Annex 2: Feasibility Report, Non Confidential Summary

York Riverside
Pedestrian bridge & enhanced connectivity

Feasibility Report

May 2021

YPB-BDP-ZZ-ZZ-RP-A-000001

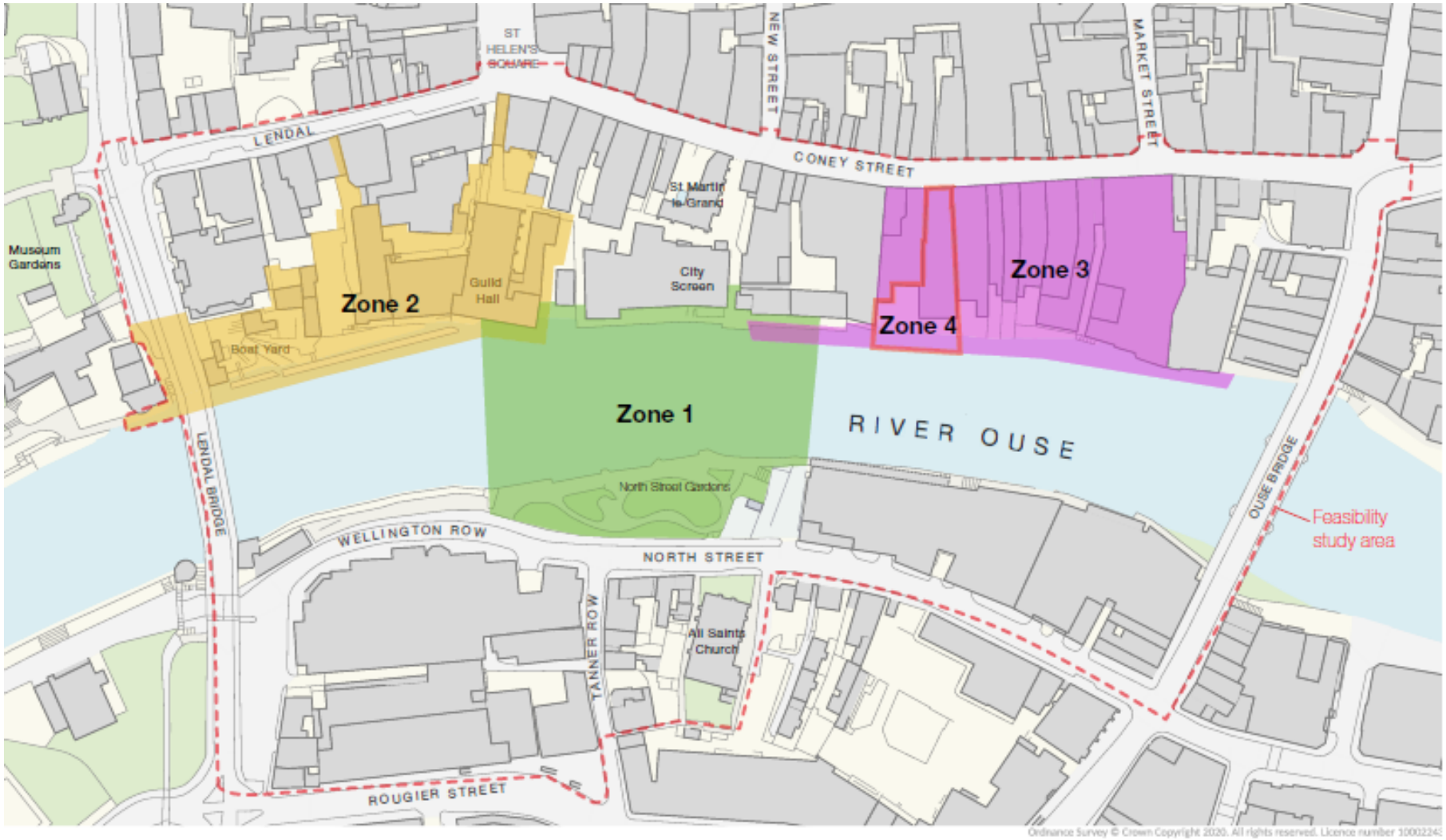
CITY OF YORK COUNCIL

Business Inspired Growth LOCAL ENTERPRISE PARTNERSHIP

BDP.

Feasibility Report Summary

- Majority Funded by YNYER LEP, with contributions from Council and Helmsley Group
- Undertaken by Building Design Partnership (BDP), with support from Turner & Townsend Cost Consultants and Mark Lovell Design Engineers
- High level study only (RIBA stage 0), to establish broad feasibility and design and cost parameters for further design development and stakeholder conversations.
- Driven by range of key objectives including improving accessibility and footstreet capacity, improving environmental attractiveness and vibrancy, providing new and improved amenity space, and facilitating regeneration objectives around highstreet buildings and environment.
- Undertook extensive context analysis including planning policy, historic development, heritage assets (including significance assessment), connectivity, character and key views. Reviewed previous studies – most notably the 2004 study by Giffords (now Ramboll).
- Explored at high level technical parameters around accessibility, utilities, navigation, flooding, ground conditions, and ongoing maintenance. Also considered sustainability and carbon approach.
- Informed by wide ranging stakeholder discussions including Environment Agency, Historic England, Civic Trust, Canals & Rivers Trust, Council Conservation, Highways, Building Control and Engineering departments

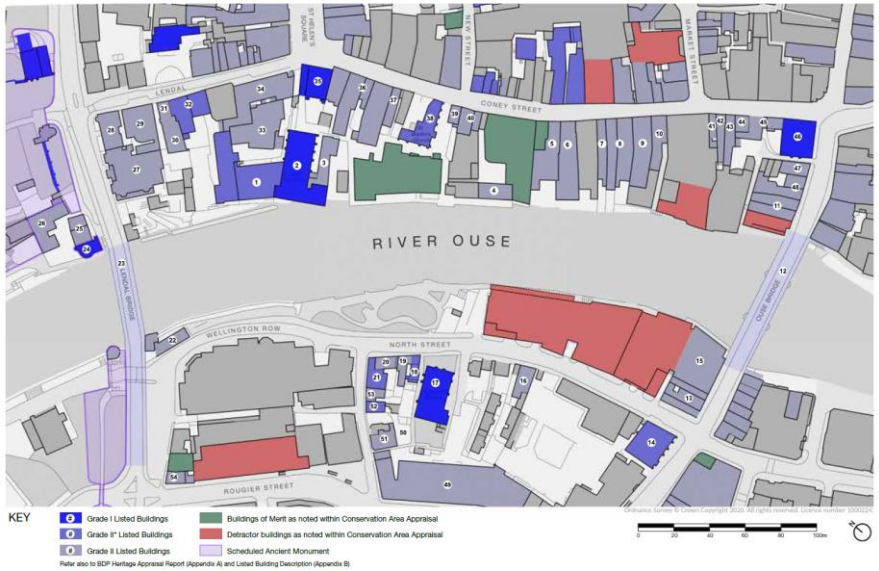


- 4 Zones to the brief, each with different emphasis for feasibility enquiries:
- Zone 1: Explore Options Feasibility & Cost for new river crossing
- Zone 2: Explore connectivity improvements at high level
- Zone 3: Review emerging riverside walkway proposals from Helmsley Group
- Zone 4: Explore development potential of 25-27 Coney Street at high level

