

King's Island Flood Relief Scheme

# Landscape Design & Public Realm Strategy

December 2019





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Issue:  
Planning

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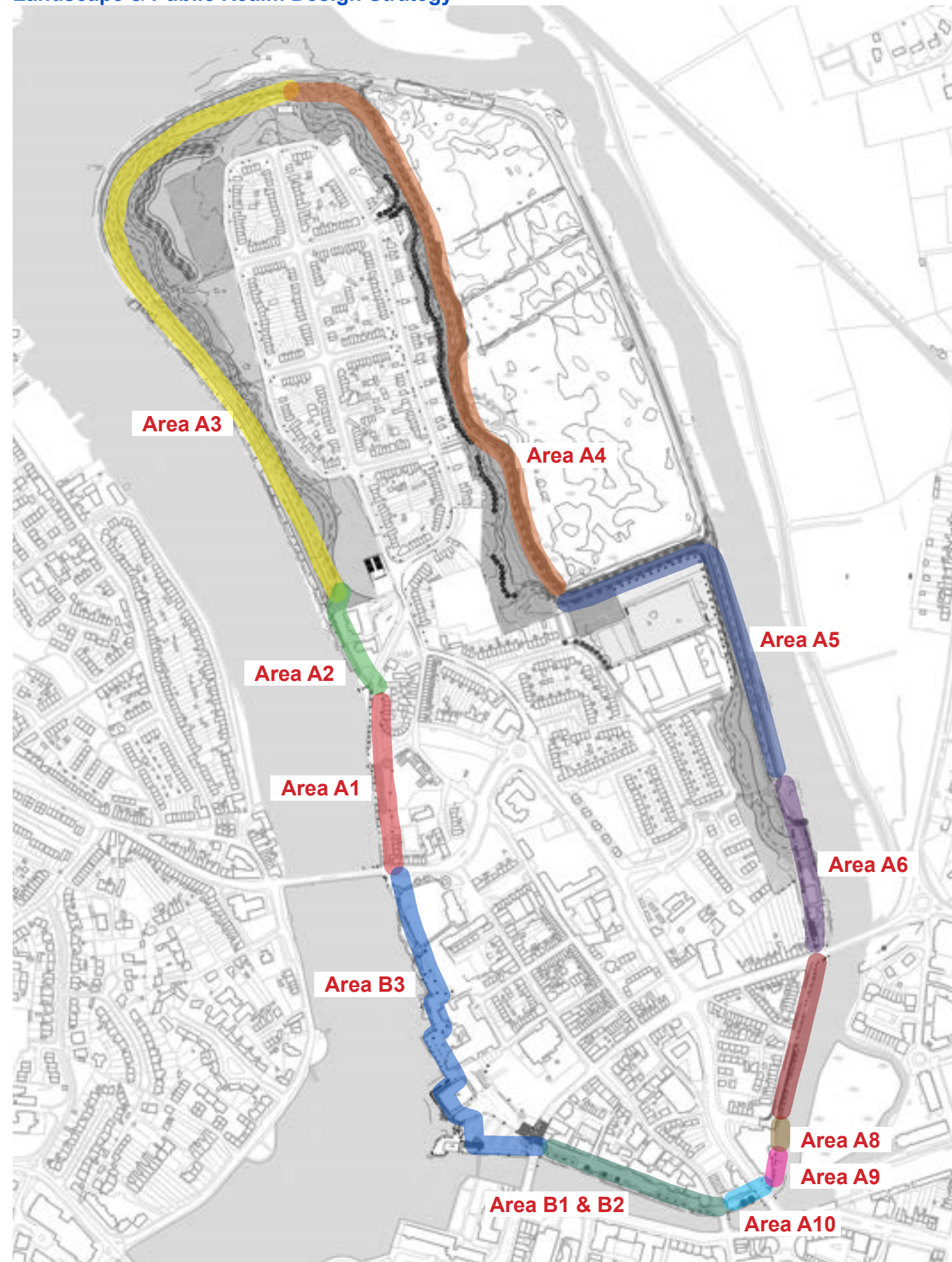
Date:  
December 2019

Approved By:  
NdeJ



ARUP

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URBAN DESIGN



Plan of King's Island setting out the individual areas.

## Introduction

This document has been prepared to meet the requirements set out in the *Kings Island Flood Relief Scheme - Document for Appointment of Landscape Architect for Public Realm Design*.

This document has divided the Kings Island Flood Relief Scheme (KIFRS) into a number of individual areas. These areas relate to those set out in Section 3 of the above named document and previous studies and reports.

This document provides descriptions and information on the design elements that have been considered and included within the proposals.

The required flood defence level along the River Shannon is 5.3m AOD fixed height and 5.5m AOD where the final level may be subject to settling, such as the embankment. The required levels along the Abbey River are 5.1m AOD and 5.3m AOD respectively.

A key constraint and key consideration in the design of the potential flood defence measures is the area covered by the Special Area of Conservation designation that surrounds the island. This extends to the 2m AOD level around the island. No proposals could be located within this designated area and no proposals, such as proposed lighting can impact upon the SAC.

A preliminary design was undertaken by Arup and JBA which forms the starting point for this document and the proposals within it.

# Section 1: Design Proposals



Extent of wall to be upgraded with replacement railing.

## 1.1 Area A1 - Thomond Bridge and Verdant Place

### Existing situation

Flood defence works were carried out along this stretch in August 2017. This required the wall to be raised in height by up to 0.6m. This was achieved through raising of the wall with a new concrete section along with a concrete coping on top. The inside of the wall to Verdant Place was resurfaced to ensure a cohesive appearance.

However the outside, to the rivers edge, of the new additional wall height was not surfaced. The new white concrete of the coping and the wall can appear intrusive and visually dominant in some circumstances. This is demonstrated in the photographs to the left.

### Design proposals

In order to try and resolve this, it is proposed to paint the existing coping and the riverside of the wall a darker shade of grey so that they are more in keeping with their surrounding context. The photomontages to the left demonstrate how this could work.

Additional work is also proposed to the adjacent, unaltered lower level section of wall to the south. The aim of these works would be to improve the overall cohesiveness and associated visual aesthetic between the original wall and the raised wall.

The existing safety railing would be removed. A new coping would be installed and a protruding rail added on top. This would provide a more integrated approach to achieving the required guarding height of 1.1m along the wall.

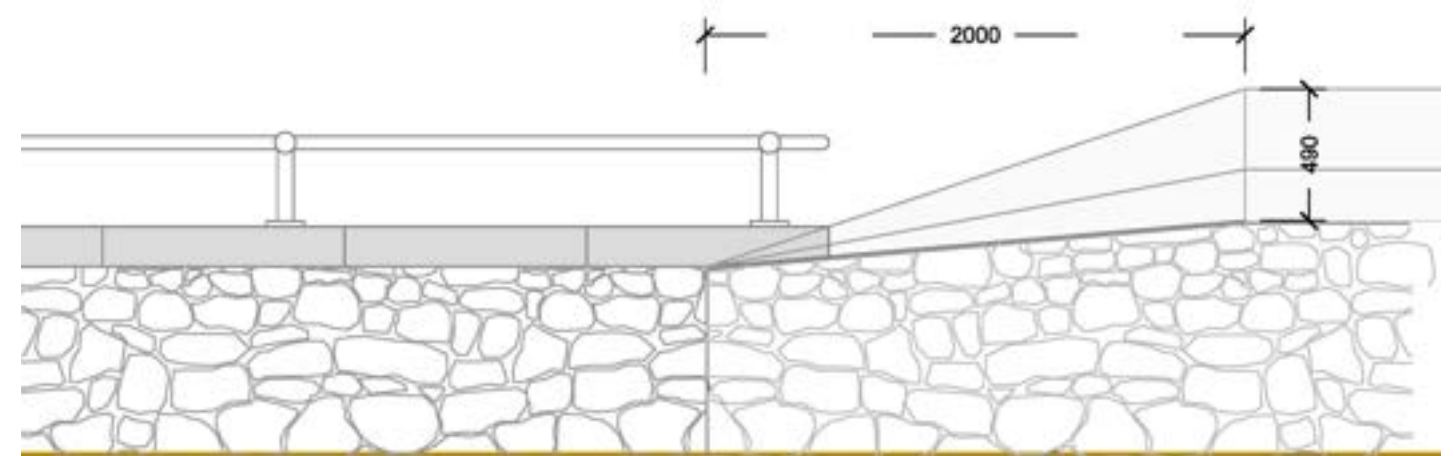
The proposed coping would be the same material as the adjacent 2017 upgraded stretch of wall. This would ensure the two sections of wall tie in to one another and read more cohesively.

However, the new coping would only be approximately a third of the depth of the 2017 constructed coping. This would reduce the visual impact of the new coping and would be more in keeping with the scale of the wall. The new coping would also be painted so that it matches the existing one, once painted.

The proposed protruding railing on top of the wall would help to tie this wall in with the taller height of the thicker adjacent capping.

The entire length of the footway along this stretch was upgraded in 2017. Therefore no further alterations are proposed to the footway.

It was decided by Limerick City and County Council (LCCC) that no planting or public realm improvements would be included in this area at this stage of the works.



Elevation of proposed wall-top railing illustrating the connection with the existing upgraded wall and coping.



