AtkinsRéalis

Structure Options Report

Galway County Council

May 2025
Structure Options Report

0088798DG0031

N59 OUGHTERARD FOOTBRIDGE

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Structure Options Report – Consultation

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Contents

1. Introduction

AtkinsRéalis were appointed by Galway County Council (GCC) as Consulting Engineers for the N59 Oughterard Footbridge project (Eirspan Task Order 341) for the design, planning documentation, construction tender documentation, procurement, contract administration, site supervision, and Project Supervisor Design Process.

The proposed N59 Oughterard Footbridge spans the Owenriff River approx. 150m downstream (east) of the existing N59 Oughterard Bridge, Co. Galway. The rationale for the intervention is to address the safety issue associated with vulnerable road users (VRU) (i.e., pedestrians and cyclists) crossing the existing road bridge, which is skewed, narrow and has no footpaths. The proposed footbridge would improve VRU connectivity to the Town Centre, residential areas to the south and the Schools in Carrowmanagh. The Owenriff River and its margins are a Special Area of Conservation (Lough Corrib, SAC – Site Code 000297).

This Structure Options Report (SOR) outlines the proposed footbridge structural design options, evaluates each option in accordance with TII Publication DN-STR-03001-04, and presents conclusions and recommendations.

The preferred location for the proposed footbridge approx. 150m downstream of the existing road bridge is based on AtkinsRéalis Technical Note, ‘Location Option Appraisal Matrix’, Doc. ref. number: 0088798DG0014 (see Appendix F).

2. Site and Location

The proposed footbridge site is located approx. 150m east of the existing N59 Oughterard Road Bridge (GC-N59-040.00). The ITM coordinates for the proposed footbridge site location are as follows:

X: 511801	Y: 742754

The proposed footbridge site is constrained by the Owenriff River, riverside walkway and private residential properties on both banks. The north abutment is located partially on the riverside walkway (linking Carrowmanagh Rd. and the town centre) and private residential property. The south abutment is located on wooded private residential property. The proposed footbridge approaches tie into proposed pedestrian crossings on Carrowmanagh Rd on the north side, and the N59 on the south side (adjacent to the Claddagh Credit Union).

The proposed footbridge location map is presented in Figure 2-1. The site location drawing is presented in Appendix A.

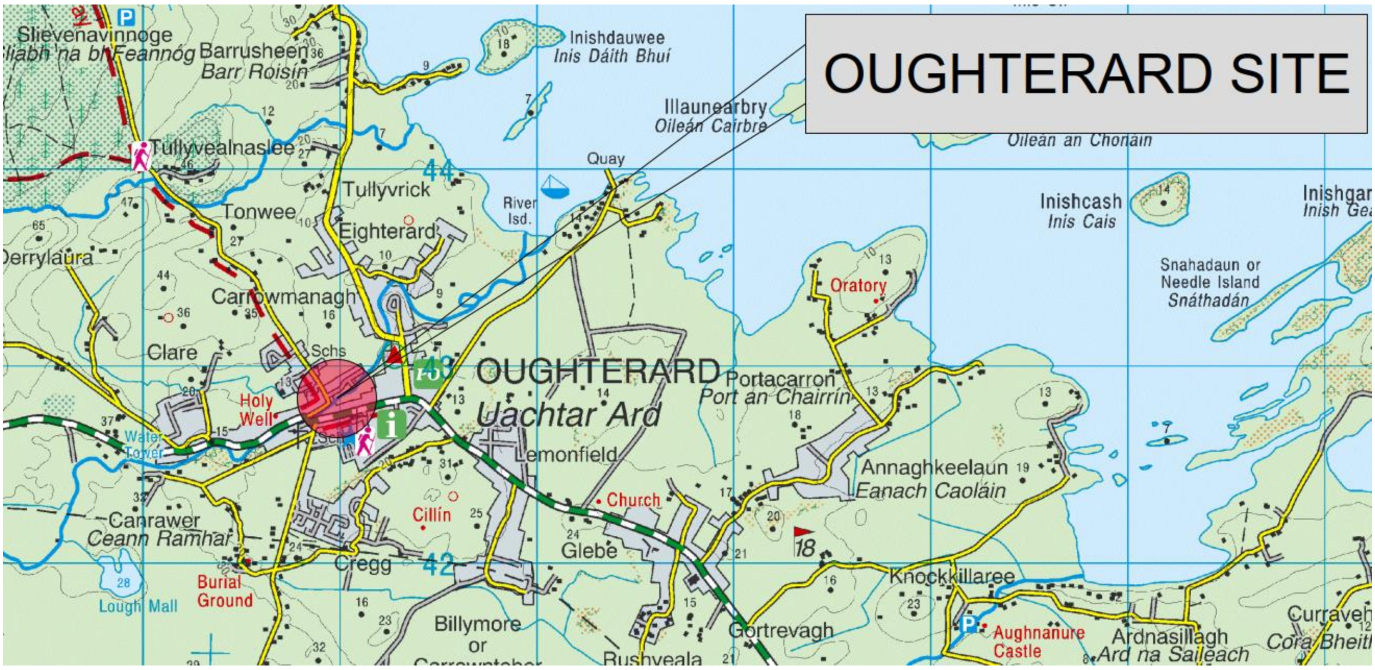


Figure 2-1 – Structure Location Map

An Existing General Arrangement (GA) Layout Plan drawing, showing existing topography, tree layout, and utilities at the proposed site, is presented in Appendix B. The utility information is based on consultations with the providers, visual inspection of surface / manholes and ground penetration radar scans.

The following existing utilities are present at the site:

- North riverbank path adjacent to the proposed abutment and ramp:
  - 225mm diameter buried concrete combined sewer pipe (1.56m depth below ground level (bgl))
  - 100 mm diameter buried watermain (1.00m depth bgl)
  - No overhead cables.
- Carrowmanagh Road adjacent to the proposed pedestrian crossing:
  - 225mm diameter buried concrete combined sewer pipe (1.56m depth bgl)
  - 100 mm diameter buried watermain (1.00m depth bgl)
  - Empty buried Aurora & Eir ducts / manholes
  - Overhead electric cables
- South riverbank and private land adjacent to the proposed abutment and approach path:
  - Buried pipe – combined sewer (4.00m depth, UTT QL B4)
- N59 Clifden Road at the proposed pedestrian crossing:
  - Buried water main (1.1m deep bgl)
  - Buried Eir telecoms (0.3 to 0.5m deep bgl)
  - Road gully and buried 225mm dia. PVC pipe (0.5 to 0.9m depth bgl)
  - Overhead electric cables

2.1 Architectural Conservation Area

The proposed footbridge is in an Architectural Conservation Area (ACA). There are several nearby buildings of architectural significance including those shown Figure 2-2, Figure 2-3, and Figure 2-4. The ACA contains a limited palette of materials: rendered buildings, masonry walls and banks, and historic ironwork. The river and the trees along the river margins are a key feature of the natural landscape in the ACA.

Figure 2-2 – Existing N59 Oughterard Road Bridge (Downstream View)

Figure 2-3 – The Courthouse

Figure 2-4 – Church of Immaculate Conception

Detailed description on the surrounding architectural heritage constraints is provided in the ‘Outline Architectural Heritage Appraisal Report’ by John McLaughlin Architects. A detailed description of the surrounding cultural heritage constraints is provided in the ‘Cultural Heritage Constraints Study Report’ by AMS Cultural Heritage Consultancy.

2.2 Place and Setting

An aerial image of the site is shown in Figure 2-5.

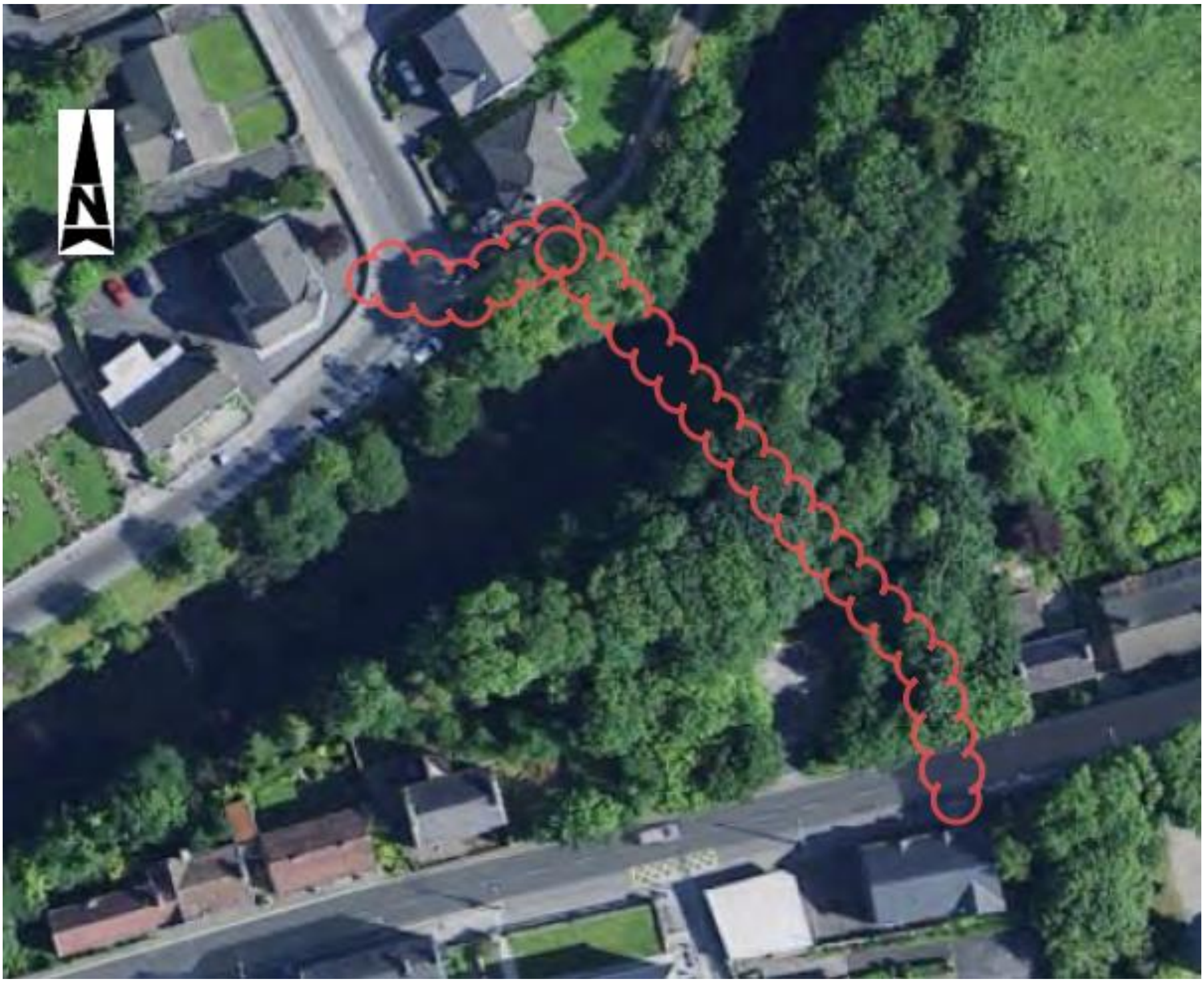


Figure 2-5 - Aerial image of the site (extents of proposed footbridge and approaches outlined in red

2.2.1 Southern End

The southern end of the proposed footbridge is located on private residential property adjacent to the existing N59 Clifden Road opposite the Claddagh Credit Union building. This area of land comprises grassland, low level bushes, and a fringe (up to 25m wide) of mature woodland along the river. To facilitate the proposed footbridge construction and link to N59 Roadway pedestrian crossing, GCC should acquire the associated land. Some trees would also be removed to accommodate the proposed footbridge link and construction. The approach path and abutment are located at least 5m away from the existing private driveway of the Old Barracks residential property. Figure 2-6 shows a view of the proposed south abutment area.

Figure 2-6 – Proposed south abutment and approach path area looking north from near the N59 Clifden Rd

2.2.2 Northern End

The northern end of the proposed structure is located on the riverside walkway. It is located near to Carrowmanagh Rd and adjacent to a residential property. The proposed north landing area is shown in Figure 2-7 and Figure 2-8. There is a fringe of mature woodland and bushes (up to 5m wide) along the bank of the river. Some tree and vegetation removal would be required.

Figure 2-7 – Proposed north footbridge landing location looking west towards Carrowmanagh Rd from the riverside path

Figure 2-8 – Proposed north landing location looking east from the bend on Carrowmanagh Road

3. Description of Structure and Options Considered

3.1 Design Constraints

The footbridge main design requirements are identified as follows:

- The construction, operation, and maintenance of all structure options would avoid / minimise potential ecology impacts in the Special Area of Conservation – protected species include Freshwater Pearl Mussel (FPM), Salmon, Brook Lamprey, and Lesser Horseshoe Bat.
- Provide a clear span over the river with abutments setback from the riverbank crest to enable mitigation of potential ecology impacts.
- To minimise working over water and potential ecology impacts, consider structure types which can be prefabricated, assembled nearby, then lifted into position.
- The design should enable a construction process which minimises disruption to normal traffic flow on the adjacent roads. Due to the span length, the footbridge must be fabricated off site, transported in sections to site, then assembled.
- Provide a slender, unobtrusive structure sympathetic with the architectural heritage and landscape.
- Provide 3m clear width for moderate to high pedestrian flow and to minimise shade on the riverbed (Refer to Technical Note 'Bridge Width' document ref. number: 0088798DG0033).
- The maximum allowable bridge and ramp gradient to be in accordance with DMURS and DN-STR-03005.
- Minimise the visual amenity and privacy impact on the residential property adjacent to the walkway.
- Provide at least 0.3m clearance under the bridge deck soffit over the river design flow and allow 0.5m minimum clearance over both riverbanks for footbridge inspection and maintenance access underneath.
- Consider material types and finishes which are aesthetically pleasing and minimise maintenance requirements given the ecological constraints and restricted clearance underneath the soffit.
- Retain public access to the riverside walkway on the north side of the river.

The Proposed General Arrangement Layout Plan is shown in Appendix C.

3.2 Northern Abutment and Footbridge Landing General Arrangement

Various general arrangement options for the north landing were considered.

Option (i)

The abutment is located on the riverbank/walkway and offset a minimum of 2.5m from the adjacent boundary wall on the northern side of the walkway. The proposed layout maintains access to the riverside walkway and the abutment setback from the riverbank crest is as shown in Figure 3-1.

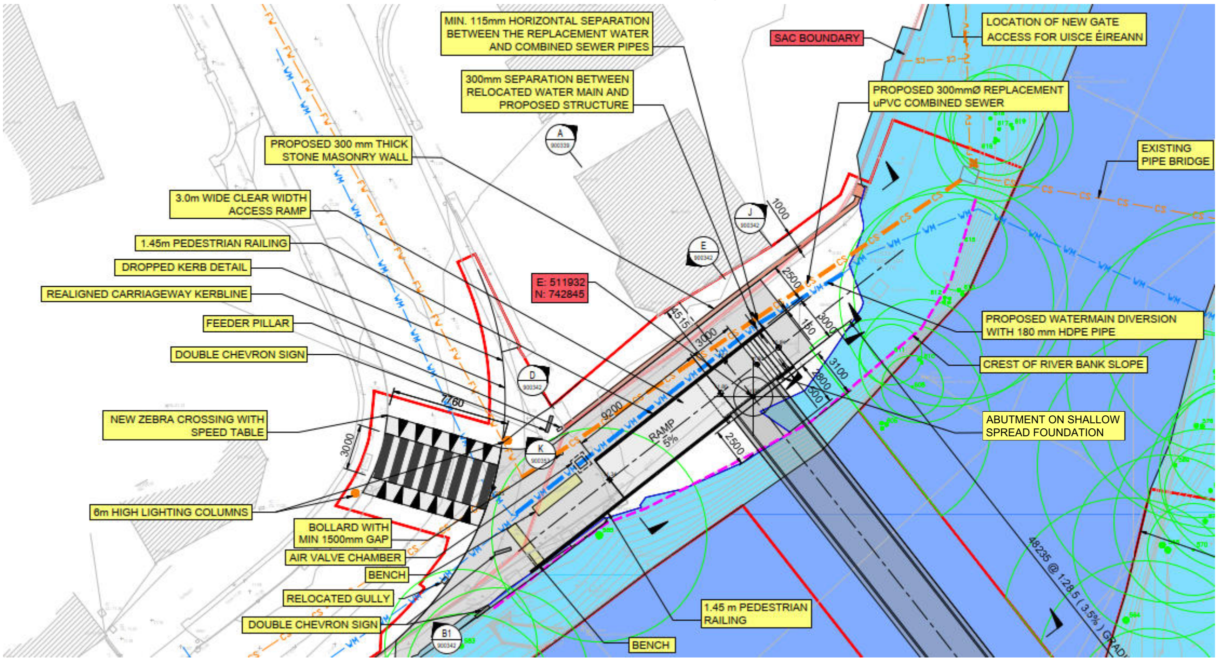


Figure 3-1 – Proposed Layout Plan – Option (i)

Option (ii)

The abutment is located on the riverside walkway adjacent to the northern boundary with a ramp on the east side linking to the existing riverside walkway as shown in Figure 3-2.

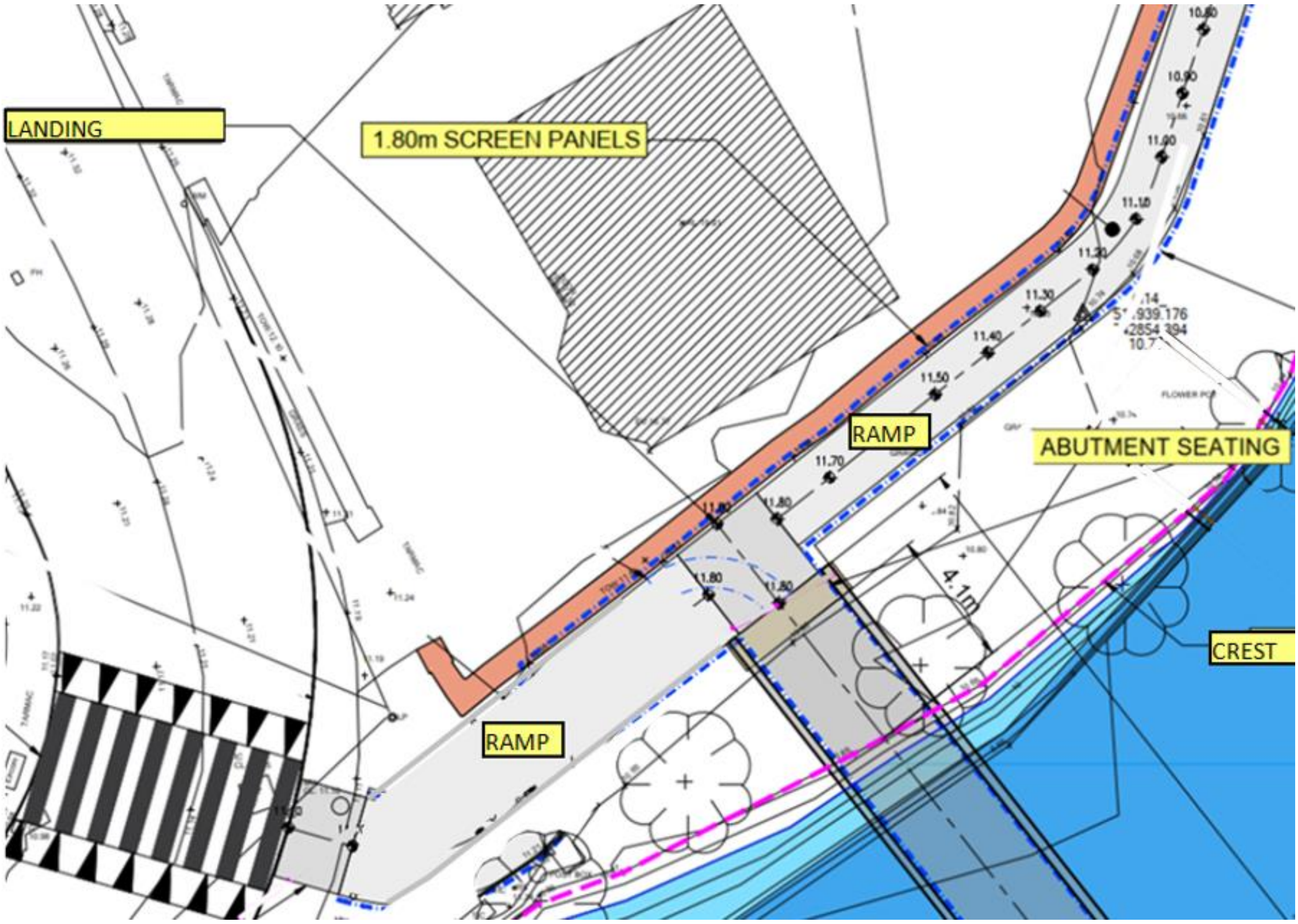


Figure 3-2 – Layout plan of Option (ii)

Option (iii)

This option is similar to Option (ii) but with steps on the east side linking to the existing riverside walkway, as shown in Figure 3-3.

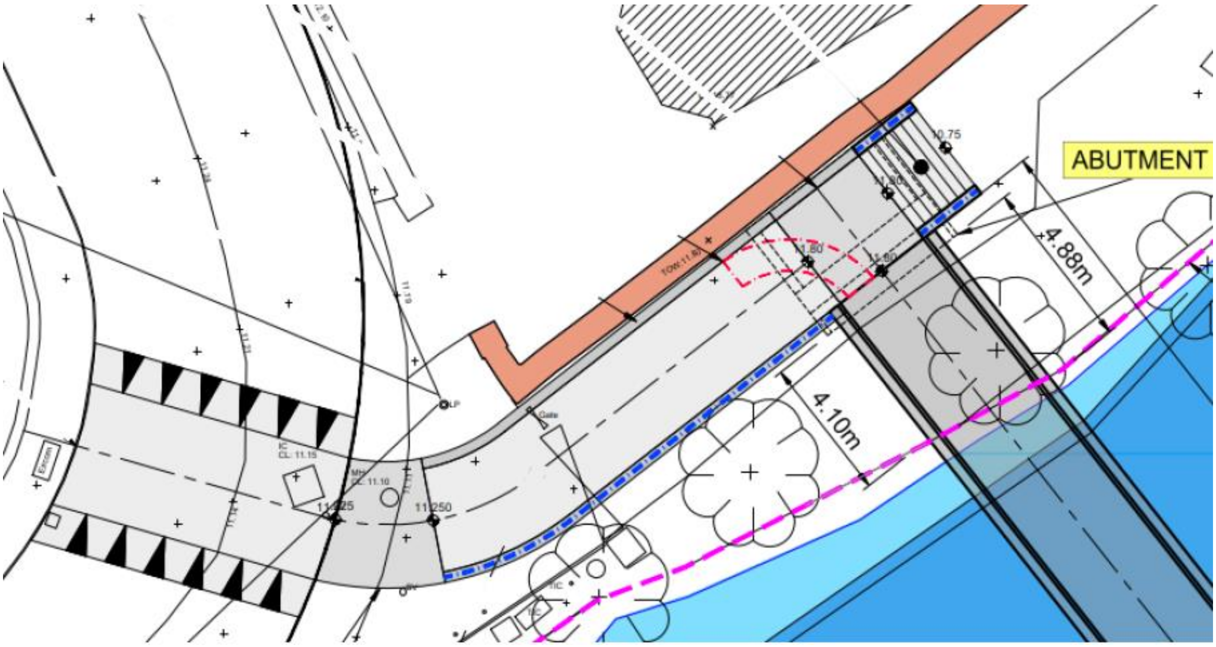


Figure 3-3 – Layout plan of Option (iii)

Option (iv)

The proposed footbridge abutment is located on the riverbank adjacent to the pedestrian crossing on Carrowmanagh Road with deck levels flush with the pedestrian crossing, as shown in Figure 3-4.

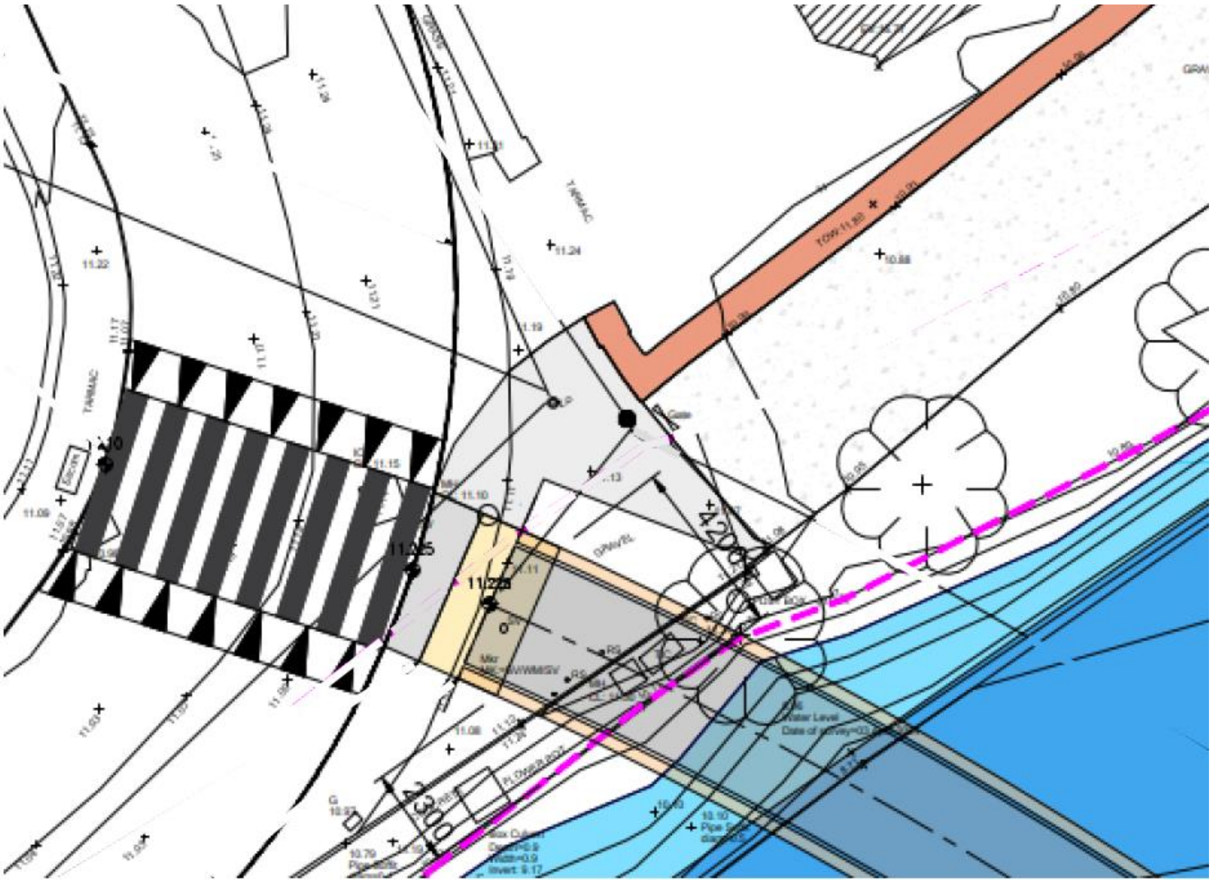


Figure 3-4 – Layout plan of Option (iv)

Notes on Figure 3-1 to Figure 3-4:

- The magenta dashed line along the riverbank indicates the riverbank crest.
- The dashed arc lines on the landing represent the turning circle of a large tandem bike or bike with trailer.
- The straight dash-dot-dash line indicates the line of the corner of the adjacent house.

Evaluation of the North Landing Layout Options

Table 3-1 shows an evaluation of the various north landing options.

Table 3-1 –Evaluation and ranking (5 is best, 1 is worst) of the north landing options

	Option (i)	Option (ii)	Option (iii)	Option (iv)
Safety	Rank = 5 Provides a change of direction and a landing area before the zebra crossing over the road; footbridge located outside the Clear Zone of the road.	Rank = 5 See Option (i).	Rank = 5 See Option (i).	Rank = 1 No change of direction provided for people coming down the ramp before the pedestrian crossing over the road; the end of bridge would be located within the Clear Zone of the road.
Privacy impact on the adjacent residential property	Rank = 3 14m long ramp is offset 2m from the boundary wall of the residential property, and 4m from the gable end of the house.	Rank = 1 A 38m long elevated ramp is adjacent to the boundary wall and 2m from the gable end of the house.	Rank = 2 A 14m long elevated ramp is adjacent to the boundary wall and 2m from the gable end of the house.	Rank = 5 The end of the footbridge is 13m away from the adjacent house.
Visual amenity impact	Rank = 3 The structure is located on a riverside amenity area; the ramp length is 14m.	Rank = 5 The structure is located on a riverside amenity area and the ramp length is 38m.	Rank = 3 The structure is located on a riverside amenity area and the ramp length is 38m.	Rank = 5 The end of the footbridge is on the roadside rather than the riverside amenity area.
Setback of construction works from the riverbank crest	Rank = 4 The abutment face and ramp is setback 2.5m and 0.5m from the riverbank crest, respectively.	Rank = 5 The abutment face is setback from 4.1m and 1.5m from the riverbank crest, respectively.	Rank = 5 See option (iii).	Rank = 1 Approx 1.5m excavation of the footway and riverbank would be needed with no setback.
Directness of access routes	Rank = 4 Slightly less direct than Option v.	Rank = 4 Slightly less direct than Option v.	Rank = 1 Access towards Carrowmanagh is good but steps down to the riverside path would obstruct wheelchair users.	Rank = 5 Most direct

	Option (i)	Option (ii)	Option (iii)	Option (iv)
Maintenance access	Rank = 4 2.5m offset from the boundary wall provides maintenance access; abutment gallery is possible to improve access to the footbridge bearings.	Rank = 1 The structure is adjacent to the boundary wall which obstructs maintenance access; abutment gallery is possible to improve access to the footbridge bearings.	Rank = 1 The structure is adjacent to the boundary wall which obstructs maintenance access; abutment gallery is possible to improve access to the footbridge bearings.	Rank = 4 Access to bearings could be provided via an abutment gallery; no adjacent obstacles to obstruct access.
Existing utility impacts	Rank = 5 The buried water main pipe along the riverside walk would need to be diverted.	Rank = 3 The buried water main pipe and and combined drainage pipe along the riverside walk would need to be diverted.	Rank = 3 The buried water main pipe and and combined drainage pipe along the riverside walk would need to be diverted.	Rank = 1 The existing buried water main pipe and road drainage pipes and culvert on Carrowmanagh Rd would need to be diverted.
Total rank (high is best)	28 (best)	24 (second best)	20 (worst)	22 (third best)

North landing general arrangement Option (i) is preferred for the following reasons:

- Retention of the existing riverside path along the wall avoids the need for a 24m long ramp on the east side which has several benefits: reduced visual amenity impact on the riverside area; reduces construction costs; reduces privacy impacts on the adjacent residential property; and reduces potential ecology impacts associated with extra ramp construction.
- The 2.5m offset between the boundary wall and the proposed structure enables the existing buried combined sewer pipe to be retained without diversion works.
- It provides a change of direction between the end of the footbridge / ramp and the pedestrian crossing over the road, which enhances safety.
- The 2.5m offset from the boundary wall allows for maintenance access to the structure and the boundary wall.
- The abutment face is setback approx. 2.5m to 3.0m from the riverbank crest which in combination with appropriate foundation construction methods, allows for potential ecology impacts to be mitigated.
- The end of the structure is outside the Clear Zone of the adjacent road, which avoids vehicle safety impacts.
- It provides a reasonably direct access route for people accessing the footbridge and the riverside path.

3.3 Southern Abutment and Footbridge Landing General Arrangement

The proposed abutment and approach walkway is on a plateau of land on private residential property. It avoids steep embankment slopes leading down to the river and the adjacent property on the eastern side. The approach path is setback at least 5m from the adjacent parking bays associated with the Old Barracks house and joins a proposed pedestrian crossing with speed table on the N59 roadway opposite the Claddagh Credit Union.

The preferred general arrangement for the south side is shown in Figure 3-5. It is preferred for the following reasons:

- The abutment and approach path is on a relatively level plateau which avoids the need for cut/fill works to form the approach walkway.
- Provides a footbridge crossing which is roughly perpendicular to the river, reducing the footbridge span length.
- The abutment northern face is setback 6.3m from the riverbank crest, which allows ample room for mitigation of potential ecology impacts.
- The approach walkway is offset by 5m from the private parking bays associated with Old Barrack House which reduces privacy and visual amenity impacts on the adjacent.
- The abutment and approach walkway are located to the east side of the residential plot of land which reduces land take requirements and severance of the land.
- The proposed pedestrian crossing over the N59 Clifden Rd is on a straight stretch of road with good visibility in both directions which achieves visibility requirements for road safety. It connects to a relative wide section of footpath (2.5m) outside the Claddagh Credit Union, which is a suitable point for pedestrians to dwell before crossing the road.

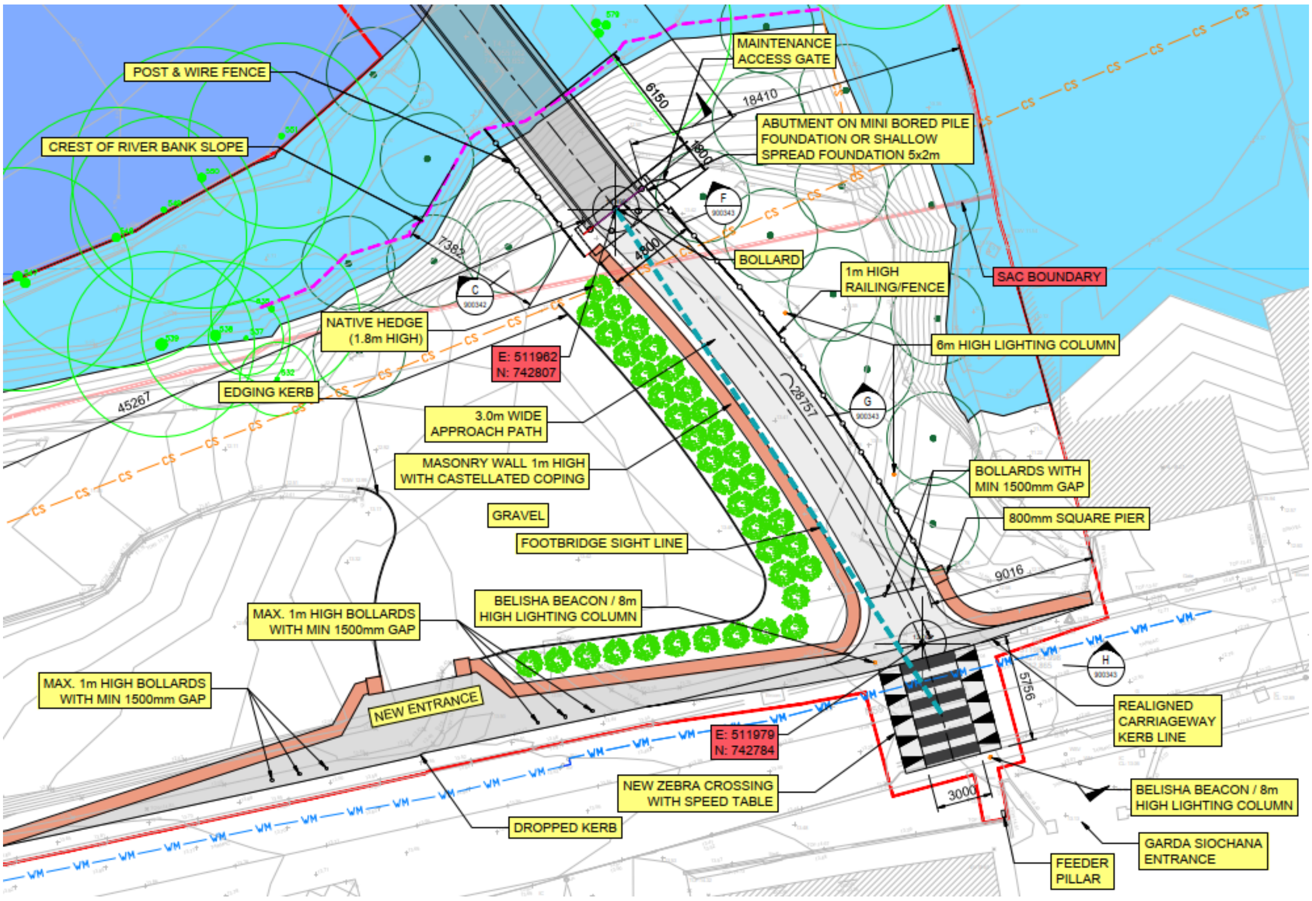


Figure 3-5 - South landing general arrangement

3.4 Inspection and Maintenance Access

On the northern riverbank, to mitigate overlooking of the adjacent residential property and visual amenity impact, the clearance to the underside of the proposed footbridge is 0.5m. On the south riverbank, to reduce the need for significant excavation/earthworks and to reduce longitudinal gradient along the footbridge, the clearance to the underside of the proposed footbridge is also 0.5m.

This clearance is less than the desirable minimum clearance for footbridge inspection and maintenance (typically 1m), therefore footbridge materials and finishes would be selected and detailed to minimise future inspection and maintenance works, e.g., a removable decking type could be specified to ease maintenance access.

A longitudinal section through the proposed footbridge north abutment showing clearance to the underside of the footbridge deck is presented in Figure 3-6.

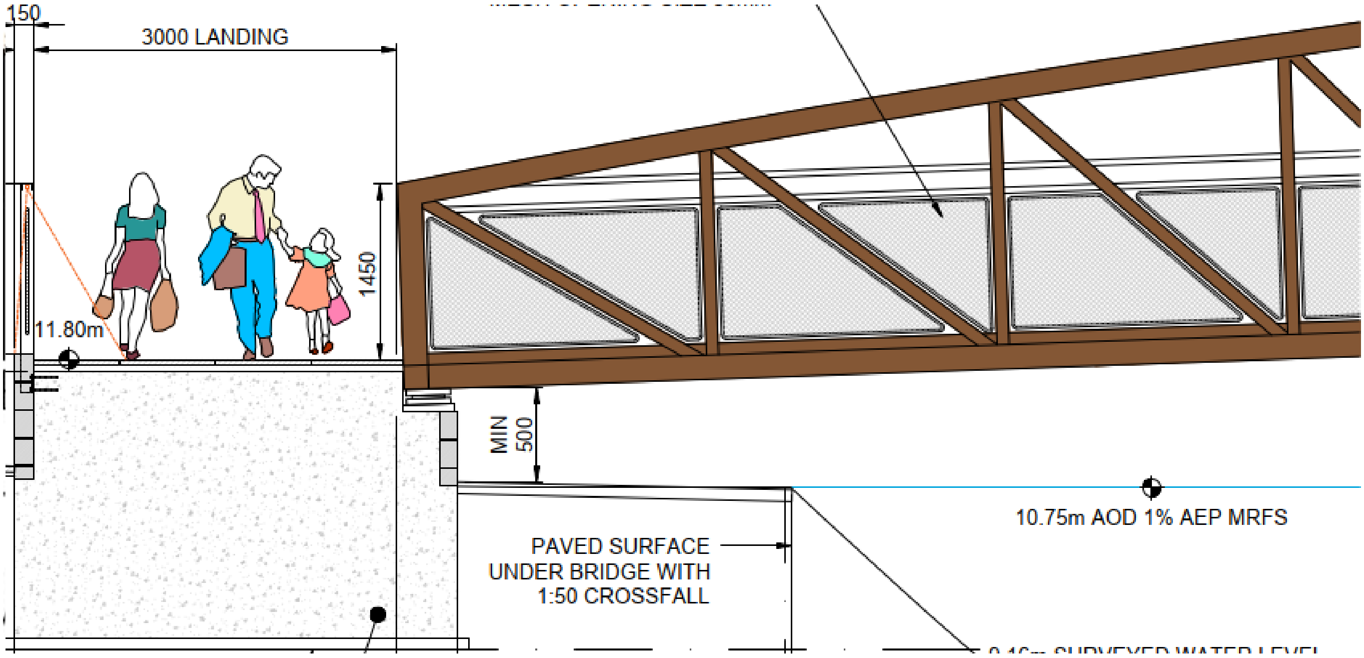


Figure 3-6 – North Abutment - Longitudinal Section

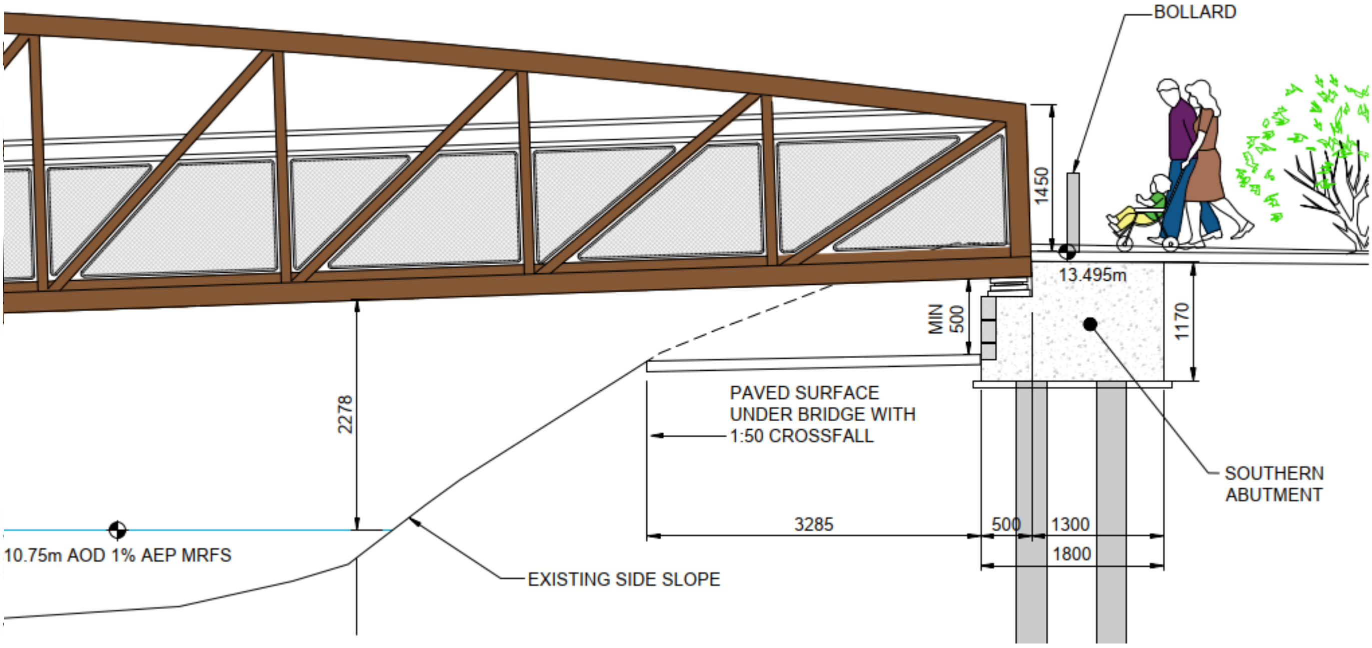


Figure 3-7 - South abutment - Longitudinal Section

3.5 Design Considerations

3.5.1 Footbridge Materials

Various material options considered for the proposed footbridge superstructure are as follows:

3.5.1.1 Steel with protective coating (Hot dip galvanised (HDG) and/or painted)

The advantages and disadvantages of this material are shown in Table 3-2.

Advantages	Disadvantages
Durability: Steel with a protective coating is highly durable and can withstand significant wear and tear over time. Fluoropolymer paint top coatings are now considered best practice as they increase the expected system lifespan up to 60 years ('Toward a 100-year Bridge Coating System: Bridge Topcoats in Japan', W Darden), which is longer than the expected life of conventional coating systems such as polyurethane topcoats. The above is based on observation of similar coatings in Japan, e.g., 97% gloss retention exhibited after 30 years (https://www.paint.org/coatingstech-magazine/articles/bridge-coatings-protecting-our-infrastructure/), and accelerated weathering tests. Hot dip galvanising (HDG) is another protective coating option, however there are a limited number of plants that offer this service in Ireland and the length/size of footbridge sections would be limited to fit the plant constraints.	**Inspection & Maintenance**: The paint coating would require minor and major maintenance at circa 20 and 60 year intervals respectively, during the service life. A shrouded scaffold enclosure would be required for maintenance to avoid potential ecology impacts on the river.
Economy: The high strength of steel means that less material is required to achieve the same load-bearing capacity as other materials, reducing material costs. The structure is lighter which enables smaller foundations.	
Buildability: Main elements can be prefabricated off-site, allowing for faster assembly and reduced construction time on-site.	
Aesthetics: Painted steel can be provided in a range of colours.	
Environment: The whole-life carbon footprint of painted steel structures is substantial. It is heavily influenced by the energy intensity of production, the frequency of maintenance, and the efficiency of recycling. Efforts to	

Advantages	Disadvantages
reduce embodied carbon, extend maintenance intervals (e.g. with the use of fluoropolymer paint), and optimize recycling can significantly mitigate their environmental impact.	

