

Preston & South Ribble Flood Risk Management Scheme



LCC/2021/0002

Discharge of planning conditions 3&4 –
scheme finishes

July 2021

Planning conditions: wording



This presentation has been prepared to support the discharge of planning conditions 3 and 4 in relation to planning application **LCC/2021/0002**

The wording of the two conditions for discharge are:

- 3.** No development shall take place until samples of the building materials to be used for the flood protection walls and any fencing/gates have been submitted to the County Planning Authority and approved in writing. Thereafter, only those materials approved by the County Planning Authority shall be used.
- 4.** No development shall commence until details of the final surfacing and interface of the new footpath/cycleway with the public highway at Riverside have been submitted to and approved in writing by the County Planning Authority. Thereafter the development shall be carried out in accordance with the approved details.

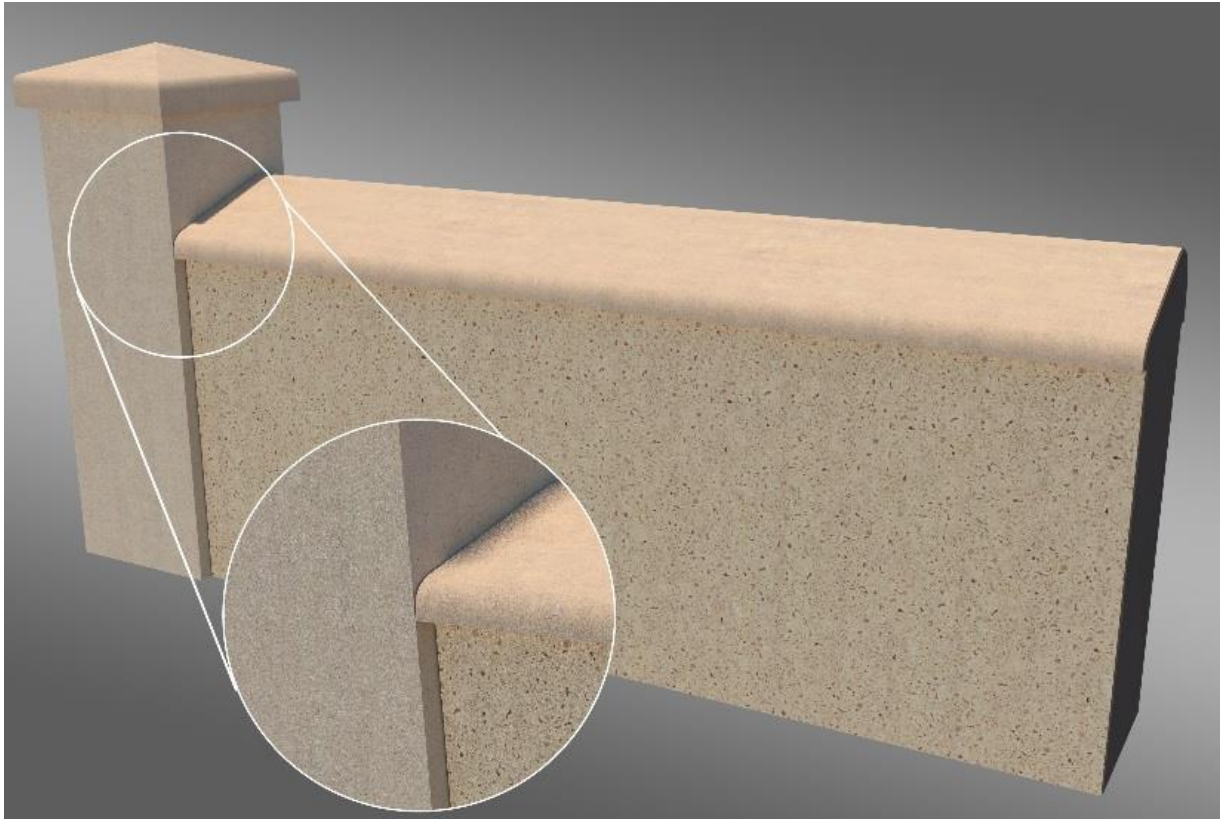
Flood defence finishes report contains;



- Material samples;
 - Walls – pre-cast wall finishes
 - Glass panels – locations, finishes and sizes
 - Flood gates – locations, finishes and sizes
 - Fencing, handrails and railings – locations, finishes and sizes
- Redi-Rock revetment
- Miller Park entrance
- Sea Cadets slip way
- General surfacing
- Visualisations

Building materials samples: Walls

Flood walls across the scheme consist of decorative concrete panels using a combination of acid etch and exposed aggregate finishes. The flood walls will be pre-cast off site to ensure a consistent high quality finish. This method has been used successfully on a number of previous Environment Agency schemes. The wall panels have an exposed aggregate finish to reveal more of the decorative aggregate with a smoother border along the top and sides as shown on the next page . Pillars and copings have a light acid etch finish to provide contrast with walls.



Flood wall showing overhang of the coping and joint detail between wall panels.

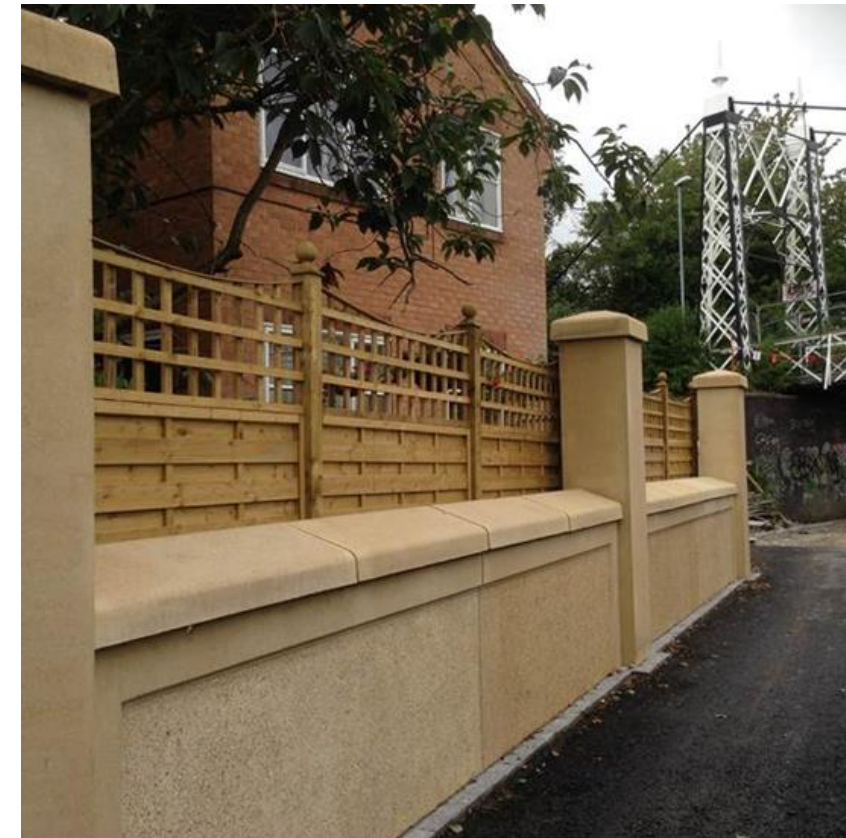


A line of grey stone setts along the bottom of the flood wall to provide a designed finish to interface with paths.



Building materials: Flood walls

Each pre-cast unit has a light acid etch border (150mm thick) on the sides and top. There is no border along the bottom of the units. The central section of each unit is recessed 20mm from the border and has an exposed aggregate finish. This detail is shown in the photo on the right.



Example of flood wall with smooth picture frame and exposed aggregate centre.

Building materials: Flood walls

Visualisation of pre-cast wall units with coping stones along Broadgate. The wall design replicates a similar pattern to the existing flood wall.



Flood defence markers will be used to highlight remote sections of flood defence. These will be used at Penwortham Methodist Church and the raised ground through the old railway embankment into Penwortham Residential Park. The markers will be similar to the below example with the wording 'River Ribble Flood Defences'



Revised PCC panels

Building materials: Flood walls

The photo below shows a sample panel of the pre-cast, acid etch finishes. The heavy acid etch exposes more of the decorative aggregate. The light acid etch has a smoother finish with less of the aggregate exposed.

