6.0 Preliminary Project Risk Assessment & Surveys Required

6.1 Technical Risks & Mitigation

A footbridge project in an urban railway context carries a range of technical risks that must be carefully assessed during feasibility. Ground instability near the railway embankment could complicate foundation design and increase construction costs if specialist piling or soil stabilisation is required. Similarly, ensuring sufficient headroom over the tracks is essential for operational safety and future electrification, and any miscalculation could trigger redesign or regulatory delays. The bridge structure must also address vibration and dynamic deflection under pedestrian and cyclist loading, particularly during peak usage, to maintain comfort and long-term structural integrity.

Additional technical risks include utility diversions, as underground services may conflict with proposed foundations or access ramps. Drainage runoff management is critical to prevent water discharging onto the railway or adjacent properties, while anti-social behaviour risks—such as loitering or vandalism—need to be mitigated through design measures including parapet height, lighting, and passive surveillance. Construction logistics are another challenge: limited site access and the need for railway possessions can significantly increase cost and programme risk, particularly if long possessions are required or repeated interruptions occur.

6.2 Opportunities & Value Creation

Despite these risks, the project offers several opportunities to deliver lasting community, economic, and environmental benefits. The bridge can be designed as a landmark structure for Haslemere, enhancing the townscape and civic identity. It also has the potential to unlock development opportunities on underutilised sites such as the Herons site, improving connectivity and increasing footfall to local amenities. By prioritising sustainable transport, the bridge could encourage walking and cycling, reduce short car trips, and support borough-wide climate and mobility targets.

From a construction perspective, modular construction methods present an opportunity to minimise disruption to rail operations, reduce programme risk, and control costs. Additionally, funding mechanisms such as S106 contributions or Community Infrastructure Levy (CIL) can help offset construction costs and improve project viability. By carefully balancing technical risks with these strategic and operational opportunities, the feasibility study can demonstrate that a well-designed footbridge is both deliverable and transformative for the town centre.

6.3 Social / Community Risks

A new footbridge introduces a range of social and community considerations that must be carefully managed during both design and construction. Elevated structures can create issues of overlooking adjacent properties, raising privacy concerns for nearby residents. Bridges can also attract anti-social behaviour, including loitering, vandalism, or graffiti, particularly if underused or poorly lit. Fear of crime may discourage use, reducing the bridge's effectiveness as a safe, active travel route. Additionally, construction activities generate temporary noise and disruption, which can impact local households and businesses.

Mitigation strategies must be integrated into both design and operational planning to address these risks. Structural features such as 1.8–2.4 m anti-throw and anti-climb mesh can deter misuse, while good passive surveillance and adherence to Secured by Design principles increase perceived safety. CCTV can provide additional oversight. Appropriate lighting in accordance with BS 5489 ensures clear visibility at all times. Engagement with the local community, combined with landscaping buffers, helps maintain positive relationships and minimizes adverse impacts, ensuring the bridge is perceived as a safe, accessible, and valued community asset.

6.4 Required Surveys

Comprehensive surveys will be essential for reducing design risks and ensuring that a footbridge project can be delivered safely, efficiently, and within budget. A topographical survey provides accurate mapping of the site, allowing the design team to understand slopes, levels, and spatial constraints, while ground investigations (Phase 1 & 2) reveal soil composition, load-bearing capacity, and potential contamination issues that influence foundation design. Utility searches (PAS 128) identify underground services, preventing costly clashes or delays during construction. Likewise, ecological surveys, including Phase 1 habitat assessments, bat activity monitoring, and nesting bird surveys, ensure that protected species are identified and appropriate mitigation strategies are incorporated, reducing environmental and legal risk. Arboricultural surveys (BS 5837) protect valuable trees, defining root protection areas and guiding no-dig construction methods where needed.

Other surveys further inform safe, durable, and context-sensitive design. A flood risk assessment helps prevent water-related hazards, while noise and vibration surveys guide mitigation strategies to protect local residents and sensitive wildlife during construction. Structural assessments of existing bridges and railway asset condition surveys identify constraints that may affect tie-ins or temporary works. Finally, a transport and cycle usage assessment provides data on current pedestrian and cyclist flows, enabling the bridge to be designed for optimal capacity and accessibility. Collectively, these surveys reduce uncertainty, de-risk the project, and provide a robust evidence base for planning approvals, design development, and stakeholder confidence.

Required Surveys

- Topographical survey.
- Ground Investigation (Phase 1 & 2).
- Utility searches (PAS 128 survey).
- Establish Culvert location
- Ecological survey (Phase 1 habitat, bats, nesting birds).
- Arboricultural survey (BS 5837).
- Flood Risk Assessment.
- Noise & vibration survey.
- Structural survey of existing bridge.
- Railway asset condition survey.
- Transport / cycle usage assessment.