Table 3-2 **– Advantages & disadvantages of steel with a protective coating**

3.5.1.2 Weathering Steel

The clearance of the footbridge deck soffit over the river would be less than 2.5m in flood conditions, which is less than the 2.5m minimum headroom requirement over water stated in DN-STR-03002 for use of weathering steel.

The climate in Oughterard has relative humidity over 80% for 8 months of the year, which equates to Category T5 (the most severe wetness category) in ISO 9223. The site also has a damp micro-climate due to features such as low clearance/freeboard, shade cast by adjacent trees, and proximity of vegetation. The high ‘time of wetness’ in combination with a micro environment that increases humidity means that weathering steel is not recommended (Uncoated Weathring Steel Reference Guide, American Instititute of Steel Construction). This material is not considered further.

3.5.1.3 Timber

The advantages and disadvantages of this material are shown in Table 3-3.

Advantages	Disadvantages
Environment: Timber is a renewable material, and when sourced from sustainably managed forests, it has a significantly lower environmental impact compared to other construction materials like steel or concrete. Timber production and processing require less energy, resulting in a smaller carbon footprint.	**Maintenance:** When properly treated and maintained, timber has a lifespan of approx. 50 to 70 years which is less than the 120-year design life requirement. Major maintenance at circa 20 year intervals would be required within the 120 year design life. A shrouded scaffold enclosure would be required for maintenance of the paint to avoid potential ecology impacts on the river. There are very few examples of Glulam timber bridges in Ireland, which has a temperate, wet climate.
Aesthetics (colour): Timber bridges have a warm, natural appearance that can blend harmoniously with the surrounding environment. This makes them particularly suitable for the environment at the site.	**Aesthetics (form):** Timber footbridges are less slender than steel/concrete equivalents. There are examples of timber truss or bowstring arches with spans up to approx. 55m, however they are relatively deep (over 8m) which would result in an obtrusive, heavy appearance.
Buildability: Timber bridges are lighter than steel or concrete equivalents, which simplifies transportation and handling. This can lead to faster construction times.	
Durability : When properly treated and maintained, timber can be very durable and resistant to weathering,	

Advantages	Disadvantages
pests, and decay. This extends the lifespan of timber bridges to approx. 50 to 70 years.	
Maintenance (inspection): Timber's natural grain patterns make it easier to detect cracks or other signs of wear compared to some other materials.	

Table 3-3 - Advantages & disadvantages of timber

3.5.1.4 Stone (post tensioned)

The advantages and disadvantages of this material are shown in Table 3-4

Advantages	Disadvantages
Aesthetics: Natural aesthetics would suit the landscape and architectural heritage at the proposed site.	**Programme:** More time would be needed for design development and testing than a conventional footbridge design. There are examples of PT stone slab footbridges up to 20m span, PT stone arches up to 45m span, and externally PT stone bridges of 35m span. A 50m span footbridge would require a U-frame cross section and there are no known examples of this. Detailing of the U-frame connections would require careful consideration. Design guidance for PT stone is less established than conventional materials.
Environment: Stone structures generally have a relatively low carbon footprint because: Stone has low embodied carbon; maintenance requirements are minimal due to stone's natural durability; and stone can often be reused, reducing its overall impact.	**Economy:** A PT stone footbridge would be heavier than a steel or aluminium footbridge, which increases demand on the foundations and handling, transport, craneage etc.
	Quality control: Stone is a natural material with variable properties. A rigorous inspection and testing regime would be needed to determine an appropriate design strength for the sourced rock and to check for fissures which could compromise integrity/durability.
	Durability: Stone does not decay and resists frost better than most building materials for exterior use. Materials such as granite and limestone are highly durable. However, the post-tensioning system, and the joints between the stone segments are potentially vulnerable to corrosion.
	Buildability: Lifting a preassembled stone footbridge into place would have significant crane requirements. Segmental construction would be challenging as assembly over the river is not feasible and assembly

	and PT operations adjacent to the site would be challenging given the lack of space.

Table 3-4 - Advantages & disadvantages of stone (post-tensioned)

3.5.1.5 Prestressed concrete (pre or post-tensioned)

The advantages and disadvantages of this material are shown in Table 3-5.

Advantages	Disadvantages
Durability (pre-tensioned concrete): Pretensioned concrete is a highly durable construction type with 120 years' service life with nominal maintenance.	**Inspection & maintenance**: Inspection and maintenance of post tensioned concrete structures is a specialist activity which must be carried out be specialist contractors. A shrouded scaffold enclosure would be needed to mitigate potential ecology impacts.
Slender proportions: A prestressed concrete footbridge uses post tensioning to produce a slender span-to-depth ratio.	**Weight**: The weight of a concrete footbridge is greater than a steel footbridge for a given span, which increases foundation and craneage requirements.
Environment: Prestressed concrete bridges have a substantial whole-life carbon footprint due to the high embodied carbon of cement and steel, but their durability and long service life make them a practical choice for reducing overall environmental impacts. Adopting low-carbon materials and optimizing designs can further mitigate their footprint.	**Durability (post-tensioned segmental concrete)**: The durability of tendons in a post-tensioned segmental concrete structure is dependent on design detailing and correct grouting practices. Joints between segments can be vulnerable to corrosion. A Departure from Standard from DN-STR-3012, 2.13, would need to be approved for design of a precast concrete segmental post-tensioned footbridge with internal grouted tendons.
	Buildability: Given the required span of the footbridge, transport of approx. 49m long pre-tensioned concrete beams to site would be challenging. Segmental, post-tensioned construction would be challenging as assembly over the river is not feasible and assembly adjacent to the site is challenging given the lack of space.

Table 3-5 - Advantages & disadvantages of prestressed concrete

3.5.1.6 Aluminium

The advantages and disadvantages of this material are shown in Table 3-6.

Advantages	Disadvantages
Economy: Aluminium is significantly lighter than steel or concrete, reducing the overall weight of the footbridge structure. This can decrease the load on foundations and supports. The lighter weight reduces transportation and installation cost of footbridge components. Due to its corrosion resistance and	**Economy (Higher Initial Cost)**: Aluminium is a relatively expensive material. Construction cost of an aluminium footbridge would be higher than an equivalent steel footbridge.

Advantages	Disadvantages
durability, aluminium bridges have a longer lifespan and avoid the need for paintwork maintenance leading to lower lifecycle costs.	
Durability: Aluminium naturally forms a protective oxide layer that resists corrosion. This eliminates the need for additional protective coatings, reducing long-term maintenance costs and contributing to a longer lifespan for the footbridge. The corrosion resistance of aluminium minimizes the need for frequent maintenance and repairs, leading to significant cost savings over the life of the footbridge. Aluminium bridges often require less frequent painting or treatment compared to steel bridges, which can be a major advantage in terms of both cost and environmental impact.	**Maintenance (Specialist welding)**: Welding aluminium requires specialized equipment, techniques, and an understanding of its unique properties.
Environment: Aluminium is highly recyclable, and using recycled aluminium requires only a fraction of the energy needed to produce new aluminium, which lowers the overall carbon footprint of the footbridge lifecycle. The lightweight nature of aluminium also reduces transportation emissions.	**Aesthetics (heritage):** A bare aluminium finish is not considered to be in keeping with the local setting.
Aesthetics (colour): The natural finish of aluminium can be visually appealing and is often used in designs where aesthetics are an important consideration.	**Buildability:** Only a limited number of fabricators have experience with this structure type which could lead to cost inflation and delays.
	Aesthetics (obtrusive): Compared to steel, structural sections and overall depth need to be larger to achieve stiffness or strength requirements. This results in a more obtrusive appearance

Table 3-6 – Advantages & disadvantages of aluminium

3.5.2 Decking

Decking options for the steel footbridge options in Section 3.6 are summarised as follows:

Aluminium Decking

Aluminium decking with serrated surface is a modular component with clamp or bolt fixings to the primary structure elements. This would be an ‘open’ decking option as water would drain through the gaps between the aluminium decking panels.

A typical example is shown in Figure 3-8. Table 3-7 lists the advantages and disadvantages of this decking option.

Figure 3-8 – Aluminium Decking

Advantages	Disadvantages
Durability: Aluminium decking is durable with an expected service life of over 60 years.	**Aesthetics**: The appearance of bare aluminium is not considered appropriate for the local setting and would not be sympathetic with a painted steel footbridge.

Advantages	Disadvantages
Inspection & Maintenance: Lower Maintenance Cost (Resistance to corrosion)**.** Replacement of the bolted decking panels would be relatively straightforward.	**Economy**: Higher Initial Cost
Buildability: Lightweight to install.	**Acoustics**: Can be noisy underfoot.
Slip resistance: Long lasting anti-slip resistant finish**.**	**Inspection & Maintenance**: Decking panels allow water to drain through. Debris and moisture may accumulate on the supporting footbridge structure potentially causing localised corrosion in areas which are difficult to access.
Drainage: Water can drain through the decking into the river which avoids the requirement for collection pipework to connect to the adjacent drainage network to discharge surface water.	**Environment:** Aluminium's carbon footprint is initially high due to energy-intensive production, but its recyclability and energy-saving benefits in use can make it a more sustainable material over its lifecycle when managed responsibly. Regions using renewable energy for smelting (e.g., hydroelectric power) significantly lower emissions.
Health & Safety: Decking can be installed during fabrication in a controlled factor environment, which minimises H&S risks. Decking can be simply unbolted and replaced with minimal H&S risks.	**Theft**: Aluminium is a high value material which would be vulnerable to theft requiring the use of anti-theft fixings.

Table 3-7 – Advantages & disadvantages of aluminium decking

Fibre Reinforced Polymer (FRP) Decking

FRP decking planks/grates are bolted on to the footbridge structure. The decking can consist of solid planks/panels or perforated gratings (e.g. 6mm openings). This decking type would allow water to drain directly into the river.

A typical example is shown in Figure 3-9. Table 3-8 lists the advantages and disadvantages of an FRP decking system.

Figure 3-9 – Example of GRP plank decking (POLYplank)

Advantages	Disadvantages
Durability: Good – the expected service life of FRP panels/planks is 60 to 75 years (e.g., POLYplank and Dura Grating).	**Economy:** Moderate Initial Cost for the decking.
Drainage: Water can drain into the river which avoids the requirement for collection pipework to connect into the adjacent drainage network to discharge surface water.	**Inspection & Maintenance (supporting structure)**: Gaps between the decking panels allow water to drain through into the river. Debris and moisture would accumulate on the supporting footbridge structure under the decking which could lead to localised corrosion in areas which are difficult to inspect/maintain.

Advantages	**Disadvantages**
Slip resistance: Long lasting anti-slip resistance.	**Environment:** High initial carbon footprint due to energy-intensive production processes. However, their durability, lightweight properties, and low maintenance requirements can offset this over their lifespan. Renewable energy use during production reduces their whole-life carbon footprint further. FRP decking materials are typically thermosetting plastics which currently makes them unsuitable for recycling.
Inspection & Maintenance: Replacement of the bolted decking panels would be relatively straightforward.	
Economy: FRP offers a good strength-to-weight ratio which reduces load effects on the supporting structure.	
Aesthetics: Option to incorporate various design finishes and patterns, e.g., timber effect.	
Health & Safety: Decking can be installed during fabrication in a controlled factor environment, which minimises H&S risks. Decking can be simply unbolted and replaced with minimal H&S risks.	

Table 3-8 – Advantages & disadvantages of FRP decking

Timber Decking

Timber decking typically consists of hardwood planks with non-slip strip inserts or overlay. They are bolted to the supporting footbridge structure. To cater for incidental cycle usage of the footbridge, an anti-slip overlay would be more appropriate than non-slip strips – a typical example is shown in Figure 3-10. The advantages and disadvantages are listed in Table 3-9.

Figure 3-10 – Timber decking with epoxy bauxite non-slip overlay

Advantages	Disadvantages
Slip resistance: A long lasting anti-slip finish would be achieved with a overlay.	**Durability**: The planks would need replacement circa every 15 to 30 years. The site is damp therefore the timber would be prone to mildew, algae growth and rot over time.
Aesthetics: Sympathetic with the local setting.	**Aesthetics**: A full width gritted finish would be required for incidental cycle usage on the footbridge however this nullifies the aesthetic advantages of timber.

Advantages	Disadvantages
Drainage: Water can drain into the river which avoids the requirement for collection pipework to connect into the adjacent drainage network to discharge surface water.	**Inspection & Maintenance (supporting structure)**: Gaps between the decking panels would allow water to drain through into the river. Debris and moisture would accumulate on the supporting footbridge structure under the decking which could lead to localised corrosion in areas which are difficult to inspect/maintain.
Health & Safety: Decking can be installed during fabrication in a controlled factor environment, which minimises H&S risks. Decking can be simply unbolted and replaced with minimal H&S risks.	
Environment: Timber is a renewable material, and when sourced from sustainably managed forests, it has a significantly lower environmental impact compared to other construction materials like steel or concrete. Timber production and processing require less energy, resulting in a smaller carbon footprint.	

Table 3-9 – Advantages & disadvantages of timber decking

Structural Steel Decking

A steel plate deck would be welded to the supporting structure to form an integral, composite part of the footbridge contributing to its structural strength / stiffness. The plate is typically 8 to 10mm thick with flat stiffener plates on its underside. The plate is supporting at the edges by the main structural members and transversely by cross beams. The plate would have a waterproof resin screed with a gritted finish. Surface water can either be directed to a drainage system beyond the footbridge or discharged into the river via gullies in the footbridge deck.

A typical example is shown in Figure 3-11. Table 3-10 lists the advantages and disadvantages of steel deck panels.

Figure 3-11 – Steel deck plate with combined anti-slip and waterproofing coating

Advantages	Disadvantages
Durability: The waterproof, anti-slip finish is durable and long life, and the plate forms a watertight surface with no crevices to attract dirt/moisture.	**Economy:** Moderate Initial Cost
Environment: The steel plate is an integral, composite part of the structure and therefore achieves a more structurally efficient design and carbon footprint compared to non-structural decking options.	**Inspection & Maintenance:** The service life of the waterproof, gritted finish is approx. 30 years. Replacing the finish would require micro-planning and shot blasting, which would require shrouding to mitigate potential ecology impacts.

Slip resistance: Long lasting anti slip resistance due to gritted finish.	**Health & Safety:** The steel plate is installed during fabrication in a controlled factory environment, which minimises H&S risks. Replacement of the anti-slip, waterproof coating requires a micro-planer and shot blasting, which would require Personal Protective Equipment (PPE) to mitigate H&S risks.
Economy: Structurally efficient design as the steel deck is composite with the footbridge structure, which can economise the section sizes and the carbon footprint.	
Aesthetics: Waterproof resin screed with a gritted finish can be provided with a variety of colour finishes to blend in with the local setting and painted colour of the footbridge.	
Drainage: Gullies would be provided in the footbridge deck to discharge water into the river. This avoids the need to connect into a drainage network beyond the footbridge.	

Table 3-10 – Advantages & disadvantages of structural steel decking

Recommendation

For the steel footbridge options in Section 3.6, timber or glass reinforced polymer (GRP) ‘timber effect’ planks (e.g., POLYplank) are proposed. The aesthetics would be in keeping with a brown painted steel footbridge and the woodland river setting. Timber has a low carbon footprint, although this is offset slightly by the short intervals between replacement (15 to 30 years). GRP planks have higher embodied carbon during manufacture, but this is offset by longer replacement intervals (60 to 75 years). Individual planks could be replaced using simple hand tools and without ‘working at height’. Water would drain through gaps between the planks directly into the river, which avoids the need to discharge surface water to a drainage network beyond the footbridge.

3.5.3 Structure forms

To minimise the visual amenity impact, maximise clearance under the structure, and to minimise shade effects on the riverbed (and associated potential ecology impacts on FPM), the following structural forms which are slender and/or unobtrusive are considered most appropriate.

- Steel truss
- Steel box girder
- Cable stayed footbridge with south tower
- Post-tensioned concrete U-frame

Viable structure options based on these forms are presented in Section 3.6.

3.6 Structure Options

The footbridge structure options are dictated by the constraints described in Section 3.1. Considering these, the following structure options are considered viable and are subject to detailed evaluation:

- Option 1: Steel bowstring truss
- Option 2: Steel full-through truss
- Option 3: Steel box U-frame
- Option 4: Post tensioned (PT) concrete U frame
- Option 5: Cable stayed footbridge

All options would have a clear span of approx. 48m and a 3m clear walkway width between parapets.

Proposed General Arrangement drawings for the structure options are shown in Appendix C.

Photomontages for the preferred structure option are shown in Appendix F.

The proposed options are outlined below.

3.6.1 Option 1 - Steel Bowstring Truss

Option 1 comprises a steel bowstring truss supported on RC abutments. In elevation, a bowstring truss has a bowed top chord and a flat bottom chord – resembling a ‘bowstring’.

The main longitudinal members comprise two trusses which support a transverse spanning deck. The typical span to depth ratio of a bow string truss footbridge is 1:13 to 16, which would result in a midspan truss depth of circa 3.0m to 3.7m. The proposed GA drawing shows a depth at abutments and midspan of 1.2m and 3.2m, respectively.

The proposed truss would be fabricated using square/rectangular hollow sections.

Various truss bracing arrangements are possible; Pratt, Warren, Vierendeel, etc. The proposed general arrangement drawing shows Pratt bracing as this is a traditional option in keeping with the local setting.

An appropriate rustic colour for the painted steel elements would be specified at detailed design stage.

The trusses can either be vertical or leaning outwards in cross section. However, a leaning truss would induce more torsion on the deck. Vertical trusses are shown in the Proposed GA drawings because this is a more traditional option in keeping with the local setting.

Cross bracing at quarter points and midspan is optional to provide lateral restraint to the top chord of the truss against buckling, which minimises structural sizes. The overhead bracing would be positioned at midspan and third-span locations. Alternatively, cross bracing can be omitted, although U-frame restraint to the top truss chord must be provided by deeper transverse members in the footbridge bridge deck.

The decking could be composite or removeable to ease access for major maintenance.

The bridge superstructure would be simply supported on bridge bearings on reinforced concrete (RC) abutments.

Two number 1.4m high pedestrian parapet would be provided inside the trusses.

Examples of bow string truss footbridges are shown in Figure 3-12 to Figure 3-16.

Figure 3-12 - Jamestown Pedestrian Bridge, New York (58m span) - elevation

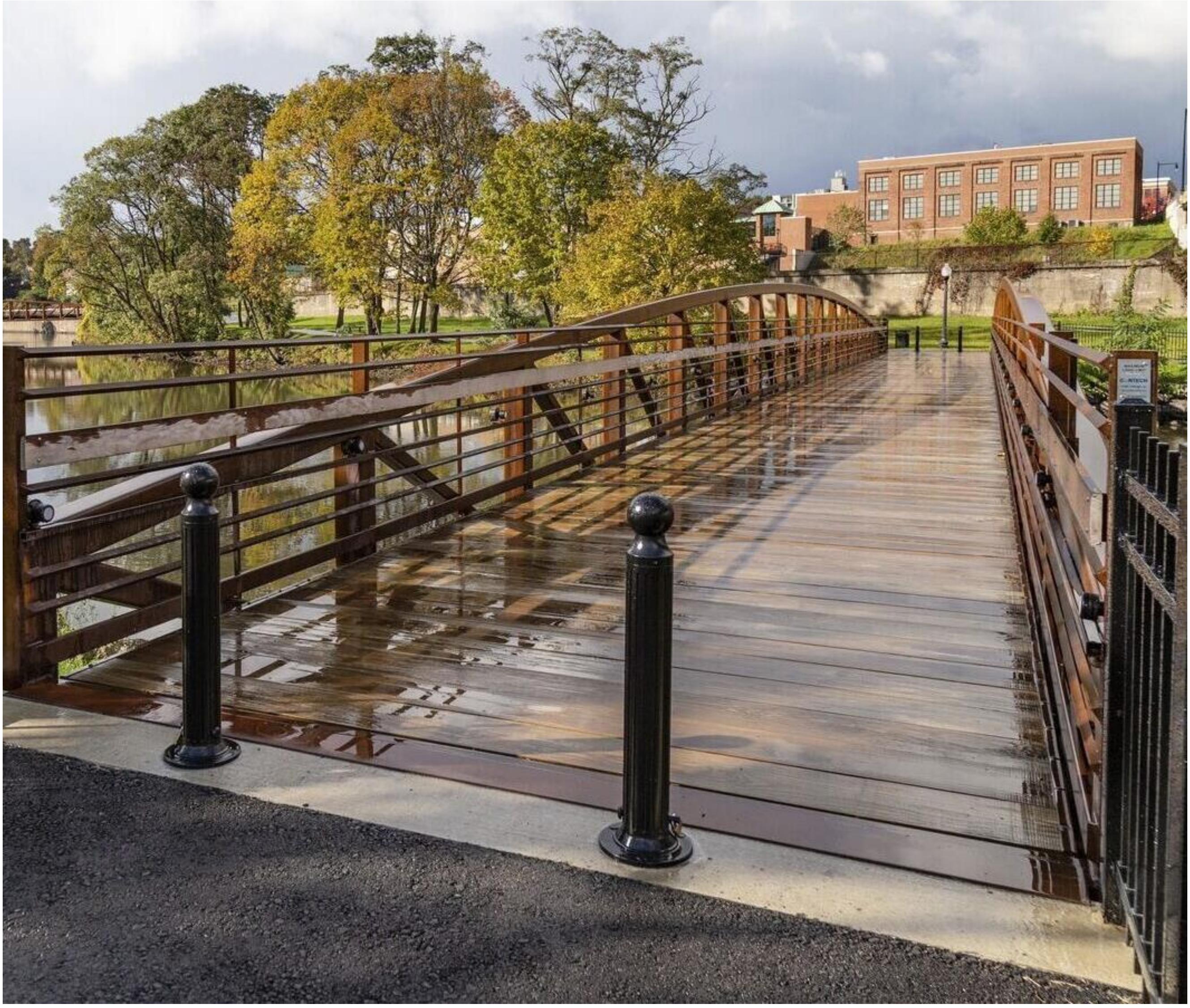


Figure 3-13 - Jamestown Pedestrian Bridge, New York (58m span) - deck

Figure 3-14 - Bowstring Vierendeel Truss - Gooseholme Footbridge, UK

Figure 3-15 - Footbridge over Ammonoosuc River, New Hampshire, USA (45m span, 3m wide)

Figure 3-16 – Vierendeel bow string truss - Sefton Footbridge, UK (20m span, width 2.5m)

3.6.2 Option 2 – Steel Full Through Truss

This structure option consists of a steel full through truss on RC abutments.

Two full-through truss members supporting a transverse spanning deck. Overhead cross bracing along the full length of the truss restrains the top chord against buckling effects resulting in slender truss members.

The overall depth of the truss would be approx. 3.5m, which consists of 2.7m headroom requirement plus 0.3m and 0.5m for the top & bottom truss members respectively. This would achieve a span to depth ratio of 1:14 which is typical for this structure type. At the ends of the truss, the headroom clearance to overhead bracing could be reduced to 2.4m to achieve a slight bow to the top chord for aesthetic purposes.

The proposed truss would be fabricated using square/rectangular hollow sections.

Various truss bracing arrangements are possible; Pratt, Warren, Vierendeel, etc.

An appropriate rustic colour for the painted steel elements would be specified at detailed design stage.

The decking can be composite or removeable to ease access for major maintenance.

The bridge superstructure would be simply supported on bridge bearings on reinforced concrete abutments.

Two 1.4m high pedestrian parapet would be provided inside the trusses.

Examples of this structure option are shown in Figure 3-17 to Figure 3-19.

Figure 3-17 - N17/N18 Gort Tuam, Annagh Hill Footbridge (50m span)

Figure 3-18 - Beloit College Footbridge, Wisconsin, US (55m span)

Figure 3-19 - Pedestrian Bridge at Ironworks, Beloit, Wisconsin, US (71m span, 3m wide)

3.6.3 Option 3 – Steel U-Frame / Box

This option consists of a steel U-frame / box girder on RC abutments.

The cross section would represent a U-frame at the abutments, and the underside would bow down with a deepening box girder section at midspan to resist the peak bending effects. The bridge would resemble a boat (currach) in elevation, which would reflect the area’s cultural heritage.

Alternatively, the bottom chord of the bridge deck could be straight, and the sides of the U frame heightened at midspan. However, this solid structure type would create a ‘tunnel effect’ which may make bridge users feel vulnerable and would also increase the shade cast on the riverbed which has associated potential ecology impacts on FPM.

The structural depth would be approx. 1.4m to 1.7m at midspan and approx. 0.5m to 0.7m at supports.

To mitigate the tunnelling effect mentioned above, an option of providing perforated side panels to the U-frame (like a castellated beam) could be explored to provide more openness.

An appropriate rustic colour for the painted steel elements would be specified at detailed design stage.

Two 1.4m parapet handrails would be mounted inside the U-frame.

The structural decking would be an integral part of the U-Frame.

The bridge superstructure would be simply supported on bridge bearings on RC abutments.

An example of a U frame footbridge with a straight bottom chord and hog back top chord is shown in Figure 3-20 and Figure 3-21. An example of a U frame footbridge with a constant depth section and perforated side panels is shown in Figure 3-22 and Figure 3-23. An example of a box girder footbridge is shown in Figure 3-24 and Figure 3-25.

Figure 3-20 – Somers Town Bridge, UK (38m span, 0.4m depth at abutments, 1.1m depth at midspan)

Figure 3-21 – Somers Town Bridge, UK

Figure 3-22 – R4W0 Ghent Bridges, Belgium

Figure 3-23 – R4W0 Ghent Bridges, Belgium

Figure 3-24 – Castleford Bridge, Yorkshire, UK (4 no. 26m spans)

Figure 3-25 – Castleford Bridge, Yorkshire, UK

3.6.4 Option 4 – Post-tensioned Concrete U-Frame

This option would consist of a post-tensioned (PT), segmental concrete U frame on RC abutments.

Precast concrete segments would be transported to site, assembled, post tensioned, and lifted into position. The dead weight would be approx. 250T to 300T, which would require relatively large craneage. The alternative option of assembling the segments in position on temporary in-stream supports before post-tensioning is not feasible due to the potential ecology impacts.

To improve appearance, various options could be explored such as timber cladding to the internal faces, and or high quality smooth / pattern profile finish.

The PT segmental concrete construction allows the section depth and the tendon profile to be varied along the span for efficiency. The segmental construction means that the size of elements would be suitable for transporting to site.

The structural depth would be approx. 1.5m to 2.0m at the abutments, and 2.5m to 3.0m at midspan. The extra depth at midspan would be achieved by dropping the bottom chord of the side walls. However, this would reduce clearance above the design flood level.

The PT tendons would be enclosed within the side walls of the U frame and the deck would be reinforced concrete.

Examples of RC U frame footbridges are shown in Figure 3-26 and Figure 3-28.

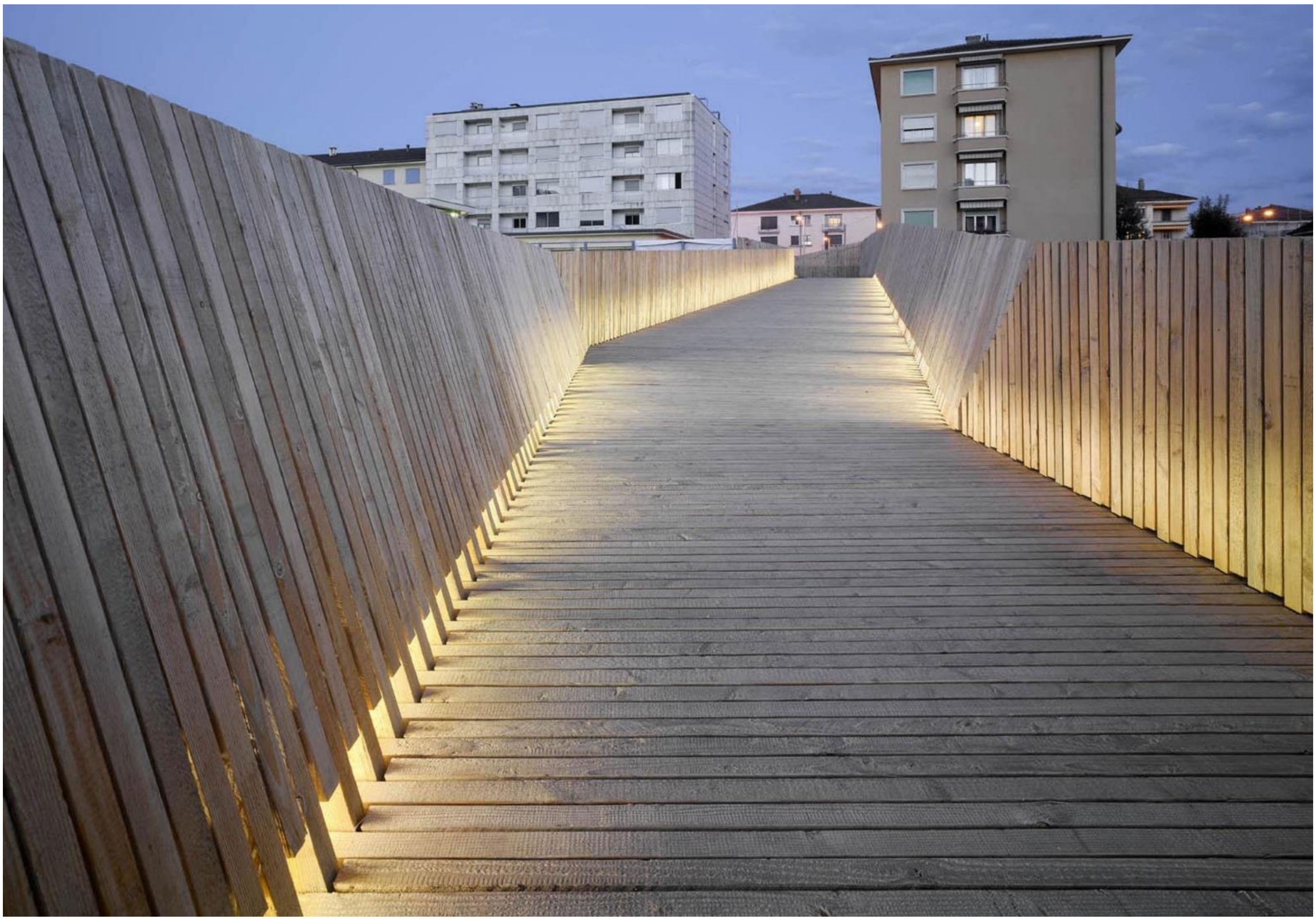


Figure 3-26 - La Sallaz Footbridge, France

Figure 3-27 – La Sallaz Footbridge, France

Figure 3-28 - Kingsgate Footbridge, Durham, UK (30m main span)

3.6.5 Option 5 – Cable Stayed Footbridge

This option consists of a cable stayed bridge with single tower on the south side.

Single tower cable stayed footbridges typically have a minimum height to span ratio of 0.35, and a min cable stay inclination to the horizontal of 25 degrees, which would result in a tower height of approx. 17m above ground level.

The south tower is in a 20m deep fringe of woodland along the riverbank and the trees range in height up to 22m therefore it would be mostly hidden when viewed in elevation, although it would be visible when viewed ‘end on’. The height of the tower would be taller than nearby buildings.

The tower would be either steel or reinforced concrete. The bridge deck comprises a 3.65m wide orthotropic steel deck connected to 2no. steel longitudinal girders. The deck would be supported on steel cable cables connected to the tower.

The steel tower would be supported on piled foundations or spread foundation bearing on bedrock. The tower back stay cables would be anchored into rock anchors or a piled foundation. The northern end of the bridge would rest on bearings supported on reinforced concrete abutment.

The south tower would be built, and deck sections would lifted into position and connected to the hangers.

Two 1.4m parapet handrails would be connected to the deck.

Examples of this structure option are shown in Figure 3-29 to Figure 3-32.

Figure 3-29 - Water of Leith Footbridge, New Zealand (45m span)

Figure 3-30 - Water of Leith Footbridge, New Zealand (45m span)

Figure 3-31 - Michaux Bridge, Netherlands (main span 18m, width 5m)

Figure 3-32 - Michaux Bridge, Netherlands

4. Technical Evaluation

Option 1 – Steel Bowstring Truss

This would be a Category 2 structure in accordance with DN-STR-3001 due to the following features:

- Span is between 10m and 50m.
- Statically determinate.
- No requirement for Departures from Standard.
- The bridge span is square to the abutments.

This would be a conventional structure type of medium complexity. It would pose minimal risk of delays or cost overruns during design and construction.

Overhead bracing can be omitted for aesthetic reasons; however, this would result in deeper / more stocky transverse members in the bridge deck to restrain the top longitudinal truss chord against buckling. Detailed structural analysis would be undertaken to check that sufficient U frame restraint was provided to avoid buckling effects in the top chord.

If overhead bracing was provided, they would be located at midspan and roughly 1/4 span locations. The minimum required headroom clearance is 2.4m.

The structure would be lightweight, accordingly dynamic analysis should be undertaken considering pedestrian & wind loading.

Steel design and fabrication of the structure is considered complex but is a familiar process. Fabrication is simplified by using square/rectangular hollow sections as opposed to circular hollow sections.

Option 2 – Steel Full Through Truss

This would be a Category 2 structure in accordance with DN-STR-3001 due to the following features:

- Span is between 10m and 50m.
- Statically determinate.
- No requirement for Departures from Standard.
- The bridge span is square to the abutments.
- Conventional design aspects

This option would pose minimal risk of delays or cost overruns during design and construction.

The overhead structural members would generally provide 2.7m headroom clearance, although this could be reduced to 2.4m over short lengths, e.g., approaching the deck ends.

The overhead bracing elements of the full height truss would restrain the top longitudinal chord against buckling effects.

This structure type would be slightly heavier for lifting than the bowstring truss.

The design and fabrication process would be similar to the bowstring truss.

Option 3 - Steel U Frame / Box

This would be classed as a Category 2 structure in accordance with DN-STR-3001 due to the following features:

- Span is between 10m and 50m.
- Statically determinate.
- No requirement for Departures from Standard.
- The bridge span is square to the abutments.
- Conventional design aspects

Structural analysis and fabrication of this option would be slightly more complex than the steel truss options due to the varying bespoke steel cross section along the span – however, it should pose minimal risk of delays or cost overruns during design and construction.

The structure type would be heavier for lifting than the truss options.

The design and fabrication process would be more complex and unfamiliar than the truss options.

Option 4 - Post-Tensioned Concrete U Frame

This would be classed as a Category 3 structure in accordance with DN-STR-3001 due to the following features:

- Sophisticated analysis would be needed.
- Unconventional design aspects.
- Post tensioned concrete.

As an unconventional structure type, there would be a risk of delays or cost overruns during design and construction.

A Departure from Standard would be needed to justify the use of segmental concrete construction with internal grouted tendons (DN-STR-03012, 2.13) and describe how durability risks would be mitigated - tendons are vulnerable to corrosion at segmental joints, and the durability of tendons is highly dependent on the quality of grouting in the internal ducts. Ensuring quality control during the grouting process is crucial.

The design and construction process is complex and the structure would be heavier than the steel options above, requiring a larger capacity crane.

Option 5 – Cable Stayed Footbridge

This would be classed as a Category 3 structure in accordance with DN-STR-3001 due to the following features:

- Sophisticated analysis would be needed to check aspects such as the cable stay system and the dynamic performance. Scale models may be necessary to check the dynamic performance of the structure under wind loading.
- High redundancy.
- Cable stay system.
- Unconventional design aspects.

It is a complex structure type which is not commonly built. There would be a risk of delays or cost overruns during design and construction.

Summary

Structure options are ranked 1 to 5 (5 being the best) for this criterion in Table 4-1.

Table 4-1 - Technical Evaluation Ranking

	Option 1 – Steel Bowstring Truss	Option 2 – Steel Full Through Truss	Option 3 - Steel U Frame / Box	Option 4 - Post-tensioned Concrete U Frame	Option 5 – Cable Stayed Footbridge
Ranking 1 (worst to 5 (best)	**5**	**5**	**3**	**1**	**2**

The steel truss options (Options 1 & 2) have the best ranking for this criterion because they are Category 2 structures with conventional structural arrangements and medium complexity. They would not be technically demanding structure options to design and build.

5. Economic Evaluation

Table 5-1 below presents construction and maintenance cost estimates, and a ranking 1 (worst) to 5 (best). The construction cost (excl. VAT) includes preliminaries, utility diversions, roadworks, signs & lighting, foundations, and main structural works. It allows for inflation at 10% per annum (based on the SCSI Tender Price Index) up to the scheduled tender date in 2026. The estimates are based on review of comparable projects.

The estimated construction cost excludes the cost of purchasing private property on the south side and reimbursement for disruption during construction – the cost of this can be estimated by GCC and would be similar for all structure options.

Table 5-1 – Economic Evaluation

	Option 1 – Steel Bowstring Truss	**Option 2 – Steel Full Through Truss**	**Option 3 - Steel U Frame / Box**	**Option 4 – Post-tensioned Concrete U Frame**	**Option 5 – Cable Stayed Footbridge**
Construction cost (excl. VAT)	€1,600,000 High cost certainty due to conventional structure type.	€1,700,000 High cost certainty due to conventional structure type.	€1,800,000 High cost certainty due to conventional structure type.	€1,900,000 Low cost certainty as there are few examples of this construction type in Ireland.	€1,950,000 Low cost certainty as there are few examples of this construction type in Ireland.
Maintenance costs	Medium maintenance costs due to the need for paintwork maintenance.	Medium maintenance costs due to the need for paintwork maintenance.	Medium maintenance costs due to the need for paintwork maintenance.	Medium maintenance costs as inspection / maintenance of PT tendons are specialist activities.	High maintenance costs as paintwork maintenance is needed with working at height, and cable stay inspection & maintenance are specialist activities.
Ranking 1 (worst) to 5 (best)	5	4	3	2	1

The steel bow string truss (Option 1) has the best ranking for this criterion because it has the lowest estimated construction cost with a high degree of certainty on the estimate due to the conventional structure type. It also has the joint best estimated maintenance costs.

6. Aesthetic Evaluation

For all structure options, existing masonry features such as boundary walls and pilasters which contribute to the character of the Architectural Conservation Area (ACA) would be preserved where appropriate. Also, the extent of tree loss would be minimised where possible to limit impacts on the natural landscape.

Due to the trees along the river margins, the proposed footbridge would only be visible to the passer-by from a limited number of accessible locations:

- North landing area, the corner of Carrowmanagh Rd, and the adjacent residential properties
- The south approach path and the adjoining stretch of the N59 Clifden Rd
- On the N59 Oughterard Bridge (150m away)
- Bottom of the riverbank adjacent to Carrowmanagh Rd
- Riverbank terrace on the Old Barracks (south side private residential property).

Option 1 – Steel Bowstring Truss

A steel bowstring truss offers a slender profile in elevation which would taper down towards the abutments. From the viewpoint of adjacent houses, the slim structural depth at the abutments would reduce visual amenity impacts.

The appearance of truss bridges can be enhanced with architectural design detailing. The use of timber or timber effect elements for decking and parapet elements would help to soften the structure appearance. An appropriate rustic colour would be specified for the painted finish to blend in with its local setting.

A truss is a traditional form of construction which could be considered as sympathetic with the heritage value of the area and its railway history (Connemara Railway, 1895 to 1935).

The open sides of the bridge allows people crossing the bridge to see the surrounding natural landscape.

Option 2 – Steel Full Through Truss

The aesthetics of this option would be similar to Option 1, although it would be more visually obtrusive (especially at the northern end) because the structure continues at full height to the abutments, rather than tapering down.

Option 3 – Steel U Frame / Box

A U frame / box cross section would provide ‘clean’ visual lines which is aesthetically pleasing. It would provide an ‘open’ aspect to people crossing the bridge. This option would be slender, adding to its aesthetic appeal. This is counteracted visually by its solid appearance.

Architectural design detailing and the use of timber cladding materials for secondary elements such as parapets and screening, would help to soften the structure appearance. An appropriate rustic colour would be specified for the painted finish which would blend in with its setting.

The proposed box girder section, which deepens towards midspan, could be tapered inwards in cross section to reduce its prominence when viewed in elevation.

Option 4 – Post-Tensioned Concrete U Frame

A U-frame cross section would provide ‘clean’ visual lines and a slender profile but heavier appearance than steel U-Frame.

Concrete can appear utilitarian, although this could be mitigated with a high-quality concrete finish externally (smooth or patterned profile) and/or timber cladding on the inner faces to soften and improve its appearance.

The sides of the U-frame would provide a closed aspect and would be visually obtrusive for people crossing and upstream/downstream view of the footbridge.

Option 5 – Cable Stayed Footbridge

The tower on the south bank, despite its height would be partially hidden behind nearby trees when viewed in elevation or at an angle. The tower would be visible from the adjacent N59 Clifden Rd, and from the north abutment landing and the Carrowmanagher Road. The tower would be taller than nearby buildings.

The bridge deck itself would be slender. The visual amenity impact from the northern side of the river would be minimal but would have a high visual impact on users at the southern end and nearby properties.

The structural form of a cable stayed footbridge (stainless steel cables) has a modern and striking appearance, which is not in keeping with the local setting.

The open sides of the bridge provides an open ‘aspect’ to bridge users.

Summary

The structure options are ranked 1 to 5 (5 being the best) with regards to aesthetics in Table 6-1.

Table 6-1 – Aesthetic Evaluation Ranking

	Option 1 – Steel Bowstring Truss	Option 2 – Steel Full Through Truss	Option 3 - Steel U Frame / Box	Option 4 – Post-tensioned Concrete U Frame	Option 5 – Cable Stayed Footbridge
Ranking 1 (worst) to 5 (best)	5	4	3	1	2

The steel bow string truss (Option 1) has the best ranking for aesthetics – it is a slender structural form which minimises visual amenity impact on the local setting. The open sides of the structure would provide an open and safe aspect for users crossing the footbridge.

7. Evaluation of Durability and Maintenance Requirements

The footbridge structure is required to achieve a 120-year design life.

Carbon steel can achieve a 120-year design life with an appropriate allowance for corrosion, paint maintenance as required. Paint maintenance could be extended up to 60 years by using a specialist fluoropolymer paint top coating.

Stainless steel or elastomeric pad bearings would be provided to mitigate corrosion maintenance given the constrained headroom under the deck at the abutments. Abutment cheek walls could be omitted to improve access to the deck end and the bearings.

Bearings and expansion joints would be the same for all structure options.

All structure options would provide at least 500mm headroom over the riverbanks.

All structure options provide adequate clearance under the bridge deck and the riverbank for inspection and maintenance access.

Expansion joints at both abutments would require maintenance roughly every 10 years.

There are various options for providing inspection and maintenance access to the bridge:

- A scaffold enclosure to enable access to the deck underside.
- Higher up structure members could be reached with scaffold or a mobile elevated work platform (MEWP)
- A drone could potentially be used to enable close-up visual inspection of external bridge surfaces.

Option 1 – Steel Bowstring Truss

The structure should be encapsulated in shrouded scaffolding to enable paintwork maintenance and avoid potential ecology impacts on the river. This structure option maximises clearance over the flood water level and riverbanks due to its slim deck depth. The deck soffit provides approx. 0.8m freeboard above the 1% Annual Exceedance Probability (AEP) Mid-Range Future Scenario (MRFS) flood level.

Removable decking panels could be specified to ease access for major maintenance under the bridge deck soffit where headroom is minimal at abutments.

Exterior surfaces can be readily inspected, with no critical structural elements hidden.

Hollow sections would be airtight to mitigate internal corrosion.