Pillars and coping stones in light acid etch

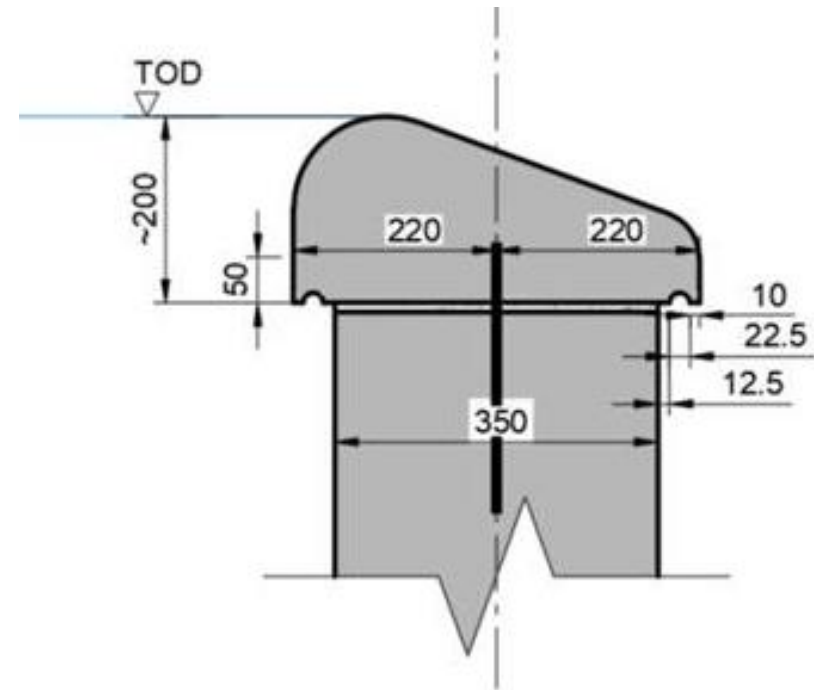
Wall panels finished with heavy acid etch



Sample panel in pale buff (BLSC185 sample from Evans Concrete <https://evansconcrete.co.uk/>) Wall colour supported by communities during 2019-2021 consultation events and sample used at public events during 2021. Strong support for colour choice



Cross section through flood wall showing the coping design. Note that copings are not used where glass panels are included.



Glass panels



Flood defence glass panels will be used in 3 locations within the scheme: along 2 sections of Riverside and along Riverside Road. Glass is located where wall heights are generally above 1400mm and in residential areas where residential and business properties already have an unobstructed view of the river. The glass frame will be as thin as possible (generally between 40mm-90mm with supporting pillars around 160mm wide, frame width is dependent on loading) powder coated black and sit on top of the flood walls.

Examples: 2 examples of flood defences where black framed glass panels have been used. The size of the frames has been minimised to maximise the area of glass. Glass has been specified as extra clear with self cleaning properties to provide the best finish and help reduce the burden of frequent cleaning. The black finish matches street furniture, heritage assets and flood gates. No glass cleaning has taken place on existing schemes in the last 10 years.

Visualisation of glass panels along Riverside Road



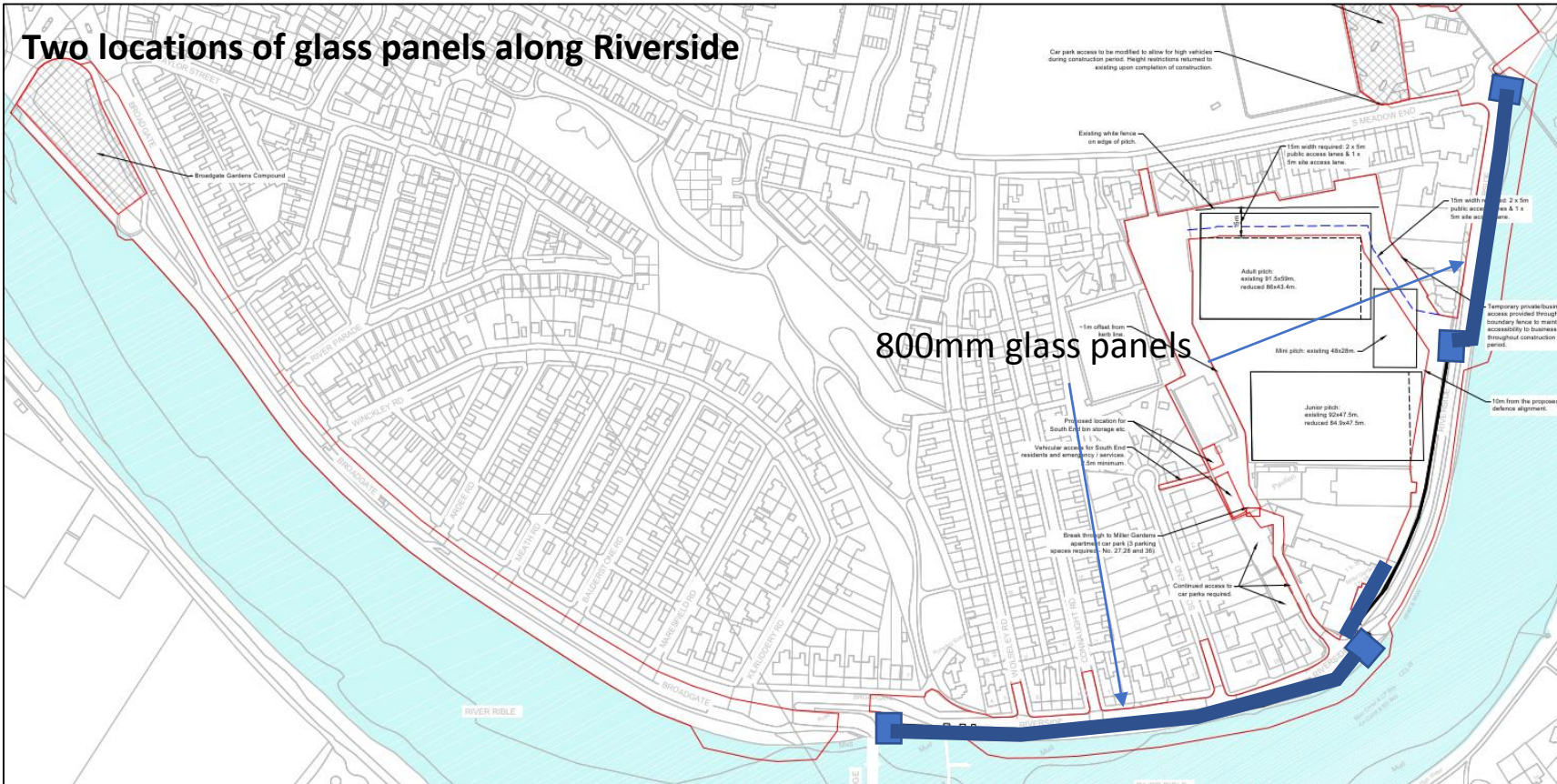
Photos of glass panels used on the Northwich Scheme. The black frame is 60mm thick and pillars are 160mm wide.



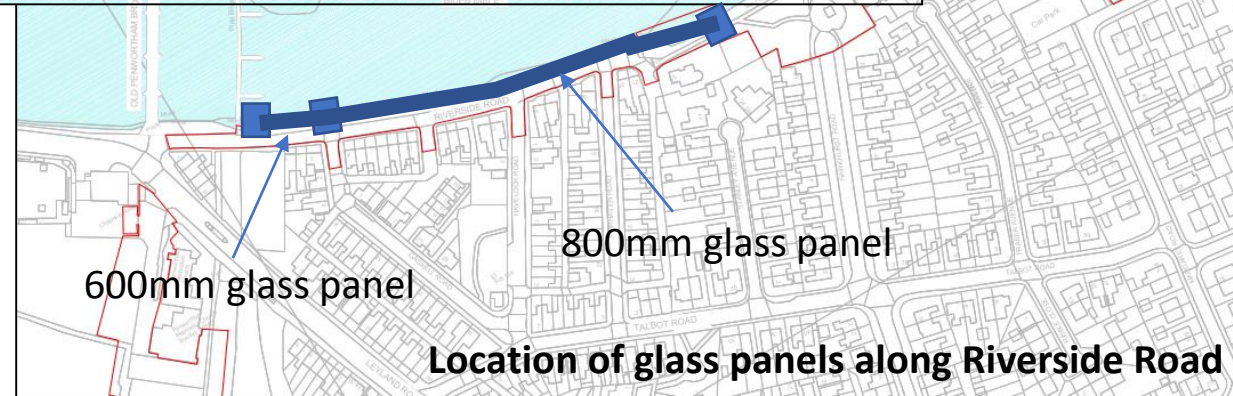
Location and size of glass panels



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Glass panel heights vary between 600mm-800m depending on wall height and to maximise the ability to see through them.



Location of glass panels along Riverside Road

Flood gates



There are 4 flood gates in total within the scheme which will be maintained and operated by the Environment Agency. These will be open and in a locked position and only closed when a flood warning or alert is issued. A standard threshold for each closure will be determined using hydraulic modelling. All gates are steel and finished with a black powder coating. The gates are recessed between 2 to prevent a potential hazard to passing pedestrians and cyclists. Three of the gates are twin-leaf design as shown below except the single gate to the north of the Miller Park entrance.



