part of this particular application). Visitors will step back in time to the day the Liverpool and Manchester Railway opened and explore the adventures of the first passengers.
4. **Existing Station building:** Existing covered space to the Station building.



Station Approach - indicative layout

Greyed area is not in Science and Industry Museum ownership but an aspiration for the future, through mutual development

Masterplan Strategies

This Public Realm Strategy seeks to enhance the quality of the Science and Industry Museum site through the potential of its external spaces, or public realm.

With a focus on issues of permeability, visitor experience, visitor journey, accessibility and landscaping the public realm strategy presents a series of options for interventions and adaptations.

The benefits of these were then assessed using agreed criteria based on their impact on Accessibility, Costs, Vision, Visitor Experience and Commercialisation, and Heritage. Design proposals have been developed both as a response to the main client brief, but also to address other challenges and opportunities that have come to light during the site analysis.

Vision

- Setting the foundations for opening up the potential of the entire site for use.
- Permeability by creating new access and circulation thoughout the site; creating new public realm.
- A key player in a vibrant cultural quarter at the heart of the city.

Strategy

- Consider ecology and sustainability.
- Introduce accessible routes across the site to accommodate wheelchair, mobility scooter and push chairs.
- Pragmatic consideration for planting and biodiversity in the public realm to create a greener space which strikes a balance between form and function.
- Waste management consideration.

Design

- Instinctively accessible.
- Simple and uncluttered revealing the beauty of the site.
- Timeless and durable materials selection.
- Celebrating the sites heritage and past use allowing visitors to read the history of the site through the landscape. Yet the site in its entirety holds the potential for an explorative walk which would take a visitor from; inside, to out, different experiences, from informative, to interactive.

Movement Strategy

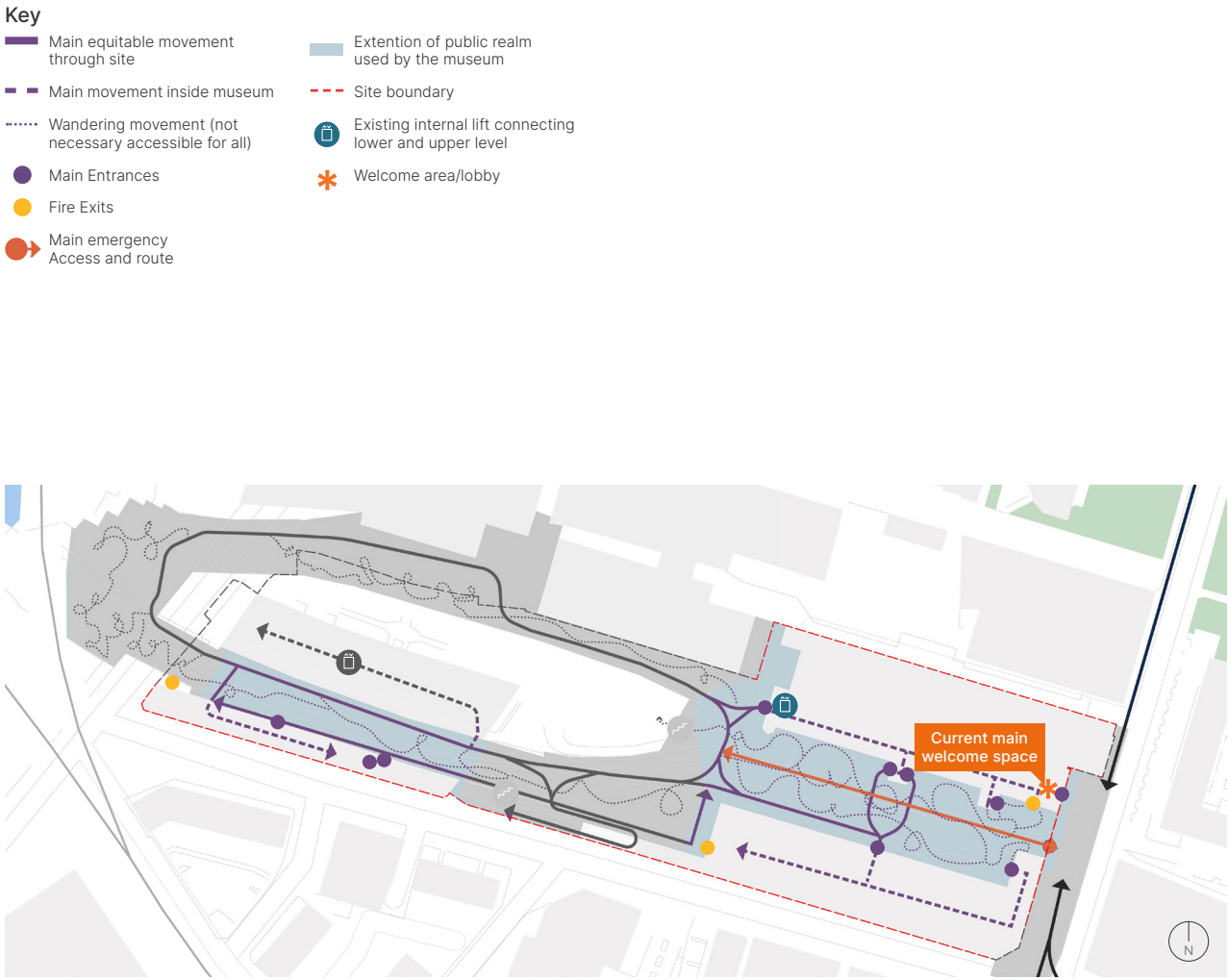
Delivering the quickest route from A to B has not driven the design of the movement strategy. It instead aims to 'join the dots', linking existing buildings with new spaces and destinations.

Enhancing visitor experience through movement

Pedestrian flow through the site is a translation of the *dérive*, installing a range of furniture, and landscape typologies across the site in key locations to narrate the sites story. These clusters create destinations, enhancing learning, encouraging playfulness and creative thinking. They act as a natural extension of the internal exhibitions, tying together the historical narrative and explaining the importance of the relationship between the sites buildings and outdoor spaces.

Dealing with vehicles and servicing

Making the site feel like a pedestrian space will be key to achieving an improved visitor experience. Routes for servicing and emergency vehicles will be subtly integrated using a range of complementary materials, enhancing the heritage setting whilst prioritising pedestrian activity.



Upper level plan

Sustainability Strategy

The Science and Industry Museum is underway on its decarbonisation journey.

The outdoor spaces across the site will play a key role in achieving this process, helping to narrate the importance of biodiversity, science and engineering in tackling the climate crisis. There is potential to deliver a public realm that serves as a 'living exhibition', a greener, smarter museum.

The site as an 'ecosystem'

The Science and Industry Museum site is viewed as a holistic entity, like an ecosystem where each of its component parts are connected to the next.

Energy efficiency, in terms of on-site consumption and production, is already being considered at the building level. This principle will be carried forward in public realm proposals, considering practical solutions to waste and recycling and innovative landscape interventions within and around the site. The re-use and re-purposing of on site materials is also considered a key element of the strategy, decreasing levels of embodied carbon associated with the public realm project across its phases.

Its important to understand the geological and human-made materials that comprise the site and consider their reuse potential as part of the redesign of spaces. Limiting the carbon footprint and resource exploitation will not only contribute to a more sustainable project, but will limit unnecessary supply chain costs while upholding an authentic site character.

Encouraging biodiversity

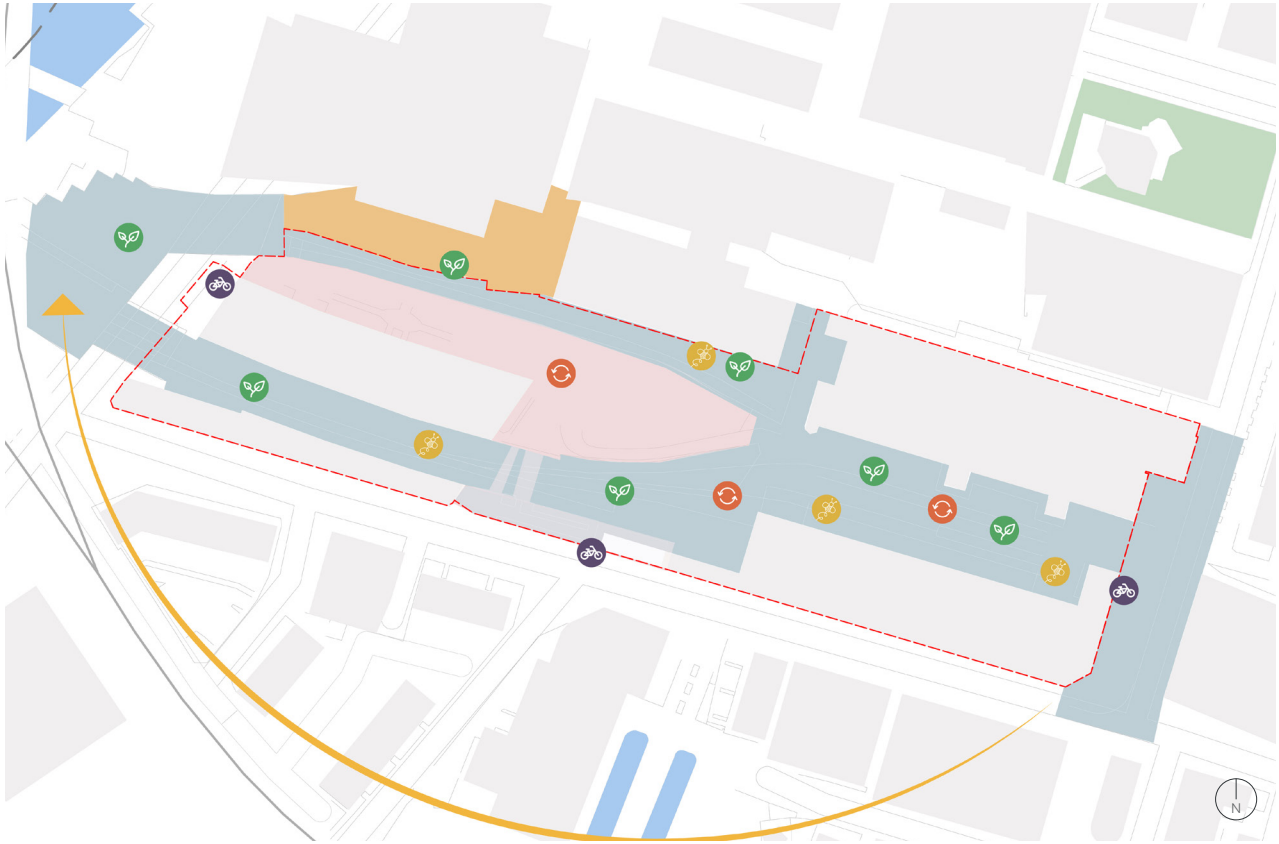
Much of the site is hardstanding, a result of its former industrial use and heritage regulations associated with its listed status. The strategy therefore takes a pragmatic approach to introducing soft landscape. Whilst the benefits of installing biodiverse green infrastructure are well covered and plentiful, its integration must be balanced with authenticity, of aesthetic and experience.

We see the approach to integrating soft landscape as a process of filling gaps, the natural process undertaken as nature regains control over former industrial spaces. Pockets of green are proposed in appropriate locations, enhancing the setting or character of listed buildings and structures and encouraging biodiversity wherever possible.

A softer site will enhance its ability to absorb and store surface water, taking pressure off the local drainage and sewer system whilst creating a greener, more pleasant environment for dwelling. The use of local species, pioneers species and wildflower patches are all proposed, as outlined in the softworks strategy.

An educational tool

The public realm will act as part of a living display, an educational tool narrating how nature, construction and design all play a critical role in tackling climate change. Every instillation could serve a sustainable and learning function.



Holistic sustainability plan

Key

- Site boundary
- Upper level open space
- Lower lever open space
- Aviva Studios Terrace
- Reuse and redesign of insitu material
- Introduction of planting and soft element
- Bike stand and improvement of active travel connection
- Course of the Sun, integrating principle of permaculture to approach the development of a sustainable public realm
- Bug hotel

Materials Strategy

The materials strategy has been developed with sustainability and accessibility in mind, aiming to reuse existing high quality materials found on site where possible. Where this isn't possible, a complimentary new palette is proposed.

The selection of materials helps to provide a coherent and legible palette that creates interest with texture, size and colour on a site which bares witness to the industrial revolution.

The existing materials palette found on site of note are:

- Existing Cobbles
- Proposed Natural Stone Setts
- Existing Yorkstone Paving
- Historic Railway Tracks
- Concrete
- Metal
- Timber

Existing Cobbles

There is a number of granit/sandstone cobbles on site. Whilst these compliment the brick buildings and add to the authenticity of the site and it's setting, their use provides challenges to accessibility. Areas have already been lifted and backfilled with low quality materials such as tarmac to provide level access. Where cobbles have been lifted to enable building refurbishment works there is often a reluctance to reinstate these to avoid future trip hazards.

Existing cobbles will be lifted and reused wherever possible, supporting the vision for the site. To ensure that we are providing an accessible environment, cobbles will be laid in their original rounded state in areas less frequently used away from main building entrances and main accessible routes to new proposed levels.



Original cobbles and tracks on the Upper Yard



Existing tarmac to provide level route access within the original cobble Lower Yard.

Natural Stone Setts

New natural stone setts are proposed to all key entrance areas within the Upper and Lower Yard to create a welcoming sense of arrival. An additional amount will be needed within the Station Approach and the Heart Space where there is not sufficient existing cobbles on site. The natural stone setts will have a level top surface finish which will provide a part M compliant access route.

The size and colour palette of the proposed natural stone setts has been selected to compliment the palette of existing cobbles. This will help to create a harmonious and uncluttered appearance of the hardstanding fabric.

We will also use this opportunity to commit to sustainable practice by sourcing paving material nationally and assessing the long-term carbon impact of the product we use.

A bound construction is proposed to majority of the Upper Yard and Lower Yard. However an unbound construction method is more suitable in any areas over the viaduct due to any potential future access requirements to the waterproofing structure below. This method would however require a higher level of future maintenance.

Existing Yorkstone Paving

There are a number of Yorkstone slabs located to the West side of the Station Approach against the 1830's station. These can be reused within the new proposal. They are to be lifted, securely stored, cut to size and flexibly relaid. This will provide a level surface which will comply with Part M building regulations.

Concrete

Railway tracks are filled with **In-situ or Precast Concrete** in order to underline the key pedestrian routes along the Lower Byrom Gateway and the Upper Yard. **Precast Concrete** is used on the viaduct level due to waterproofing and maintenance requirements along the Station Approach. This will allow an easier access in the future to the site. This method is also used to create crossing points over the railway tracks. A rigid **in-situ concrete** construction is suitable within the Upper and Lower Yard.

Key

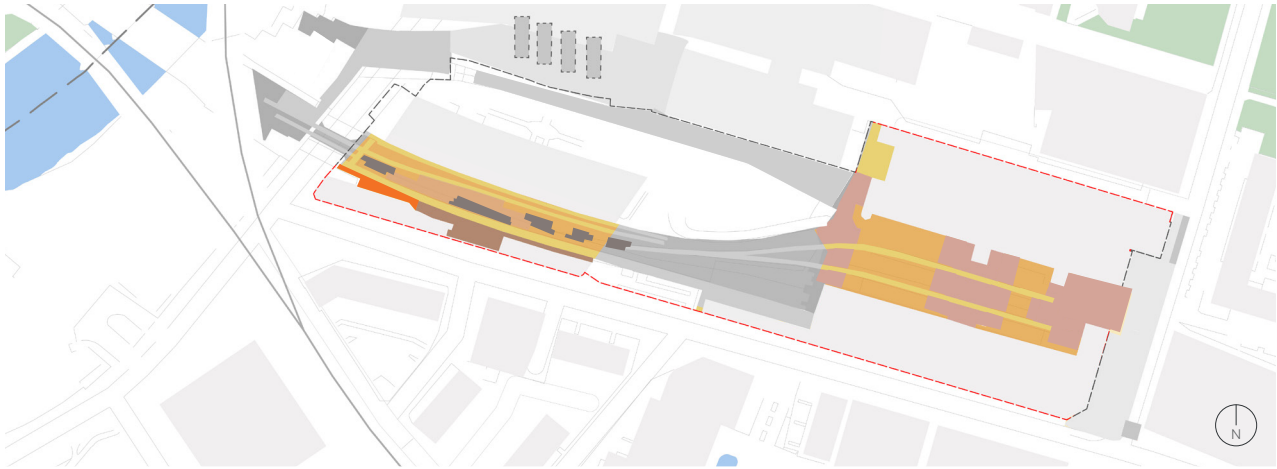
- Reclaimed Cobbles
- New Natural Stone Setts-
- Concrete surface
- Existing timber
- Gravel
- Reclaimed Yorkstone Paving

Metal

To complement other building elements, the metalwork should be either left raw in a corten finish or painted dark red matching the RAL original colour of the gantry. Existing steel railway tracks are lifted and relaid to new proposed levels. Their appearance and integration within the hardworks palette help defining key routes.

Timber

A singular type of timber should be adopted for street furniture and interpretive elements. This should be sustainably sourced and allowed to naturally weather to create an industrial look.



Upper level plan

Softworks Strategy

The softworks and planting strategy looks to introduce elements sensitively, where it creates the most value for visitors without disrupting the operational requirements. The strategy acknowledges that the Science and Industry Museum site is going to remain predominantly a hard environment, reflective of it's historic industrial use.

Tree planting

Tree planting adds verticality and presence. Trees provide a high amenity value and various other benefits, e.g. being key for wildlife, such as enticing birds into the city centre. The proposed palette will include a mix of native and ornamental trees that suit the location and will create a coherent planting theme with a specific focus on pioneering species and species that have contributed to science.

Herbaceous planting within educational gardens at the Upper Yard and the arrival at Lower Byrom Street

Visitors travelling between the different museum buildings require rest and contemplation points. There is a particular need for a softer environment that invites informal dwell within the Upper Yard between the New Warehouse and Power Hall. The space would become an Educational Garden, with greenery contrasting the metal gantry to create a unique post-industrial landscape. Planting within this area should be informal, providing stimulation in texture, height and colour with seasonal interest.



Softworks strategy

Site Wide Public Realm Masterplan Vision

The proposal delivers a functional and authentic response to the wider site - celebrating it's history and enhancing the visitor experience.

- Three unique gateway spaces create a strong sense of arrival; beginning the museum journey (or derive) before entering the site.
- A more outward facing Science and Industry Museum opens up to its urban context, both physically and visually.
- A greener site, with subtly and appropriately integrated green infrastructure which responds to its location within the site
- Pockets or clusters of activity create new destinations across the site, each referencing history and future as well as seating and resting points to provide ample opportunity to rest and reflect.
- A new network of educational spaces at the upper level, providing an accessible loop, viewing decks at key viewpoints and visual links over to the emerging neighbouring sites and the recently completed Aviva Studios Square and Water Street.

After considering the findings of the analysis, the opportunities begin to explore how the site could deliver the principles outlined in the vision, creating a new network of spaces, connected by accessible links through the site.

Key - Character Spaces

1. Lower Byrom Gateway
2. Upper Yard
3. The "Heart" and access
4. Pineapple Line Greenway
5. Aviva Studios Vision for the Upper Terrace
6. Water St Viaduct
7. Water St Gateway (lower)
8. Aviva Studios Link and Lower Yard (lower)
9. Historic Railway (Revolutionary Railroad)
10. Upper Arrival Space
11. Liverpool Road Gateway
12. Play space

a. Seating with views of River Irwell and Water St

b. South facing, informal seating

c. Seating terraces over Lower Yard

d. Retained platform and tracks

e. Planters with integrated seating

f. Design references historic bonded stores

g. Wildflower and grassland planted along rail tracks

h. Landscape terraces and sloped access

i. Steps, and viewing platform

j. Sculptural garden space

k. Accessible routes link entrances and new spaces

l. Enhanced blue badge parking and drop off space

m. Seating, planters and industrial artefacts


SALFORD
AVIVA STUDIOS
ARCH C
F&B
BRIDGE
WATER STREET
ALLIED LONDON
F&B
LIVERPOOL ROAD
COACH PARKING / DROP OFF
LIVERPOOL ROAD
LOWER BYROM
a
b
c
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4
DETAIL DESIGN PROPOSALS

The Works Boundaries

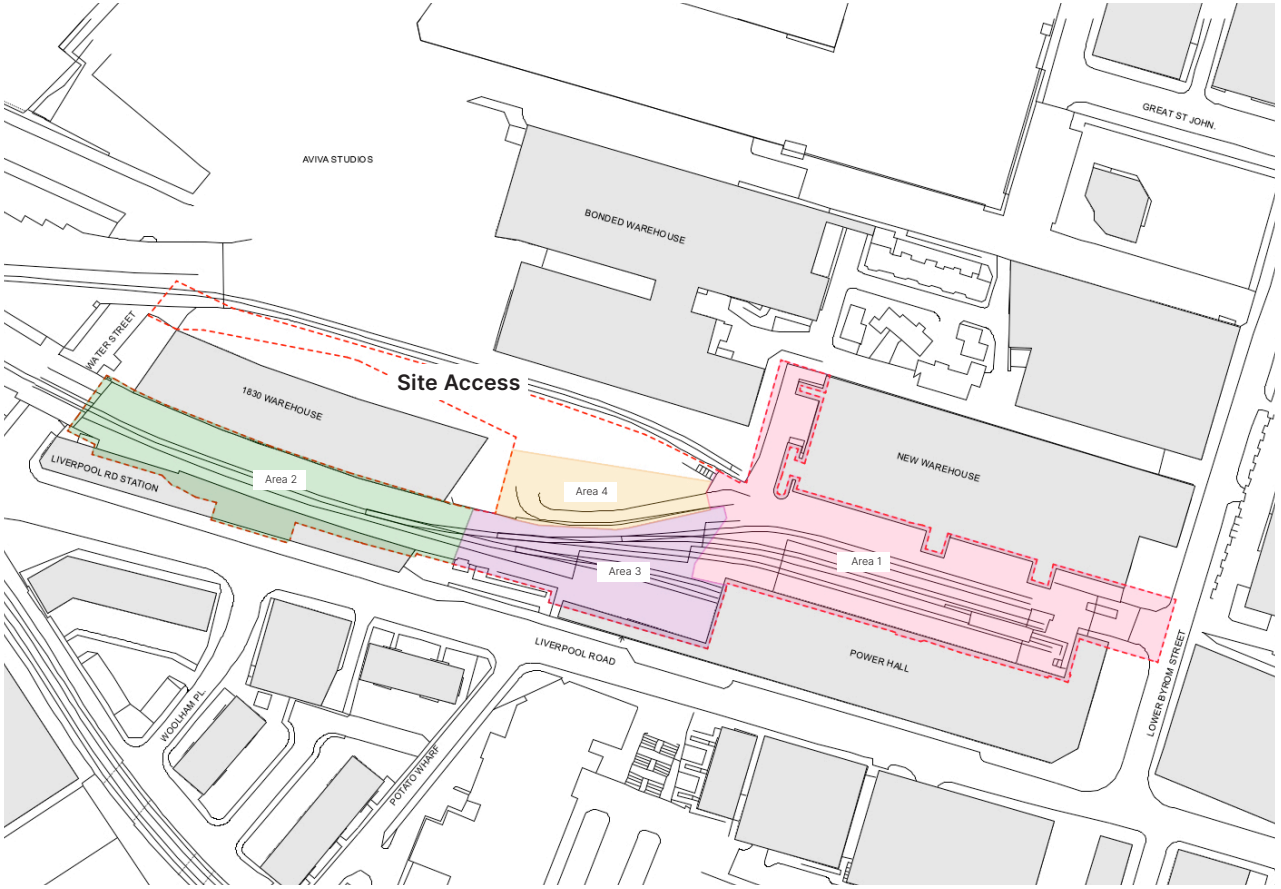
The strategies and approaches outlined throughout the document have been prepared for the whole museum site. It will be delivered as a series of projects Areas 1-4, coordinated with completion of the wider works across the site and their impact on visitor experience.