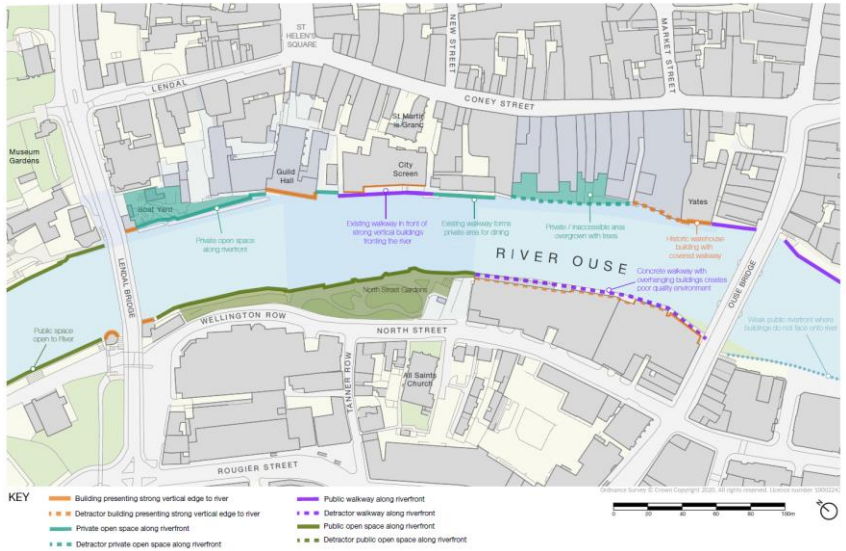
Study Wide Context Analysis

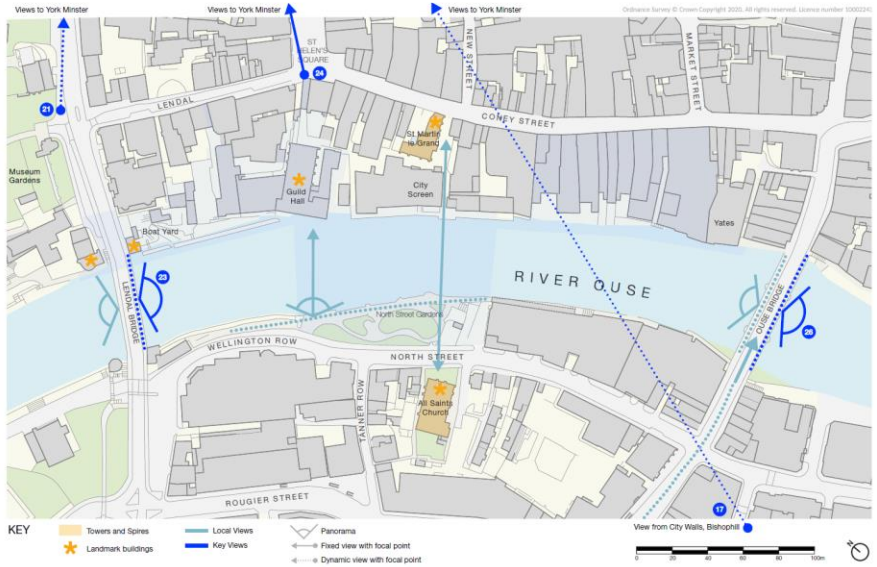
- Comprehensive context analysis undertaken by BDP across full study area
- Informed by site visits, desk based analysis, literature review and stakeholder conversations
- Informed subsequent options analysis and assessment of strengths weaknesses and threats for feasibility approaches in individual zones
- Also including flood zone analysis, planning policy, assessment of historic significance, and carbon approach. Site investigations and surveys not undertaken at this stage

Heritage Assets

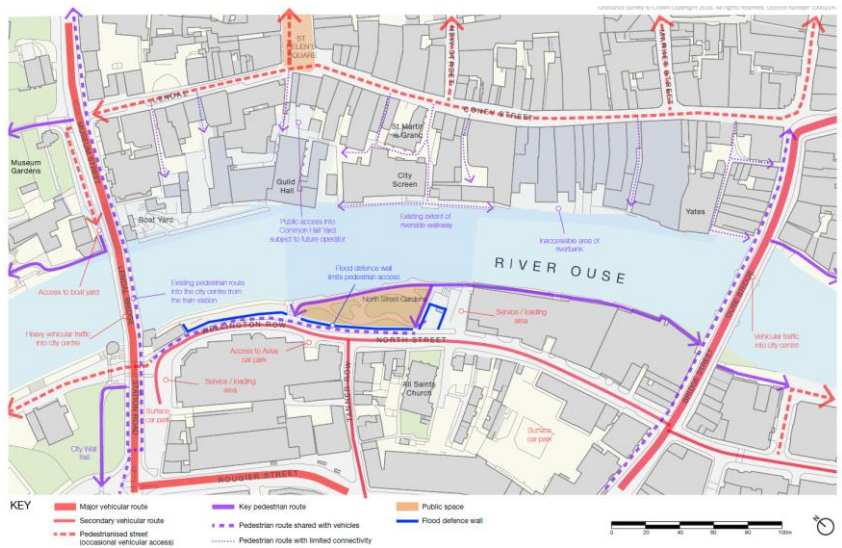


Relationship with River





Key Views



Connectivity

Zone 1: Brief

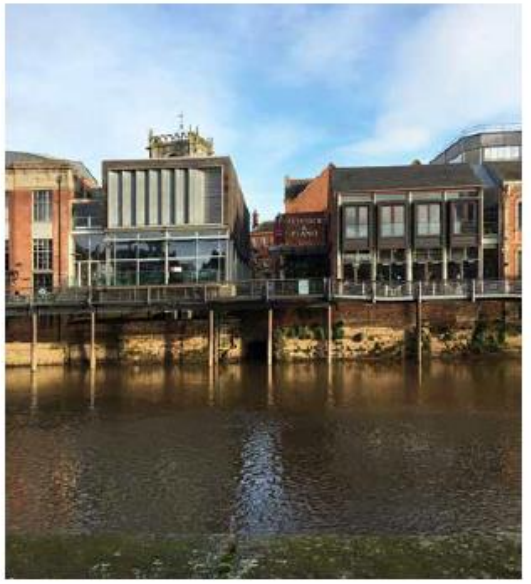
- To explore options and establish high level engineering feasibility, cost and design parameters for new river crossing.