Twin leaf gate in closed position



Twin leaf gate partially open

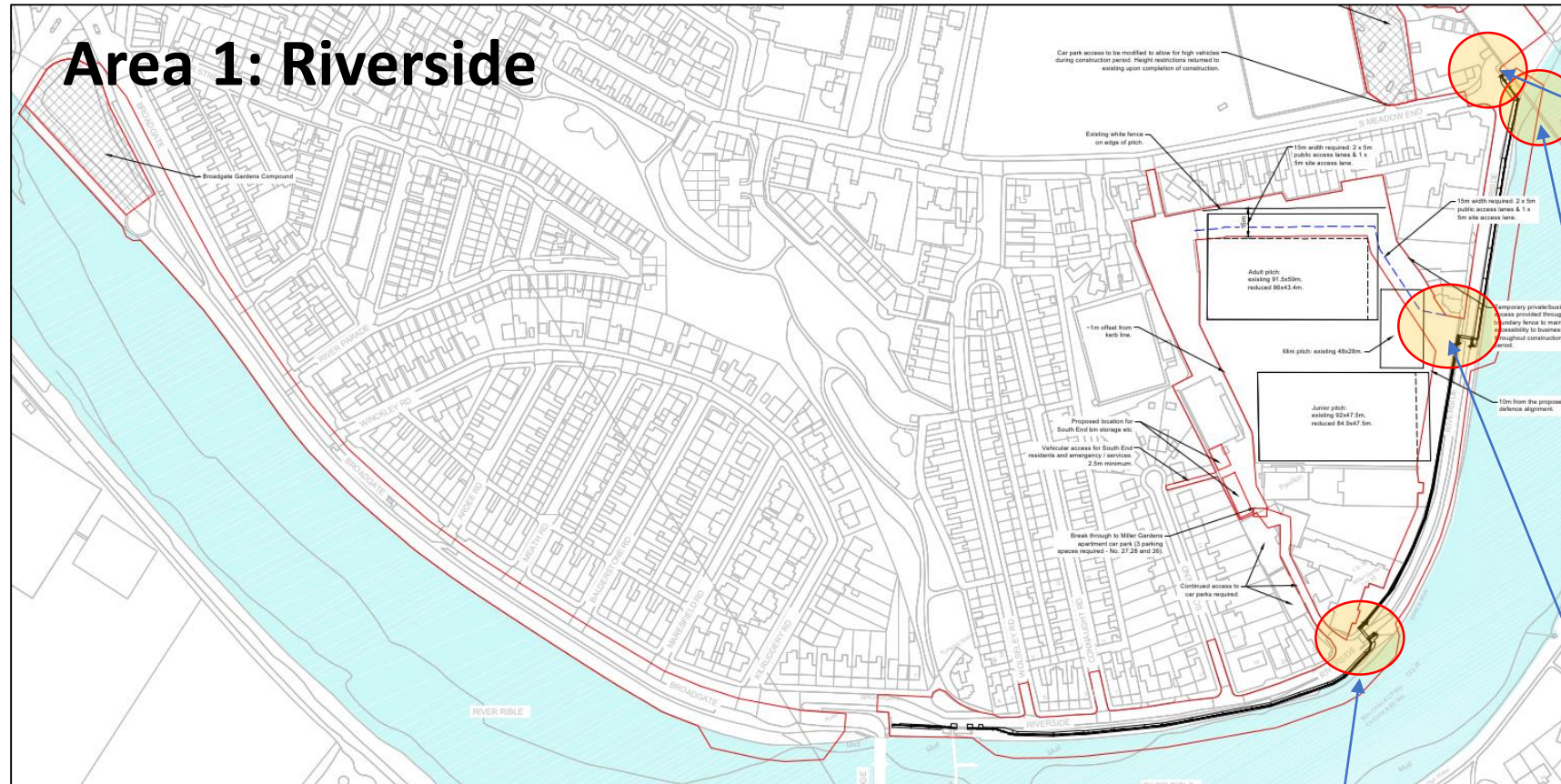


Gate profile

Floodgates: locations



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Floodgate 4 Miller Park (Minor):
single leaf, 3.2m wide, 1.45m high

Floodgate 3 Miller Park (main):
twin leaf, 2 x 5.1m wide, 1.95m high gates

Floodgate 2 Riverside Split Level Path: twin leaf, 2 x 3.5m wide, 1.39m high

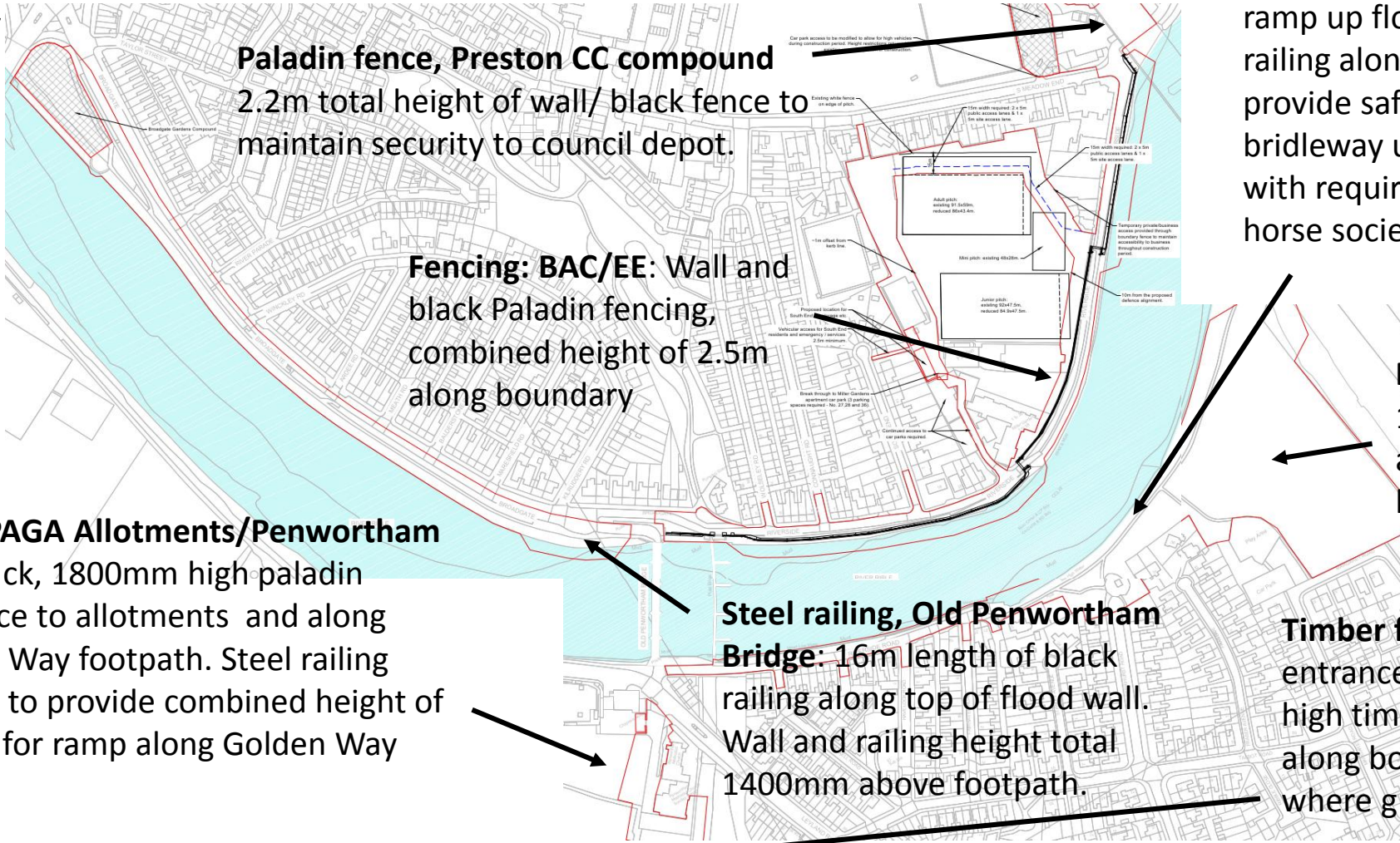
Floodgate 1 Miller Gardens
Apartments: twin leaf, 2 x 3.5m wide, 1.39m high

Fencing, handrails and railings



Fencing, railings and handrails are required at the locations shown below. All handrails and railings will be black in colour, Paladin/Duex fencing will be black in colour.

Sea Cadets, Strand Road: Boundary fence to be reinstated along new alignment to improve visibility for path users.



Paladin fence, Preston CC compound
2.2m total height of wall/ black fence to maintain security to council depot.

Fencing: BAC/EE: Wall and black Paladin fencing, combined height of 2.5m along boundary

Steel railing: Ribble Sidings, ramp up flood embankment: railing along top of flood wall to provide safe height for bridleway users (in accordance with requirements of British horse society)

Fencing, Ribble Sidings: 1200mm high fencing around new wetland habitat

Fencing and railings, PAGA Allotments/ Penwortham Methodist Church: Black, 1800mm high paladin fencing around entrance to allotments and along boundary with Golden Way footpath. Steel railing along top of flood wall to provide combined height of 1800mm. Hand railing for ramp along Golden Way footpath.