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Riverside view of the upgraded wall and connection with the existing wall and railing.



Photomontage showing the exposed concrete sections painted a darker shade of grey.



Existing view of the dry-side of the upgraded wall and the existing low wall with safety railing to front.



Photomontage showing the exposed concrete sections painted a darker shade of grey.



## 1.2 Area A2 - Verdant Place Steps and Crèche



Plan of proposed works adjacent to Verdant Place steps and the crèche.

### Existing situation

The flood defence upgrade works carried out along Verdant Place in 2017 extended around the corner and along the existing wall to the Verdant Place Steps. However the new stone facing on the inside of the wall did not extend along the wall to the Verdant Place Steps.

A set of concrete steps with metal railings was constructed to provide access over the new wall to the existing steps down to the water. These access steps are located approximately a third of the way along the Verdant Place Steps. Beyond these new access steps the existing wall was replaced with temporary concrete barriers.

### Design proposals

It is proposed to replace the temporary concrete barriers with a new wall matching the replacement wall on the other side of the access steps. This would provide a cohesive treatment along the edge of the Verdant Place Steps.

The stretch of concrete wall and coping along the front of the steps would be painted grey to match the proposed grey coping along the wider wall. The concrete of the existing access steps would be left as is to provide a contrast against the painted grey colour of the wall. This is illustrated in the image below.

The space between the crèche and the river is limited, to the north of the Verdant Place Steps. It is therefore proposed to construct a new flood defence wall along this stretch. This would minimise the space occupied by the flood defence measures. The wall would be surfaced with a stone finish to match the 2017 flood defence wall to the south of the Verdant Place Steps.

The existing footpath would be regraded and raised to ensure that the finished wall height is approximately 1.1-1.2m above the proposed ground level. This would maintain views of the water whilst providing a safe guarding height.

Where the path is altered it would be resurfaced with blacktop. This would be consistent with the 2017 surfacing next to the Verdant Place Steps. It would also tie in with the proposed surfacing along the entire length of the proposed embankment around the north of the island.

The proposed flood defence wall would extend northwards of the crèche up the adjacent proposed embankment. The wall would conclude when it meets a ground level of 5.3m. It would be completed with a small pier to provide definition. This treatment avoids issues of potential trip or fall hazards associated with the wall gradually grading into the embankment, as the embankment rises to meet the top of wall height.

Street lighting would be provided along this stretch. It is proposed to keep the street lighting simplistic (see materials palette). This would ensure that it is a background element that blends in to the landscape rather than a feature element that is highly noticeable. The street lights would be consistent along the proposed path around the north of the island, including the proposed embankment.

It was decided by LCCC that no planting would be included in this area at this stage of the works.



Photomontage showing proposed treatment to existing concrete walling and upgrade of barriers at Verdant Place Steps.

### 1.3 Area A3 - North West Embankment



Plan illustrating extent of the proposed northwest embankment and the replacement open drain

**Existing situation**

An existing embankment encircles the north of the island, along with an associated walkway. The crest of this existing embankment is formed by large sandbags. Many of the sandbags are damaged resulting in the embankment not providing the flood defence level.

**Engineering proposals**

A new engineered embankment is currently proposed. This would be located approximately 4.5m inland of the existing sandbags. This engineered embankment is 4m wide on top with side slopes of 1 in 3 on the wet side and 1 in 2 on the dry side. This results in an overall width of approximately 16m.

**Design proposals**

It is proposed to reprofile the inside of the engineered embankment to provide a more gentle, flowing and winding sloped edge. This would reduce the engineered appearance of the proposed embankment. It would instead appear more as a naturalistic landform within the landscape.

The engineered embankment would envelop the existing open drain on the inside of the existing embankment. The existing open drain contains a form of Opposite-leaved Pondweed called *Groenlandia densa*. This is a protected and endangered species.

A new open drain is therefore proposed at the base of the proposed reprofiling of the engineered embankment. This would be located on the inside of the northeasternmost section. This new open drain would allow for the translocation of the pondweed (*Groenlandia densa*) from the existing open drain and thereby its retention on site.

The proposed embankment would be seeded with meadow grassland. This would help ensure the embankment appears visually as a naturalistic element within the landscape. It would also reduce maintenance requirements and increase biodiversity, including attractiveness to insects and pollinators.

In more distant views from the other side of the river the embankment would appear simply as an extension of the riverbank. The proposed meadow grassland would assist with blending it into the existing river bank.

Break out areas are proposed along the embankment providing flexible spaces. These could be used for different purposes with the potential to add street furniture in the future dependant upon demand. This could include seating, a viewing railing, play equipment or exercise equipment for example.

Connecting paths would be provided to link the embankment walkway with the housing to the east and south. Where the levels and space allows, the accesses would be at a grade shallower than 1 in 20.

One of these accesses would extend down the riverside of the embankment to maintain access to the rivers edge for fishermen and boaters. A further access to the embankment would also connect to the existing handball alley, replacing and upgrading the existing footpath.

The embankment path and the connecting paths would be surfaced with blacktop. This would be a consistent treatment along the length of the embankment walkway in the north of the island.

Street lighting would be provided along the length of the embankment walkway as set out in the materials palette.

The lighting columns would be located on the outside of the walkway. This would ensure that the light is directed inwards away from the Special Area of Conservation (SAC). This focussed lighting would be further enhanced by the directional capabilities of the proposed luminaires.

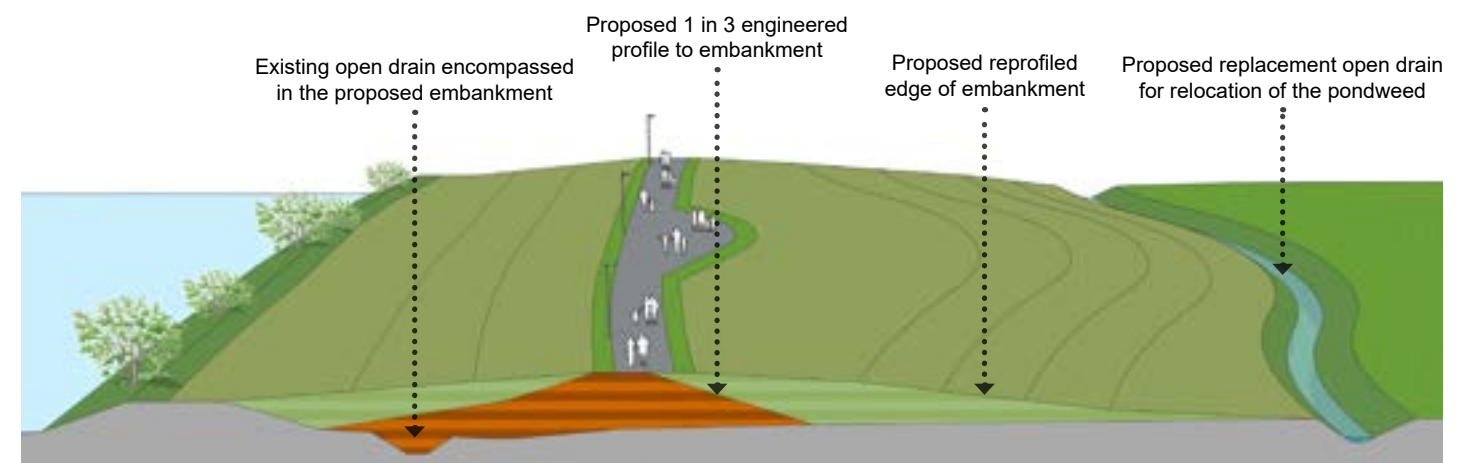
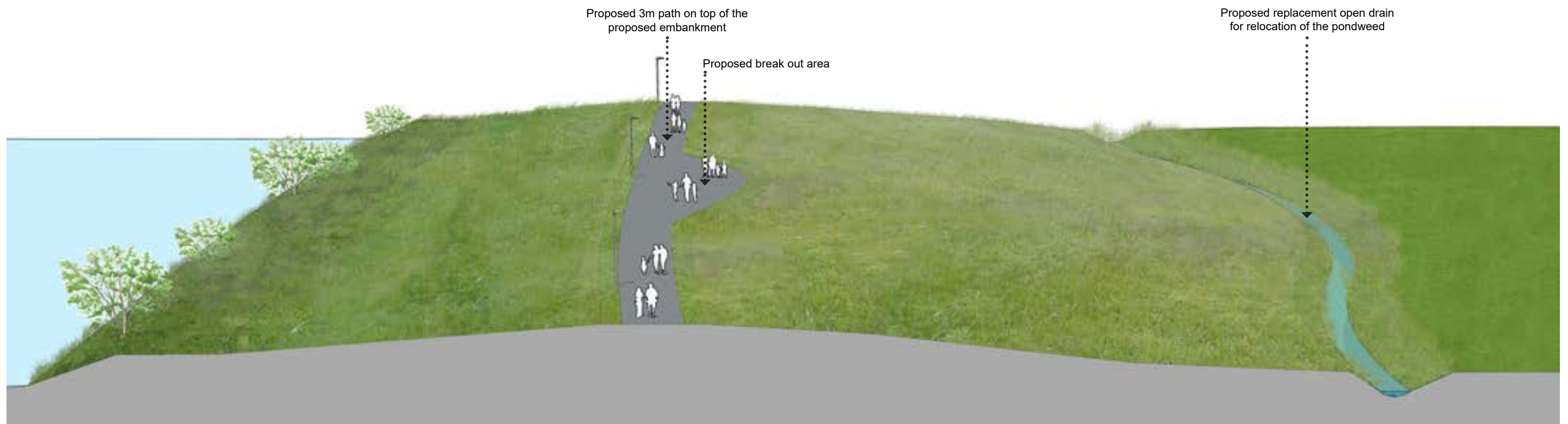
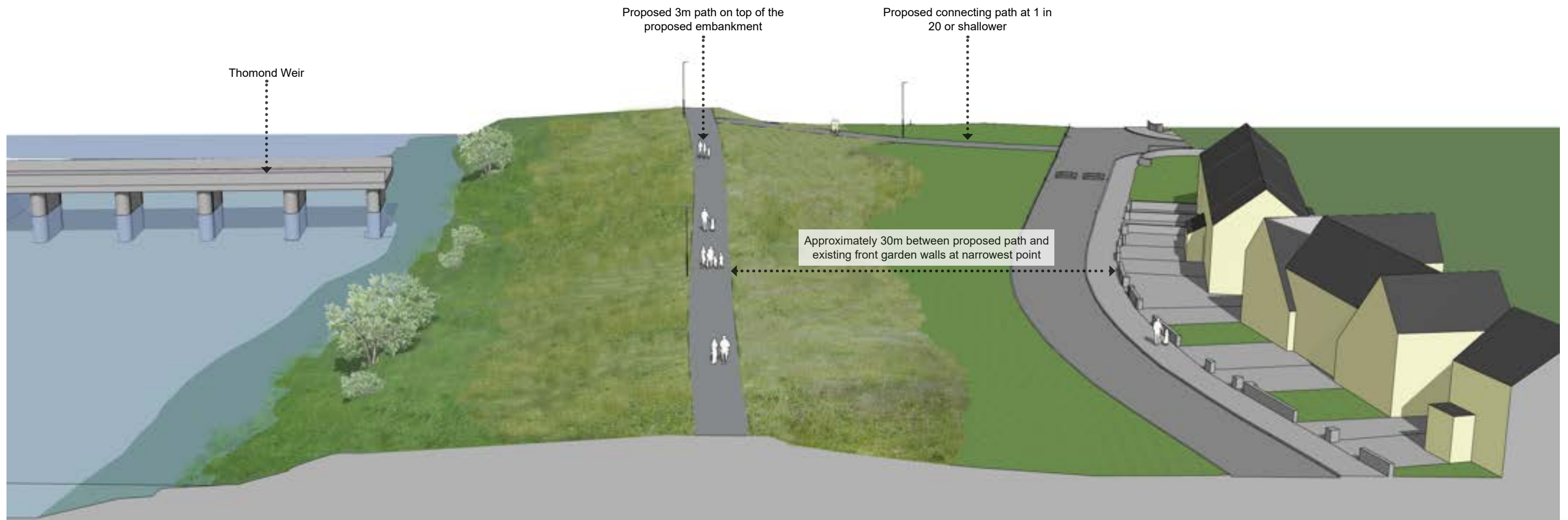