Option 2 – Steel Full Through Truss

The durability and maintenance requirements are the same as Option 1 except access to the truss top cross members would be more difficult

Option 3 - Steel U Frame / Box

The structure should be encapsulated in shrouded scaffolding to enable paintwork maintenance and avoid potential ecology impacts on the river. This structure option provides approx. 0.5m freeboard over the 1% AEP MRFS flood water level.

Surfaces could be inspected with no hidden critical elements. The fabricated hollow steel sections would be too slim to allow internal maintenance access therefore they would be specified as air-tight to avoid corrosion and the need for internal maintenance access.

The deck would be an integral part of the structure and could not be removed to ease access for major maintenance of the bridge deck soffit where headroom is minimal.

Option 4 - Post-Tensioned Concrete U Frame

Concrete can achieve a 120-year design life with nominal maintenance, although the internal grouted PT tendons would be a hidden critical element which would need rigorous inspection. The tendons at the joints between the concrete segments can be vulnerable to corrosion. Inspection, investigation, and maintenance of post tensioning strands is a specialist activity.

Any timber cladding (or similar) attached to the exterior of the concrete for aesthetic reasons would require maintenance every 10 to 20 years.

The deck soffit provides approx. 0.7m clearance over the 1% Annual Exceedance Probability (AEP) Mid-Range Future Scenario (MRFS) flood level.

The deck would be an integral part of the structure and could not be removed to ease access for major maintenance of the bridge deck soffit where headroom is tight.

Option 5 – Cable Stayed Footbridge

The bridge deck would be relatively slim which would maximise the clearance over the riverbank and flood water levels for maintenance access.

The structure would need to be encapsulated in shrouded scaffolding during paintwork maintenance to avoid potential ecology impacts on the river.

Inspection and maintenance of cable hangers is a specialist activity. The bridge would be designed for the situation where one cable is removed for maintenance / replacement.

Access for inspection and maintenance of the steel tower would require scaffold or MEWP access on the riverbank. Access to cables would require a MEWP on the bridge deck.

Removable decking panels could be specified to ease access for major maintenance of the bridge deck soffit where headroom is tight.

Exterior surfaces can be readily inspected, and no hidden critical hidden critical elements would be produced.

Summary

The durability and maintenance ranking for the structure options is presented in Table 7-1.

Table 7-1 – Durability & Maintenance Ranking

	Option 1 – Steel Bowstring Truss	Option 2 – Steel Full Through Truss	Option 3 - Steel U Frame / Box	Option 4 – Post-tensioned Concrete U Frame	Option 5 – Cable Stayed Footbridge
Ranking 1 (worst) to 5 (best)	5	4	3	1	2

The steel bowstring truss (Option 1) has the best ranking because inspection and maintenance of the structure does not require specialist expertise, and the structure maximises clearance underneath for access. The height of the structure is less than Option 2 at the ends, which eases inspection and maintenance access. High performance corrosion protection systems could be explored during design to minimise the need for paintwork maintenance during the 120-year design life.

8. Hydraulic Considerations

Flood modelling of the existing situation indicates that the design flood (1% AEP MRFS flood level) is 10.75m AOD. All the structure options provide more than 0.3m freeboard over this flood level, and the proposed abutments are setback behind the extents of this flood level.

A Section 50 application was submitted to the Office of Public Works (OPW) in November 2024.

The greater the clearance over the river flood level, the greater the envelope available for erecting scaffold for inspection / maintenance access, and the greater the clearance to enable the passage of floating debris without becoming trapped against the structure.

The existing three-span arch road bridge 150m upstream of the proposed footbridge would block most large floating debris in the river due to its form with in-stream piers.

Due to the shallow depth of water, boats do not use the Owenriff River at the proposed footbridge location.

Option 1 – Steel Bowstring Truss

The relatively slim bridge deck provides circa 0.8m freeboard over the design flood level.

Option 2 – Steel Full Through Truss

The relatively slim bridge deck also provides circa 0.8m freeboard over the design flood level.

Option 3 - Steel U Frame / Box

The bowed bottom chord of the cross section at midspan provides circa 0.5m freeboard over the 1% AEP MRFS flood level.

Option 4 – Post-Tensioned Concrete U Frame

The bowed bottom chord of the cross section at midspan provides circa 0.5m freeboard over the design flood level.

Option 5 – Cable Stayed Footbridge

The relatively slim bridge deck provides circa 0.8m freeboard over the design flood level.

Summary

The hydraulic consideration ranking for the structure options is presented in Table 8-1.

Table 8-1 – Hydraulic Consideration Ranking

	Option 1 – Steel Bowstring Truss	**Option 2 – Steel Full Through Truss**	**Option 3 - Steel U Frame / Box**	**Option 4 – Post-tensioned Concrete U Frame**	**Option 5 – Cable Stayed Footbridge**
Ranking 1 (worst) to 5 (best)	5	5	2	2	5

All structure options satisfy OPW Section 50 requirements for 300mm freeboard over the design flood level and abutment setback. The steel bowstring truss (Option 1), the full through truss (Option 2) and cable stayed (Option 5) options have the best ranking because they maximise clearance over the design flood level which is beneficial for erecting a scaffold enclosure under the bridge deck for maintenance, and for allowing floating debris to pass without becoming trapped against the structure.

9. Environmental Considerations

The river and its margins in Oughterard are part of the Lough Corrib Special Area of Conservation (SAC 000297) and Special Protection Area (SPA – site code 4042).

The SAC has been listed for the conservation of the following EU Habitats Directive Annex II species which are known or likely to occur in the general area of the proposed crossing:

- Freshwater Pearl Mussel (Margaritifera margaritifera) (FPM)
- Salmon (in freshwater only).
- Brook Lamprey (Lampetra planeri)
- Lesser Horseshoe Bat (Rhinolophus hipposideros)

An Aquatic Survey carried out as part of this commission (ref: 'Owenriff – Aquatic Survey – SAC 00297 Qualifying Interested Report – 2024', by Sweeney Consultancy) identified high densities of FPM on the riverbed adjacent to the proposed crossing, and a few otter imprint were found in river bankside mud, but no holt or couching site within the study area.

A bat survey has been carried out as part of this commission (see 'Bat Survey Of Derelict Restaurant Building And Section Of Owenriff River In Oughterard, Co. Galway To Assess Use Of River Corridor By Bats And To Identify Potential Tree Roosts In The Study Area', by Caroline Shiel). This concluded/recommended the following:

- Most frequently recorded species were Soprano pipistrelle, Common pipistrelle and Leisler's bat. Nathusius's pipistrelle were also recorded. Daubenton's bats were detected in low numbers. No Lesser horseshoe bats were recorded.
- The Owenriff River is an important foraging area for bats. The proposed footbridge should avoid light spillage onto the surface of the watercourse below. A lighting specialist should be engaged to design a suitable lighting system for the bridge.
- Removal of trees on the southern riverbank to facilitate the construction of the footbridge should be kept to an absolute minimum.
- The woodland area on the south riverbank are important foraging areas for bats. Every effort should be made to maintain these woodland areas.
- The trees lining the southern bank of the Owenriff River are very mature and the aging process has created many suitable roost features for bats. The southern riverbank with its mature trees and stone wall along the length of the Owenriff River creates an important corridor for wildlife and should be retained. The removal of any of these trees should be supervised by a licence bat ecologist.

An arborist survey was carried out as part of this commission by Noel Lane Tree Care. The surveyed position and canopy width of trees is plotted on the general arrangement drawings. The survey recorded the species, age, trunk diameter, height, crown span, physiological condition, retention category etc. Around the proposed crossing location, trees range in height up to 22m. Most trees are Ash, Sycamore, and Alder. There are also a few Holly, Willow, Elderberry, Elm, Beech weeping, and Hawthorn trees. Physiological condition is generally fair to good, although some ash are exhibiting ash dieback disease. An arboricultural assessment report has been prepared which identifies trees to be retained/removed. The bridge and enabling works design will minimise the loss of trees as far as reasonably practicable. Compensation planting will be specified where appropriate.

Screening for Appropriate Assessment and a Natura Impact Statement (NIS) will be prepared based on the agreed structure option and its associated construction sequence, enabling works requirements etc.

All the proposed footbridge options have a single clear span over the river following the same layout plan. The proposed abutment setback from the riverbank crest is approx. 2.5m and 6.5m at the north and south side, respectively. This setback width would contain measures to intercept and channel any surface water run-off and ensure that the water quality of the river would not be impacted during construction.

The northern abutment and approach ramp are close to the crest of the riverbank. To avoid the potential ecology impacts of in-situ concrete works, substructures would be precast RC founded on bedrock at circa 1.4m depth BGL. The southern abutment foundation which is further away from the riverbank crest, would be either in-situ RC spread foundations, or supported on bored piles extending into bedrock which is estimated to be circa 4.5m below existing ground level.

Measures to prevent pollution of rivers during construction described in Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes, NRA, and additional measures outlined in the Appropriate Assessment Report would be employed as necessary.

To avoid potential ecology impacts, all options would require a shrouded scaffold enclosure to enable major maintenance of the bridge deck such as concrete investigations / repairs, and/or steel paintwork maintenance. Power washing of the structure would not be permitted.

All footbridge maintenance works and associated materials will undergo Appropriate Assessment Screening by the relevant authority.

Option 1 – Steel bowstring truss

The sides of the truss are open which minimises the shade cast on to the riverbed and associated potential ecology impacts on FPM.

The superstructure can be prefabricated in sections, transported to site, assembled, then lifted into position which minimises potential ecology impacts associated with working over water.

Small foundation footprints would be needed at both ends of the bridge deck to support the proposed structure. The weight of this structure option is relatively low thus minimising the foundation footprint.

Potential ecology impacts associated with paintwork maintenance would be mitigated with a scaffold enclosure.

This option would have a relatively low whole life carbon footprint.

Option 2 – Steel Full Through Truss

The environmental considerations are the same as Option 1.

Option 3 – Steel U Frame / Box

The shadowing effect on the riverbed, and potential ecology impacts on FPM, would be greater than Option 1 & 2 due to the solid sides of the U-frame and the deeper box girder section at midspan.

The superstructure could be prefabricated in sections, transported to site, assembled, then lifted into position which minimises potential ecology impacts associated with working over water.

Medium sized footprint foundations would be needed at both ends of the footbridge bridge deck to support the proposed structure. The weight of this structure option is relatively low but more than options 1 & 2.

Potential ecology impacts associated with paintwork maintenance would be mitigated with a scaffold enclosure.

The carbon footprint would be greater than Option 1 & 2 due the larger span-to-depth ratio.

Option 4 - Post-Tensioned Concrete U Frame

The shadowing effect on the riverbed, and potential ecology impacts on FPM, would be significantly greater than Option 1 & 2 due to the solid sides of the U-frame which deepen towards midspan.

The segmental superstructure would be assembled on site, post-tensioned, then lifted into position which minimises potential ecology impacts associated with working over water.

Larger capacity foundations would be required at both ends of the bridge deck to support the proposed structure. The weight of this structure option is relatively large when compares to Options 1, 2 & 3.

Potential ecology impacts associated with concrete maintenance to the external faces of the bridge deck would be mitigated with a scaffold enclosure, where appropriate.

This option would have a relatively high whole life carbon footprint.

Option 5 – Cable Stayed Footbridge

The bridge deck cables would pose a hazard to some large birds (swans, cranes, herons etc.) flying along the river corridor. The cable stays would not be an issue for bats.

This option would have a low shadowing effect on the riverbed because the tower is setback from the river, and the bridge deck does not have solid sides or substantial overhead structural elements.

Potential ecology impacts associated with paintwork maintenance would be mitigated with a scaffold enclosure.

This option concentrates the foundation works on the south side where the abutment setback from the riverbank crest is greatest. This helps to mitigate potential ecology impacts. Relatively large foundations would be required for the south tower as it supports most of the bridge deck. Relatively small foundations would be required at the north abutment as the applied loads would be relatively low.

The bridge deck would be prefabricated in sections, transported to site, assembled, lifted into position, and connected to the cable stays, which minimises potential ecology impacts associated with working over water.

This option has the smallest craneage requirements because the weight of the bridge deck itself is relatively small, which reduces potential ecology impacts associated with crane pad construction. The smaller crane would also reduce impacts on the adjacent residential property during installation. The bridge deck can be lifted in whole or in sections.

This option would have a relatively low whole life carbon footprint.

Summary

Environmental consideration rankings for the structure options are presented in Table 9-1.

Table 9-1 – Environmental consideration rankings

	Option 1 – Steel Bowstring Truss	Option 2 – Steel Full Through Truss	Option 3 – Steel U Frame / Box	Option 4 – Post-tensioned Concrete U Frame	Option 5 – Cable Stayed Footbridge
Environmental ranking 1 (worst) to 5 (best)	**5**	**5**	**3**	**2**	**2**

The steel bowstring truss (Option 1) and the full through truss (Option 2) would have the joint best environmental ranking because: they can be assembled nearby then lifted into position which reduces working over water and associated potential ecology impacts; they are relatively lightweight structures which reduces foundation and craneage requirements; and they cast relatively little shade on the riverbed which reduces associated potential ecology impacts on the FPM.

10. Sustainability considerations

The whole life carbon footprint of steel and concrete bridges depends on material production, construction, maintenance, and end-of-life impacts. Both materials have distinct advantages and challenges from a sustainability perspective.

Production Phase:

Steel production is energy-intensive due to processes like ore extraction and smelting, contributing significantly to greenhouse gas emissions. However, steel has a high recycling rate (over 90%), which can substantially reduce its embodied carbon when recycled content is used. Concrete, on the other hand, is made from cement, water, and aggregates, with cement being the major contributor to its carbon footprint. Cement production accounts for about 8% of global CO_2 emissions due to the chemical process of calcination and energy use. However, local sourcing of aggregates can lower transportation-related emissions. A significant GGBS content in the cement reduces the carbon footprint, although it does increase curing time.

Construction Phase:

Concrete bridges generally require more material by volume than steel bridges, but concrete’s ability to be cast into complex shapes on-site can reduce construction emissions in some cases. Steel bridges may have higher transportation emissions if prefabricated elements are transported over long distances, though this can be mitigated by modular construction efficiency.

Maintenance and Durability:

Steel bridges require regular maintenance, including painting and corrosion protection, which contributes to their life-cycle carbon footprint. Advances in protective coatings have reduced these impacts. Concrete bridges are more resistant to weathering and require less maintenance but may need reinforcement with steel, adding to the overall carbon footprint.

End-of-Life:

Steel bridges excel in recyclability, with scrap steel commonly reused in new structures. Concrete, while not recyclable in the same way, can be crushed and used as aggregate, though this process is less carbon-efficient.

Summary:

Steel generally has a higher initial carbon footprint per tonne due to material production but benefits from recyclability and lower volume requirements. Concrete bridges have a lower upfront carbon impact but depend heavily on cement and offer limited end-of-life recycling options. The choice depends on project-specific factors like design life, environmental conditions, and material sourcing.

The whole life carbon footprint associated with steel structures is less than that of concrete structures. The embodied carbon of steel bridges is generally less than an equivalent concrete bridge because less material is needed for a steel bridge. Maintenance of steel structures has higher carbon footprint due to re-painting every 60 years (assuming a fluoropolymer paint coating), however this is a small component of the whole life carbon.

Option 1 – Steel bowstring truss

The embodied carbon of steel is approximately 1.2 to 2.0 tonnes of CO_2e per tonne of steel, depending on factors like the manufacturing process (basic oxygen furnace vs. electric arc furnace), energy sources, and the amount of recycled content used. Steel produced via electric arc furnaces with high recycled content can have a lower carbon footprint, sometimes closer to 0.4–0.7 tonnes of CO_2e per tonne.

However, steel is highly recyclable and therefore has a lower total embodied carbon than concrete. The overall carbon footprint can be reduced by optimizing the production process, increasing the use of recycled steel, and minimizing transportation distances.

The carbon emissions associated with maintenance (e.g., paint maintenance) of steel footbridges are higher than concrete footbridges, but this is a relatively small proportion of the overall whole life carbon footprint.

The volume of steel needed in combination with its recyclability at end-of-life results typically results in a lower whole life carbon footprint than a concrete bridge option.

Option 2 – Steel Full Through Truss

The whole life carbon footprint would be slightly greater than Option 1 due to its taller height.

Option 3 – Steel U Frame / Box

The whole life carbon footprint would be marginally greater than Option 1 & 2 due to the larger span-to-depth ratio.

Option 4 - Post-Tensioned Concrete U Frame

Concrete's embodied carbon varies based on the mix design and cement content. It ranges from 0.1 to 0.2 tonnes of CO_2e per tonne of concrete for standard concrete mixes. However, the embodied carbon can increase significantly with higher cement content. A significant GGBS content in the mix design reduces the carbon footprint, although it increases curing time.

The carbon emissions associated with maintenance of concrete footbridges are lower than steel footbridges, but this is a relatively small proportion of the overall whole life carbon footprint.

Concrete can be recycled as aggregate at the end of the structure life with the steel reinforcement also recycled to promote sustainability, although this is an energy intensive process.

The significant volume of concrete needed means that a concrete footbridge would typically have a higher whole life carbon footprint than a steel footbridge.

Option 5 – Cable Stayed Footbridge

This option would have a similar whole life carbon footprint to Option 1.

Summary

Sustainability consideration rankings for the structure options are presented in Table 10-1.

Table 10-1 - Sustainability consideration rankings

	Option 1 – Steel Bowstring Truss	**Option 2 – Steel Full Through Truss**	**Option 3 – Steel U Frame / Box**	**Option 4 – Post-tensioned Concrete U Frame**	**Option 5 – Cable Stayed Footbridge**
Sustainability consideration ranking 1 (worst) to 5 (best)	**5**	**3**	**2**	**1**	**5**

Options 1 & 5 would have the lowest carbon footprint.

11. Health & Safety Considerations

The construction works would be carried out in accordance with the 'Safety, Health and Welfare at Work (Construction) Regulations 2013'. All works would be carried out with approval from the Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) for the works as required by the above mentioned regulations.

Bollards would be provided at each end of the bridge to prevent vehicles driving on to the footbridge. These would be detailed in accordance with Part M of the Building Regulations (e.g., reflective or high contrast).

The proposed layout and bollards at the north ramp / Carrowmanagh Rd interface would be designed to prevent footbridge users accidentally rolling down the ramp into Carrowmanagh Road crossing.

Health and safety (H&S) considerations applicable to all the options are described below:

- Construction: Prefabricated or precast structural elements would be used, which maximises the amount of work which can be undertaken in a controlled factory environment.
- Construction: The footbridge would be transported to site, assembled, then lifted into position which reduces the amount of working at height / over water.
- Construction: An exclusion zone is required to facilitate lifting all superstructure options onto the abutments.
- Maintenance: Inspection and maintenance access to the structure would be provided with scaffold or a MEWP. A drone could also be used for inspection. The footbridge would be designed to sustain loading associated with a MEWP or temporary scaffold. A scaffold enclosure around the footbridge would be provided to enable safe access for maintenance.
- Maintenance: To minimise maintenance requirements, stainless steel or elastomeric pad bearings would be specified.

H&S considerations specific to the various structure options are described below.

Option 1 – Steel bowstring truss

- Operation: Trusses have open sides which improves passive surveillance and personal safety of people crossing the bridge.
- Construction: Lightweight prefabricated bridge, assembled on site and lifted into place. This option minimises the size/weight of the lifting equipment and mitigates the risk of working over water and accidental drowning.
- Maintenance: No hidden critical elements are created
- Maintenance: Fabricated hollow sections would be specified as air-tight to avoid the need for internal maintenance access.

Option 2 – Steel Full Through Truss

Similar to option 1, except the extra height of the structure at the abutments would increase working at height risks associated with inspection and maintenance.

Option 3 - Steel U Frame / Box

- Operation: The U frame upstands would partially reduce passive surveillance and personal safety of people crossing the bridge.

- Construction: The prefabricated footbridge bridge would be assembled on site and lifted into place. This option mitigates the risk of working over water and accidental drowning.
- Construction: The footbridge would be slightly heavier that options 1 & 2, thus requiring heavier lifting equipment.
- Maintenance: Fabricated hollow sections would be specified as air-tight to avoid the need for internal maintenance access.

Option 4 - Post-Tensioned Concrete U Frame

- Operation: The U frame upstands would block passive surveillance of the bridge deck which impacts the personal safety of people crossing the bridge.
- Construction: Assembly of the large, heavy precast concrete segments on site and associated post-tensioning operations would be a complex and risky operations.
- Construction: The lifting equipment requirements would be significantly greater than the other options with associated risk.
- Maintenance: Concrete maintenance to the external faces of the bridge deck would require erection of a scaffold enclosure for safe access.

Option 5 – Cable Stayed Footbridge

- Operation: The open sides of the bridge would enable passive surveillance of people crossing the bridge which improves personal safety.
- Construction: Working at height / over water would be needed to connect the prefabricated bridge deck to the cable stays.
- Maintenance: Paint maintenance on the south tower would require work at height. Maintenance of the cable stays would require work at height / over water.

Summary

H&S ranking for the various options is presented in Table 11-1.

Table 11-1 – Health and safety ranking

	Option 1 – Steel Bowstring Truss	Option 2 – Steel Full Through Truss	Option 3 - Steel U Frame / Box	Option 4 – Post-tensioned Concrete U Frame	Option 5 – Cable Stayed Footbridge
Ranking 1 (worst) to 5 (best)	5	4	3	2	1

Option 1 has the best H&S ranking because it provides a bridge deck with open sides which improves passive surveillance and personal safety of bridge users, and it is slender and tapers down at the abutments which reduces work at height risks during maintenance. Fabrication is primarily carried out in a controlled factory environment.

All the options incorporate the following features which enhance H&S: construction can utilise prefabricated / precast methods in a controlled factory environment; the bridge deck can be assembled then lifted into position which avoids working over water / at height; and the bridge decks can be designed to sustain the weight of a MEWP or scaffold to enable maintenance access.

12. Construction and Buildability

For all options, construction of the foundations/substructures of the abutments in restricted working areas whilst employing pollution control measures would require careful planning and supervision.

The abutments would be precast concrete on the northern side and in-situ or precast concrete on the southern side.

The footbridge superstructure for all options would be fabricated in sections off site, transported and assembled into a single span adjacent to the crane.

A construction compound near to the proposed crossing site and large enough to assemble the lifting equipment and footbridge is required for all options.

Option 1 – Steel bowstring truss

This is a conventional structure type. Contractors and fabricators have experience fabricating and constructing this type of structure.

The footbridge superstructure is lightweight which would be lifted by readily available equipment.

Option 2 – Steel Full Through Truss

Similar to Option 1, except the transport requirements would be slightly more onerous as the height of the truss sections would be greater than option 1.

Option 3 - Steel U Frame / Box

Similar to Option 1, except fabrication would be more onerous as it requires cutting/joining of more bespoke parts and the cross section is smaller and more awkward to work inside during welding operations.

Option 4 - Post-Tensioned Concrete U Frame

Segmental concrete PT structures are uncommon, therefore procuring an experienced Contractor would be more challenging than Options 1, 2 & 3. There is a risk of delays during supply of materials/components.

This option requires relatively large foundations due to the weight of the superstructure (approx. 250T to 300T). This would be challenging to construct in the restricted working space available particularly on the north bank.

This option requires relatively large craneage requirements due to its weight.

Option 5 – Cable Stayed Footbridge

A limited number of suppliers and contractors have experience with cable stay systems which could impact procurement.

This type of bridge structure is not common in Ireland, which could result in delays during supply of materials/components and construction.

The south tower would be prefabricated in sections, transported to site, and erected. The back stays would be anchored into rock sockets or piled foundations.

The bridge deck would be prefabricated then transported to site. It could either be lifted into position in sections and supported from the cable stays or assembled as an entire length then lifted into position. The former approach reduces the space needed to assemble the deck on the ground and reduces craneage requirements, whereas the latter approach minimises work over water with associated H&S benefits.

This structure option has the smallest craneage requirements because the reach required to erect the south tower is minimal, and the lifting weight of the deck itself is relatively small.

This option reduces the size of abutment foundations required on the north side where space is limited and the setback from the riverbank crest is least, which benefits buildability.

Summary

Construction and buildability ranking for the options is presented in Table 12-1 below.

Table 12-1 – Construction and buildability banking

	Option 1 – Steel Bowstring Truss	Option 2 – Steel Full Through Truss	Option 3 - Steel U Frame / Box	Option 4 – Post-tensioned Concrete U Frame	Option 5 – Cable Stayed Footbridge
Ranking 1 (worst) to 5 (best)	**5**	**4**	**3**	**2**	**1**

Option 1 has the best ranking on construction and buildability. It is a conventional steel structure option and many suppliers have the relevant experience. It is easier to fabricate than option 2 & 3, and it is easier to transport than Option 2 (steel full through truss).

13. Ground Conditions

13.1.1 North Abutment and Ramp

A trial pit in the overburden and rotary core into the rock was carried out in Nov'24 at the proposed footbridge northern abutment location. Logs from the GI are shown in Appendix E. Limestone bedrock was encountered at 9.4mOD which is 1.4m depth below ground level (bgl). The vertical sides of the trial pit through the overburden (alluvium with cobbles) were self-supporting.

A ground investigation (GI) carried out in 2006 (see Factual Report on Site Investigation for N59 Oughterard Bridge, by Ground Investigations Ireland - see Appendix D) approx. 110m west of the proposed footbridge location found limestone bedrock at 9.8m AOD on the north side of the river.

Given the shallow depth to bedrock, precast reinforced concrete (RC) spread foundations for the north abutment and ramp are proposed as follows:

- Vertical sides of the excavation to maximise setback of the works from the riverbank crest.
- Full depth excavation to bedrock limited to discrete areas to minimise the amount of excavation and potential ecology impacts.
- Maximise the setback of the full depth excavation areas from the riverbank crest.
- Cast a blinding layer on the bedrock with in-situ concrete to form a level surface, and crane precast concrete foundation/substructure elements into position.

Excavation works associated with shallow spread foundations would be completed within 1-2 days and could be carried out during dry weather periods to mitigate potential ecology impacts associated with surface water run-off into the river. Excavation spoil would be directly removed from site, rather than being temporarily storing on the riverbank.

13.1.2 South Abutment

Ground investigations (GI) at the proposed south abutment will be undertaken on Planning approval. The appropriate foundation type would then be selected – either a deep spread RC foundation or a shallow foundation on bored piles would be appropriate.

The proposed south abutment is located on a small plateau of ground which falls away by 2m and 3m to the north, west and east. There are masonry/boulders visible in the side slopes of this plateau, so it appears to be made ground. This material could be attributed to the rock which was blasted/dredged from the Owenriff River in the 1950's, and/or to the demolished army barracks previously on this site. There is a combined sewer pipe at a depth of circa 4.10m bgl (invert level 9.81mOD) adjacent to the proposed south abutment location. It is possible that the bedrock is below this pipe level. If this is the case, a bored pile foundation would be appropriate, or, if the overburden material was found to be competent, then a shallower spread foundation would be appropriate.

Silt fencing and collection, treatment and removal of surface water would be used to mitigate potential ecology impacts on the river.

For bored mini-pile option, the likely pile would consist of 5 to 10 no. mini piles with a diameter of approx. 150mm to 300mm. The rock socket depth would be approx. 0.5m. An RC pile cap would be provided at ground level.

A protection slab may be required over the combined sewer pipe to accommodate the crane pads in this area. The design of this is dependent on the outcome of GI and a structural assessment of the buried pipe and crane loading.

A ground investigation (GI) carried out in 2006 (see Factual Report on Site Investigation for N59 Oughterard Bridge, by Ground Investigations Ireland – see Appendix D) in the N59 road verge adjacent to the old restaurant building (approx. 110m west of the proposed footbridge), found limestone bedrock at 13.0m AOD. If this bedrock level continues to the proposed south abutment location, a shallow spread foundation would be appropriate.

14. Consultation with Relevant Authorities /Stakeholders

The following authorities / stakeholders have been / will be consulted as part of the scheme development:

- Galway County Council
- TII
- Office of Public Works (OPW)
- Inland Fisheries Ireland
- National Parks & Wildlife Service
- Utility providers
- Adjacent landowners

Particular requirements recommended by the relevant authorities are referenced in other sections of the report and the structure options are evaluated with respect to them.

15. Conclusions & Recommendations

Evaluation criteria ranking (1 is worst and 5 is best), total score, and overall ranking is provided for each option in Table 15-1.

Table 15-1 – Multi criteria assessment of the options

Evaluation criteria ranking (5 is best)	**Option 1 – Steel Bowstring Truss**	**Option 2 – Steel Full Through Truss**	**Option 3 - Steel U Frame / Box**	**Option 4 – Post-tensioned Concrete U Frame**	**Option 5 – Cable Stayed Footbridge**
Technical Evaluation	5	5	3	1	2
Economic Evaluation	5	4	3	2	1
Aesthetic Evaluation	5	4	3	1	2
Durability and Maintenance	5	4	3	1	2
Hydraulic Considerations	5	5	2	2	5
Environmental Considerations	5	5	3	2	2
Sustainability Considerations	5	3	2	1	5
Health & Safety	5	4	3	2	1
Construction and Buildability	5	4	3	2	1
Total rank score out of 45:	**45**	**38**	**25**	**14**	**21**
Overall ranking:	**First (best)**	**Second**	**Third**	**Fifth (worst)**	**Fourth**

Option 1, 'Steel bowstring truss' is recommended as the preferred option with the highest total ranked score. A steel truss is a tried and tested construction type which poses minimal cost and programme risk, which is important given the urgency to address the VRU safety issue on the existing road bridge. The open sides of a truss minimise shade effects on the riverbed, which mitigates potential ecology impacts on the FPM. A truss is relatively lightweight compared to a concrete structure which reduces craneage and foundation requirements. The appearance of a truss footbridge would be enhanced with architectural detailing. An appropriate colour scheme and the use of sympathetic materials for secondary elements would be considered. A carbon steel structure with paint protection has a 120-year design life with appropriate paintwork maintenance. The potential ecology impacts of paintwork and other substantial maintenance work could be mitigated with a shrouded scaffold enclosure. The use of high-performance steel coatings, such as fluoropolymer paint, would be explored during design. It represents the lowest embodied carbon option. The clearance under the deck at the riverbanks is restricted, however stainless-steel bearings, omission of abutment cheek walls, and removeable deck panels would ease access for major maintenance. The structural depth below deck level is minimised with this structure option which maximises clearance. This structure type would be prefabricated in sections, transported to site, assembled, then lifted into position which minimises working over water / at height and its associated potential ecology impacts.

Option 2, 'Steel full through truss' has the second highest total score and ranks second best. It scores the same or slightly lower than Option 1 on all criteria. Compared to Option 1, the full height of the truss at the abutments makes this option more visually obtrusive, and requires more working at height to carry out inspection and maintenance.

Option 3, 'steel U frame / box' ranks third. As a steel structure with slender proportions, it scores similar to Option 1 on several criteria. However, a varying depth steel U-frame / box structure is more complex to design and build, therefore it scores lower on technical and economic evaluation criteria. The soffit of the bridge deck is lower which reduces the freeboard provided over the flood level to accommodate a scaffold enclosure for paintwork maintenance. It also scores lower on environmental considerations because the side walls of the U-frame would cast more shade than an open truss structure, which increases potential ecology impacts on FPM.

Option 5, 'Cable stayed footbridge' is ranked fourth. It would provide a slender deck structure with the south tower partially hidden in elevation by the adjacent trees, although it would be obtrusive when viewed 'end on'. Abutment foundation works would be concentrated on the south riverbank where there is better access and more setback available for ecology impact mitigation measures. The craneage and site compound size requirements for this structure option are relatively small. It offers the lowest carbon footprint. However, the modern, striking appearance of this structure option is not in keeping with the ACA setting. Inspection and maintenance of the cable stay system would be a specialist activity which would require significant working at height with associated H&S risks. The cables would pose a hazard to any large birds flying along the river corridor. The construction cost of this structure would be quite high. Design of a cable stayed structure and verification of dynamics is more technically demanding than other options.

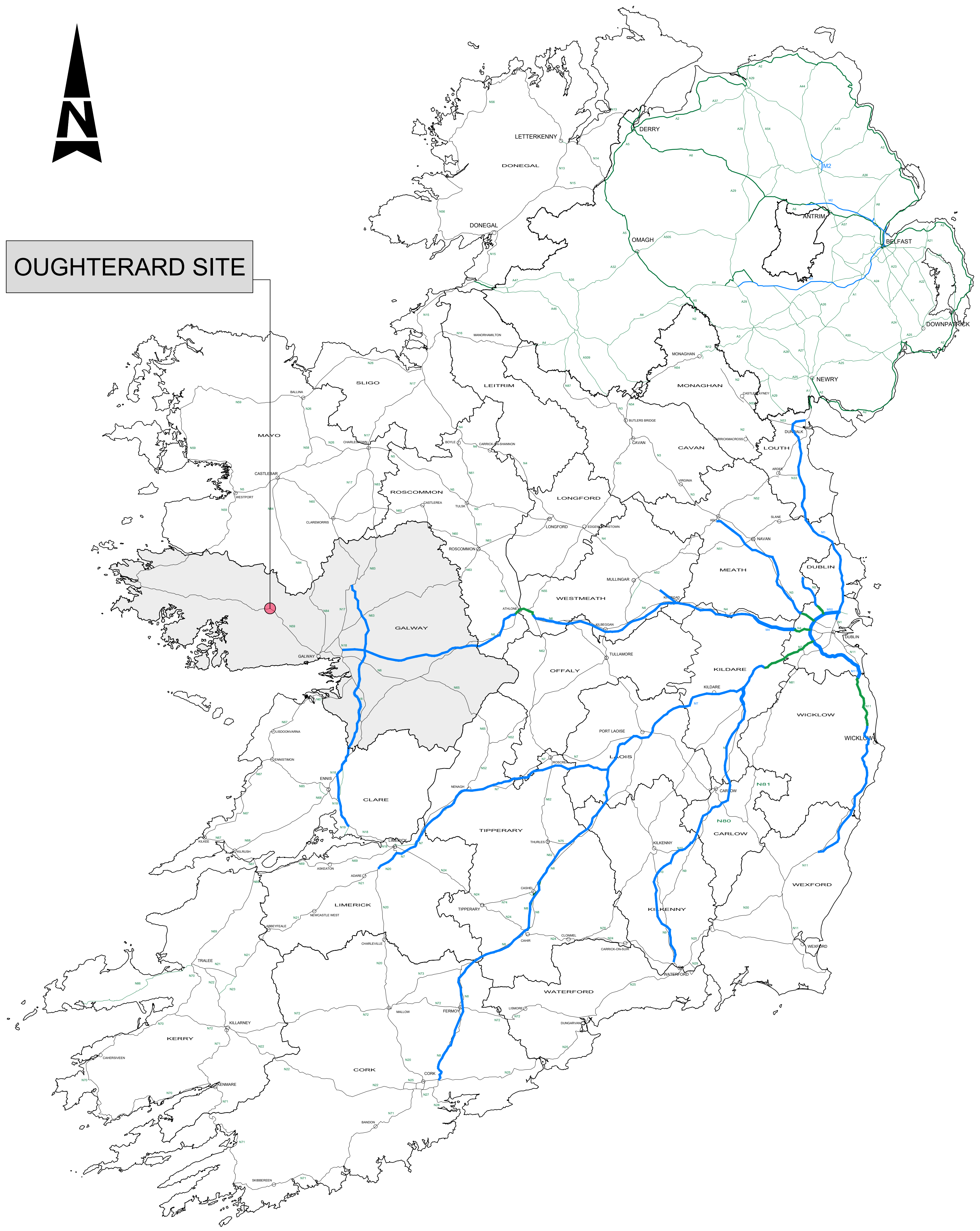
Option 4, 'post tensioned concrete U frame' is ranked lowest, i.e., least preferable. It is a slender, low maintenance structure option. The appearance of the concrete would be enhanced with a high specification finish, a faceted profile, and/or timber cladding. PT, segmental concrete structures are Category 3 structures which are complex to design. The PT tendons would be a hidden critical element and their condition, particularly at joints between the precast segments, would need to be confirmed with inspection during routine maintenance which is a specialist activity. A shrouded scaffold enclosure would be needed to mitigate potential ecology impacts during PT investigations / maintenance. The side walls of the U-frame would cast more shade than an open truss structure, which increases potential ecology impacts on FPM. The heavy weight structure has the highest carbon footprint. Tensioning and grouting of the PT tendons would require a Contractor with specialist expertise for quality control. Craneage and foundation requirements for this option would be the largest due its heavy weight.

APPENDICES

Appendix A. Site Location Plan

A1

DO NOT SCALE



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Rev	Description	By	Date	Chk'd	Rev'd	Auth
C00	ISSUED FOR PLANNING	KS	06.25	MC	MC	MJ

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Project
N59 OUGHTERARD FOOTBRIDGE

Purpose
PLANNING ISSUE

Title
LOCATION MAP

Original Scale	Drawn	Checked	Reviewed	Authorised
NTS	AOS	MC	CP	MJ
	Date 07.03.24	Date 07.03.24	Date 07.03.24	Date 07.03.24

Status	Drawing Number	Rev
CO	0088798-ATK-XX-XX-DR-CE-900100	C00

Appendix B. Existing General Arrangement Drawing

100

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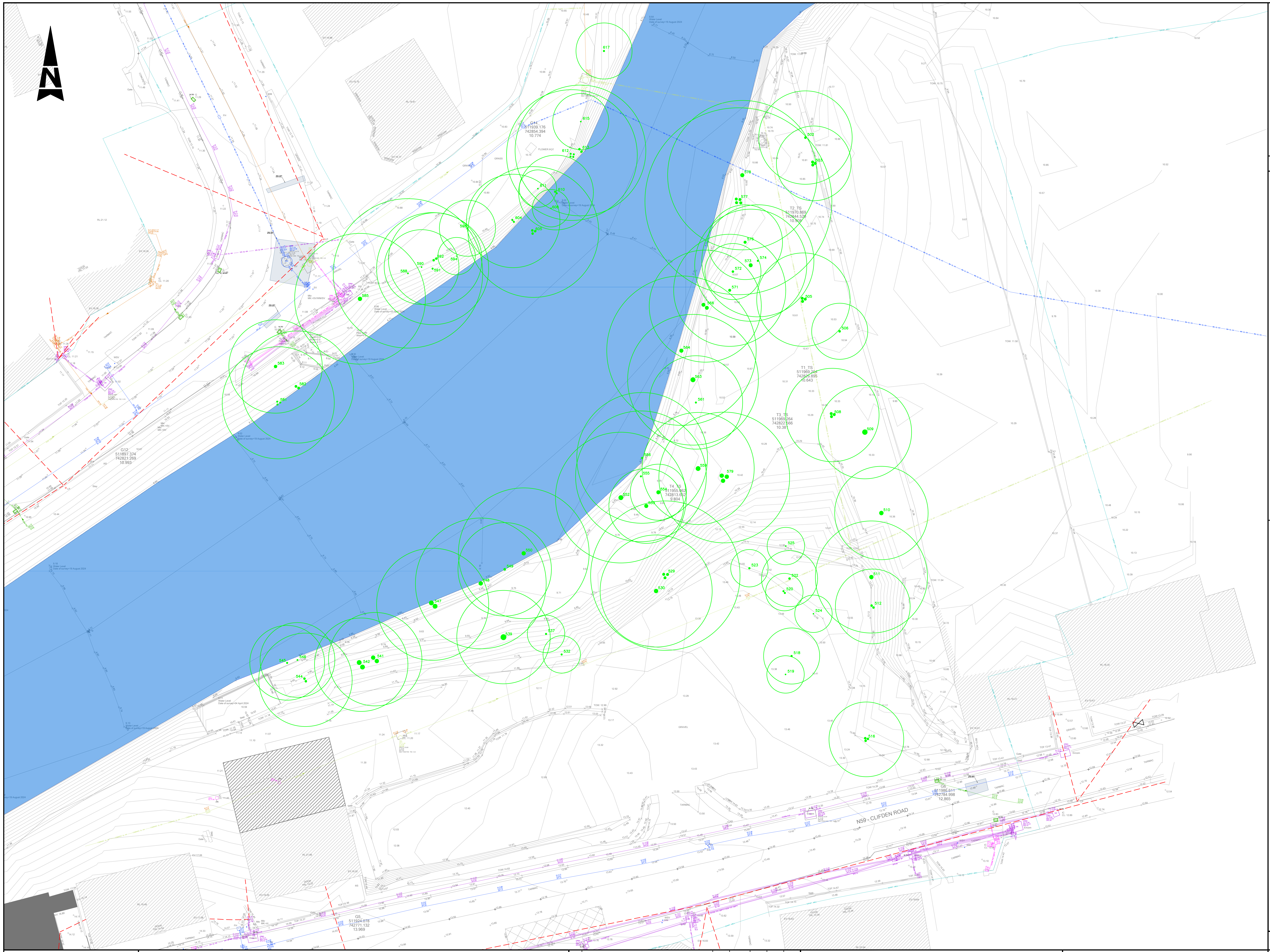
A1

DO NOT SCALE



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SERVICES LEGEND

- UNDERGROUND ELECTRICITY LINE
- EMH EMH ELECTRICAL M/HOLE
- EP OVERHEAD LINE WITH POLE
- OVERHEAD ELECTRIC
- ESB HV UNDERGROUND HV ELECTRICITY LINE
- PUBLIC LIGHTING ELECTRICITY LINE
- LP 6M HIGH STREET LIGHT
- MP/PL MINI PILLAR
- U/G ELECTRIC TRAFFIC CONTROL
- TMH TMH TRAFFIC CONTROL M/HOLE
- EIR
- EIR EIR EIR CHAMBER
- TP OVERHEAD LINE WITH POLE
- ENET
- ENET ENET ENET CHAMBER
- COMMS
- COMMS COMMS COMMS CHAMBER
- VIRGIN
- VIRGIN VIRGIN VIRGIN CHAMBER
- FIBRE
- FBO FBO FIBRE CHAMBER
- AURORA TELECOM
- AURORA AURORA AURORA TELECOM CHAMBER
- CATV
- CATV CATV CATV CHAMBER
- BT/ESAT
- BT/ESAT BT/ESAT BT/ESAT CHAMBER
- SIRO FIBRE
- SIRO SIRO SIRO CHAMBER
- UNID UNIDENTIFIED SERVICE
- UNMH UNMH UNIDENTIFIED CHAMBER
- EARTH LINE AND RODS
- SENSOR TRAFFIC SENSORS
- CCTV CCTV POLE
- UTILITIES CABNET

- FOUL DRAINAGE
- FMH FMH FOUL MANHOLE
- STORM DRAINAGE
- SMH SMH STORM DRAINAGE MANHOLE
- COMBINED DRAINAGE
- CMH CMH COMBINED DRAINAGE MANHOLE
- PRODUCT DRAINAGE
- PMH PMH PRODUCT DRAINAGE MANHOLE
- CHEMICAL LINE
- CHEM CHEM CHEMICAL MANHOLE
- ROAD GULLY
- GULLY TRAP
- WATER MAIN
- SV SLUICE VALVE
- HYD FIRE HYDRANT
- WM WATER METER
- ScV SCOUR VALVE
- PRV PRESSURE RELEASE VALVE
- AV AIR VALVE
- NRV NON-RETURN VALVE
- FUEL FUEL LINE/TANK
- GSV GAS SV
- GAS GAS LINE
- GAS HP GAS HIGH PRESSURE LINE

GL 00.00	GROUND LEVEL (METRES - OS DATUM)
CL 10.00	COVER LEVEL (METRES - OS DATUM)
IL 10.00	INVERT LEVEL (METRES - OS DATUM)
DP1.50	DEPTH TO TOP OF SERVICE DUCT OR CABLE

DP ON MANHOLES = INVERT LEVEL OF CHAMBER

DP ON DRAINAGE = INVERT LEVEL OF PIPE

UTO	UNABLE TO OPEN
OSA	OUTSIDE SURVEY AREA
UTT	UNABLE TO TRACE
(E)	EMPTY DUCT
(CD)	CLOSED DUCT
SURVEY AREA	SURVEYED AREA

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Rev	Description	By	Date	Chk'd	Rev'd	Auth
P02	ISSUED FOR REVIEW	AGL	11.24	AK	MC	MJ
P01	ISSUED FOR REVIEW	AGL	09.24	AK	MC	MJ
P0	ISSUED FOR REVIEW	KS	08.24	AK	MC	MJ