Area 1-The Upper Yard, the more permanent projects would mark the beginning of the ambitious plans for the site transformation. The project will dovetail the renovation of the Power Hall, Ganty and Warehouse completion and esssential and part of the overall site operation.

Area 2-The Station Approach will be addressed concurrently with urgent waterproofing works (approved under a separate application) that require lifting the tracks on the viaduct. Following these works, the tracks will be reinstalled to new levels, and sett paving will be introduced. This paved surface will more closely resemble the area's original appearance and will create accessible pathways.

Area 3-The temporary route in the Heart Space connecting both these spaces will form the next phase.

Area 4-The former location of the Vehicle Ramp will form the last phase of the proposals subject to this planning application.



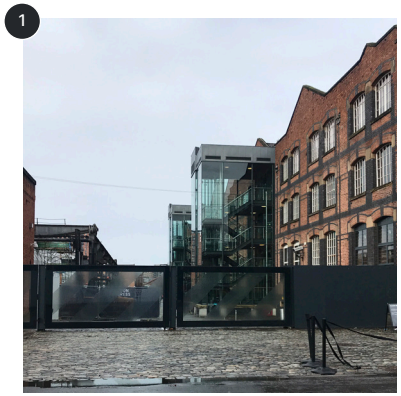
Area 1 -4 Phasing Diagram

Key

- Planning Boundary
- Area 1 - Upper Yard (including Plant Deck)
- Area 2 - Station Approach
- Area 3 - Temporary Route in Heart Space
- Area 4 - Former Location of the Vehicle Ramp

Existing Site photos

1



Upper Yard entrance gates

2



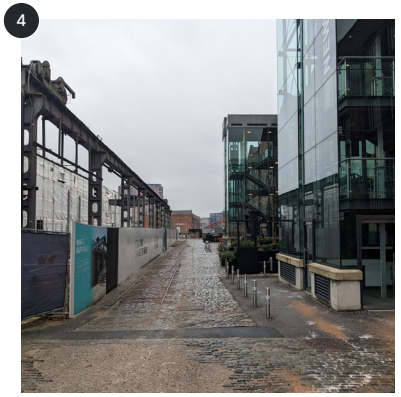
Level change within the Yard

3



Level change within the Yard

4



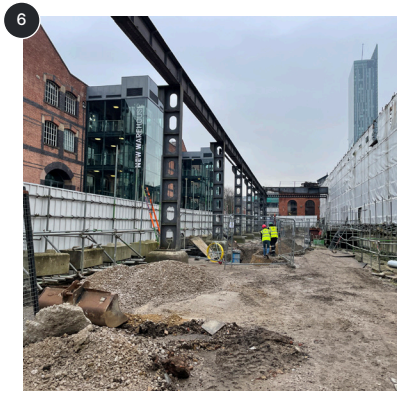
View down the Upper Yard from the gated entrance

5



Uneven level change next to planter and stairway

6



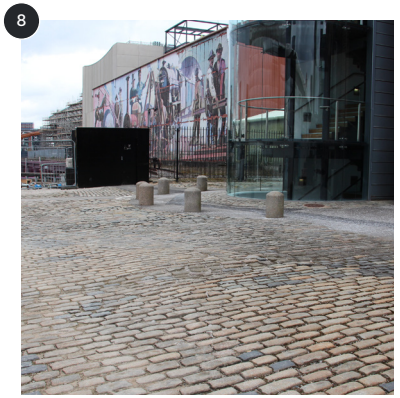
Ongoing construction works to the Power Hall

7



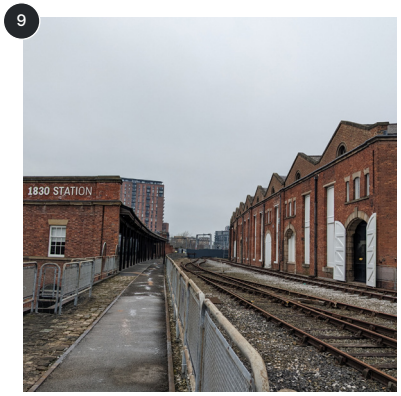
Lifted setts with the potential to be reused

8



View from the Upper Yard toward the Pineapple Line and the Lower Yard

9



View approaching the 1830's Station

10

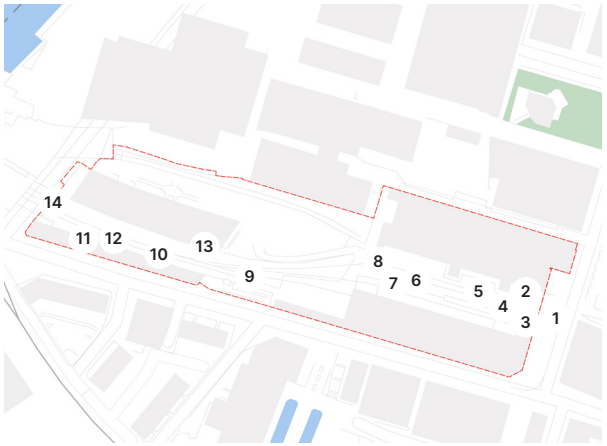


View down the Station Approach

11



1830's Station Plaque



Location Plan

12



Existing historic timber to 1830's Station

13



View of the 1830's Warehouse

14



Long view from the Western end of the Station Approach

Existing Site Materials of Significance
Loafed Cobbles

A high percentage of the current on-site material within the Upper Yard includes two distinct paving mixes, predominantly granite, with a very small percentage of sandstone within these mixes of loafed cobbles. The two mixes can be generally described as a buff/pink mix and a green/grey mix. Other materials include tarmacadam, concrete and ballast, refer to page 58 for further detail, these are not being retained.

Mix 1 Loafed Cobble (Green/Grey)

This mix is found alongside the New Warehouse and outside the entrance gate on Lower Byrom Street. It makes up approximately 690 sqm of the Upper Yard.

Mix 2 Loafed Cobble (Buff/Pink)

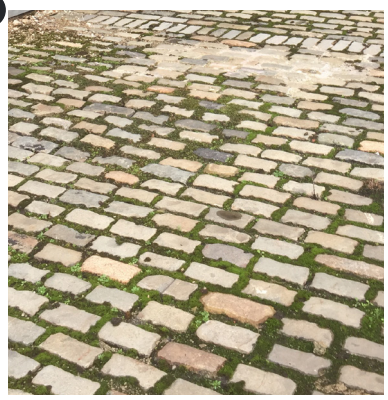
This loafed cobble mix can be found toward the Power Hall edge and centrally in the Upper Yard. It is also present in the Heart Space, which does not form part of the detailed works at present. The area makes up approximately 1123 sqm of the Upper Yard and approximately 623 sqm of the Heart Space. Some of this material has already been lifted as part of the Power Hall works. The lifted material remained mainly undamaged and has been stored on site. Some of the cobbles are split or damaged and would reduced the overall sqm of material suitable for retention. The calculation does include the jointing, which is quite large in some areas and afects the sqm of cobble material and has not been taken account of.

1



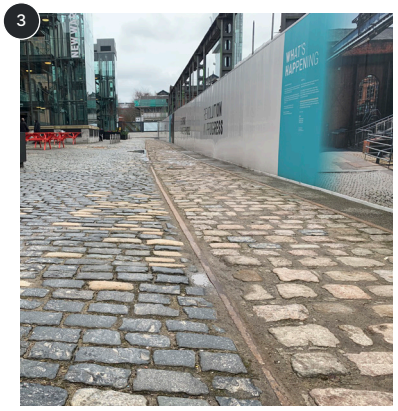
Existing Setts Mix 1

2



Existing Setts Mix 2

3



Mix 1 and mix 2 divided by a railway line

4

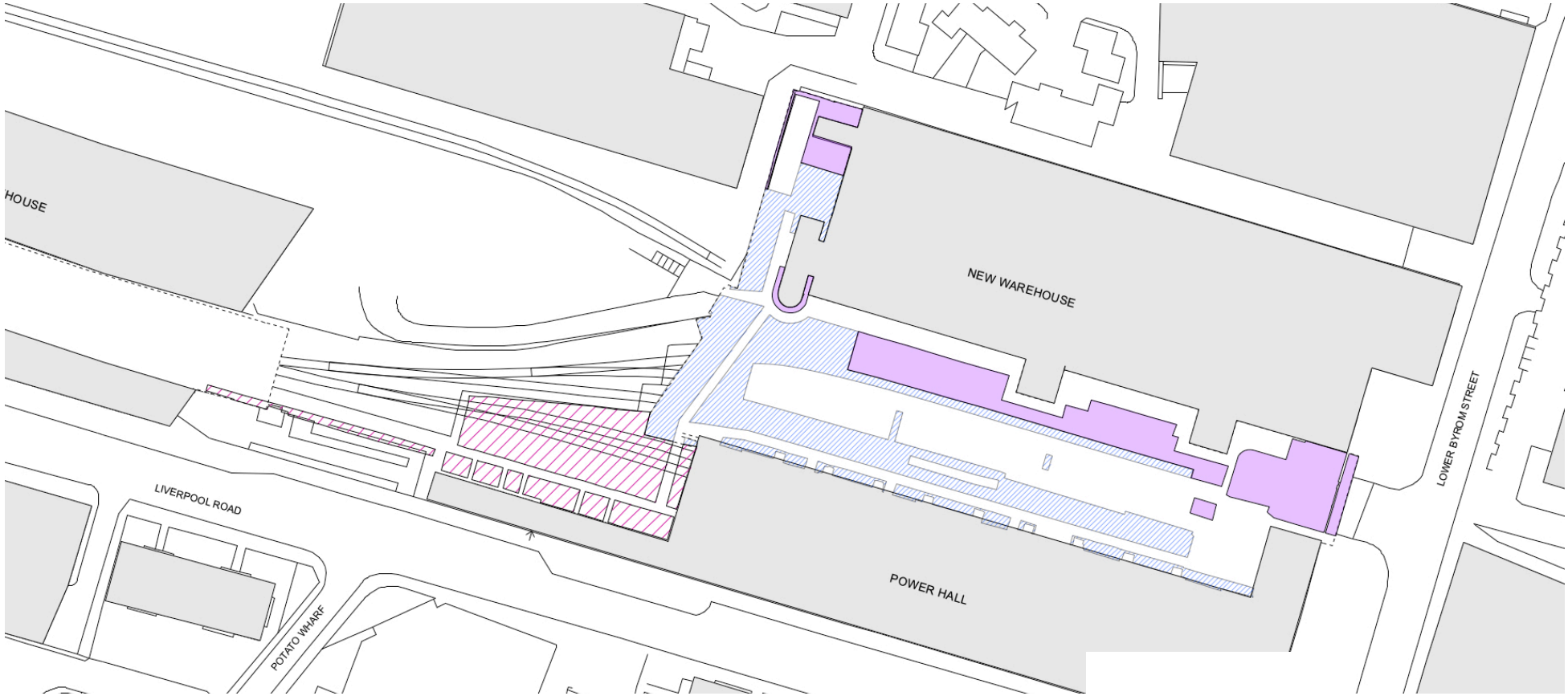


Lifted cobbles with the potential to be reused

Existing Granite Loafed Cobbles

Mix Size 1: varied gauge (100-120mm), varied length (120-220mm), varied depth (150-170mm) final depth tbc once checked on site.

Mix Size 2: varied gauge (100-220mm), varied length (120-270), varied depth (100-120mm) final depth tbc once checked on site.



Existing site cobbles audit to the Upper Yard, Heart Space and Station Approach

BOUNDARIES

Planning Boundary

EXISITNG SURFACES

Existing Inspection Covers - EX12
Subject to engineers detail to confirm retention or removal

Surfaces to be retained

Existing Site Sandstone Plinth - EX1
Existing sandstone plinth around gantry columns to be retained.

Existing Site Concrete - EX2
To be retained

Existing Boreholes -EX3
To be retained and protected

Surfaces to be reused

Existing Site Cobbles Mix 1 -EX4
Existing granite loafed cobbles lifted and safely stored on site for reuse.

Existing Site Cobbles Mix 2 - EX5
Existing granite loafed cobbles lifted and safely stored on site for reuse.

Existing Site Railway Tracks - EX6
Lifted, securely stored and relaid to proposed levels.

Surfaces to be removed

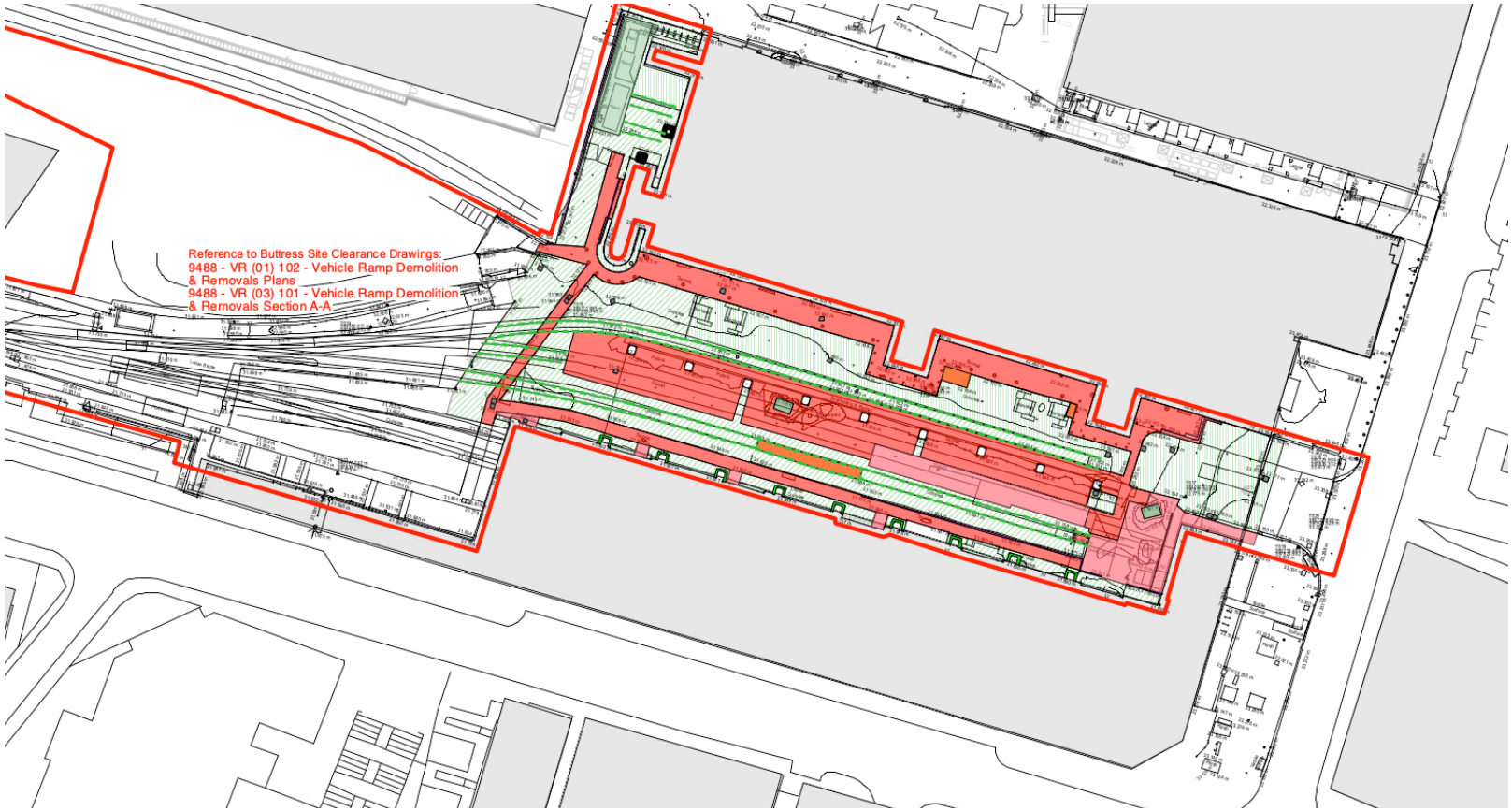
Existing Site Tarmac - EX8
To be removed

Existing Site Concrete -EX9
To be removed

Existing Site Paving - EX10
To be removed

Existing Brick Construction - EX11
To be removed

Existing Site Drainage Cover -EX7
Lifted and replaced with new, subject to engineers details.



Site Clearance to the Upper Yard - Surfaces

Reuse of Existing Loafed Cobbles within the Upper Yard

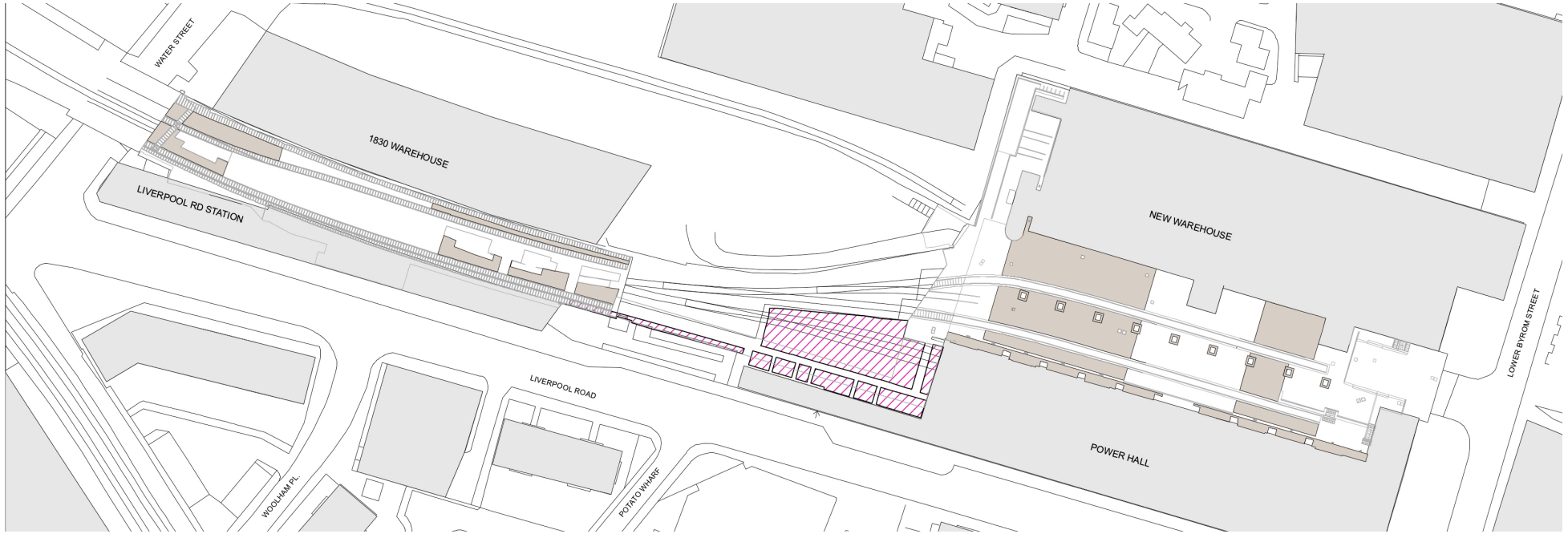
At present the square meter area of reclaimed cobbles required in the Upper Yard is 1152 sqm and on Station Approach 300m2.

It is proposed to lift all the existing cobble material within the Upper Yard and relay the amount needed to new proposed levels in one blend of Mix 1 and Mix 2. This paving mix will create a harmonious appearance of the cobble surface area adding value to the sense of the place where the historic building architecture takes centre stage.

Existing cobble material that will remain unused within the Upper Yard and Station Approach of Mix 1 material - 20% of the original square meter area, will be stored on site for any future phases of the landscape works.

Summary

Overall, the proposed removal of a percentage of the existing loafed setts will result in low less than substantial harm to the Upper Yard, and to the setting of the surrounding heritage assets. The existing loafed cobbles contribute significantly to the industrial character and understanding of the site and the reduction in their number will subsequently have an impact on this significance. This harm is however outweighed by the public benefits of the scheme, resulting from the new level access that will be provided across the site to all visitors, as well as the overall visual and physical enhancements provided to the site by the scheme. The new level setts which are proposed to replace the existing loafed ones in new accessible areas have been chosen due to their high-quality and have been specially selected to match and compliment the historic loafed cobbles which are to be retained elsewhere; this will reduce the overall visual impact of the proposed development on the setting and character of the assets. Furthermore, the works will also be reversible with the removed setts being kept safely, and intact, in storage by the museum, should they be required for any future works to the site.