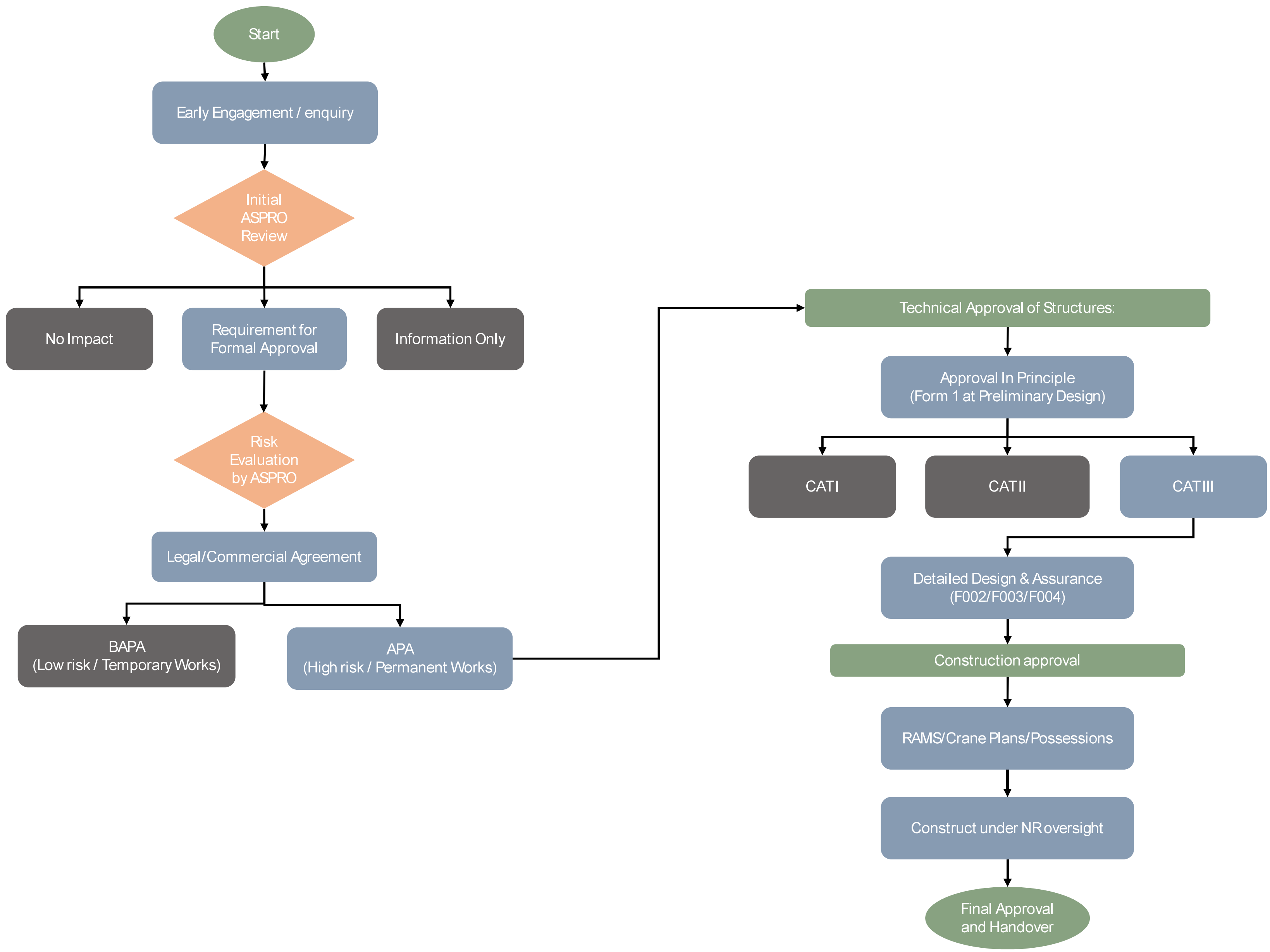
6.5 Network Rail

Engaging Network Rail when planning a foot and cycle bridge across a railway line is a structured and highly regulated process that begins early in the project lifecycle. Promoters must first establish contact through Network Rail's Asset Protection (ASPRO) team, who act as the primary interface to ensure that any proposal protects the safety, integrity, and operational performance of the railway. Initial feasibility discussions focus on constraints such as clearances, electrification, maintenance access, and potential impacts on rail operations. As the design develops, the project must comply with Network Rail standards and go through a staged approvals process known as GRIP (or its successor, PACE), including detailed design reviews, risk assessments, and method statements for construction. Legal agreements, such as Basic Asset Protection Agreements (BAPA), are required to formalise responsibilities, costs, and liabilities. Throughout, close coordination is essential to plan safe construction methodologies, possessions (track closures), and ongoing maintenance arrangements, ensuring the bridge can be delivered without compromising railway safety or performance. A flow chart outlining this process is included below.

6.6 Risk List

The draft risk list is included on the following pages.

Network Rail Engagement
Network Rail Process



Category	Risk Description	Potential Impact	Mitigation / Notes			Priority
Technical / Engineering	Ground instability near railway embankment		Detailed ground investigation, specialist piling, Network Rail approval	Medium	High	High
	Insufficient headroom over railway		Accurate surveying, design to meet NR clearance requirements	Low	High	Medium
	Excessive vibration under pedestrian/ cycle loads	User discomfort, structural issues	Dynamic analysis, appropriate deck design, damping measures	Medium	Medium	Medium
	Utility conflicts/ diversions	Delay and cost escalation	PAS 128 utility survey, early engagement with utility providers	Medium	Medium	Medium
	Drainage runoff onto railway	Safety risk, flooding	SuDS design, drainage routing, coordination with Network Rail	Low	High	Medium
	Construction access constraints	Programme delays	Modular construction, site logistics planning, limited possessions	Medium	High	High
	Cost escalation due to railway possessions	Budget overruns	Early possession planning, contingency allowance	Medium	High	High
Social / Community	Overlooking of adjacent properties	Privacy concerns, local opposition	Visual screening, landscaping, parapet design	Medium	Medium	Medium
	Anti-social behaviour	Vandalism,	CPTED principles, anti-climb/anti-throw mesh, lighting, CCTV	Medium	Medium	Medium

Category	Risk Description	Potential Impact	Mitigation / Notes			Priority
	Fear of crime / poor lighting	Reduced use	Lighting to BS 5489, passive surveillance, open design	Medium	High	High
	Noise during construction	Resident complaints	Noise management plan, restricted	High	Medium	High
			working hours			
Environmental / Ecology	Tree removal or damage (TPOs)	Loss of amenity and habitat	Arboricultural survey (BS 5837), root protection, no-dig techniques	Medium	High	High
	Biodiversity loss	Legal risk under Wildlife and Countryside Act 1981	Ecological survey, habitat mitigation, Biodiversity Net Gain 10%	Medium	High	High
	Wildlife disturbance	Protected species impact	Bat-sensitive lighting, construction timing restrictions	Medium	Medium	Medium
Planning / Legal / Regulatory	Planning permission refusal	Project delay or cancellation	Early engagement with Waverley BC, design compliance with local policy	Low	High	Medium
	Party Wall / land easement disputes	Legal challenge, delay	Legal review, easement agreements, early consultation with neighbours	Low	Medium	Low
	Environmental Impact Assessment required	Delay and additional cost	Screening assessment early in design	Medium	Medium	Medium
	Compliance with CDM Regulations	Legal and safety risk	Appoint CDM Principal Designer, risk management plan	Low	High	Medium

Category	Risk Description	Potential Impact	Mitigation / Notes			Priority
	Building Regulations non-compliance	Design rework,	Adherence to Parts A (Structure), M (Access), K (Guarding)	Low	High	Medium
Operational / Transport	Impact on Tesco access road and parking	Disruption to traffic and users	Traffic management plan, swept path analysis, phased works	Medium	Medium	Medium
	Construction adjacent to leisure centre, skate park,	Public safety risk	Temporary barriers, controlled	Medium	High	High
	basketball court		access, community communication			
	Pedestrian/cycle disruption	Reduced usage, reputational risk	Clear alternative routes, signage, phased ramp construction	Medium	Medium	Medium
Financial / Funding	Funding shortfall	Project delay or scope reduction	Diversified funding strategy (CIL, Sustrans, LSTF, developer contributions)	Medium	High	High

7.0 High-level Options for a new Accessible Pedestrian and Cycle Bridge

7.1 Overview
This section introduces a range of high-level options for delivering a new accessible pedestrian and cycle bridge across the railway. At this stage, the focus is on identifying broad spatial strategies and testing their feasibility in response to the site's physical constraints, rather than defining detailed design solutions.

The primary challenge is achieving a fully step-free crossing while accommodating the approximately 6m level difference between ground level and the required bridge deck height. This requirement drives the need for significant ramped access on both sides of the railway, which in turn has a major influence on land take, user experience, and integration with the surrounding environment.

Four initial scenarios (A–D) have been developed to explore different ways of resolving these constraints. Each option adopts a single-span bridge structure across the railway, with variations focused on how access is provided, particularly on the southern side of the site where space and surrounding uses are more complex.

7.2 Design Principles
Across all options, a consistent set of design principles has been applied:

Accessibility: All proposals aim to provide a fully step-free route compliant with current guidance, suitable for pedestrians, cyclists, wheelchair users, and those with limited mobility.
Directness of route: Alignments seek to follow natural desire lines between Wey Hill and Kings Road, minimising detours and journey times.
Minimising railway impact: A single-span bridge solution is assumed in all cases to avoid intermediate supports within Network Rail land and reduce construction complexity.
Constructability: Prefabricated structural solutions are considered to enable installation during limited railway possessions and reduce on-site risk.
Integration with surroundings: Each option considers how the bridge connects into existing streets, public spaces, and adjacent land uses, particularly around the Herons site.

7.3 Central Span Strategy
All scenarios assume a bridge span of approximately 25–30m to safely clear the railway and associated infrastructure. At this stage, the structural form is not fixed; however, typical solutions include steel or composite bridge types that can be fabricated off-site and installed in a single operation.
The use of prefabrication is a key consideration, as it allows the bridge to be lifted into place during a short railway possession, minimising disruption to services. Structural form, material selection, and detailed design are explored further in later sections of this report.

7.4 Access Strategies
The primary variation between options lies in how the required level change is achieved, particularly on the southern side of the railway. Three broad access strategies are considered:

Linear Ramp
A straight or gently curved ramp provides the most direct and legible route. This approach is simple to design and construct, but requires a significant footprint due to the length needed to maintain accessible gradients.

Zig-Zag or Switchback Ramp
A series of linked ramp sections can reduce the overall footprint compared to a straight alignment. However, this introduces changes in direction, which may affect user experience, visibility, and perceived safety.

Helical (Spiral) Ramp
A circular ramp arrangement allows the required height to be achieved within a more compact area. This approach reduces land take and creates a distinctive spatial feature, but introduces greater structural complexity and requires careful design to ensure accessibility and cyclist comfort.

7.5 Summary of Options
The four scenarios developed for this study explore different combinations of these access strategies:

Option A: A predominantly linear ramp arrangement, prioritising simplicity, directness, and ease of construction.

Option B: A longer, more landscape-integrated ramp that navigates through existing vegetation, reducing direct visual impact but increasing length and complexity.

Option C: A compact solution using a helical ramp on the southern side, reducing footprint and enabling stronger integration with the leisure centre site.

Option D: A more comprehensive redevelopment approach, combining the bridge with wider site reconfiguration, including potential new structures and changes to parking and land use.

Each option presents a different balance between land take, cost, user experience, and potential for wider site enhancement.

