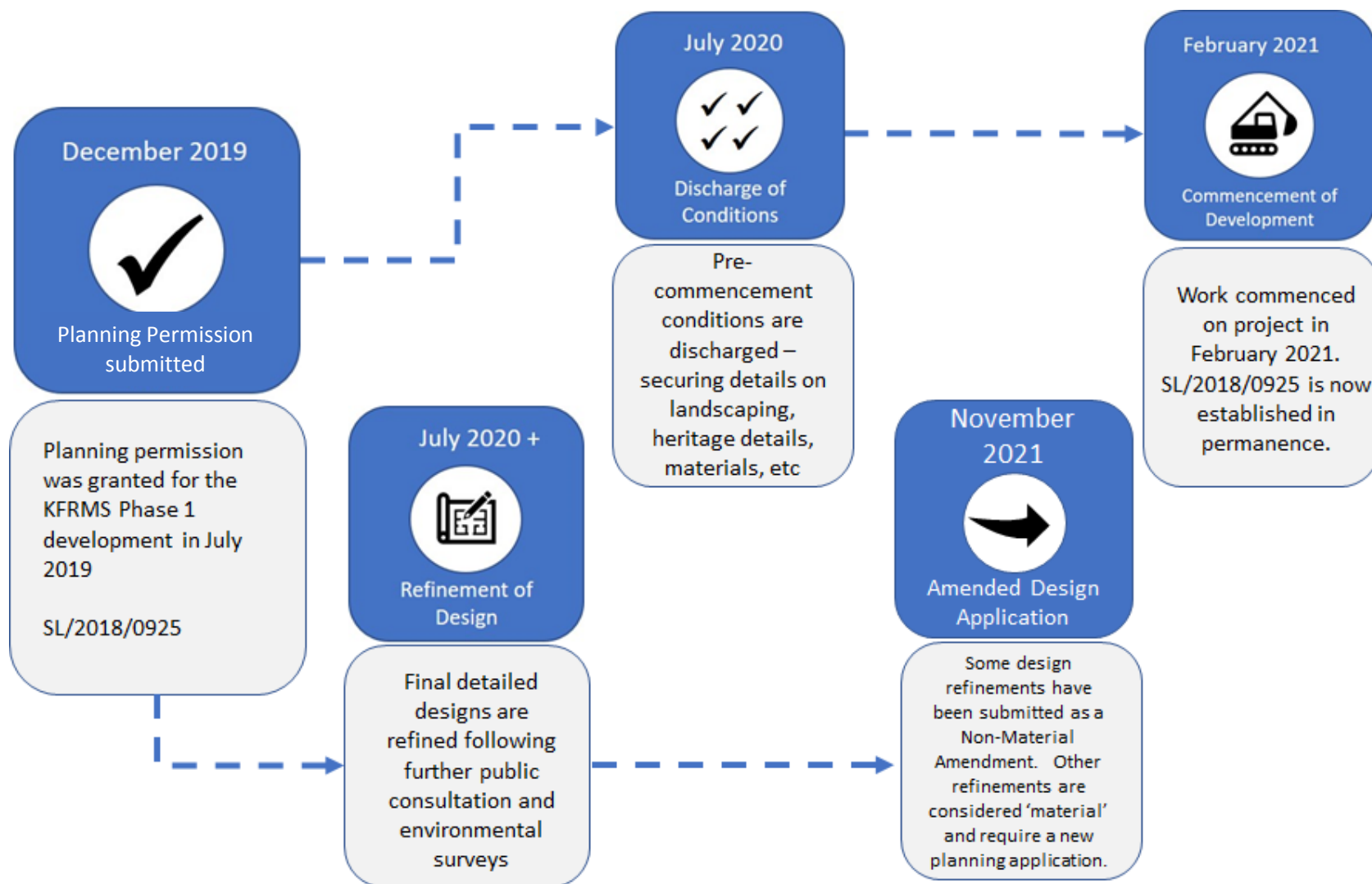


## KENDAL FLOOD RISK MANAGEMENT SCHEME REVISED PLANNING APPLICATION FOR DESIGN CHANGES AT AYNAM ROAD AND WATERSIDE



Proposed view illustrating all existing trees cleared to facilitate works with proposed glass panel fixed to low stone clad wall located at rear of the footway. Tree planting proposed where ground conditions allow (after 5year growth).

## PROGRESS TO DATE



## PROPOSED DESIGN CHANGES - OVERVIEW

### Reach G2 – Right Bank River Kent (Waterside)

- Extension of wall by 3m to avoid conflict with water sewer pipe
- Change from L-wall to vertical wall with king posts installed at a fixed distance
- Construction of defence wall from river using a platform

Waterside  
(Reach G2)

Aynam Road  
North  
(Reach G1)

Aynam Road  
Central  
(Reach G3)

Aynam Road  
South  
(Reach H1)

### Reach G1, G3 and H1 – Left Bank River Kent (Aynam Road)

- Replica Webster railings at entrance to Miller Field
- Increased use of glass panels (411m) along Aynam Road to maximise river views
- Change of foundation type
- Retaining some trees previously identified for removal
- Improved access arrangements to south of Miller Bridge
- Improved highway drainage
- Piling solution to provide seepage control for river and ground water

## PROPOSED DESIGN CHANGES - WATERSIDE

### Waterside (Reach G2 – Right Bank River Kent)

#### Proposed Design Changes

- Changes to flood defence alignment to accommodate sewer pipe, increasing the road width
- Change from L-wall to vertical wall with king posts installed at a fixed distance



Figure 2 – Waterside – Approved Design

Figure 1 – Waterside – Amended Design of Flood Alignment

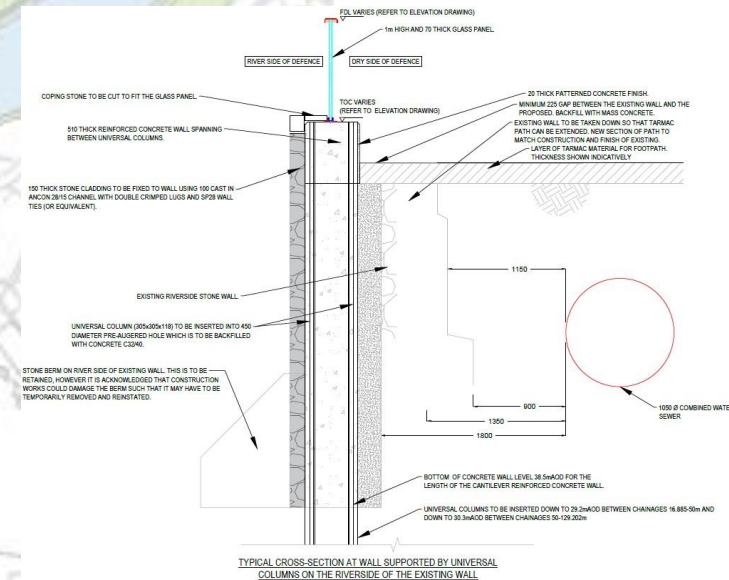
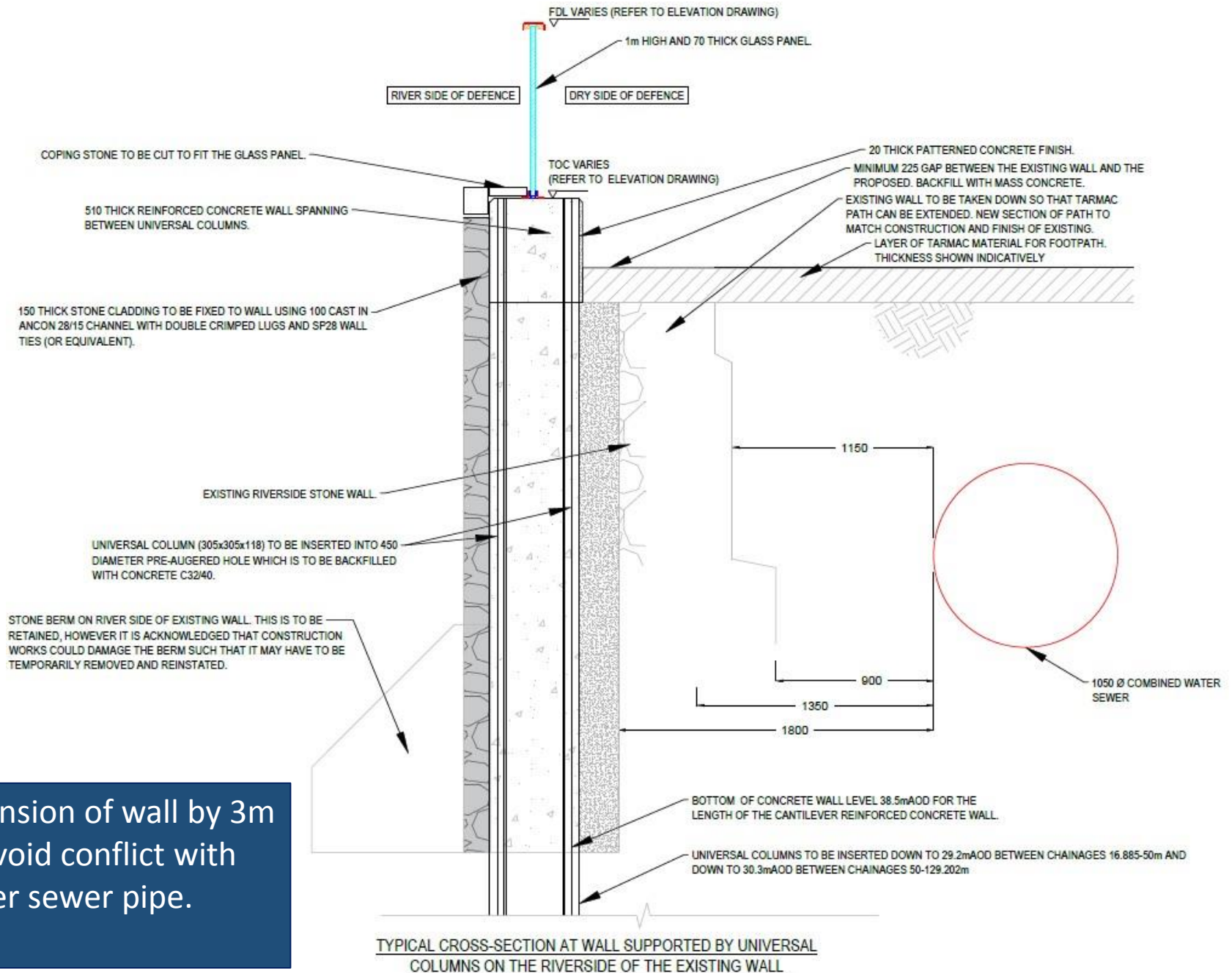