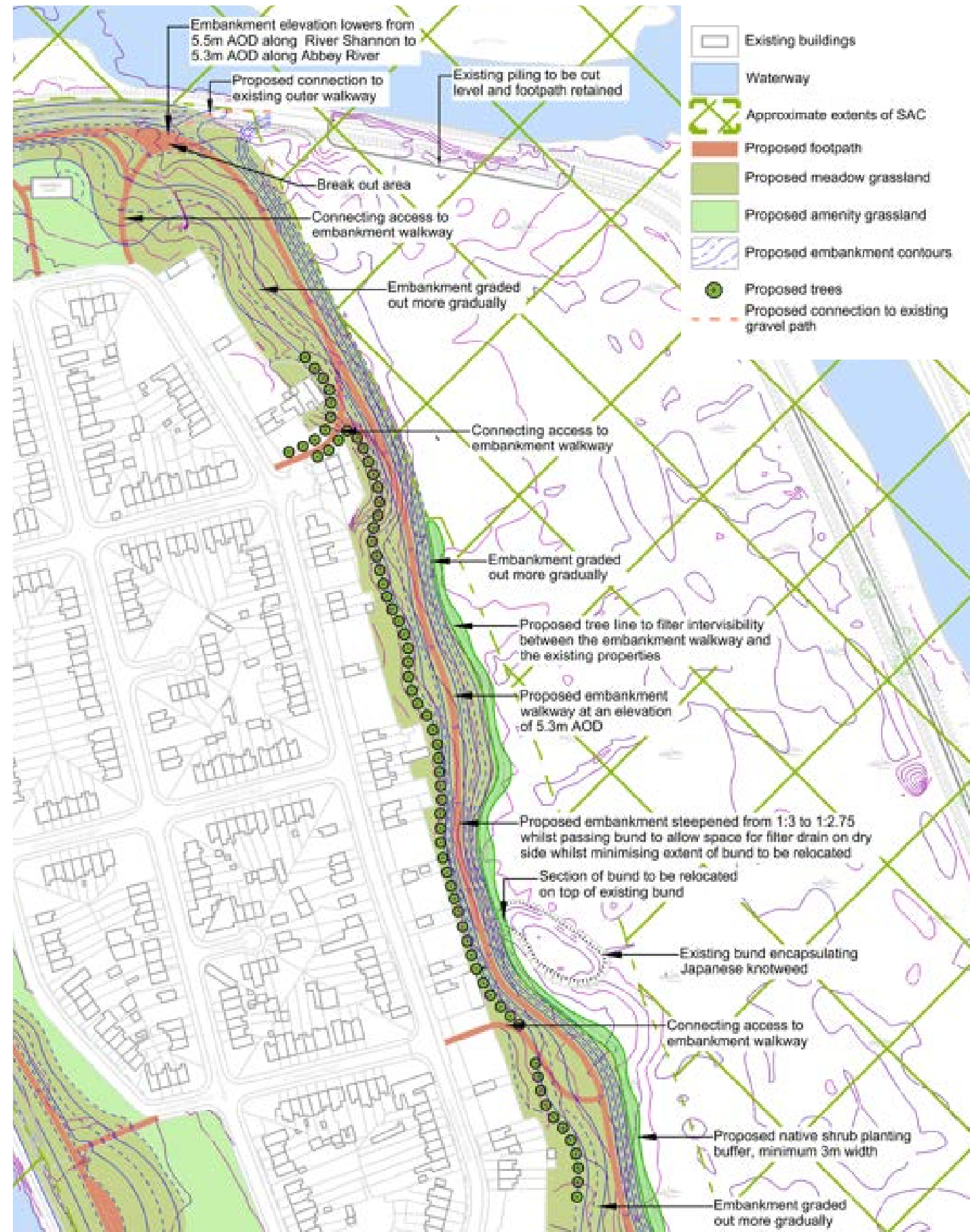
Illustration of the reprofiled edge to the proposed embankment.



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## 1.4 Area A4 - North East Embankment



Plan illustrating the form of the proposed northeast embankment and the relationship with the existing homes.

### Existing situation

AS with the north west of the island the existing embankment around the north east is also in poor repair, reinforced with large sandbags which themselves are falling apart. The existing embankment follows the river channel around the outside of the island.

A section of this embankment in the north was badly breached in the past. It has since been temporarily repaired with sheet piling with some protruding more than two metres out of the ground.

A large bund is located to the rear of the housing along St. Munchin's Street, within the grassland area contained by the existing embankment. The bund contains an unknown quantity of Japanese Knotweed buried within it.

### Engineering proposals

The engineered embankment is proposed to run along the rear of the houses on St. Munchin's Street. Where the embankment squeezes between the rear properties of the houses and the bund a retaining wall is to be constructed to reduce the width of the embankment and thereby the impact upon the bund.

### Design proposals

It is proposed to reprofile the inside of the proposed engineered embankment where the space to the rear of the existing houses, along St. Munchin's Street, allows. This would provide a more gentle, flowing and winding sloped edge rather than an engineered appearance when viewed from the rear of the properties.

The embankment would be seeded with meadow grassland. This would help ensure the embankment appears visually as a naturalistic element within the landscape. It would also reduce maintenance requirements and increase biodiversity, including attractiveness to insects and pollinators.

Connecting paths would be provided to link the embankment walkway with the housing to the west. Where the levels and space allows the accesses would be at a grade shallower than 1 in 20.

A connection to the old outer flood defences and associated path would also be maintained. The existing sheet piles along the old outer defences would be cut down to the path level. The existing path along the old outer defences would also be retained

The proposed embankment walkway would be surfaced with blacktop. This would be a consistent treatment along the length of the embankment walkway.

The raising of the ground level to provide the embankment and the creation of the associated walkway provides the potential for overlooking of the adjacent properties along St. Munchin's Street. Tree planting is therefore proposed along the inside of the embankment where occupied properties are located adjacent to the embankment.

This tree planting is illustrated in the plan opposite and in the sections on the following page. The trees would screen/filter views of the properties from the embankment walkway thereby maintaining the privacy of the residents.

All tree planting would have a clear stem of 2m to provide low level views through the planting for security purposes.