Steel railing, Old Penwortham Bridge: 16m length of black railing along top of flood wall. Wall and railing height total 1400mm above footpath.

Timber fencing, Caravan park entrance: 1400mm high timber post and rail fence along both sides of the path where ground has been raised.

Fencing, handrails, railings



Alpha rail: standard vertical bar steel railings with flat top and square horizontal bars – Penwortham Methodist Church and on top of wall at Ribble Sidings path over embankment



Timber post and rail fence: Caravan park entrance



Paladin fencing: BAC/EE Sports club and Penwortham Methodist Church

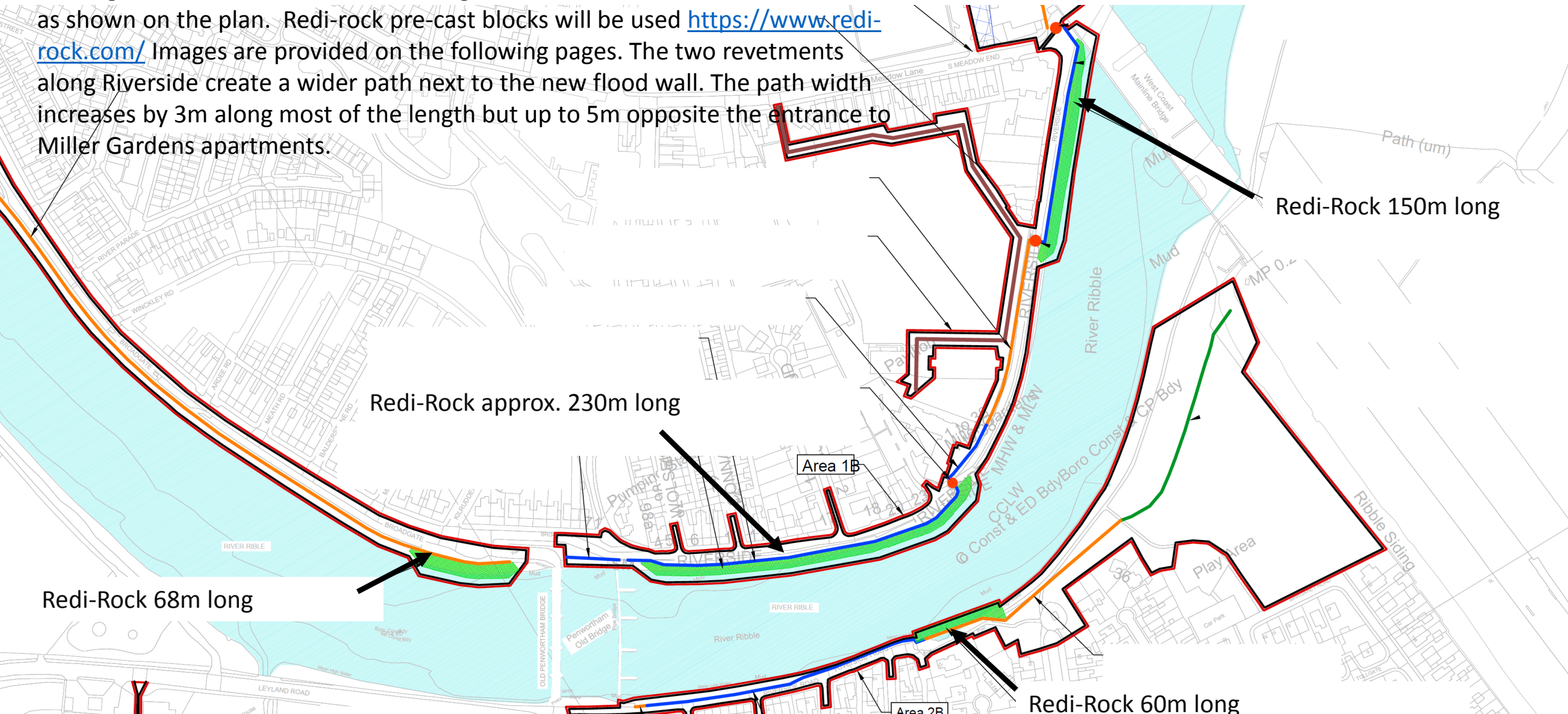


Duex perimeter fencing: 1230mm high around Ribble Sidings wetland habitat

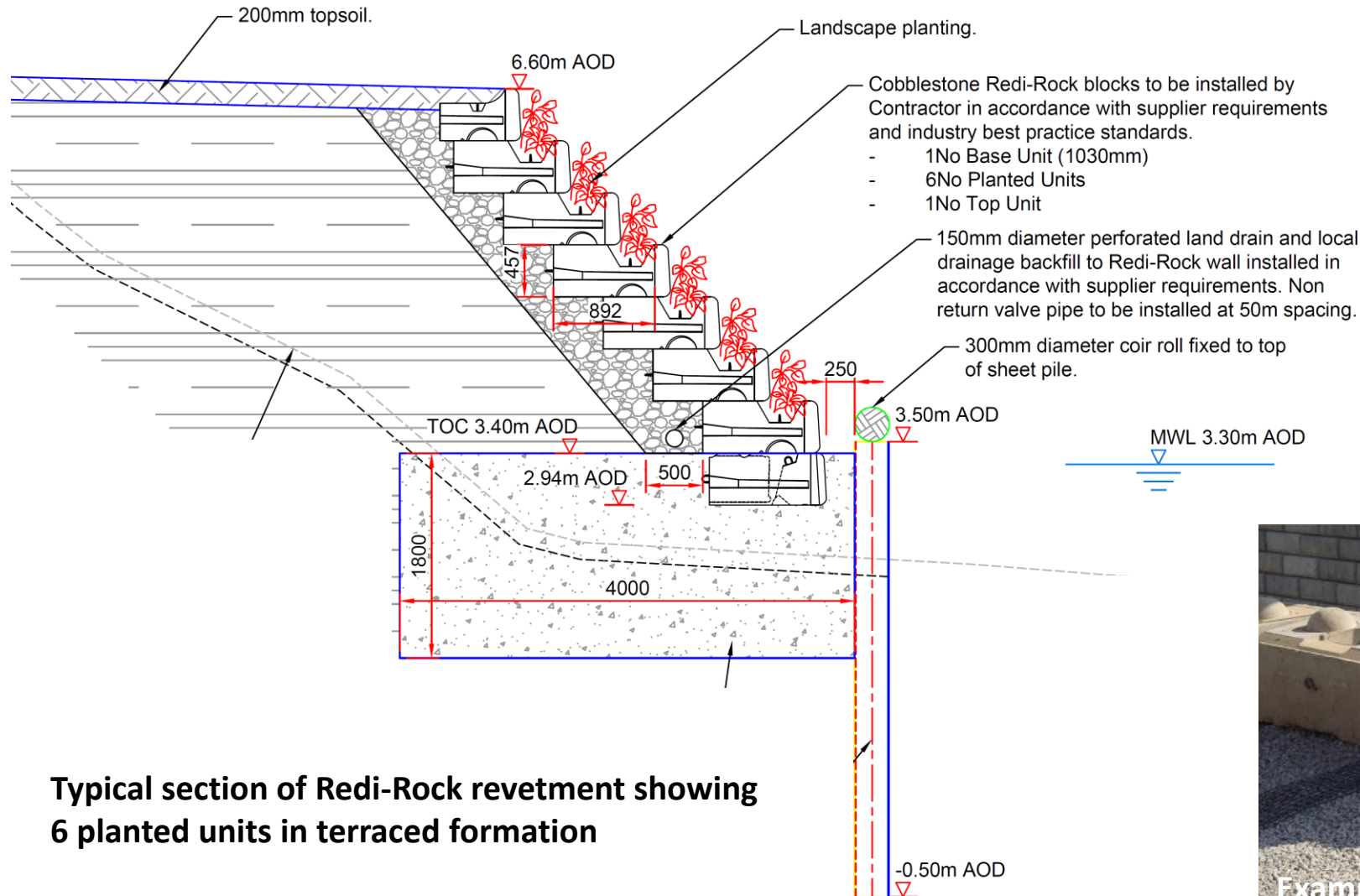
Revetments (Redi-Rock locations)



Four lengths of new revetment will be constructed due to the poor condition of existing structures. Three sections along the north bank and one on the south as shown on the plan. Redi-rock pre-cast blocks will be used <https://www.redi-rock.com/> Images are provided on the following pages. The two revetments along Riverside create a wider path next to the new flood wall. The path width increases by 3m along most of the length but up to 5m opposite the entrance to Miller Gardens apartments.



Redi-rock revetments



Typical section of Redi-Rock revetment showing 6 planted units in terraced formation

The new structures consist of concrete blocks arranged in a terrace layout as shown to the left. The dimensions of each block are 1m by 900mm by 450mm.

Each block has a recess in the top, as shown opposite, that will be planted with a tussock grass seed mix to green-up the structure. A pre-planted coir roll will be placed along the bottom of the revetment to provide a green edge to the river.