7.6 Next Stage Development
Following initial review and stakeholder discussion, Options A and C have been identified as the most promising approaches for further development. These options represent two distinct strategies:
A simple and efficient solution (Option A)
A more integrated, place-led solution (Option C)

The following section explores these two options in greater detail, including spatial arrangement, structural approach, and implications for the surrounding site.

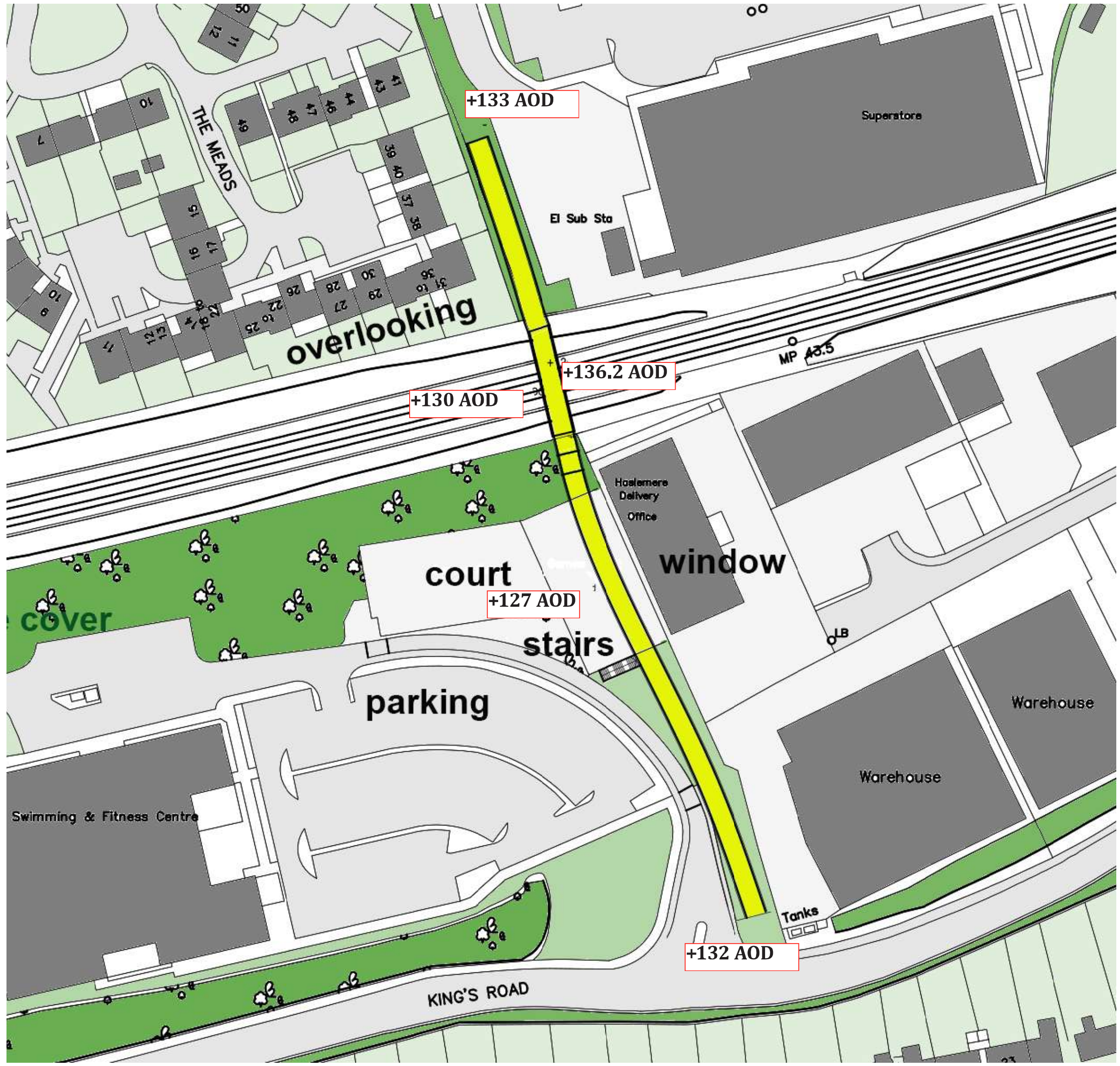
7.7 Scenario A

Access to the ramp from the northern side is provided by clearing the foliage and extending the existing path that runs from Weyhill to the Tesco car park. The path should be 3m wide and will slope up from 133m AOD to the top of the bridge height at 136.2m AOD. A ramp of 64m will be required, sloping the existing bank for some of the length to minimise the above ground structure. The bridge deck is level for the 22m span across the railway. There would be some overlooking of the corner windows of homes in the Meads.

The southern ramp slope from the bridge to the junction with Kings Road, with a set of step proposed in a position that avoids the skate park. The view from the window to the west side of the industrial unit will be affected, the skate park would still be viable as the ramp can span it with a secondary bridge and the first part of the ramp can be formed utilising earthworks. The southern ramp is 100m long.

This position has minimal affect on existing trees and no affect on the car parking. The skate park and basketball court could be upgraded as part of the works and used as the site compound during construction. In this option cyclists and those with buggies arriving from the west via the rear entrance to the Herons would go up the existing pavement to the ramp on Kings Road.

NOTE: All sketch plans based on OS mapping data. Plans are accurate to 1m in any direction. Level information is taken from the Town Council Briefing Document. Spot level data has been requested from the Herons Leisure Centre records, Pozzoni Architects have confirmed that they do not have any survey data and that they used OS mapping in regard to the 2013 works on the site.



7.8 Scenario B

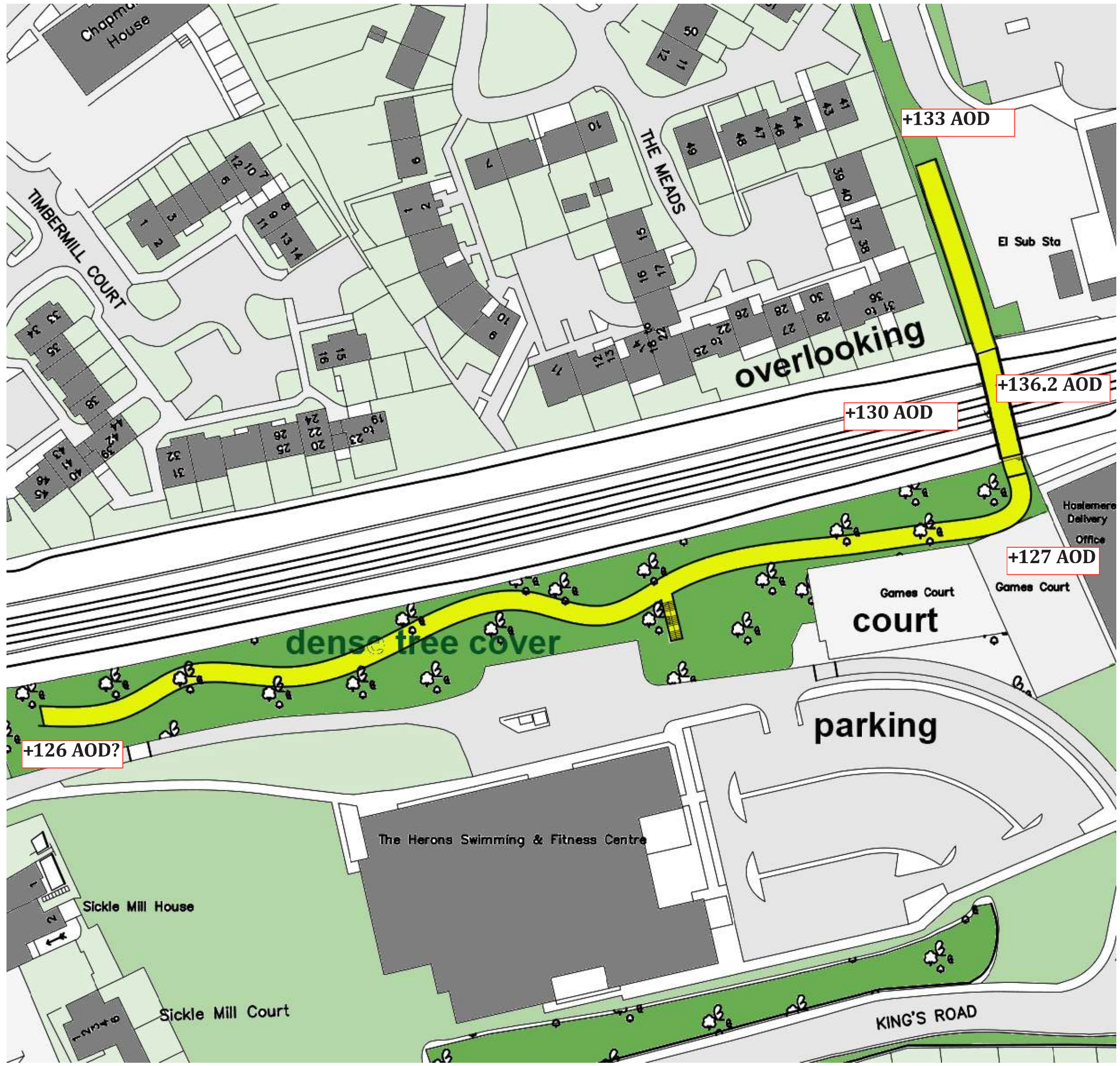
Access to the ramp from the northern side is as option A.