Figure 3 – Waterside – Proposed Amended Design



# PROPOSED DESIGN CHANGES TO FLOOD WALL ALIGNMENT AT WATERSIDE (FIGURE 1)



Extension of wall by 3m to avoid conflict with water sewer pipe.

## PROPOSED DESIGN CHANGES – WATERSIDE

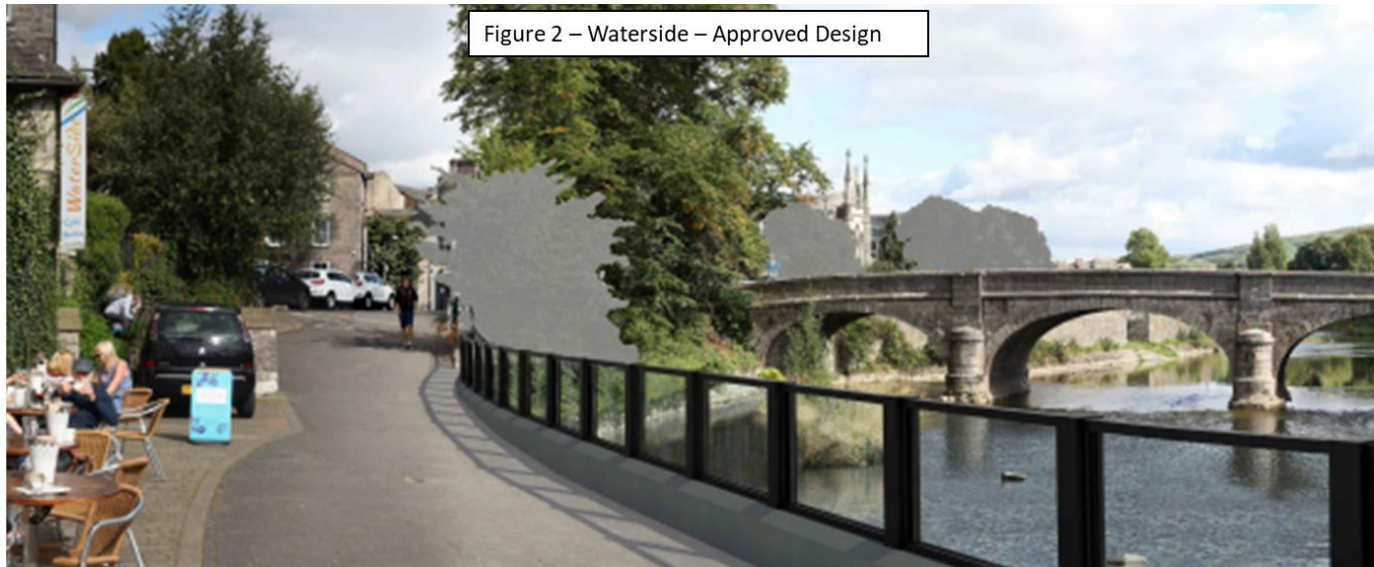


Figure 2 – Waterside – Approved Design

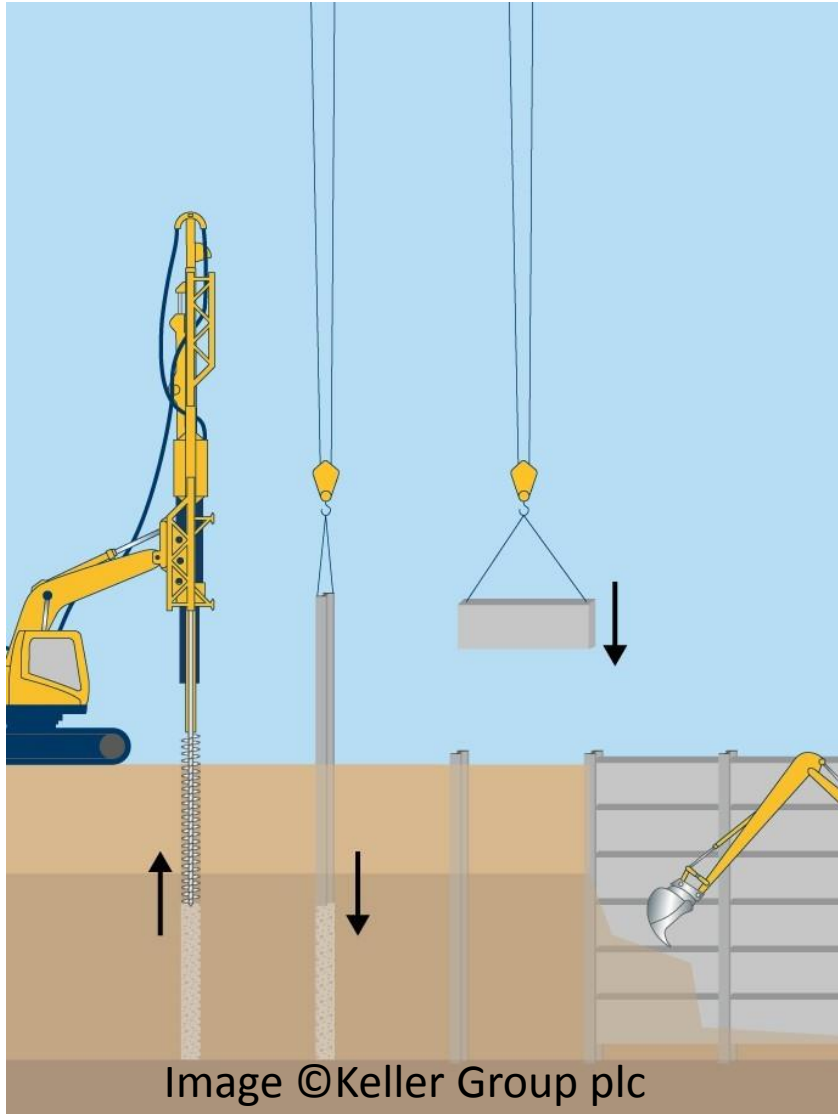
Original approved design has been improved to a slimline brushed Stainless Steel top rails and uprights, recessed bottom rails. Glass panels all 3m in length to reduce frequency of uprights and increase riverside views.



Figure 3 – Waterside – Proposed Amended Design

Flood gate to remain open for riverside access and closed in flood conditions.