Example Redi-Rock block being installed

Redi-Rock revetment - appearance

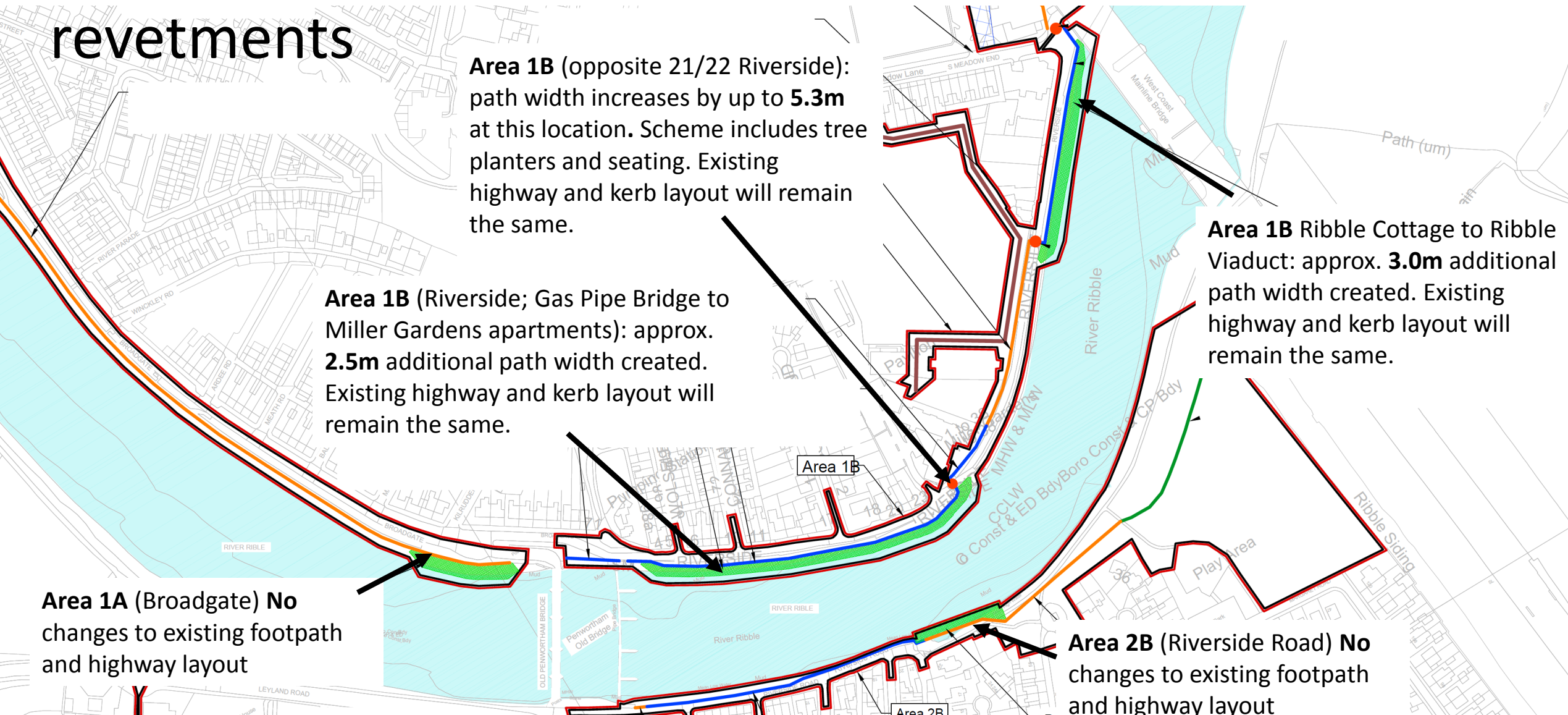
Examples of recessed blocks after planting has established



These images are examples indicative to illustrate the cobblestone finish and planting recess in each block. The terraces will be sown with a tussock seed mix. Pre-planted coir rolls will be installed along the toe of the structure. The tussock seed mix and pre-planted coir rolls will soften the appearance of the structure and enhance biodiversity.



Riverside: width of footpath increased as a result of new revetments



Area 1B (opposite 21/22 Riverside): path width increases by up to **5.3m** at this location. Scheme includes tree planters and seating. Existing highway and kerb layout will remain the same.

Area 1B (Riverside; Gas Pipe Bridge to Miller Gardens apartments): approx. **2.5m** additional path width created. Existing highway and kerb layout will remain the same.

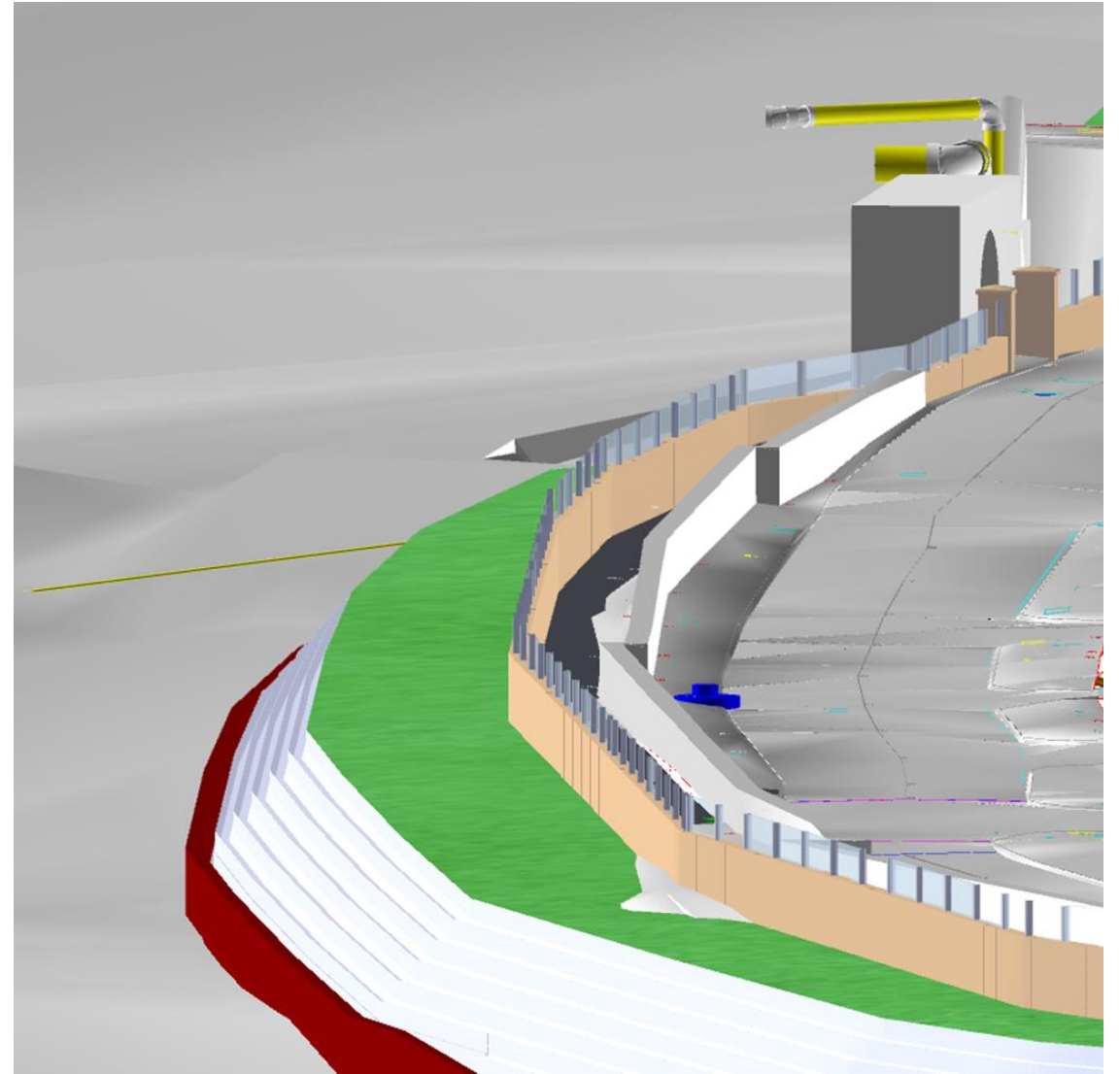
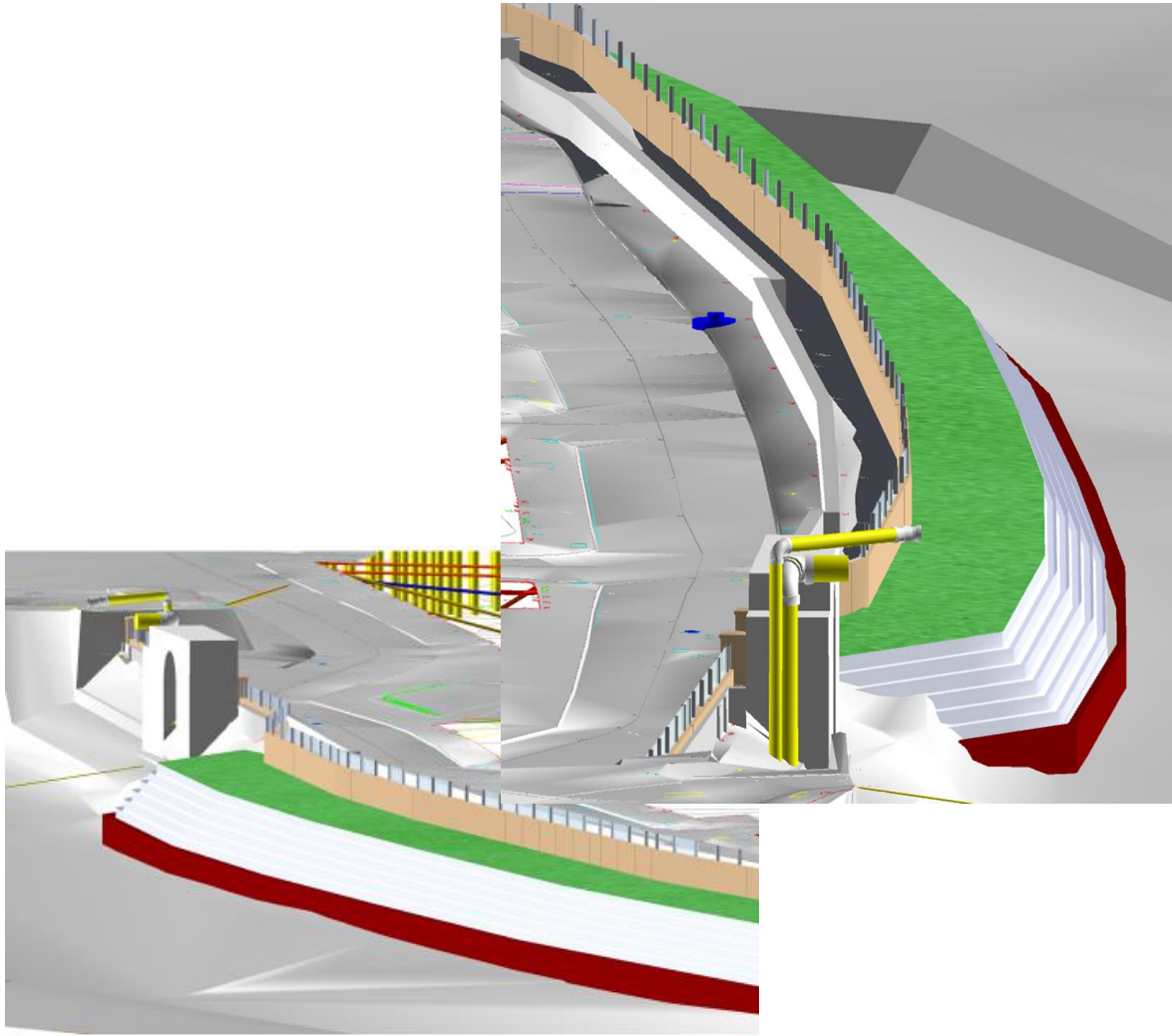
Area 1B Ribble Cottage to Ribble Viaduct: approx. **3.0m** additional path width created. Existing highway and kerb layout will remain the same.