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
EXISTING GENERAL ARRANGEMENT
LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:200	AGL Date 28.11.24	AK Date 28.11.24	MC Date 28.11.24	MJ Date 28.11.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-CE-900026	P02

File: 0088798-ATK-XX-XX-DR-BE-900026.dwg
Date: Nov 28, 2024 - 11:30am Plotted by: alopez

U:\0088798\6 Dwgs-Graphics\61 AutoCad\0088798-ATK-XX-XX-DR-BE-900026.dwg

Appendix C. Structure Options General Arrangement Drawings

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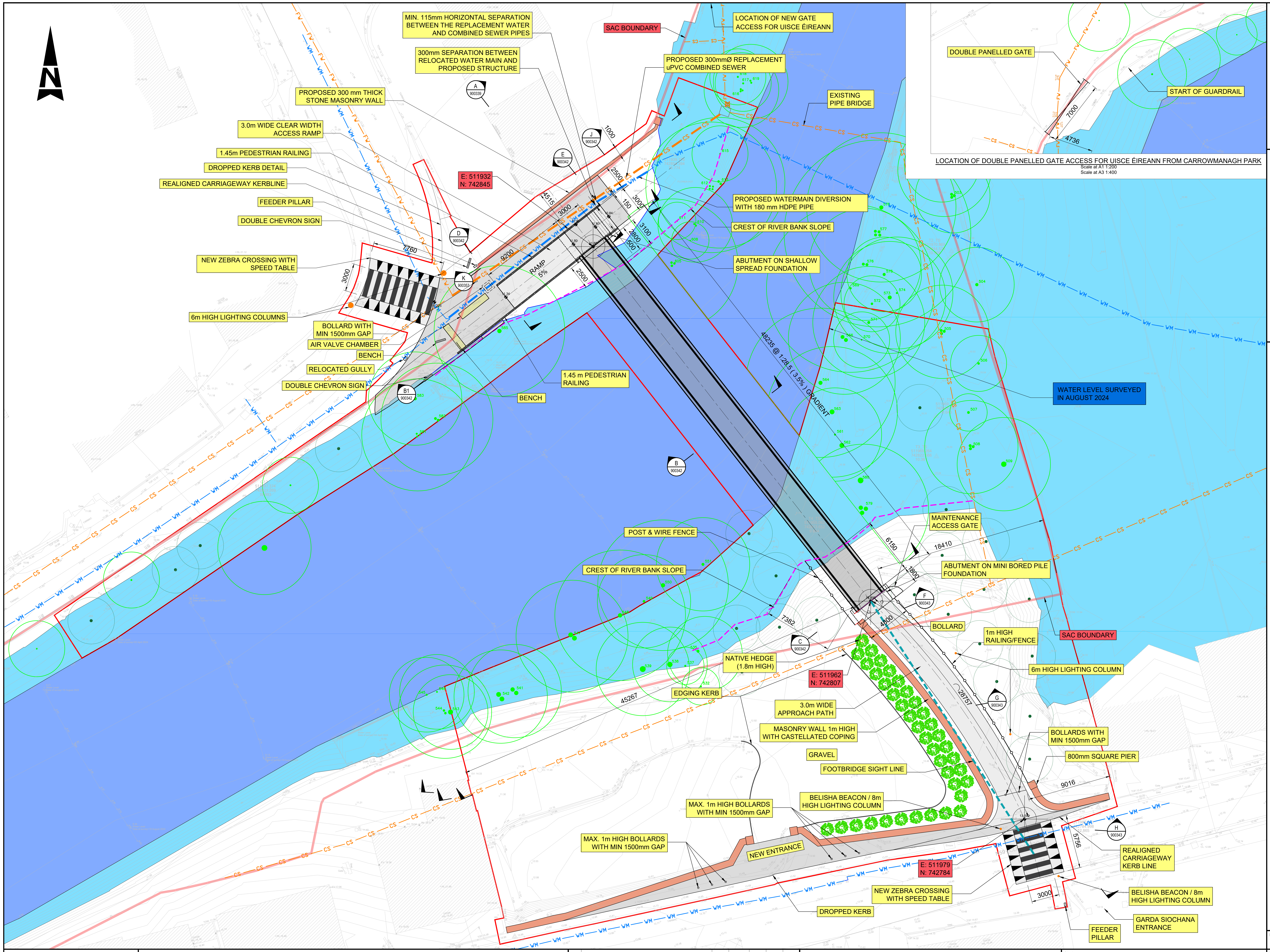

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LEGEND:

— WM —	EXISTING WATER MAIN
▬ WM ▬	PROPOSED WATERMAIN DIVERSION
— CS —	EXISTING COMBINED SEWER
▬ CS ▬	PROPOSED REPLACEMENT COMBINED SEWER
— FW —	EXISTING FOUL DRAINAGE
▭	1% ANNUAL EXCEEDENCE PROBABILITY FLOOD ZONE (MID RANGE FUTURE SCENARIO)
—	SITE LAYOUT BOUNDARY
⊙	EXISTING TREE TO BE RETAINED
⊙	PROPOSED TREE

NOTES:

1. THE DESIGN USES THE EXISTING STORM DRAINAGE SYSTEM.

2. ELECTRICAL WIRING, DUCTING & PILLAR DETAILS WILL BE CONFIRMED AT DETAILED DESIGN.

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Rev	Description	By	Date	Chk'd	Rev'd	Auth
C00	ISSUED FOR PLANNING	KS	06.25	MC	MC	MJ

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N59 OUGHTERARD FOOTBRIDGE

Purpose
PLANNING ISSUE

Title
PROPOSED GENERAL ARRANGEMENT - LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:200	AOS Date 26.06.24	AK Date 26.06.24	MC Date 26.06.24	MJ Date 26.06.24

Status	Drawing Number	Rev
CO	0088798-ATK-XX-XX-DR-CE-900331	C00

File: 0088798-ATK-XX-XX-DR-CE-900331, 39, 42, 46-47, 53.dwg Plotted by: STEP1160
Date: Jun 16, 2025 - 4:59pm

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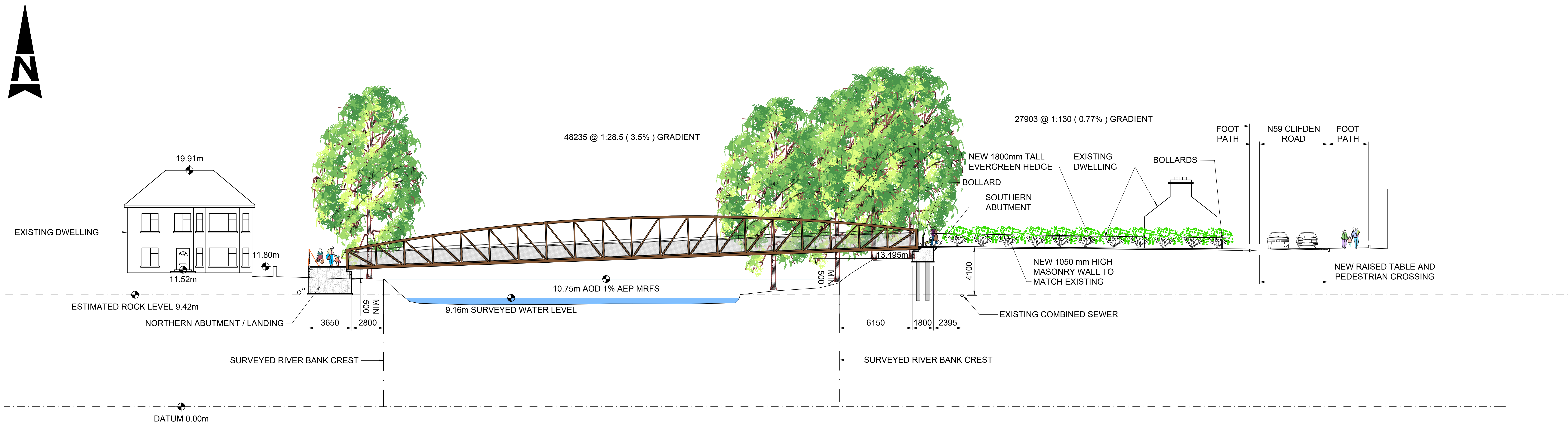

SECTION A: PROPOSED PEDESTRIAN BRIDGE LONGITUDINAL SECTION

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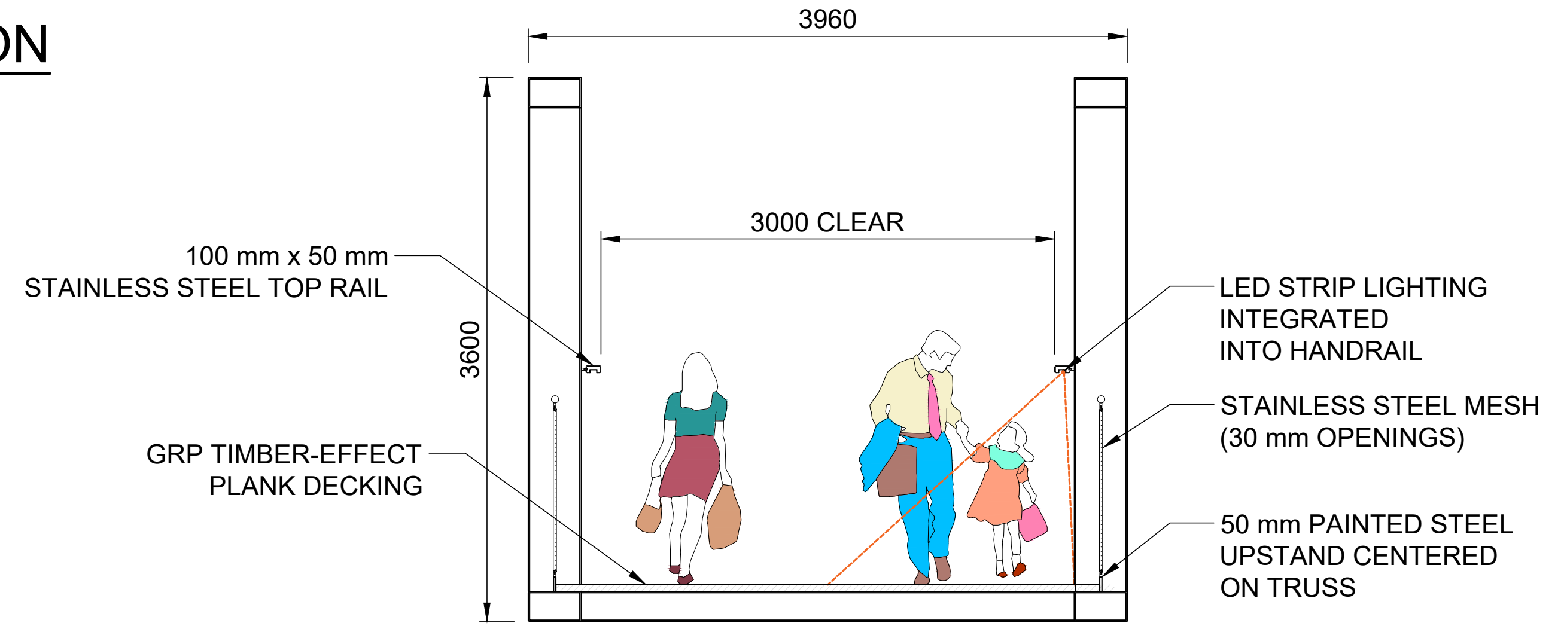
Scale at A3 1:400



SECTION B: MIDSPAN BRIDGE CROSS SECTION

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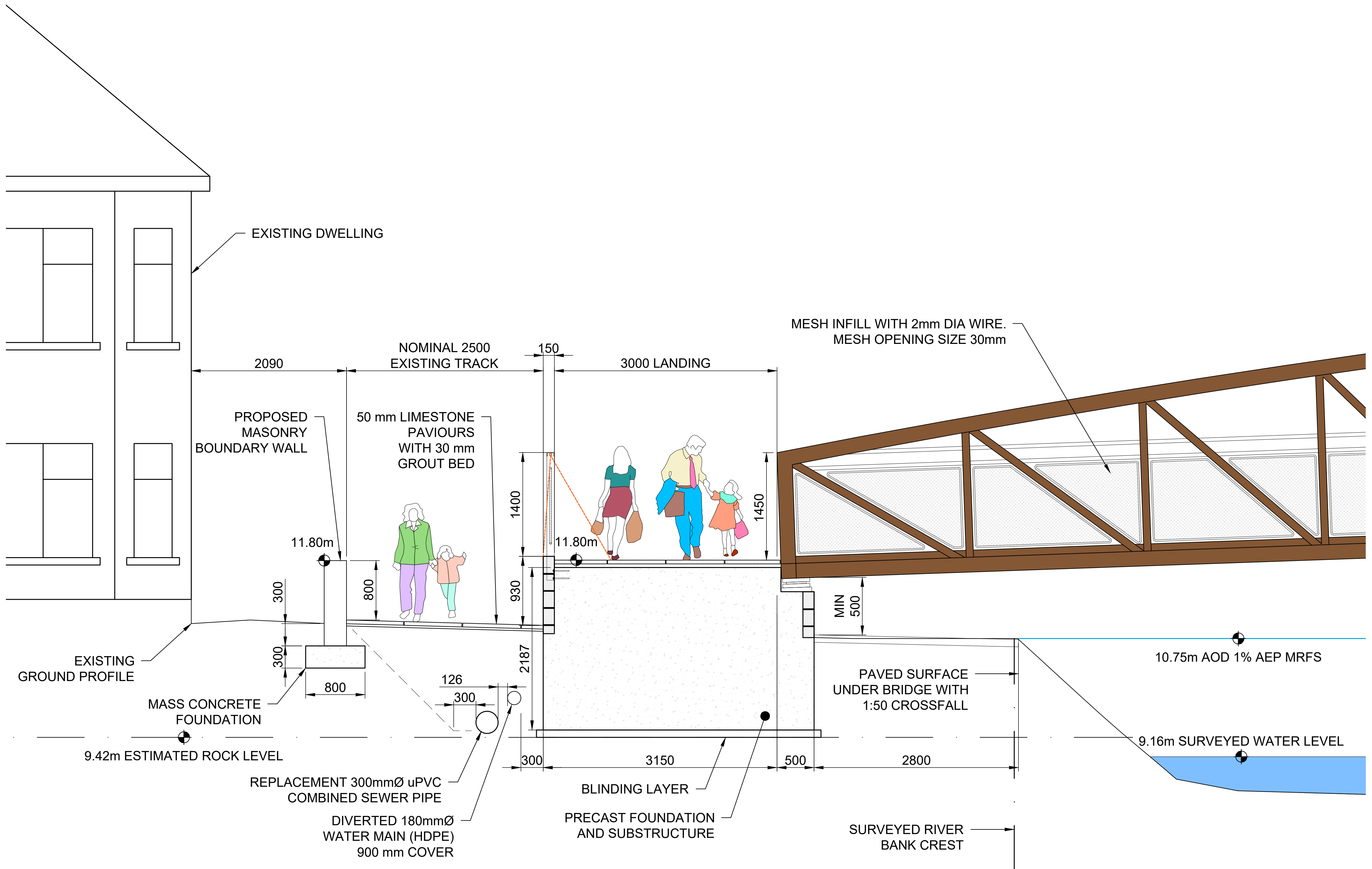

NORTHERN ABUTMENT LONGITUDINAL SECTION

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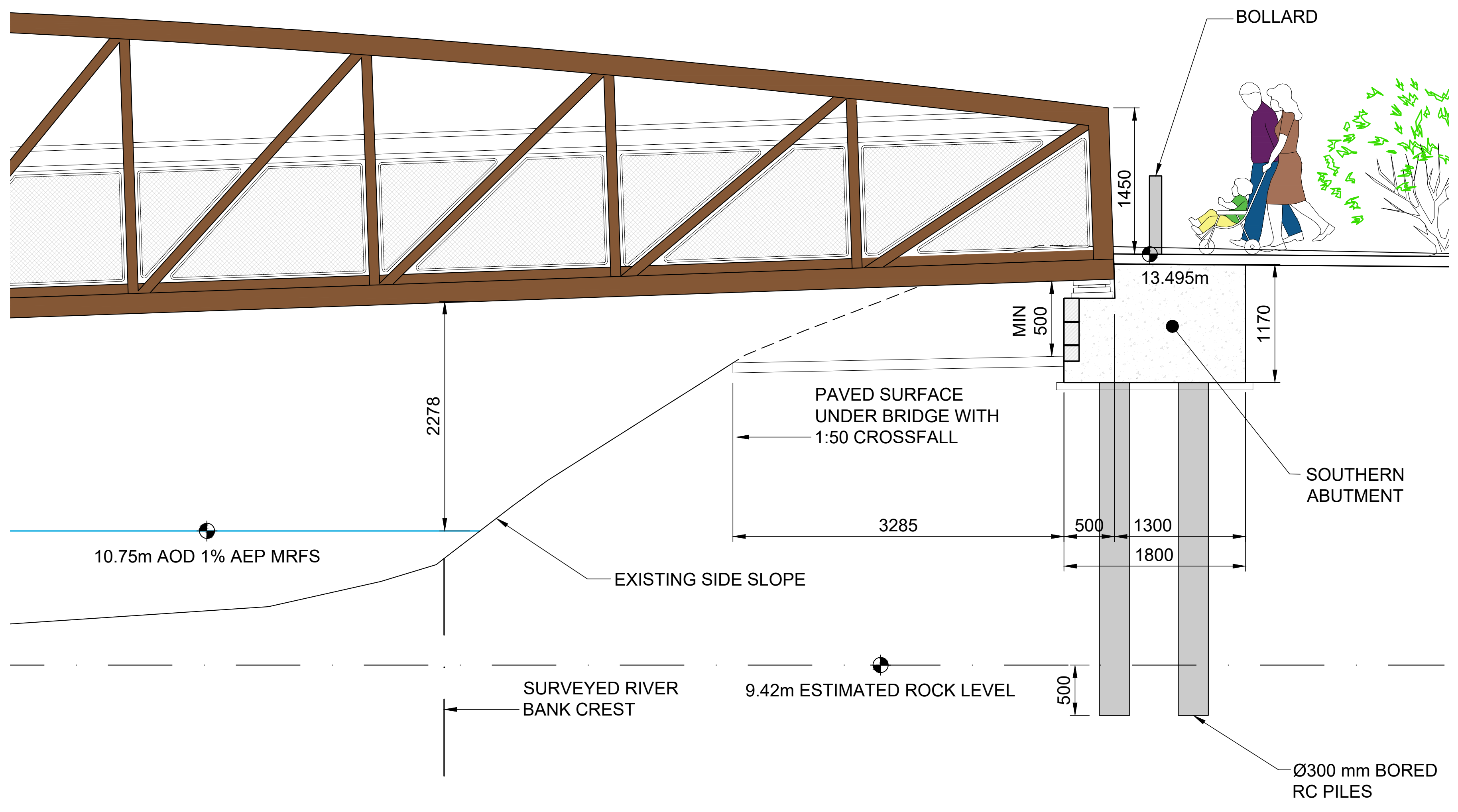
Scale at A3 1:100



SOUTHERN ABUTMENT LONGITUDINAL SECTION

Scale at A1 1:50
Scale at A3 1:100

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Title
PROPOSED GENERAL ARRANGEMENT - SECTIONS - SHEET 1

Original Scale	Drawn	Checked	Reviewed	Authorised
1:50, 200	KS Date 01.08.24	AK Date 01.08.24	MC Date 01.08.24	MJ Date 01.08.24

Status	Drawing Number	Rev
CO	0088798-ATK-XX-XX-DR-CE-900339	C00

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A1

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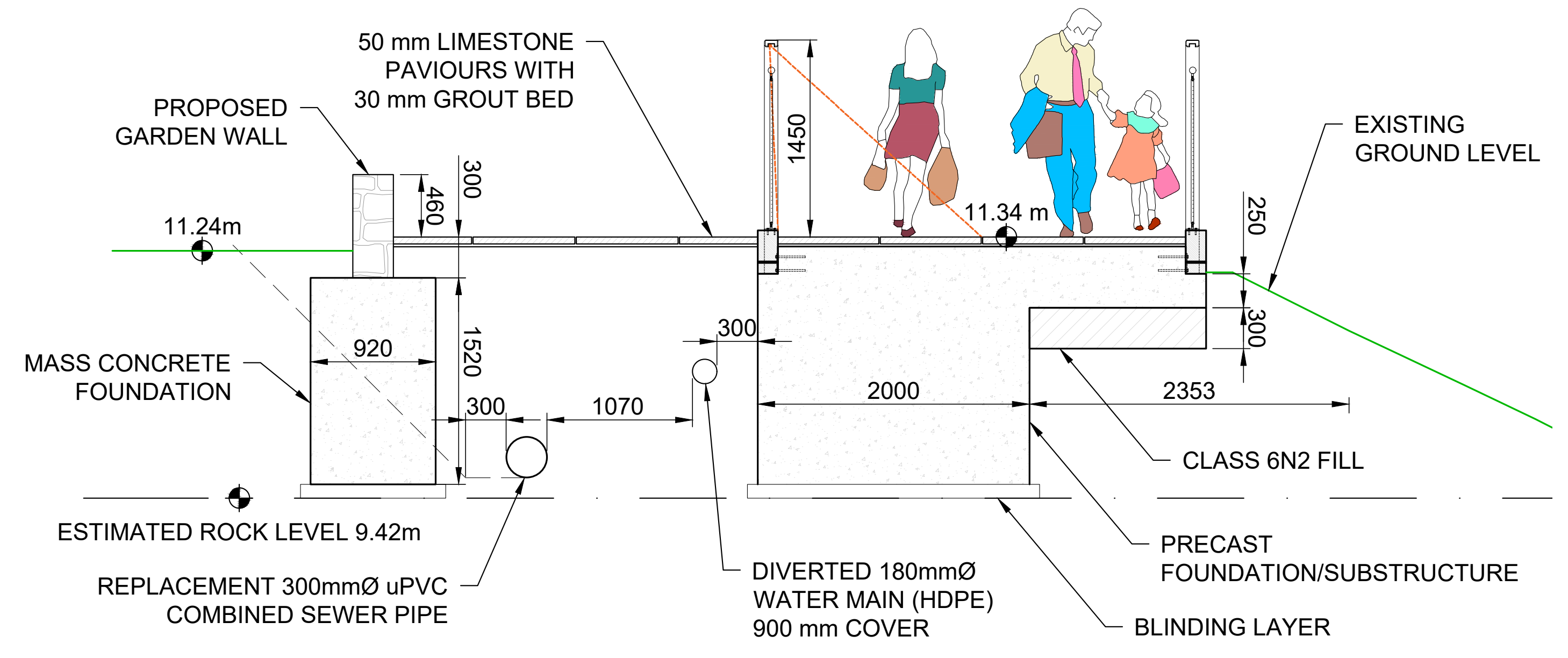

SECTION D

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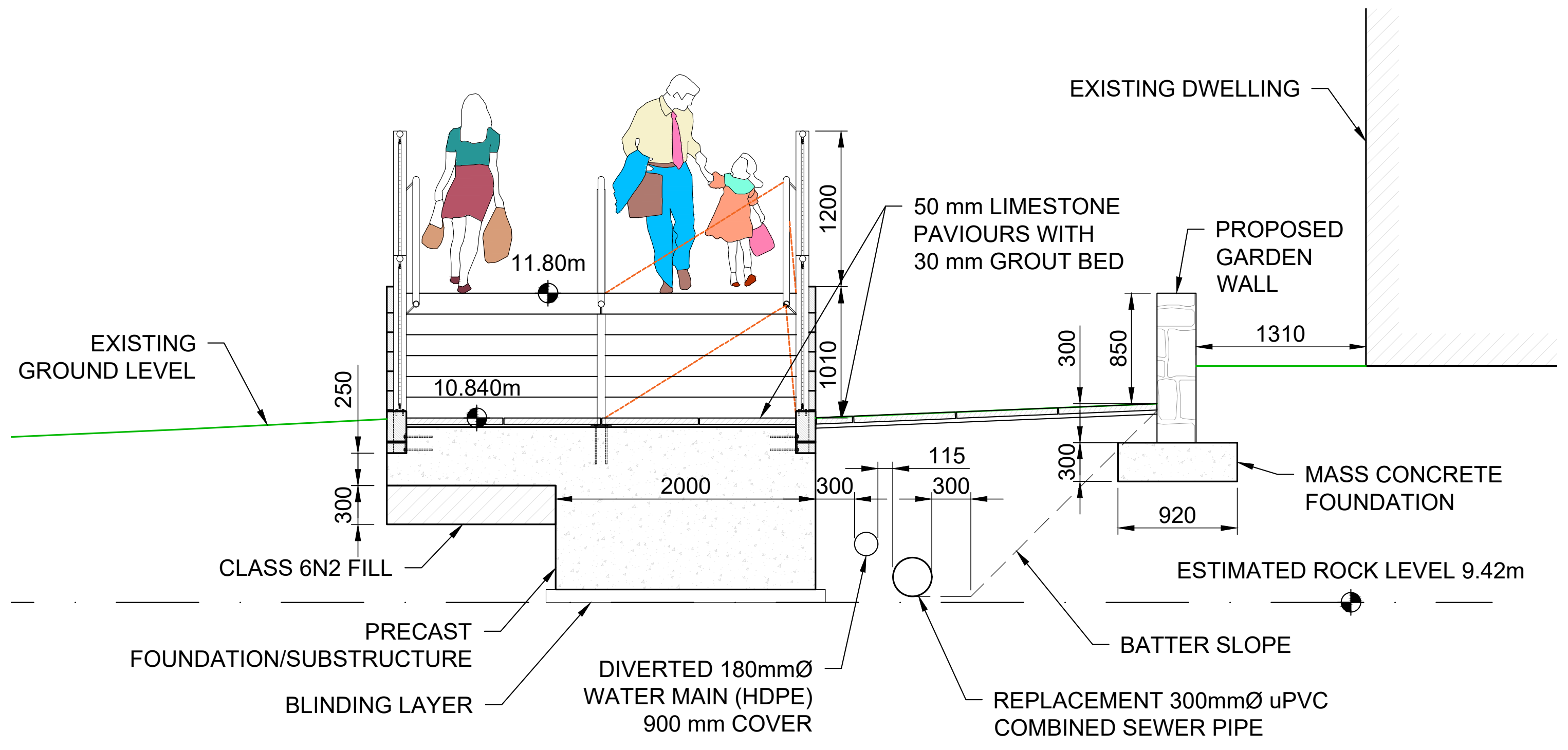

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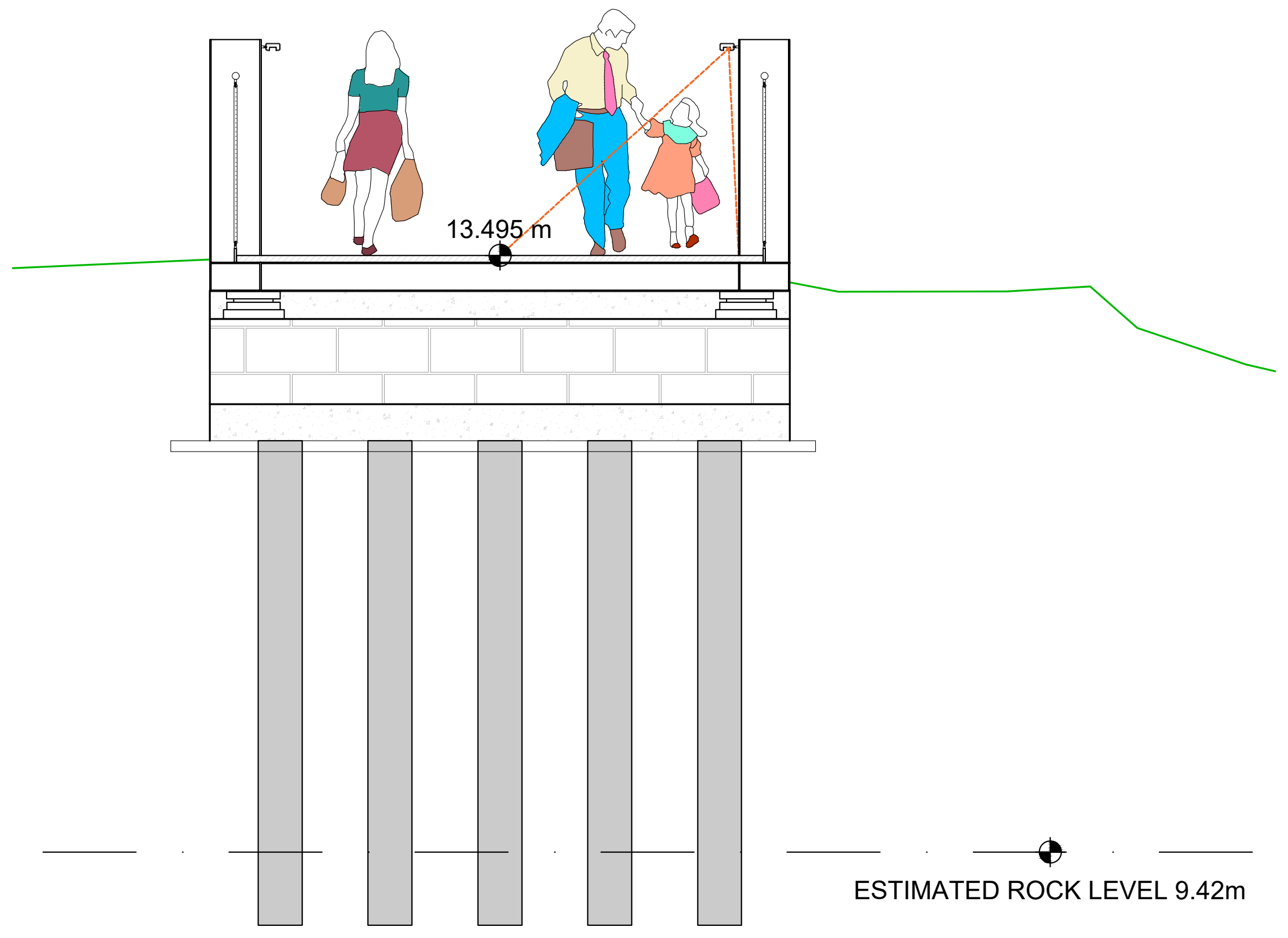

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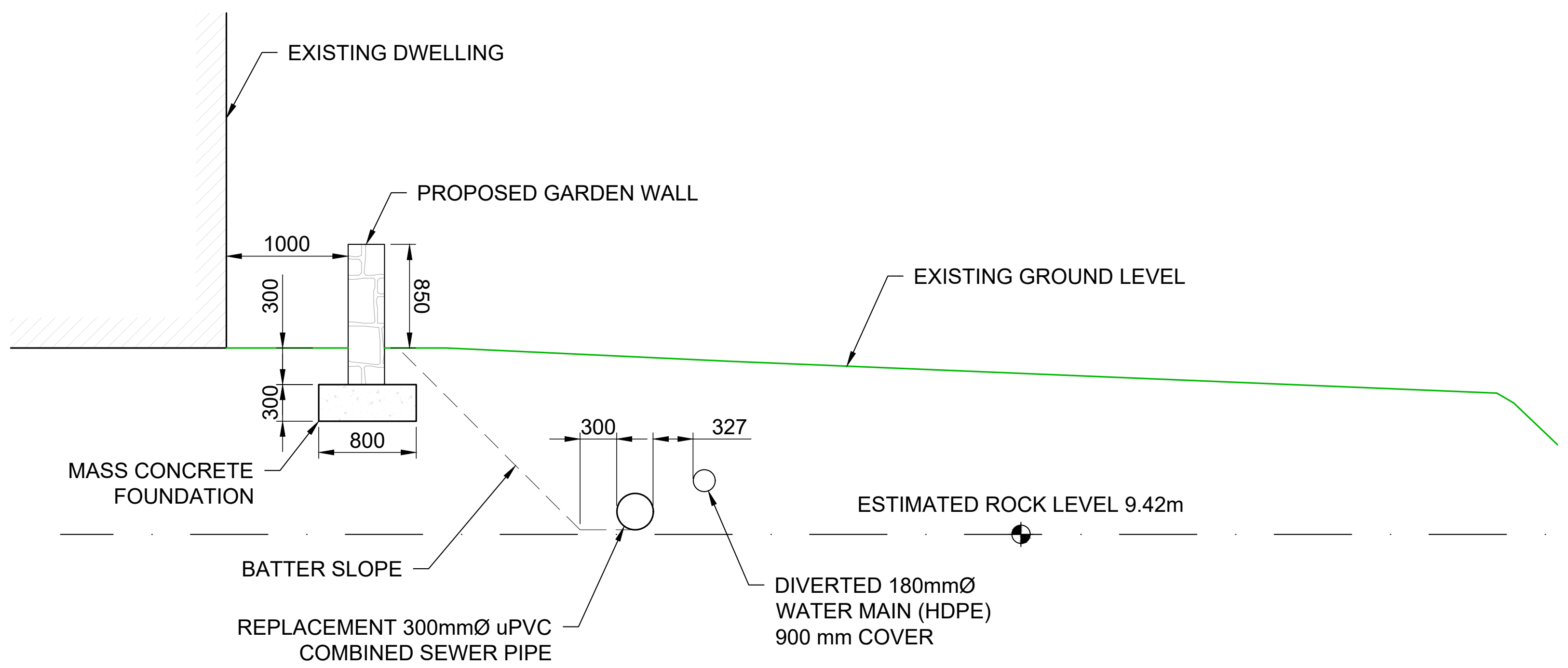

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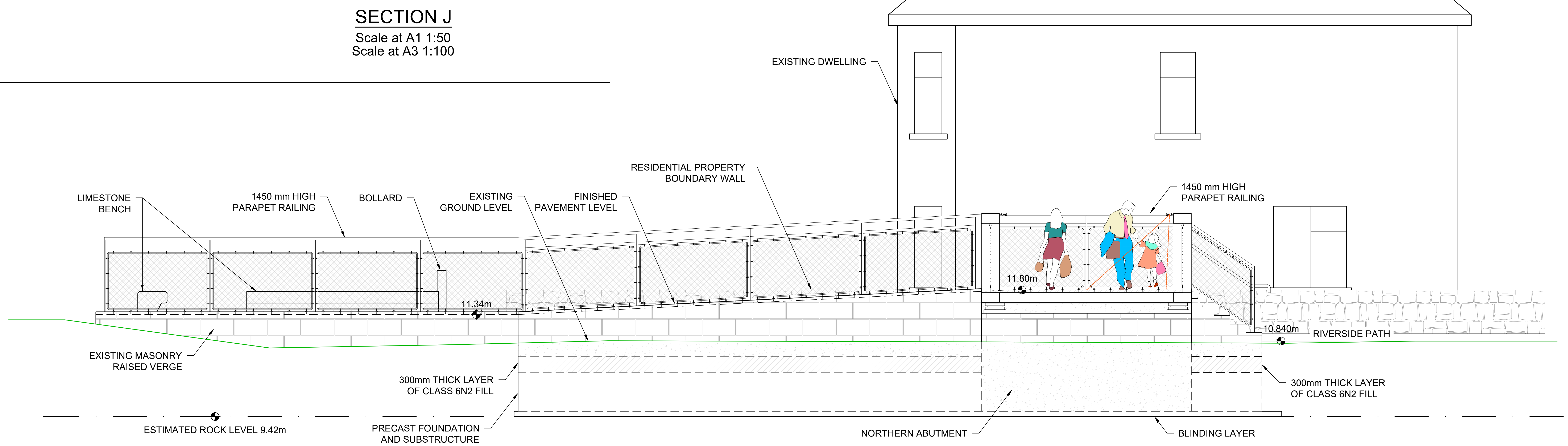

SECTION B1

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Scale at A3 1:100

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Purpose
PLANNING ISSUE

Title
PROPOSED GENERAL ARRANGEMENT -
SECTIONS - SHEET 2

Original Scale	Drawn	Checked	Reviewed	Authorised
1:50	AGL	AK	MC	MJ
	Date 17.10.24	Date 17.10.24	Date 17.10.24	Date 17.10.24

Status	Drawing Number	Rev
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File: 0088798-ATK-XX-XX-DR-CE-900331, 39, 42, 46-47, 53.dwg
Date: Jun 16, 2025 - 5:07pm Plotted by: STEP1160

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A1

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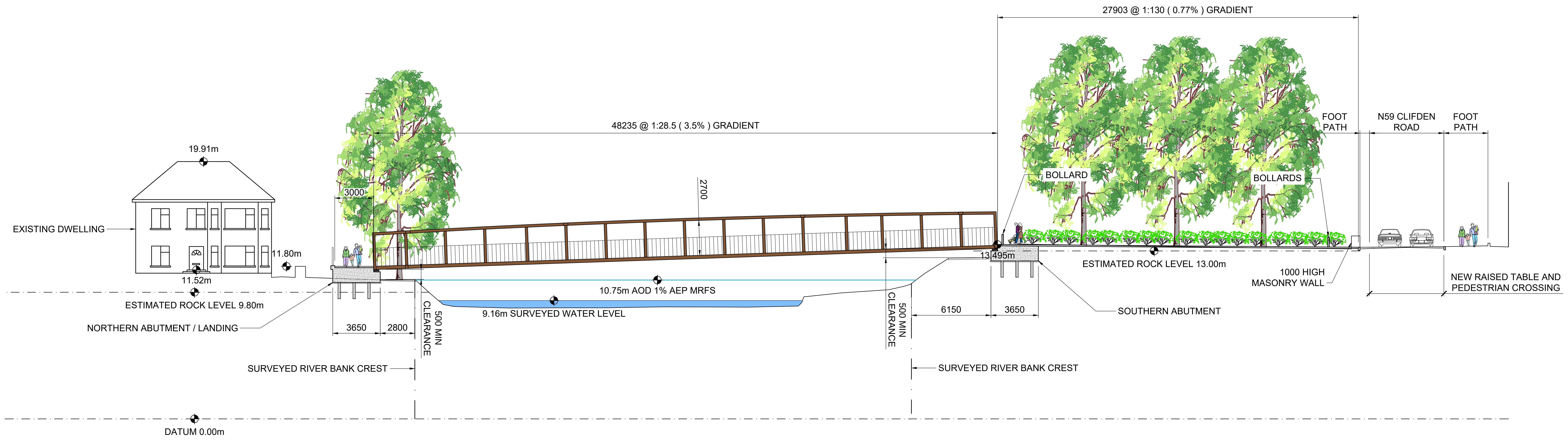

SECTION A: PROPOSED PEDESTRIAN BRIDGE LONGITUDINAL SECTION

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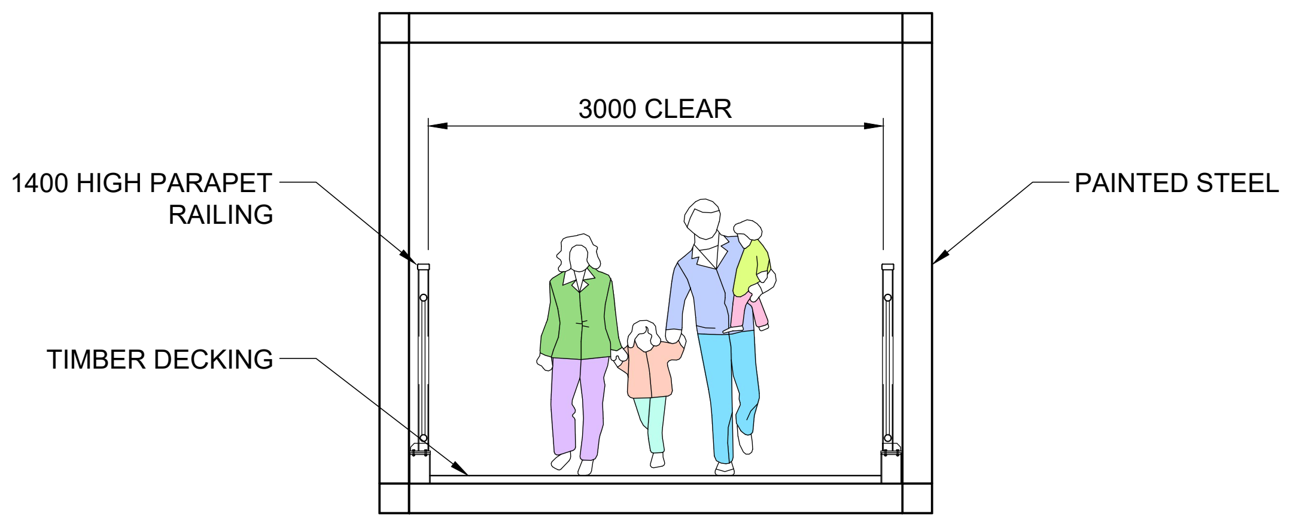
Scale at A3 1:400



MIDSPAN BRIDGE CROSS SECTION

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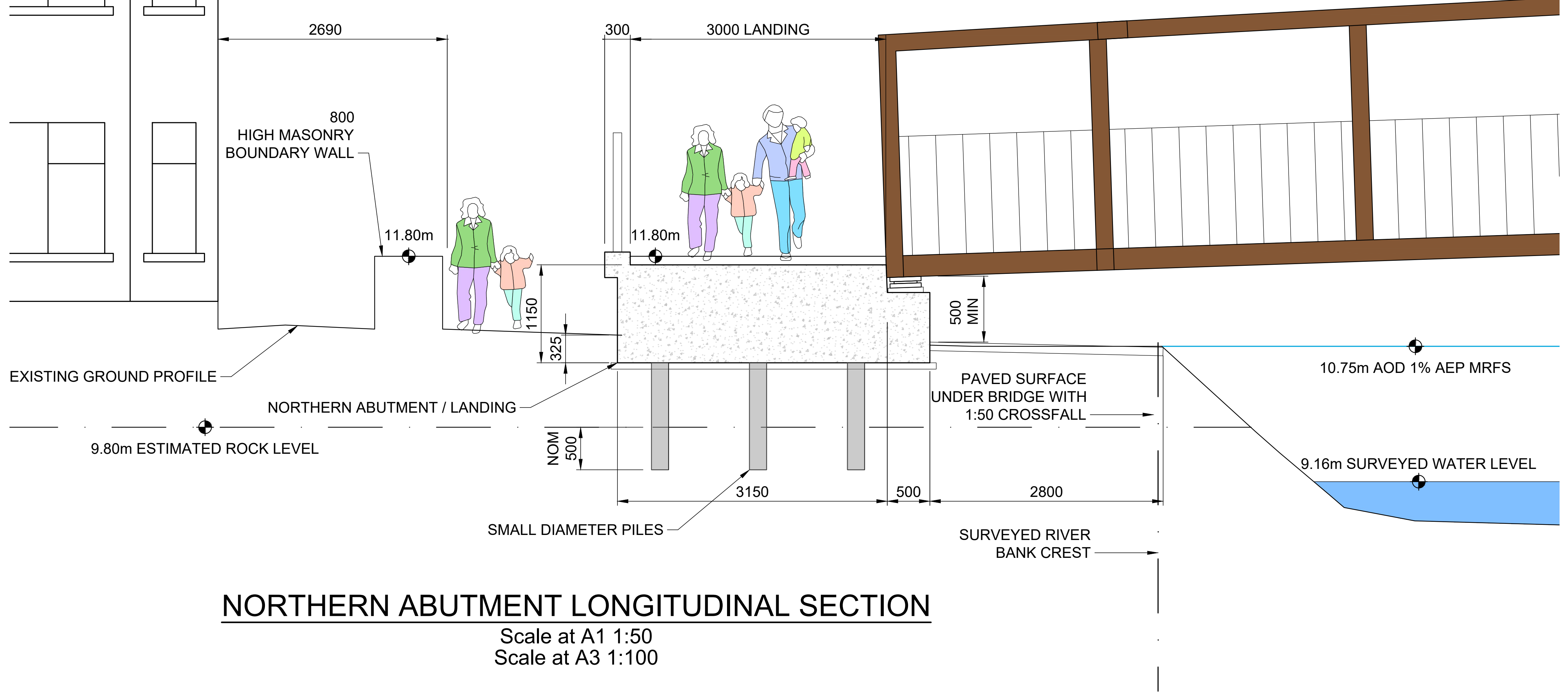