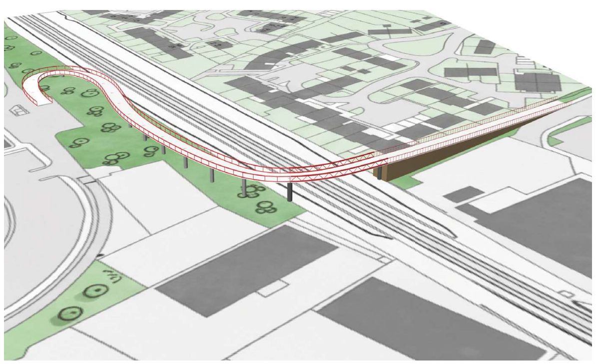
The southern ramp slopes from the bridge westward through the trees, avoiding as many as possible, and down onto the Herons site. A number of trees will need to be removed. The ramp will need to be piled, a lightweight structure, and will be 200m long. Steps are provided on an axis that addresses the entrance to the Herons.

The ramp and stair position avoids disruption to the skate park and basketball court, and avoids the issue with the industrial units window but increases the issue of overlooking related to the south facing windows and rear gardens of The Meads.

Given the likely 10% Biodiversity Net Gain requirement the impact on the existing trees (those of good quality) should be mitigated as far as practical and a number of new trees may need to be planted. In terms of secure by design standards, the lack of clear sight along the length of the ramp is problematic, and even with good lighting and CCTV coverage the curving ature and tree coverage may make the journey up the ramp feel uncomfortable for some at night.

The 200m long ramp will be predominantly steel framed, supported by piled foundations, with some of the lower section being formed by building up the landscape and battering the sides where existing tree positions allow. Although technically feasible, and arguably potentially a great experience weaving through the trees to the bridge could well be cost prohibitive. An alternative would be to push the ramp location further towards the tracks and away from the trees as shown below.

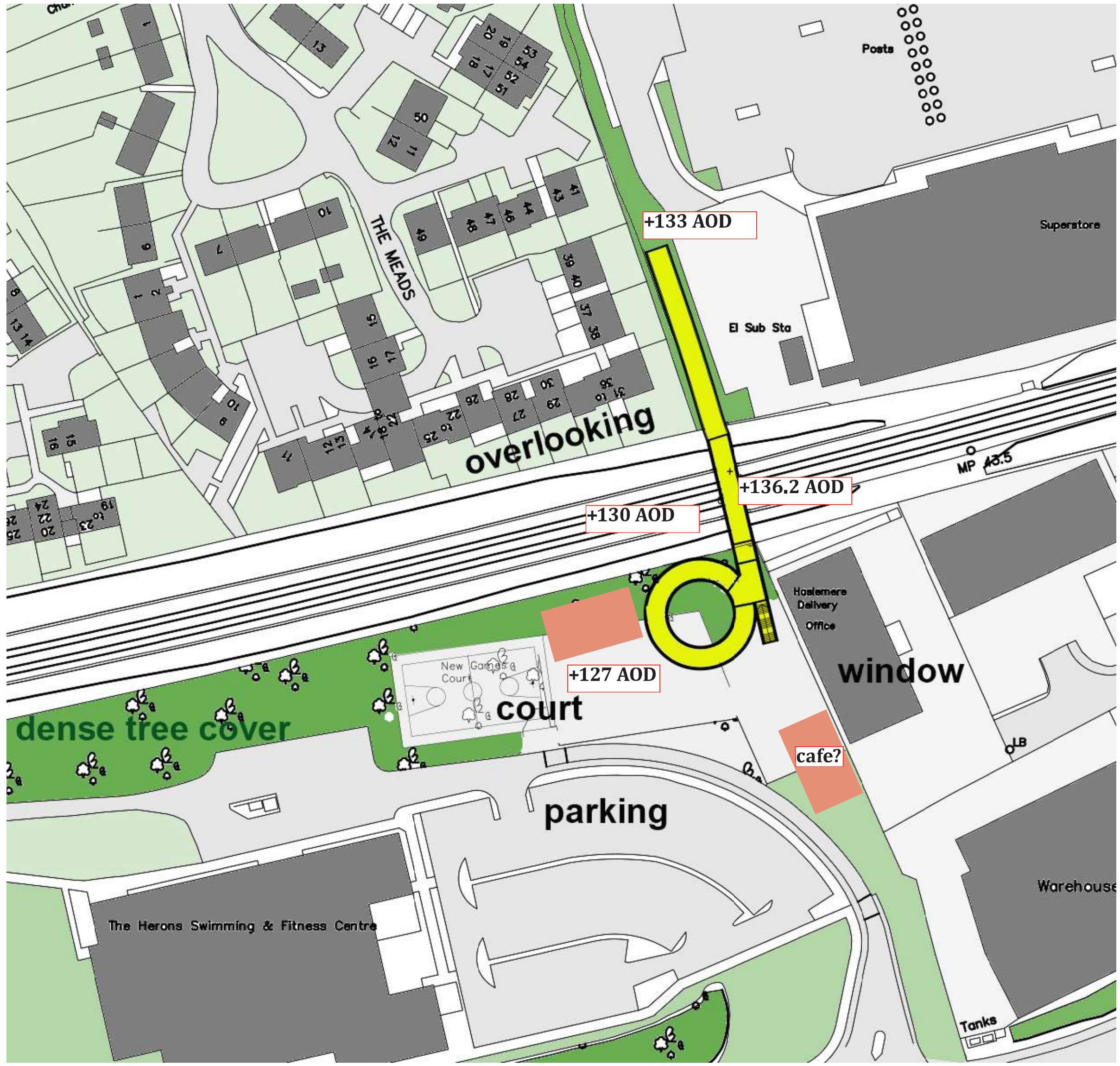




7.9 Scenario C

Access to the ramp from the northern side is as option A. To minimise the land take of the southern ramp a helical format could be utilised. A ramp of 3m width and 22m diameter is shown on the diagram below. A separate stair would be provided for direct access on foot. In this scenario the basketball court is relocated to the west and the skate part redesigned.

The opening up of that site along with the newly generated footfall gives an opportunity for a small commercial buildings to be included, suited to such as a bike shop and / or cafe. Equally there may be an opportunity to include a youth hub or centre by utilising a greater extent of the green area and repositioning the basketball court and skate park. The new building could be wrapped by the ramp itself.



7.10 Scenario D

There is an opportunity for a deck of additional parking (approximately 65 spaces), if required by the wider goals of the council, through the addition of a deck above part of the the existing car park. In turn this deck can accommodate a route from Kings Road across the Herons site at the upper level and connect into the new bridge. As with scenario 3 there is an opportunity to replan the amenity area and potentially include some commercial space and/or a youth centre.

Additional play space or gardens could be included at roof level of any such new building as that would be the upper floor level that connects to the new bridge, and such an area could include a lift and stairs to be managed by the new building.

There is also the potential for a further deck of car parking to serve commuters and an active frontage to Kings Road which could be commercial or residential space.

Part 2

8.0 Options A & C, The North Ramp and Bridge Abutments

8.1 Option A

Following the meeting at the Town Hall it was decided to progress options A and C. These options are both considered in more detail here.