- Bridge specification

    - 120 year design life
    - Safe, comfortable & attractive crossing, including for those with disabilities
    - Meet or exceed current accessibility standards
    - River Navigation and flood risk to be accounted for
    - Integrated with landscape improvements to North Street Gardens
    - Preferred location to take account of connectivity into wider network, desire lines etc
    - Consider visual impact and integration with city fabric

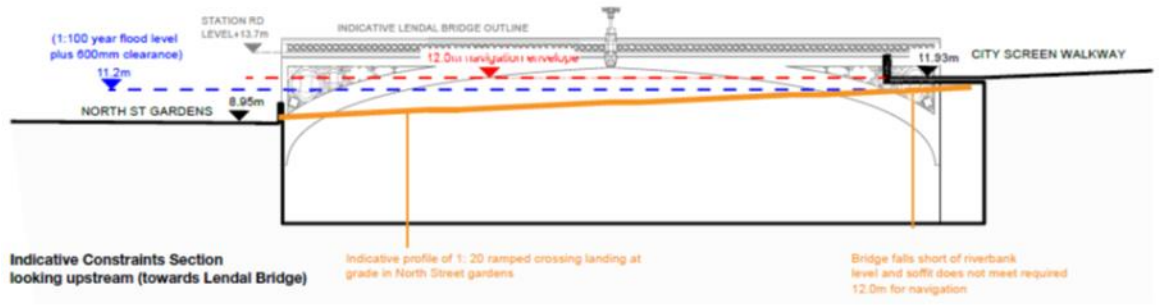
- Given the stage of the report (RIBA 0), focus on establishing key parameters within which design should be developed, and explore options for future work stages

- Options for cycle connectivity to be explored



Zone 1: Design Parameters & Constraints

- Flood risk & levels – North Street Gardens lies within flood zone 3, and contains pumping station and flood wall to North Street. Approach must establish no net loss of flood storage (possible with replacement of raised structures in gardens), maintain easements to infrastructure and flow capacity of river.
- Navigability & watercourse assessments – maintain navigation envelope established by Ouse & Lendal bridges
- Maintain riverside walking route in North St Gardens
- Respond to forecast demand flows
- Designed in accordance with BS 8300:1 – design of an accessible and inclusive built environment, including ramp gradient of 1:20 or below, with maximum rise of 500mm between landings
- Designed in accordance with Design Manual for Roads & Bridges CD 353, to allow for Council adoption
- Respond to known ground conditions, geology, utilities, ecological constraints



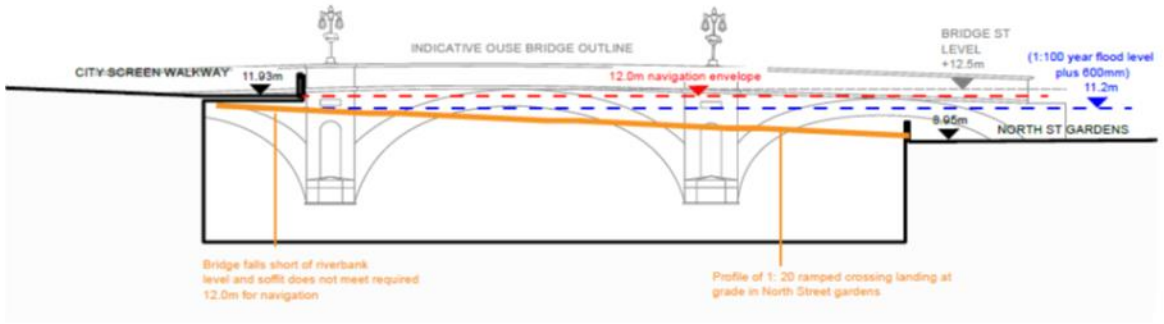
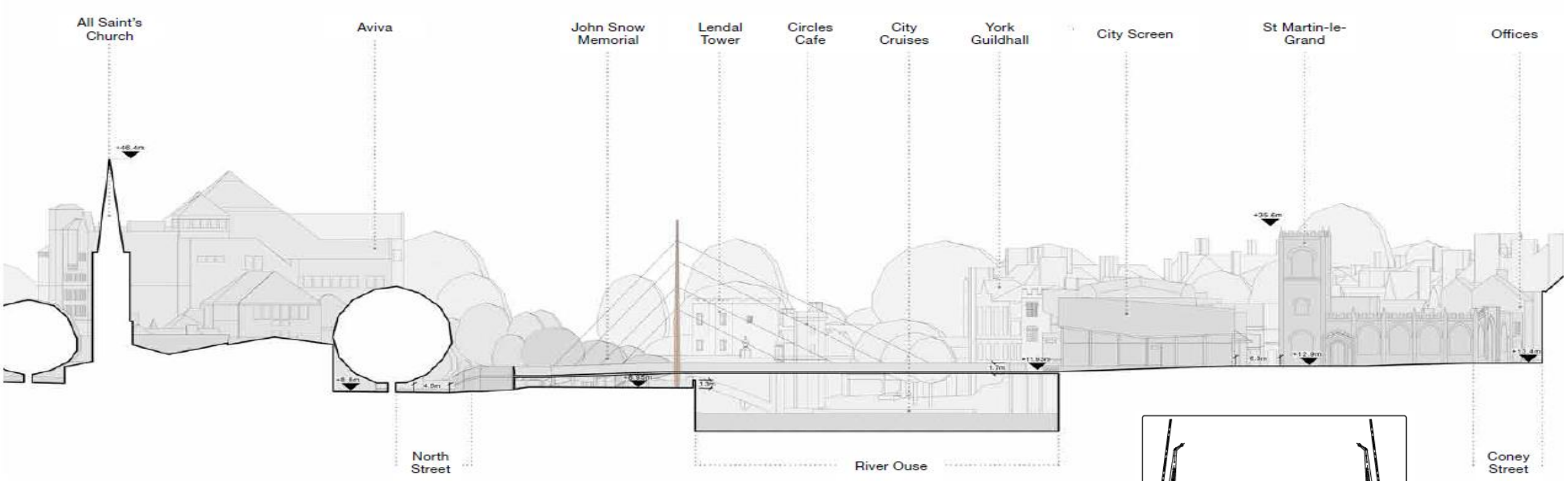
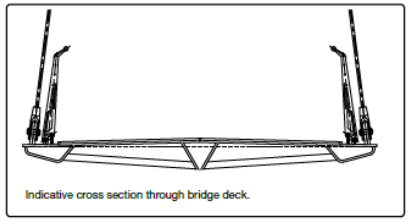


Figure 1.05: Section diagrams showing existing site levels, navigation, and flood risk constraints

Zone 1: Structural Principles & Materiality



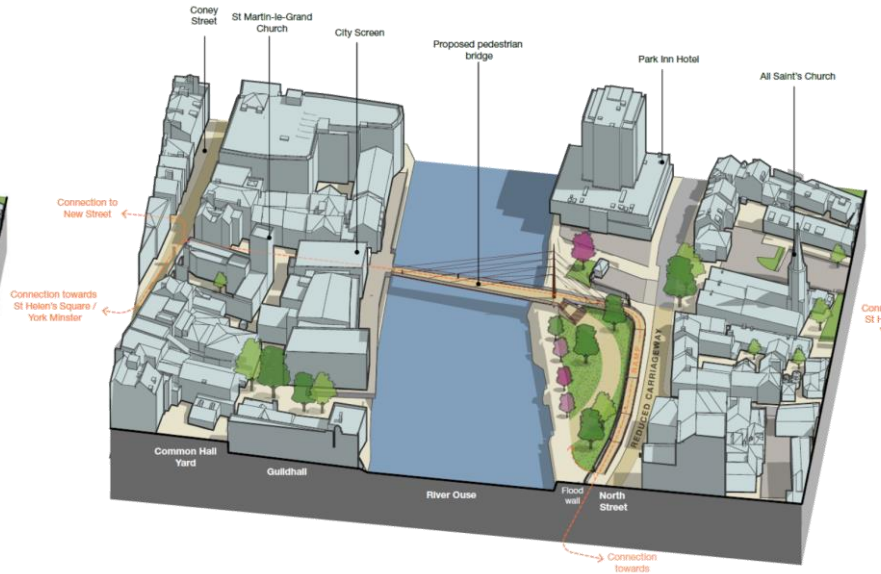


- Several structural approaches considered including Vierendeel & Truss, Arch & Beam, Living bridge, Suspension, Ribbon, and Cable Stayed.
- Assessment of alternative options included consideration of geology/ ground conditions, integration with city fabric/ visual dominance, maintenance, spatial constraints and structural geometry, buildability, flooding and accessibility.
- A single masted cable-stayed structural approach (illustrated in long section and cross section above) was identified as the preferred solution given this range of constraints. This would be supported by 4 compression pile foundations.
- Given requirements for a 120 year design life and maintenance considerations, a steel mast and deck structure is proposed, with CorTen weathering steel recommended.