NORTHERN ABUTMENT LONGITUDINAL SECTION

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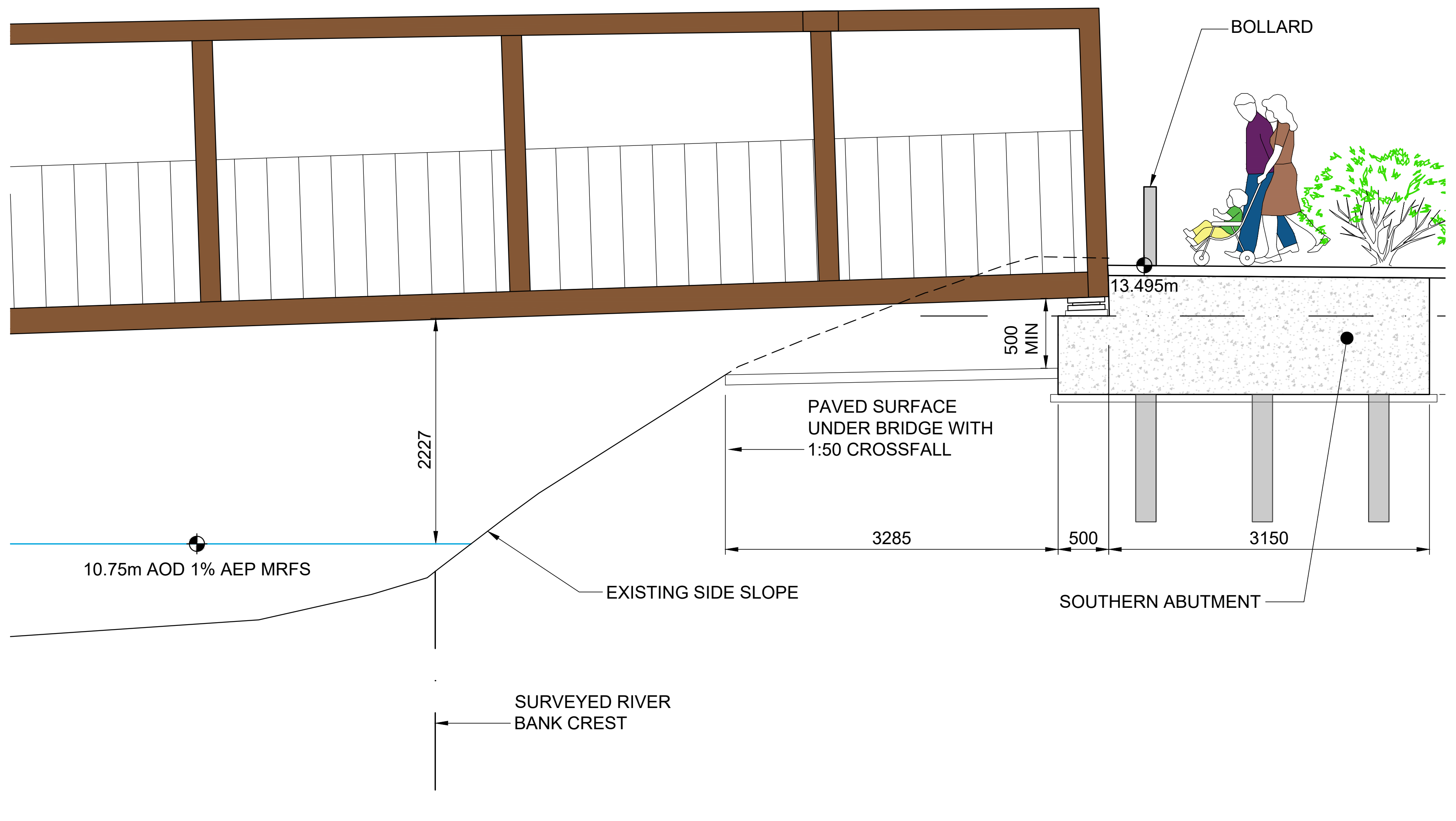

SOUTHERN ABUTMENT LONGITUDINAL SECTION

Scale at A1 1:50
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Rev	Description	By	Date	Chk'd	Rev'd	Auth
P01	ISSUED FOR REVIEW	AGL	10.24	AK	MC	MJ
P0	ISSUED FOR REVIEW	KS	08.24	AK	MC	MJ

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Client
Galway County Council,
Áras an Chontae, Prospect Hill
Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
STRUCTURE OPTION 2 -
CONSTANT DEPTH FULL THROUGH TRUSS

Original Scale	Drawn	Checked	Reviewed	Authorised
1:50, 200	KS Date 01.08.24	AK Date 01.08.24	MC Date 01.08.24	MJ Date 01.08.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-CE-900341	P01

File: 0088798-ATK-XX-XX-DR-CE-900331, 34-36, 39-42.dwg
Date: Oct 30, 2024 - 10:23am Plotted by: alopez

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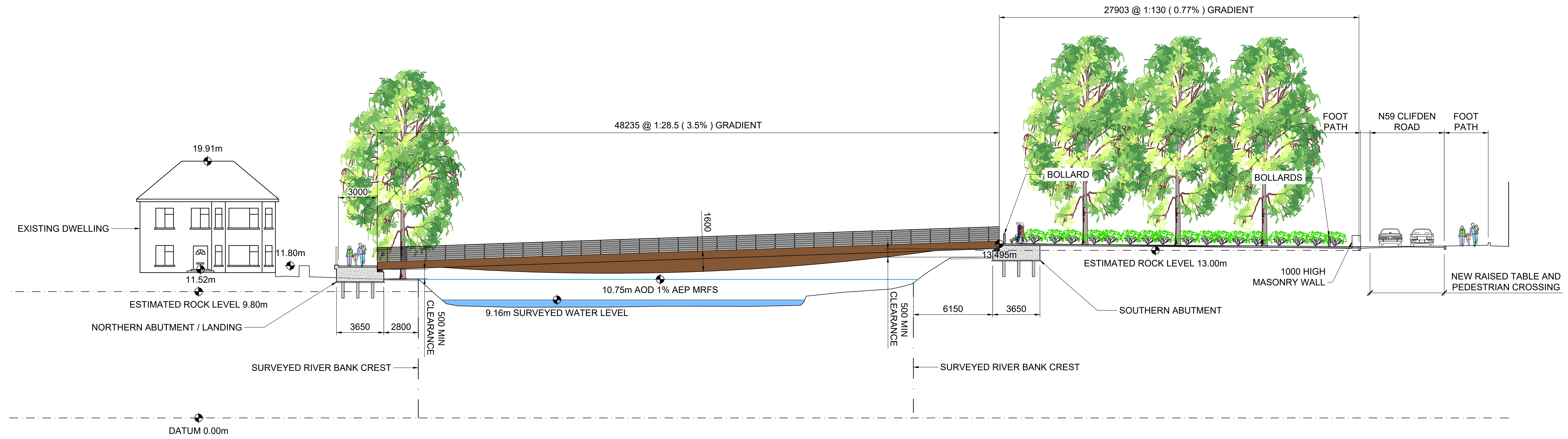

SECTION A: PROPOSED PEDESTRIAN BRIDGE LONGITUDINAL SECTION

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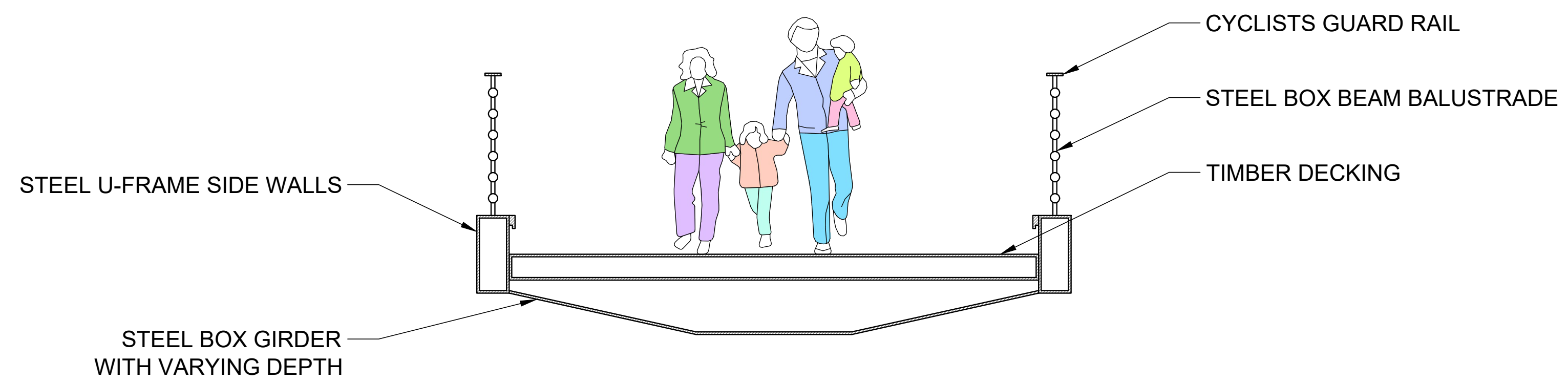
Scale at A3 1:400



MIDSPAN BRIDGE CROSS SECTION

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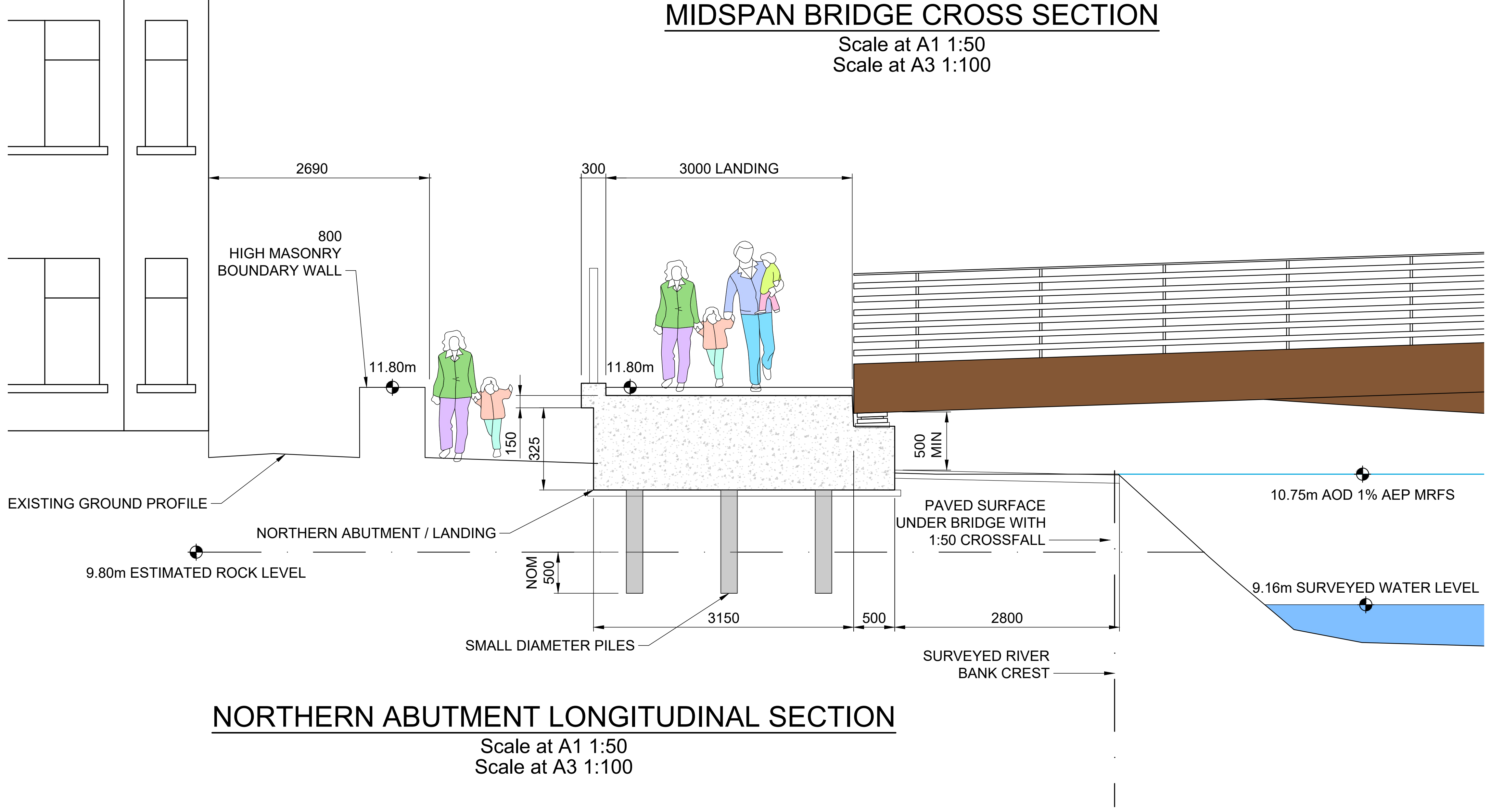
Scale at A3 1:100



NORTHERN ABUTMENT LONGITUDINAL SECTION

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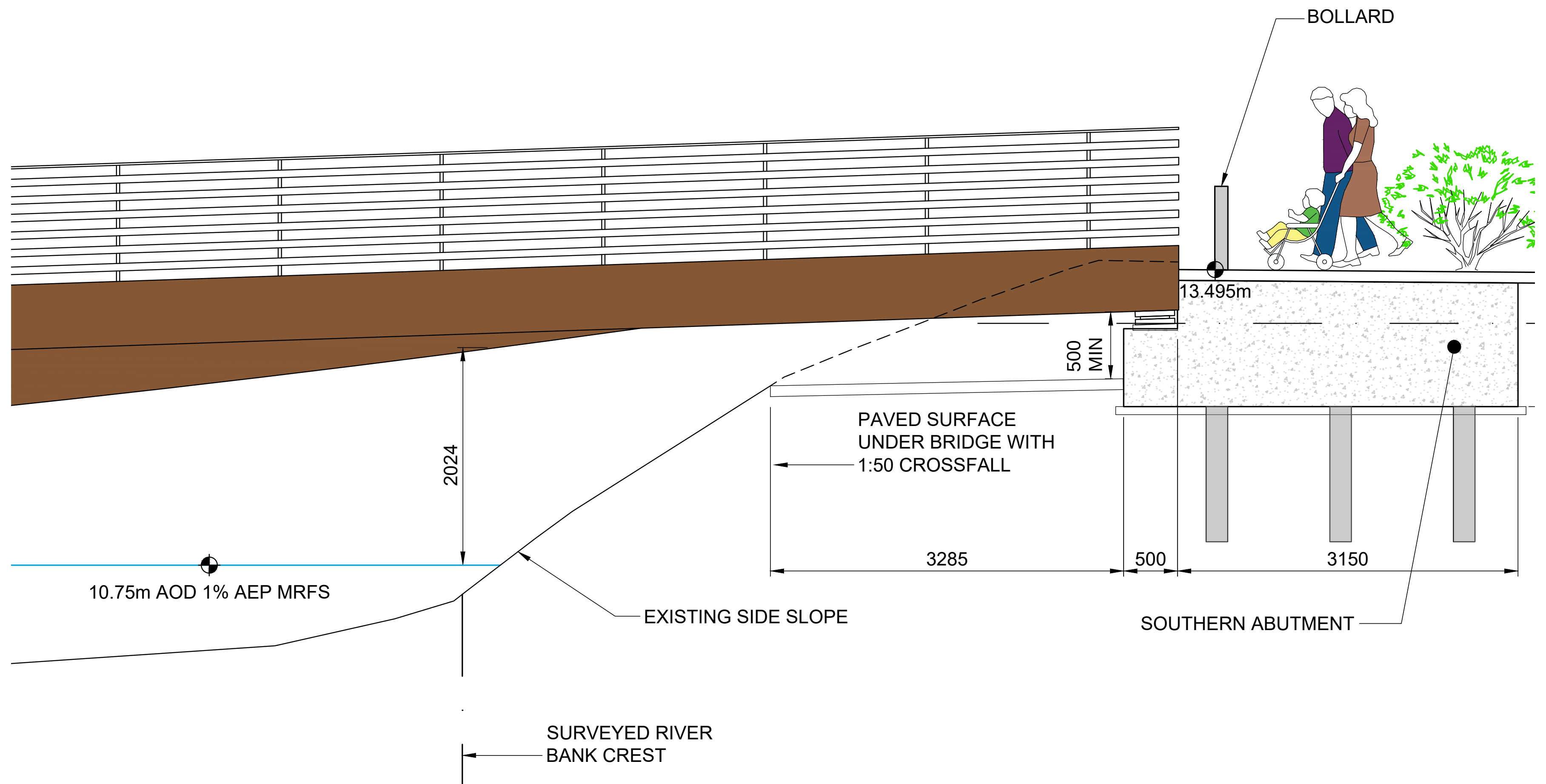
Scale at A3 1:100



SOUTHERN ABUTMENT LONGITUDINAL SECTION

Scale at A1 1:50
Scale at A3 1:100

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION
6. THE ABBREVIATION "AEP MRFS" MEANS ANNUAL EXCEEDANCE PROBABILITY MID-RANGE FUTURE SCENARIO

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level		
	X	AtkinsRéalis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P01	ISSUED FOR REVIEW	AGL	10.24	AK	MC	MJ
P0	ISSUED FOR REVIEW	KS	08.24	AK	MC	MJ

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Tel (+353) 091 786 050
Fax (+353) 091 779 830

Client
Galway County Council,
Áras an Chontae, Prospect Hill
Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
STRUCTURE OPTION 3 -
STEEL U-FRAME/BOX GIRDER

Original Scale	Drawn	Checked	Reviewed	Authorised
1:50, 200	KS	AK	MC	MJ
	Date 02.08.24	Date 02.08.24	Date 02.08.24	Date 02.08.24

Status	Drawing Number	Rev
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A1

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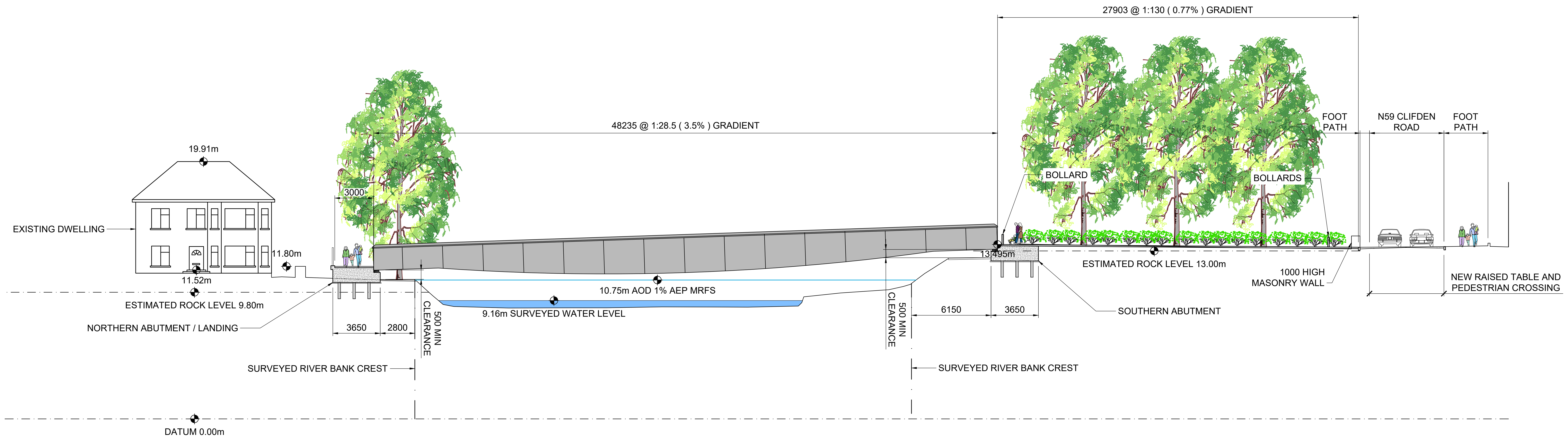

SECTION A: PROPOSED PEDESTRIAN BRIDGE LONGITUDINAL SECTION

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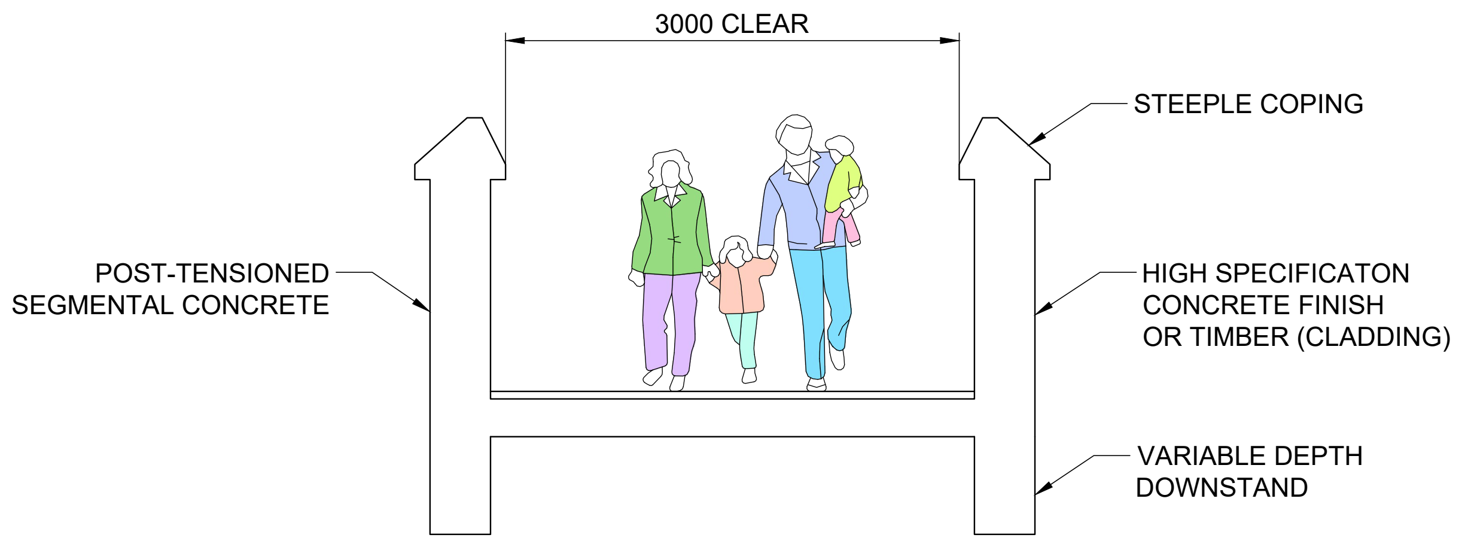
Scale at A3 1:400



MIDSPAN BRIDGE CROSS SECTION

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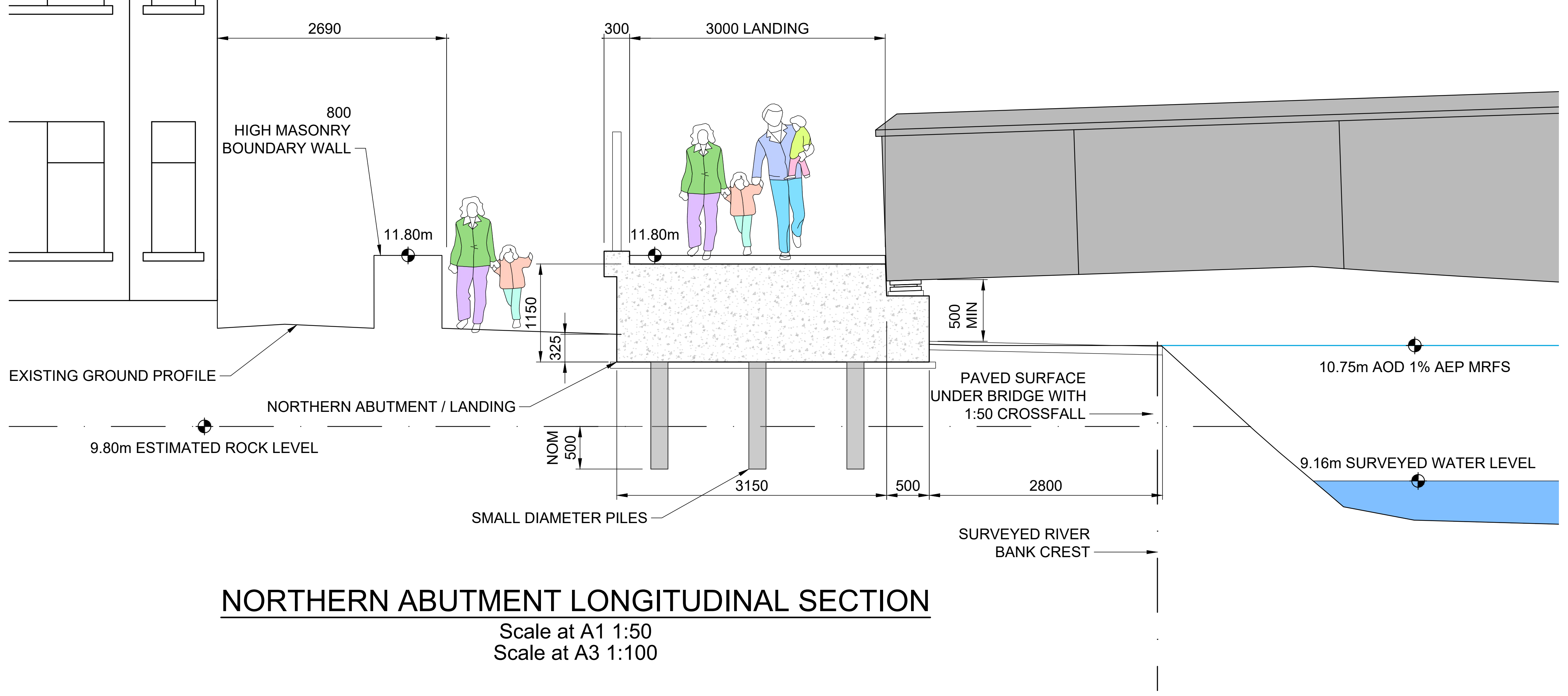
Scale at A3 1:100



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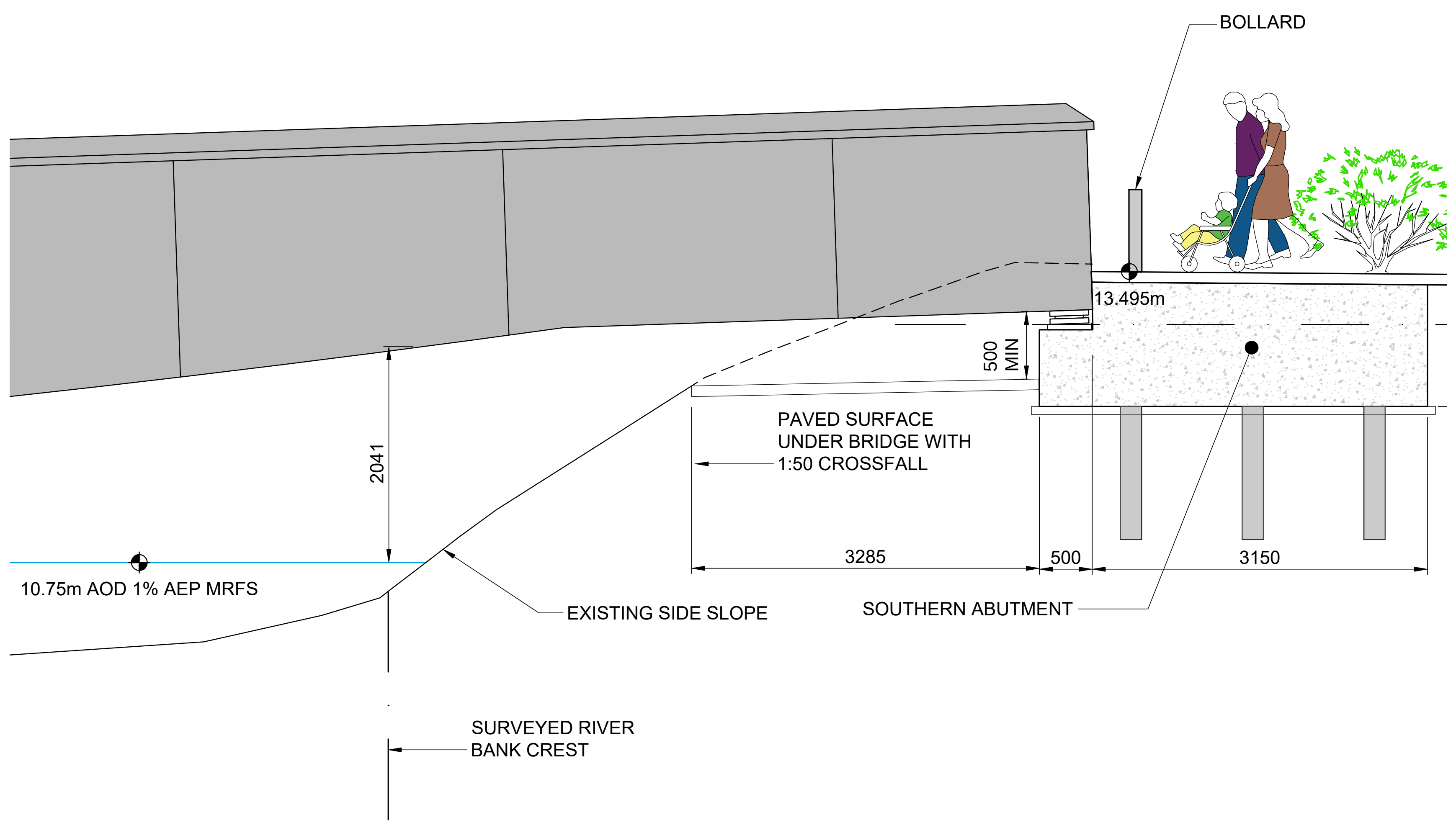
Scale at A3 1:100



SOUTHERN ABUTMENT LONGITUDINAL SECTION

Scale at A1 1:50
Scale at A3 1:100

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Risk Level		
	X	AtkinsRéailis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P01	ISSUED FOR REVIEW	AGL	10.24	AK	MC	MJ
P0	ISSUED FOR REVIEW	KS	08.24	AK	MC	MJ

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Client
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Áras an Chontae, Prospect Hill
Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
STRUCTURE OPTION 4 -
POST-TENSIONED SEGMENTAL CONCRETE

Original Scale	Drawn	Checked	Reviewed	Authorised
1:50, 200	KS Date 15.08.24	AK Date 15.08.24	MC Date 15.08.24	MJ Date 15.08.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-CE-900340	P01

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Date: Oct 30, 2024 - 10:23am Plotted by: alopez

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100
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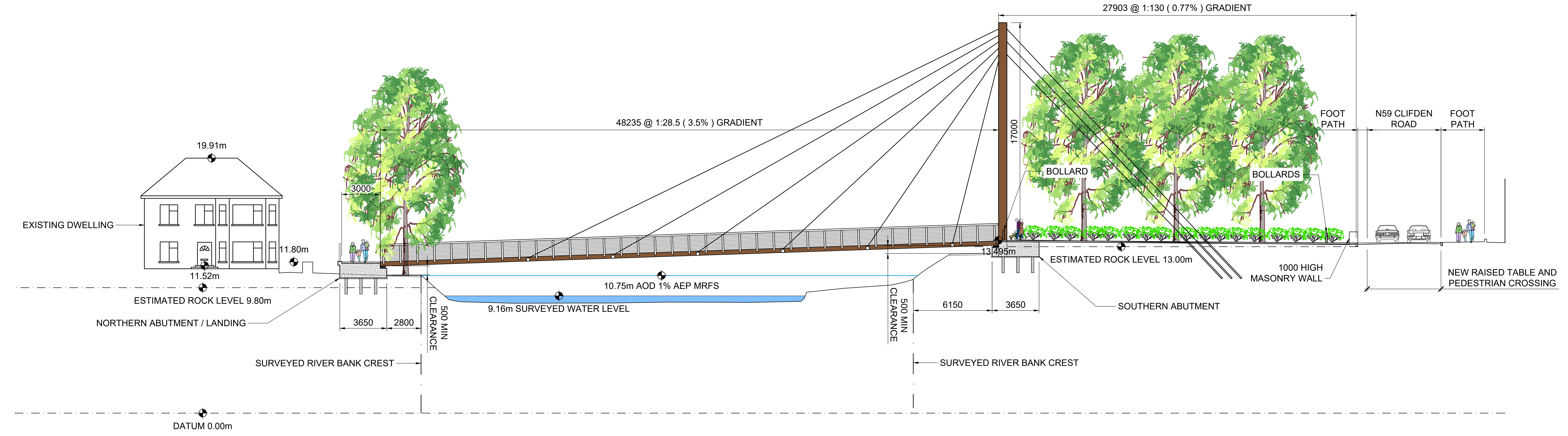
0

A1

DO NOT SCALE



SECTION A: PROPOSED PEDESTRIAN BRIDGE LONGITUDINAL SECTION

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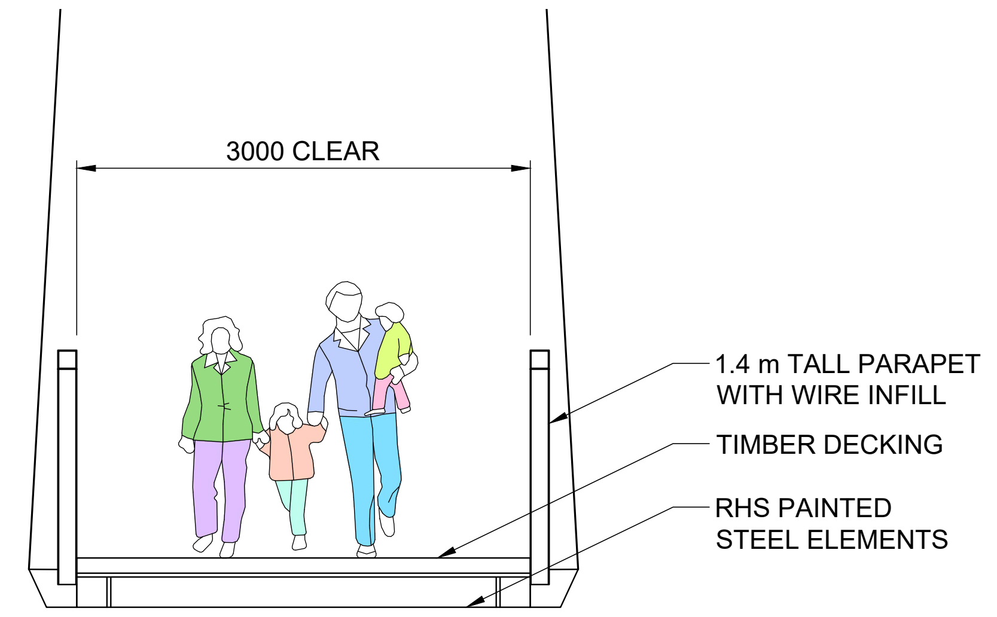
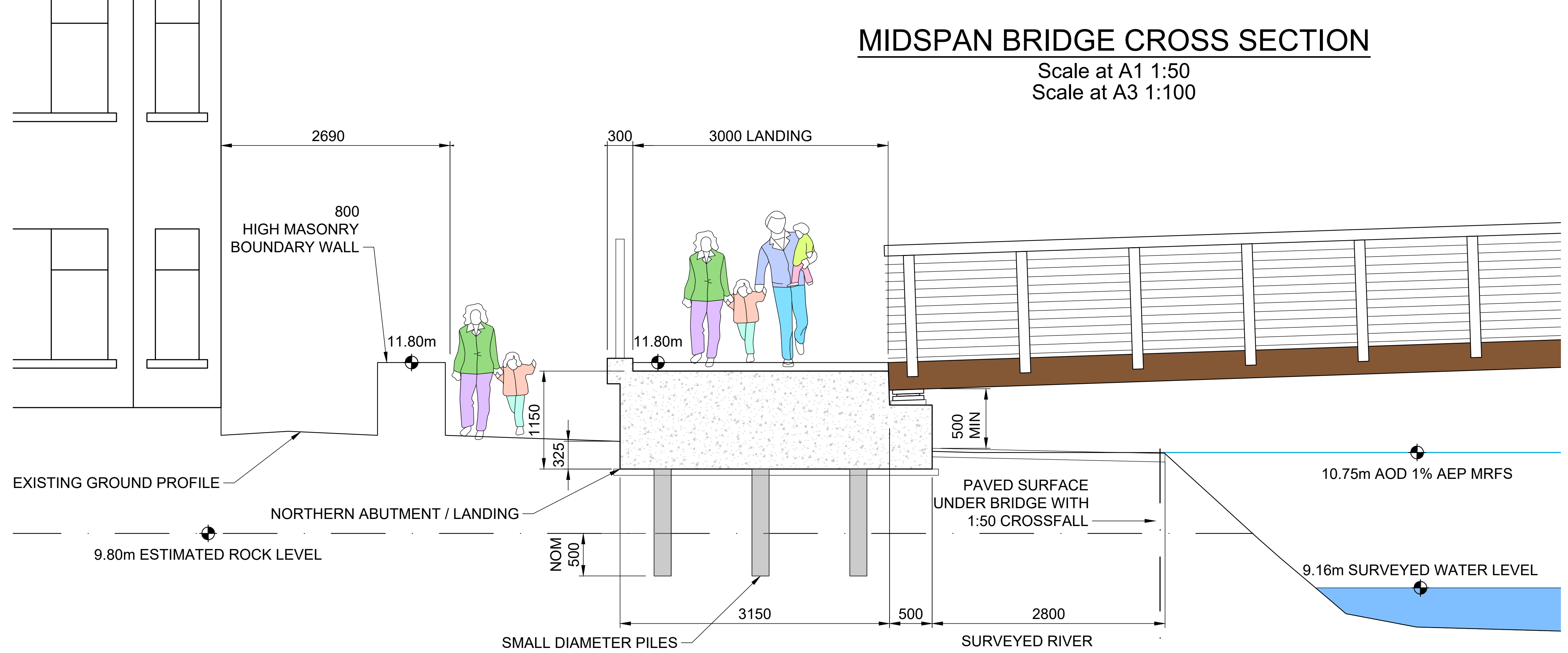
Scale at A3 1:400



MIDSPAN BRIDGE CROSS SECTION

Scale at A1 1:50
Scale at A3 1:100



NORTHERN ABUTMENT LONGITUDINAL SECTION

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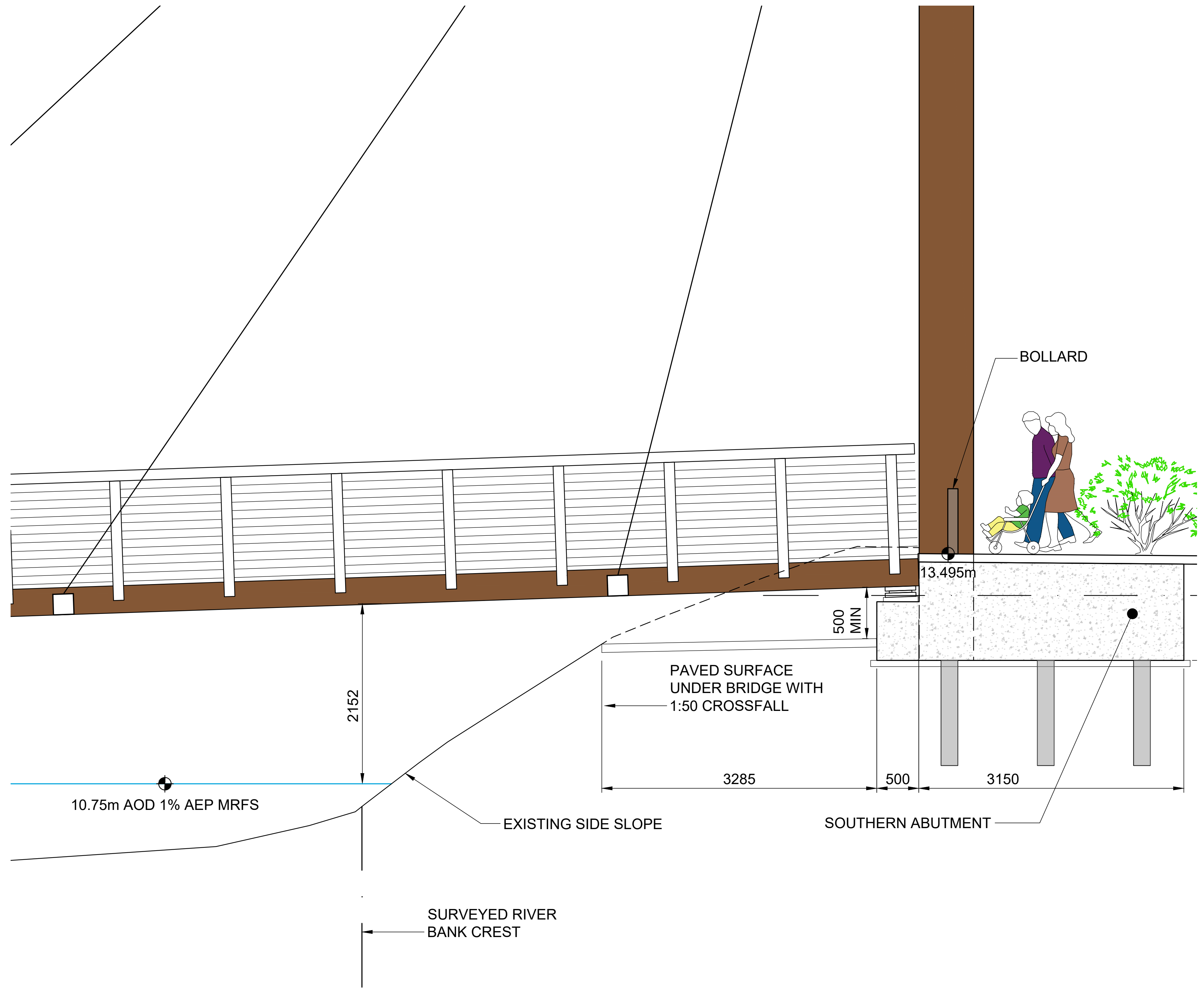

SOUTHERN ABUTMENT LONGITUDINAL SECTION

Scale at A1 1:50
Scale at A3 1:100

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Risk Level
X AtkinsRéalis Base Line - Low Risk
AtkinsRéalis Sensitive - Medium Risk
AtkinsRéalis Private - High Risk
Client Critical - Already Marked

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
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Tel (+353) 091 786 050
Fax (+353) 091 779 830

Client
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Áras an Chontae, Prospect Hill
Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
STRUCTURE OPTION 5 -
CABLE STAYED BRIDGE

Original Scale	Drawn	Checked	Reviewed	Authorised
1:50, 200	KS Date 02.08.24	AK Date 02.08.24	MC Date 02.08.24	MJ Date 02.08.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-CE-900335	P01

File: 0088798-ATK-XX-XX-DR-CE-900331, 34-36, 39-42.dwg
Date: Oct 30, 2024 - 10:23am Plotted by: alopez

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Appendix D. Factual Report on Site Investigation for N59 Oughterard Bridge, Nov‘07

GROUND INVESTIGATIONS IRELAND

The Grange, 12th Lock Road Lucan Co. Dublin
Tel 01 601 5175 / 5176 Fax 01 601 5173
Email info@gii.ie Internet www.gii.ie

FACTUAL REPORT ON SITE INVESTIGATION

FOR

N59 OUGHTERARD BRIDGE

OUGHTERARD

CO. GALWAY

Prepared by: EurGeol. Fergal McNamara PGeo.

Signed:.....F. Mc Namara..... **Date:** 28th November 2007

File No: 1662-09-07

Ground Investigations Ireland Ltd. Geotechnical and Environmental Site Investigation
Directors : James Lombard BE MIEI Fergal McNamara Bsc. Dip. Env. Eng

Contents

1.0 Preamble

On the instructions of Mr. Joe Kelly of Roughan & O'Donovan Consulting Engineers Ltd, a site investigation was carried out by Ground Investigations Ireland Ltd., from the 25th September, to the 29th September, 2007 on the above site.

2.0 Overview

2.1 Background

It is proposed to construct a new bridge over the Owenriff River in Oughterard Co.Galway

2.2 Purpose and Scope

The purpose of the site investigation was to determine the nature of the geological strata, both solid and overburden, the presence of any irregularities in the geological structure that may affect the proposed construction work, groundwater levels, and the engineering properties of the underlying ground conditions.. The scope of the work undertaken for this study included the following:

- Visit project site to observe existing conditions
- Carry out the subsurface exploration programme consisting of one no. trial pit and two no. slit trenches on roads.