## PROPOSED DESIGN CHANGES – USE OF KING POST PILING AT WATERSIDE

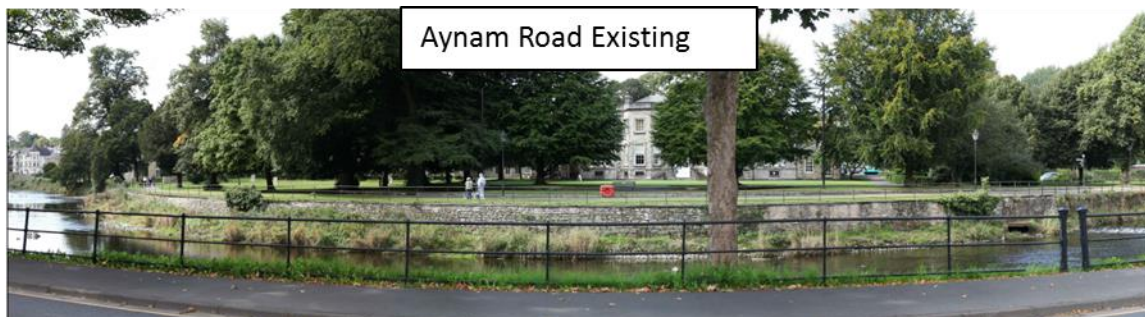
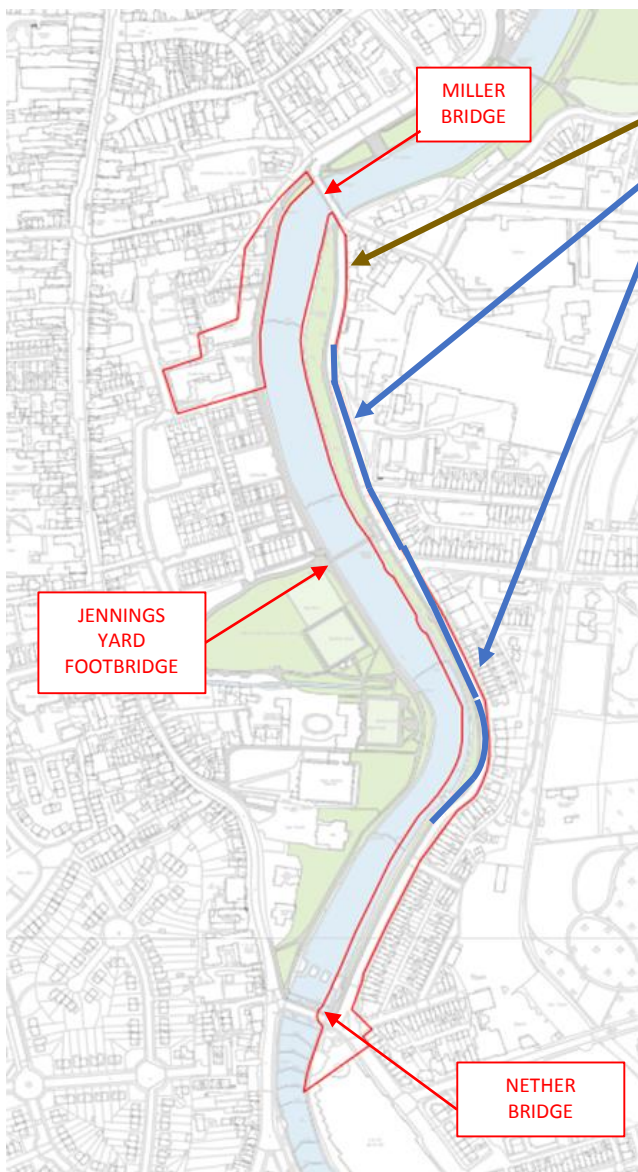


- Continuous flight auger (CFA) piling rig drills hole in the ground to provide foundation.
- 'H' shaped King post installed into auger hole and concreted in place.
- Reinforced concrete is cast between the H beams to form river retaining wall up to ground level.
- Once completed the riverside panels are faced with stone.
- Above ground level a new reinforced concrete flood wall will be built, the top 1m of which will be stainless steel framed glass panels.

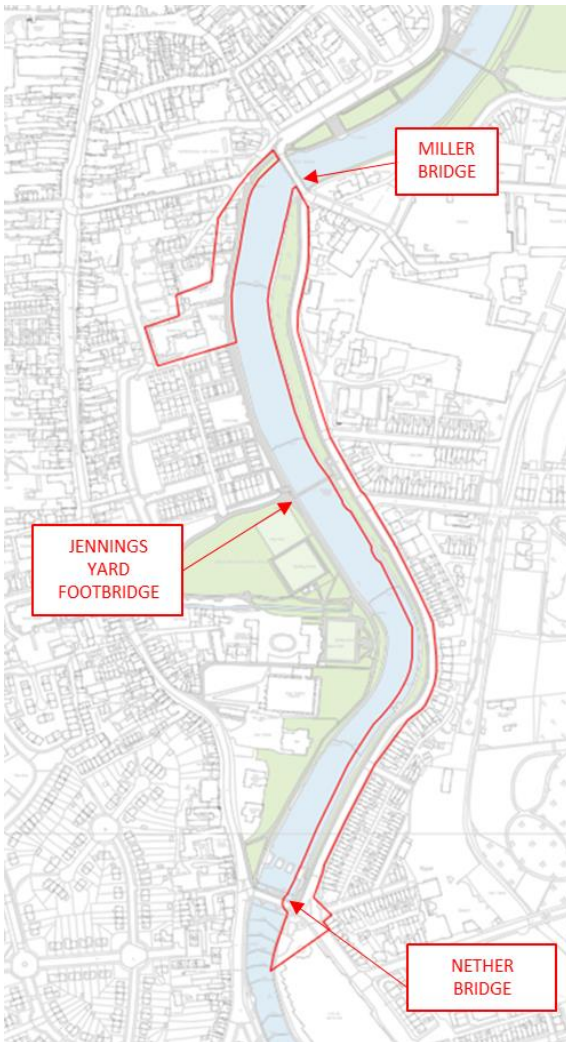
## PROPOSED DESIGN CHANGES OVERVIEW – AYNAM ROAD

### Aynam Road

- Replica Webster railings at entrance to Miller Field
- Increased use of glass panels (411m) along Aynam Road to maximise river views
- Change of foundation type
- Retaining some trees previously identified for removal
- Improved access arrangements to south of Miller Bridge
- Improved highway drainage
- Piling solution to provide seepage control for river and ground water



## PROPOSED DESIGN CHANGES – WEBSTER RAILINGS AT MILLER BRIDGE



As part of the Design Amendments it is proposed to reproduce a section of Webster railings on the left bank of the River Kent, and this design will influence the railing design throughout the wider scheme.



### Webster Railings

The historic 19<sup>th</sup> century, wrought Iron, vertical bar railings designed By Francis Webster are located on Both banks of downstream of Miller Bridge.

These are historically significant and were designed to complement the Scheduled Monument of Miller Bridge opened in 1818.

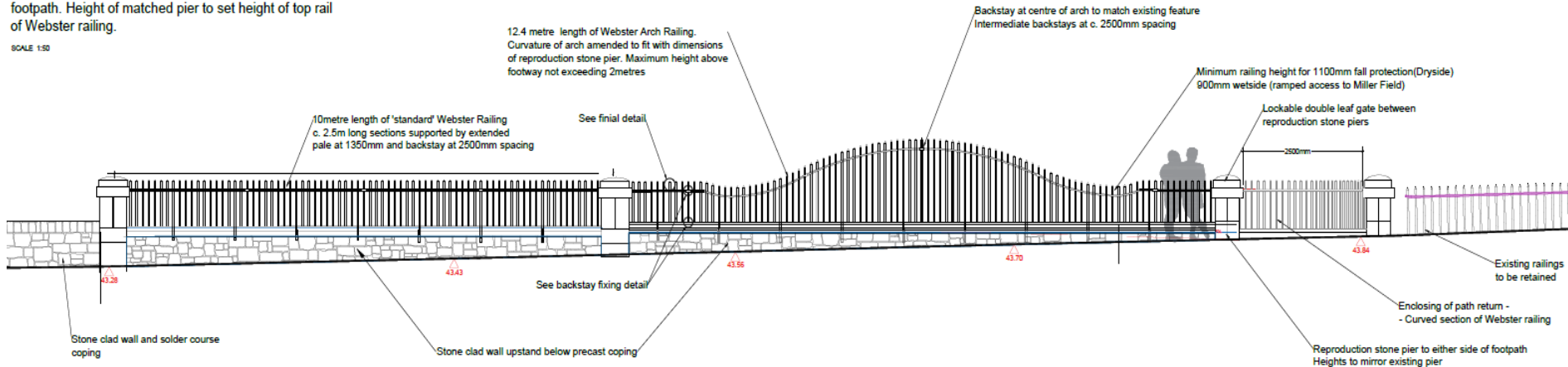


## PROPOSED DESIGN CHANGES – WEBSTER RAILINGS AT MILLER BRIDGE

### AYNAM ROAD NORTH

Webster Arch and Railing. Existing stone pier to be retained and replicated to form entrance to Miller Field footpath. Height of matched pier to set height of top rail of Webster railing.