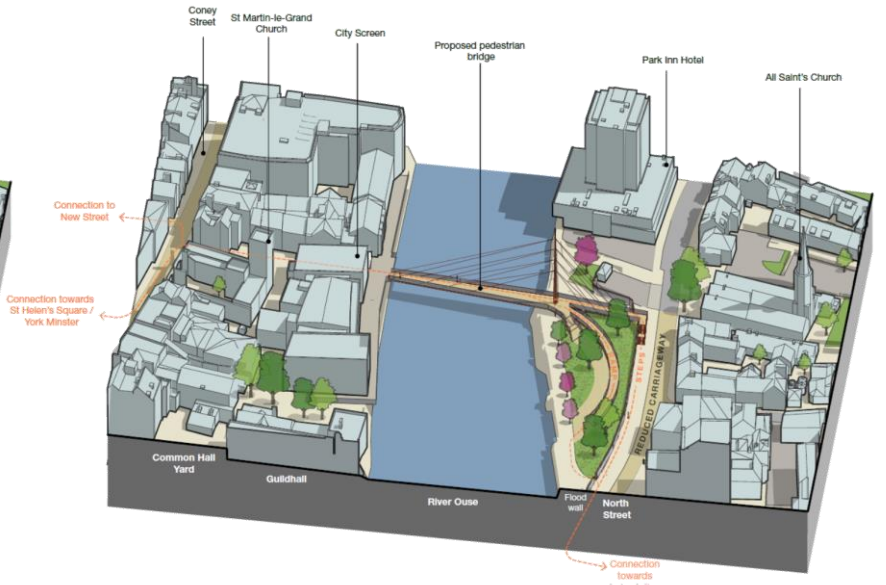
Zone 1: Alignment Options

- A crossing which continues the route between City Screen and Pitcher & Piano was identified as preferred strategic alignment due to interaction with historic fabric and conservation area character, and connectivity amongst other factors.
- Three more detailed alignment options are proposed for further exploration in future design stages, as illustrated below.
- Principal differentiators between the options relate to flooding interaction, with option 1 inaccessible during flood events which close North Street Gardens, and options 2 & 3 remaining accessible, though having a greater visual impact in the gardens, impacting highways at North Street and having slightly increased cost.
- High level costings of £5.023m, £5.276 and £5.233m for options 1 2 and 3 respectively. It is proposed that all three options are taken forward in any further stages of works for design development

Option 1



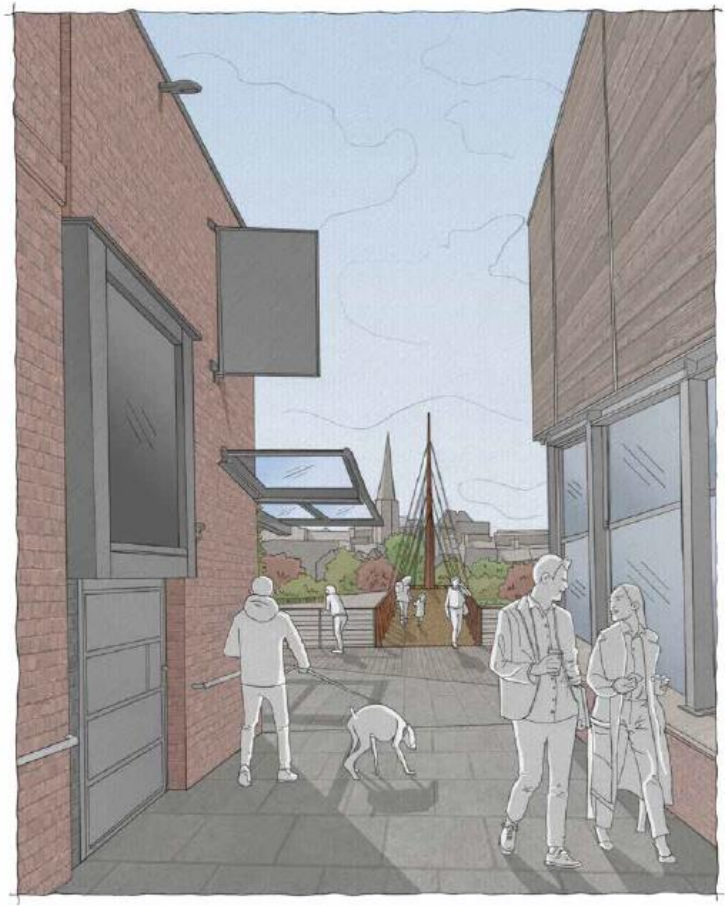
Option 2



Option 3

Zone 1: Cycle Connectivity

- The previous 2004 Giffords study had concluded that a pedestrian only river crossing was the preferred river crossing approach, though this was reviewed by BDP as part of the commission.
- In terms of broader connectivity, cyclists would need to dismount at pedestrian footstreets at the City Screen end of the bridge, where the access route is also most constrained, therefore generating a very limited journey time/ convenience saving.
- The bridge deck would need to be widened by around 3.5m to accommodate cyclists, increasing the depth of deck, and raising the balustrade also, resulting in a heavier appearance with greater heritage impacts.
- Even with a wider deck, the bridge would likely be a place for residents and visitors to linger, meet, take photographs etc, introducing conflicts between pedestrians and cyclists regardless of width
- The three alignment options were also reviewed in high level cost terms with upgrades to cycle accessibility. This would result in an estimated cost uplift of £3.17-£3.36m dependent on option (around 63% uplift).
- Given all of the above, the study concludes that a shared pedestrian and cycle bridge would not be appropriate. Cycle facilities such as secure storage can be provided as part of improvements to the North Street Gardens area.