Area 1A (Broadgate) No changes to existing footpath and highway layout

Area 2B (Riverside Road) No changes to existing footpath and highway layout

Redi-Rock revetment - appearance

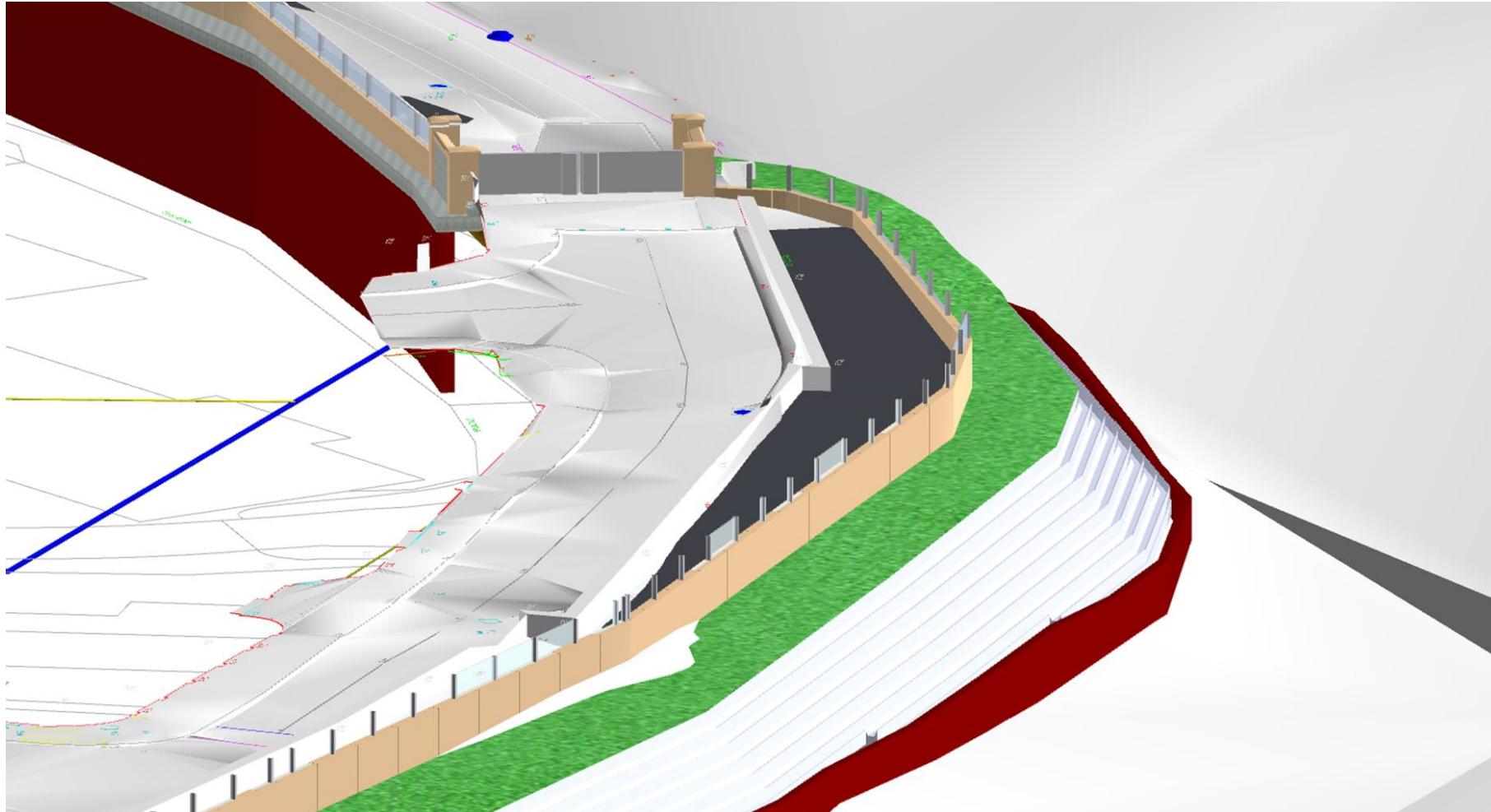
Area 1B – view mid way between Miller Gardens Apartments and pipe bridge taken from 3D model. Examples of how the Redi-Rock will look in this location