SCALE 1:50





**European Union**  
European Regional  
Development Fund



**Environment  
Agency**

**CAPITA**

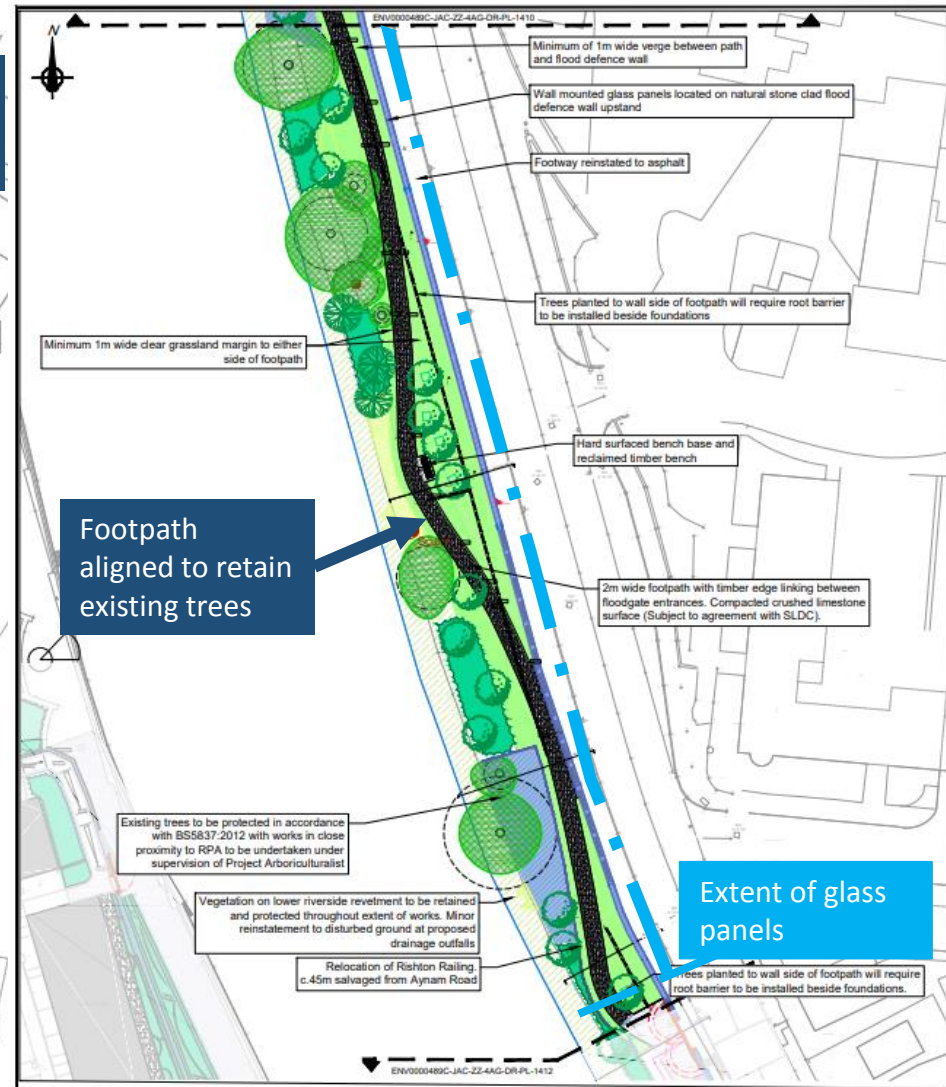
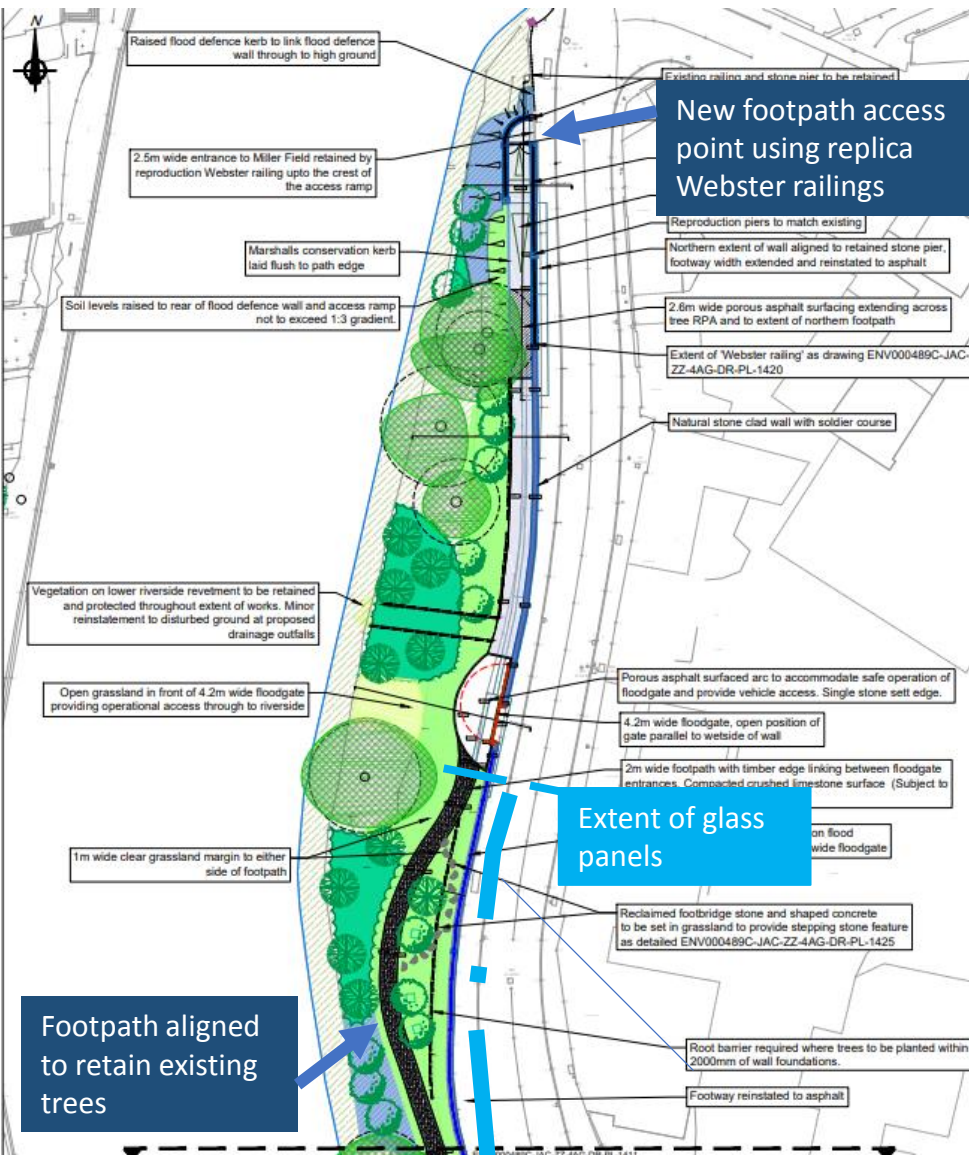
**Jacobs**