Zone 1: Visuals

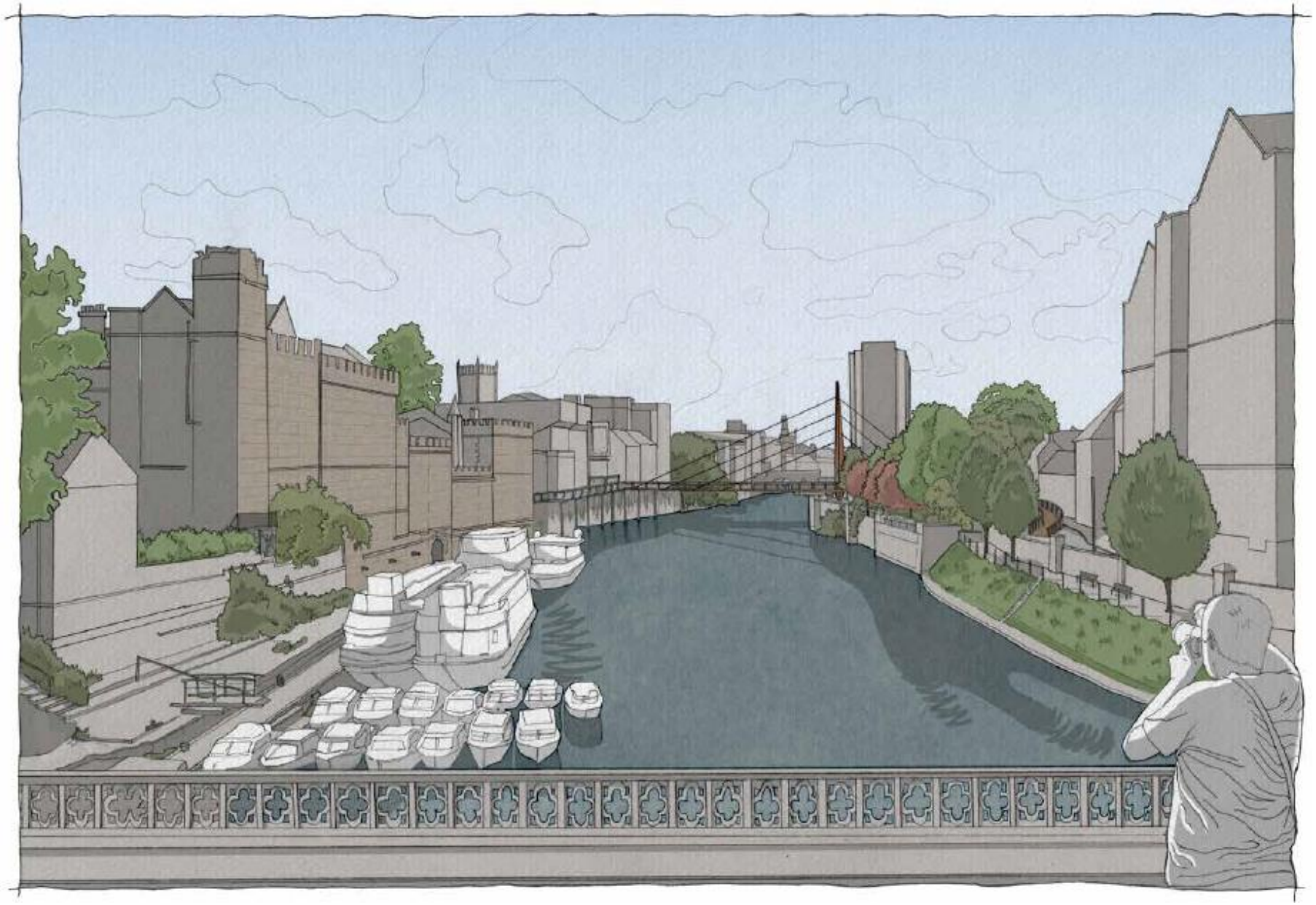


Figure 1.23: Concept sketch of option 2, showing the proposed ramp and narrowing/ resurfacing of the North Street carriageway.

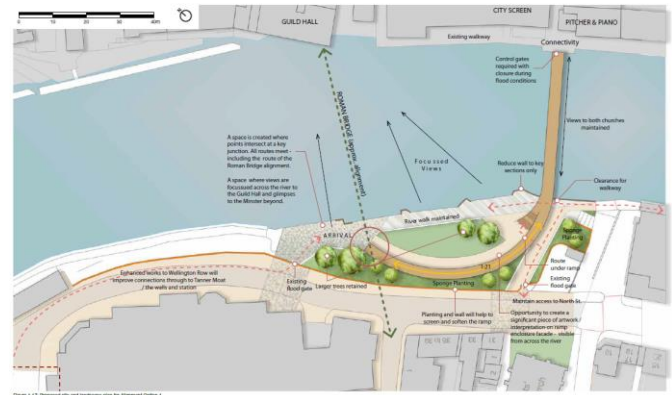


Figure 1.17: Proposed site and landscape plan for Alignment Option 1

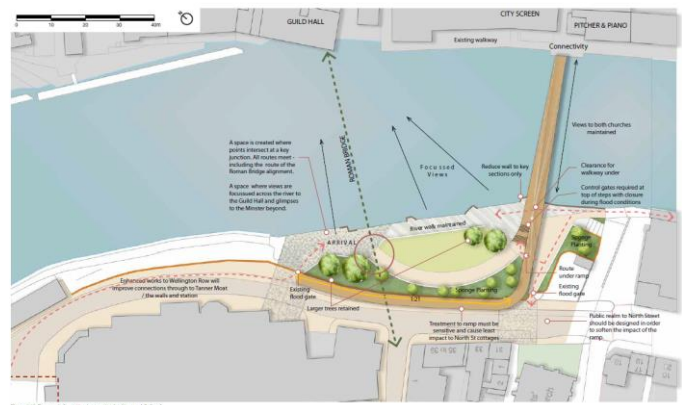
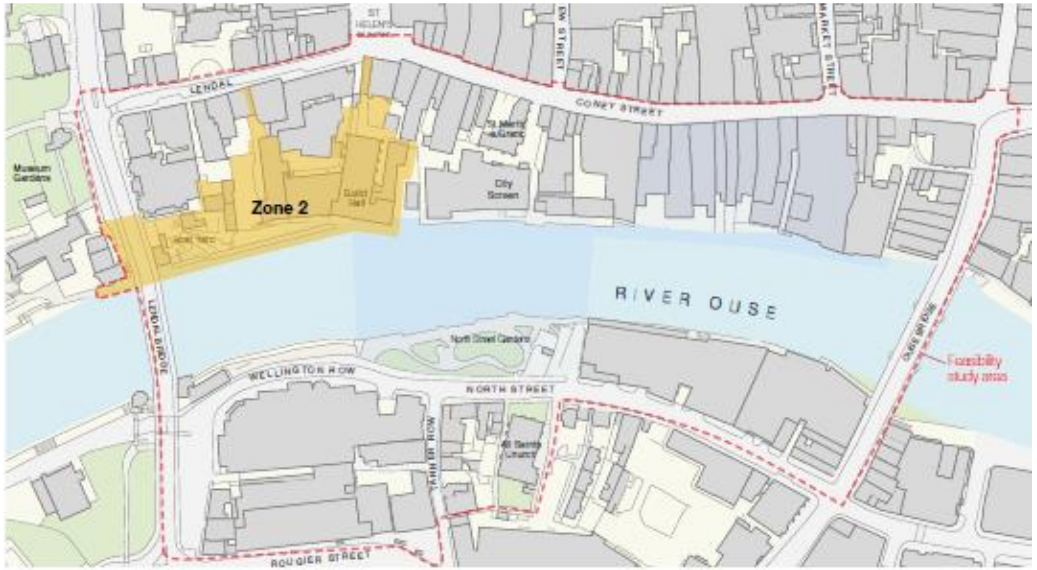