Redi-Rock revetment - appearance



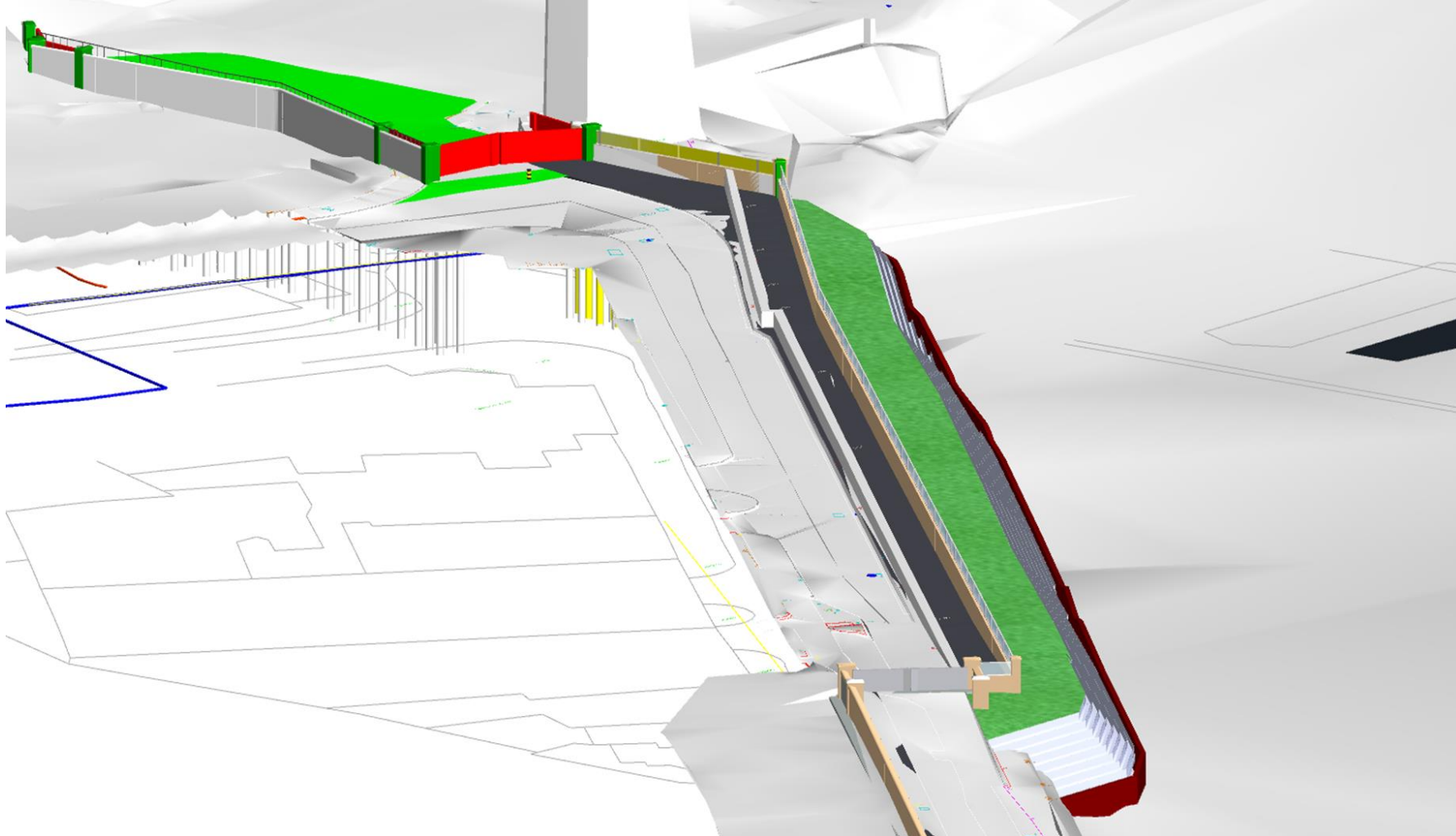
Area 1B – 3D view of revetment, flood wall, footpath and highway arrangement next to Miller Gardens Apartments. The area of footpath widening is shaded dark grey. No change to highway layout and interface with footpath.



Redi-Rock revetment - appearance



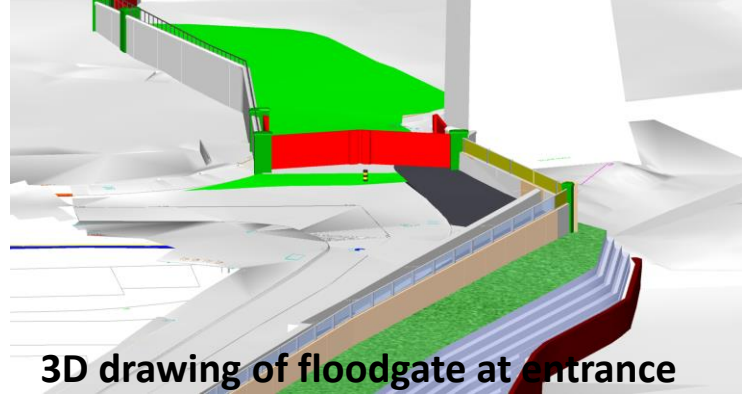
Area 1B – 3D view of revetment, flood wall, footpath and highway arrangement between Ribble Cottages and Ribble Viaduct. The area of footpath widening is shaded dark grey. No change to highway layout and interface with footpath.



Miller Park entrance



Existing park entrance

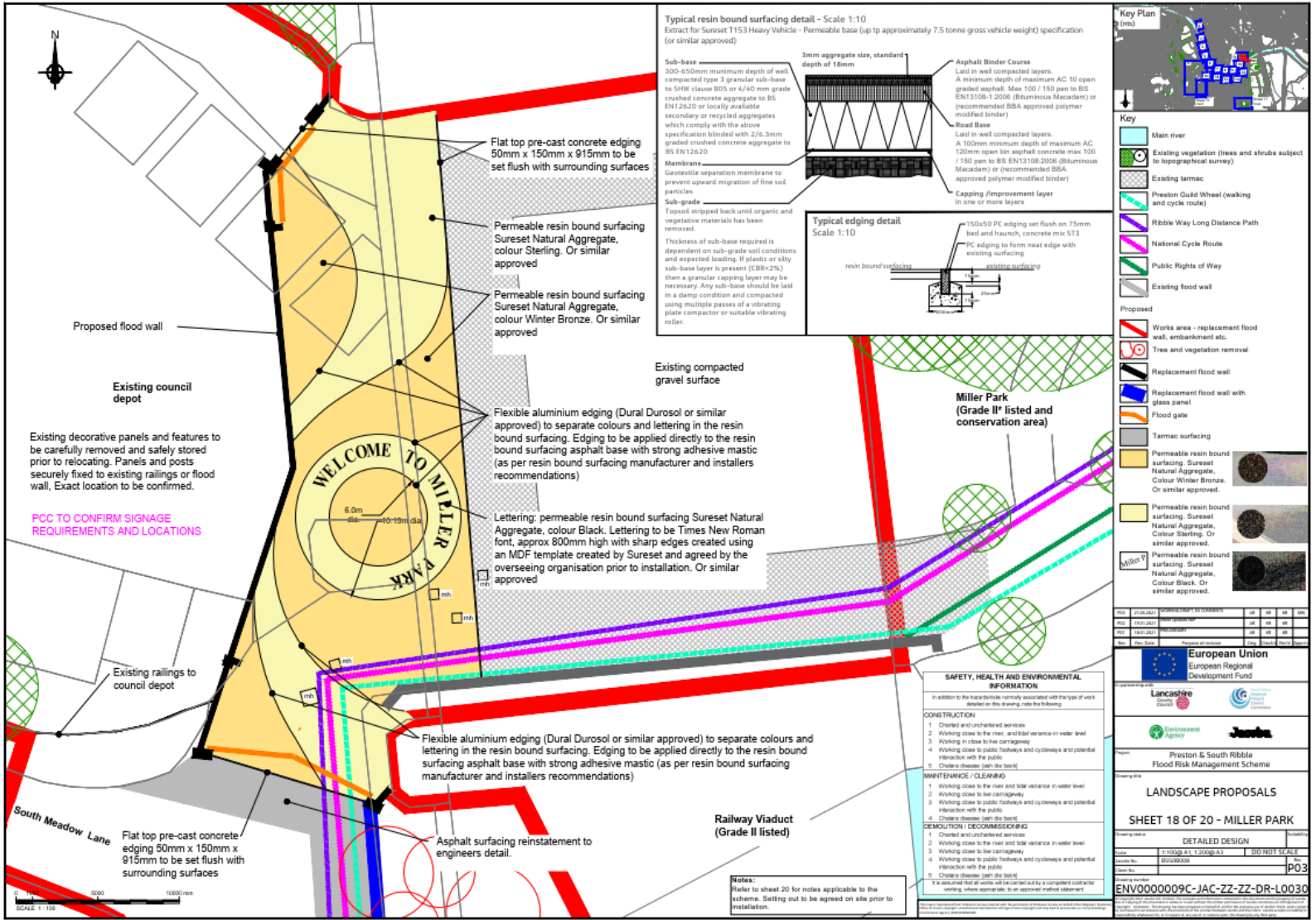


3D drawing of floodgate at entrance

Installation of 2 flood gates and new flood wall outside entrance to Miller Park. Rising electric bollards and apparatus will be removed and reinstated in front of the flood gate and new permeable resin bound surfacing to match existing park surfacing to be provided.