## PROPOSED DESIGN CHANGES – WEBSTER RAILINGS AT MILLER BRIDGE

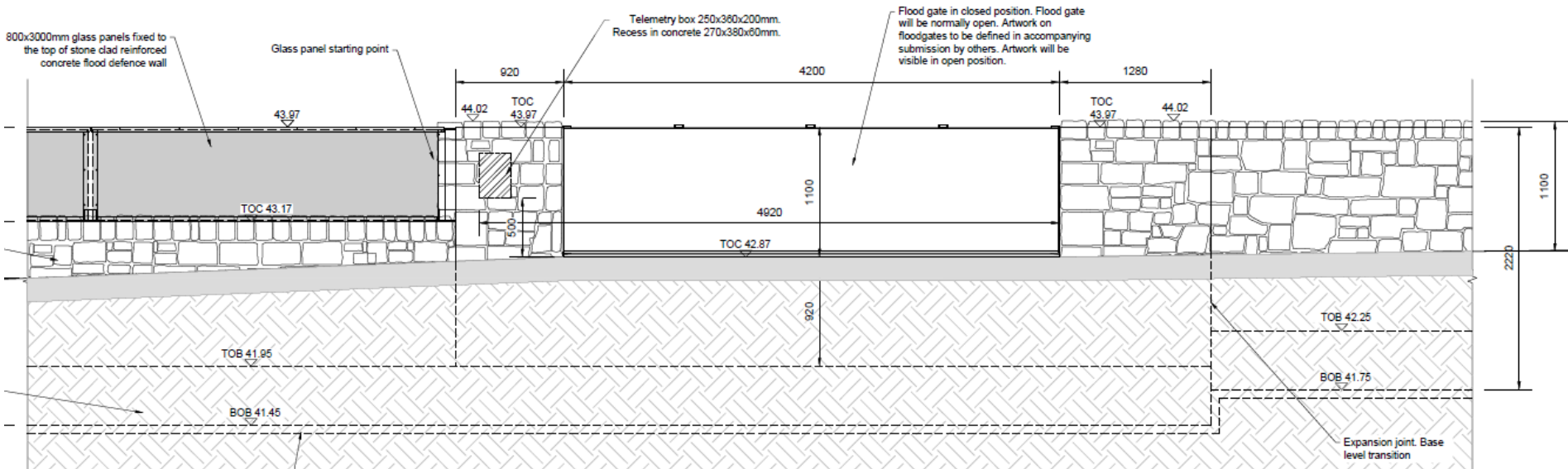


## PROPOSED DESIGN CHANGES – AYNAM ROAD NORTH - LANDSCAPING



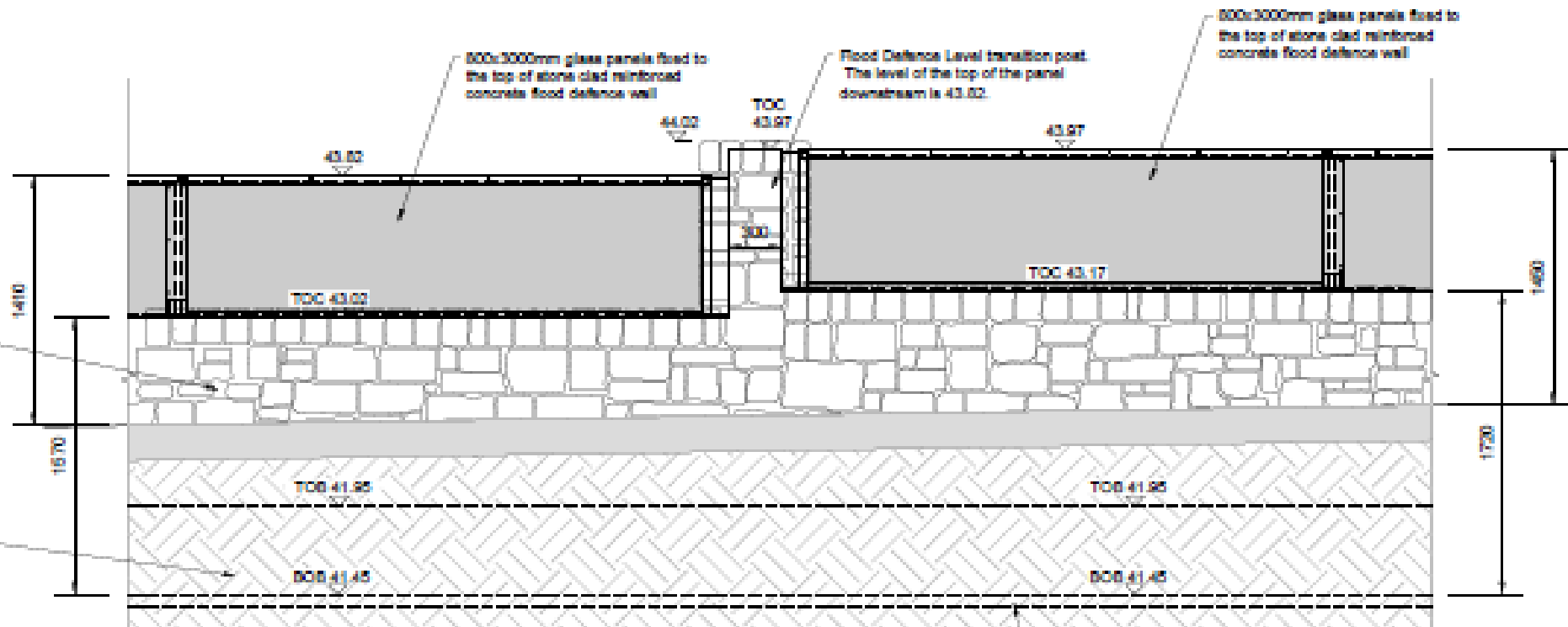
## PROPOSED DESIGN CHANGES – AYNAM ROAD DESIGN DETAILS

### Interface between flood wall, flood gate and glass panel



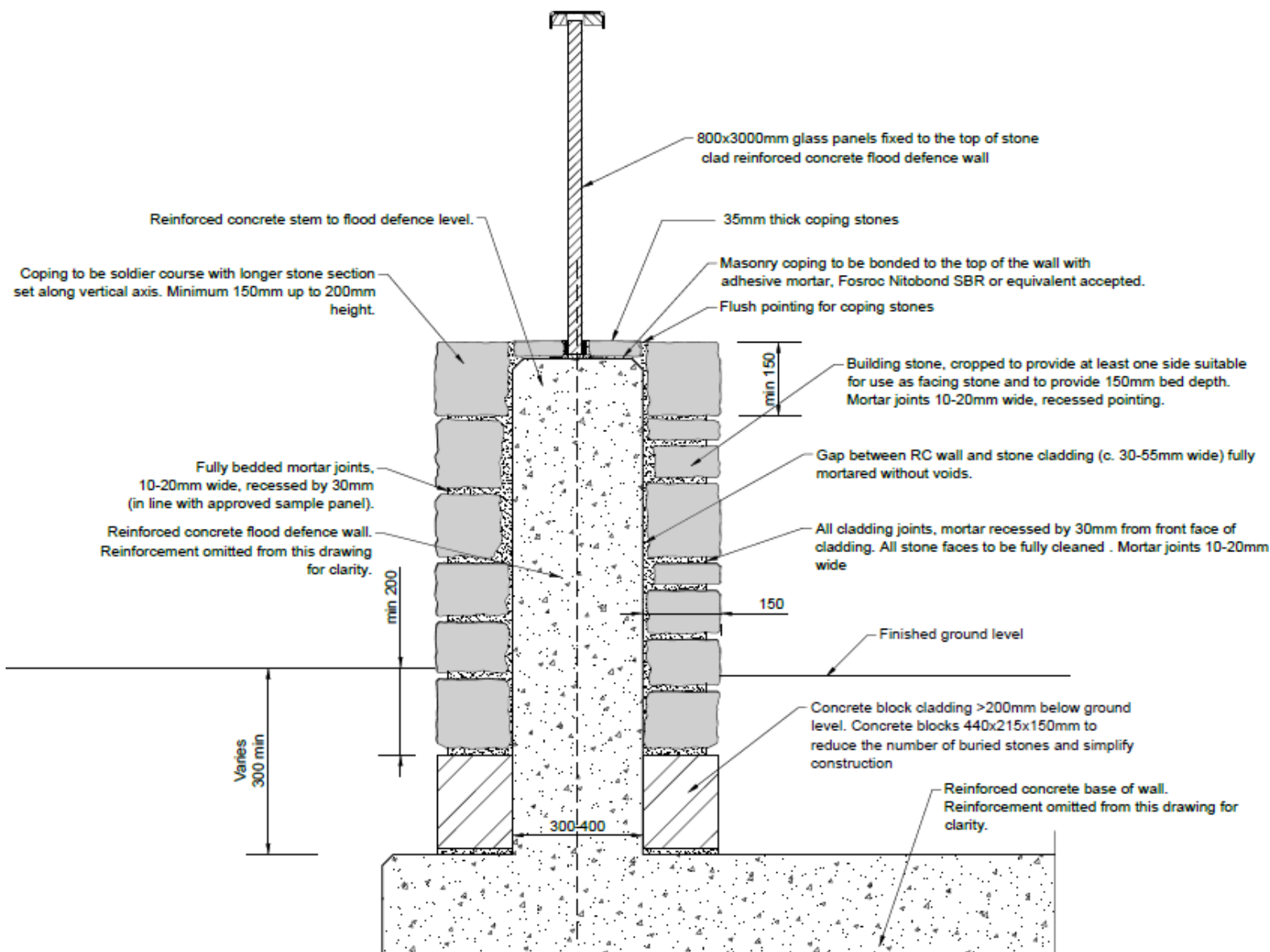
## PROPOSED DESIGN CHANGES – AYNAM ROAD – GLASS DETAILS