- Four no. rotary cored boreholes were also carried out.
- Detailed logs as per specification.
- Production of factual report.

3.0 Subsurface Exploration

3.1 General

One no. trial pit was excavated at the edge of the road beside the river to log the road build up and overburden. Two no. slit trenches were carried out to identify and log existing services.

Four rotary cored boreholes were also carried out to depths of 4.70 to 5.70mBGL to establish the depths and quality of the rock.

The locations of the exploratory holes are shown on the accompanying site plan.

3.2 Findings

The material encountered in the investigation was similar and in general consisted of TARMAC or TOPSOIL which was underlain by FILL material onto shallow LIMESTONE rock.

The above description represents the order of occurrence of the soil strata below the ground surface. However at specific locations one or more strata may be absent or the order of occurrence may vary. Detailed descriptions of the soil strata for each exploratory hole are included at the rear of this report.

APPENDIX 1

BOREHOLE RECORD (Rotary core)

Project Name: N59 Oughterard Bridge — Hole ID: RC1

Client: Roughan and O'Donovan
Consultant:
Location: Oughterard, Co. Galway
Start date: 27/09/2007
End date: 27/09/2007
Type of drilling: RC
Hole diameter: 70 mm

Co-ordinates: -
-
Elevation: -
Project no. 1662-09-07
Drilled by: T Collins
Logged by: J Naughton

Strata Description	Legend	Depth	Level mAOD	Discontinuities	FSI	RQD	SCR	TCR	CORE RUN
OVERBURDEN driller notes tarmac and clay.						0	0	0	0.00
Very strong to strong grey bioclastic LIMESTONE. Fresh to slightly weathered.		0.60		Fractures very close to medium spaced subhorizontal rough undulating and stepped occasionally clay coated tight to open.	6	60	93	94	0.60
						81	95	95	3.60
End of Borehole Log at 5.60 m		5.60							

Remarks:

KEY

TCR	Total Core Recovery.
SCR	Solid Core Recovery
RQD	Rock Quality Designation
FSI	Fracture Spacing Index

GROUND INVESTIGATIONS IRELAND

BOREHOLE RECORD (Rotary core)

Project Name: N59 Oughterard Bridge

Hole ID: RC2

Client: Roughan and O'Donovan
Consultant:
Location: Oughterard, Co. Galway
Start date: 27/09/2007
End date: 27/09/2007
Type of drilling: RC
Hole diameter: 70 mm

Co-ordinates: -
-
Elevation: -
Project no. 1662-09-07
Drilled by: T Collins
Logged by: J Naughton

Strata Description	Legend	Depth	Level mAOD	Discontinuities	FSI	RQD	SCR	TCR	CORE RUN
OVERBURDEN no recovery driller notes tarmac and clay.	▨	0.70				0	0	0	0.00
Very strong to strong grey bioclastic LIMESTONE. Fresh to slightly weathered.	▦	5.70		Fractures close to medium spaced subhorizontal smooth to rough and undulating tight to open.	4	89	96	100	0.70
						84	95	95	2.40
						98	98	98	3.70
End of Borehole Log at 5.70 m									

Remarks:

KEY

TCR	Total Core Recovery.
SCR	Solid Core Recovery
RQD	Rock Quality Designation
FSI	Fracture Spacing Index

GROUND INVESTIGATIONS IRELAND

BOREHOLE RECORD (Rotary core)

Project Name: N59 Oughterard Bridge

Hole ID: RC3

Client: Roughan and O'Donovan
Consultant:
Location: Oughterard, Co. Galway
Start date: 26/09/2007
End date: 26/09/2007
Type of drilling: RC
Hole diameter: 70 mm

Co-ordinates: -
-
Elevation: -
Project no. 1662-09-07
Drilled by: T Collins
Logged by: J Naughton

Strata Description	Legend	Depth	Level mAOD	Discontinuities	FSI	RQD	SCR	TCR	CORE RUN
OVERBURDEN no recovery driller notes tarmac and clay.						0	0	0	0.00
Very strong to strong grey bioclastic LIMESTONE. Fresh to slightly weathered		0.80		Fractures very close to medium spaced subhorizontal smooth and undulating occasionally clay coated tight to open.	9	38	87	97	0.80
						0	70	100	1.80
						90	90	90	2.30
						62	80	100	2.80
						100	100	100	3.40
						100	100	100	3.70
End of Borehole Log at 4.70 m		4.70							

Remarks:

KEY

TCR	Total Core Recovery.
SCR	Solid Core Recovery
RQD	Rock Quality Designation
FSI	Fracture Spacing Index

GROUND INVESTIGATIONS IRELAND

BOREHOLE RECORD (Rotary core)

Project Name: N59 Oughterard Bridge **Hole ID: RC4**

Client: Roughan and O'Donovan
Consultant:
Location: Oughterard, Co. Galway
Start date: 26/09/2007 End date: 26/09/2007
Type of drilling: RC Hole diameter: 70 mm

Co-ordinates: -
-
Elevation: -
Project no. 1662-09-07
Drilled by: T Collins
Logged by: J Naughton

Strata Description	Legend	Depth	Level mAOD	Discontinuities	FSI	RQD	SCR	TCR	CORE RUN
OVERBURDEN no recovery						0	0	0	0.00
OVERBURDEN driller notes cobbles.		1.40				0	0	100	1.40
Very strong to strong grey bioclastic LIMESTONE. Fresh to slightly weathered. Sand filled cavity highly weathered.		1.60		Fractures very close to medium spaced subhorizontal rough and undulating tight to open. Non intact from 3.20-3.50mBGL. Subvertical fractures widely spaced smooth and undulating tight to open.	8	95	95	95	1.60
						70	82	100	2.40
						30	78	78	3.50
				Fractures close to medium spaced subhorizontal smooth and undulating occasionally clay coated tight to open.	3	98	98	98	3.90
End of Borehole Log at 6.50 m		6.50							

Remarks:

KEY

TCR	Total Core Recovery.
SCR	Solid Core Recovery
RQD	Rock Quality Designation
FSI	Fracture Spacing Index

GROUND INVESTIGATIONS IRELAND

APPENDIX 2

TRIAL PIT RECORD

Project Name: N59 Oughterard Bridge

Hole ID: TP1

Client: Roughan and O'Donovan
Consultant:
Location: Oughterard, Co. Galway
Date: 25/09/2007
Excavator used:

Co-ordinates: -
-
Elevation: -
Project no. 1662-09-07
Logged by: F Mc Namara

Strata Description	Legend	Depth	Level (mOD)	Samples / tests			Water Depth	Date
				Type	Depth	Result		
Large angular limestone cobbles and boulders and clay	▨	0.60						
Creamy brown silty SAND	▨	0.90						
LIMESTONE rock	▨	1.00						
End of Trial pit at 1.00 m								

Remarks:

Stability:
Water:
Remarks:

KEY

B	Bulk disturbed sample.
D	Small disturbed sample
U	Undisturbed sample

Dimensions: -
Depth: -
1.00

GROUND INVESTIGATIONS IRELAND
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TRIAL PIT RECORD

Project Name: N59 Oughterard Bridge

Hole ID: ST1

Client: Roughan and O'Donovan
Consultant:
Location: Oughterard, Co. Galway
Date: 25/09/2007
Excavator used: Tracked excavator

Co-ordinates: -
-
Elevation: -
Project no. 1662-09-07
Logged by: F Mc Namara

Strata Description	Legend	Depth	Level (mOD)	Samples / tests			Water Depth	Date
				Type	Depth	Result		
TARMAC	▩	0.14						
FILL of gravel clay and cobbles	▨	1.30						
Possible natural ground of sandy clay and roots	▤	1.50						
End of Trial pit at 1.50 m								

Remarks:

Stability:
Water:
Remarks: Slit trench to check for services, none found.

KEY

B	Bulk disturbed sample.
D	Small disturbed sample
U	Undisturbed sample

Dimensions: 2.00
0.60
Depth:
1.50

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TRIAL PIT RECORD

Project Name: N59 Oughterard Bridge **Hole ID: ST2**

Client: Roughan and O'Donovan
Consultant:
Location: Oughterard, Co. Galway
Date: 25/09/2007
Excavator used: Tracked excavator

Co-ordinates: -
-
Elevation: -
Project no. 1662-09-07
Logged by: F Mc Namara

Strata Description	Legend	Depth	Level (mOD)	Samples / tests			Water Depth	Date
				Type	Depth	Result		
TARMAC	☒	0.12						
FILL of clay and cobbles obstruction 0.80mBGL LIMESTONE rock	▨	0.80						
End of Trial pit at 0.80 m								

Remarks:

Stability:
Water:
Remarks: Slit trench to check for water main along road,
Old disused cast iron main found new main not found.
0ld main 0.80m from wall 0.60m deep.
Obstruction 0.80mBGL LIMESTONE rock.

KEY

B	Bulk disturbed sample.
D	Small disturbed sample
U	Undisturbed sample

Dimensions: 1.50 × 0.60
Depth: 0.80

GROUND INVESTIGATIONS IRELAND
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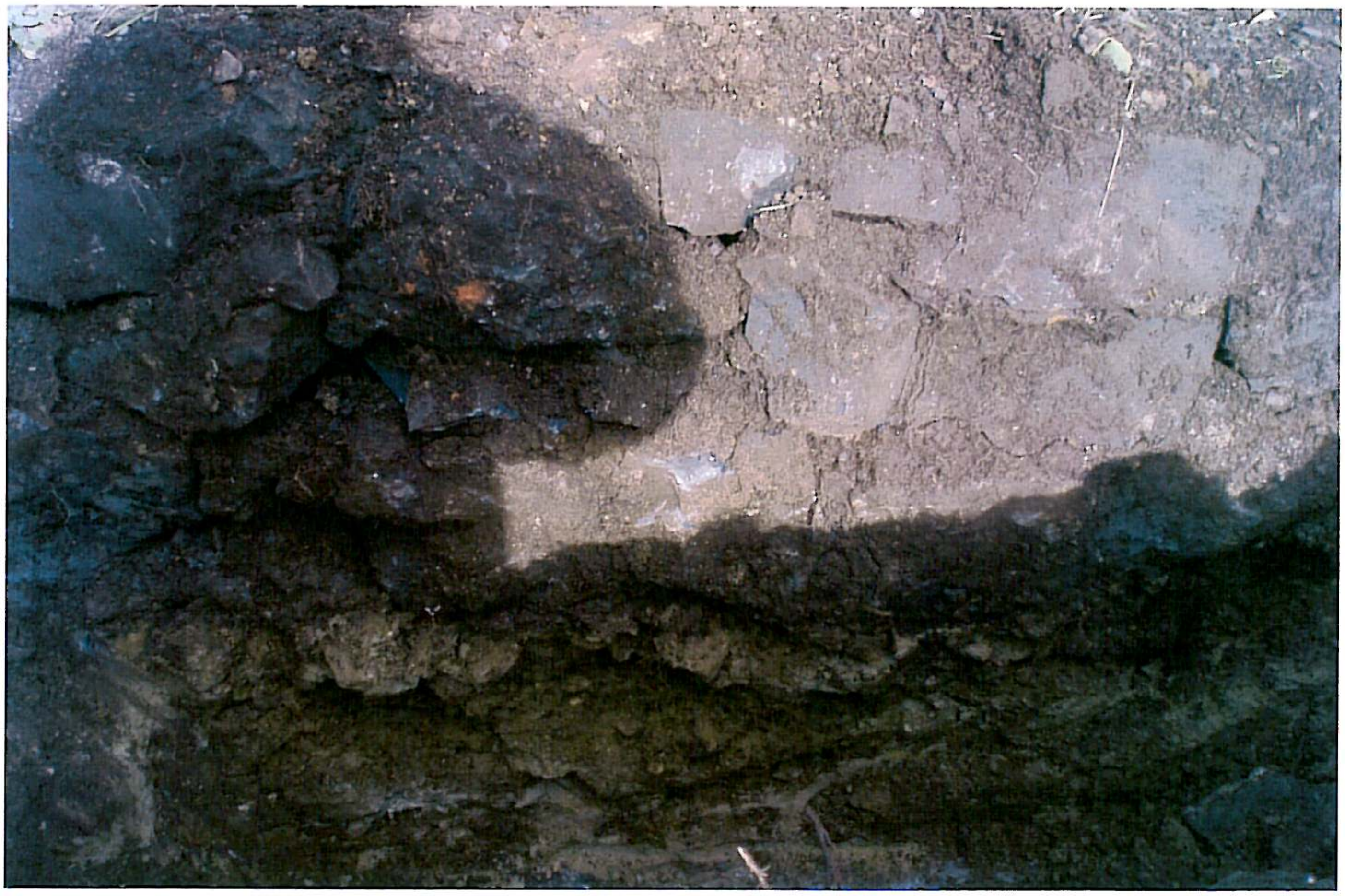
APPENDIX 3

Oughterard TP1

Oughterard TP1

Oughterard TP1



Oughterard TP1

Oughterard ST1

Oughterard ST1

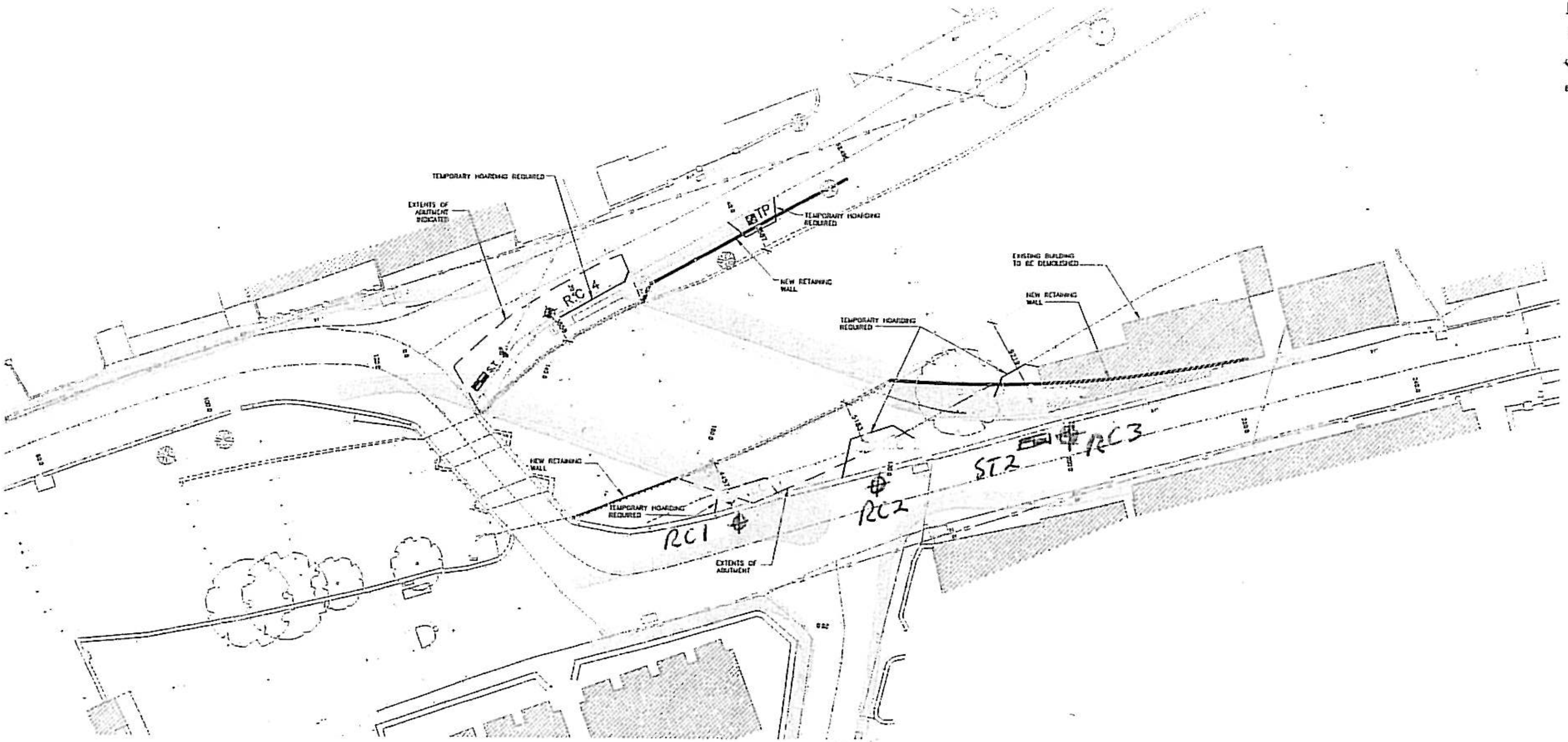
Oughterard ST2

Oughterard ST2

APPENDIX 4

LEGEND

- ⊠T.P TRIAL PIT TO TOP OF UNWEATHERED BEDROCK
- ⌖ R.C ROTARY CORE BOREHOLE TO TOP OF ROCK
- ▨S.T. SLIT TRENCH TO UNCOVER EXISTING FOUNDATIONS AND SERVICES



PLAN
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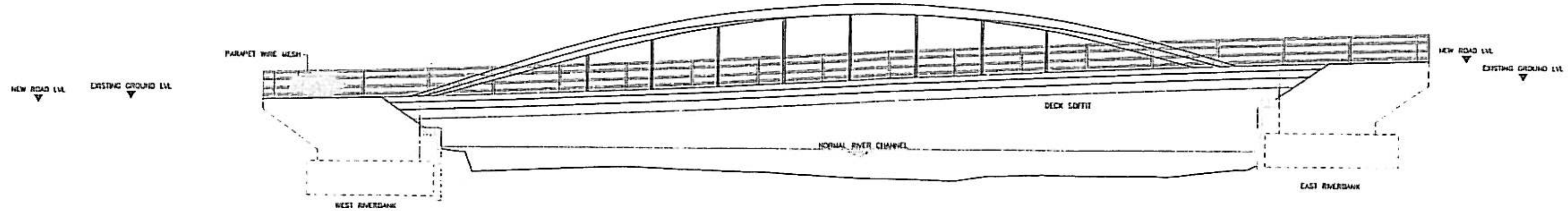

LONGITUDINAL SECTION
SCALE 1:100

NRA National Roads Authority

Transport
connecting communities, promoting prosperity

NATIONAL DEVELOPMENT PLAN

No.	Revision	Date	By	Chk'd	App'd
	Stage		Date		App'd
	PRELIMINARY		DEC '06		JOD
	APPROVAL				
	TENDER				
	CONSTRUCTION				

Roughan & O'Donovan-Faber Maunsell
Alliance

Roughan & O'Donovan
FABER MAUNSELL
Consulting Engineers

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www.roughanodonovan.com
www.fabermaunsell.com

Project Title	N59 OUGTHERARD BRIDGE				
Drawing Title	GROUND INVESTIGATION				
Designed	JK	CAD File	06.165.011	Status	PRELIMINARY
Drawn	AH	ROD No	06.165		
Checked	JK	Scale	AS SHOWN @A1	Drawing No	011
Approved	JOD	Date	DEC '06	Rev	

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

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Apr 19, 2007 - 11:54am

Drawing Location: L:\acaddwg\2006\06165\Drawings\Ground Investigation\06165.11-Ground Investigation.dwg

Appendix E. Ground Investigation, Nov'24

The full site investigation report will be included when it is available.

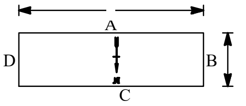
PROJECT: N59 Oughterard Footbridge
LOCATION: Oughterard, Co. Galway
TRIALPIT: TP-01
Sheet 1 of 1

CLIENT: Galway Co Co
ENGINEER: Atkins Realis
Co-ordinates: E 511,931.5 N 742,845.7
Rig: 7 Tonne tracked Kobelco
Rev: DRAFT

Ground level: 10.86m O.D.
DATE: 31.10.24

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 270^{O}
PIT DIMENSION: 2.00m * 0.70
LOGGED BY: MM



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							10.81	0.05	South side/river side of TP: 'Tar & chip'. 0.00-0.01: North side of TP: 'Tar & chip'.	
			B 1	0.09-0.50			10.67	0.19	MADE GROUND: Clause 804 type material.	
							9.93	0.93	Brown silty gravelly medium to coarse SAND with frequent cobbles and rare boulders and many 5 to 15mm in size tree roots. Gravel is rounded to subrounded fine to coarse of granite. Cobbles are subrounded to subangular of granite. Boulders are subrounded to subangular of granite.	
1			B 2	0.93-1.44			9.42	1.44	Brownish orange silty gravelly medium to coarse SAND with occasional cobbles and occasional boulders. Gravel is rounded to subangular fine to coarse of granite. Cobbles are rounded to subangular of granite. Boulders are rounded to subangular of granite.	
						END				
2										
3										
4										
5										

Remarks: TP dry on excavation. TP terminated at 1.44m bgl. Obstruction as probable rock. TP backfilled with arisings.

Scale: 1:25

Irish Drilling Ltd

Ph. +353 91841274
Fax

TRIALPIT N59 OUGHTERARD FOOTBRIDGE TP FILE 1 NOV 6 2024.GPJ ID GINT AGS 4_0_4.GDT 6/11/24

Irish Drilling Ltd
Telephone: +353 91841274

DRILLHOLE LOG

Project N59 Oughterard Footbridge		Location Oughterard, Co. Galway		DRILLHOLE No **BH-01**
Job No 2024G134	Date 01-11-24 01-11-24	Ground Level (m OD) 10.93	Co-Ordinates () E 511,930.4 N 742,844.6	
Engineer Atkins Realis				Sheet 1 of 1 Status DRAFT

RUN DETAILS			STRATA					Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION Discontinuities Detail	Main	
0.00	35 (25) 23		9.53		(1.40) 1.40	0.00 - 1.40 : overburden.	Angular to subangular medium to grey limestone GRAVEL.	
2.00		3	5.93		(3.60) 5.00	1.40 - 5.00 DISC, medium spaced, dipping 8 to 10°, stepped, rough, with 0.5 to 1mm thick dark grey silt smear.	Very strong thinly bedded grey bioclastic fine and coarse grained LIMESTONE.	
	100 (97) 96	1						
3.50		1						
	100 (98) 97	2						
01.11 5.00								

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
01/11/24	15.00	5.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	5	Water	100

GENERAL REMARKS

BH terminated at 5.00m bgl on REs instruction. BH reinstated.

All dimensions in metres Scale 1:50	Client: Galway Co Co	Method/ Plant Used CS-14	Drill Bit HQ	Driller CD	Logged By EAT


Oughterard
Footbridge,
Co. Galway
2024 G 134
RC
1
Box
12
START
0m
2M
3.5
5m
EOH
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150

Appendix F. Photomontages

AtkinsRéalis

Photomontages

Galway County Council

19 May 2025

0088798DG0097

N59 OUGHTERARD FOOTBRIDGE

Notice

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Document history

Document title: Photomontages

Document reference: 0088798DG0097

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
0	For review	MC			MJ	14/5/25
1	For review	MC			MJ	19/5/25

Client signoff

Client	Galway County Council
Project	N59 OUGHTERARD FOOTBRIDGE
Job number	100088798
Client signature/date	

Contents

Introduction

AtkinsRéalis was commissioned by Galway County Council to prepare photomontages for the N59 Oughterard Footbridge project. This report presents the photomontages and provides the following details:

- Viewpoints used for the photomontages.
- Details of the photo taken.
- Landscape elements which have been omitted/modified for clarity.

Photomontages

2 no. photomontages are provided. The viewpoints used for the photomontages are shown in the 'Viewpoint Locations Map' drawing in Appendix A (Drg. No. 0088798-ATK-XX-XX-DR-CE-900401). A viewpoint of the proposed footbridge is provided on the north and south side of the river. The viewpoint locations are accessible by the public and show the proposed footbridge in elevation.

The photomontage from the north viewpoint is shown in Appendix B. The photo details are as follows:

- Date taken: 12/08/2024, 12:45
- Camera model: Nikon D3000
- Focal length: 18mm
- 35mm focal length: 27

The photomontage from the south viewpoint is shown in Appendix B. The photo details are as follows:

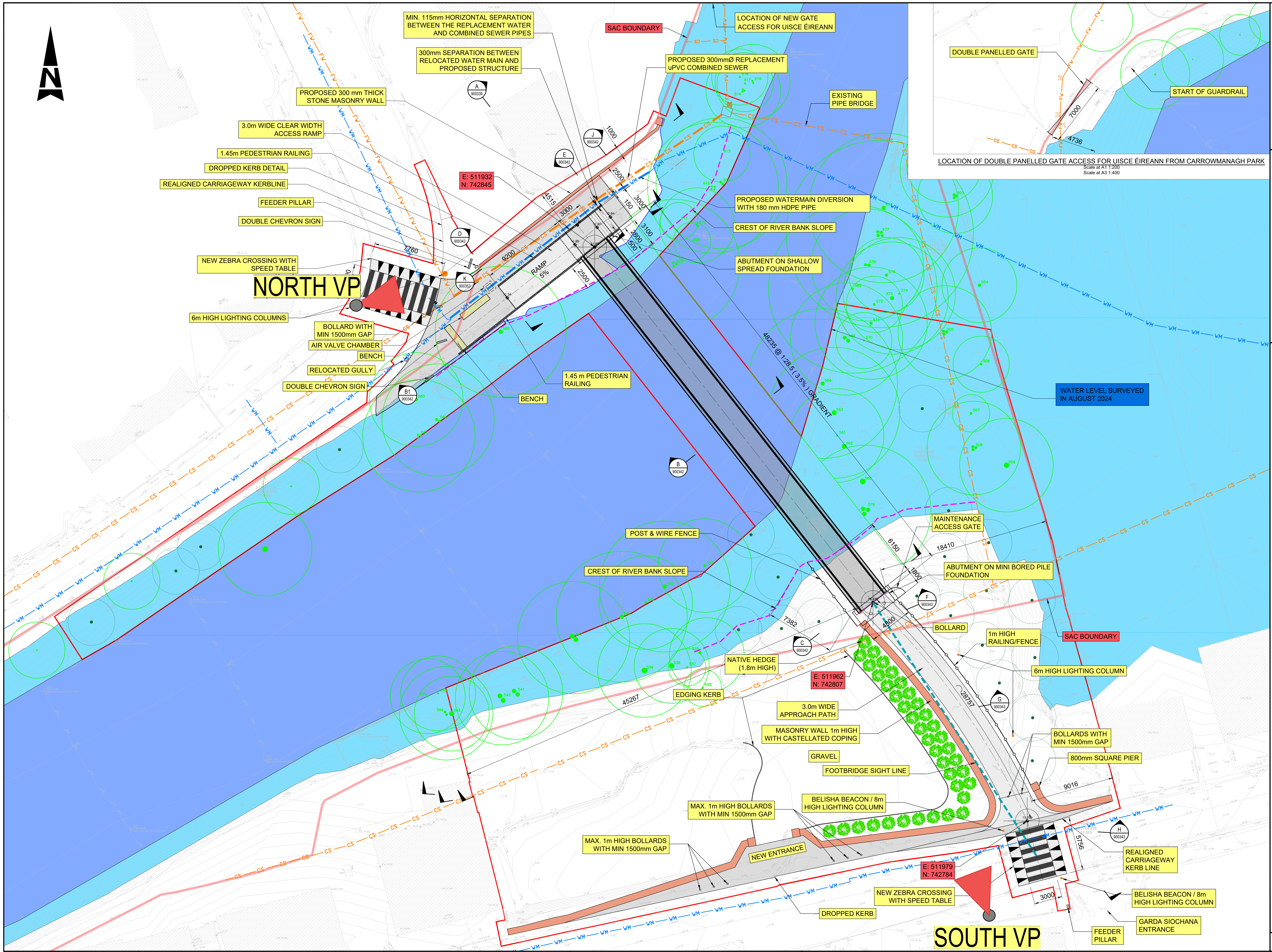
- Date taken: 19/11/2024, 12:50
- Camera model: Canon EOS 5D Mark IV
- Focal length: 50mm

The photomontages contain notes indicating which landscape elements have been omitted/modified for clarity. A landscape site plan is provided in Appendix C with annotations indicating which landscape elements have been omitted/modified in each photomontage for clarity.

For the north viewpoint photomontage, the trees were rendered because the original photo did not provide a clear view of the trees to be retained.

APPENDICES

Appendix A. Viewpoint Locations Map



GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

LEGEND:

— WM —	EXISTING WATER MAIN
■ WM ■	PROPOSED WATERMAIN DIVERSION
— CS —	EXISTING COMBINED SEWER
■ CS ■	PROPOSED REPLACEMENT COMBINED SEWER
— FW —	EXISTING FOUL DRAINAGE
▨	1% ANNUAL EXCEEDENCE PROBABILITY FLOOD ZONE (MID RANGE FUTURE SCENARIO)
—	SITE LAYOUT BOUNDARY
○	EXISTING TREE TO BE RETAINED
○	PROPOSED TREE

NOTES:

1. THE DESIGN USES THE EXISTING STORM DRAINAGE SYSTEM.

2. ELECTRICAL WIRING, DUCTING & PILLAR DETAILS WILL BE CONFIRMED AT DETAILED DESIGN.

A1

DO NOT SCALE

File: 0088798-ATK-XX-XX-DR-CE-900331, 39, 42, 46-47, 53.dwg
Date: Jun 16, 2025 - 4:59pm Plotted by: STEP1160

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level
X AtkinsRéailis Base Line - Low Risk
X AtkinsRéalis Sensitive - Medium Risk
X AtkinsRéalis Private - High Risk
X Client Critical - Already Marked

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
C00	ISSUED FOR PLANNING	KS	06.25	MC	MC	MJ

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Purpose
PLANNING ISSUE

Client
Galway County Council,
Áras an Chontae, Prospect Hill
Galway. H91 H6KX

Title
PROPOSED GENERAL ARRANGEMENT - LAYOUT PLAN - SHEET 3 of 4

Project
N59 OUGHTERARD FOOTBRIDGE

Original Scale	Drawn	Checked	Reviewed	Authorised
1:200	AOS	AK	MC	MJ
	Date 26.06.24	Date 26.06.24	Date 26.06.24	Date 26.06.24

Status	Drawing Number	Rev
CO	0088798-ATK-XX-XX-DR-CE-900331	C00

\\wsatkins\project\IEDBA\Project-Data\0088798\6 Dwgs-Graphics\61 AutoCad\0088798-ATK-XX-XX-DR-CE-900331, 39, 42, 46-47, 53.dwg

Appendix B. Photomontages

<u>NOTES:</u>
1. PHOTO TAKEN
12/8/24 (SUMMER).

NOTES

1. 2 NO. TREES ON THE NORTH RIVERBANK ARE OMITTED TO PROVIDE A CLEAR VIEW OF THE PROPOSED FOOTBRIDGE.

NOTES:
1. PHOTO TAKEN 19/11/24 (AUTUMN).

NOTES
1. THE HEDGE ON THE WEST SIDE OF THE MASONRY WALL IS SHOWN WITH 1m HEIGHT TO PROVIDE A CLEAR VIEW OF THE PROPOSED FOOTBRIDGE.
2. 5 NO. TREES ON THE SOUTH RIVERBANK ADJACENT TO THE PROPOSED SOUTH ABUTMENT ARE OMITTED TO PROVIDE A CLEAR VIEW OF THE PROPOSED FOOTBRIDGE.
3. 1 NO. TREE ON THE NORTH RIVERBANK IS OMITTED TO PROVIDE A CLEAR VIEW OF THE PROPOSED NORTH RAMP.
4. THE PROPOSED FENCE ON THE EAST SIDE OF THE APPROACH PATH IS OMITTED FOR CLARITY.

Appendix C. Landscape Site Plan

SITE PLAN LEGEND:

SYM.	DESCRIPTION
▨	PROPOSED NATURAL STONE PAVING TO FOOTPATH/ RAMP.
▨	PROPOSED NATURAL STONE KERB.
▨	PROPOSED SURFACING TO THE BRIDGE.
▨	PROPOSED BUFF COLOURED ASPHALT TO PATH.
▨	SURFACING TO MATCH EXISTING RIVERSIDE FOOTPATH.
🟩	RIPARIAN/ WILDFLOWER VEGETATION.
🟩	AMENITY GRASS.
▭	PROPOSED WALL.
- - -	PROPOSED RAILING.
●	EXISTING TREE TRUNK.
○	EXISTING TREE TO BE RETAINED.
○	PROPOSED TREE.
🟩	PROPOSED SCRUB PLANTING.
■	PROPOSED HEDGE PLANTING.
▨	PROPOSED BENCH.
+	PROPOSED BOLLARD.
🟥	LANDS MADE AVAILABLE BOUNDARY

NOTE:

- 01 EXISTING TREES AND UNDERSTORY PLANTING TO BE RETAINED.
- 02 PROPOSED RIPARIAN PLANTING.
- 03 EXISTING AMENITY GRASS TO BE RETAINED.
- 04 PROPOSED TREE PLANTING.
- 05 PROPOSED TREE PLANTING WITH WOODLAND SHADE WILDFLOWERS.
- 06 EXISTING FOOTPATH TO BE WIDENED.
- 07 PROPOSED HEDGE PLANTING.
- 08 PROPOSED SCRUB AND TREE PLANTING.

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T +44 (0)1904 623 144 **E** mail@eb-la.com
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CLIENT:
GALWAY COUNTY COUNCIL

PROJECT/DRAWING TITLE:
OUGHTERARD FOOTBRIDGE: LANDSCAPE SITE PLAN

LOCATION:
OUGHTERARD, CO. GALWAY

DRAWING NUMBER:
24055-CO-LP-0-01-REV-3

SCALE:
1:200@A1

DATE:
13.06.2025

AtkinsRéalis

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Appendix G. ‘Location Option Appraisal’, Technical Note

TECHNICAL NOTE

Eirspan TO No.341 – N59 Oughterard Footbridge

SUBJECT	**PROJECT NO.**	**DATE**
Location Options Appraisal	0088798	2/7/24
AUTHOR(S)	**DISTRIBUTION**	**REPRESENTING**
Apilas Kanages & Mark Chambers	Galway CC and TII	
ICEPAC NO.	**ATKINSRÉALIS NO.**	
	0088798DG0014	

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
0	For Comment	Apilas Kanages	Mark Chambers	Mark Chambers	Chris Pires	03/05/24
1	For Comment	Mark Chambers	Chris Pires	Chris Pires	Chris Pires	28/05/24
2	For Comment	Apilas Kanages	Mark Chambers	Mark Chambers	Chris Pires	05/06/24
3	For Comment	Apilas Kanages	Mark Chambers	Mark Chambers	Chris Pires	02/07/24

Client signoff

Client	Galway County Council		
Project	Eirspan TO No.341 – N59 Oughterard Footbridge	**Project No.**	0088798
Client signature / date			

**TECHNICAL
NOTE**

Location Options Appraisal

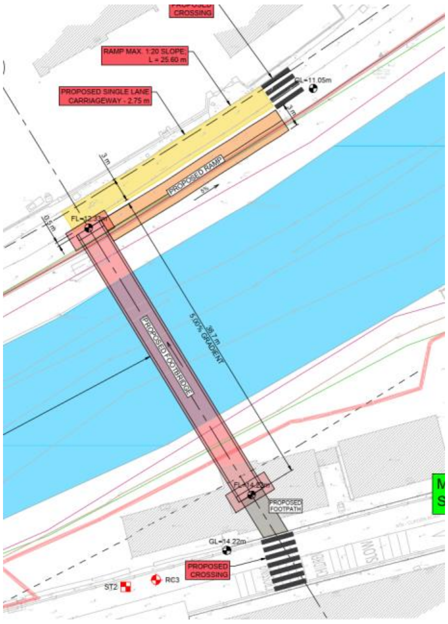
1. Introduction

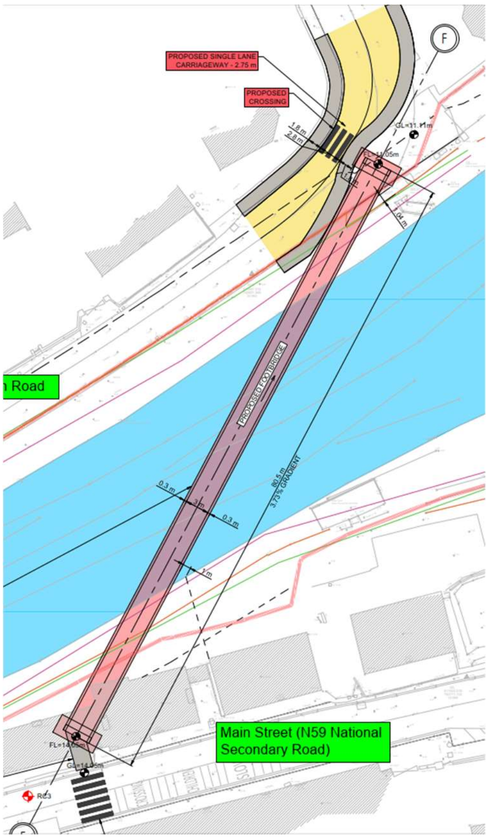
This Technical Note discusses location options considered but rejected, and evaluates a short list of five options in an option appraisal matrix.

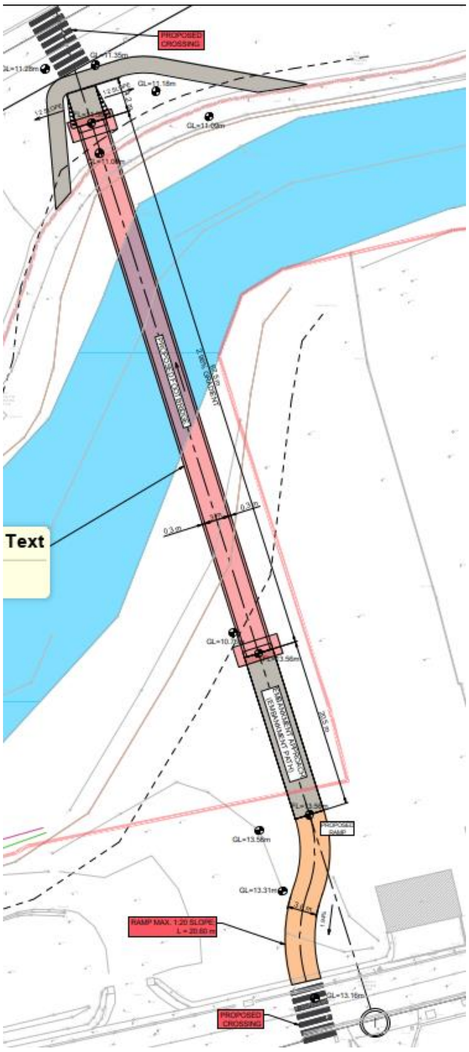
2. Options considered but rejected

See Table 1 – Options considered but rejected. Drawings are presented in Appendix A.

Table 1 – Options considered but rejected

Title	Drawing extract	Discussion
68m down-stream	 Drg No. 0088798-ATK-XX-XX-DR-BE-900304	This option is like the 77m downstream option except the bridge spans square to the river. It was rejected because a square span is relatively short and therefore cannot accommodate the large level difference between the two sides of the river without a long ramp. Also, a square span means that the north ramp tie-in is far from the footpath on Carrowmanagh Rd, which is near the bend.

Title	Drawing extract	Discussion
92m down-stream	 Drg No. 0088798-ATK-XX-XX-DR-BE-900306	This option is like the 77m downstream option except the north landing is on the Carrowmanagh Rd bend. This option has a shorter length of Carrowmanagh road narrowing than the 58m or 77m downstream options. It was rejected because: the high skew produces a relatively long span (81m) which would be costly; large structural depth and high skew would be obtrusive; and riverbank cutting would have significant potential ecology impacts.

Title	Drawing extract	Discussion
182m down-stream	 Drg No. 0088798-ATK-XX-XX-DR-BE-900309	The north abutment is located on the communal grassed area on Carrowmanagh Park and could achieve 5m setback from the riverbank crest. The south abutment is located adjacent to the private property boundary. The option was rejected for several reasons: the long span (68m) would be costly; significant privacy impact on houses at Carrowmanagh Park; and the south abutment is deep into woodland and therefore more tree clearance would be needed.

3. Shortlist of options considered

The table below presents a Location Option Appraisal matrix for the short list of five options considered for the proposed N59 Oughterard Footbridge. Drawings are presented in Appendix A.

It is intended as a concise appraisal of the various location options with respect to the main criteria.

The criteria used to appraise the options are based on those suggested in Section 2.1.12 of the PE-PMG-02043-02 and have been expanded where appropriate. ‘Safety’ and ‘Ecology’ and considered to be the most important criteria for evaluating the options. The options are scored against each criterion out of 10.

For brevity, discussion is only provided in the table where impacts are significant or where there are differences between the options.

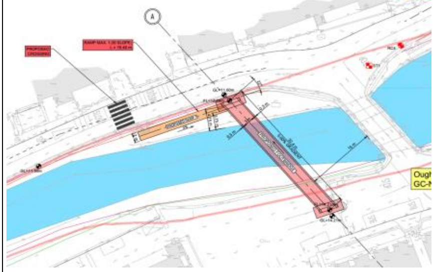
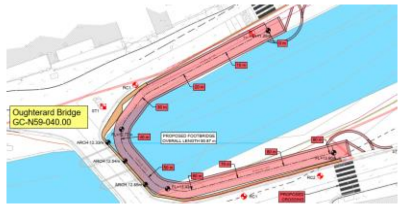
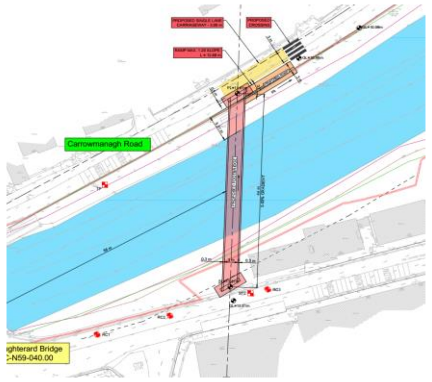
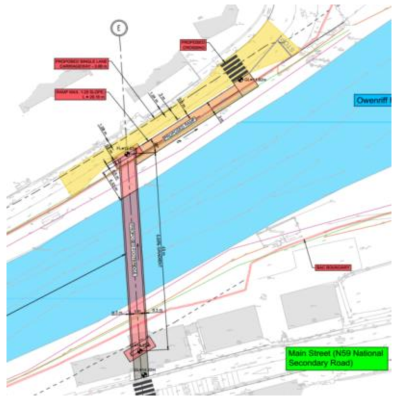
Impacts on air quality are not discussed as these are similar for all options and can be mitigated during construction.

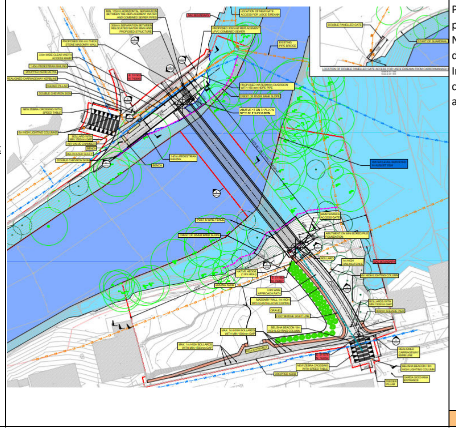
Impacts on groundwater vulnerability are not presented in the table as they are similar for all options. There is shallow bedrock (1 to 3m depth below ground level) and ‘high’ groundwater vulnerability for all the location options (ref: IE GSI Groundwater Vulnerability). The risk of groundwater contamination can be mitigated with appropriate site investigations, design mitigation measures (e.g., minimising excavations and contaminant loading) and pollution control measures during construction (e.g., monitoring networks, specific operational practices, etc) so it won’t differentiate between the options.