Street lighting would be provided along the length of the embankment walkway. The style of lighting is illustrated in Section 2: Materials Palette.

The lighting columns would be located on the outside of the walkway. This would ensure that the light is directed inwards away from the Special Area of Conservation (SAC). In turn the proposed trees would help prevent the lighting from impacting the adjacent occupied properties on the inside of the embankment. This focussed lighting would be further enhanced by the directional capabilities of the proposed luminaires.

A number of further options were investigated in terms of routing the embankment past the Japanese Knotweed bund. The options explored are illustrated on the following page.



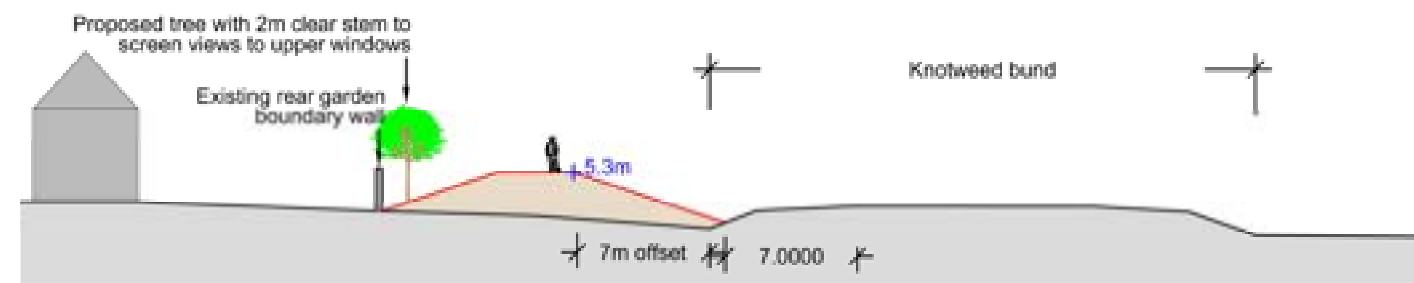
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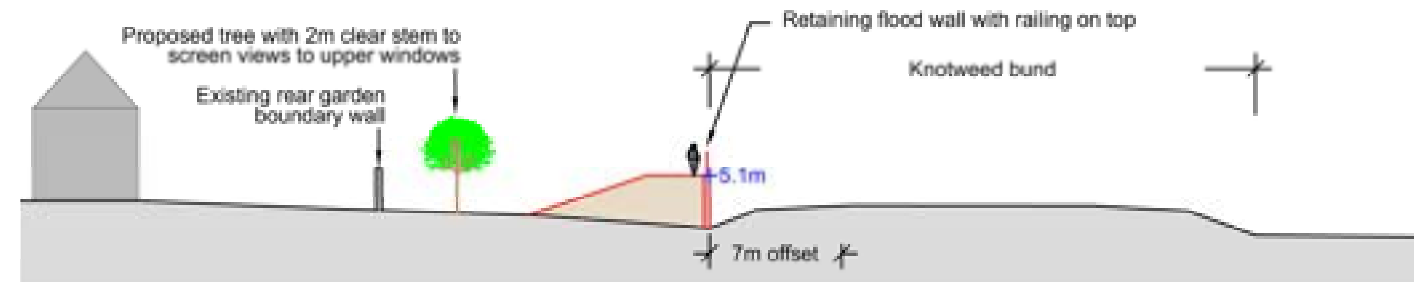
Location of sections.



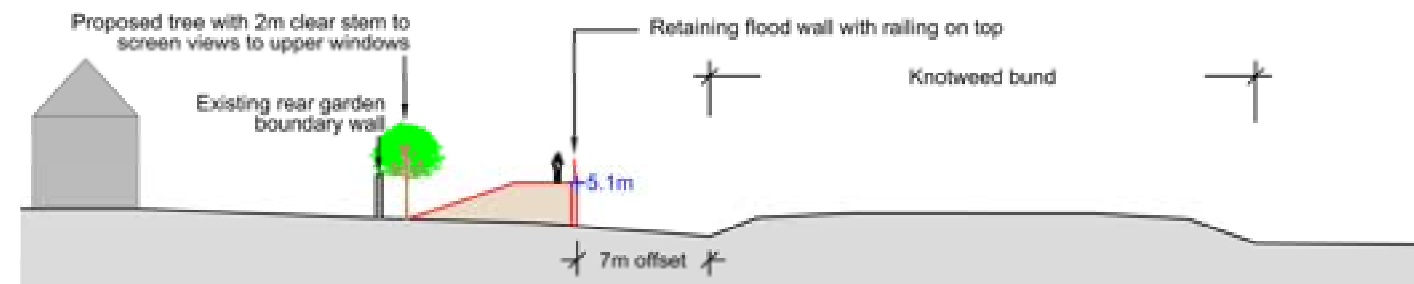
Japanese Knotweed bund in relation to existing homes.



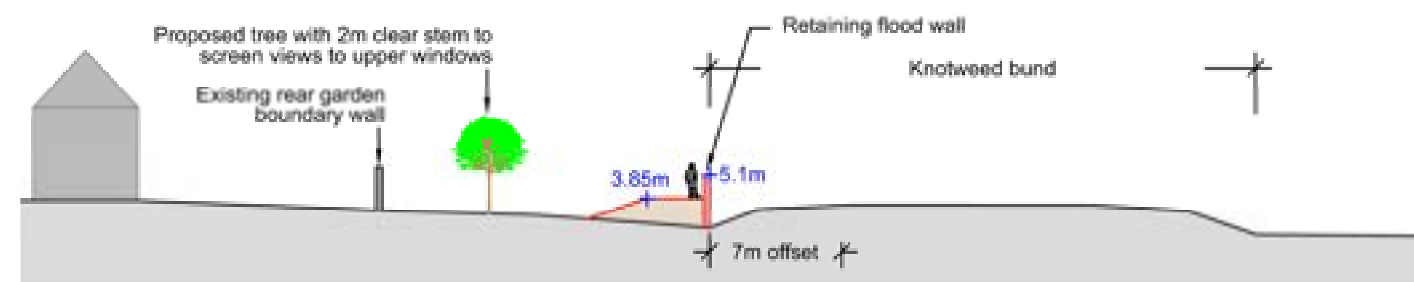
**Preferred Option:** Embankment with 1 in 3 side slopes.



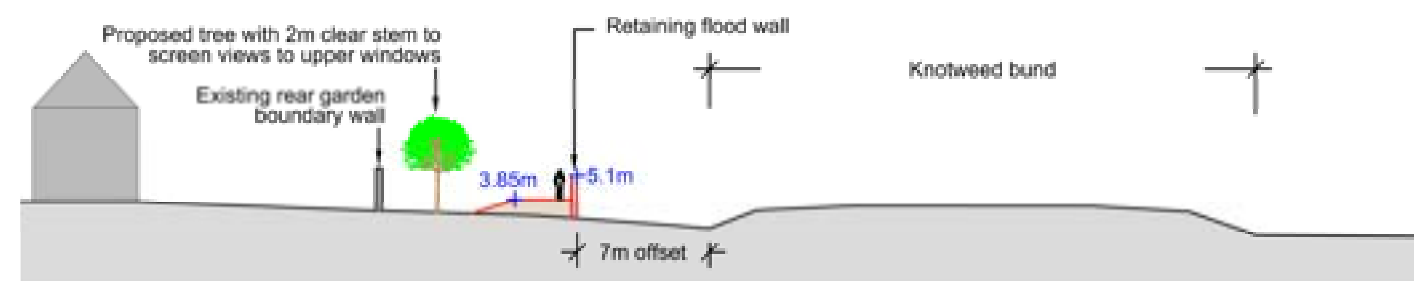
**Alternative Option 1:** Retaining flood wall next to edge of bund.



**Alternative Option 2:** Retaining flood wall with 7m offset from bund.



**Alternative Option 3:** Lowered path with retaining flood wall next to edge of bund.



**Alternative Option 4:** Lowered path with retaining flood wall and 7m offset from bund.

## Japanese Knotweed Bund Preferred Option

The preferred option was decided upon in combination with the project team and LCCC. It maintains the embankment at the proposed elevation and would be aligned as close as possible to the back of the houses along St. Munchin's Street. This minimises the extent of the Japanese Knotweed bund that would need to be relocated, whilst also maintaining the character and continuity of the embankment.

A tree line is proposed along the inside slope of the embankment. This would reduce the potential for overlooking of the adjacent properties by those along the path.

A number of alternative options were also explored. These included variations of introducing a retaining wall or dropping the elevation of the embankment and adding a wall to maintain the overall flood defence level. Each option includes the tree line to reduce the potential for overlooking of the adjacent properties by those along the path.

### Alternative Option 1

Option 1 involves a retaining wall against the bund edge of the path and a 1 in 3 slope to the inside of the path. The path is retained at a height of 5.1m AOD. This also provides an offset from the existing property boundaries. However, this would still involve the moving of an area of the bund, the additional cost of a retaining wall and a safety railing on top. Furthermore, the retaining wall would be out of character with the wider embankment.

### Alternative Option 2

This option is similar to Alternative Option 1 but with a 7m offset from the edge of the bund. This ensures that none of the bund would be relocated. However once again the retaining wall would be out of character with the wider embankment and provides an abrupt edge.