Typical elevation – change in level - glass panels

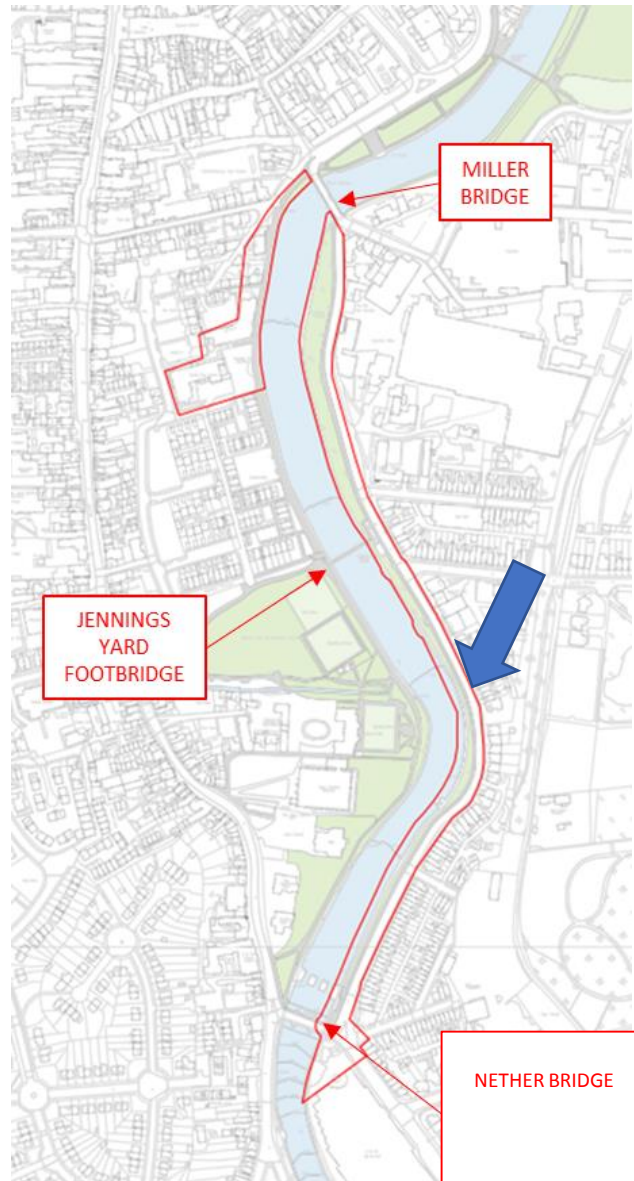




## PROPOSED DESIGN CHANGES – AYNAM ROAD – GLASS DETAILS



## PROPOSED DESIGN CHANGES – AYNAM ROAD CENTRAL – DESIGN AMENDMENTS

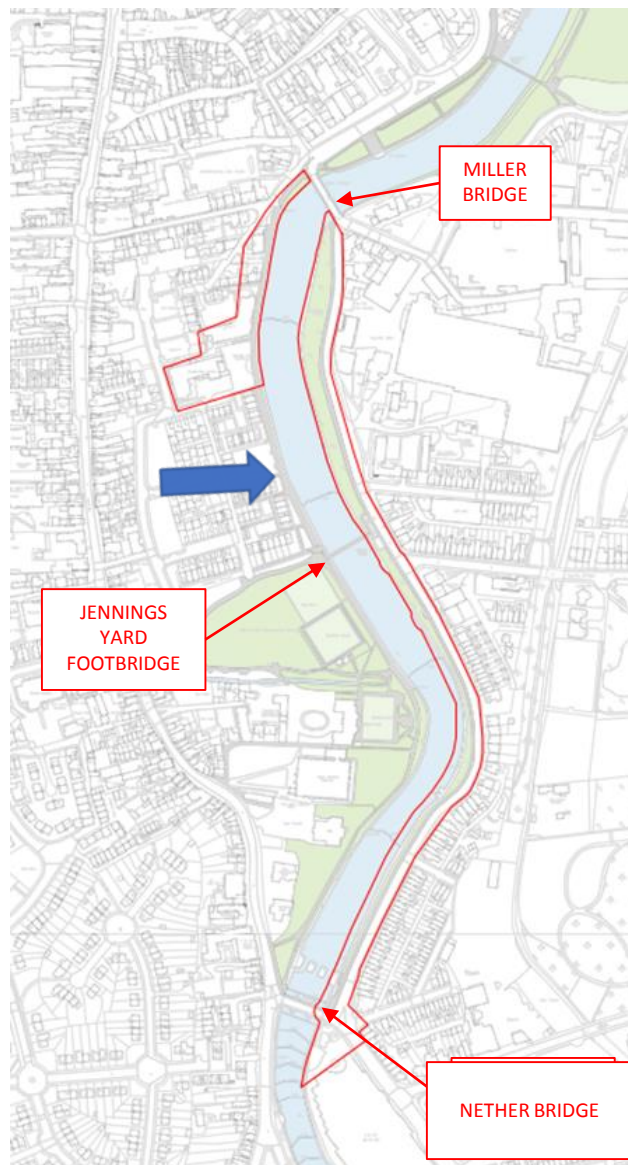


Existing view from Aynam Road looking south with River Kent and the Parish Hall to the right of the view



Proposed view illustrating all existing trees cleared to facilitate works with proposed glass panel fixed to low stone clad wall located at rear of the footway. Tree planting proposed where ground conditions allow (after 5 year growth).

## PROPOSED DESIGN CHANGES – AYNAM ROAD CENTRAL – DESIGN AMENDMENTS

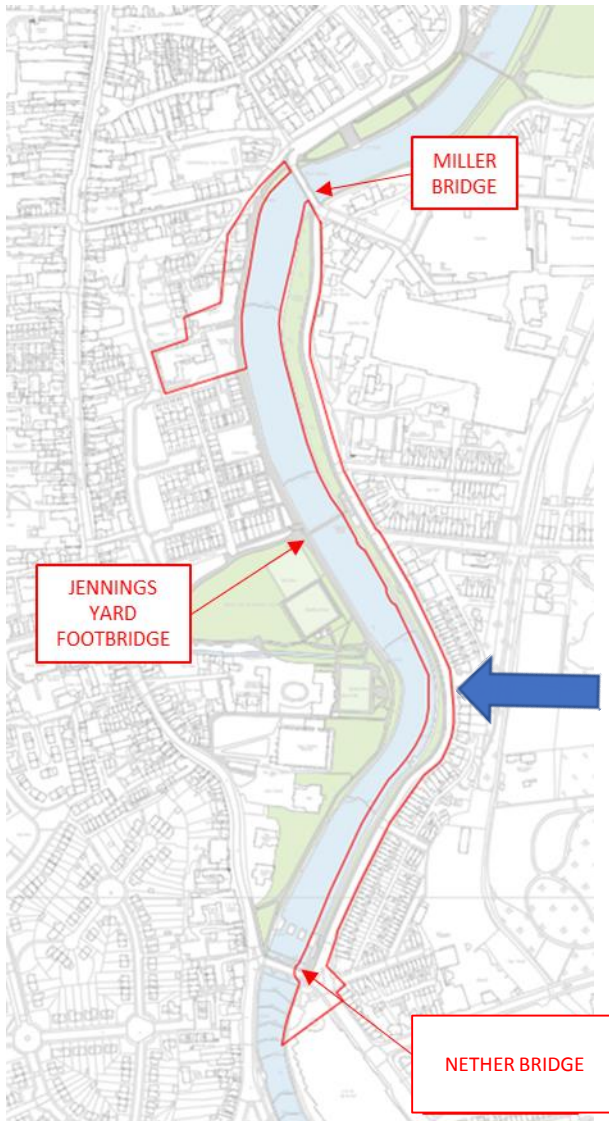


Existing view from Waterside looking east across River Kent towards Millers Field with Castle Mills to far side of Aynam Road



Proposed view illustrating wall mounted glass panels to rear of Miller Field, footpath, seating sculpture and Castle Mills outfall visible within view(TBC). Decorative tree planting across view (5years growth). Existing riverside vegetation on and below lower riverbank to be retained.