Option A represents the most straightforward and direct approach to delivering an accessible bridge connection between Wey Hill and Kings Road. The design prioritises simplicity, efficiency, and ease of construction, with a predominantly linear ramp arrangement on both sides of the railway.

Access from the northern side is achieved by clearing vegetation and upgrading the existing path that runs from Wey Hill towards the Tesco access road. A ramp of approximately 50m in length rises from the existing ground level to the bridge deck, with sections formed using ground modelling to reduce the extent of elevated structure and minimise construction complexity.

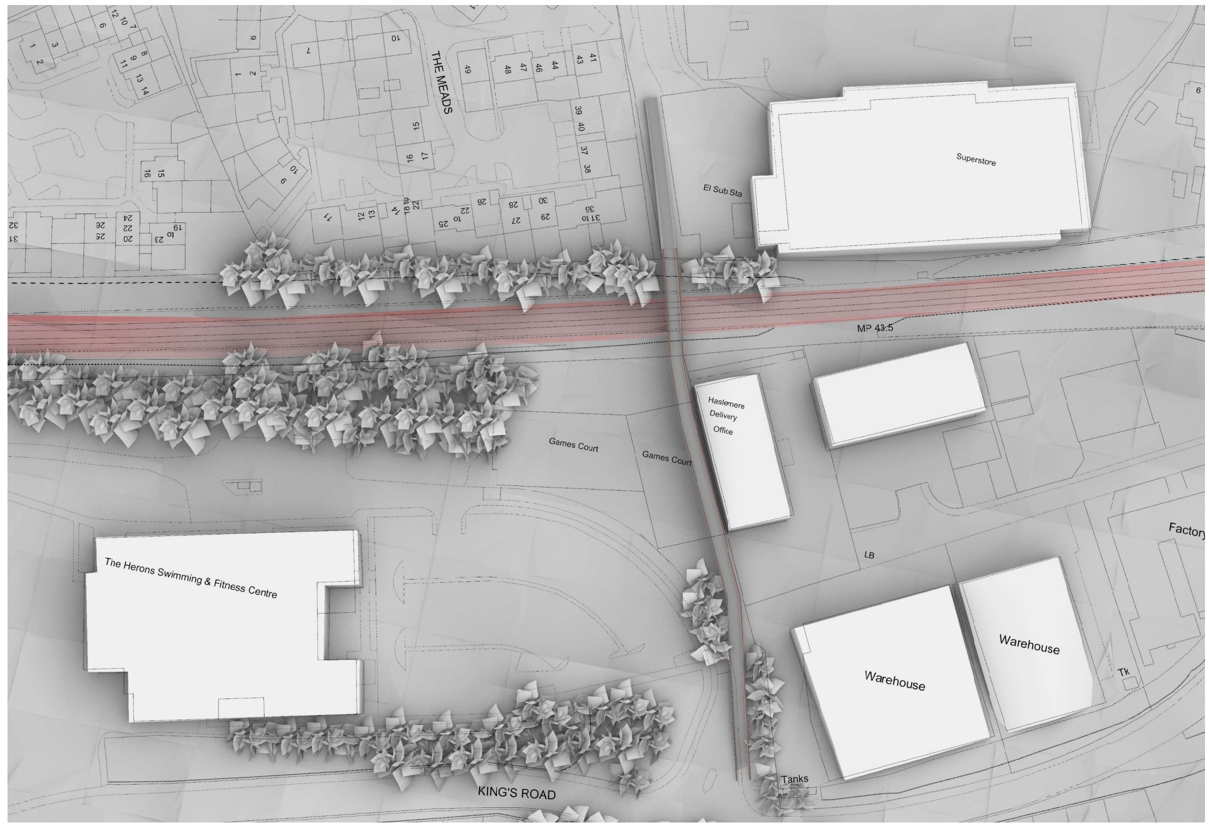
The bridge itself comprises a single span of approximately 25–30m across the railway, with a level deck height of circa 136.2m AOD. This arrangement satisfies Network Rail clearance requirements while enabling a prefabricated structure to be installed efficiently during a planned possession.

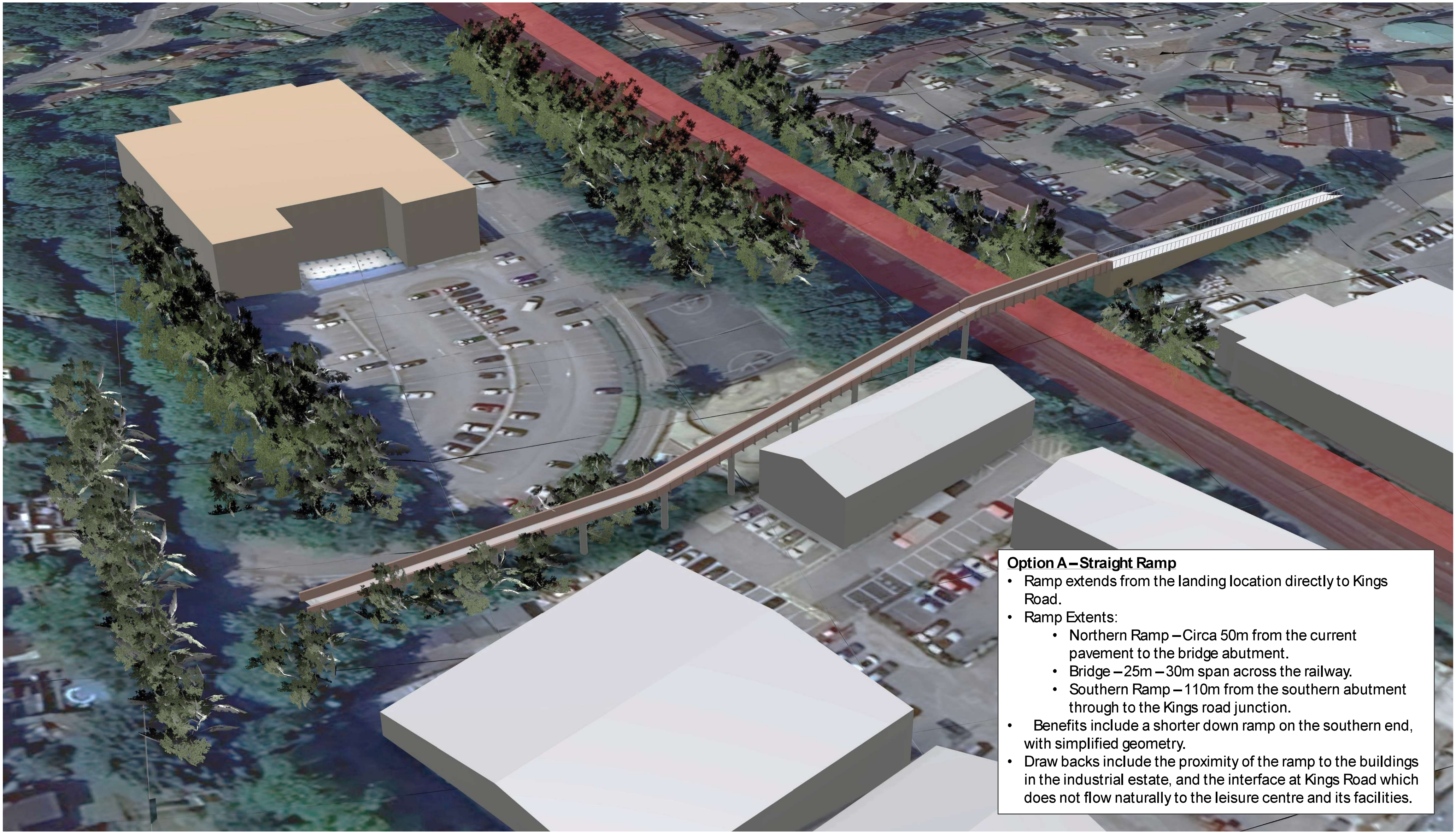
On the southern side, a straight ramp of approximately 110m provides a direct descent from the bridge landing to Kings Road. Steps down to the Herons as the skate park level can be included. This linear configuration simplifies structural design and construction, with a combination of suspended and ground-bearing sections used to respond to site levels and constraints. The alignment avoids significant impact on existing parking areas and retains the general functionality of the skate park and adjacent recreational spaces, which could also be utilised as a construction compound during delivery.