Figure 1.18: Proposed site and landscape plan for Alignment Option 2

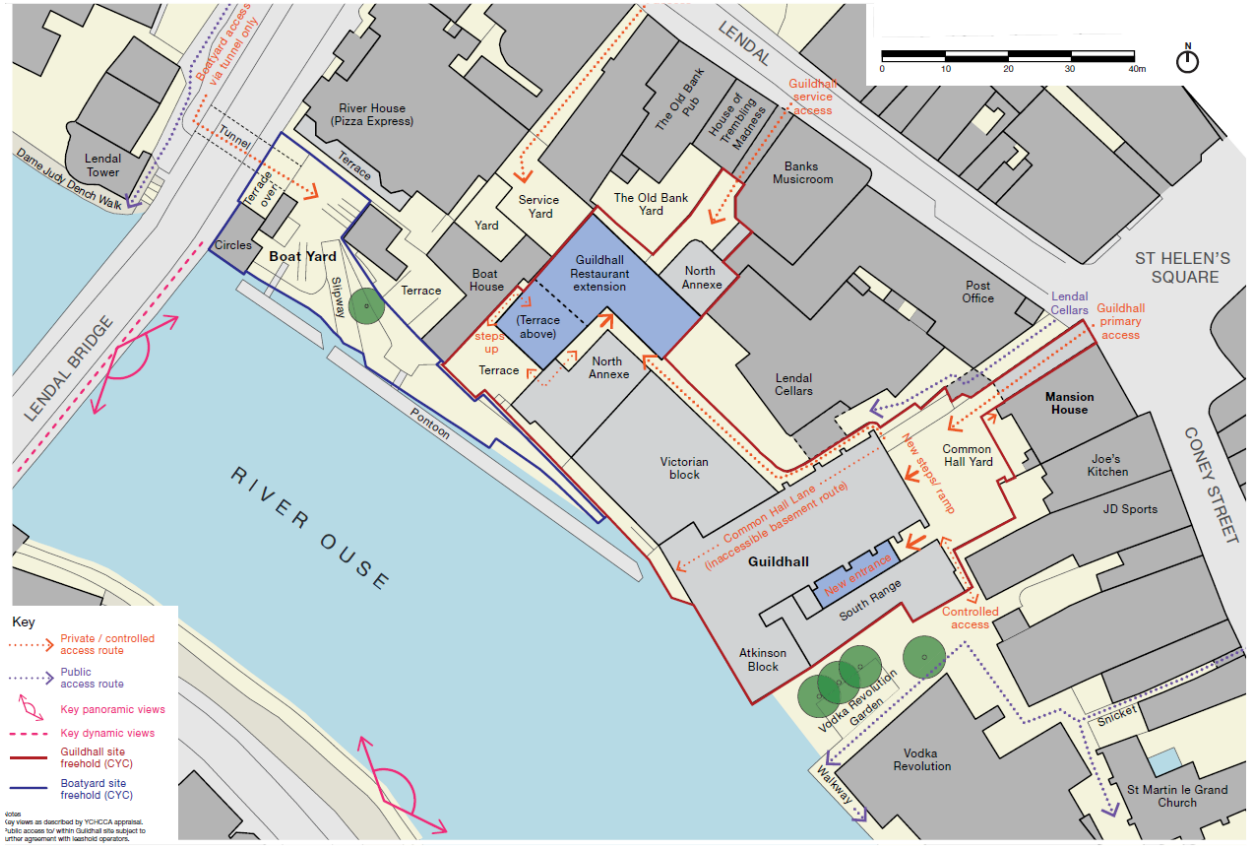
Zone 2: Brief

- To explore (secondarily to zone 1 and at high level), options to improve connectivity in the area between City Screen and Lendal Bridge.
- Taking into account the guildhall redevelopment currently underway, and existing access routes
- Cognisant of heritage impacts and technical parameters
- Identifying ancillary development opportunities as appropriate



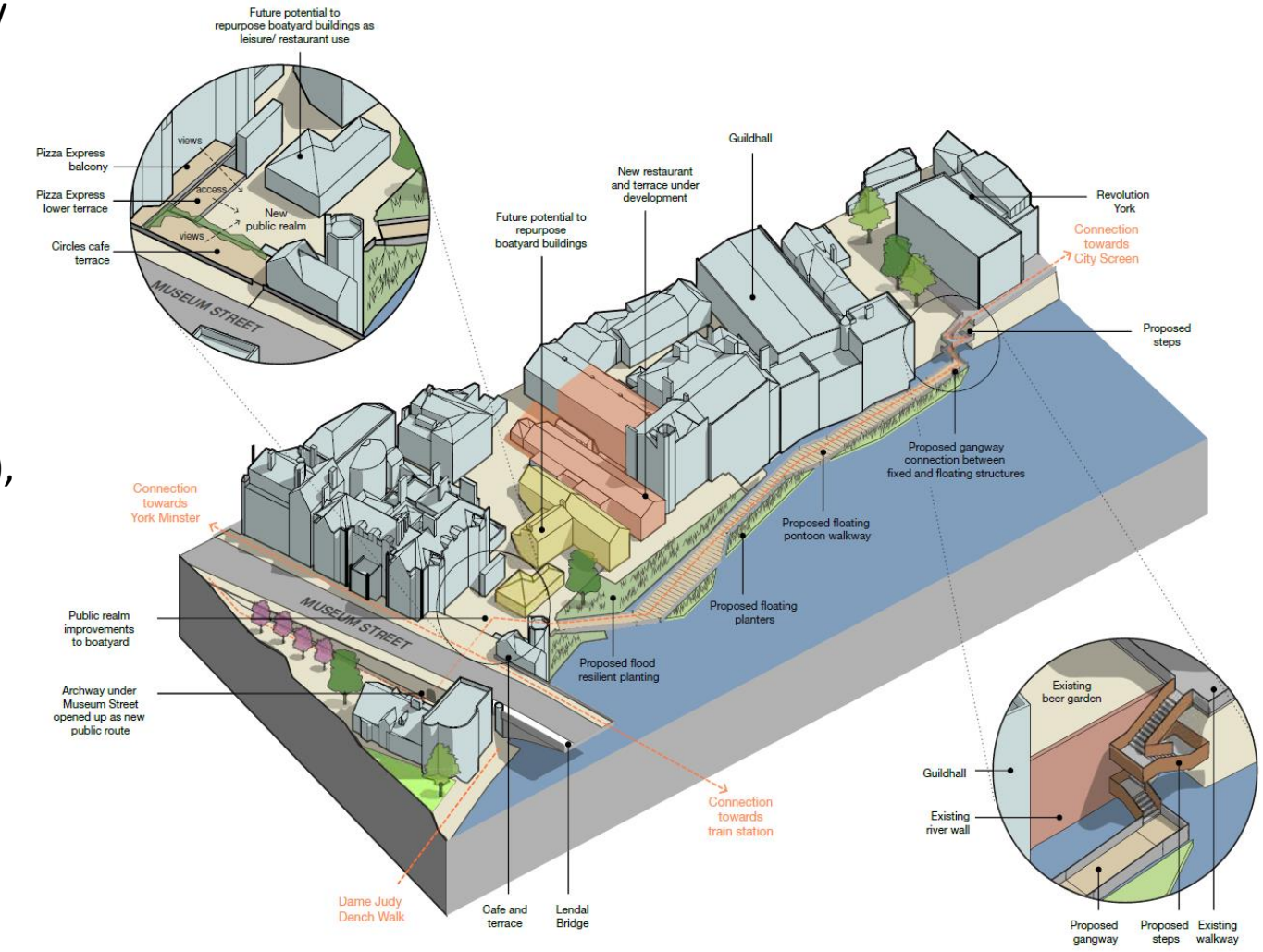
Zone 2: Option Assessment

- Informed by technical constraints including navigability and flooding as previous zone.
- Land ownership a further constraint, with no active proposals to relocate boat yard. Extremely sensitive heritage location with proximity to grade I Guildhall complex and scheduled monuments.
- Connectivity improvements between riverside and Lendal challenging without redevelopment, due to building service areas and configuration.
- Topography and relationship with heritage assets lead to a floating pontoon concept as preferred approach to potentially improving connectivity