## PROPOSED DESIGN CHANGES – AYNAM ROAD CENTRAL – DESIGN AMENDMENTS



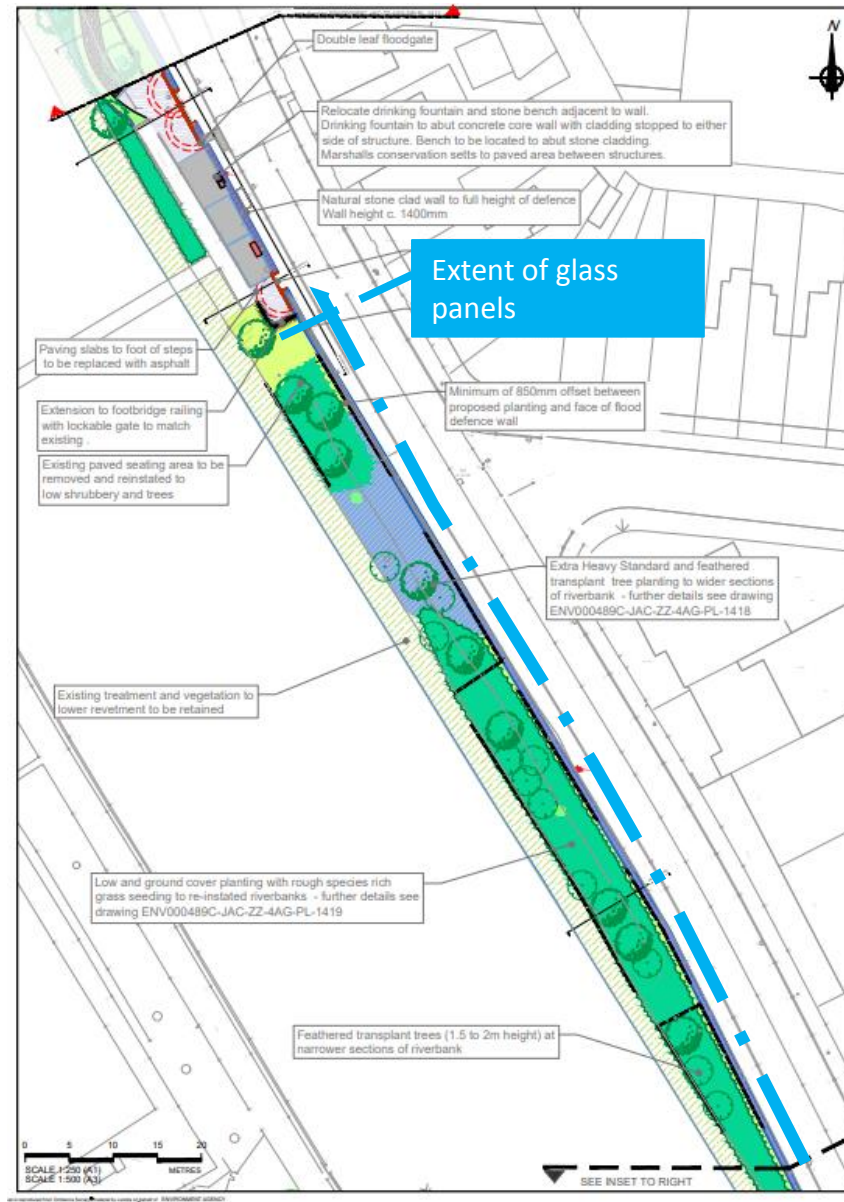
Existing view from Aynam Road looking west towards Abbot Hall



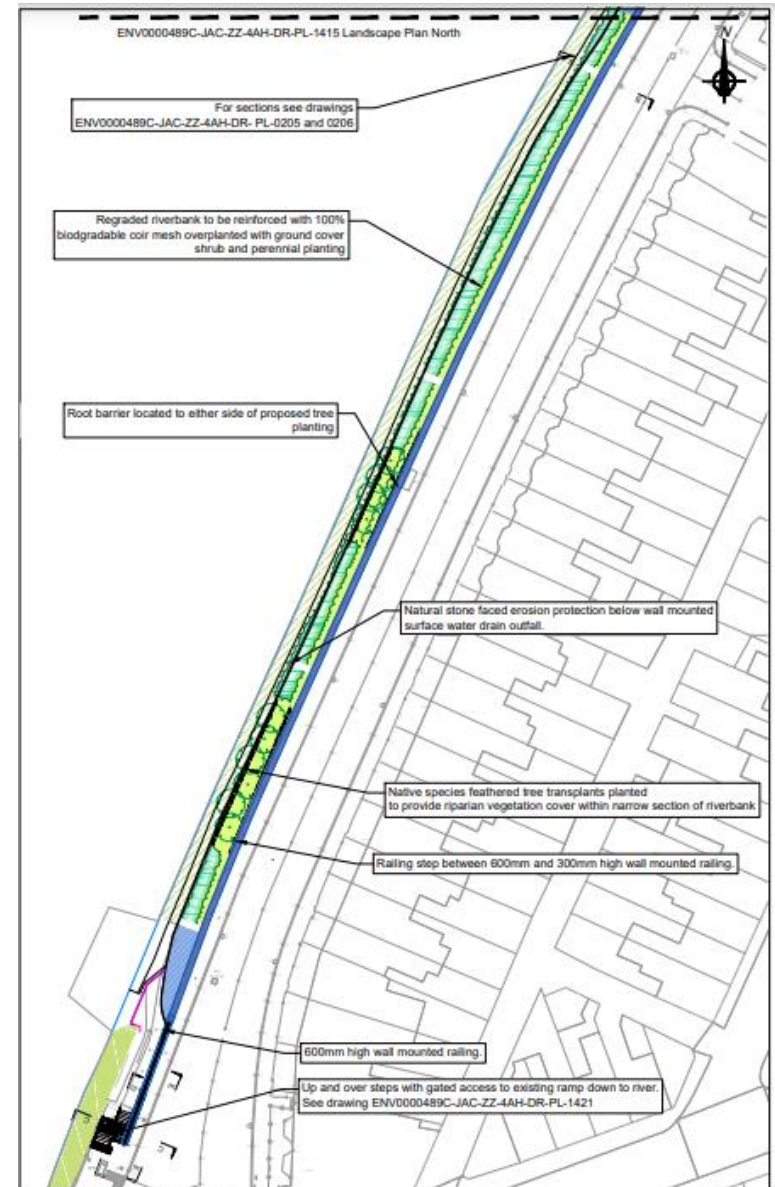
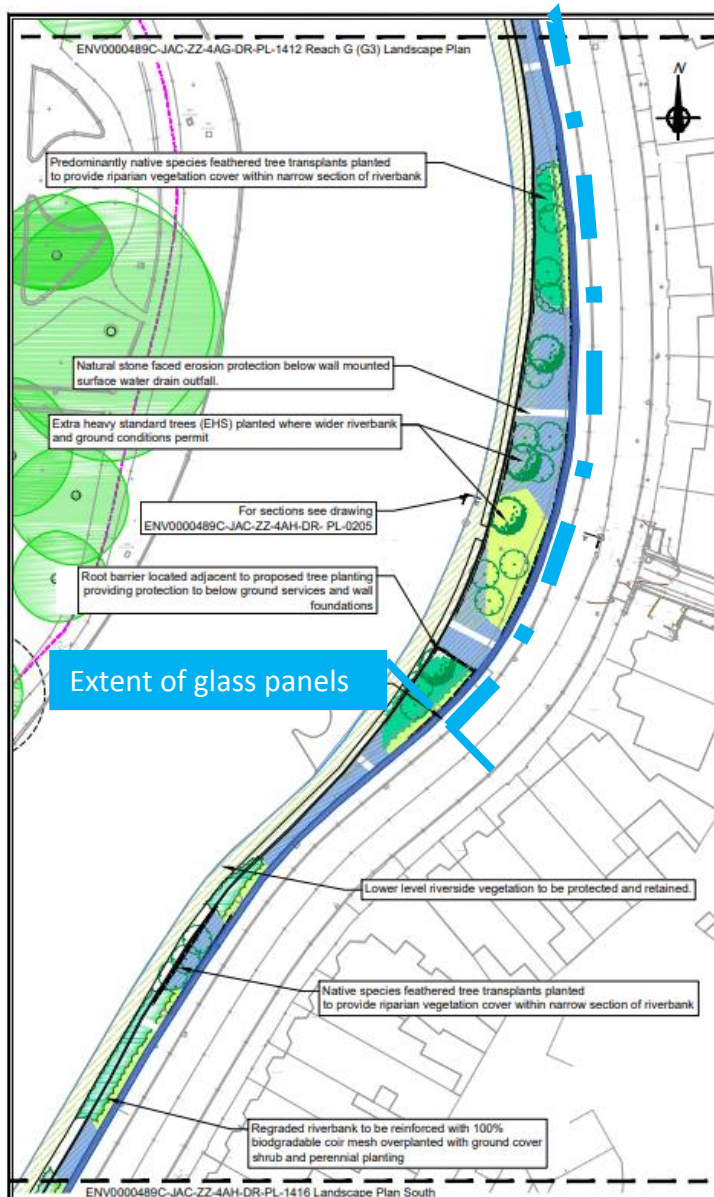
Proposed view illustrating removal of roadside trees and railing and replacement with low stone clad wall topped with glass panel flood defence