The following abbreviations are used in the table:

- ACA = Architectural Conservation Area
- CPO = Compulsory Purchase Order
- FPM = Freshwater Pearl Mussel

Location Option Appraisal Matrix

Footbridge option	Plan Layout	Economy	Safety	Ecology	Flood impact	Architectural Heritage / Cultural Heritage	Traffic disruption during construction	Landscape & Visual Assessment	Accessibility & Social Inclusion	Integration with existing transport infrastructure	Main Advantages & Disadvantages	Total un-weighted score out of 90	Rank (1 = best)
15m Upstream from Road Bridge **Footbridge** Length - 32m Width - 3.6m **North ramp** Length- 19.4m	See Drg No. 0088798-ATK-XX-XX-DR-BE-900301 	Bridge area is approx. 120m2. No demolition of existing buildings required or private land purchase. Impact on Eir ducts.	The footbridge/ramp parapets would not impair the 24m forward visibility requirement based on a 30kph speed limit (as per the changes planned under the Road Traffic Act 2024) on the adjacent roads. Risk of pedestrian/vehicle interaction on the road bridge as VRU's on the main desire line (between schools and Carrowmanagh Rd / town centre) may still use the existing road bridge.	Construction works would be located on the north riverbank within the SAC. Limited space for siltation control measures. The north ramp would require removal of a mature tree. Requirement for new lighting potentially impacts aquatic species such as salmon - although this can be mitigated with handrail lighting and an opaque deck. Previous surveys show FPM throughout the river but with densities increasing downstream from the N59 road bridge.	The north ramp would be in the Q100+CC flood zone. Flood modelling would be needed to determine whether this would significantly increase adjacent flood levels.	Church of Immaculate Conception: Impact on front elevation view and car park entrance area. Road bridge: No structural impact but potential visual impact due to the height of the footbridge relative to the existing bridge.	Disruption to N59 traffic due to works on the north bank only.	The elevated footbridge and long north ramp are visually undesirable.	North ramp would be inaccessible during periods of flood. Loss of car parking space outside the church. The footbridge is on the wrong side of the road bridge with respect to the main desire lines, therefore pedestrians may still use the existing road bridge. Due to constraints, the footbridge would be wide enough for pedestrian access only - a cyclist dismount sign would be needed.	Alteration to parking and vehicle access to the church.	Advantages -Relatively low cost. -No permanent road narrowing Disadvantages -Wrong side of the bridge with respect to the desire lines, therefore pedestrians may still use the existing road bridge. -The north ramp is within the flood zone which would impact flood risk and compromises access to the bridge during flooding. -The flood levels mean that the footbridge must be elevated high with a long north ramp, which is unsightly and impacts architectural heritage. -Loss of several large trees on the riverbanks impacts the natural landscape, bat habitat & water quality via bank erosion (although this can be mitigated by using appropriate tree removal methods and appropriate design). -Construction works on the north riverbank risk surface water runoff into the river impacting ecology.		
		10	2	3	2	4	4	2	2	5		**34**	**5**
Attached boardwalk on downstream side of the existing road bridge. **Footbridge/ Broadwalk** Length - 94m Width - 3.4m	See Drg No. 0088798-ATK-XX-XX-DR-BE-900302 	Bridge area is approx. 320m2, although the cost/m2 is less than the independent footbridge options because of the short spans between the existing N59 road bridge supports. Impact on Eir ducts.	Majority of VRUs will be taken off the existing road bridge however there is a risk of pedestrian/vehicle interaction on the road bridge as VRU's going between the NW & SW quadrants may still use the road bridge - although only 5 pedestrians/day are following this route. Risk of pedestrian/vehicle interaction on Carrowmanagh Local Rd as the footway is 70m east of the boardwalk tie-in. Due to the gradient and level difference at the bridge, the existing east masonry bridge parapet impairs junction visibility at the Carrowmanagh Rd / N59 junction, and the forward visibility of vehicles driving southwards over the bridge. The parapets associated with the attached boardwalk structure would therefore not worsen the junction / forward visibility. Vegetation, hanging baskets, poles and signage also impair visibility in the current situation. Risk of vehicles accidentally striking the boardwalk structure due to minimal setback. Risk of vehicles hitting existing masonry parapet and debris fallen onto the new boardwalk and or hitting VRUs.	The ecology impact of construction work on the road bridge and wingwalls could be mitigated with a temporary platform underneath. Construction of long approach ramps on the north & south riverbanks would potentially cause surface water run-off into the river during the works due to close vicinity to watercourse. Loss of several small to medium sized trees on the riverbanks impacts the natural landscape; some impact on bat habitat (but less likely due to smaller size). Limited impact on bank stability due to bedrock cliff at this location. Location beside the road bridge would reduce the need for extra lighting (which impacts on aquatic species such as salmon) Previous surveys show FPM throughout the river but with densities increasing downstream from the N59 road bridge. The attached boardwalk would increase shadowing around the existing road bridge.	The north ramp tie-in would be slightly in the Q100+CC flood zone and could potentially impact flood risk.	Road bridge: Obscures views of the bridge, requires the eastern parapet to be raised, and requires alterations to its structural fabric.	Significant impact due to works on the road behind the bridge spandrel & wing walls. Single lane running needed.	The boardwalk would impair the view of the road bridge, which is a heritage structure - could be partly mitigated with sympathetic design. Relatively long obtrusive structure	North ramp tie-in would be in the Q100+CC flood. Due to constraints, the footbridge would be wide enough for pedestrian access only - a cyclist dismount sign would be needed. The footbridge is aligned with the main VRU desire lines, but VRU's going between the NW & SW quadrants may still use the road bridge.	No need for road narrowing or building demolition. There is no footpath along Carrowmanagh Local Rd near the north ramp tie-in.	Advantages -Footbridge is aligned with the main VRU desire line. -Close to existing street lighting therefore less need for new lighting. -No permanent road narrowing Disadvantages - Pedestrian tie-in on Carrowmanagh Rd would be 70m away from the footpath. -The ends of the approach ramps would require construction on the riverbank which risks surface water run off into the river impacting ecology. -Architectural heritage impact on the road bridge. - The end of the north ramp would be submerged in the Q100+CC flood. - Pedestrians (5/day) travelling from NW- N59 Clifden Road to Station Rd and the church may still use the existing road bridge as the access to the proposed broadwalk is further to the east.		
		5	4	3	4	2	3	5	4	6		**36**	**4**
58m downstream of the road bridge **Footbridge** Length - 44m Width - 3.6m **North Ramp** Length- 12.6m	See Drg No. 0088798-ATK-XX-XX-DR-BE-900303 	Bridge area is approx. 160m2. No requirement for demolition of buildings or private land purchase. Impact on Eir ducts and ESB overhead.	Risk of pedestrian/vehicle interaction on the road bridge as VRU's going between the NW & SW quadrants may still use the road bridge - although only 5 pedestrians/day are following this route. Risk of pedestrian/vehicle interaction along Carrowmanagh Local Rd as there is no footway where the north ramp ties into the road. A very long boardwalk to tie into the road opposite where the footway starts near the bend on Carrowmanagh Rd would be needed to mitigate this. Risk of vehicular impact on the proposed footbridge / ramp structure due to its location directly adjacent to the N59 and Carrowmanagh Local Rd.	The North side abutment and ramp would be located close to the riverbank crest - bunding along the kerb line would mitigate the risk of surface water run-off into the river. The recommended 5m setback would not be achieved. Previous surveys show FPM throughout the river but with densities increasing downstream from the N59 road bridge. Risk of impact due to runoff and vibration during construction. Removal of several medium trees on the riverbanks could impact bat roosts and could bank stability which could impact on water quality & FPM. Requirement for new lighting potentially impacts aquatic species such as salmon - although this can be mitigated with handrail lighting and an opaque deck.	No significant impact - Bridge soffit can be located above Q100 + cc.	Road bridge: Minimal impact. Requires removal of a small section of boundary wall and some trees, which contribute positively to the ACA setting.	Significant disruption to traffic on the N59 and Carrowmanagh Local Rd - single lane running.	The north ramp is long, obtrusive, and impairs the river view for adjacent houses. The proximity of the footbridge to the adjacent buildings & roads at the south side would produce a congested site.	The footbridge is aligned with the main desire line, but some VRU's going between the NW & SW quadrants may still use the road bridge. Due to constraints, the footbridge would be wide enough for pedestrian access only - a cyclist dismount sign would be needed. Narrowing of Carrowmanagh Local Rd would impair access of large vehicles turning into the driveways of two houses.	Narrowing of Carrowmanagh Local Rd with priority to vehicles from the N59 which would cause queues for vehicles coming from the schools during busy periods. The estimated average queue time at the road narrowing for traffic coming from the schools during the morning peak period time would be approx. 13 mins, which would be very disruptive. It would also impair access of large vehicles turning into the driveways of two houses. The north ramp does not tie into a footpath along Carrowmanagh Rd. To achieve this, it would need to be lengthened by approx. 40m to tie in opposite where the footway starts near the bend on Carrowmanagh Rd.	Advantages -Achieves 0.3m freeboard over Q100+CC flood. -Minimal impact on architectural heritage. -Aligned with the main desire line of pedestrians between schools & town centre -Galway CC own the riverbank on the south side. Disadvantages -Single lane running on Carrowmanagh Local Rd would cause long queues for vehicles coming from the schools during busy morning & afternoon periods, and would obstruct large vehicle access into driveways for two houses. -The long north ramp obscures the river view from adjacent houses and compromises the riverbank environmental buffer zone. - Construction works close to the riverbank risk surface water runoff into the river impacting ecology - the foundations are setback only 1m from the riverbank crest so space for mitigations would be limited. -Some pedestrians going between NW & SW may still use the existing road bridge (5 pedestrians/day) -North ramp tie-in is 40m away from the Carrowmanagh Rd footway. -Loss of several medium sized trees on both riverbanks impacts the natural landscape, bat habitat & water quality via bank erosion (although appropriate tree removal methods and design would mitigate this). -Proximity to adjacent buildings and roads would produce a congested public realm. - Carrowmanagh Rd is commonage land linked to 20 folios		
		8	4	3	10	8	3	4	2	2		**44**	**2**
77m downstream of the road bridge **Footbridge** Length - 43m Width - 3.6m **North Ramp** Length- 26.2m	See Drg No. 0088798-ATK-XX-XX-DR-BE-900305 	Bridge area is approx. 150m2. The derelict old restaurant would require demolition. Impact on Eir ducts and ESB overhead.	Majority of VRUs will be taken off the existing road bridge however there is a risk of pedestrian/vehicle interaction on the road bridge as VRU's going between the NW & SW quadrants may still use the road bridge - although only 5 pedestrians/day are following this route. Risk of vehicular impact on the proposed footbridge / ramp structure due to its location directly adjacent to the N59 and Carrowmanagh Local Rd.	The north abutment and ramp does not provide 5m setback from the riverbank although bunds along the kerb line may be acceptable. Previous surveys show FPM throughout the river but with densities increasing downstream from the N59 road bridge. Risk of impact due to runoff and vibration during construction. Derelict building may be a bat roost and exclusion of bats would require a license. Risk to water quality associated with demolition of building in close proximity to watercourse. Loss of several medium trees on the riverbanks impacts the natural landscape, bat habitat & water quality via bank erosion. Requirement for new lighting potentially impacts aquatic species such as salmon - although this can be mitigated with handrail lighting and an opaque deck.	No significant impact - Bridge soffit can be located above Q100 + cc.	Derelict building (old restaurant): Requires demolition of this building which is part of the ACA. Road bridge: Minimal impact. Requires removal of mature trees on south bank of the river, forming part of ACA setting	Significant disruption to traffic on the N59 and Carrowmanagh Local Rd - single lane running.	The north ramp is long, obtrusive, and impairs the river view for adjacent houses. The space created by demolition of the derelict building would create a more open aspect than the 54m downstream option.	The footbridge is aligned with the main desire line, but some VRU's going between the NW & SW quadrants may still use the road bridge. Due to constraints, the footbridge would be wide enough for pedestrian access only - a cyclist dismount sign would be needed. Narrowing of Carrowmanagh Local Rd would impair access of large vehicles turning into the driveways of two houses.	Narrowing of Carrowmanagh Local Rd with priority to vehicles from the N59 which would cause queues for vehicles coming from the schools during busy periods. The estimated average queue time at the road narrowing for traffic coming from the schools during the morning peak period time would be approx. 13 mins, which would be very disruptive. It would also impair access of large vehicles turning into the driveways of two house. North ramp tie-in connects to the footway at the eastern end of Carrowmanagh Local Rd. Requires demolition of an existing building which although derelict could have a future use.	Advantages -Achieves 0.3m freeboard over Q100+CC flood. -Aligned with the main desire line of pedestrians between schools & town centre - GCC own the derelict restaurant and south riverbank Disadvantages -Single lane running on Carrowmanagh Local Rd would cause long queues for vehicles coming from the schools during busy morning & afternoon periods, and would obstruct large vehicle access into driveways for two houses. -The long north ramp obscures the river view from adjacent houses and compromises the riverbank environmental buffer zone. -Loss of several medium trees on both sides of the riverbanks impacts the natural landscape, bat habitat & water quality via bank instability. - Construction works close to the riverbank risk surface water runoff into the river impacting ecology - the foundations are setback only 1m from the riverbank crest so space for mitigations would be limited. -Demolition of the derelict building (old restaurant) impacts architectural heritage and ecology constraints. - Carrowmanagh Rd is commonage land linked to 20 folios		
		6	5	2	10	3	3	5	2	1		**37**	**3**

151m downstream of the road bridge **Footbridge** Length - 53m Width - 3.6m **North Ramp** Length- 13.2m Access Steps **South Embankment** Length - 26.3m	See Drg No. 0088798-ATK-XX-XX-DR-BE-900331 	Bridge area is approx. 190m2. Private land purchase required. No building demolition needed. Impacts on combined sewer and water main.	The pedestrian crossing on the bend of Carrowmanagh Rd would satisfy the 24m Sight Stopping Distance requirement based on a 30kph speed limit (as per the changes planned under the Road Traffic Act 2024). Majority of VRUs will be taken off the existing road bridge however there is a risk of pedestrian/vehicle interaction on the road bridge as pedestrians going between the NW & SW quadrants may still use the road bridge. The previous survey counted only 5 pedestrians/day following this route.	The north abutment does not achieve the typical 5m setback from the riverbank crest, however, this option offers the largest setback of all options (3 to 4m to the foundation toe). Bunding / interceptor drainage / silt fence mitigations / water quality monitoring etc would be possible during construction. South abutment would be set-back 5m from the riverbank crest - more is possible but with greater span & cost. Design would seek to minimise the number of trees which need to be removed. Removal of large trees on the riverbanks risks the following: impact on bat habitat; siltation due to destabilising riverbanks although this can be mitigated with appropriate tree removal methods and design detailing; impact on sub-surface flow of detritus laden water into the river which FPM feed on, although this can be mitigated by identifying these routes and minimising impacts. Previous surveys show FPM throughout the river but with densities increasing downstream from the N59 road bridge. Risk of ecology impact due to surface water runoff and vibration during construction, although this is reduced with the proposed setback from the river bank and construction mitigation measures. Risk of impact on aquatic species such as salmon due to footbridge lighting - although this can be mitigated with handrail lighting and an opaque deck. This option has a larger abutment setback from the river than the other options, which helps to mitigate ecology impacts.	No significant impact - Bridge soffit can be located above Q100 + CC flood level.	Road bridge: Minimal impact. Courthouse: The footbridge would improve the link to the Courthouse and provides an opportunity for future improvement to public realm space in this vicinity. Removal of large and closely spaced trees on the south bank of the river, which forms part of ACA setting. The number of trees which would need to be removed will be confirmed by an arborist.	Relatively minor impact as the works would be away from the road.	Square crossing with minimal ramps in a relatively 'open' location provides good aesthetics. The loss of trees would negatively impact the natural landscape, although replanting native trees and beautification through landscaping would provide mitigation. An aesthetically pleasing footbridge would positively contribute to the urban landscape. The footbridge would provide views towards the Courthouse and an opportunity for future enhancement to the public realm in this vicinity. The south approach path is 50m away from the Old Barracks house. North ramp is approx. 4m away from adjacent house. Screening mitigation is possible.	The footbridge is aligned with the main VRU desire lines between the town centre and Carrowmanagh (schools & residential area). Pedestrians (approx. 5/day) going between the NW & SW quadrants may still use the road bridge. Ramp access with compliant gradients can be provided. Due to constraints, the footbridge would be wide enough for pedestrian access only - a cyclist dismount sign would be needed. The pedestrian tie-ins at each end are open and accessible.	No road narrowing is required. Pedestrian crossings located in areas with adequate visibility sight distance. Footbridge links to existing riverside walk path.	Advantages -This option offers the largest setback from the riverbanks of all the options, yielding the least ecological impact of all the options during the construction stage. - North abutment foundation toe would be setback approx. 3 to 4m from the riverbank crest which enables siltation control measures during construction. The south abutment foundation toe would be setback the typical 5m from the riverbank crest (or more with greater span & cost). -Minimal impact on architectural heritage including the protected bridge structure. -Provides a link to public amenities. -Opportunity for future public realm improvements on south side -Aligned with main desire line between town centre and schools. - The proposed structure is well separated from the adjacent roads, which mitigates the risk of vehicular strikes and minimises disruption to traffic during construction. -Achieves at least 0.3m freeboard over Q100+CC flood. - The design does not require single lane running on Carrowmanagh Rd after completion - Single span square crossing with short ramps provides better aesthetics than other options with high skew and/or long ramps. Disadvantages -There are potential ecology impacts due to loss of large trees from the riverbanks and construction works near to the riverbanks, although mitigations are possible. - Pedestrians travelling from NW side of N59 Clifden Road to Station Rd / Church of Immaculate Conception (approx. 5/day) may still use the existing road bridge. This risk could be mitigated by providing signs to direct pedestrians towards the footbridge. - Requirement to purchase private property from adjacent landowners on the north and south side of the river. It is anticipated that no CPO will be required for the purchase of the private property based on the initial landowner engagement. - Privacy concerns due to proximity of adjacent house on the north side. Landowner consultation will be carried out and screening mitigations can be explored.		
		3	7	6	10	9	8	7	7	6		**63**	**1**

Appendix A. Drawings

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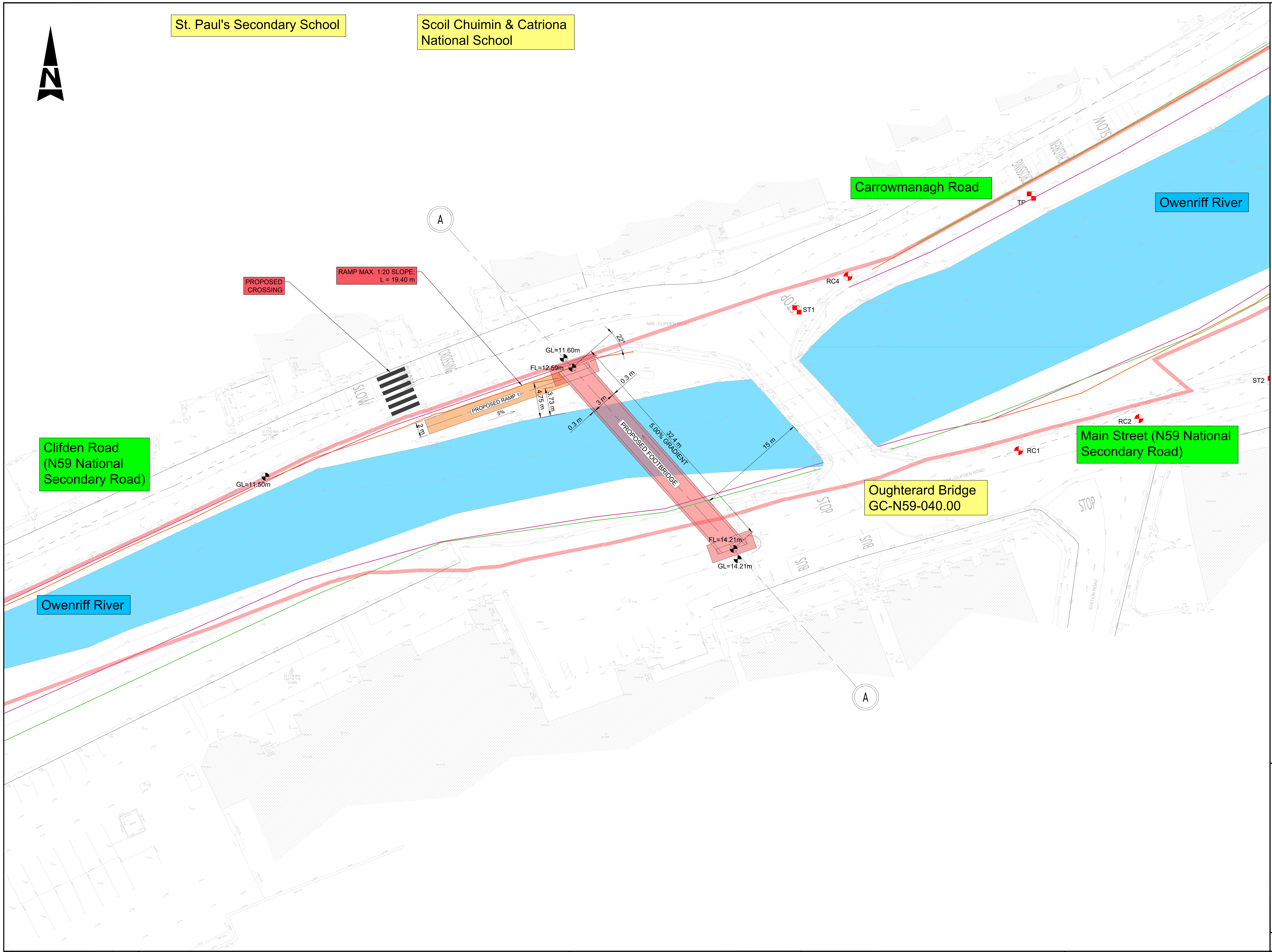

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LEGEND

NORMAL WATER LEVEL (FROM 2006 SURVEY)

CREST (FROM 2006 SURVEY)

Q100 + CC FLOOD LEVEL (FROM 2006 FLOOD ANALYSIS)

QBAR (FROM 2006 FLOOD ANALYSIS)

5 m SETBACK

RC BOREHOLE

TP ST TRIAL PIT

Purpose: PRELIMINARY ISSUE

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Risk Level		
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Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Title
FOOTBRIDGE OPTION -
US 15 m FROM EXISTING
BRIDGE LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS	AK	MC	MJ
	Date 04.06.24	Date 04.06.24	Date 04.06.24	Date 04.06.24

Status	Drawing Number	Rev
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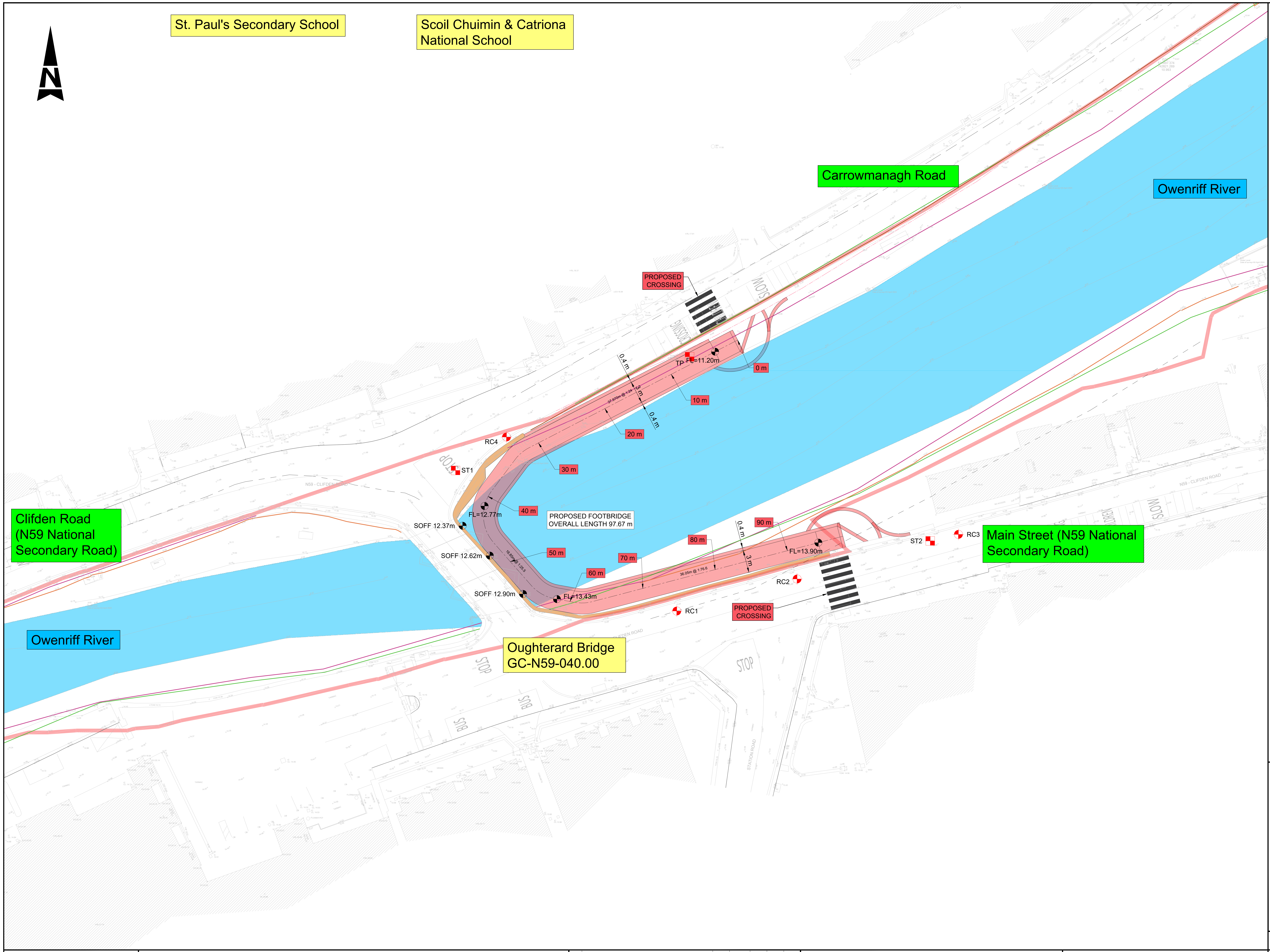

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LEGEND

—	NORMAL WATER LEVEL (FROM 2006 SURVEY)
—	CREST (FROM 2006 SURVEY)
—	Q100 + CC FLOOD LEVEL (FROM 2006 FLOOD ANALYSIS)
—	QBAR (FROM 2006 FLOOD ANALYSIS)
—	5 m SETBACK
RC	BOREHOLE
TP ST	TRIAL PIT

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
ATTACHED BRIDGE
LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 04.06.24	AK Date 04.06.24	MC Date 04.06.24	MJ Date 04.06.24

Status	Drawing Number	Rev
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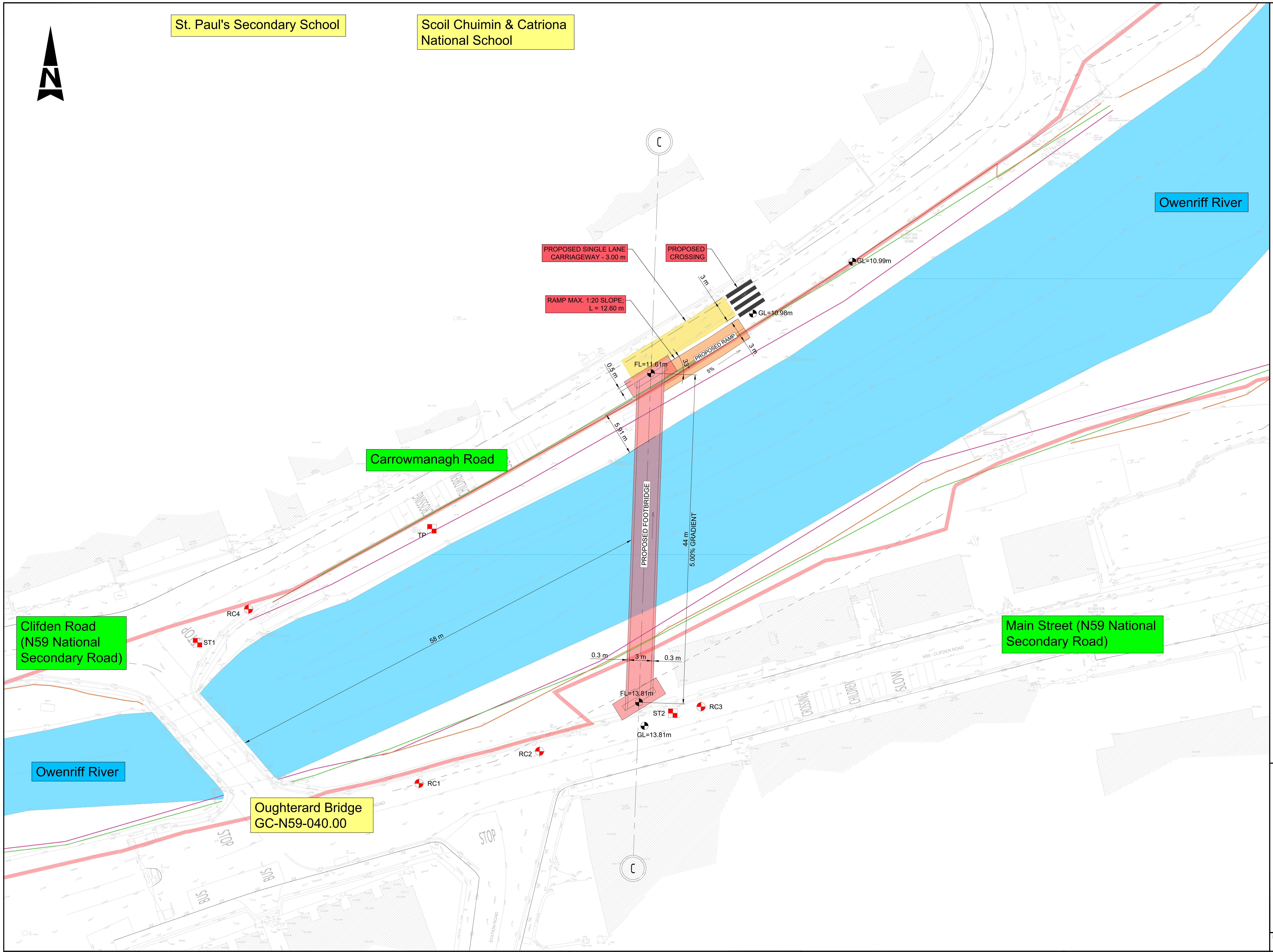

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LEGEND

NORMAL WATER LEVEL (FROM 2006 SURVEY)
CREST (FROM 2006 SURVEY)
Q100 + CC FLOOD LEVEL (FROM 2006 FLOOD ANALYSIS)
QBAR (FROM 2006 FLOOD ANALYSIS)
5 m SETBACK
RC BOREHOLE
TP ST TRIAL PIT

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
DS 58 m FROM EXISTING
BRIDGE LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS	AK	MC	MJ
	Date 04.06.24	Date 04.06.24	Date 04.06.24	Date 04.06.24

Status	Drawing Number	Rev
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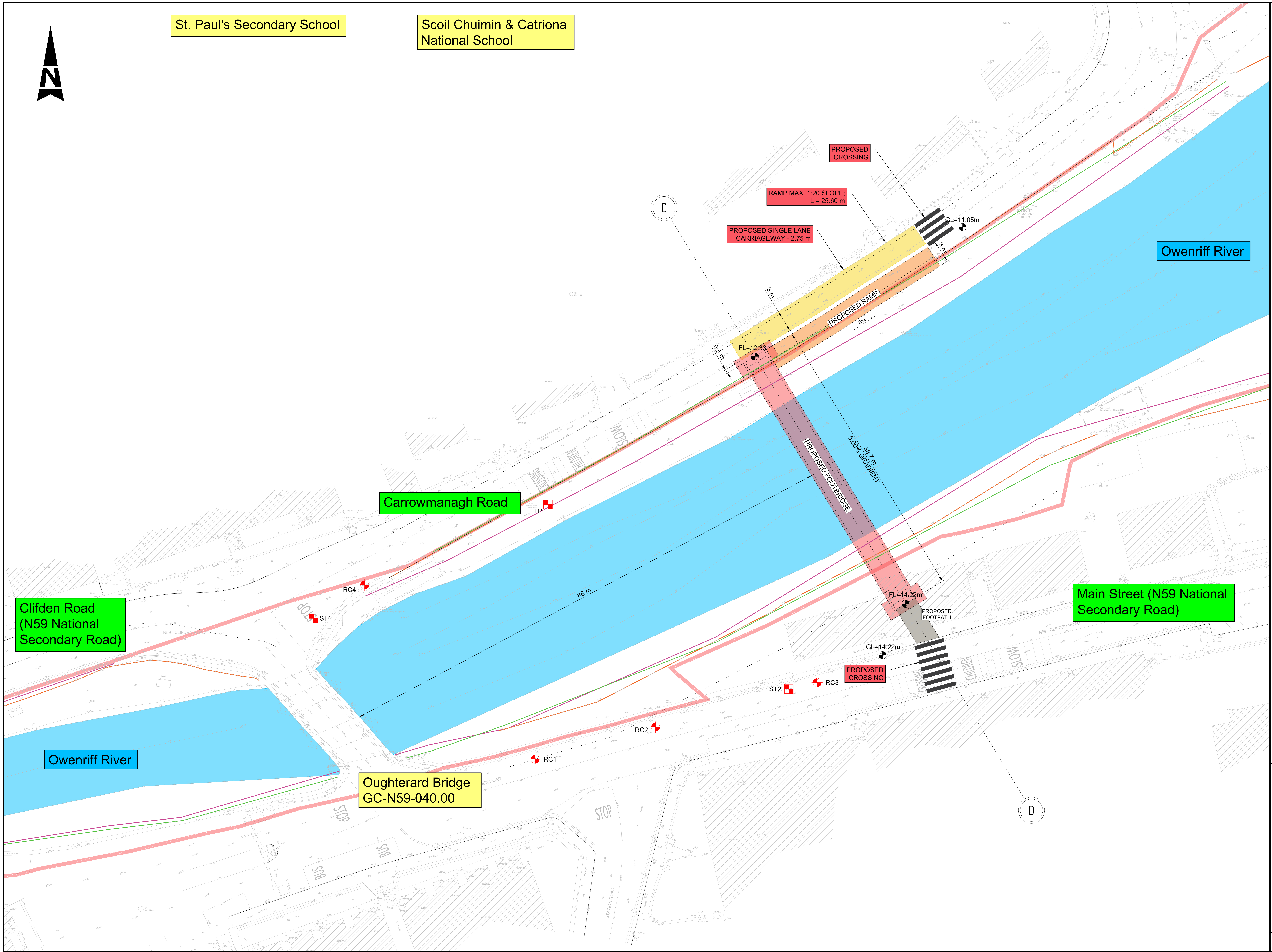

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LEGEND

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—	CREST (FROM 2006 SURVEY)
—	Q100 + CC FLOOD LEVEL (FROM 2006 FLOOD ANALYSIS)
—	QBAR (FROM 2006 FLOOD ANALYSIS)
—	5 m SETBACK
RC ⊕	BOREHOLE
TP ▨ ST ▨	TRIAL PIT

Purpose
PRELIMINARY ISSUE

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Risk Level		
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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Title
FOOTBRIDGE OPTION -
DS 68 m FROM EXISTING
BRIDGE LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 04.06.24	MC Date 04.06.24	MC Date 04.06.24	MC Date 04.06.24

Status	Drawing Number	Rev
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DO NOT SCALE

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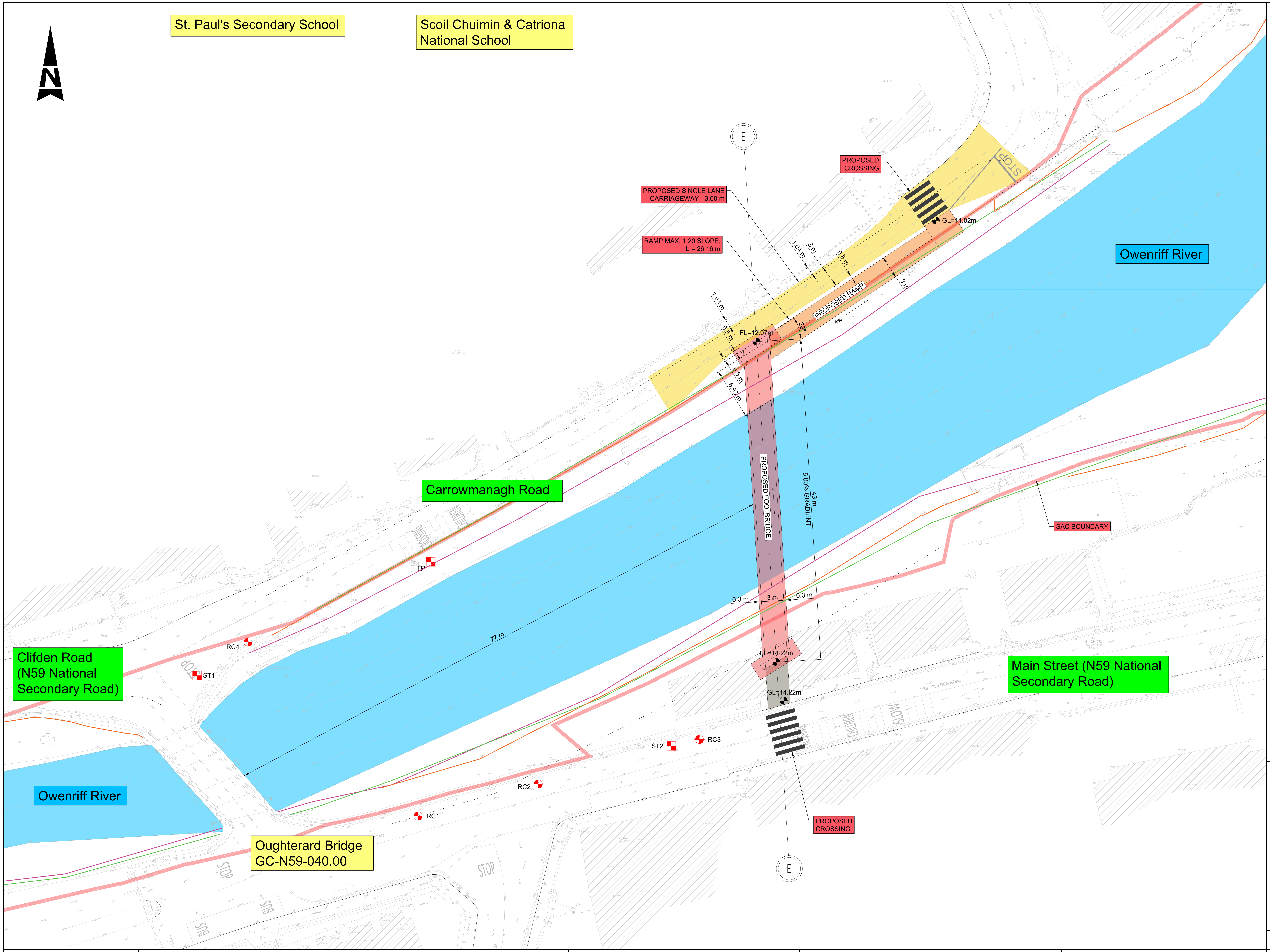

GENERAL NOTES

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2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR

LEGEND

—	NORMAL WATER LEVEL (FROM 2006 SURVEY)
—	CREST (FROM 2006 SURVEY)
—	Q100 + CC FLOOD LEVEL (FROM 2006 FLOOD ANALYSIS)
—	QBAR (FROM 2006 FLOOD ANALYSIS)
—	5 m SETBACK
RC	BOREHOLE
TP ▨ ST ▨	TRIAL PIT

Purpose
PRELIMINARY ISSUE

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level		
	X	AtkinsRéailis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Client
Galway County Council,
Áras an Chontae, Prospect Hill
Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Title
FOOTBRIDGE OPTION -
DS 77 m FROM EXISTING
BRIDGE LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS	AK	MC	MJ
	Date 04.06.24	Date 04.06.24	Date 04.06.24	Date 04.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900305	P0

File: 0088798-ATK-XX-01-DR-BE-000001 TO 000010.dwg
Date: Jun 04, 2024 - 3:15pm Plotted by: kstepanova

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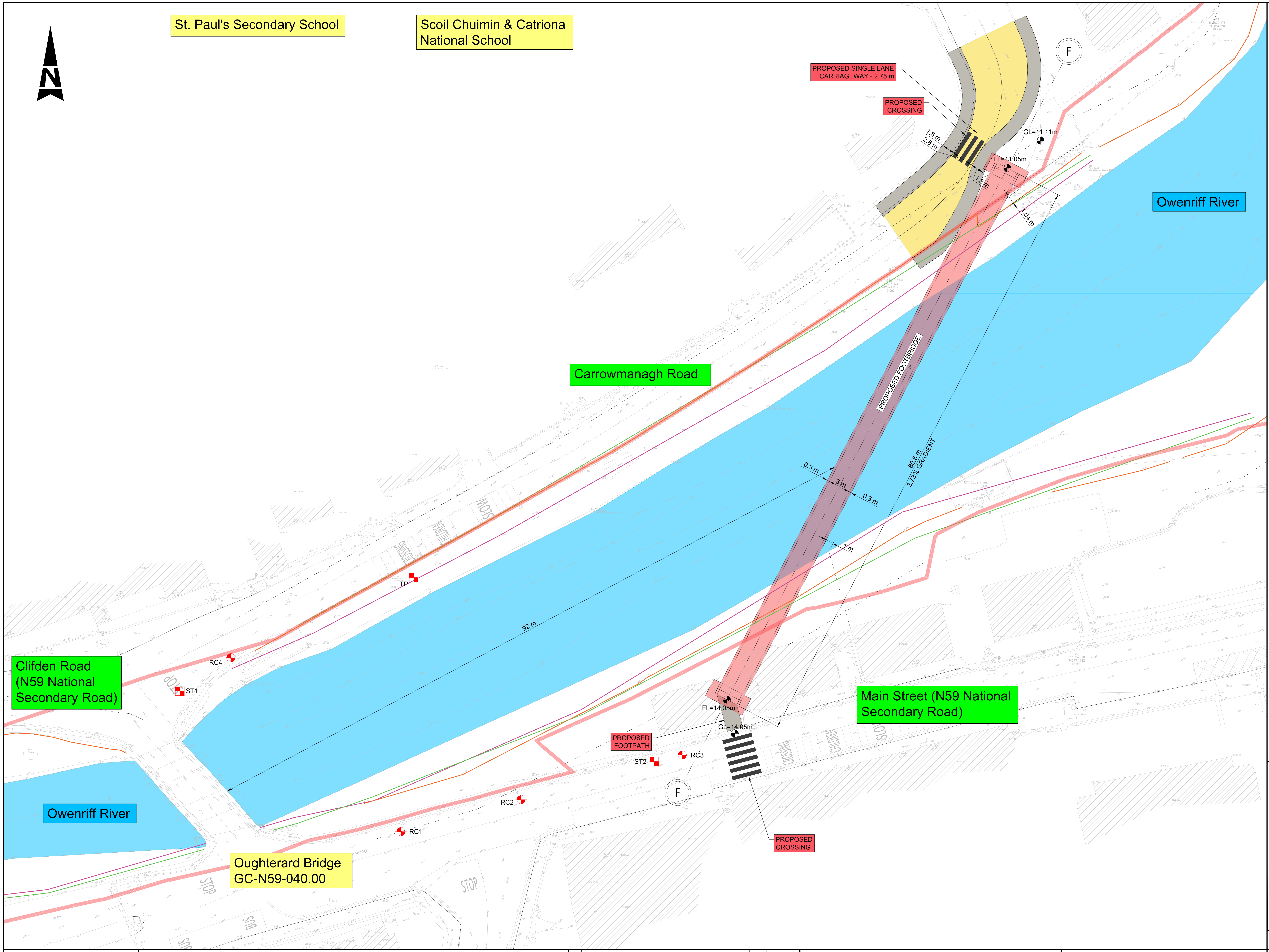
A1

DO NOT SCALE



GENERAL NOTES

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4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR

LEGEND

NORMAL WATER LEVEL (FROM 2006 SURVEY)
CREST (FROM 2006 SURVEY)
Q100 + CC FLOOD LEVEL (FROM 2006 FLOOD ANALYSIS)
QBAR (FROM 2006 FLOOD ANALYSIS)
5 m SETBACK
RC — BOREHOLE
TP ST — TRIAL PIT

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level		
	X	AtkinsRéailis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

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Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Client
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Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
DS 92 m FROM EXISTING
BRIDGE LAYOUT PLAN