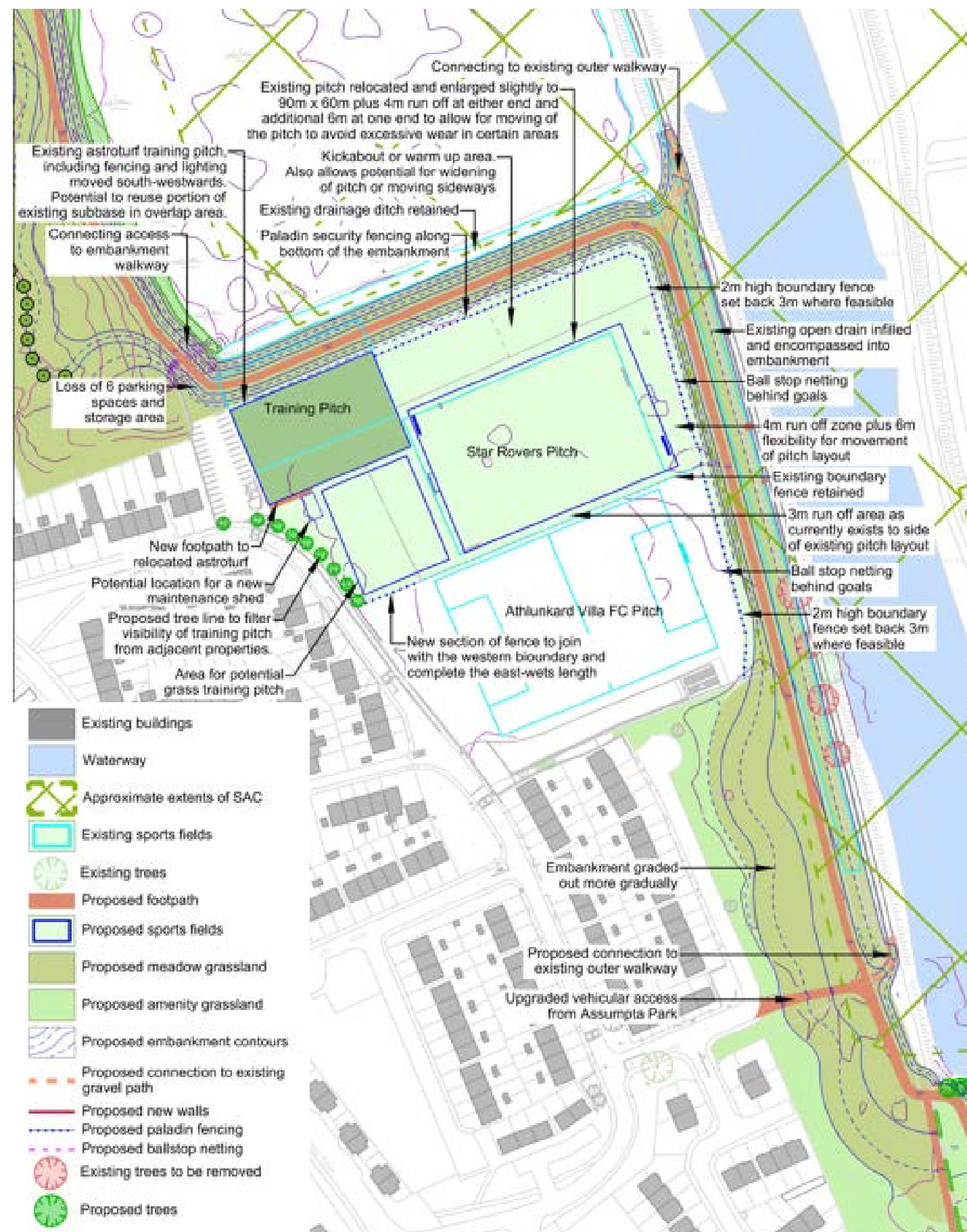
### Alternative Option 3

This option maximises the offset from the existing properties through the reduction of the path height down to 3.85m AOD. A retaining wall of 1.25m would be proposed along the bund side to provide a finished flood protection level of 5.1m AOD. However the reduced level of the path and the flood wall would be out of character with the wider embankment and part of the bund would still need relocating.

### Alternative Option 4

This option combines Alternative Options 2 and 3 with the lowered path height and a 7m offset from the bund. This minimises the size of the embankment whilst still achieving the 5.1m AOD flood defence height. It also avoids the need to alter the existing Japanese Knotweed bund. However, as with Alternative Options 1-3 it would not be in keeping with the wider embankment and would require the installation of a retaining wall and a flood wall.

## 1.5 Area A5 - Star Rovers to Athlunkard Boat Club



Plan illustrating the proposed raised boardwalk and embankment around the football pitches.

### Existing situation

The existing embankment and associated sandbags, all in disrepair, extends along the rivers edge, southwards, until it meets the boundary of the Athlunkard Boat Club.

### Engineering proposals

The engineering embankment is proposed to run along the north side of the Star Rovers FC ground before re-joining the perimeter of the island. It then follows the inside edge of the existing footpath until it meets the northern edge of the Athlunkard Boat Club.

### Design proposals

It was identified that the SAC boundary is aligned very closely to the northern boundary of the Star Rovers FC ground. As such the existing astroturf and associated lighting would need to be partially relocated further southwards to facilitate the proposed embankment. The embankment will be reduced to 1:3 on both sides to reduce the land-take required.

A treeline is proposed along the road edge top the south of the relocated astroturf edge. This will help reduce any potential impact as a result of the relocation of the pitch and associated lighting. It will also provide an attractive edge to the Star Rovers FC grounds.

The existing open drain to the north of the Star Rovers FC pitch would be retained whilst the open drain to the east of the sports pitches would be encompassed into the proposed embankment.

The proposed embankment would result in the loss of six parking spaces and storage area within the car park adjacent to the astroturf pitch. A connection would also be created between the proposed embankment walkway and the repaired existing path along the old outer flood defences to the north east of the sports pitches.

The existing Star Rovers FC pitch will be very slightly relocated and increased in size to 60m x 90m. The areas to the north and west of the Star Rovers FC pitch would be graded to allow the potential for relocation of the pitch in all directions by the football club to avoid repeated wear in certain areas. An area to the east of the pitch would also be graded. This would allow for the potential establishment, by the football club, of a 60m x 40m training pitch.

High ball stop netting would be installed behind the eastern goal posts for both Star Rovers FC and Athlunkard Villa FC. This will prevent footballs from reaching the embankment and the SAC beyond.

Once the embankment has cleared the sports pitches it is once again proposed to reprofile the dry-side of the embankment to reduce the engineered appearance of the landform. The embankment would be sown with meadow grassland in keeping with the rest of the embankment. A number of existing poor quality trees along the old rivers edge walk would be removed.

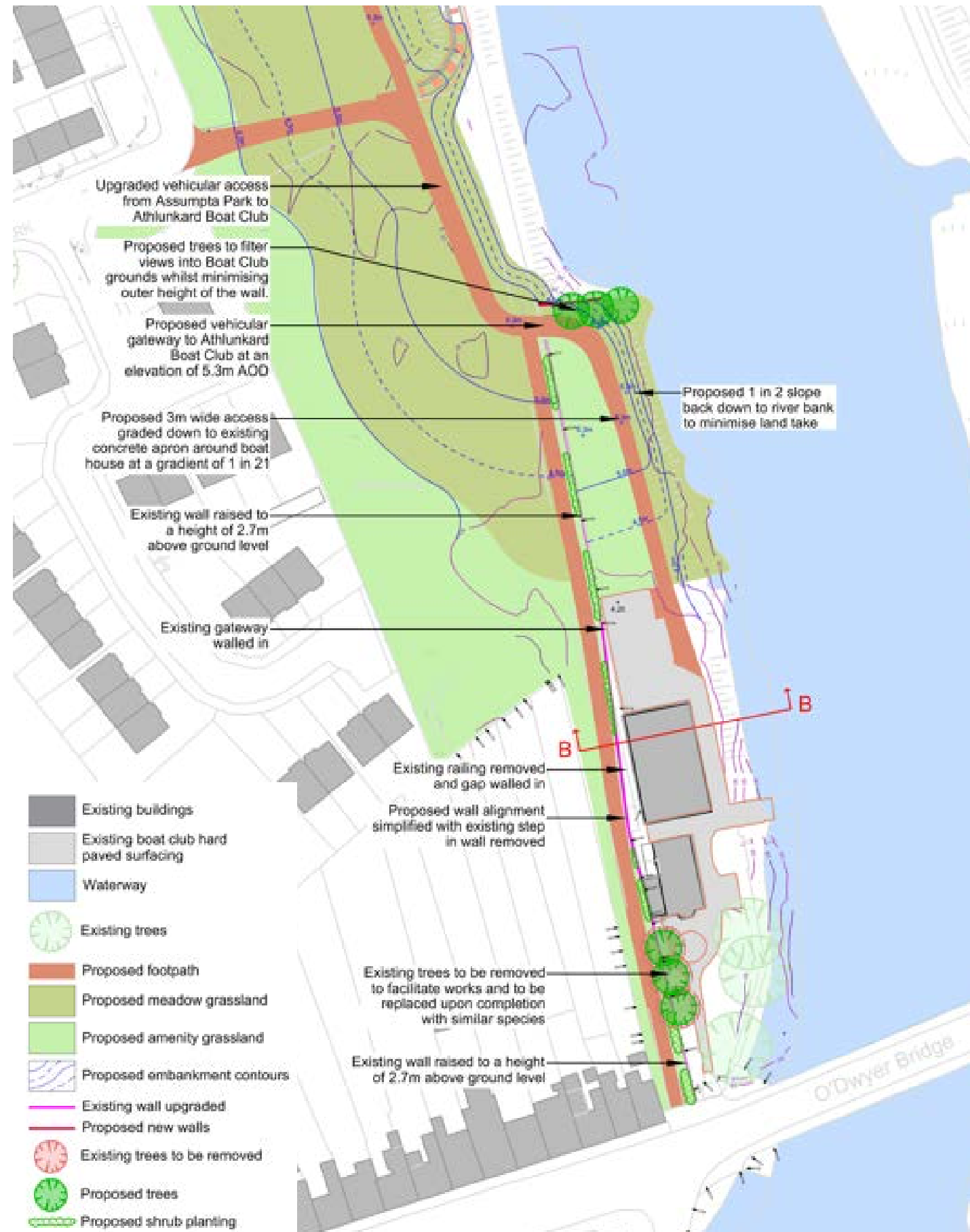
A connection would be created between the proposed embankment walkway and the retained existing path along the old outer flood defences to the north east of the sports pitches.