The primary advantage of Option A lies in its clarity and efficiency. The direct route offers a legible and intuitive connection for users, reduces structural complexity, and is likely to result in a more cost-effective solution compared to alternatives. Construction risks are also comparatively lower due to the simplicity of the geometry and reduced need for specialised structural elements.

However, the linear ramp results in a larger overall footprint, extending across the southern part of the site and bringing the structure into close proximity with adjacent industrial units and residential properties. This introduces potential issues relating to overlooking, visual impact, and user experience, particularly along the southern approach. In addition, the connection point at Kings Road is less well aligned with desire lines towards the leisure centre and its facilities, which may reduce the efficiency of movement for some users.

Overall, Option A provides a robust and deliverable solution that prioritises simplicity and cost efficiency, but with some compromises in spatial integration, such as its affect on the skate park and the overlooking issue with the adjacent sorting office, and placemaking potential when compared to more compact alternatives.





Option A – Straight Ramp
- Ramp extends from the landing location directly to Kings Road.
- Ramp Extents:
  - Northern Ramp – Circa 50m from the current pavement to the bridge abutment.
  - Bridge – 25m – 30m span across the railway.
  - Southern Ramp – 110m from the southern abutment through to the Kings road junction.
- Benefits include a shorter down ramp on the southern end, with simplified geometry.
- Draw backs include the proximity of the ramp to the buildings in the industrial estate, and the interface at Kings Road which does not flow naturally to the leisure centre and its facilities.

A-A: North Ramp
Consisting of largely ground bearing structure which ramps up to the bridge abutment.

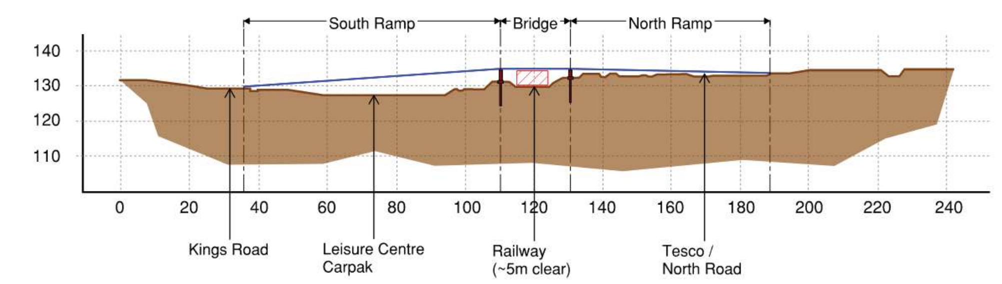
B-B: North Abutment
Piled bridge abutment to the north side of the tracks, with a retaining wall incorporated into the abutment to retain the fill needed to ramp up the northern side of the ramp.

C-C: Bridge Structure
The Bridge will extend over the top of the railway zone. Span is assumed at circa 25-30m at this stage to allow clearance of all railway land and for the abutments to be located away from the railway fence lines.

D-D: South Abutment
Suspended abutment in the south – piled foundation on the southern side with an RC column system to pick up the bridge as it lands.

E-E: South Ramp
Suspended ramp structure to the south with piers at regular spacing and a suspended walk/cycleway track.

F-F: Kings Road Ramp
As the ramp approaches Kings Road, it will transition from a suspended ramp to a ground bearing ramp, in a similar construction to the north ramp.



8.2 Option C

Option C develops the preferred bridge alignment by introducing a more compact and spatially efficient solution on the southern side through the use of a helical (spiral) ramp arrangement. This approach reduces the linear footprint of the access route while creating opportunities for placemaking and integration with the wider Herons site. As with Option A, access from the northern side is achieved by extending and upgrading the existing path from Wey Hill towards the Tesco access road. A ramp of approximately 50m in length rises from existing ground levels to the bridge deck, minimising structural intervention through the use of ground modelling where possible.

The bridge itself spans approximately 25–30m across the railway at a level deck height of circa 136.2m AOD, maintaining compliance with Network Rail clearance requirements and enabling a single-span solution.

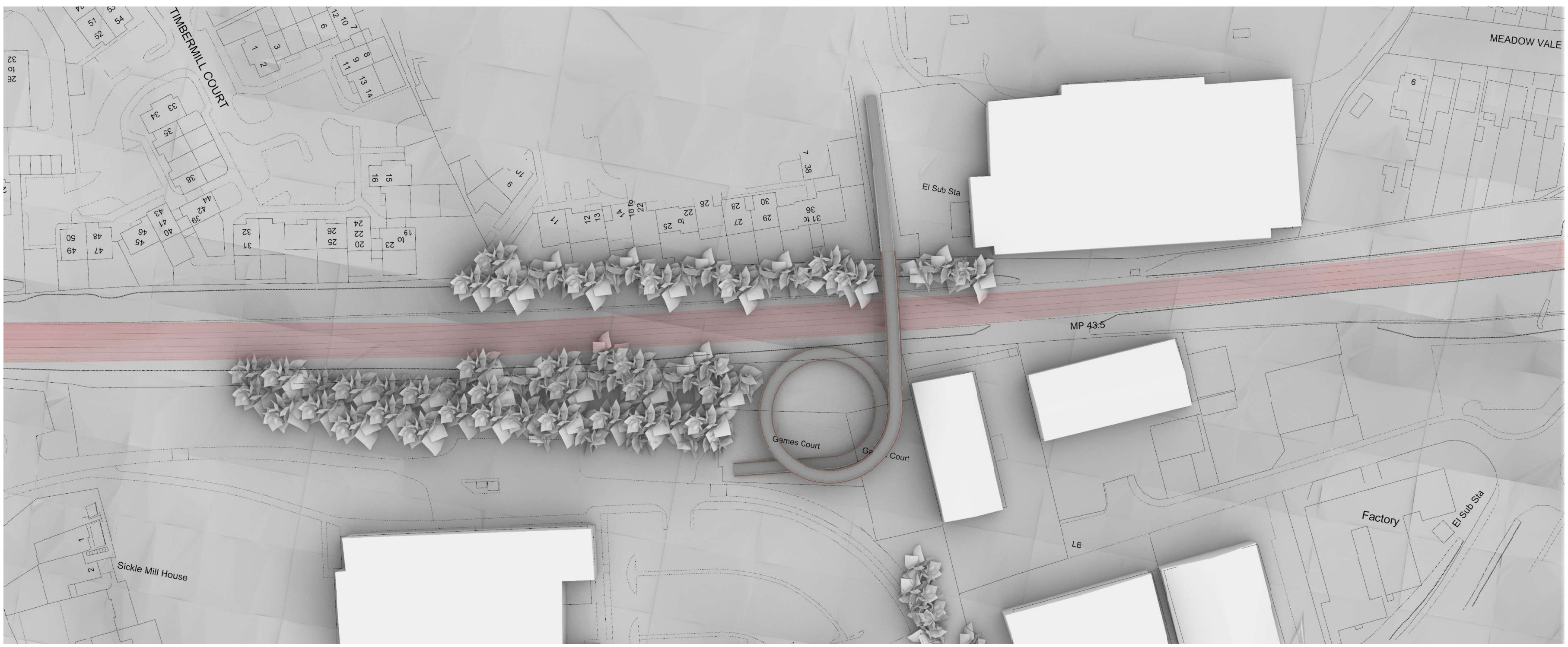
On the southern side, a helical ramp of approximately 14–22m diameter is introduced to accommodate the required level change within a significantly reduced footprint compared to a straight or zig-zag ramp. The ramp provides a continuous, step-free route suitable for pedestrians, cyclists, and mobility users, with a separate stair incorporated to provide a more direct route for able-bodied users.