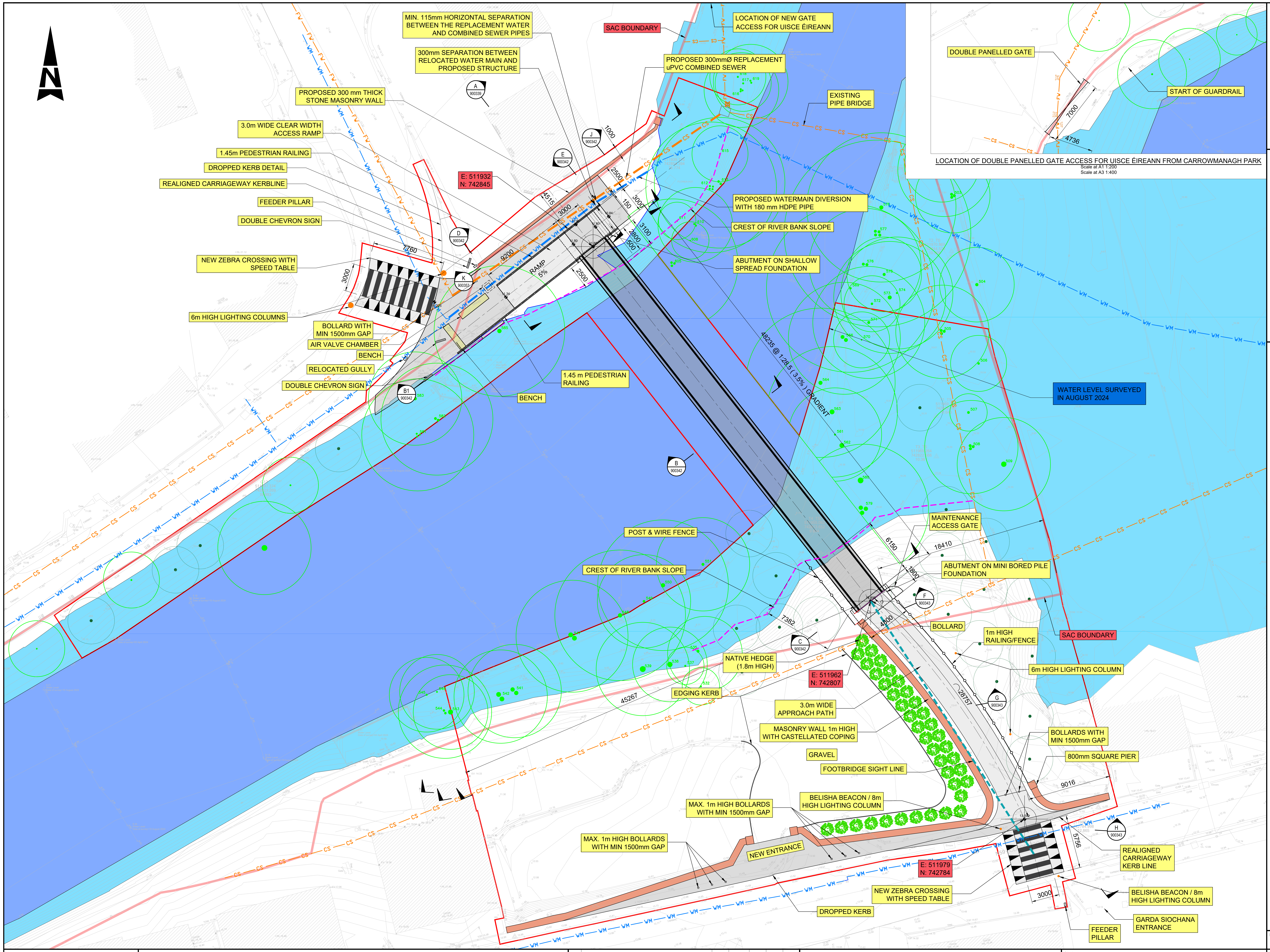
Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS	AK	MC	MJ
	Date 04.06.24	Date 04.06.24	Date 04.06.24	Date 04.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900306	P0

File: 0088798-ATK-XX-01-DR-BE-000001 TO 000010.dwg
Date: Jun 04, 2024 - 3:16pm Plotted by: kstepanova

A1

DO NOT SCALE



GENERAL NOTES

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3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

LEGEND:

— WM —	EXISTING WATER MAIN
▬ WM ▬	PROPOSED WATERMAIN DIVERSION
— CS —	EXISTING COMBINED SEWER
▬ CS ▬	PROPOSED REPLACEMENT COMBINED SEWER
— FW —	EXISTING FOUL DRAINAGE
🟦	1% ANNUAL EXCEEDENCE PROBABILITY FLOOD ZONE (MID RANGE FUTURE SCENARIO)
—	SITE LAYOUT BOUNDARY
◯	EXISTING TREE TO BE RETAINED
◯	PROPOSED TREE

NOTES:

1. THE DESIGN USES THE EXISTING STORM DRAINAGE SYSTEM.

2. ELECTRICAL WIRING, DUCTING & PILLAR DETAILS WILL BE CONFIRMED AT DETAILED DESIGN.

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level
X AtkinsRéailis Base Line - Low Risk
X AtkinsRéalis Sensitive - Medium Risk
X AtkinsRéalis Private - High Risk
X Client Critical - Already Marked

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Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
C00	ISSUED FOR PLANNING	KS	06.25	MC	MC	MJ

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Project
N59 OUGHTERARD FOOTBRIDGE

Purpose
PLANNING ISSUE

Title
FOOTBRIDGE OPTION -
DS 150m FROM EXISTING
BRIDGE - LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:200	AOS Date 26.06.24	AK Date 26.06.24	MC Date 26.06.24	MJ Date 26.06.24

Status	Drawing Number	Rev
CO	0088798-ATK-XX-XX-DR-CE-900331	C00

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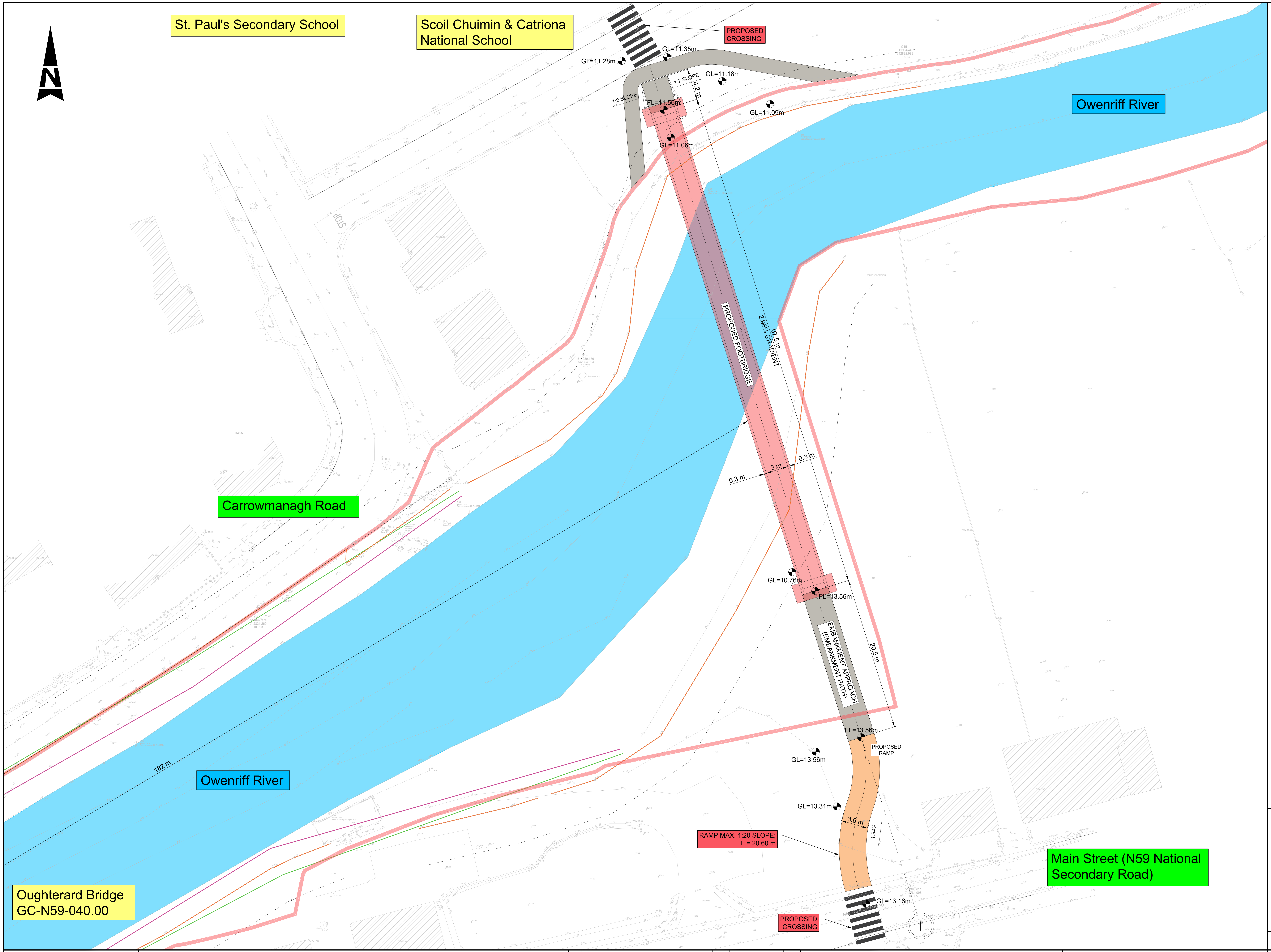
A1

DO NOT SCALE



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LEGEND

—	NORMAL WATER LEVEL (FROM 2006 SURVEY)
—	CREST (FROM 2006 SURVEY)
—	Q100 + CC FLOOD LEVEL (FROM 2006 FLOOD ANALYSIS)
—	QBAR (FROM 2006 FLOOD ANALYSIS)
—	5 m SETBACK

Purpose
PRELIMINARY ISSUE

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level		
	X	AtkinsRéailis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

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Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Title
FOOTBRIDGE OPTION -
DS 182 m FROM EXISTING
BRIDGE LAYOUT PLAN

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS	AK	MC	MJ
	Date 04.06.24	Date 04.06.24	Date 04.06.24	Date 04.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900309	P0

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Date: Jun 04, 2024 - 5:48pm

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A1

DO NOT SCALE

GENERAL NOTES

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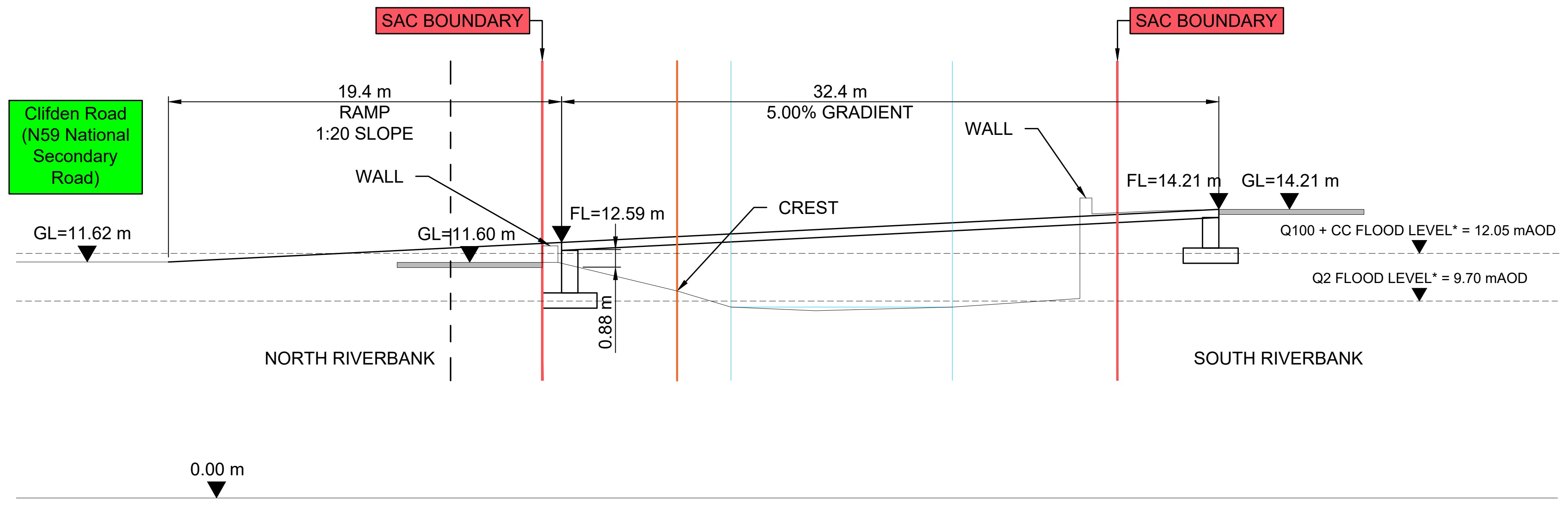

A US 15 m - LONGITUDINAL SECTION

Scale at A1 1:250 m
Scale at A3 1:500 m

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Risk Level
- X AtkinsRéailis Base Line - Low Risk
- AtkinsRéalis Sensitive - Medium Risk
- AtkinsRéalis Private - High Risk
- Client Critical - Already Marked

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Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS
PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
US 15 m FROM EXISTING BRIDGE
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 04.06.24	AK Date 04.06.24	MC Date 04.06.24	MJ Date 04.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900311	P0

File: 0088798-ATK-XX-01-DR-BE-000001 TO 000010.dwg
Date: Jun 04, 2024 - 4:41pm Plotted by: kstepanova

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A1

DO NOT SCALE

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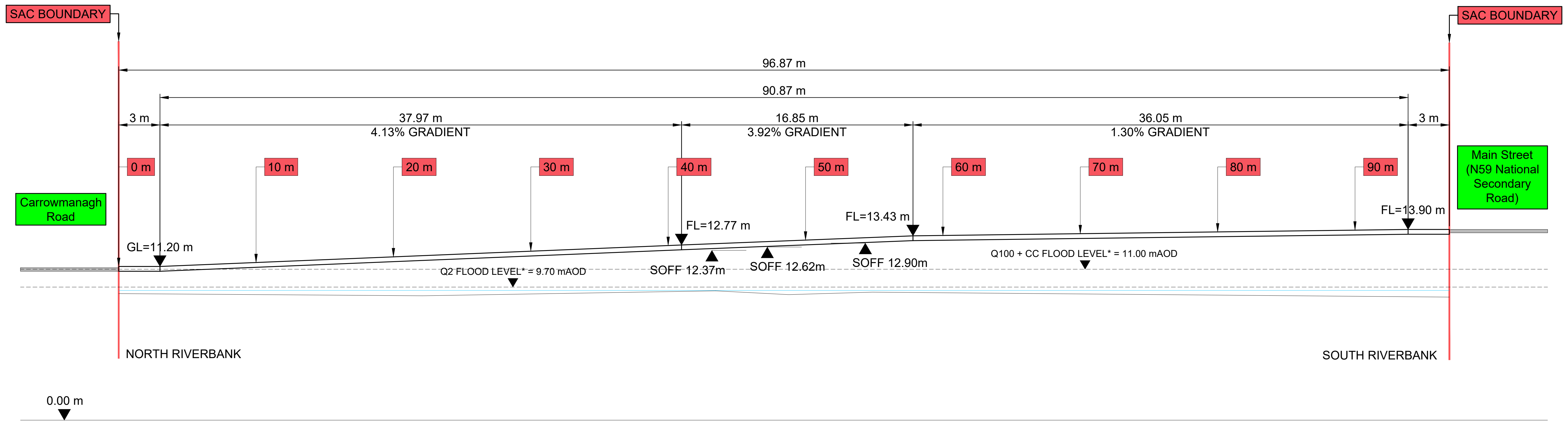
Date: Jun 04, 2024 - 5:18pm
Plotted by: kstepanova



B ATTACHED BRIDGE - LONGITUDINAL SECTION

Scale at A1 1:250 m
Scale at A3 1:500 m

GENERAL NOTES

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Risk Level		
	X	AtkinsRéailis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

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Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Galway. H91 H6KX

Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
ATTACHED BRIDGE
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 04.06.24	AK Date 04.06.24	MC Date 04.06.24	MJ Date 04.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900312	P0

A1

DO NOT SCALE

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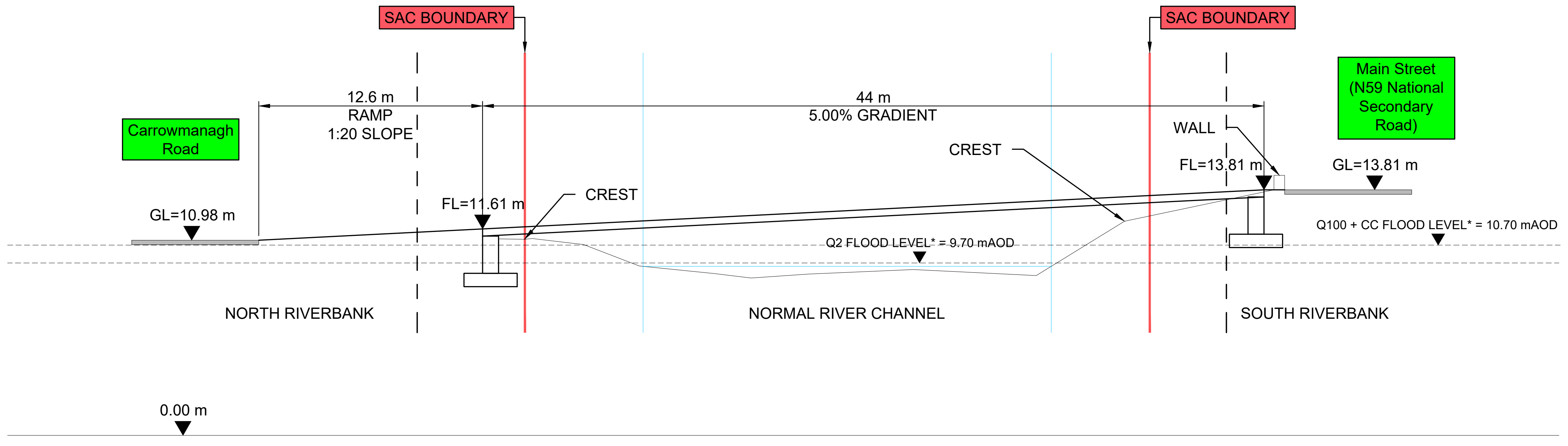
Date: Jun 05, 2024 - 9:53am
Plotted by: kstepanova



C DS 58 m - LONGITUDINAL SECTION

Scale at A1 1:250 m
Scale at A3 1:500 m

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Risk Level		
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GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
DS 58 m FROM EXISTING BRIDGE
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 05.06.24	AK Date 05.06.24	MC Date 05.06.24	MJ Date 05.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900313	P0

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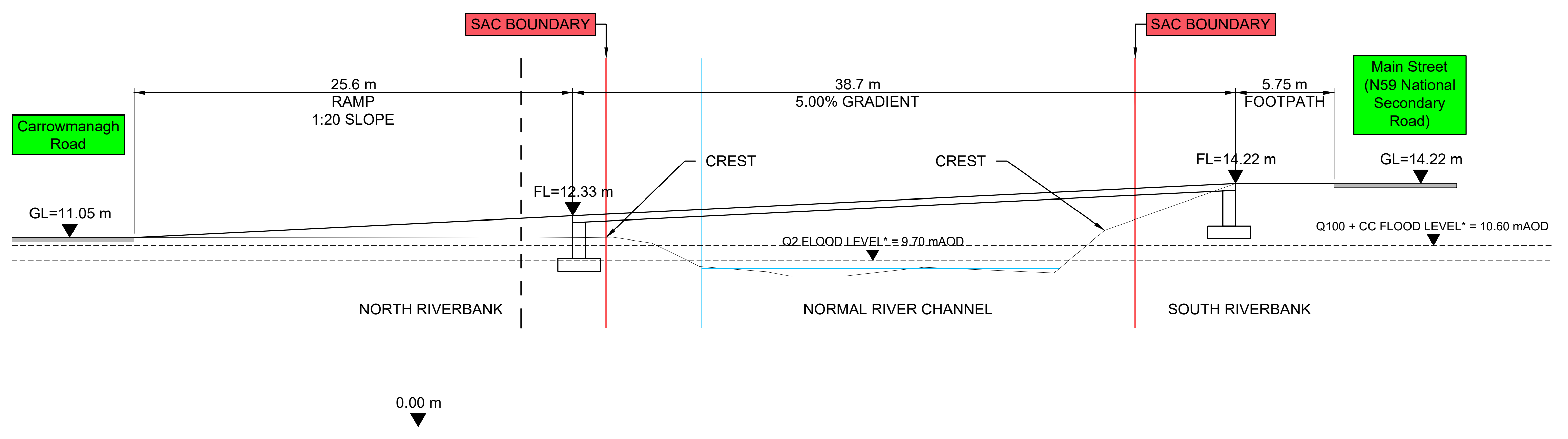
DO NOT SCALE



D DS 68 m - LONGITUDINAL SECTION

Scale at A1 1:250 m
Scale at A3 1:500 m

GENERAL NOTES

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File: 0088798-ATK-XX-01-DR-BE-000001 TO 000010.dwg
Date: Jun 05, 2024 - 10:12am Plotted by: kstepanova

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level		
	X	AtkinsRéailis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

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Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS
PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
DS 68 m FROM EXISTING BRIDGE
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 05.06.24	AK Date 05.06.24	MC Date 05.06.24	MJ Date 05.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900314	P0

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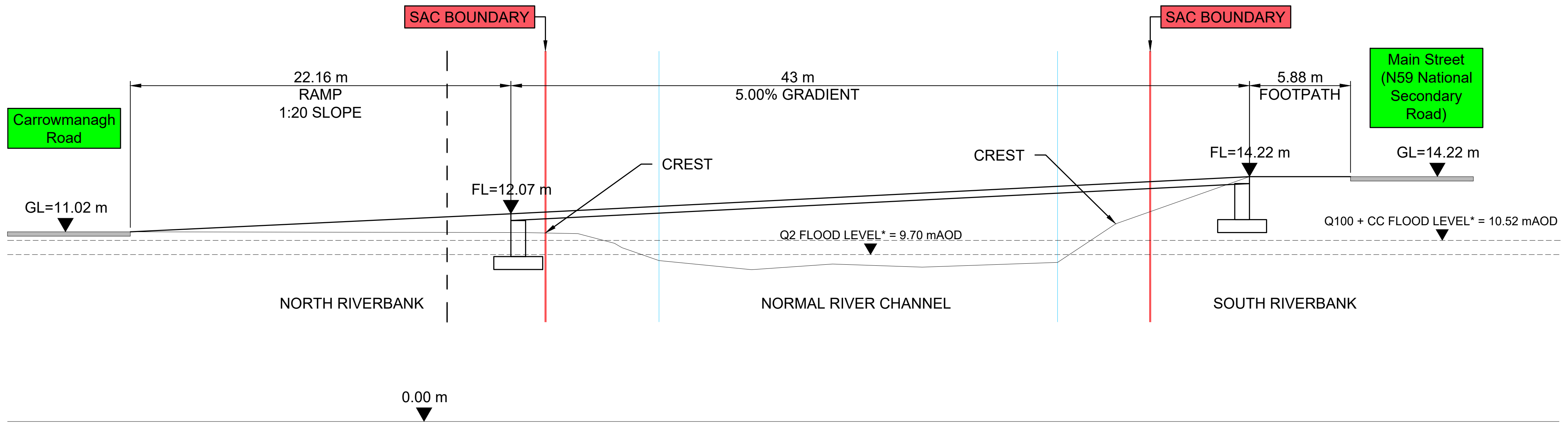
DO NOT SCALE



E DS 77 m - LONGITUDINAL SECTION

Scale at A1 1:250 m
Scale at A3 1:500 m

GENERAL NOTES

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Risk Level		
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Bonneagar Iompair Éireann
Transport Infrastructure Ireland

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GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
DS 77 m FROM EXISTING BRIDGE
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS	AK	MC	MJ
	Date 05.06.24	Date 05.06.24	Date 05.06.24	Date 05.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900315	P0

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Date: Jun 05, 2024 - 10:40am Plotted by: kstepanova

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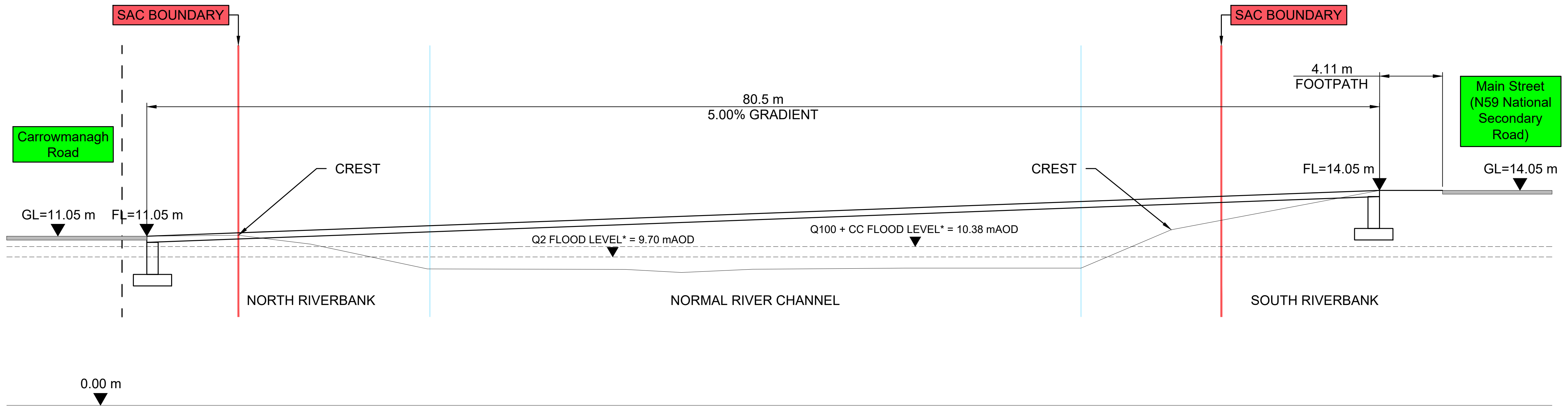
A1

DO NOT SCALE

File: 0088798-ATK-XX-01-DR-BE-000001 TO 000010.dwg Plotted by: kstepanova
Date: Jun 06, 2024 - 2:10pm

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR



F DS 92 m - LONGITUDINAL SECTION

Scale at A1 1:250 m
Scale at A3 1:500 m

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level		
	X	AtkinsRéailis Base Line - Low Risk
		AtkinsRéalis Sensitive - Medium Risk
		AtkinsRéalis Private - High Risk
		Client Critical - Already Marked

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Comhairle Chontae na Gaillimhe
Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Client
Galway County Council,
Áras an Chontae, Prospect Hill
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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
DS 92 m FROM EXISTING BRIDGE
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 06.06.24	AK Date 06.06.24	MC Date 06.06.24	MJ Date 06.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900316	P0

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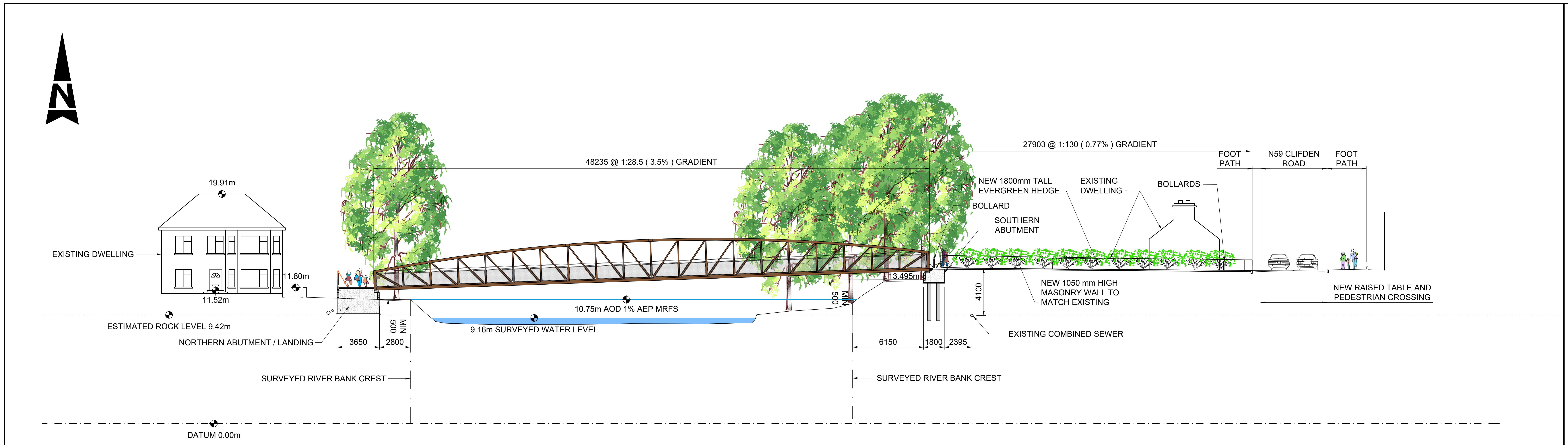
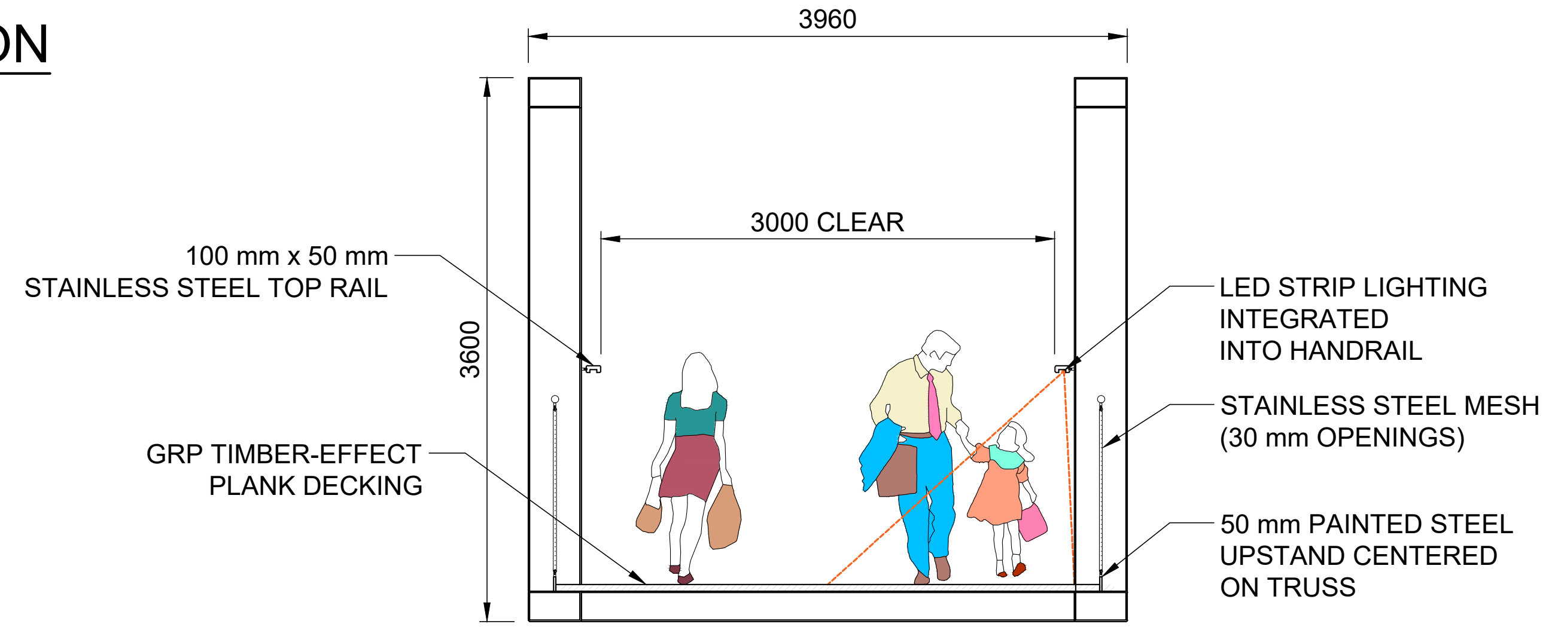
A1

DO NOT SCALE



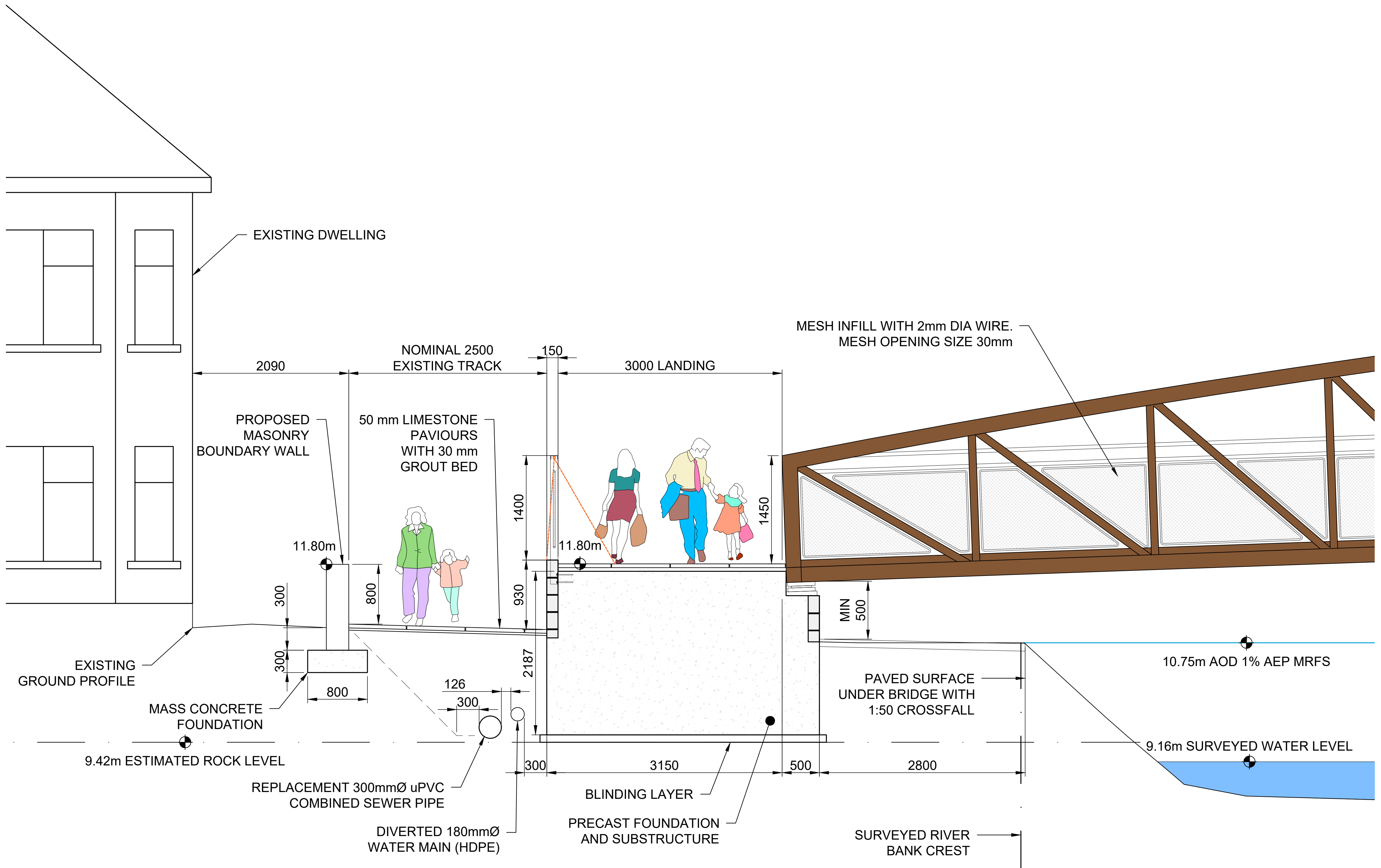
SECTION A: PROPOSED PEDESTRIAN BRIDGE LONGITUDINAL SECTION

Scale at A1 1:200
Scale at A3 1:400



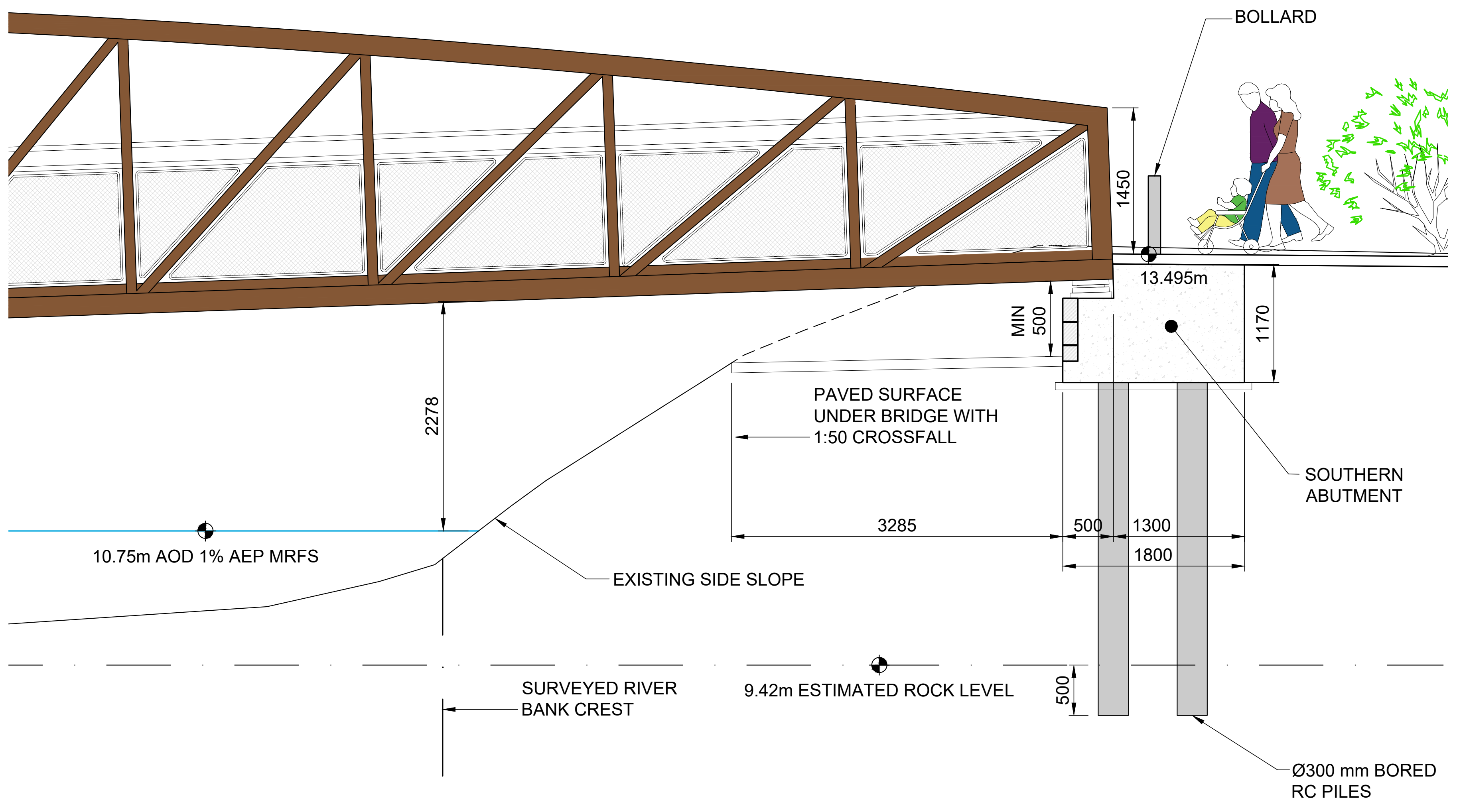
SECTION B: MIDSPAN BRIDGE CROSS SECTION

Scale at A1 1:50
Scale at A3 1:100



NORTHERN ABUTMENT LONGITUDINAL SECTION

Scale at A1 1:50
Scale at A3 1:100



SOUTHERN ABUTMENT LONGITUDINAL SECTION

Scale at A1 1:50
Scale at A3 1:100

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4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION
6. THE ABBREVIATION "AEP MRFS" MEANS ANNUAL EXCEEDANCE PROBABILITY MID-RANGE FUTURE SCENARIO

ATKINS WILL NOT TO BE HELD LIABLE FOR THE USE OF THIS DATA ON ANY PROJECT OTHER THAN EIRSPAN TASK ORDER 341 - N59 OUGHTERARD FOOTBRIDGE

Risk Level	
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	X AtkinsRéalis Sensitive - Medium Risk
	X AtkinsRéalis Private - High Risk
	X Client Critical - Already Marked

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

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Galway County Council

GALWAY
NATIONAL ROADS PROJECT OFFICE

Rev	Description	By	Date	Chk'd	Rev'd	Auth
P06	REVIEW COMMENTS INCORPORATED	KS	04.25	MC	MC	MJ
P05	REVIEW COMMENTS INCORPORATED	KS	04.25	MC	MC	MJ
P04	REVIEW COMMENTS INCORPORATED	KS	02.25	MC	MC	MJ
P03	REVIEW COMMENTS INCORPORATED	AOS	12.24	MC	MC	MJ
P02	BRIDGE LAYOUT UPDATED	AGL	11.24	AK	MC	MJ
P01	ISSUED FOR REVIEW	AGL	10.24	AK	MC	MJ
P0	ISSUED FOR REVIEW	KS	08.24	AK	MC	MJ

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Project
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE DS150
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:50, 200	KS Date 01.08.24	AK Date 01.08.24	MC Date 01.08.24	MJ Date 01.08.24

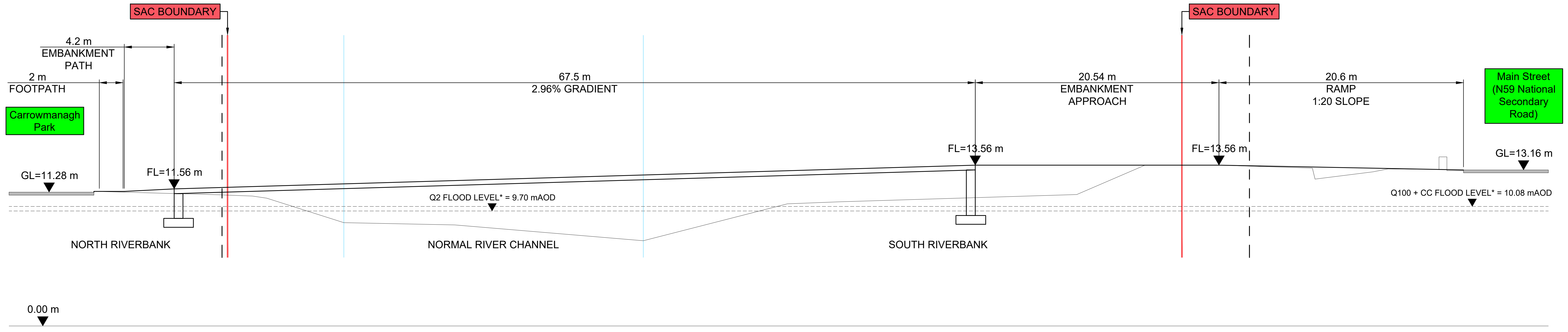
Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-CE-900339	P06

File: 0088798-ATK-XX-XX-DR-CE-900331, 39, 42, 46-47, 53.dwg
Date: Jun 10, 2025 - 10:19am Plotted by: STEP1160

\\wsatkins\project\IEDBA\Project-Data\0088798\6 Dwgs-Graphics\61 AutoCad\0088798-ATK-XX-XX-DR-CE-900331, 39, 42, 46-47, 53.dwg

A1

DO NOT SCALE



I DS 182 m - LONGITUDINAL SECTION

Scale at A1 1:250 m
Scale at A3 1:500 m

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P0	ISSUED FOR REVIEW	KS	06.24	AK	MC	MJ

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Project
EIRSPAN TASK ORDER 341
N59 OUGHTERARD FOOTBRIDGE

Purpose
PRELIMINARY ISSUE

Title
FOOTBRIDGE OPTION -
DS 182 m FROM EXISTING BRIDGE
LONGITUDINAL SECTION

Original Scale	Drawn	Checked	Reviewed	Authorised
1:250	KS Date 05.06.24	AK Date 05.06.24	MC Date 05.06.24	MJ Date 05.06.24

Status	Drawing Number	Rev
S0	0088798-ATK-XX-XX-DR-BE-900319	P0

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