A further connection would be created at the southernmost end of the retained outer walkway, adjacent to the existing informal vehicle access route from Assumpta Park to the Athlunkard Boat Club. This informal vehicular access route would also be upgraded and formalised with a blacktop surfacing.

The path surface would comprise blacktop in keeping with the rest of the embankment walkway.



## 1.6 Area A6 - Athlunkard Boat Club



Plan illustrating the proposed embankment and the replacement access arrangement into Athlunkard Boat Club.

### Existing situation

The boundary to Athlunkard Boat Club is formed by a combination of concrete walls, stone walls, security gates and security railing. An approximately 1m verge separates the footpath from the boundary line. This is comprised of a mixture of grass, briars, elder and ivy. A small heap of gravel and a number of 1 tonne sandbags are also located to either side of the security gates.

### Engineering proposals

A combination of wall, embankment and regraded ground profile is proposed due to the space constraints. A new access is proposed off the embankment at the northwestern corner of Athlunkard Boat Club.

The rest of the boundary to the south is to be rationalised and formed by a continuous wall. The existing wall would be upgraded to provide the flood defence requirements. The old gateway access and the stretch of security fencing within the existing wall would be walled up. This would provide a cleaner, more cohesive boundary treatment alongside the path.

South of the proposed replacement gateway the path would grade down at 1 in 20 or shallower to the elevation of the existing path. The existing path would be upgraded to ensure a full 3m width along the remainder of the route to Athlunkard Street.

### Design proposals

Once through the boundary wall of the club the new access track would slope down to meet the existing hard paved apron around the boat house. The slope would be at a grade shallower than 1 in 20.

The replacement wall would be finished to a height of 2.7m along its length. This is to meet the security requirements of the Boat Club. It would be stone faced to the front only north of the Club House, and to both sides to the south of the Club House. The stone facing to the wall would be random rubble laid to courses with a mortar coping incorporating rough racking (see Materials Palette).

The verge to the east of the path, just north of the R463, Athlunkard Street will be sloped down away from the path to maximise the height of the wall. This will ensure that the wall is as close to 2.7m as possible as it ties into the existing wall along the R463, Athlunkard Street.

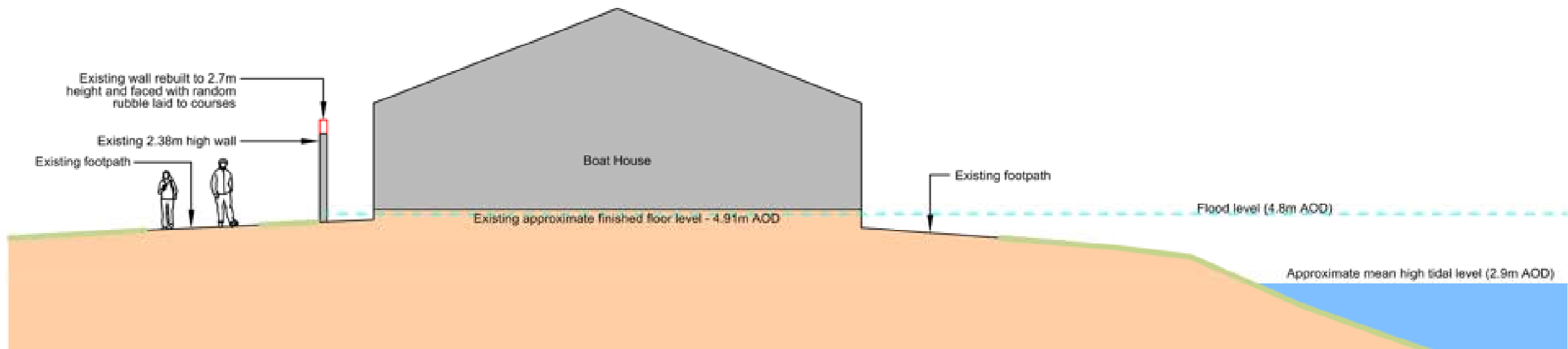
Shrub planting is proposed along the length of the upgraded wall to break up and soften the expanse of hard surfacing.



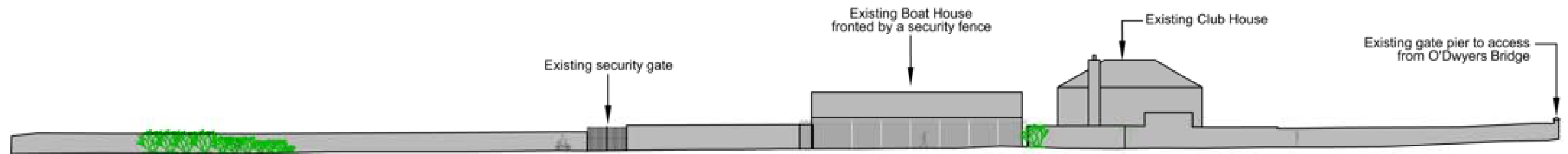
Existing northern section of the Athlunkard boundary.



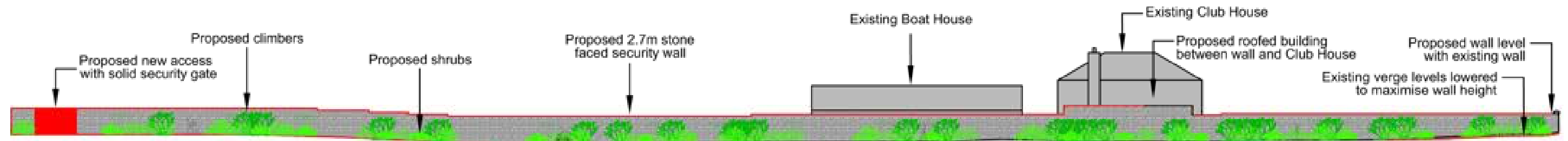
Existing southern section of the Athlunkard boundary.



Section through the existing Boat House and the upgraded wall and illustrating the flood level.