Detailed general arrangement and materials

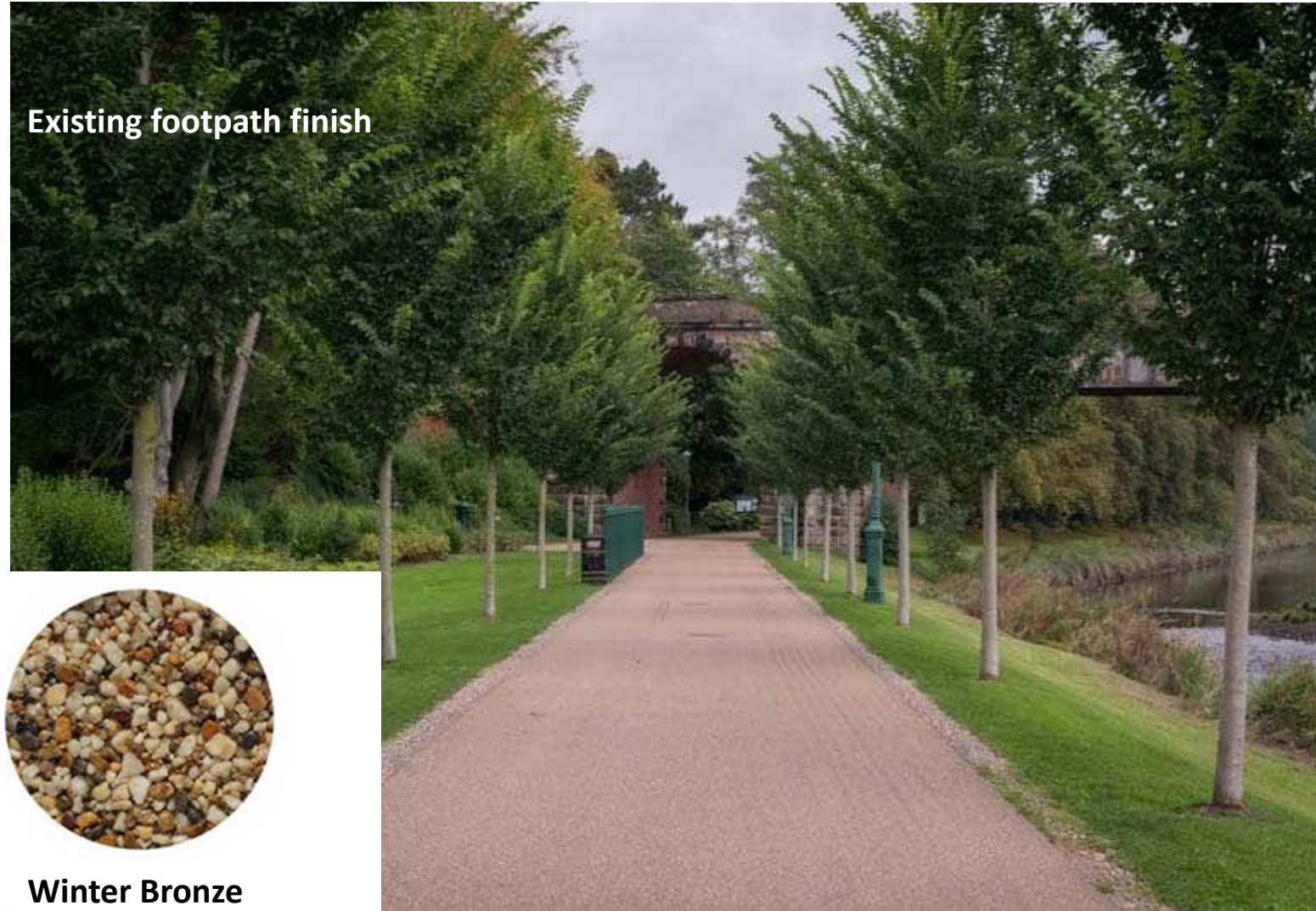


Miller Park entrance



Existing view under rail arch at entrance to Miller Park

Permeable resin bound surfacing Sureset Natural Aggregate in Winter Bronze and Sterling colours. "Welcome to Miller Park" lettering to be finished in black colouring, Times New Roman approx. 800mm high. The flexible aluminium edging such as Dural Durosol or similar will create a defined line between Sureset colours.



Existing footpath finish



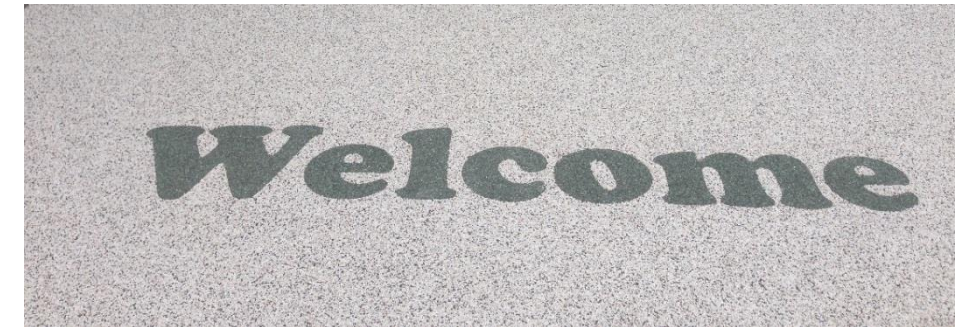
Winter Bronze



Miller Park entrance



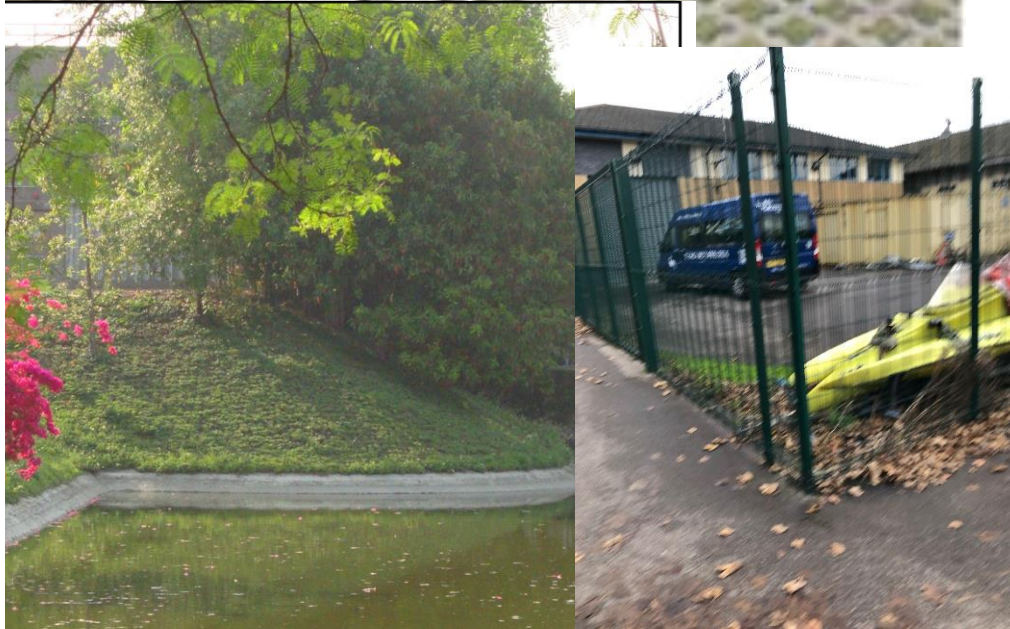
Proposed colours of resin-bound surfacing



Example of lettering: lettering to be finished in black colouring, Times New Roman approx. 800mm high. Welcome to Miller Park written in surfacing.



Sea Cadets



- River access next to the Sea Cadets on Strand Road will be renewed in Grasscrete
- The recesses in the Grasscrete will be soiled and seeded to allow grass to establish
- Additional access across the Ribble Rail, additional footpath track and hard standing for parking have been removed from the planning drawings as per Ribble Rail feedback
- 2 picnic benches will be replaced

General surfacing



- Surfacing across the scheme will be tarmac except for the paths around the wetland in Ribble Sidings which are hoggin self-binding gravel in light brown/buff and the PAGA allotments and Penwortham Methodist church parking/vehicle access will be permeable surfacing to prevent increased surface water runoff.
- Paths in Broadgate gardens are tarmac (as they are now)
- Ground raising at caravan park is tarmac
- Sea cadets – Guild Wheel is tarmac
- Sections of footpath/Ribble Way/Guild Wheel reinstated will include demarcation
- The additional widths of footpath along Riverside will be finished in tarmac to match existing.

Riverside visualisation

Looking downstream from Ribble Cottage towards Miller Gardens apartments



New flood wall and paladin fence along BAC boundary; flood wall is 1.3m high; fence is 2.5m high to reduce risk of ball strike to path users.

Existing two-level path layout retained.

New double-leaf floodgate positioned on either side of path. Gates to remain open during normal times as shown in this view. Gates recessed between two pillars to prevent posing a risk to path users and provide a good finish.



Visualisation

New flood wall and glass panel along the riverfront to replace existing wall. Pre-cast pillars used to manage changes in wall direction.

New street furniture and signage to replace existing. Existing path, where disturbed by the works, reinstated with tarmac. Existing vegetation reinstated along edge of path.



Existing view

Riverside Road Visualisation

looking upstream from the gas pipe bridge between Havelock Road and Fairhaven Road



Pre-cast flood wall with glass panels on top to retain existing views of the river. Glass panels are typically 800mm high. No copings on top of pre-cast wall where glass panels are used.

Grey stone sett along bottom of wall to provide tidy interface with footpath. Path reinstated with tarmac.

Joints between wall panels to match colour of wall.



Visualisation

Pillar altered to retain views

Glass panels extended to pillar at end of Riverside Road to retain views.



Existing view