Proposed area of cobbles in Upper Yard and Station Approach

Key

- Site Cobbles Mix 1 & 2 blended and relaid to new levels
- Existing Site Cobbles - Heart Space - Mix 2 (retained)

N

Existing Site Materials of Significance
Yorkstone Paving

To the west of the 1830s Station Building, there are several Yorkstone paving slabs in good condition. These have been on-site for many years and will be retained to honor the site's heritage and preserve its historical narrative. However, the riven surface finish typical of historic Yorkstone slabs does not comply with Part M building regulations due to the significant undulations, which pose challenges for users with mobility constraints.

To provide a compliant level surface, the slabs need to be lifted and modified off-site. They will be cut to a smaller size to ensure a level surface that meets Part M building regulations. The proposed dimensions for the altered slabs are a width of 200mm, a length varying between 300mm and 1000mm, and a variable depth, which will be confirmed upon site inspection.

1



Historic view of the Yorkstone Paving

2



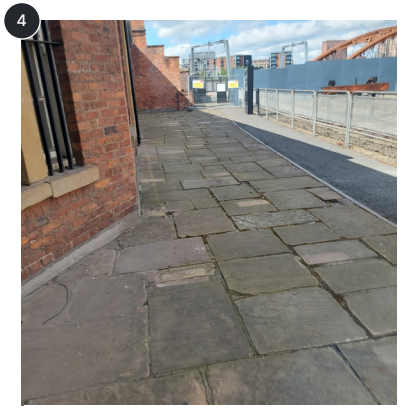
Historic view of the Yorkstone Paving

3



Existing paving slabs as lifted

4



Existing Yorkstone Paving towards the West

5

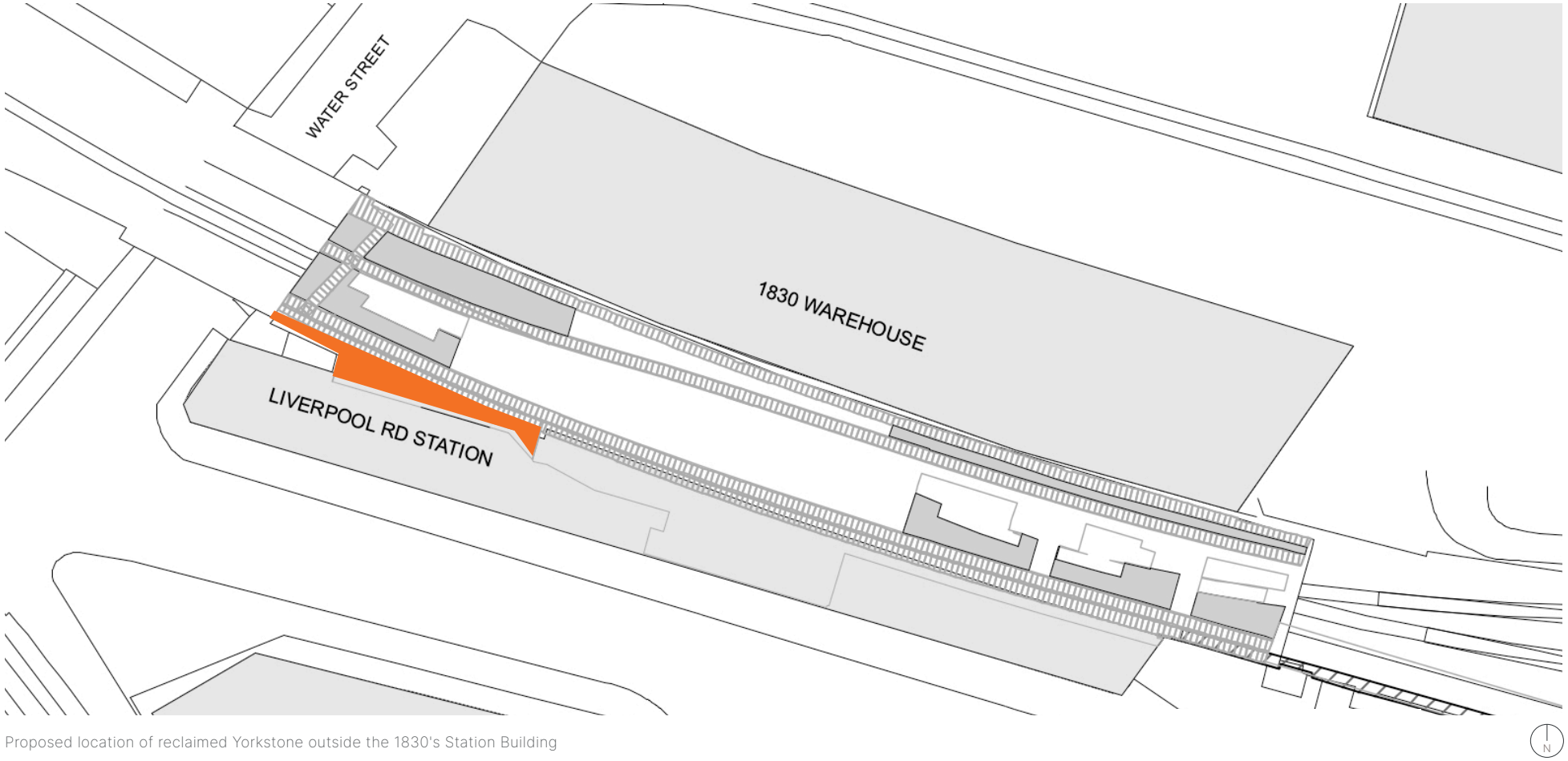


Existing Yorkstone Paving view towards to East

6



Example of Yorkstone Paving recut to required sizes



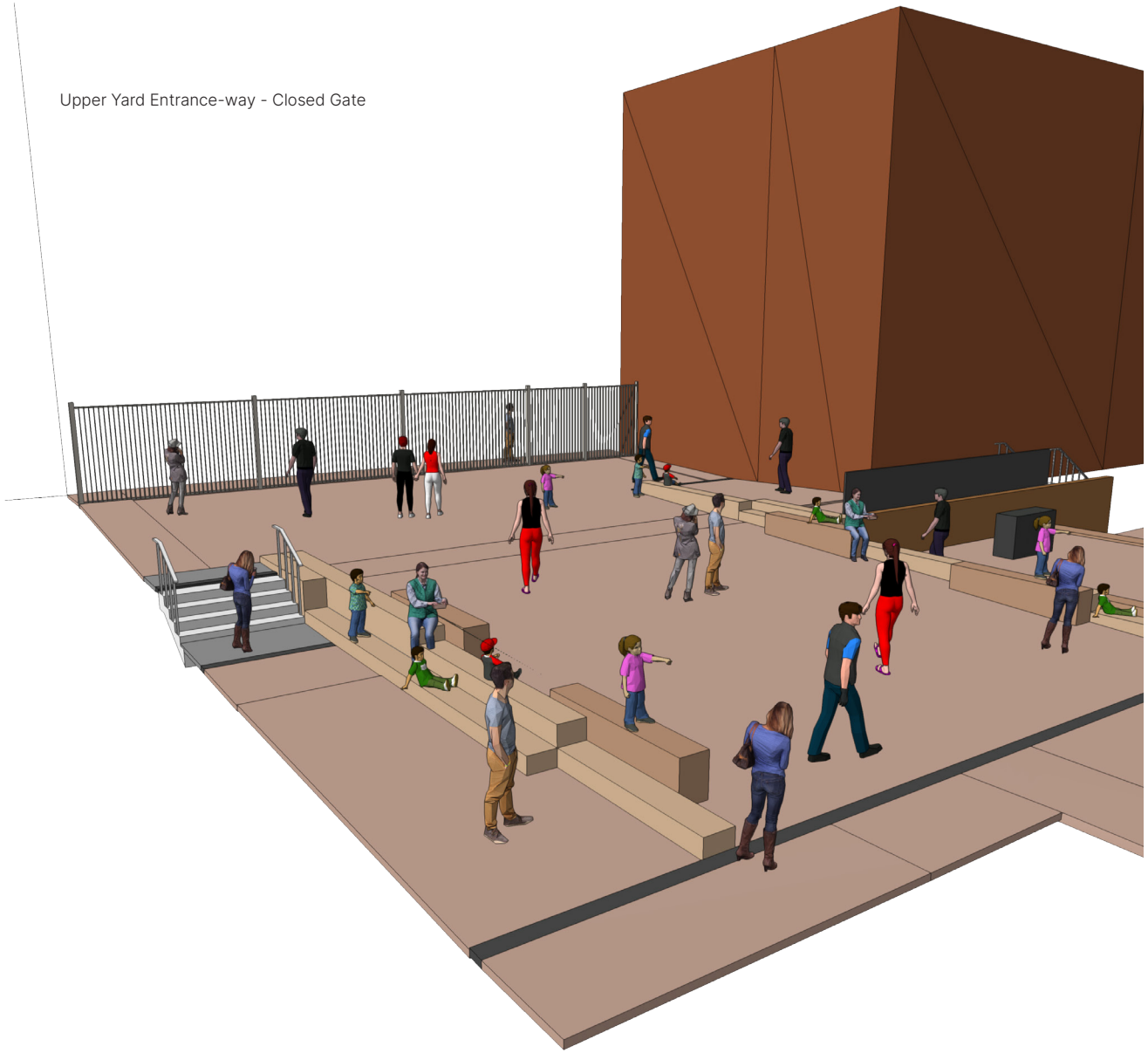
Proposed location of reclaimed Yorkstone outside the 1830's Station Building

Upper Yard Entrance
Materiality Rational

The long-term ambition for the Science and Industry Museum is to create an active and high-quality front door to the site along Lower Byrom Street, prioritizing pedestrians. Becoming a more outward-facing Science and Industry Museum opens up to its urban context, both physically and visually.

To facilitate this, the Upper Yard entrance at Lower Byrom Street will be remodelled to become a more permeable arrival point for visitors. This will include Part M compliant new surface finishes and gradients and a new gate arrangement (gate proposals do not form part of this application and are illustrative only).

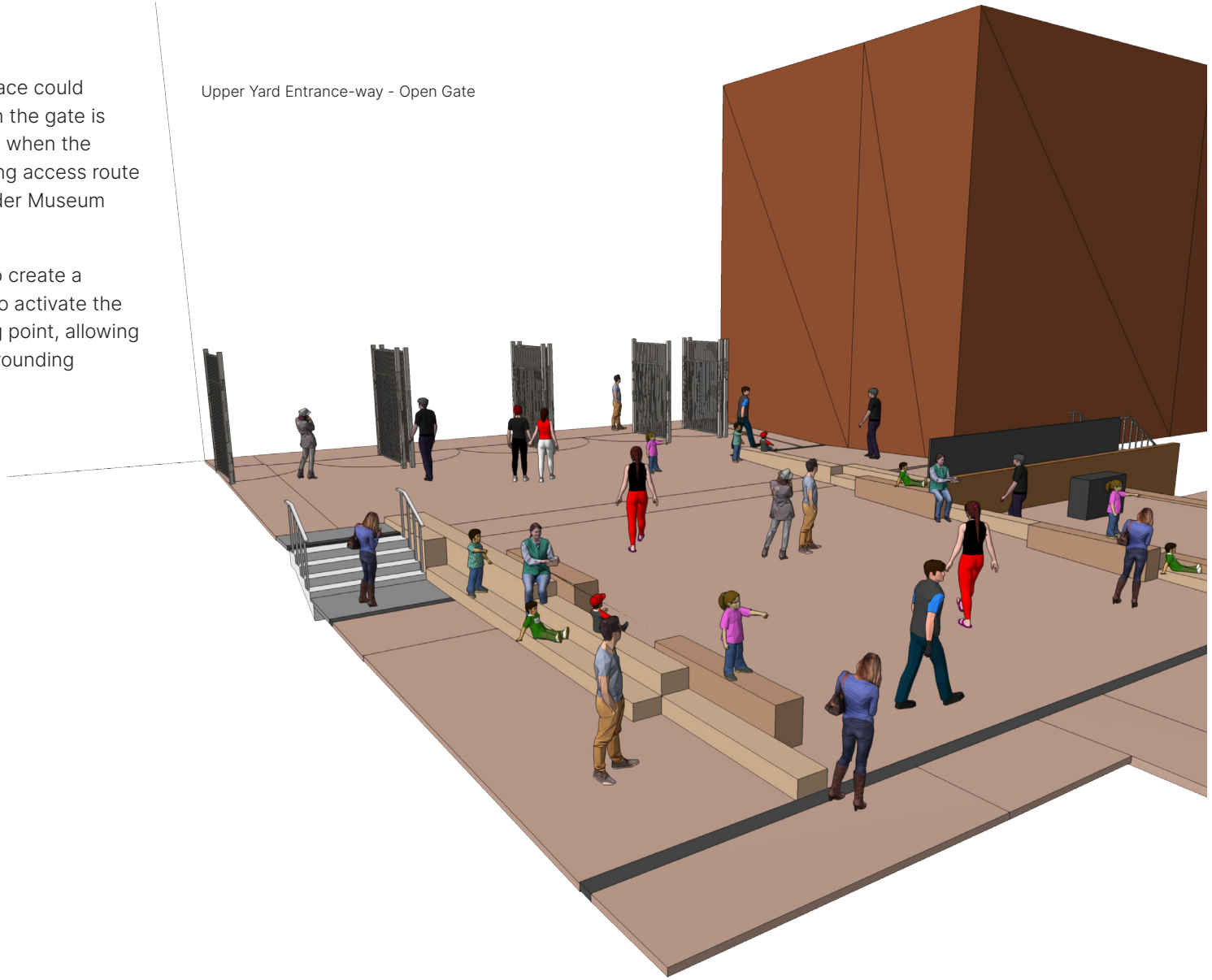
Upper Yard Entrance-way - Closed Gate



The illustrative images show how this space could function in the future. Out of hours, when the gate is closed, the space is contained. However, when the gates are open, this becomes a welcoming access route into the Upper Yard, extending to the wider Museum site.

The level change in this area is utilized to create a playful tiered seating feature that helps to activate the space and functions as a natural meeting point, allowing visitors to enjoy views of the historic surrounding buildings.

Upper Yard Entrance-way - Open Gate



Shadow Study

We have focused our detailed assessment on the three hottest summer months to establish the impact on visitors and whether sufficient shaded areas are available for taking respite from hot temperatures. The shadow study demonstrates that the site benefits from good natural sunlight, especially during lunchtime.

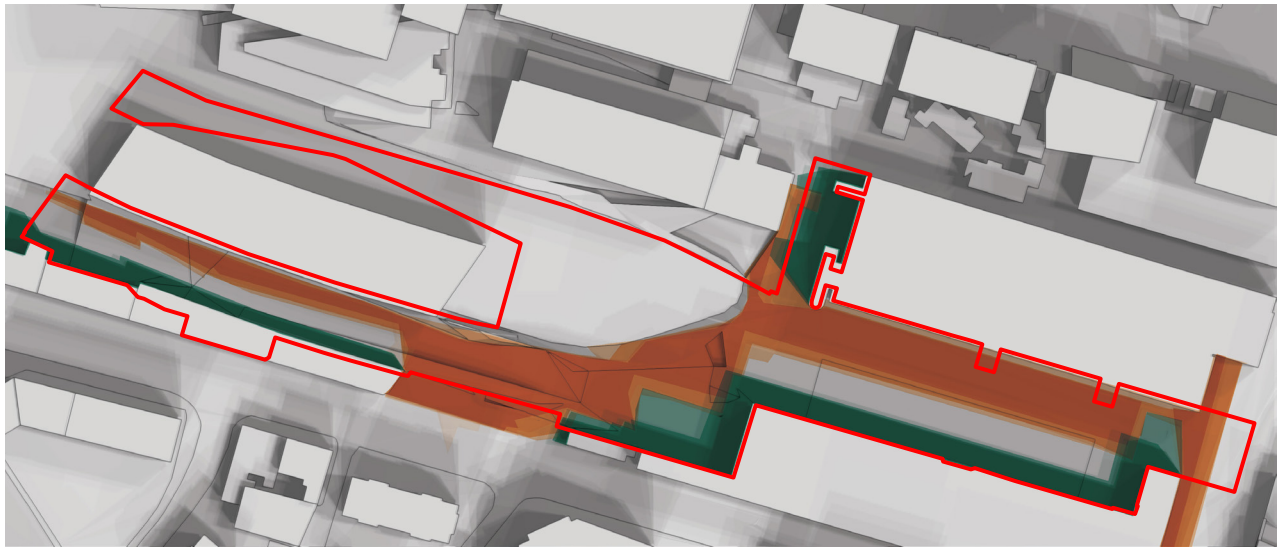
This has been taken into account within the design of the public realm, and visitors can find seating opportunities in sunny and shaded areas within both the Upper Yard and Station Approach. During lunchtime in the hottest summer months, additional respite can be found inside the Museum Buildings.

Key

Overlaid Sun Studies Illustrate the peak hours of sunshine.

Overlaid Sun Studies Illustrate the shadiest spots

All year combined sun studies



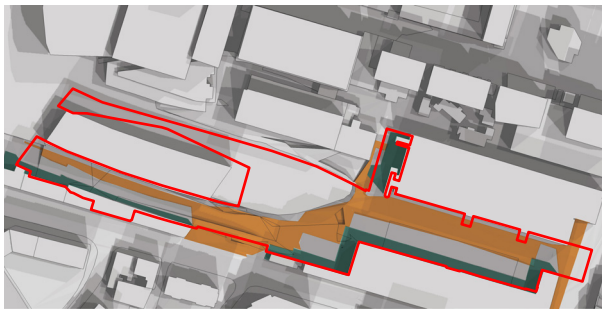
June overlaid sun studies



July overlaid sun studies



August overlaid sun studies

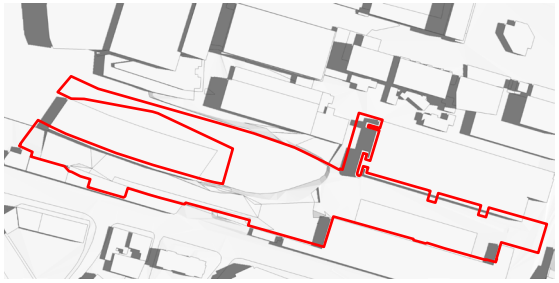


June

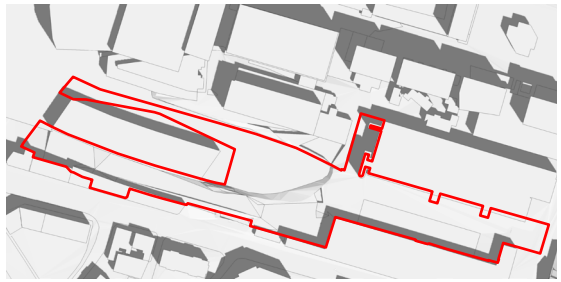
10am



12pm



2 pm

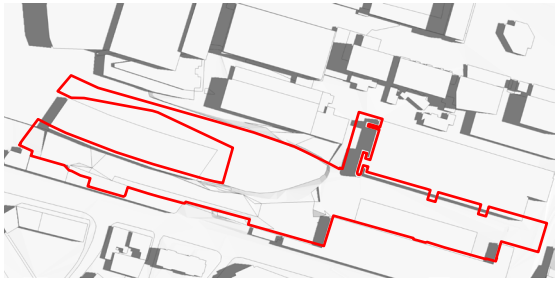


July

10am



12pm



2 pm

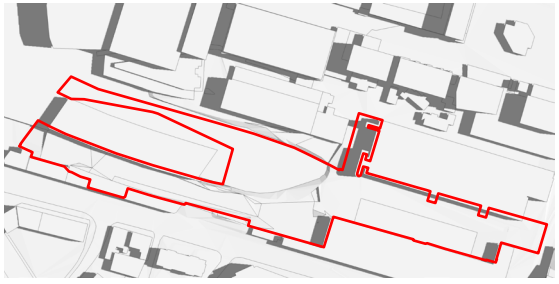


August

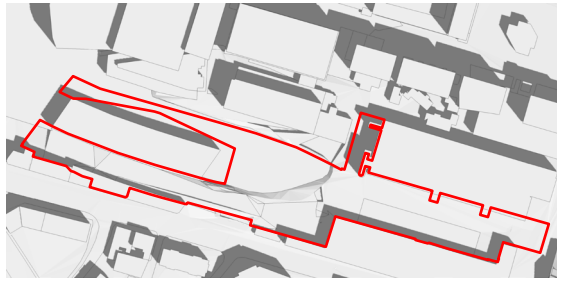
10am



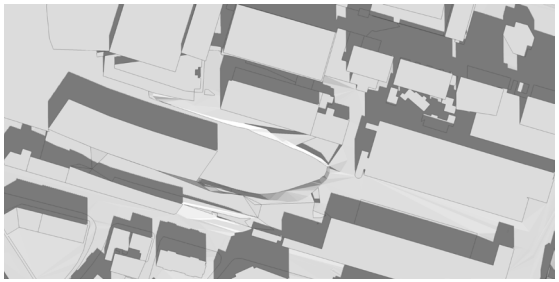
12pm



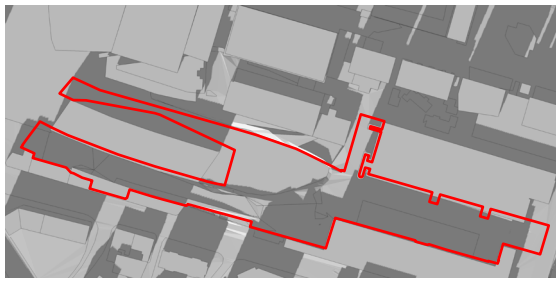
2 pm



4pm

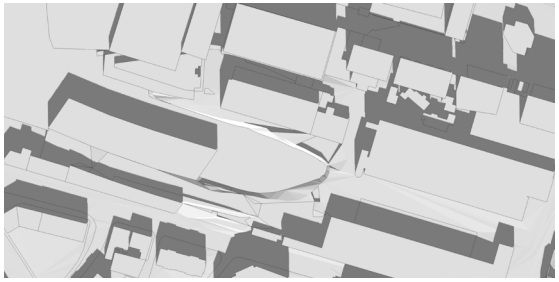


6pm



June

4pm

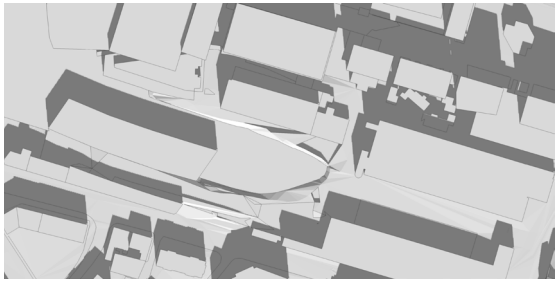


6pm



July

10am



6pm



August

Design Development

At the beginning of the project Planit explored various options for the landscape proposals to gauge the desired design style and proportion of greening to hard materials, refer to next page.