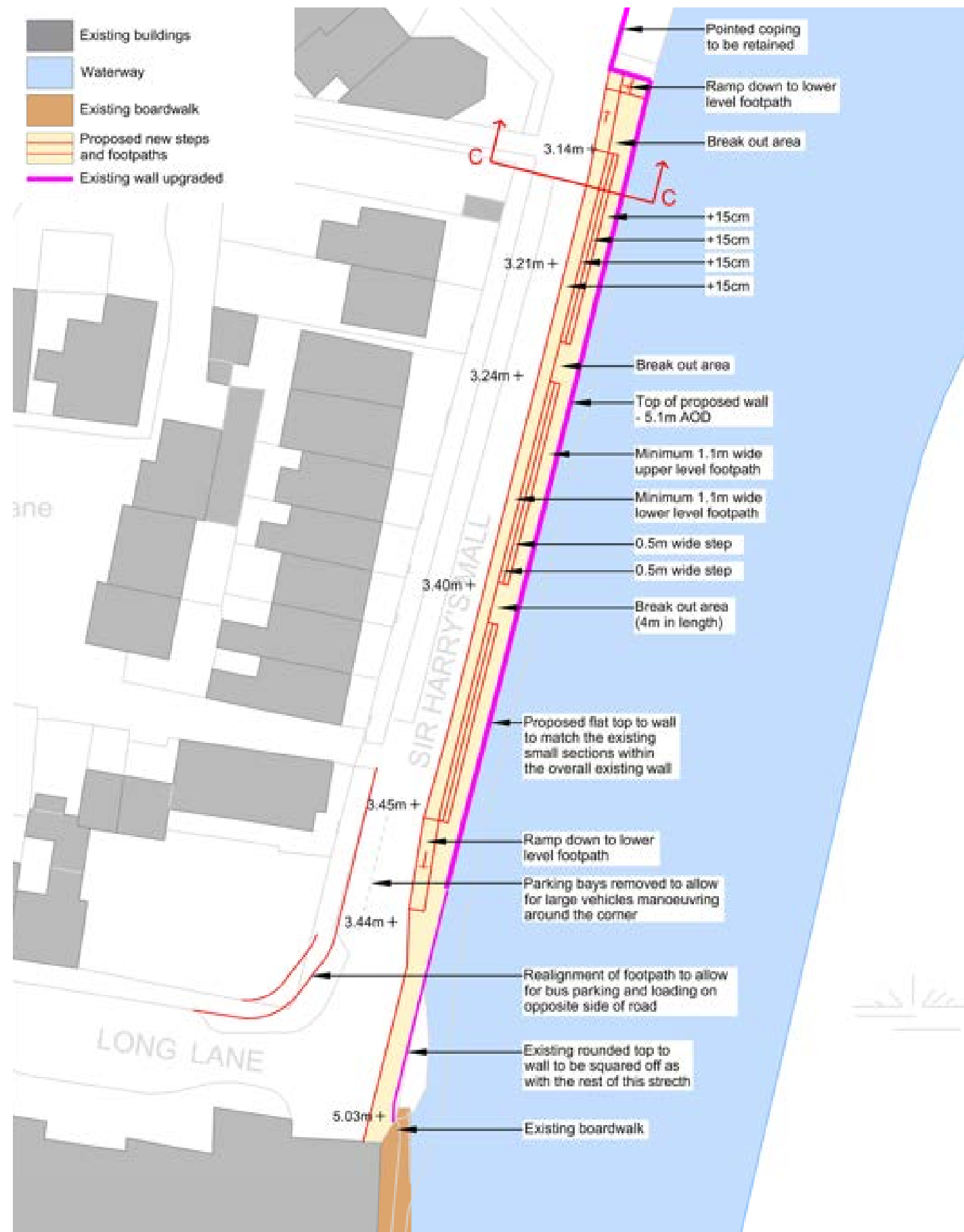


Elevation of the existing boundary treatment between the path and the boat club.



Elevation of the proposed boundary treatment between the path and the boat club with the built alterations illustrated in red.





Plan illustrating the proposed upgraded footpath and steps layout to the southern half of Sir Harry's Mall.

## 1.7 Area A7 - Sir Harry's Mall

### Existing situation

An existing flood defence wall runs along the length of Sir Harry's Mall. However, the majority of the wall does not meet the required flood defence level.

### Engineering proposals

The existing wall is to be raised and strengthened where required. As this will result in a wall in excess of 1.25m, the footpath along the southern stretch will be raised to maintain views out to the river. The footpath will also be widened to 2m in width. A railing is to be provided to provide protection from the road below.

A boardwalk along part or the entire length were also considered. However, this was rejected due to the scale of works and the associated cost that would be required.

### Design proposals

The raised extent of wall would be finished to match the existing wall surfacing. This would ensure the existing character and appearance is retained. The coping along this stretch would be replaced to match the short sections of flat squared coping instead of the jagged edge coping along much of the existing wall. This provides a more pleasant surface for people to interact with whilst taking in the view.

The extent of the wall and its context to the north of the step out would largely retain its existing appearance.

A new footpath layout is proposed along the southern half of Sir Harry's Mall where the wall steps out and the road width increases. This new footpath layout would comprise an overall minimum width of 2.2m running along the wall. The existing disabled parking space would require to be relocated to the opposite side of the road resulting in the loss of one standard car parking space. The footpath and steps would be surfaced with setts in keeping with the existing footpath finish.

A minimum 1.1m wide footpath would run along the side of the road at the existing footpath level. Three steps with a riser of 150mm and two landings of 500mm depth would then lead up to a minimum 1.1m wide raised footpath. This raised footpath would ensure that views out over the lifted wall height are retained.

Accessibility ramps are provided at either end to provide inclusive access to the raised footpath. Three break out areas are proposed along the length of the raised footpath. A railing would enclose these areas in line with health and safety requirements. There is the potential for seating to be added to these break out areas in the future.

The loading area for the Absolute Hotel would be retained. The road layout and footpath alignment on the opposite side of the road would need to be revised. This would then allow a large vehicle to navigate the corner whilst a large vehicle is also parked in the loading area. This would result in a loss of two further standard car parking spaces.



Existing view looking southwards along southern half of Sir Harry's Mall.



Existing view looking southwards along existing narrow footpath on eastern side of Sir Harry's Mall.



Existing view of the ramp connecting the existing footpath to the existing boardwalk around the side of the Absolute Hotel.

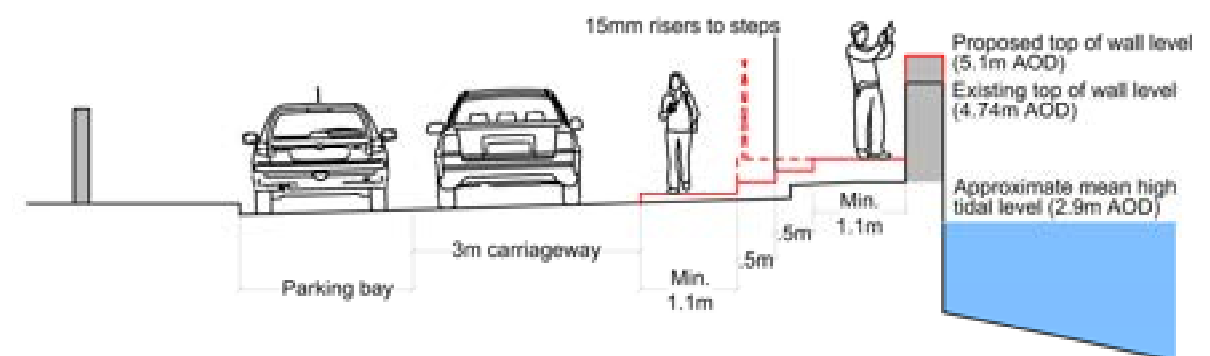




Photomontage of view looking southwards along the proposed footpath and step layout, with views over the wall retained.



Photomontage of view looking southwards along the proposed footpath and step layout, with views over the wall retained. Section C-C showing proposed alterations to footpath layout.





## 1.8 Area A8 - Absolute Hotel Boardwalk

### Existing situation

The boardwalk is at a level of 5.1m AOD and therefore meets the required flood defence level.

### Engineering proposal

The access landings at either side of the boardwalk are to be raised slightly. This short-raised platform at 5.1m AOD would prevent flood water from passing on to the boardwalk.

### Design proposal

No other measures are proposed along this stretch. The raised landings would be resurfaced with the same materials.



Plan illustrating the extent of the boardwalk and the two landings to be raised.



Northern boardwalk landing as existing



Southern boardwalk landing as existing

## 1.9 Area A9 - South of Absolute Hotel Boardwalk to Abbey Bridge

### Existing situation

This stretch is edged by a low parapet wall and railing on top.

### Engineering proposals

The entire length of the parapet wall is to be replaced with a reinforced concrete wall. The maximum height of this new wall is 1.4m. Pavement regrading works are not feasible due to the underpass at the southern end. It is therefore proposed to accept the loss of view to the river for some people along this short and discrete length.

### Design proposals

The new flood defence wall would be a minimum of 1.2m height and a maximum of 1.4m in height. The wall would tie into the existing pillar at the end of the boardwalk. The new wall would be concrete faced on both sides with rough hewn stone in a snecked pattern laid to courses with a double chamfered rectangular stone coping. (see Section 2: Materials Palette).

The existing railing on top of the wall would be removed as the raised wall would provide the required guarding height. This would provide a less cluttered, more cohesive and more visually attractive appearance.

The sett paving is to be retained in this area and replaced like for like where there is disruption as a result of any works.

No planting would be introduced in this location due to the restricted extent of space.



Plan illustrating the extent of wall to be upgraded between the boardwalk and Abbey Bridge.