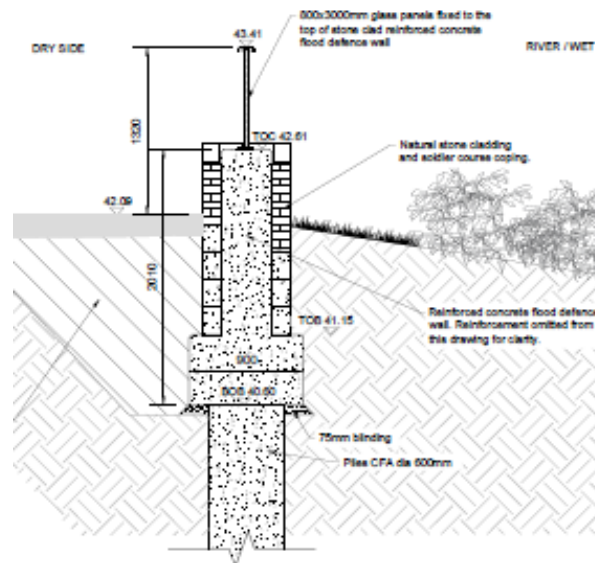
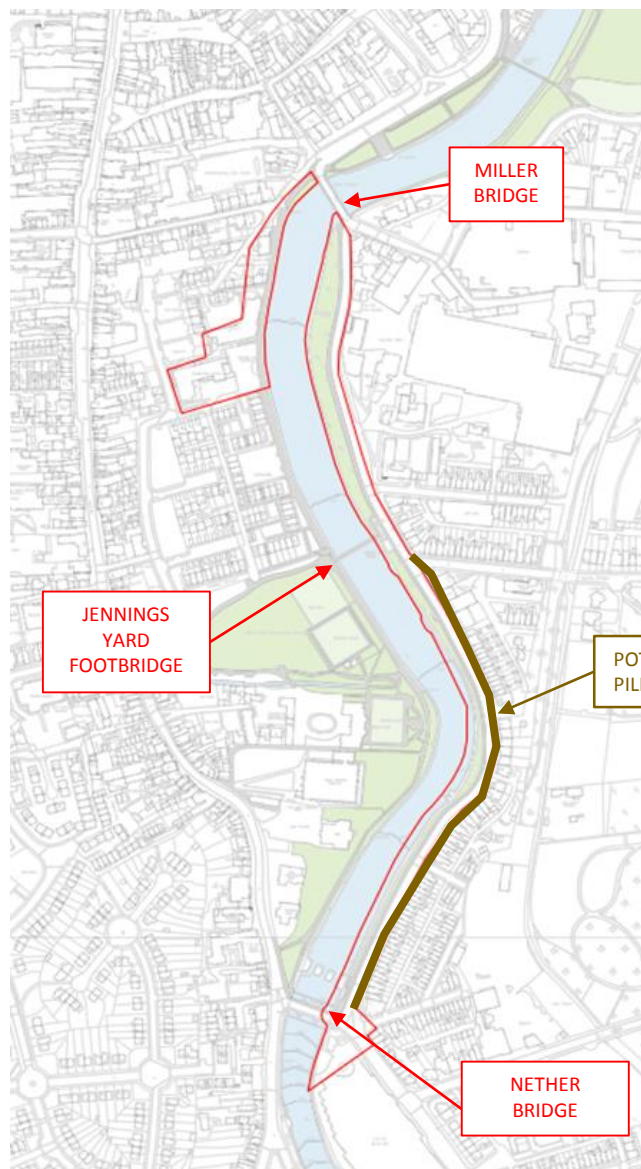
## PROPOSED DESIGN CHANGES – AYNAM ROAD CENTRAL - LANDSCAPING



## PROPOSED DESIGN CHANGES – AYNAM ROAD SOUTH - LANDSCAPING

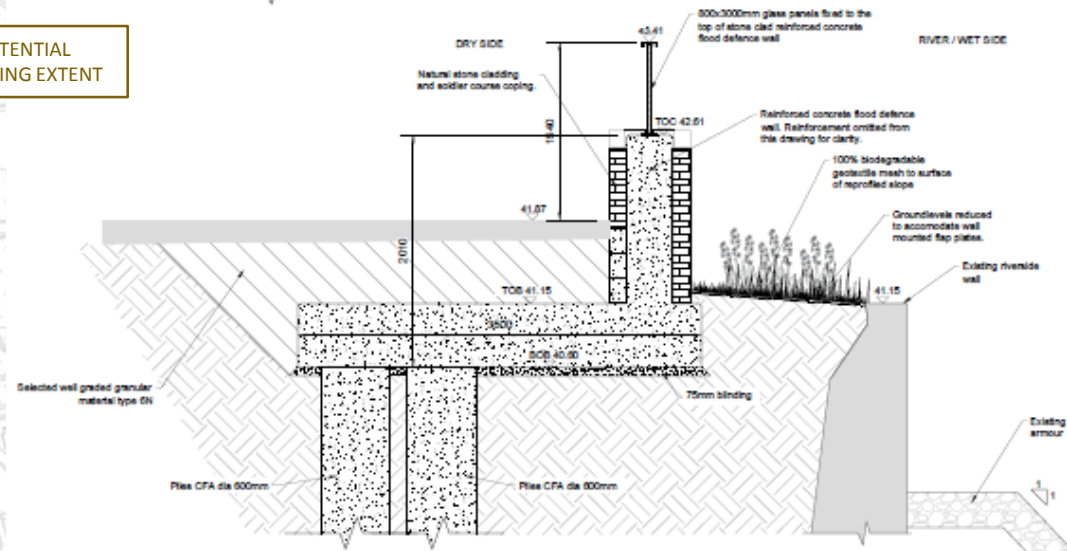


## PROPOSED DESIGN CHANGES OVERVIEW – AYNAM ROAD PILING



Piling used to control both seepage and groundwater when river levels are high.

Construction type varies according to ground conditions and access restrictions.



## PROPOSED DESIGN CHANGES – AYNAM ROAD SOUTH – DESIGN AMENDMENTS



Existing view north up Aynam Road



Proposed view illustrating all existing riverside trees cleared to facilitate works with flood defence wall. Up and over steps and railing to left of view and 600mm high wall mounted railing terminating in stone clad pier. Tree planting on regraded river bank visible above line of flood defence wall. Tree planting illustrated after 5 year growth.



## PROPOSED WORKS – COMPARISON WITH ORIGINAL APPLICATION

Location	Element	Existing Planning Permission	Proposed Improvements
Aynam Road	Glass extent	68m of 1m high glass framed viewpoints provided along Aynam Road.	Viewpoints replaced with 411m of 800mm high glass panels on top of stone clad floodwalls to provide views across river where walls are over 1.2m high.
Aynam Road	Cladding	Plain concrete below glass sections	Stone cladding to both sides of floodwalls.
Aynam Road	Foundation Design	Foundation doesn't manage seepage and groundwater impacts	Further ground investigation has enabled us to improve the design to more effectively control seepage and groundwater using augered piles between Jennings Yard Footbridge and Nether Bridge.
Aynam Road	Heritage	Not proposed	Replica Webster railings as gateway to Miller Fields.
Aynam Road and Waterside	Finish to glass frames	To be discharged via planning condition	Slimline brushed Stainless Steel top rails and uprights, recessed bottom rails. Glass panels all 3m in length to reduce frequency of uprights.
Waterside	Construction method	Walls constructed from landward side which conflict with a number of utilities including a large combined sewer.	Walls constructed from in river platform with auger piled foundation to protect utilities, also provides increase in riverside path width

## PROPOSED DESIGN CHANGES – OTHER KEY ISSUES / SUPPORTING INFORMATION

### **SUPPORTING DOCUMENTS AVAILABLE ON THE FLOOD HUB**

[www.thefloodhub.co.uk/kendal](http://www.thefloodhub.co.uk/kendal)

### **INFORMATION TO BE PROVIDED WITH PLANNING APPLICATION**

Once the planning application has been submitted all the supporting information will be available to view on South Lakeland District Council's planning portal – [www.southlakeland.gov.uk](http://www.southlakeland.gov.uk)

### **CONSULTATION**

This consultation will run until Friday 22<sup>nd</sup> October 2021. All comments received will be fed into the Statement of Community Involvement to support the planning application.

It is currently expected that the planning application will be submitted to South Lakeland District Council in early November 2021.