The process was most significant for the Upper Yard which set the bench mark for the Station Approach to ensure a coherent design language is being maintained across the site.

The proposals looked at informal, formal and hybrid design style options. All options provided benefits however the hybrid option was taken forward as preferred. The formal arrangement felt more in keeping with the industrial heritage setting, with an informal central space providing a strengthened relationship between the New Warehouse and the currently refurbished Power Hall.

Within the Station Approach this design language was extended. At first the design showed a high percentage of green, however during engagement with stakeholders (such as Manchester City Council and English Heritage) the percentage of ornamental planting and vertical tree planting was reduced in order to respect the heritage setting and the long reaching views.

Moving forward, furniture items were reduced and areas of hard standing extended to create a clearer, more simplified design. Engagement with Manchester City Council's access officer looked at reviewing seating locations and adjustments of their heights, making these more accessible to all ages. Accessible surfaces were extended within the Upper Yard to ensure areas of pocket spaces are accessible by wheelchair or pram, whilst retaining areas of original rounded cobbles in other zones for heritage value.

Upper Yard



Informal Option for Upper Yard

Station Approach



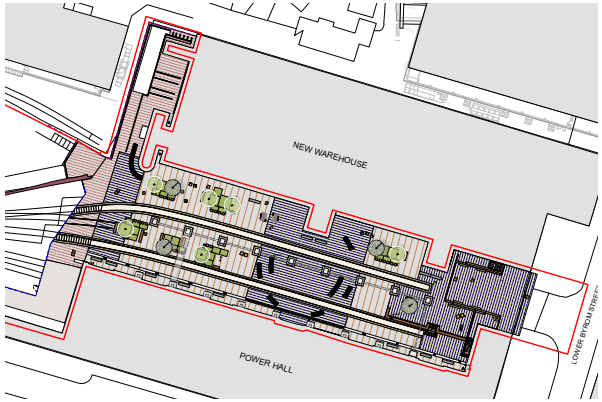
Earlier Option for Station Approach showing a high percentage of greenery and tree planting



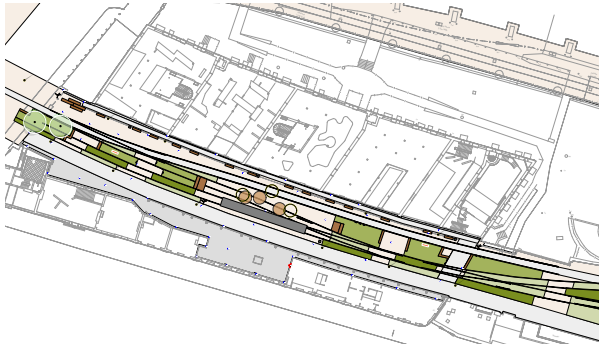
Formal Option for Upper Yard



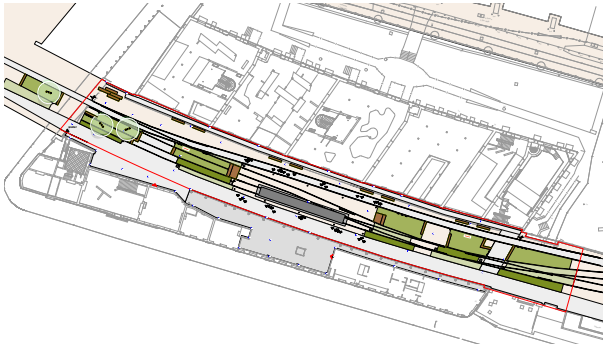
Combined option with a defined central space and reduced planting



Proposed Design



Option with reduced planting and trees. Central space has been defined.

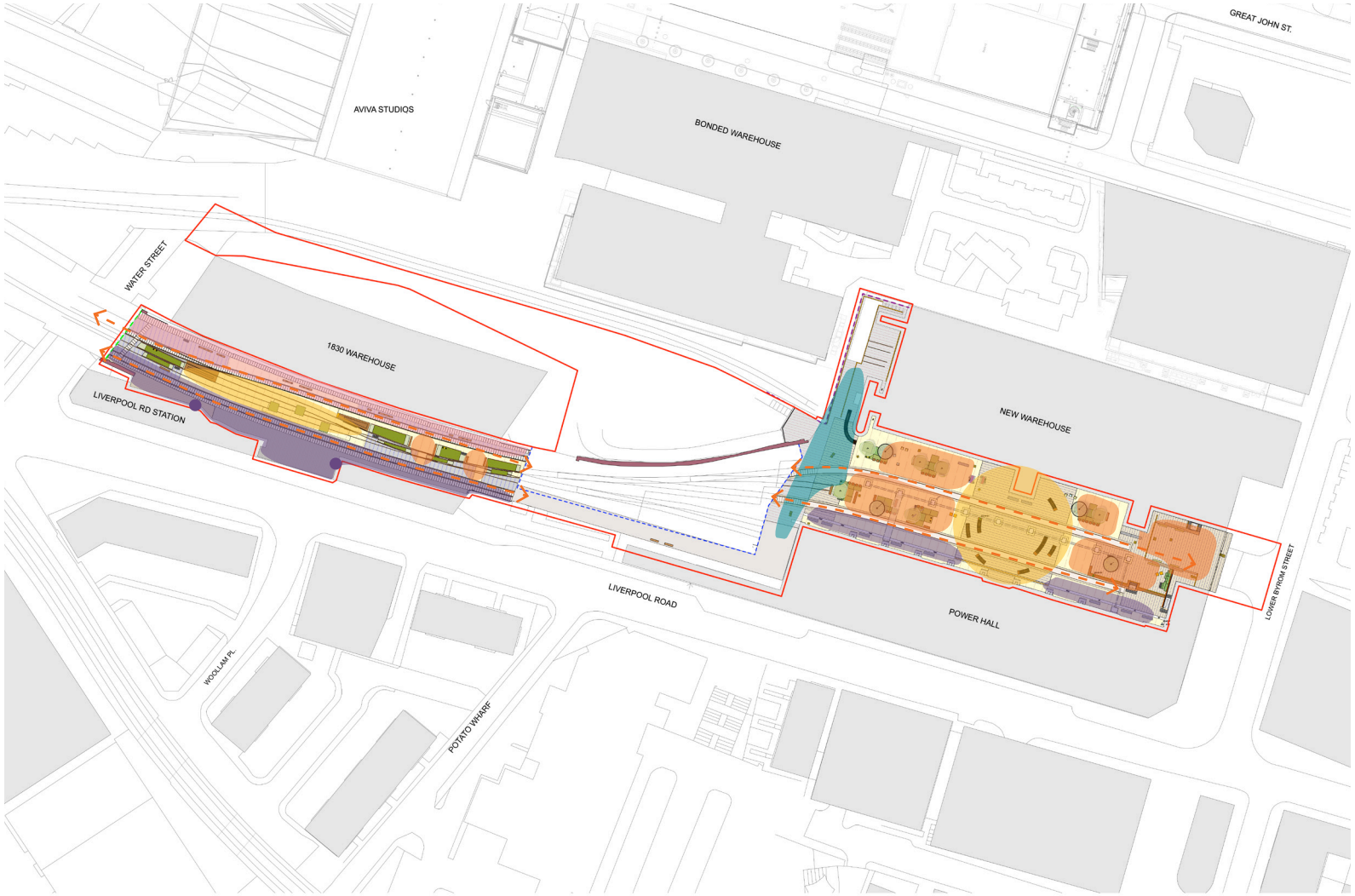


Further planting reduction and simplified scheme.



Proposed Design

The Upper Yard and Station Approach
Key Character Areas



Key

- 1830's Warehouse edge
- Pocket spaces
- Arrival space
- 1830's Station edge/ Power Hall edge
- Viewing Point
- Main Entrance
- Railway feature

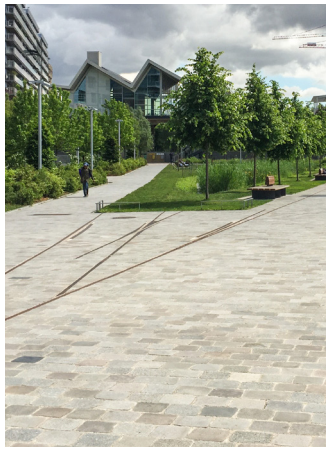
The Upper Yard and Station Approach
Hardworks and Edging

The proposal is intended to be broken down into phases of delivery. The hard landscape being the baseline that allows the other layers like furniture and soft planting to be build on top over time. The initial hardworks treatments ensure a compliance with Part M and BS8300 for the main accessible routes and entrance areas. The simplicity of the palette stays true to the vision of the strategy, acting as wayfinding to the wider site.

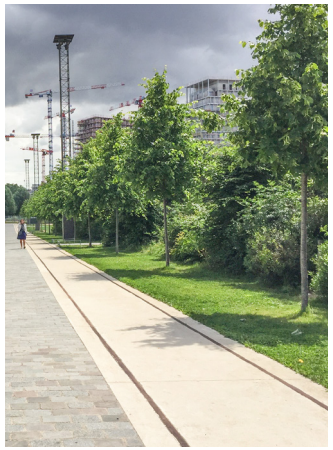
- New natural stone setts are the main material to define the main entrances and provide a level and accessible surface.
- Natural stone cobbles are reused from the existing site in less frequently used areas within the Upper Yard and relaid to new proposed levels.
- Natural stone flags are reused from the existing site on the Station Approach after being modified to meet Part M regulations for accessibility
- In-situ concrete and precast concrete slabs will be used to highlight the main routes between the railway tracks and provide a level access connecting the spaces together. In-situ concrete where rigid construction is feasible and precast concrete slabs over viaduct structures where flexible construction is preferred.
- Retained historic timber decking. (Station Approach area only)



Reclaimed Natural Stone Sett



New Natural Stone Setts



Insitu-Concrete

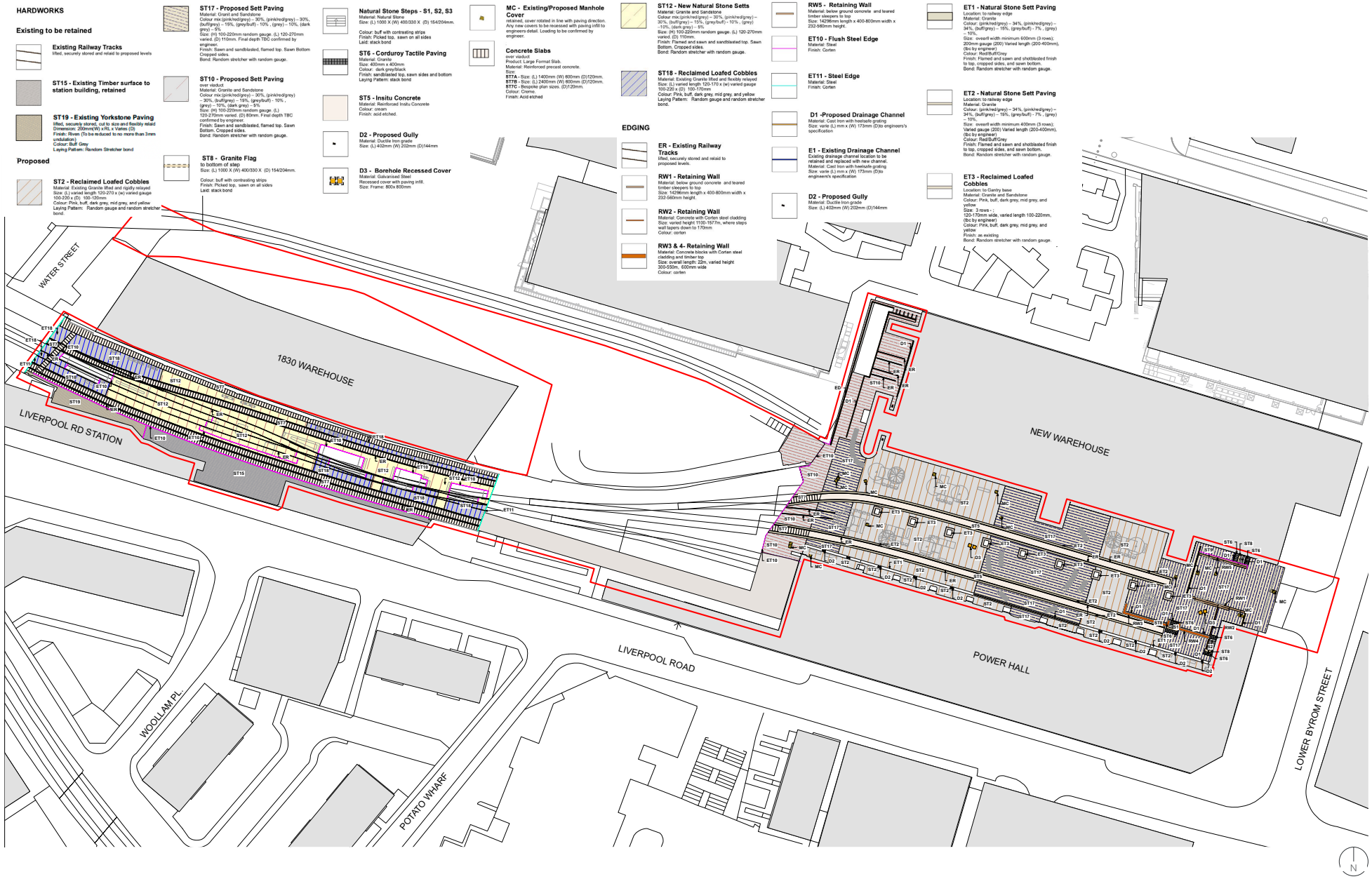
- Existing ballast or MOT in place of planting areas that can be added over time. (Station Approach area only)
- Retaining walls are cladded with corten steel to retain the industrial appearance of the site.