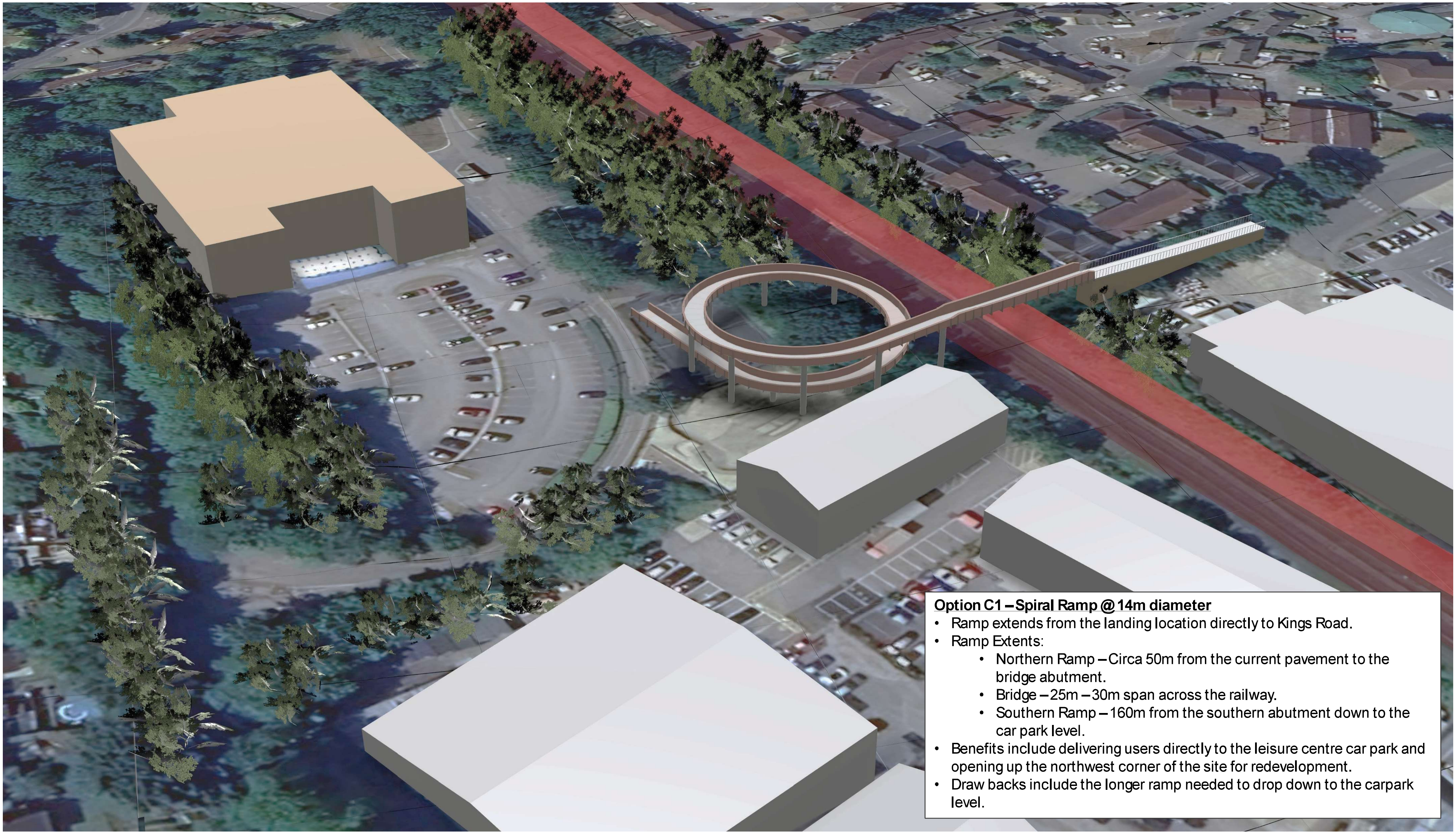
This configuration requires reorganisation of the existing leisure centre surroundings, including the relocation or redesign of the basketball court and skate park. However, this intervention also creates an opportunity to replan the site as a more cohesive and active public space. The compact footprint of the spiral ramp allows the surrounding land to be used more efficiently, opening up potential for complementary uses such as a café, cycle hub, or small community facility such as a youth hub.

The design has the potential to create a strong architectural and civic presence, with the ramp acting as both infrastructure and a defining feature within the landscape. Increased footfall generated by the bridge could support activation of the site, improving passive surveillance and overall user experience.

However, Option C introduces additional structural complexity and may result in higher construction costs compared to a linear ramp solution. The geometry of the ramp may also require cyclists to reduce speed, and careful design will be required to ensure comfort, safety, and compliance with accessibility standards.

Overall, Option C offers a more compact and place-led solution that balances accessibility with wider urban design opportunities, making it particularly suited to scenarios where integration with the leisure centre site and long-term value creation are key project drivers.