Zone 2: High Level Outcomes

- Floating articulated pontoon walkway, connected by new steps to existing river walkway is technically feasible.
- Opportunity to complement with floating pontoon landscaping and new landscaping/ public realm to riverside.
- Discussion with stakeholders reveals residual heritage impact (and perception of limited benefits), infrastructure also unusable in times of flood, and no active plans to relocate boatyard – an essential precursor to delivery.
- Infrastructure would not be fully accessible due to site constraints
- Potential to repurpose boatyard buildings to alternative uses should relocation occur
- High level cost estimates in the order of £1.68m for infrastructure works only



Zone 3: Example scheme images

Figure 2.04: A temporary floating walkway and sun deck provides public space and leisure access down to the canal for summer swimming. Bruges, Belgium (Atelier Bow-Wow and Dertien 12).

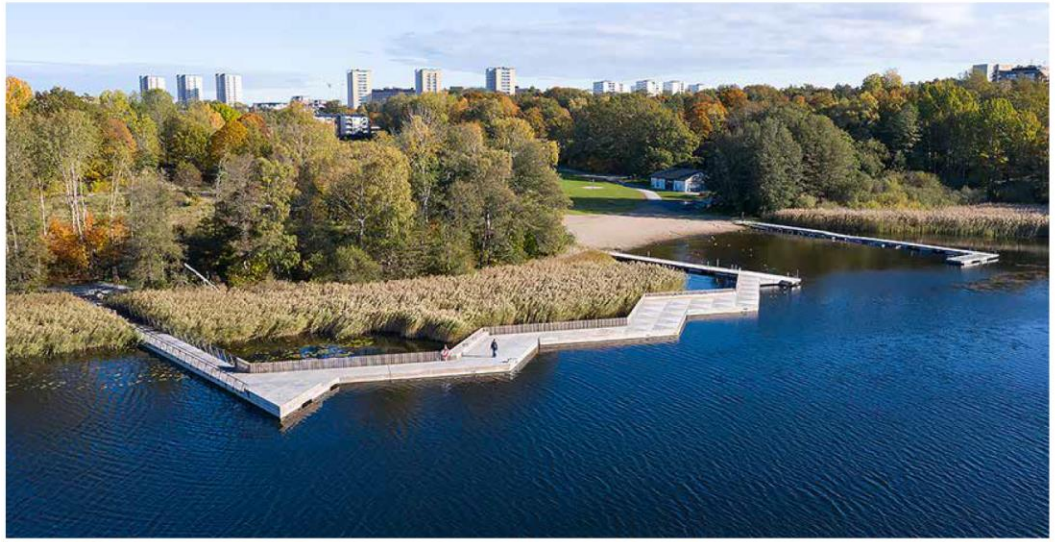


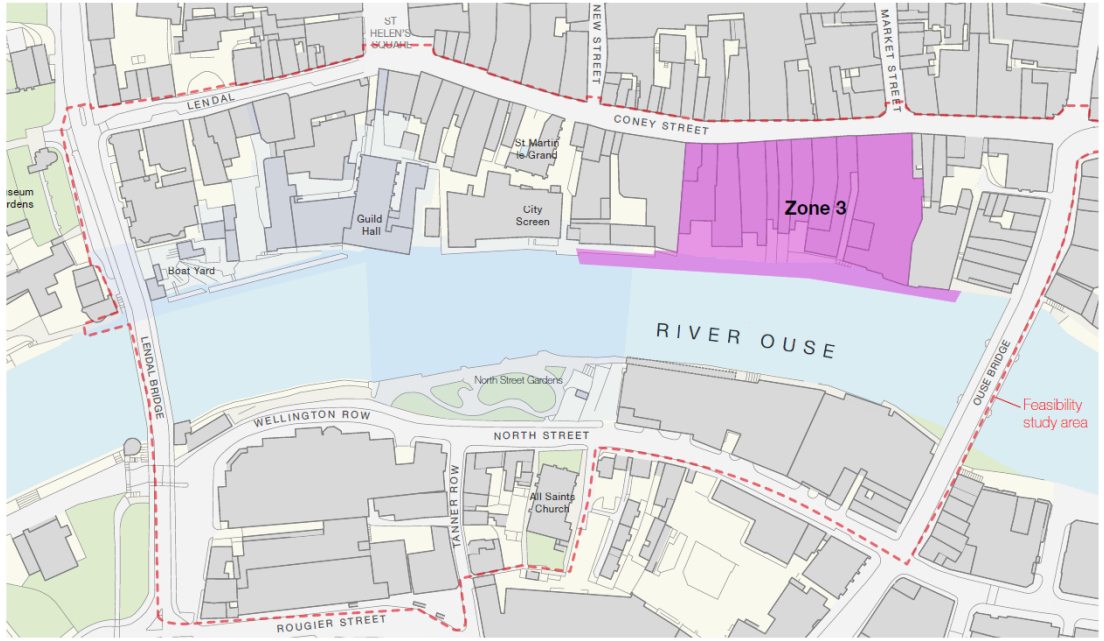
Figure 2.05: A new timber boardwalk opens up a recreational access to the lakeside of Lake Magelungen, Sweden. The boardwalk is a combination of a fixed structure attached to the land, connected by gangways to a floating pontoon construction. (Karavan landskapsarkitekter).

Figure 2.09: (And Below) Cantilevered stairs linking Royal William Yard in Plymouth to the public park above (Gillespie Yunnie Architects)

Figure 2.08: New corten walkway and steps inserted into Roman ruins, Malaga (OAM Arquitectos)

Zone 3: Brief

- To review high level emerging proposals from private sector developers Helmsley Group for a new riverside walkway potentially extending the existing route from City Screen/ Pitcher & Piano to Ouse Bridge.
- To have regard as part of this to stakeholder engagement, existing connectivity in the area and relationship with heritage assets.
- As part of this, to provide due diligence around:
    - Emerging high level costs
    - Engineering feasibility
    - Concept proposals