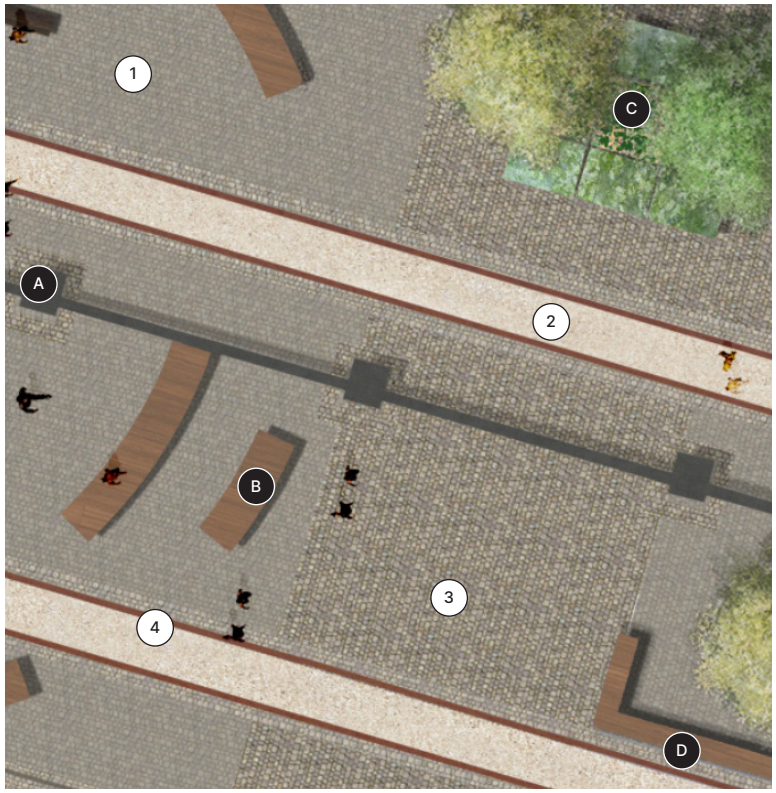
Large format slabs

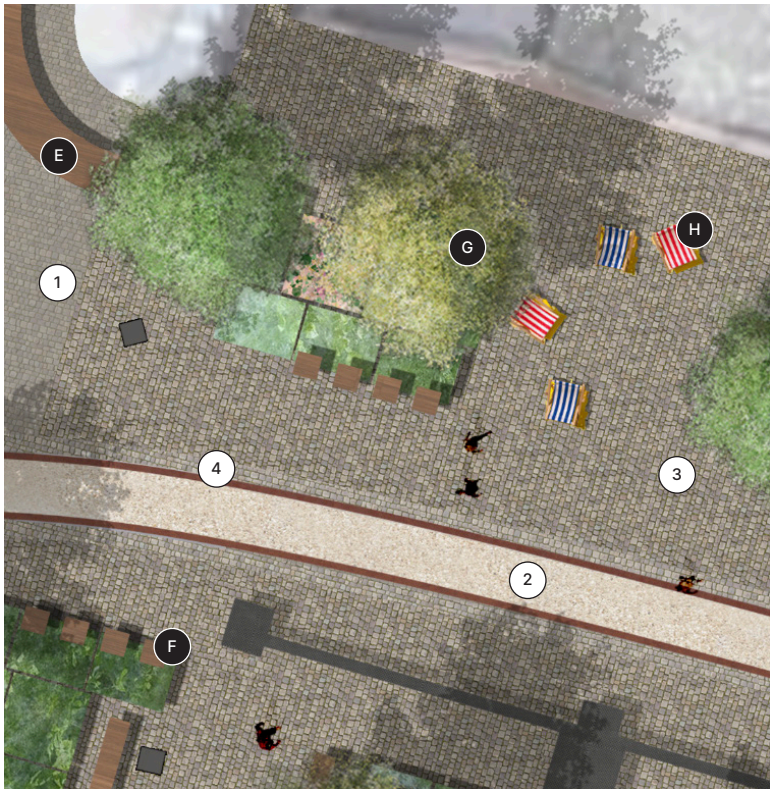


Steel Retaining Wall Cladding


HARDWORKS
Existing to be retained
Existing Railway Tracks
lifted, securely stored and relaid to proposed levels
ST15 - Existing Timber surface to station building, retained
ST19 - Existing Yorkstone Paving
lifted, securely stored, cut to size and flexibly relaid
Dimension: 200mm(W) x RL x Varies (D)
Finish: Riven (To be reduced to no more than 3mm undulation)
Colour: Buff Grey
Laying Pattern: Random Stretcher bond
Proposed
ST2 - Reclaimed Loafed Cobbles
Material: Existing Granite lifted and rigidly relayed
Size: (L) varied length 120-270 x (w) varied gauge 100-220 x (D) 100-120mm
Colour: Pink, buff, dark grey, mid grey, and yellow
Laying Pattern: Random gauge and random stretcher bond.
ST17 - Proposed Sett Paving
Material: Granit and Sandstone
Colour mix:(pink/red/grey) – 30%, (pink/red/grey) – 30%, (buff/grey) – 15%, (grey/buff) - 10% , (grey) – 10%, (dark grey) – 5%
Size: (H) 100-220mm random gauge, (L) 120-270mm varied, (D) 110mm. Final depth TBC confirmed by engineer.
Finish: Sawn and sandblasted, flamed top. Sawn Bottom Cropped sides.
Bond: Random stretcher with random gauge.
ST10 - Proposed Sett Paving
over viaduct
Material: Granite and Sandstone
Colour mix:(pink/red/grey) – 30%, (pink/red/grey) – 30%, (buff/grey) – 15%, (grey/buff) - 10% , (grey) – 10%, (dark grey) – 5%
Size: (H) 100-220mm random gauge, (L) 120-270mm varied, (D) 80mm. Final depth TBC confirmed by engineer.
Finish: Sawn and sandblasted, flamed top. Sawn Bottom, Cropped sides.
Bond: Random stretcher with random gauge.
ST8 - Granite Flag
to bottom of step
Size: (L) 1000 X (W) 400/330 X (D) 154/204mm.
Colour: buff with contrasting strips
Finish: Picked top, sawn on all sides
Laid: stack bond
Natural Stone Steps - S1, S2, S3
Material: Natural Stone
Size: (L) 1000 X (W) 400/330 X (D) 154/204mm.
Colour: buff with contrasting strips
Finish: Picked top, sawn on all sides
Laid: stack bond
ST6 - Corduroy Tactile Paving
Material: Granite
Size: 400mm x 400mm
Colour: dark grey/black
Finish: sandblasted top, sawn sides and bottom
Laying Pattern: stack bond
ST5 - Insitu Concrete
Material: Reinforced Insitu Concrete
Colour: cream
Finish: acid etched.
D2 - Proposed Gully
Material: Ductile Iron grade
Size: (L) 402mm (W) 202mm (D)144mm
D3 - Borehole Recessed Cover
Material: Galvanised Steel
Recessed cover with paving infill.
Size: Frame: 800x 800mm
MC - Existing/Proposed Manhole Cover
retained, cover rotated in line with paving direction. Any new covers to be recessed with paving infill to engineers detail. Loading to be confirmed by engineer.
Concrete Slabs
over viaduct
Product: Large Format Slab.
Material: Reinforced precast concrete.
Size:
ST7A - Size: (L) 1400mm (W) 800mm (D)120mm.
ST7B - Size: (L) 2400mm (W) 800mm (D)120mm.
ST7C - Bespoke plan sizes. (D)120mm.
Colour: Creme.
Finish: Acid etched
ST12 - New Natural Stone Setts
Material: Granite and Sandstone
Colour mix:(pink/red/grey) – 20%, (pink/red/grey) – 30%, (buff/grey) – 15%, (grey/buff) - 10% , (grey) –10%, (dark grey) – 5%
Size: (H) 100-220mm random gauge. (L) 120-270mm varied. (D) 110mm.
Finish: Flamed and sawn and sandblasted top. Sawn Bottom, Cropped sides.
Bond: Random stretcher with random gauge.
ST18 - Reclaimed Loafed Cobbles
Material: Existing Granite lifted and flexibly relayed
Size: (L) varied length 120-170 x (w) varied gauge 100-220 x (D) 100-170mm
Colour: Pink, buff, dark grey, mid grey, and yellow
Laying Pattern: Random gauge and random stretcher bond.
EDGING
ER - Existing Railway Tracks
lifted, securely stored and relaid to levels
RW1 - Retaining Wall
Material: below ground concrete and teared timber sleepers to top
Size: 14296mm length x 400-800mm width x 232-560mm height.
RW2 - Retaining Wall
Material: Concrete with Corten steel cladding
Size: varied height 1105-1677m, where steps wall tapers down to 170mm
Colour: corten
RW3 & 4- Retaining Wall
Material: Concrete blocks with Corten steel cladding and timber top
Size: overall length: 22m, varied height 300-550m, 600mm wide
Colour: corten
RW5 - Retaining Wall
Material: below ground concrete and teared timber sleepers to top
Size: 14296mm length x 400-800mm width x 232-560mm height.
ET10 - Flush Steel Edge
Material: Steel
Finish: Corten
ET11 - Steel Edge
Material: Steel
Finish: Corten
D1 -Proposed Drainage Channel
Material: Cast Iron with heelsafe grating
Size: varie (L) mm x (W) 173mm (D)to engineers's specification
E1 - Existing Drainage Channel
Existing drainage channel location to be retained and replaced with new channel.
Material: Cast Iron with heelsafe grating
Size: varie (L) mm x (W) 173mm (D)to engineers's specification
D2 - Proposed Gully
Material: Ductile Iron grade
Size: (L) 402mm (W) 202mm (D)144mm
ET1 - Natural Stone Sett Paving
Location: to railway edge
Material: Granite
Colour: (pink/red/grey) – 34%, (pink/red/grey) – 34%, (buff/grey) – 15%, (grey/buff) - 7% , (grey) – 10%,
Size: overall width minimum 600mm (3 rows); 200mm gauge (200) Varied length (200-400mm), (tbc by engineer)
Colour: Red/Buff/Grey
Finish: Flamed and sawn and shotblasted finish to top, cropped sides, and sawn bottom.
Bond: Random stretcher with random gauge.
ET2 - Natural Stone Sett Paving
Location: to railway edge
Material: Granite
Colour: (pink/red/grey) – 34%, (pink/red/grey) – 34%, (buff/grey) – 15%, (grey/buff) - 7% , (grey) – 10%,
Size: overall width minimum 400mm (3 rows); Varied gauge (200) Varied length (200-400mm), (tbc by engineer) ;
Colour: Red/Buff/Grey
Finish: Flamed and sawn and shotblasted finish to top, cropped sides, and sawn bottom.
Bond: Random stretcher with random gauge.
ET3 - Reclaimed Loafed Cobbles
Location: to Gantry base
Material: Granite and Sandstone
Colour: Pink, buff, dark grey, mid grey, and yellow
Size: 3 rows - ;
120-170mm wide, varied length 100-220mm, (tbc by engineer)
Colour: Pink, buff, dark grey, mid grey, and yellow
Finish: as existing
Bond: Random stretcher with random gauge.
WATER STREET
1830 WAREHOUSE
LIVERPOOL RD STATION
NEW WAREHOUSE
POWER HALL
LIVERPOOL ROAD
WOOLLAM PL
POTATO WHARF
LOWER BYROM STREET
N

1. New natural stone setts that provide a flush, accessible finish
2. Insitu concrete
3. Existing cobbles, lifted and relaid to new levels
4. Existing railway tracks relaid flush with adjacent surface





A. Existing Gantry Structure.

B. Bespoke curved timber seating to central arrival space. Designed to accommodate a wide range of users, with varied heights, some backrests and some arm rests.

C. Existing site planters integrated within new planting scheme.

D. Retaining wall to deal with level changes and with integrated seating along the edge.

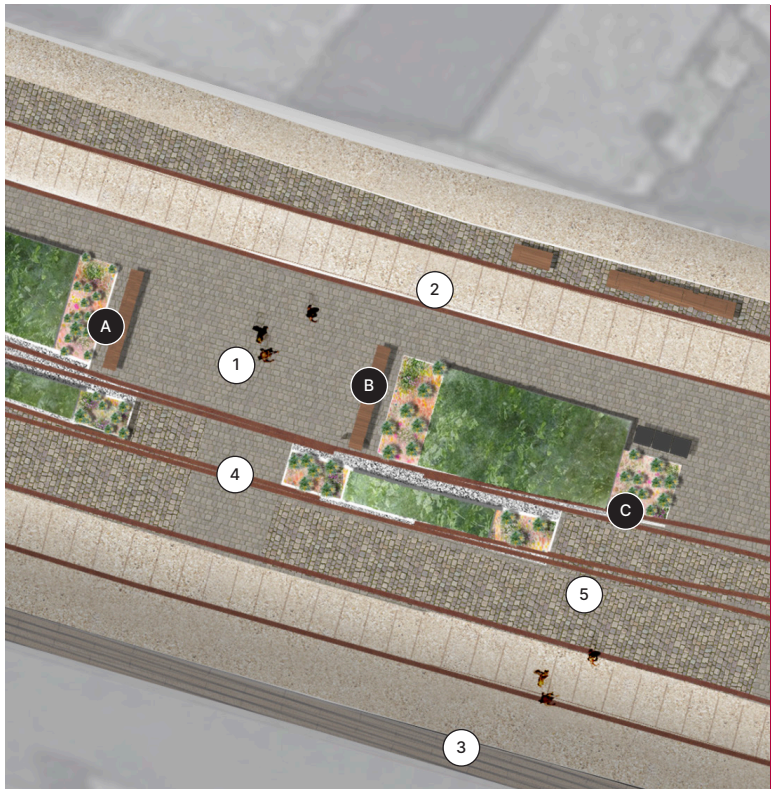
E. Curved timber seat to protect stairwell and allow long range views across the Upper and Lower Yard.

F. Individual timber seating to the top of planters. Allowing for informal dwelling opportunities across the site.

G. Existing trees to be reused within the new scheme.

H. Existing site deck chairs reused for informal dwell opportunities.

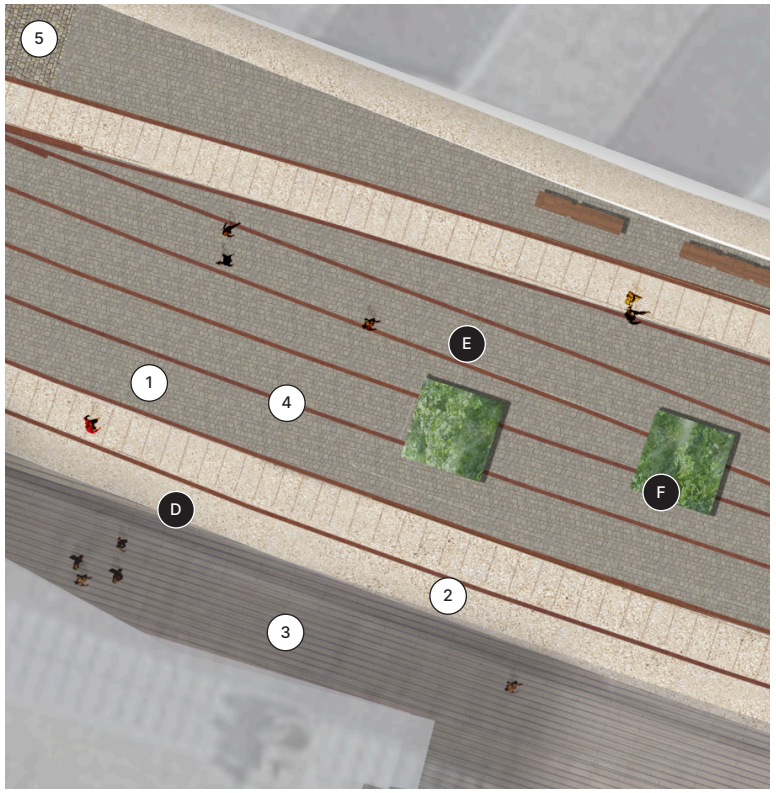
1. New natural stone sett paving that provides a flush, accessible finish
2. Precast concrete slabs
3. Existing timber surface
4. Existing railway tracks relaid flush with adjacent surface
5. Existing cobbles, lifted and relaid to new levels



A. The planting is a mix between wildflower trays and low ornamental planting

B. Timber seating creates pocket spaces between the two historic buildings. Ensuring the planting is protected from main pedestrian movement.

C. The landscape design works with the existing railway track layout. Respecting the history of the site and creating a unique layout that retains views across the Station Approach.



D. Precast concrete slabs are laid between railway tracks. Providing an accessible route with maintenance access when required.

E. The larger central space is predominantly hard standing, to allow for gathering of bigger groups.

F. Free standing Planters

The Upper Yard and Station Approach
Drainage

Through consultation with the LLFA, it was acknowledged that the historic nature of the site poses significant constraints to development mainly relating to the site's unique location being partially situated atop an existing viaduct. It was therefore agreed with the LLFA that, due to the site constraints, the proposed drainage strategy will retain the existing drainage regime and points of connection with a like-for-like proposal. The drainage strategy therefore complies with the requirements of the LLFA and is suitable for the proposed development.

A pre-app meeting was held with the LLFA on 16/05/2023 to agree the principles behind the drainage strategy for the Science and Industry Museum. The following points reflect the discussion with the LLFA:

It was noted that the site is unusual with a significant portion situated on top of an existing viaduct.

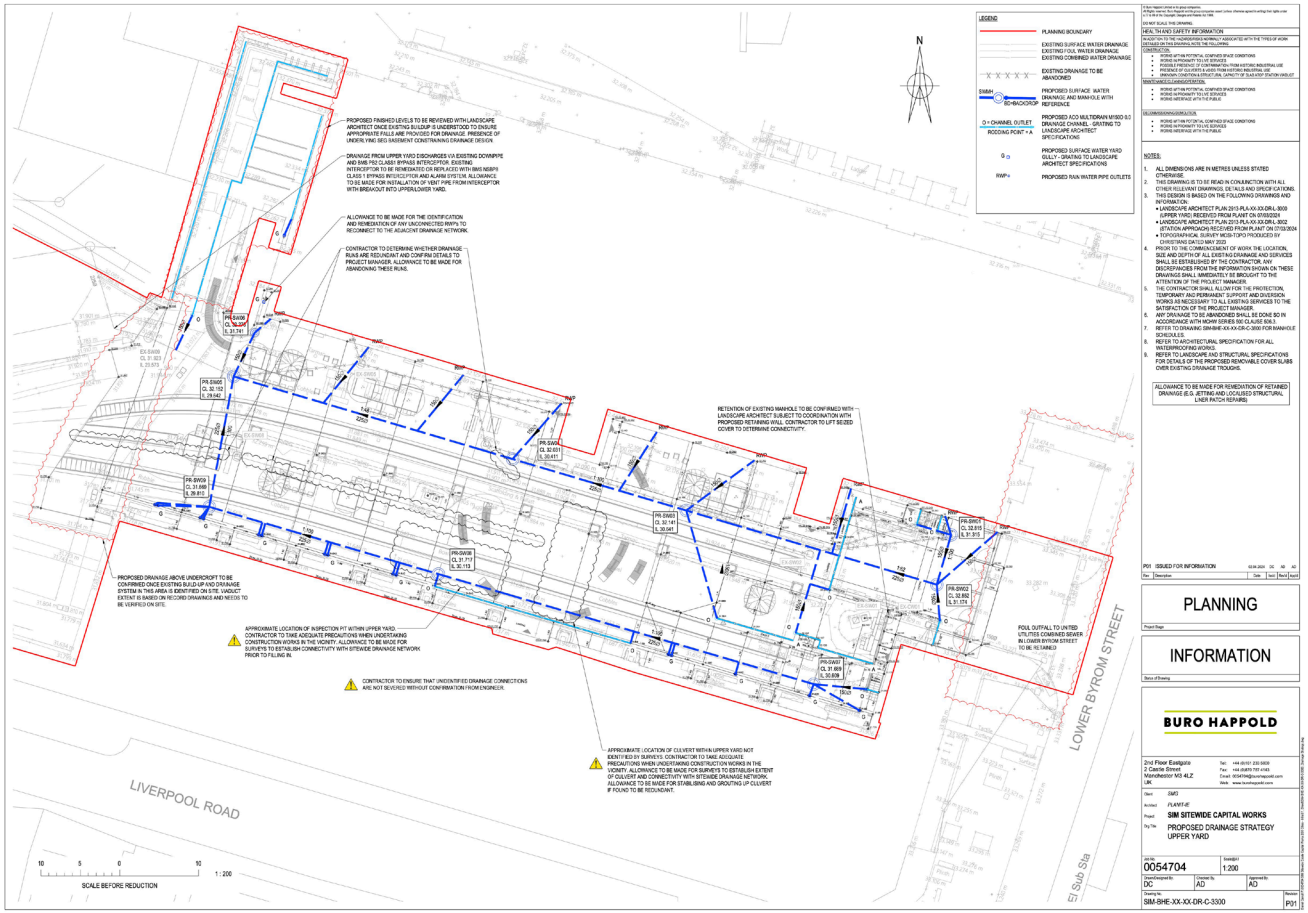
The site was recognised as being constrained and that ground conditions are likely to be contaminated, presenting challenges for development.

It was agreed that the proposed drainage strategy will retain the existing drainage regime and points of connection with a like-for-like proposal. It was noted that more stringent policy requirements will need to be met if the drainage strategy requires alterations to the existing strategy.

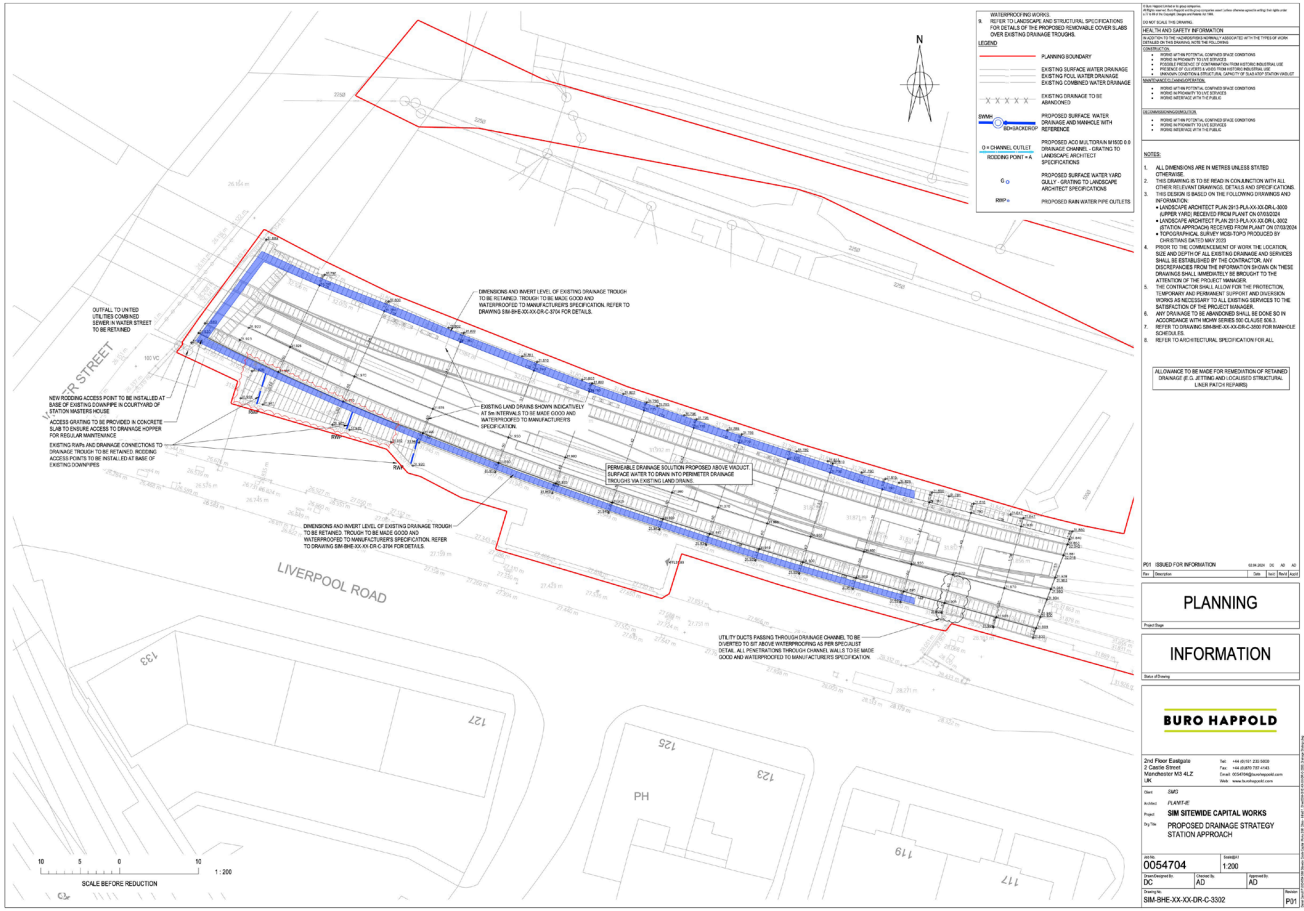
It was noted that within the proposed drainage strategy, we would need to provide evidence of the existing drainage networks connectivity and suitability for the proposed development. This evidence has been obtained and the drainage strategy demonstrates that contributing flows will not result in detriment to the receiving sewers.

In addition to the discussions with the LLFA, it should be noted that the Viaduct and Upper Yard drain independently to the Lower Yard and the site can be described as distinct catchments. The proposed development is therefore not impacted by the wider vision for the museum site.

Upper Yard


LEGEND
PLANNING BOUNDARY
EXISTING SURFACE WATER DRAINAGE
EXISTING FOUL WATER DRAINAGE
EXISTING COMBINED WATER DRAINAGE
EXISTING DRAINAGE TO BE ABANDONED
PROPOSED SURFACE WATER DRAINAGE AND MANHOLE WITH REFERENCE
PROPOSED ACO MULTIDRAIN MS80D S.D DRAINAGE CHANNEL - GRATING TO LANDSCAPE ARCHITECT SPECIFICATIONS
PROPOSED SURFACE WATER YARD GULLY - GRATING TO LANDSCAPE ARCHITECT SPECIFICATIONS
PROPOSED RAIN WATER PIPE OUTLETS
N
PROPOSED FINISHED LEVELS TO BE REVISITED WITH LANDSCAPE ARCHITECT ONCE EXISTING BUILDUP IS UNDERSTOOD TO ENSURE APPROPRIATE FALLS ARE PROVIDED FOR DRAINAGE. PRESENCE OF UNDERLYING MID SECTION BASEMENT CONSTRAINING DRAINAGE DESIGN
DRAINAGE FROM UPPER YARD DISCHARGES VIA EXISTING DOWNPIPE AND 6MB PSD CLASS BYPASS INTERCEPTOR. EXISTING INTERCEPTOR TO BE REVERSED TO BE REPLACED WITH 6MB NSBP3 CLASS 1 BYPASS INTERCEPTOR AND ALARM SYSTEM. ALLOWANCE TO BE MADE FOR INSTALLATION OF VENT PIPE FROM INTERCEPTOR WITH BREAKOUT INTO UPPER/LOWER YARD.
ALLOWANCE TO BE MADE FOR THE IDENTIFICATION AND REMEDIATION OF ANY UNCONNECTED RWPs TO RECONNECT TO THE ADJACENT DRAINAGE NETWORK.
CONTRACTOR TO DETERMINE WHETHER DRAINAGE RUNS ARE REDUNDANT AND CONFIRM DETAILS TO PROJECT MANAGER. ALLOWANCE TO BE MADE FOR ABANDONING THESE RUNS.
RETENTION OF EXISTING MANHOLE TO BE CONFIRMED WITH LANDSCAPE ARCHITECT SUBJECT TO COORDINATION WITH PROPOSED RETAINING WALL. CONTRACTOR TO LIFT SECURED COVER TO DETERMINE CONNECTIVITY.
PROPOSED DRAINAGE ABOVE UNDERCROFT TO BE CONFIRMED ONCE EXISTING BUILD-UP AND DRAINAGE SYSTEM IN THIS AREA IS IDENTIFIED ON SITE. VAIDUCT EXTENT IS BASED ON RECORD DRAWINGS AND NEEDS TO BE VERIFIED ON SITE.
APPROXIMATE LOCATION OF INSPECTION PIT WITHIN UPPER YARD. CONTRACTOR TO TAKE ADEQUATE PRECAUTIONS WHEN UNDERTAKING CONSTRUCTION WORKS IN THE VICINITY. ALLOWANCE TO BE MADE FOR SURVEYS TO ESTABLISH CONNECTIVITY WITH SITEWIDE DRAINAGE NETWORK PRIOR TO FILLING IN.
CONTRACTOR TO ENSURE THAT UNIDENTIFIED DRAINAGE CONNECTIONS ARE NOT SEVERED WITHOUT CONFIRMATION FROM ENGINEER.
APPROXIMATE LOCATION OF CULVERT WITHIN UPPER YARD NOT IDENTIFIED BY SURVEYS. CONTRACTOR TO TAKE ADEQUATE PRECAUTIONS WHEN UNDERTAKING CONSTRUCTION WORKS IN THE VICINITY. ALLOWANCE TO BE MADE FOR SURVEYS TO ESTABLISH EXTENT OF CULVERT AND CONNECTIVITY WITH SITEWIDE DRAINAGE NETWORK. ALLOWANCE TO BE MADE FOR STABILISING AND GROUTING UP CULVERT IF FOUND TO BE REDUNDANT.
FOUL OUTFALL TO UNITED UTILITIES COMBINED SEWER IN LOWER BYROM STREET TO BE RETAINED
LOWER BYROM STREET
LIVERPOOL ROAD
El Sub Sta
SCALE BEFORE REDUCTION
1 : 200
NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS, DETAILS AND SPECIFICATIONS.
3. THIS DESIGN IS BASED ON THE FOLLOWING DRAWINGS AND INFORMATION:
• LANDSCAPE ARCHITECT PLAN 2015-PLA-XX-XX-DRL-3009 (UPPER YARD) RECEIVED FROM PLANIT ON 07/03/2024
• LANDSCAPE ARCHITECT PLAN 2015-PLA-XX-XX-DRL-3002 (STATION APPROACH) RECEIVED FROM PLANIT ON 07/03/2024
• TOPOGRAPHICAL SURVEY MCSS-TOPO PRODUCED BY CHRISTIANI DATED MAY 2023
4. PRIOR TO THE COMMENCEMENT OF WORK THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINAGE AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR. ANY DISCREPANCIES FROM THE INFORMATION SHOWN ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER.
5. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, SUPPORT AND MAINTENANCE OF ALL SERVICES AND DIVERSION WORKS AS NECESSARY TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PROJECT MANAGER.
6. ANY DRAINAGE TO BE ABANDONED SHALL BE DONE SO IN ACCORDANCE WITH MCHW SERIES 500 CLAUSE 504.3.
7. REFER TO DRAWING SIM-BHE-XX-XX-DR-C-3600 FOR MANHOLE SCHEDULES.
8. REFER TO ARCHITECTURAL SPECIFICATION FOR ALL WATERPROOFING WORKS.
9. REFER TO LANDSCAPE AND STRUCTURAL SPECIFICATIONS FOR DETAILS OF THE PROPOSED REMOVABLE COVER SLABS OVER EXISTING DRAINAGE TROUGHS.
ALLOWANCE TO BE MADE FOR REMEDIATION OF RETAINED DRAINAGE (E.G. JETTING AND LOCALISED STRUCTURAL LINER PATCH REPAIRS)
P01 ISSUED FOR INFORMATION 10.04.2024 DC AD AD
PLANNING
INFORMATION
BURO HAPPOLD
2nd Floor Eastgate
2 Castle Street
Manchester M3 4LZ
UK
Tel: +44 (0)161 235 5800
Fax: +44 (0)870 787 4143
Email: BDHPmail@burohappold.com
Web: www.burohappold.com
Client: SMBT
Architect: PLANIT-IE
Project: SIM SITEWIDE CAPITAL WORKS
Dg Title: PROPOSED DRAINAGE STRATEGY UPPER YARD
Job No: 0054704
Scale@A1: 1:200
Drawn/Designed By: DC
Checked By: AD
Approved By: AD
Drawing No: SIM-BHE-XX-XX-DR-C-3300
Revision: P01