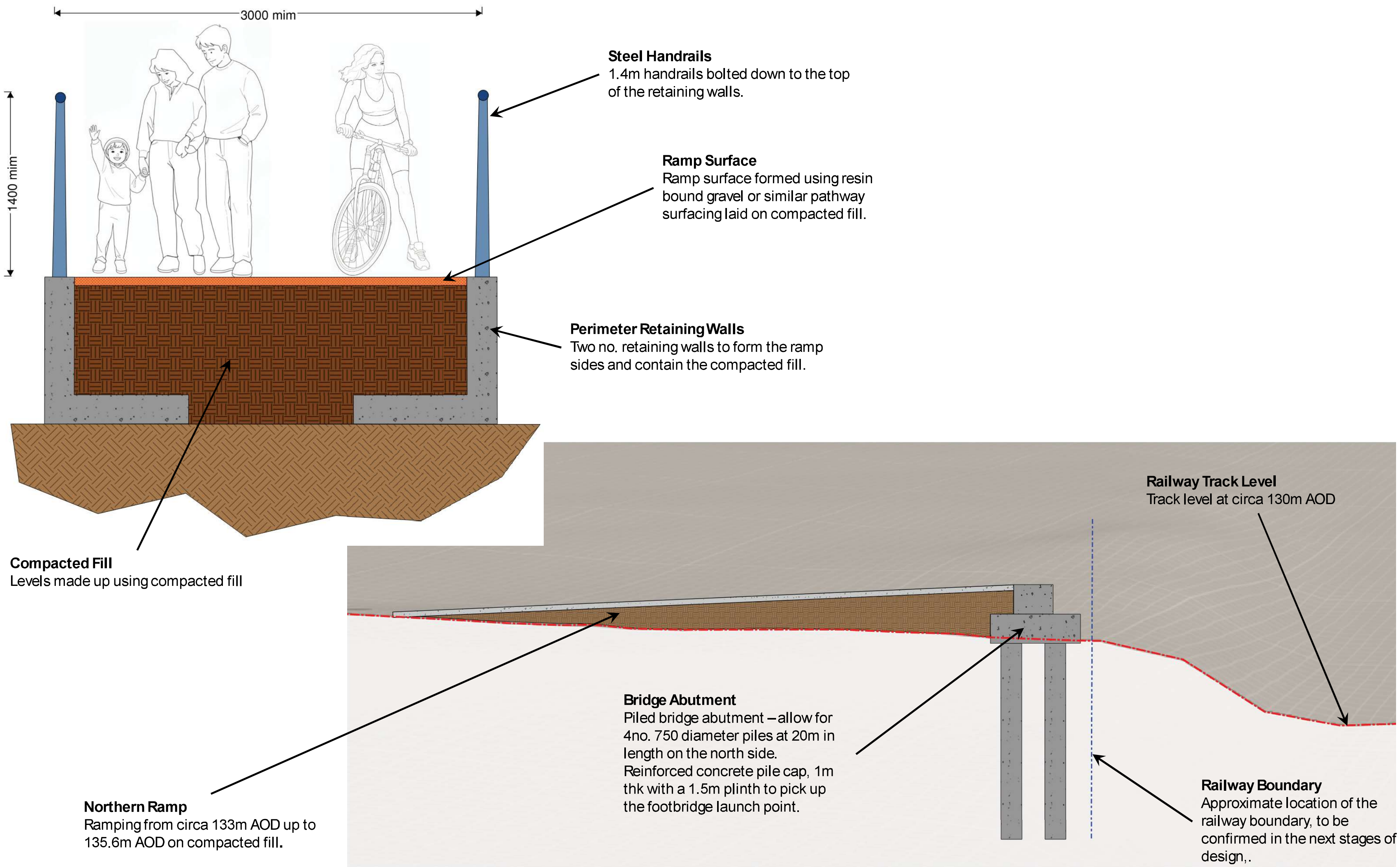




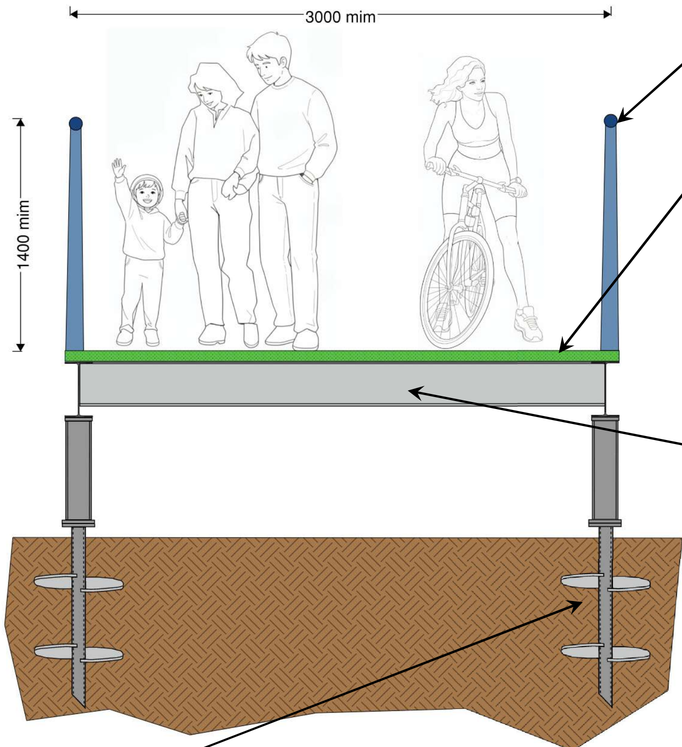
Option C1 – Spiral Ramp @ 14m diameter

- Ramp extends from the landing location directly to Kings Road.
- Ramp Extents:
    - Northern Ramp – Circa 50m from the current pavement to the bridge abutment.
    - Bridge – 25m – 30m span across the railway.
    - Southern Ramp – 160m from the southern abutment down to the car park level.
- Benefits include delivering users directly to the leisure centre car park and opening up the northwest corner of the site for redevelopment.
- Draw backs include the longer ramp needed to drop down to the carpark level.

8.3 North Ramp & bridge Abutment Structure Option 1



8.4 North Ramp & bridge Abutment Structure Option 2

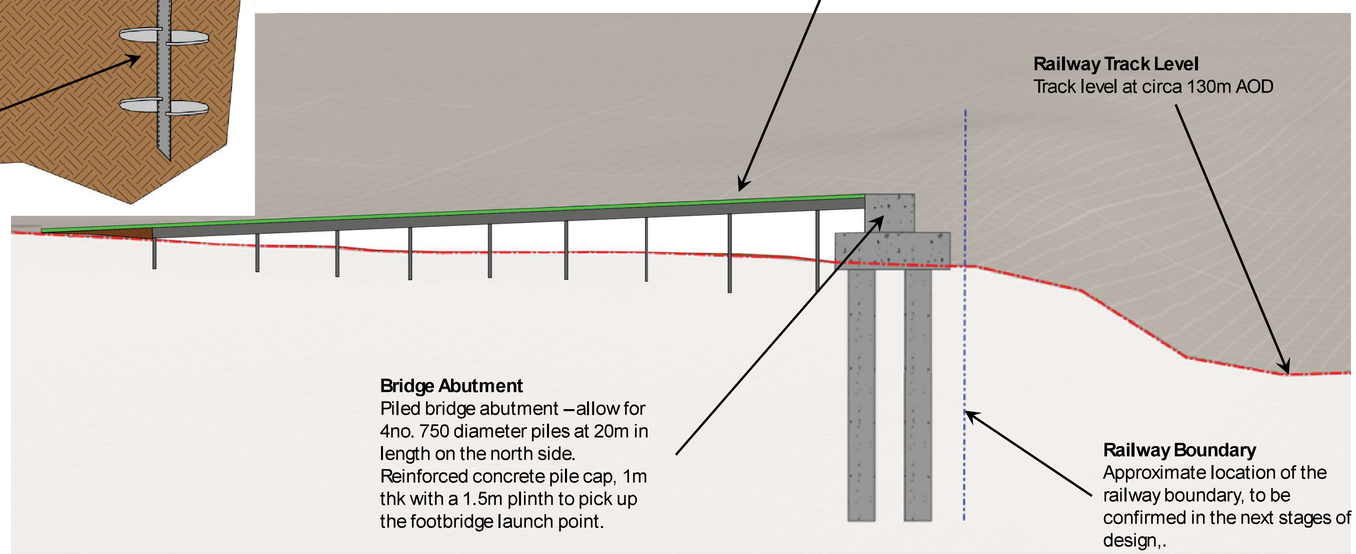


Steel Handrails
1.4m handrails bolted down to the top steel grillage

GRP Non-Slip Deck
Allow for a GRP non-slip deck to the walkway.

Steel Grillage
Steel grillage supported on screw piles. Allow 20kg/m^2 for steelwork – includes primaries, secondaries and bracing. Allow for all steel to be galvanised

Screw Pile Foundations
Screw piled foundation at circa 5m c/c to support the steel grillage.



Northern Ramp
Ramping from circa 133m AOD up to 135.6m AOD on compacted fill.

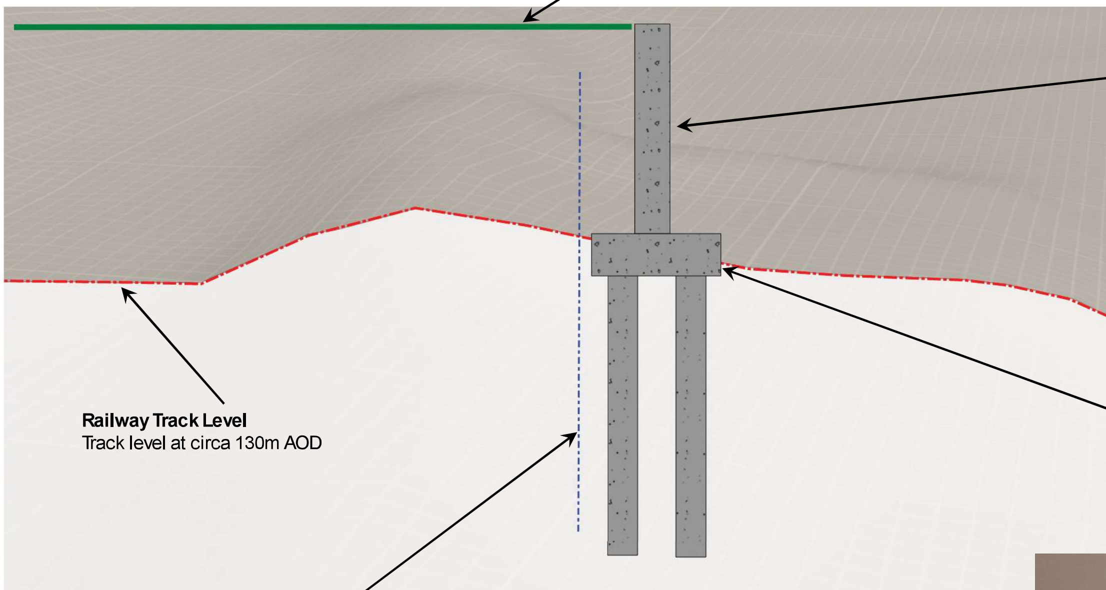
Railway Track Level
Track level at circa 130m AOD

Bridge Abutment
Piled bridge abutment – allow for 4no. 750 diameter piles at 20m in length on the north side. Reinforced concrete pile cap, 1m thk with a 1.5m plinth to pick up the footbridge launch point.

Railway Boundary
Approximate location of the railway boundary, to be confirmed in the next stages of design,.

8.5 South Abutment Structure

Bridge Abutment
The bridge deck is at circa 135.6m AOD as it lands to the bridge abutment.



Abutment Pier
Reinforced concrete pier.
Circa 4.6m in height to the underside of the bridge deck.

Bridge Abutment
Piled bridge abutment – allow for 4no. 750 diameter piles at 20m in length on the north side.
Reinforced concrete pile cap, 1m thk.

Railway Track Level
Track level at circa 130m AOD

Railway Boundary
Approximate location of the railway boundary, to be confirmed in the next stages of design.

Bridge Pier Options
There are a number of options for the abutment pier, depending on architectural intent and budget. Options range from RC columns to V-Shaped piers.