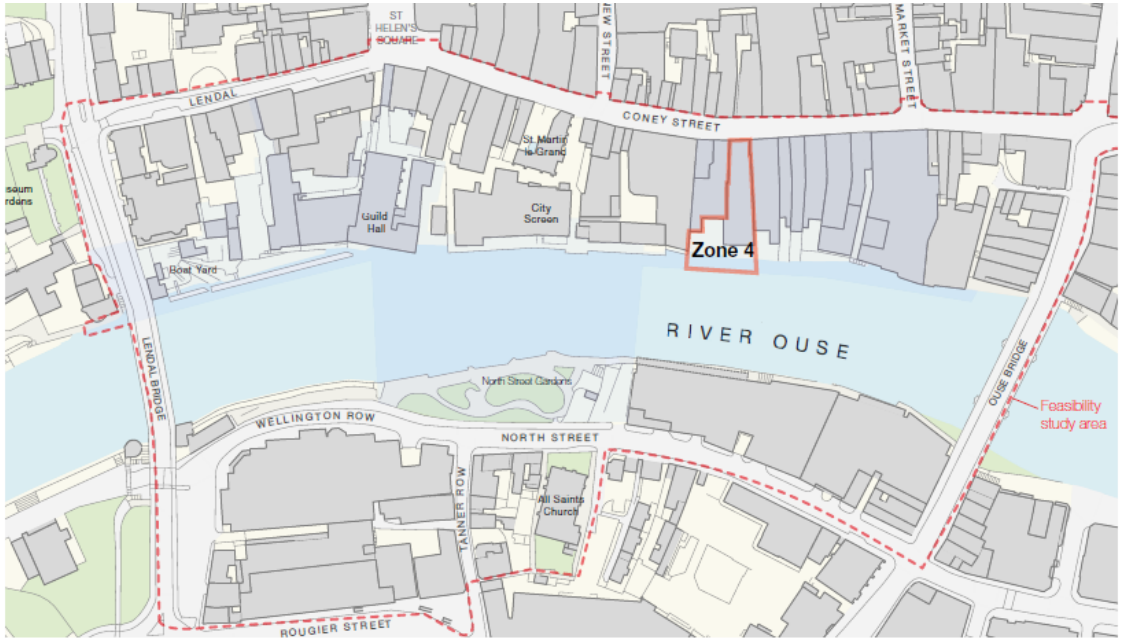


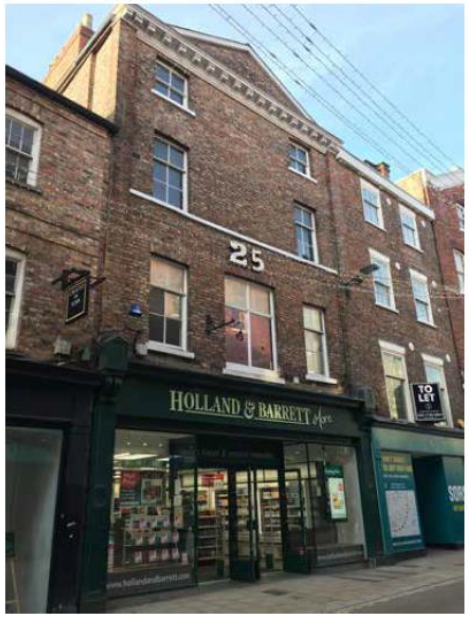
Zone 3: Analysis

- Study identifies opportunities associated with creation of connectivity improvements and public realm provision, as well as introducing new uses and reusing vacant floorspace. Key opportunity to improve buildings currently identified as detractors in conservation area appraisal.
- Study identifies technical constraints (including utilities, flooding etc), challenging topography between Coney Street & Riverside (though this also presents opportunities to introduce new uses), and sensitivity of area in terms of heritage assets.
- Emerging engineering approach reviewed and recommendations made to inform design development.
- Emerging costs reviewed, and order of magnitude validated, with sensitivity analysis undertaken.
- Detailed findings commercially confidential

Zone 4: Brief

- To analyse and propose potential development options around 25-27 Coney Street recently acquired by Council.
- To test potential new uses for the unit including vacant upper floors, and test more fundamental redevelopment options including looking at the later rear extensions to the building.
- Establish potential uses and key parameters around which future designs could be developed
- Undertake analysis in context of
  - Wider site analysis and context appraisal
  - Heritage significance assessment work
  - Technical site constraints





Zone 4: Analysis

- Study reviews existing site and building condition, identifying original grade II listed 5 storey building fronting Coney Street, with later addition to rear and disused riverside space. Upper floors of the building are currently disused, though access is challenging, only currently being provided to the Coney Street frontage

- The study reviews development potential of the plot, taking into account technical constraints and the early views of stakeholders. In order to redevelop the unit's upper floors and rear (the latter through demolition of existing structures), access would be required through the Coney Street frontage, leading to the conclusion that a café/ bar with active frontage to Coney Street would need to replace existing retail use., and contain a controlled foyer /reception to wider uses. Detailed findings are commercially confidential

- Options for boutique hotel/ aparthotel or co-working/ office space are explored, residential having been ruled out due to accessibility approach

- Opportunities to improve the riverside environment and generate additional footfall and economic benefits through redevelopment.

- Challenges around scale and massing, means of escape from fire, and the retail unit is also tenanted (and indeed the commercial acquisition made on this basis)

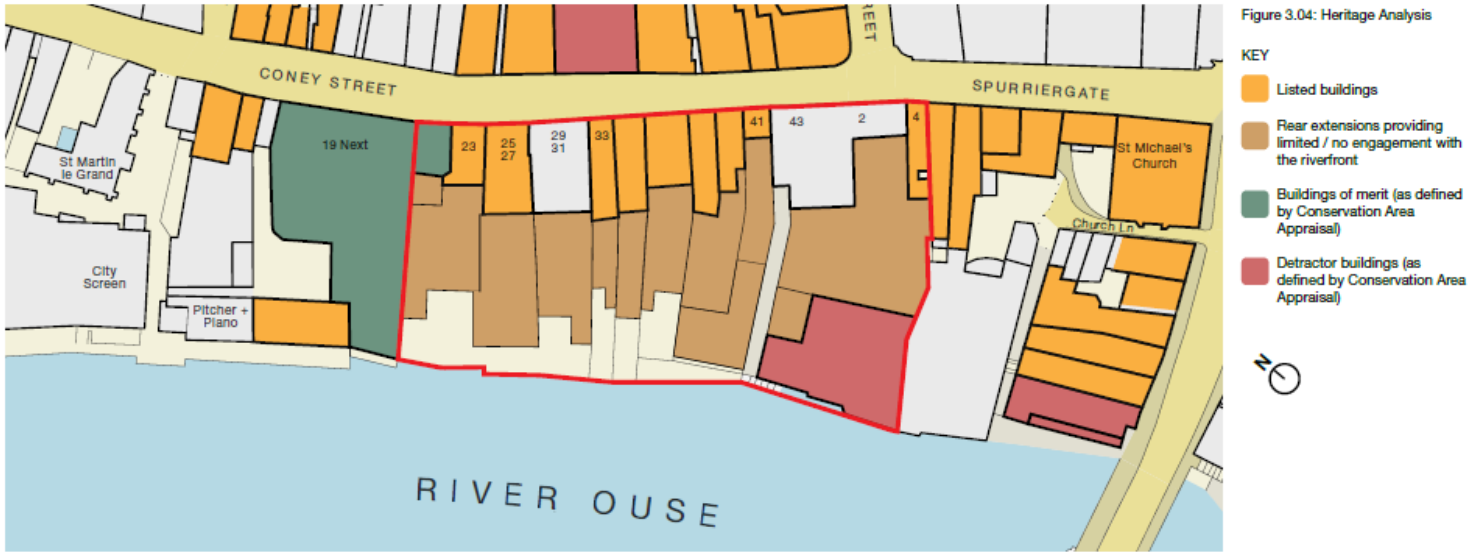


Figure 4.04: Zone 4 Listed Buildings and heritage assets