Station Approach



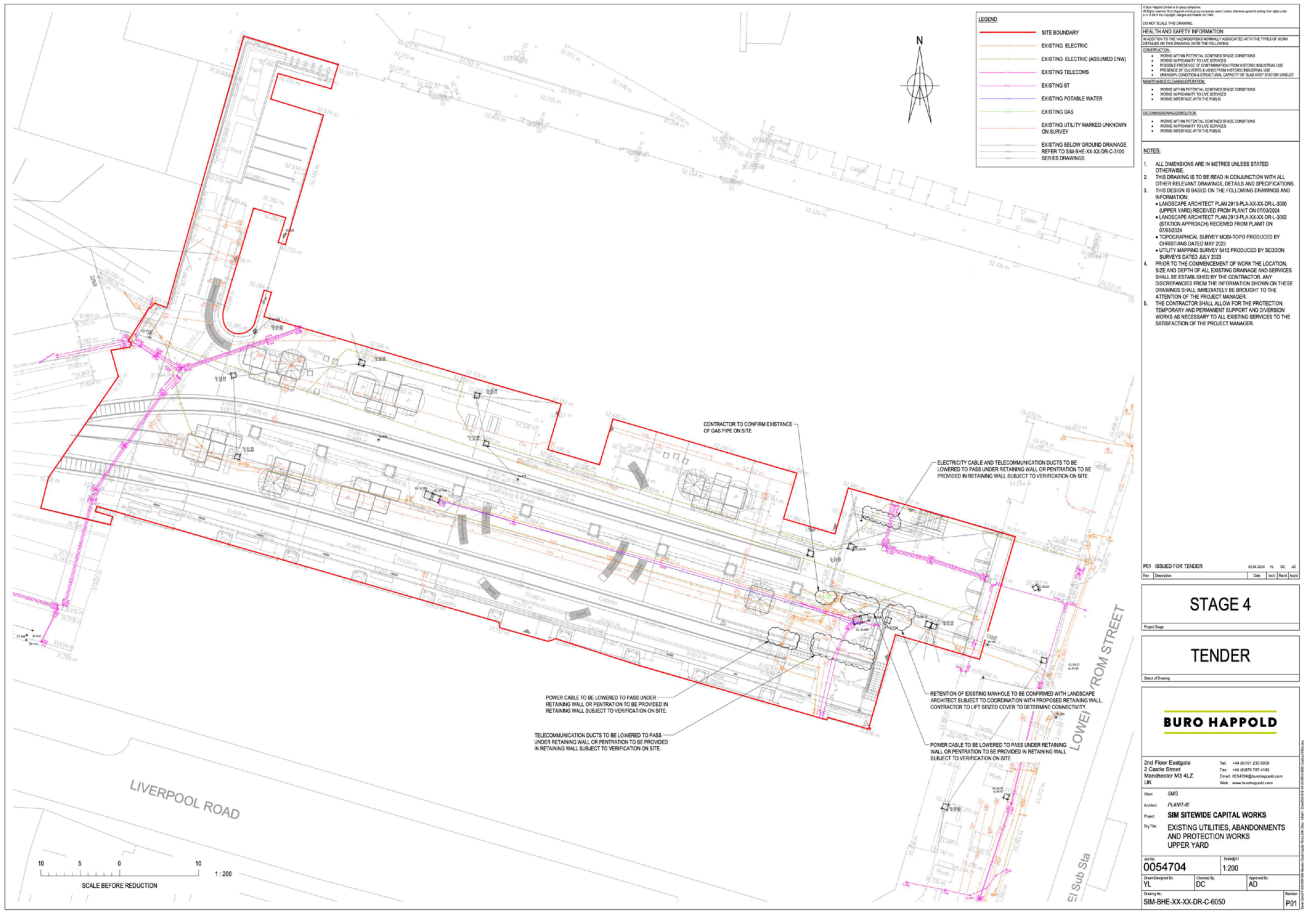
The Upper Yard and Station Approach
Utilities

Upper Yard:

Electricity: Both private low voltage and medium voltage electric supplies are present. The medium voltage electric supply is owned by Electricity North West and supplies a substation located within the Lower Yard.

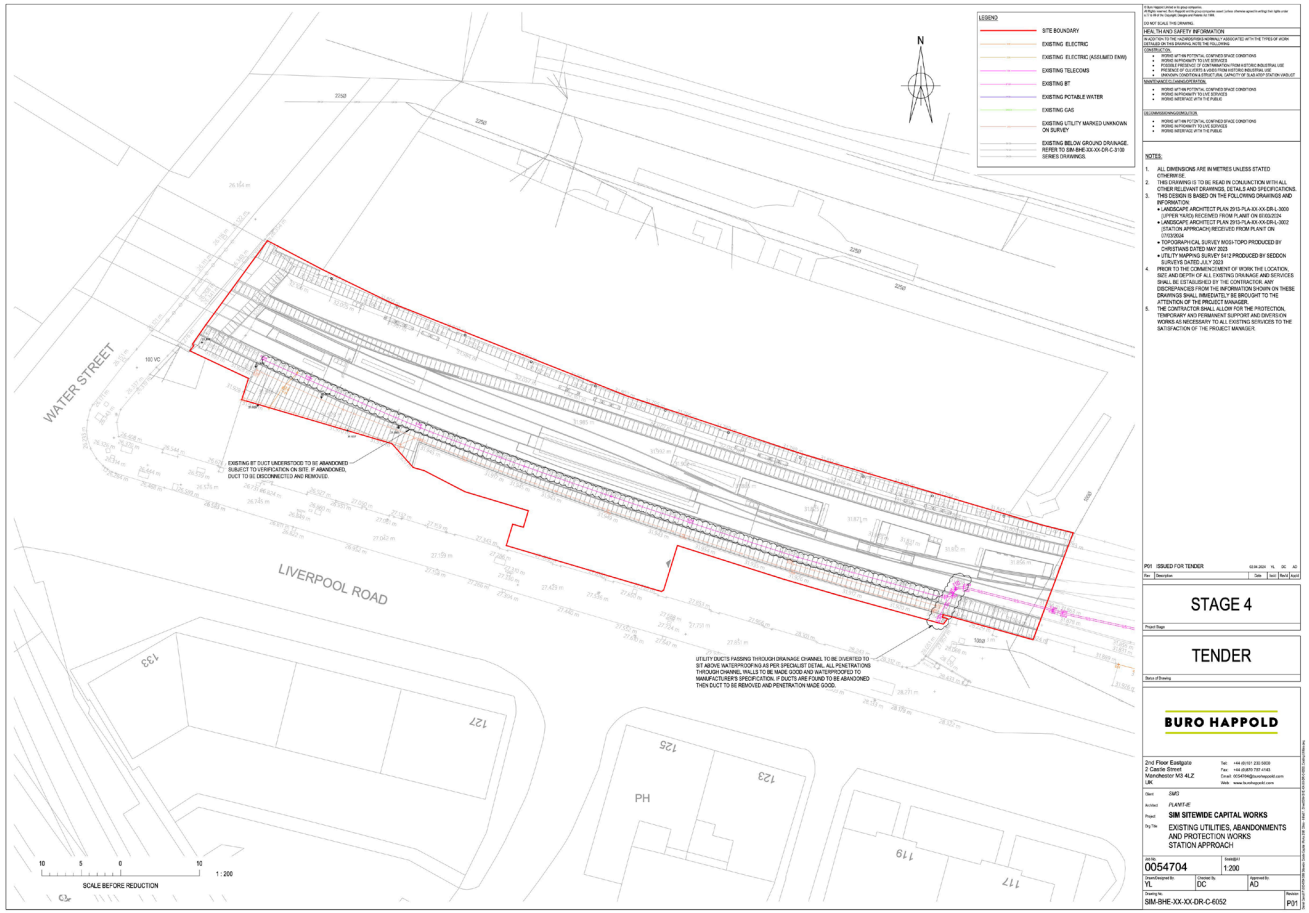
Communications: The area contains an extensive network of communication ducts.

Ground Source Heat Pump: A ground source heat pump and associated pressurised water pipes are located within the Upper Yard which supplies the Power Hall.



Station Approach:

Communications: Communication ducts have been identified buried below the railway ballast.



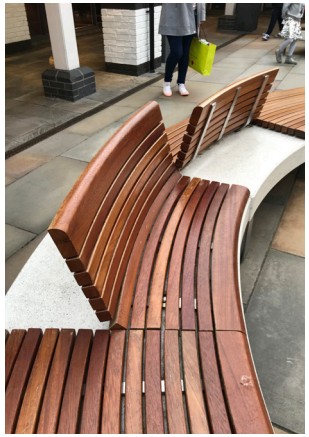
The Upper Yard and Station Approach
Furniture

The furniture strategy aims to create a multitude of seating opportunities throughout the landscape.

Encouraging people to dwell in a comfortable, lively environment. The materiality extracted from the strategy uses corten steel and chunky timber to pay homage to the rich industrial heritage of the site.

The furniture includes:

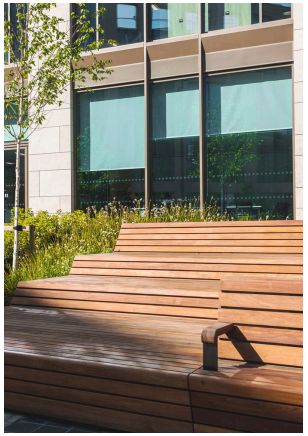
- Tiered sleeper seating , allowing more playful interaction
- Individual timber seats (integrated as part of planters)
- Circular seating feature to link the entrances of the New Warehouse and the Power Hall together (varied heights to cater to different user groups)
- Existing site picnic benches and deck chairs reused
- Glass stair well protective seating feature
- Bins
- Ballustrade
- Bug Hotels
- Steel Planters



Curved free standing bench



Timber Seating



Seating and lounger



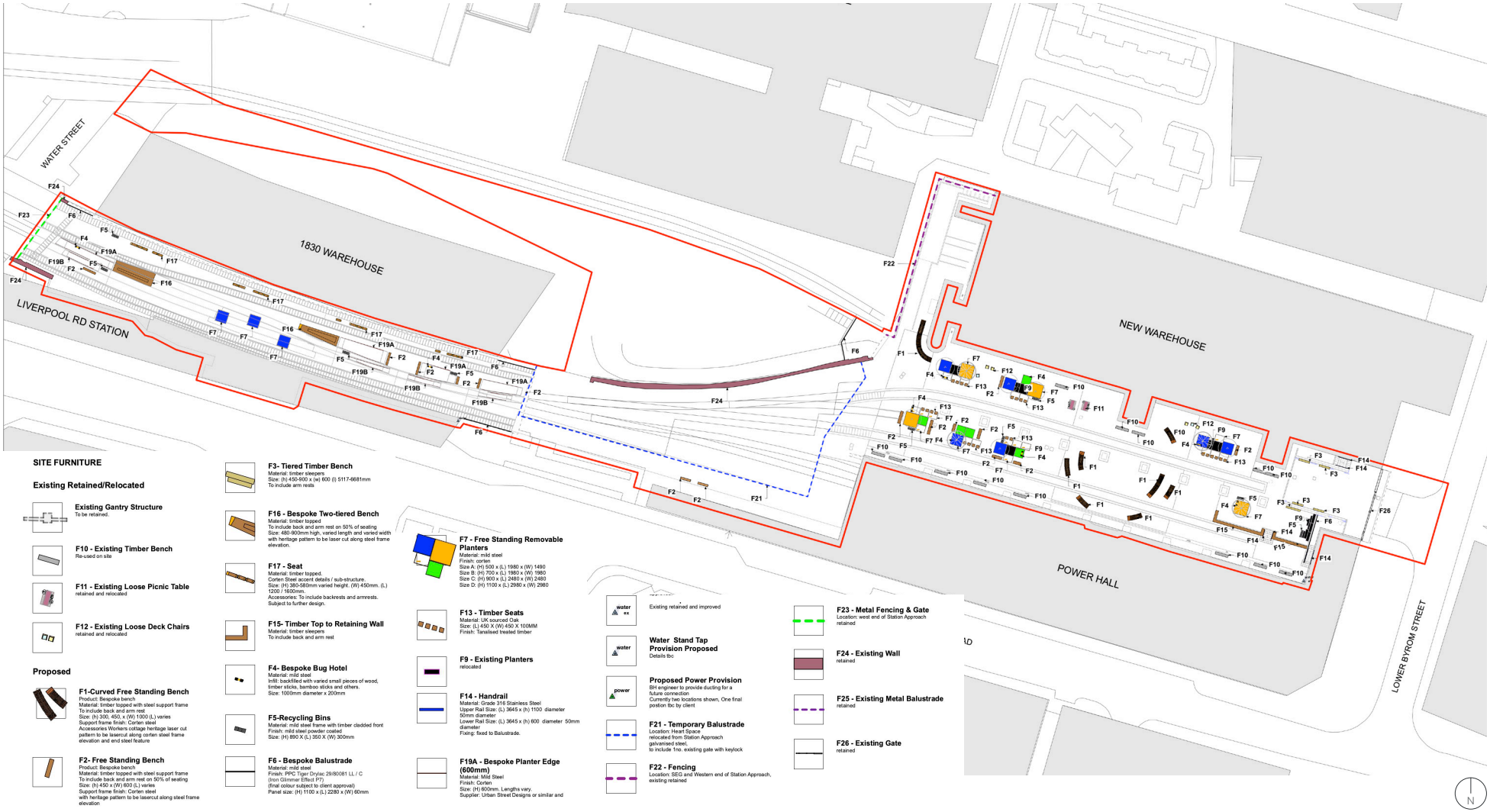
Timber topped planter seats



Bespoke bug hotel



Recycling bins


WATER STREET
1830 WAREHOUSE
LIVERPOOL RD STATION
NEW WAREHOUSE
POWER HALL
LOWER BYROM STREET
N
SITE FURNITURE
Existing Retained/Relocated
Existing Gantry Structure
To be retained.
F10 - Existing Timber Bench
Re-used on site
F11 - Existing Loose Picnic Table
retained and relocated
F12 - Existing Loose Deck Chairs
retained and relocated
Proposed
F1-Curved Free Standing Bench
Product: Bespoke bench
Material: timber topped with steel support frame
To include back and arm rest
Size: (h) 300, 450, x (W) 1100 (L) varies
Support frame finish: Corten steel
Accessories Workers cottage heritage laser cut
pattern to be lasercut along corten steel frame
elevation and end steel feature
F2- Free Standing Bench
Product: Bespoke bench
Material: timber topped with steel support frame
To include back and arm rest on 50% of seating
Size: (h) 450 x (W) 600 (L) varies
Support frame finish: Corten steel
with heritage pattern to be lasercut along steel frame
elevation
F3- Tiered Timber Bench
Material: timber sleepers
Size: (h) 450-800 x (w) 800 (l) 5117-6681mm
To include arm rests
F16 - Bespoke Two-tiered Bench
Material: timber topped
To include back and arm rest on 50% of seating
Size: 480-900mm high, varied length and varied width
with heritage pattern to be laser cut along steel frame
elevation.
F17 - Seat
Material: timber topped.
Corten Steel accent details / sub-structure.
Size: (H) 380-580mm varied height. (W) 450mm. (L)
1200 / 1600mm.
Accessories: To include backrests and armrests.
Subject to further design.
F15- Timber Top to Retaining Wall
Material: timber sleepers
To include back and arm rest
F4- Bespoke Bug Hotel
Material: mild steel
Infill: backfilled with varied small pieces of wood,
timber sticks, bamboo sticks and others.
Size: 1000mm diameter x 200mm
F5-Recycling Bins
Material: mild steel frame with timber cladded front
Finish: mild steel powder coated
Size: (H) 890 X (L) 350 X (W) 300mm
F6 - Bespoke Balustrade
Material: mild steel
Finish: PPC Tiger Drylac 29/80081 LL / C
(Iron Glimmer Effect P7)
(final colour subject to client approval)
Panel size: (H) 1100 x (L) 2280 x (W) 60mm
F7 - Free Standing Removable Planters
Material: mild steel
Finish: corten
Size A: (H) 500 x (L) 1980 x (W) 1490
Size B: (H) 700 x (L) 1980 x (W) 1980
Size C: (H) 900 x (L) 2480 x (W) 2480
Size D: (H) 1100 x (L) 2980 x (W) 2980
F13 - Timber Seats
Material: UK sourced Oak
Size: (L) 450 X (W) 450 X 100MM
Finish: Tanalised treated timber
F9 - Existing Planters
relocated
F14 - Handrail
Material: Grade 316 Stainless Steel
Upper Rail Size: (L) 3645 x (h) 1100 diameter
50mm diameter
Lower Rail Size: (L) 3645 x (h) 600 diameter 50mm
diameter
Fixing: fixed to Balustrade.
F19A - Bespoke Planter Edge (600mm)
Material: Mild Steel
Finish: Corten
Size: (H) 600mm. Lengths vary.
Supplier: Urban Street Designs or similar and
Existing retained and improved
Water Stand Tap Provision Proposed
Details tbc
Proposed Power Provision
BH engineer to provide ducting for a future connection
Currently two locations shown, One final position tbc by client
F21 - Temporary Balustrade
Location: Heart Space relocated from Station Approach galvanised steel,
to include 1no. existing gate with keylock
F22 - Fencing
Location: SEG and Western end of Station Approach, existing retained
F23 - Metal Fencing & Gate
Location: west end of Station Approach retained
F24 - Existing Wall
retained
F25 - Existing Metal Balustrade
retained
F26 - Existing Gate
retained

The Upper Yard planters aim to represent historic locomotive carriages. This subtly incorporates the history of the site, developing a planter that is well suited to the historic setting, whilst creating interest with various heights and sizes.

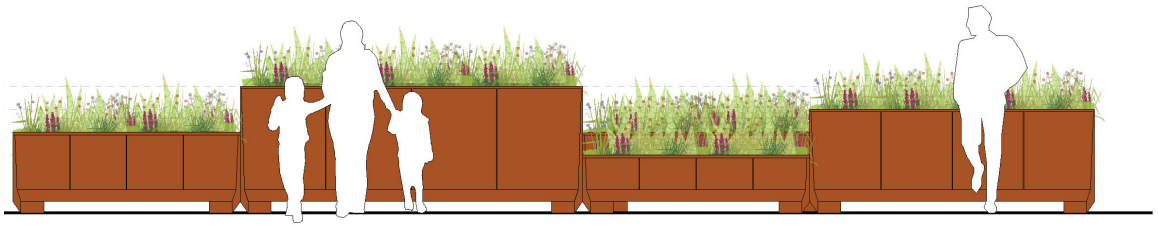
The visual appearance of the planters is extended through to the raised in ground planting edges at the Station Approach.

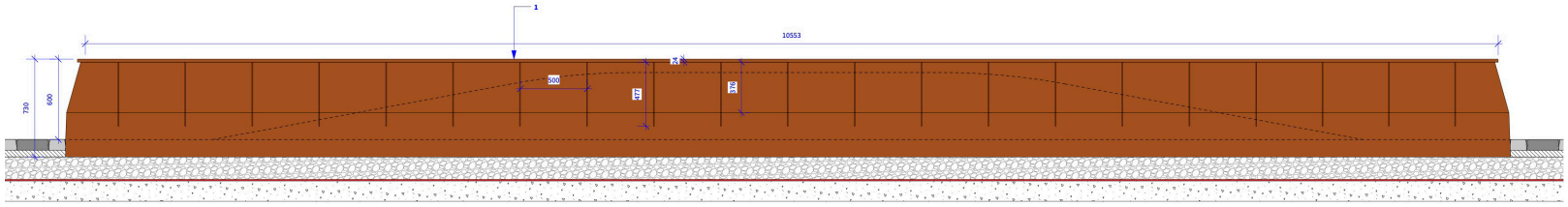


Locomotive carriages as inspiration for planters



Example of a corrten steel planter

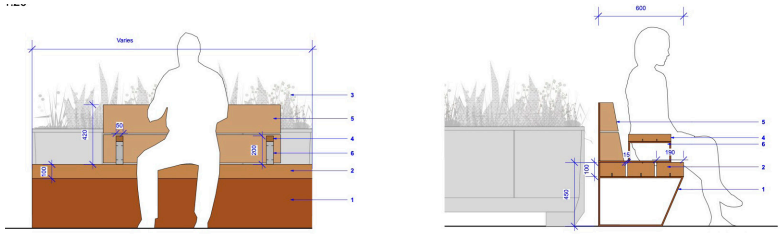


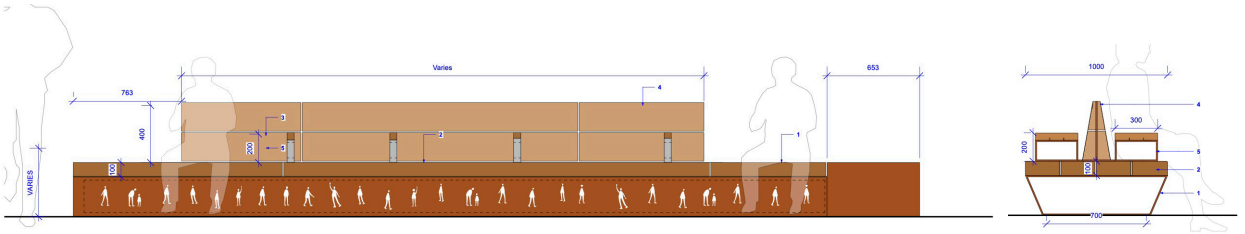


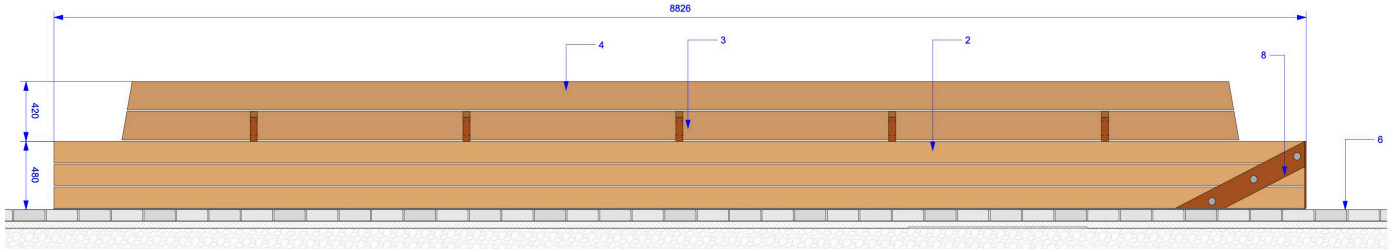
Seating furniture comprises two materials:

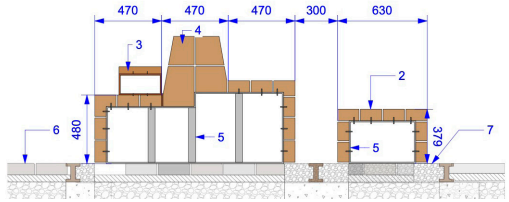
steel and chunky timber,

These materials celebrate the wealth of the industrial history of the site, which the Timber Yard and the Metal Rail Carriages having been present on site in the past. The two materials reappear in the design of various seating elements, ensuring consistency while creating vibrancy throughout the site, enhancing visitors' experiences, and providing options for seating. Arm and backrests, as well as setting-down-zones for wheelchairs and prams at the ends of benches, have been incorporated into the design of some of the benches. Varied heights of the elements allow for catering to the requirements of all ages.









The Upper Yard and Station Approach
Boundary Treatments

The majority of the existing boundary treatments, including walls, fences and balustrades, are being retained. Refer to the drawing on the page 82 for detail.

A new balustrade is proposed above Water Street, both at the west and east ends of Station Approach, to replace the existing galvanized metal balustrade.

To facilitate a safe and accessible route, it is proposed to relocate the existing balustrade from Station Approach to the Heart Space. The existing balustrade currently safeguards the railway and ballast section of the area, as the varied level difference between the rails and ballast presents a trip hazard to visitors. The function of the repositioned balustrade in the Heart Space will remain the same: to safeguard the part of the Heart Space that poses challenges for visitors due to the varied level difference between rails and ballast.

The proposed balustrade draws inspiration from the existing historic gates found at Liverpool Road and those adjacent to the Special Exhibition Gallery. It also mimics the rhythm of a railway track with vertical repetition, hinting at the historic railway essence in the detailed design. The design features vertical steel bars with high transparency, allowing for wider views of the site, wherever possible.



Station Approach - Existing metal balustrade to be relocated to Heart Space



Upper Yard - Existing Entrance Gate retained



Existing Fence at SEG retained



Existing Fencing retained at western edge of Station Approach



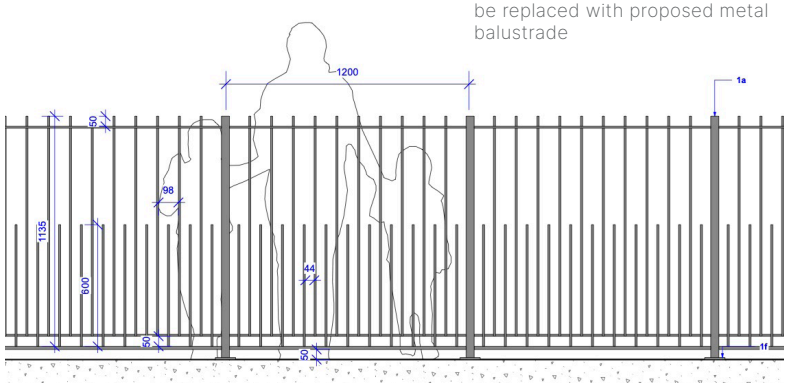
Existing Wall and Balustrade retained



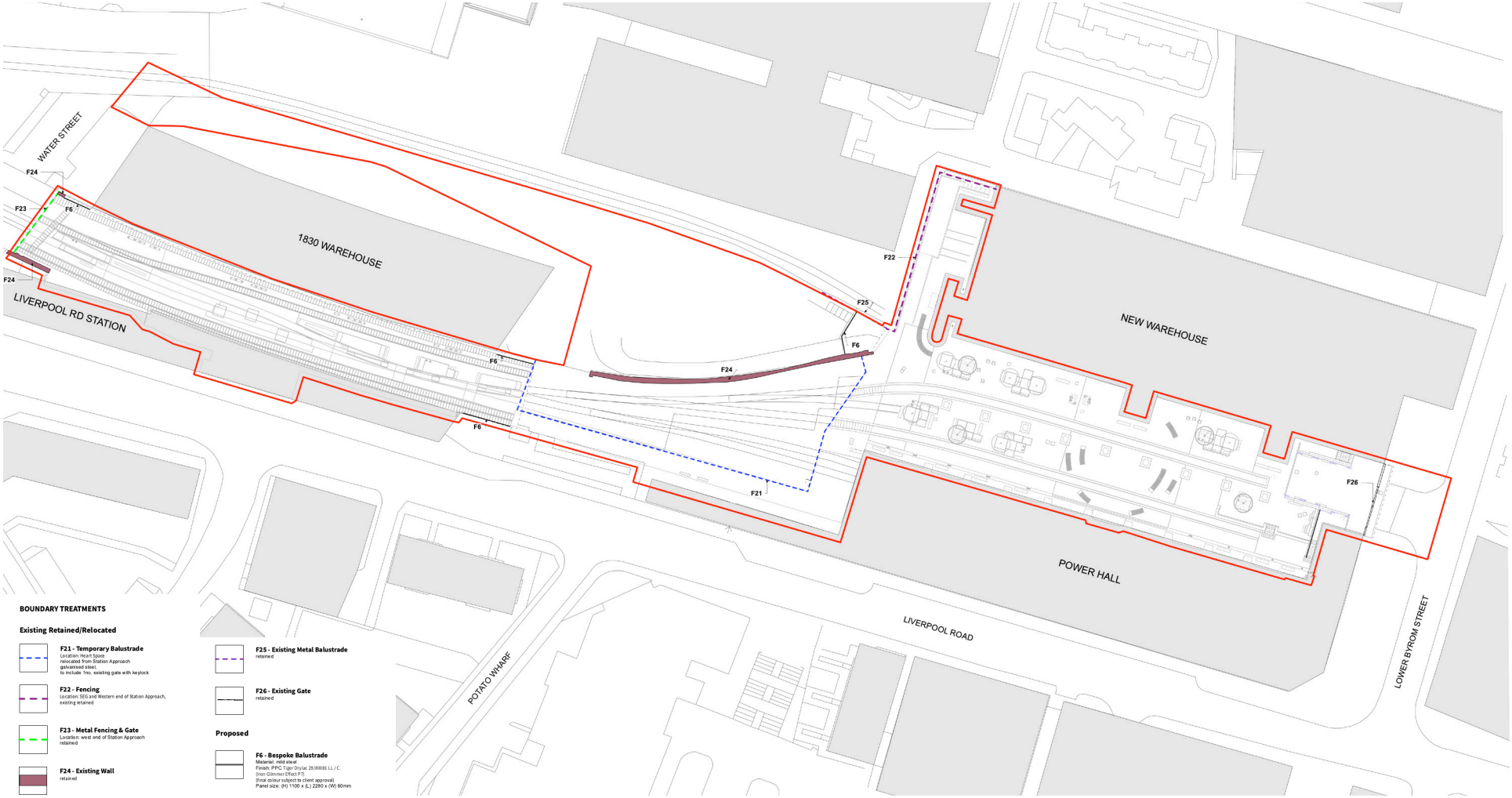
Existing Wall and Fence retained,existing balustrade to be replaced with proposed metal balustrade



Locomotive carriages as inspiration for planters



Proposed Metal Railing


WATER STREET
F24
F23
F6
1830 WAREHOUSE
F24
LIVERPOOL RD STATION
F6
F6
F24
F22
F25
F6
NEW WAREHOUSE
F21
F26
POWER HALL
LIVERPOOL ROAD
POTATO WHARF
LOWER BYROM STREET
BOUNDARY TREATMENTS
Existing Retained/Relocated
F21 - Temporary Balustrade
Location: Heart Space
relocated from Station Approach
galvanised steel,
to include 1no. existing gate with keylock
F22 - Fencing
Location: SES and Western end of Station Approach,
existing retained
F23 - Metal Fencing & Gate
Location: west end of Station Approach
retained
F24 - Existing Wall
retained
F25 - Existing Metal Balustrade
retained
F26 - Existing Gate
retained
Proposed
F6 - Bespoke Balustrade
Material: mild steel
Finish: PPG Tiger Drylac 29/80081 LL / C
(non Glimmer Effect P1)
(final colour subject to client approval)
Panel size: (H) 1100 x (L) 2280 x (W) 60mm

The Upper Yard and Station Approach
Softworks

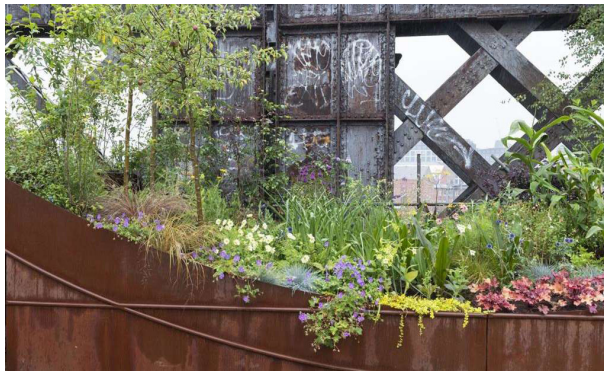
The softworks proposals aim to keep main routes clear for easy pedestrian movement and legibility whilst providing green pocket spaces that compliment the historic setting of the museum.

Tree planting will be limited to the Upper Yard to keep historic views clear within the Station Approach.

The planting palette will provide a varied and interesting display of plants that will enhance biodiversity as well as provide stimulation to various senses such as the eye and nose of the Museum visitors.

Planting will include:

- Ornamental raised planters
- Existing site planters
- Bulb planting
- Multi-stem feature trees (Upper Yard)
- Wildflower turf (Inspired by historic photos of the tracks being rewilded) and ornamental in ground planting










AVIVA STUDIOS
WATER STREET
1830 WAREHOUSE
LIVERPOOL RD STATION
NEW WAREHOUSE
LOWER BYROM STREET
LIVERPOOL ROAD
POWER HALL
WOOLHAM PL.
POTATO WHARF
BOUNDARIES
Planning Boundary
SOFTWORKS
Existing Trees
to be retained and relocated
Proposed Multi-Stem Trees
300-450cm 3-4.5m height
final species to be confirmed at later stage
Ornamental and Bulb Planting
In free standing steel planters
Existing Site Planters with Ornamental and Bulb Planting
Reused and relocated.
Ornamental and Bulb Planting
to in-ground planters
Sedum / Wildflower Trays
Material: Polypropylene.
Size: (W): 540 x (L): 540 x (D): 90mm.
N

Key Planting

Extending the educational themes of the museum the planting strategy will be inspired by science, industry and innovation. Highlighting plants significance in everyday life.

The final tree species and planting scheme is to be agreed via condition.



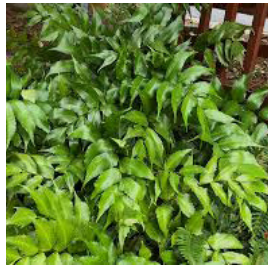
Alchemilla mollis. Used in herbal medicine and cosmetics production



Geum 'Mai Tai'. Good for pollinators.



Fragaria 'Pink Panda'. Produce strawberries rich in vitamin C and antioxidant



Cyrtomium falcatum. Good for pollinators.



Myrrhis odorata. Culinary herb. Used in traditional herbal medicine



Hosta sieboldiana var. elegans. Good for pollinators.



Geranium pratense 'Mrs Kendall Clark'. Good for pollinators.



Allium atropurpureum. Sensory, Good for pollinators.



Achillea ptarmica 'The Pearl'. Traditional medicinal uses for treating colds and fever.



Heuchera villosa 'Palace Purple'. Good for pollinators.



Galanthus nivalis. Used in herbal medicine for their potential antiviral and anti-inflammatory properties



Hamamelis × intermedia 'Orange Beauty'. anti-inflammatory and antioxidant properties for medicinal and cosmetic use



Anthemis punctata cupaniana. Calming and digestive properties in medicine/aromatherapy. Soothing and moisturizing



Ajuga reptans 'Atropurpurea'. Traditional uses for treating wounds and respiratory issues



Nepeta faassenii. Traditional medicinal uses for calming properties. Good for pollinators. Aromatic foliage attracts cats.



Salvia x sylvestris schneehugel'. Traditional medicinal uses for digestive issues and sore throat

Cercis siliquastrum

The Judas tree inhibits the DNA cell cycle of breast cancer - Antimicrobial and antioxidant characteristics.





Eucommia ulmoides

The hardy rubber tree is highly valued in herbology, especially Chinese medicine.





Maclura pomifera

The fruit of the Osage orange tree secretes asticky white latex when cut.





Zanthoxylum simulans

Produces the sichuan pepper and the fruit, leaves and bark can be used as a condiment.





The Upper Yard and Station Approach General Arrangement

The landscape proposal focuses on a calm space, defining key accessible movement routes whilst ensuring that the historic buildings and the industrial character are respected through carefully considered design.

To ensure clear wayfinding and legibility through the site, the existing railway tracks are used to guide the visitor through the external spaces connecting main building entrances. New accessible concrete material located between the tracks contrast to the surrounding proposed natural stone setts and therefore define these main routes and create a clear and navigable space. (see pg 64 for further hardworks information).

To create further interest within the external landscape spaces, planters are proposed along these main routes to break up the Upper Yard into a series of pocket spaces that allow the visitors to dwell, relax and reflect on the displays and information absorbed within the museum buildings. Existing site planters have been reimagined in this scheme, surrounded by new planters that provide a cohesive design style in alignment with the industrial history of the area. The layout of these planters creates a journey through the external landscape, developing a playful and intriguing scheme.



Illustrative Artist Impression of the Upper Yard Landscape Propoosals

©lydiakirkart

In the Station Approach area, lower planting has been considered to maintain the long view down the site from the East to the West. This also ensures maximum visability across the area to highlight the beautiful historic building context in which the scheme is set. (see pg 70 for further softworks information)

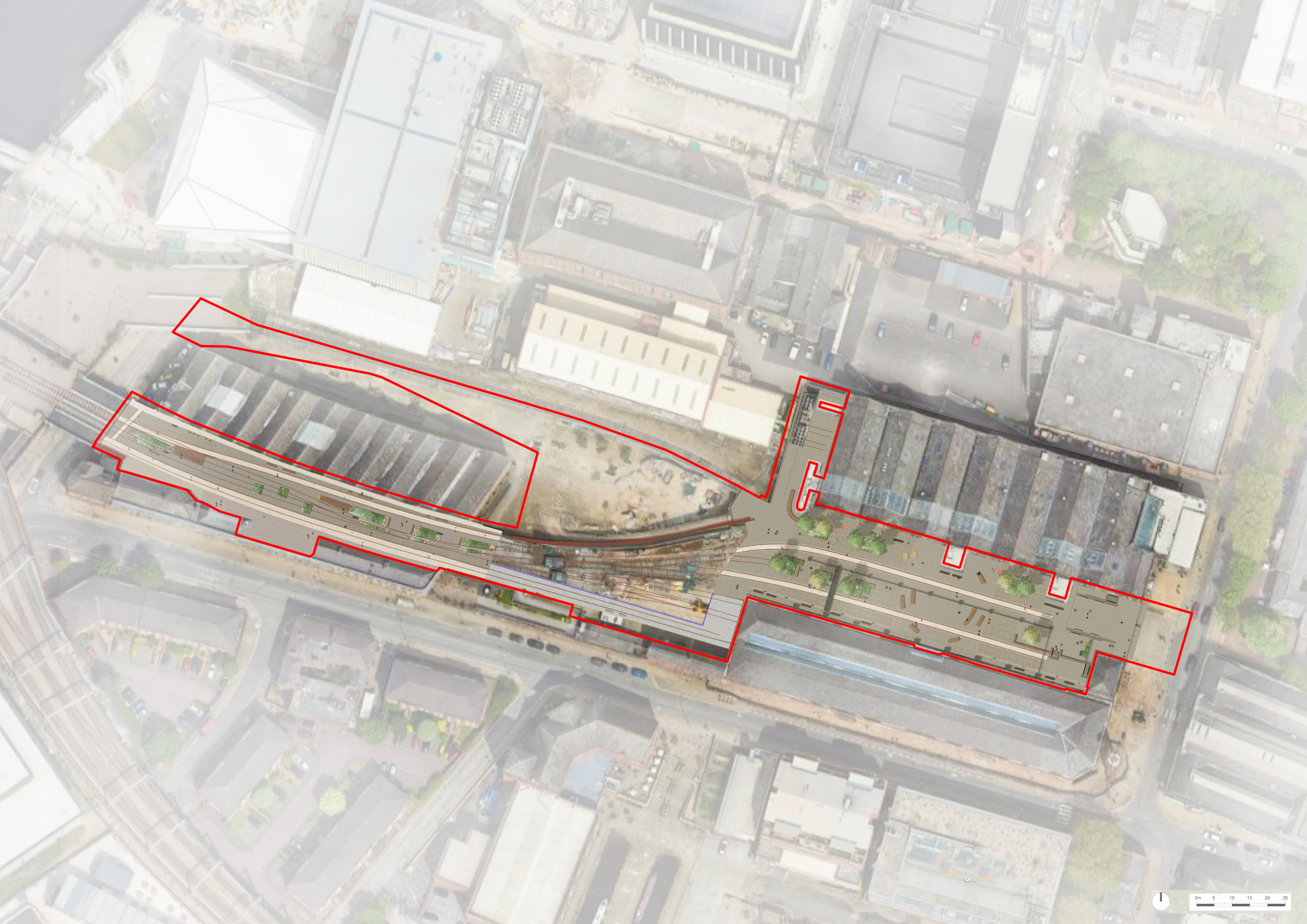
The next layer to the design are the furniture elements. These carefully positioned items help to further define spaces, improve the legibility of the site and ensure resting opportunities that support the vision for a more accessible landscape. Integrated throughout the furniture strategy are a wide range of seating opportunities. These typologies provide options for everyone, responding to the requirements and needs of all. The reuse of existing site features such as picnic tables and deck chairs continue to add to this diverse range of dwelling spaces provided within the design. Ensuring features have a bespoke feel is also important to maintain the areas unique and strong sense of place. (see pg70 for further furniture information)

Overall, the design considers the important historic context in which it is set. Respecting the existing materiality, buildings and use, whilst offering a modern, refresh to the landscape. The design allows people to spend more time outside the museum, continuing the journey that has begun within. Creating a space that is welcoming, and provides a balance between places for rest and reflection and places for a more playful exploration of the wider Science and Industry site.



Illustrative Artist Impression of the Station Approach Propoosals

©lydiakirkart


0m
5
10
15
20
25

BOUNDARIES

Planning Boundary

HARDWORKS & EDGING

Refer to drawing 2913-PLA-XX-XX-DR-L-1003 for further detail.


Existing Railway Tracks, retained.


Existing Timber surface to station building, retained


Existing Yorkstone Paving, cut and relaid


Reclaimed Loafed Cobbles


Proposed Natural Stone Sett Paving


Natural Stone Steps
with associated tactile paving and handrails


Insitu Concrete


Large Format Precast Concrete Slabs


Reclaimed Ballast


Retaining Wall

SOFTWORKS

Refer to drawing 2913-PLA-XX-XX-DR-L-2004 for further detail.


Existing Trees


Proposed Trees


Ornamental Planting


Sedum / Wildflower Planting

SITE FURNITURE

Refer to drawing 2913-PLA-XX-XX-DR-L-4004 for further detail.


Existing Gantry Structure
To be retained.


Existing Timber Bench, Deck Chairs and Picknick Tables
To be retained and relocated.


Proposed Bench Seating


Proposed Tiered Timber Bench/Retaining Wall


Proposed Timber Top to Retaining Wall


Proposed Bespoke Bug Hotel


Proposed Recycling Bins


Proposed Bespoke Balustrade


Existing Gate

The Upper Yard Sections

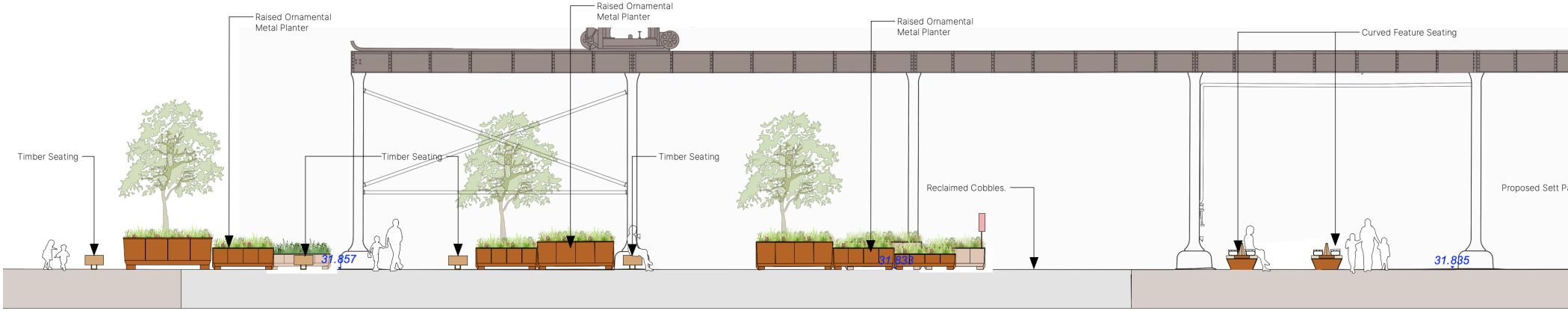
The Upper Yard sections show how the space is divided. The groups of planters define smaller pocket spaces where the seating provides opportunity for interaction. The trees are framed by the structure of the gantry and create further vertical interest that draws the users eye towards the long views to the west of the site towards the Station Approach.

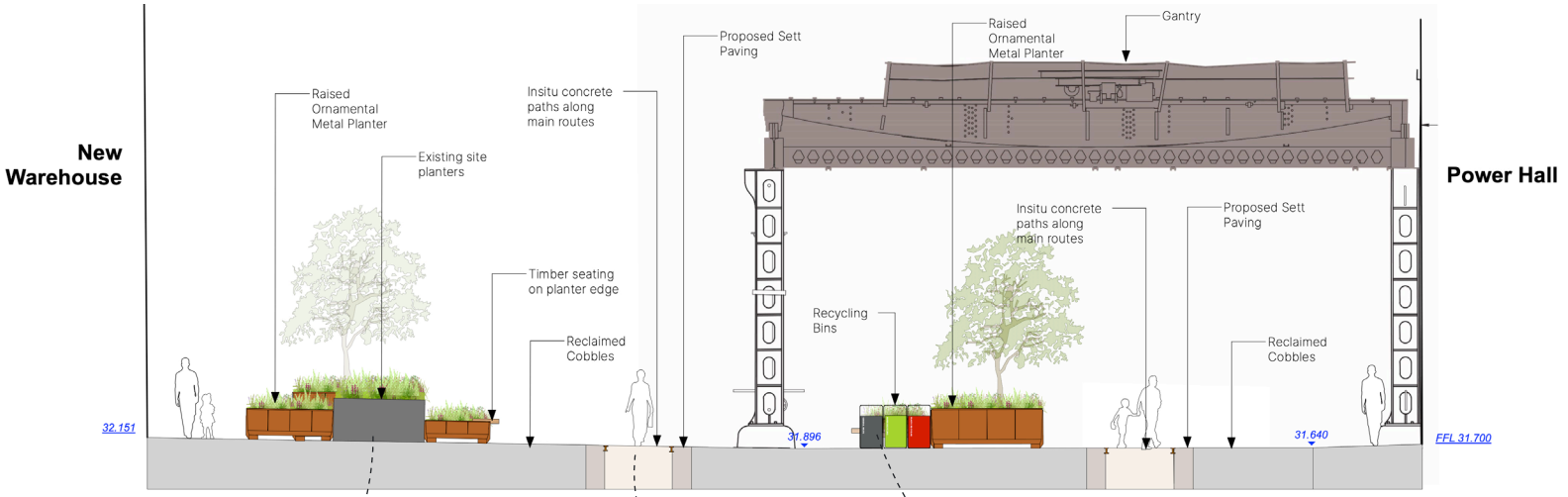
Planters to tie into the industrial setting and create pocket spaces across the Upper Yard



Curved feature seating









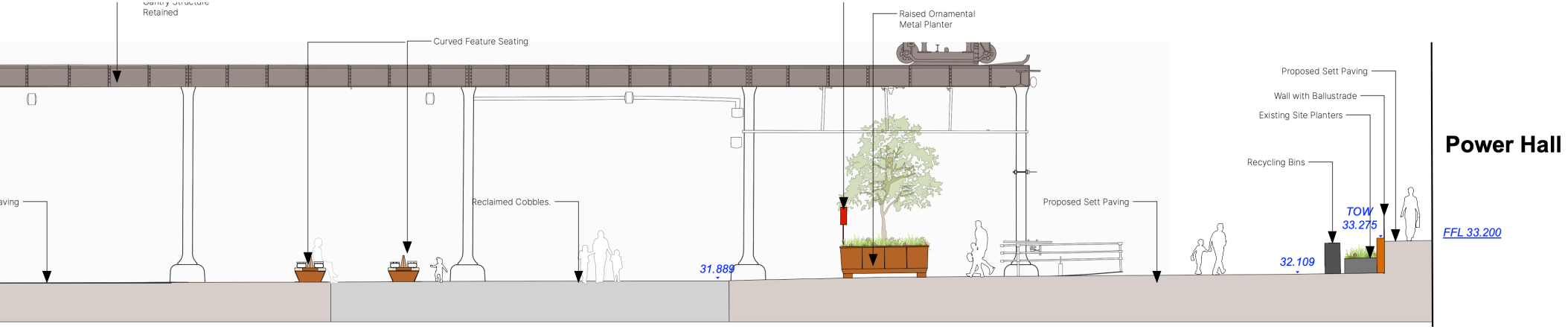
Existing site planters reused amongst the new planters



Existing railway line retained as a strong landscape feature, leading visitors to the wider site.



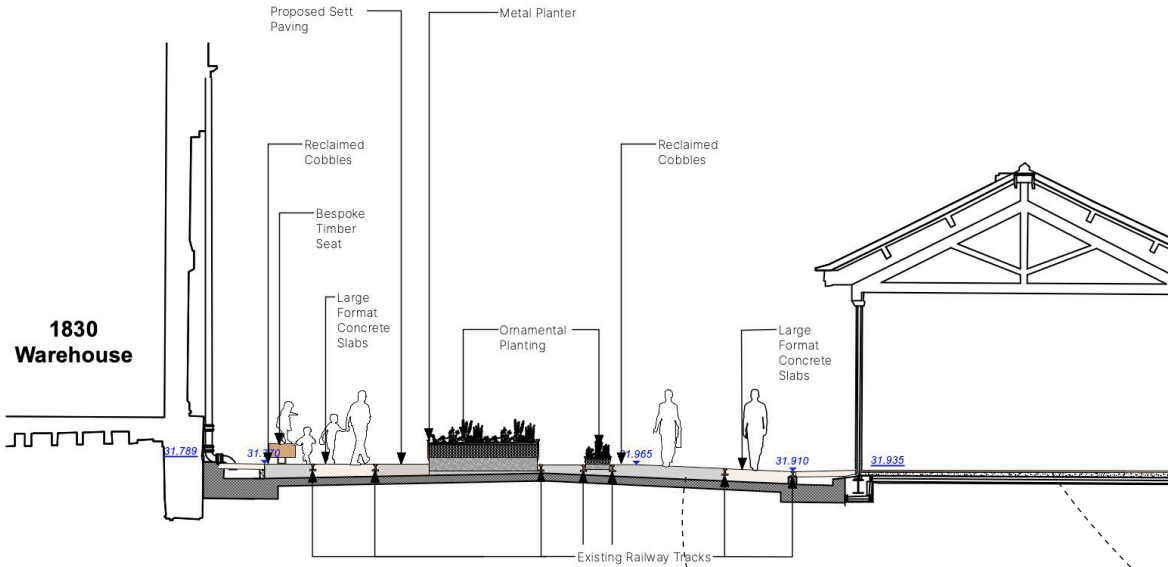
Recycle Bin provision



The Station Approach Sections

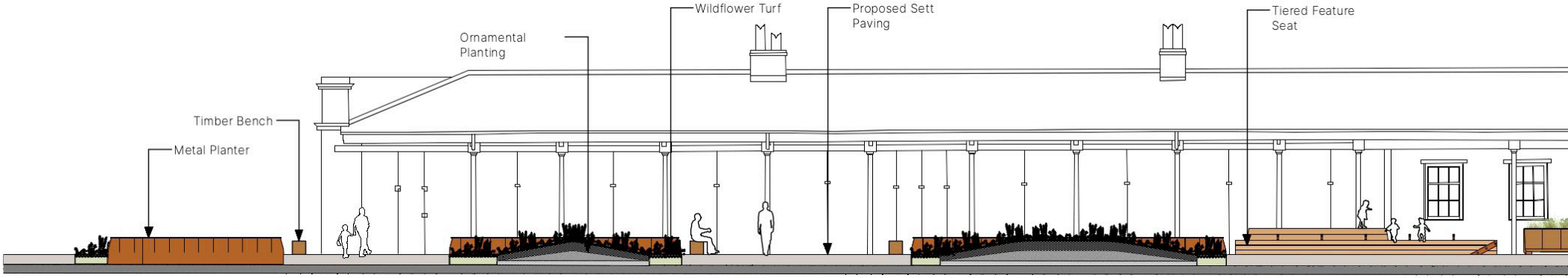
The Station Approach sections illustrate how levels will be adjusted to provide an accessible surface, compiling with Part M requirements allowing visitors to access the full extent of the external space between the 1830 Station and the 1830 Warehouse.

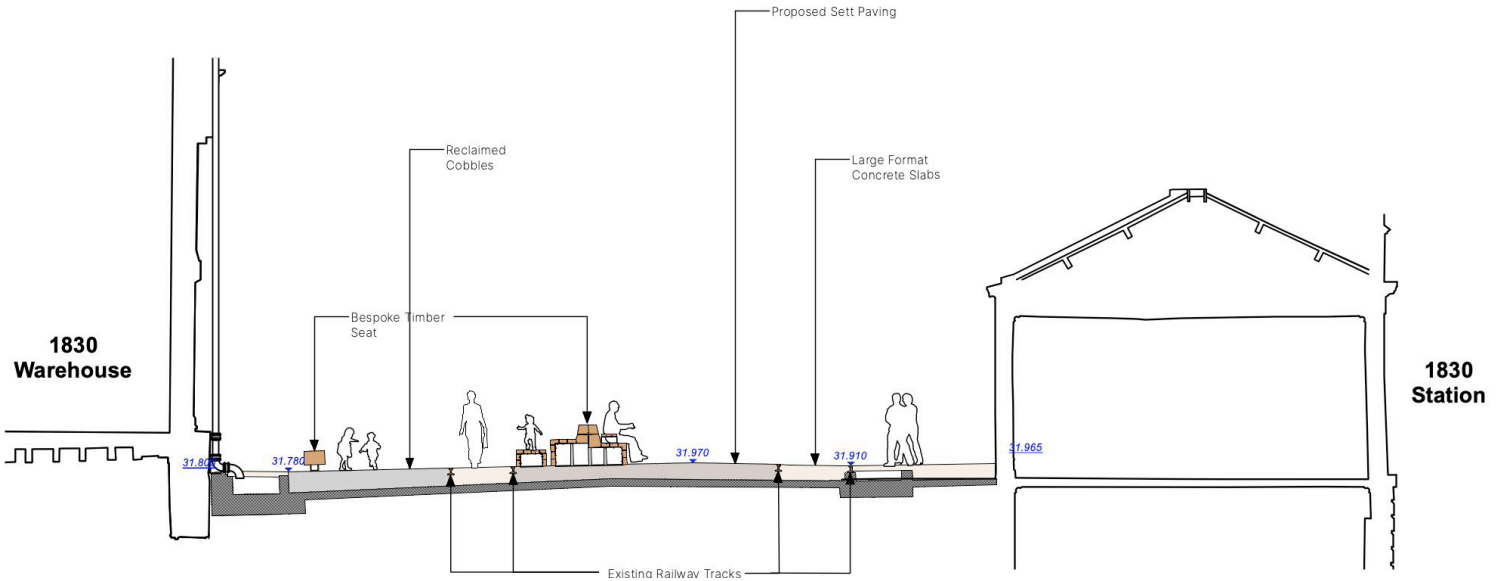
The long section depicts how long views across the landscape have been carefully considered, respecting the historic setting of the 1830's station and Warehouse from the Upper Yard. The low planters and feature seating create a central spine to the public realm that creates a playful atmosphere where visitors can meander and dwell to embrace the setting. The central space provides a clearer space without any furniture that can accommodate bigger groups.





Precast concrete slabs between railway tracks connect into same design as Upper Yard for main accessible routes between main entrances.







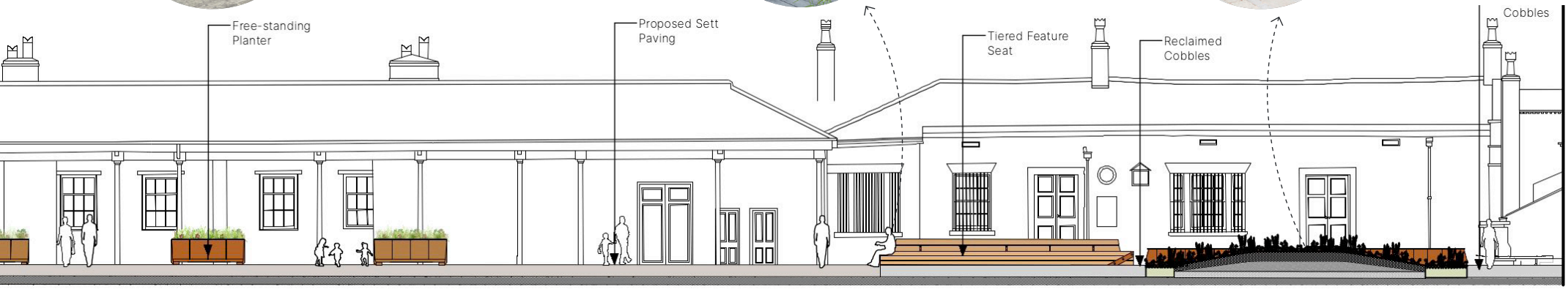
Existing timber surface retained



Bespoke feature seating creates a playful tiered environment to view the buildings



Low planters allow for views to the historic buildings

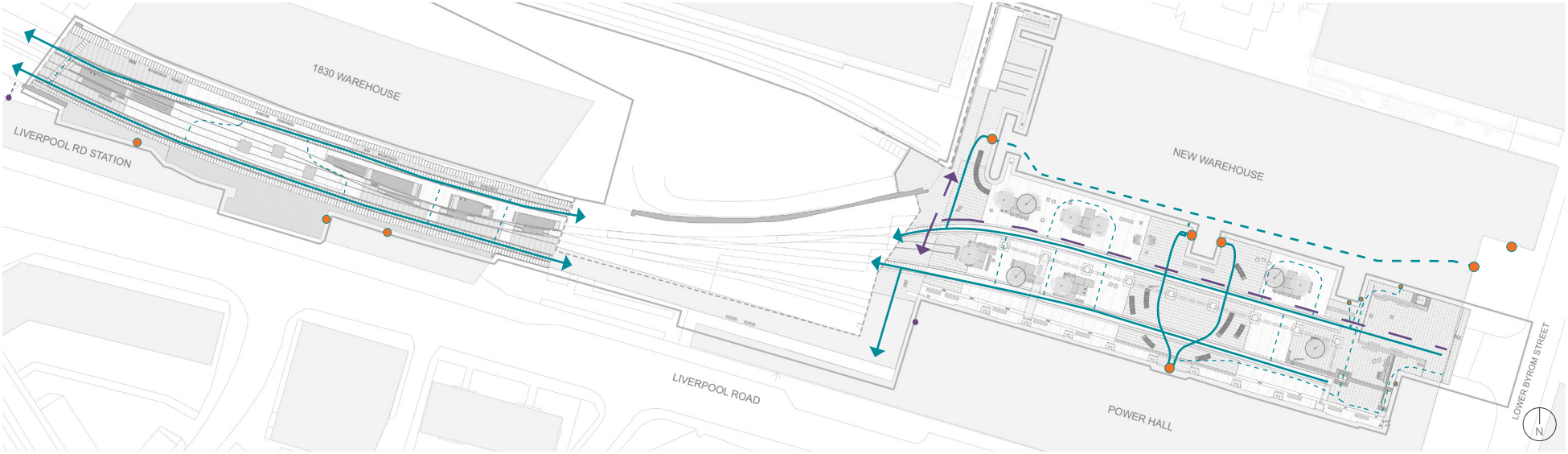


5
ACCESS

The Upper Yard and Station Approach
Pedestrian Movement and Servicing

This diagram illustrates the strategic thinking for movement. The external landscape is viewed as an extension of the internal museum space and ensures accessible routes externally. These connect the important building entrances on site whilst offering a sense of exploration.

Fire and bin lorry collection access is retained in the Upper Yard from Lower Byrom Street via controlled access gates. The vehicles proceed past the Gantry to the western part of the Yard where the dry ryser and bin storage is located and are able to turn around and manouvre back out.



Movement Routes through the Upper Yard and Station Approach

The Upper Yard and Station Approach
Movement

This diagram illustrates the strategic thinking for levels and movement across the site. The external landscape is viewed as an extension of the internal museum space and ensures key accessible routes externally. These connect the important building entrances on site whilst offering a sense of exploration.

The British standards state that we should be "designing to address and integrate the access requirements of all people, irrespective of their personal circumstances, as part of mainstream design" as this is "always preferable to designating separate or specific features. Designing in this way doesn't isolate or "socially separate" but accommodates a wide array of user requirements.

The site is generally perceived as predominantly flat with the exception of the gated access point to Lower Byrom Street. The proposal aims to provide a DDA compliant route with landings where appropriate.

Retaining wall seating features have been incorporated to take up level differences where required. Cross falls are mainly kept at 1:40 maximum. Stepped access complies with Part M of the Building Regulation.

Fire and bin lorry collection access is retained in the Upper Yard from Lower Byrom Street via controlled access gates. The vehicles proceed past the Gantry to the western part of the Yard where the dry riser is located and are able to turn around and manoeuvre back out.

Age-friendly outdoor spaces checklist:

Pleasant and clean environment

Importance of green spaces

There are well maintained and safe green spaces, with adequate shelter, toilet facilities and seating that can be easily accessed.

Somewhere to rest

Spaced at regular intervals: the seating is well maintained and patrolled to ensure safe access by all.

Age-friendly pavements

- A smooth, level, non-slip surface;
- Sufficient width to accommodate wheelchairs;
- Priority of access for pedestrians.

Accessibility

- Remove physical barriers where possible.



Global age-friendly cities : a guide. World Health Organization 2007

The Upper Yard and Station Approach
Levels and Accessibility



6 FRAMEWORK MANAGEMENT PLAN

Management Plan

Objective

Consideration has been given to the future management requirements of the hard and softworks elements for the Upper Yard and Station Approach. As a result the following objectives have been identified:

- To ensure the successful establishment and continuity of the overall design concept.
- To prescribe all necessary management and maintenance principles and management tasks to ensure satisfactory establishment and maintain plants in a continuing healthy and attractive condition.
- To establish appropriate amenity and biodiversity value.
- To provide a mechanism for the ongoing monitoring and reviewing of the management plan and the specific maintenance operations contained therein.
- To establish a mechanism for the replacement of any failing plant or one which has reached maturity.

Duration

Once the initial construction defects and maintenance period is complete, general activities will need to be addressed by the museums maintenance team as part of the standard maintenance procedures. This can include the existing volunteering program already present on site.

Monitoring

Monitoring is of fundamental importance, since this is the means by which the success of the plan will be measured. It is therefore important to establish standardised survey and monitoring methods, which enable valid year on year comparisons to be made. There will be a need for flexibility during its implementation. The Management Plan must be an evolving one, able to adapt to the specific needs of the site.

This maintenance provider should undertake an annual review of the site, providing written documentation as to the ongoing establishment of the planting.

This report should include a condition review of all new /existing plant material, success rates of newly planted material, and recommendations for future management regimes and immediate management requirements.

Health and Safety

A Health & Safety plan is an important consideration for any area of public realm. The landscape maintenance team are expected to produce a risk assessment and method statement for the maintenance of the planting management and maintenance procedures.

Waste

Recycled bins will be distributed on site. Waste management will be undertaken in line with SMG Waste Management Policy.

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