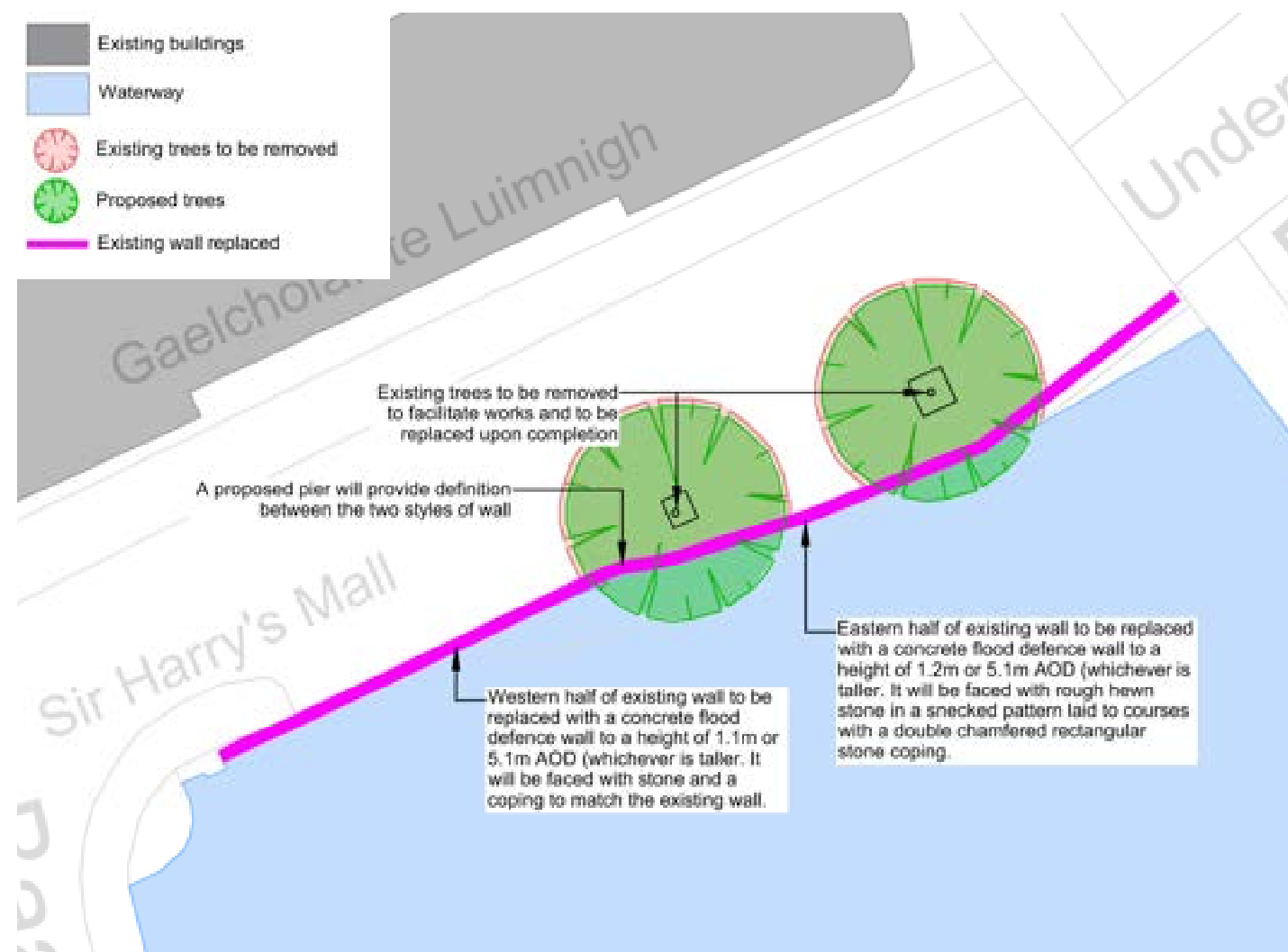
Existing railing to be replaced with new wall.





Existing stone pier.

A stone pier is proposed to provide a better transition where the two wall types meet.



Plan illustrating the extent of wall to be upgraded between Abbey Bridge and Baal's Bridge.

## 1.10 Area A10 - Abbey Bridge to Baal's Bridge

### Existing situation

An existing masonry, quay wall runs along this stretch. The wall comprises three stretches comprised of different finishes. The western half of the wall meets the required flood defence level whilst the eastern half does not. None of the wall provides the required guarding height of 1.1m.

### Engineering proposals

The entire length of the wall is to be replaced with a new reinforced concrete wall. This new wall will be up to 1.6m above ground level at the eastern end.

### Design proposals

The eastern part of the new concrete wall along this stretch would be finished to new concrete wall along this stretch would be faced with rough hewn stone in a snecked pattern laid to courses with a double chamfered rectangular stone coping (see Area A10 East on page 32).

A new pier is proposed to define the change between the straight cut stone along the western section and the rough hewn stone of the eastern section (see photo near left). This provides a better definition to the change in character of the wall and quay edge. This is especially so when viewed from the opposite side of the river. The pier would be a smaller version of those on the ends of the adjacent Baal's Bridge.

The western section would be finished to match the existing treatment (see photos left and below).

No street furniture or railings are required or proposed in this area. The sett paving is to be retained and replaced like for like where there is disruption as a result of any works.

The two existing trees would be removed to facilitate works and replaced with new Sorbus aucuparia 'Fastigiata' (Fastigate Rowan) trees upon completion if possible.



View from Baal's Bridge of the transition in wall styles .



## 1.11 Areas B1 & B2 - George's Quay



1821 image illustrating a quay wall along the western end of George's Quay and the steps down to the waters edge.



Photo from 1910-1920 also showing a quay wall along the eastern end in front of Barrington's Hospital.

### Existing situation

The majority of this stretch of the river is edged by a quay wall. The wall is broken in one place by the access to the pontoon opposite Barrington's Hospital. The wall is also broken in the western part to form three small viewing points associated with the seating area across from The Locke bar and adjacent buildings.

The wall height for the easternmost part of this section is above the required flood defence level. However it does not always provide the recommended guarding height. The remainder of the wall is for the most part below the required flood defence height level.

### Engineering proposal

The eastern stretch of the wall is to be raised to the required guarding height. This will be done by removing the coping, raising the wall up with matching stone and replacing the coping again.

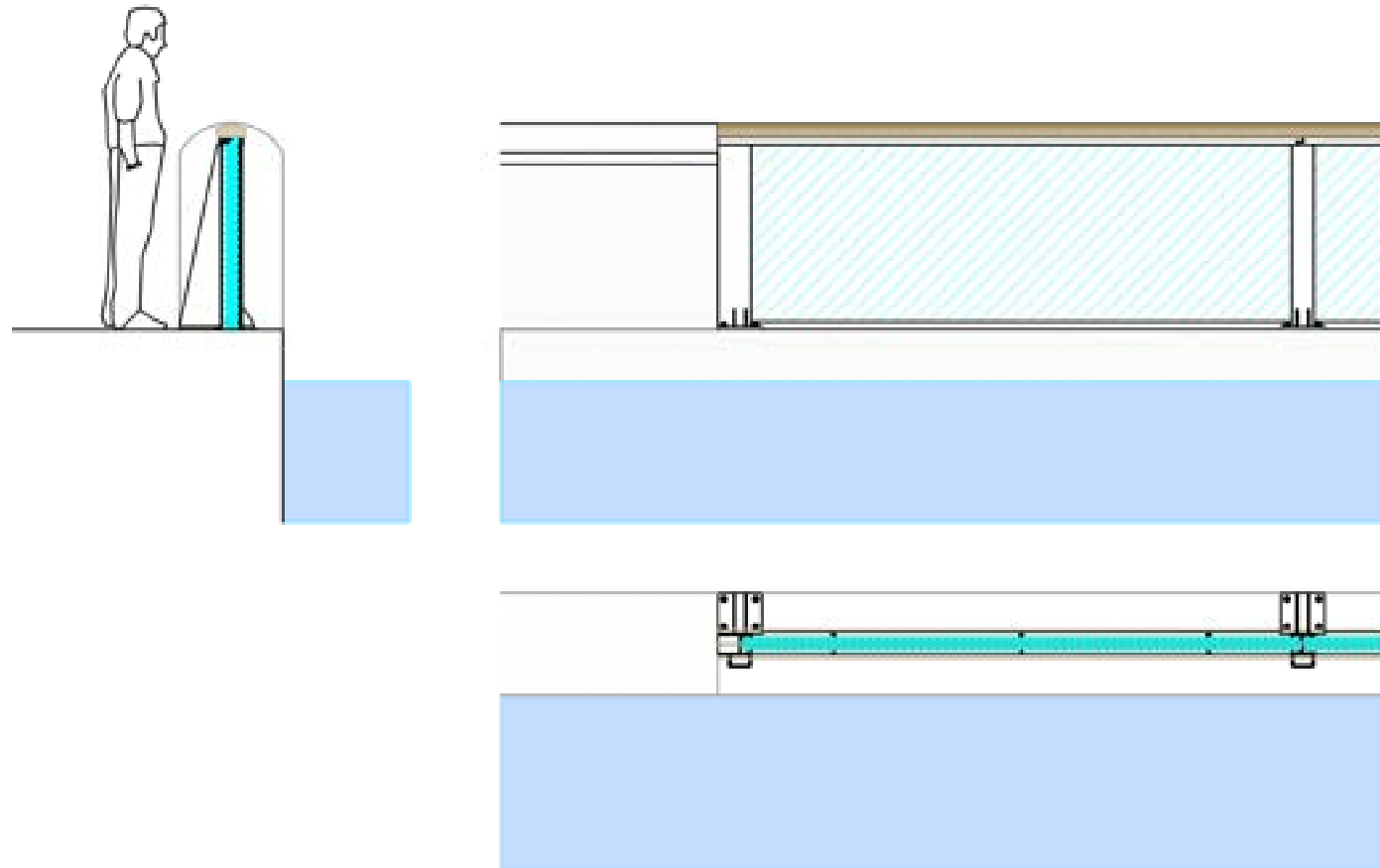
The remainder of the wall is to be replaced with a new concrete wall as it currently of insufficient strength to withstand the design flood load. The new wall height will ensure it meets both the required flood defence level and the guarding height.

In order to maintain and improve connectivity with the water, the wall is to be interspersed with stretches of glass flood defence panels. Access to the pontoon will be maintained through steps up and over the new wall.



Google Streetview image from June 2017 showing the quay wall as existing along with the steps down to the water.





Plan, section and elevation of the proposed glass panels in relation to the existing wall.

**Design proposal**

The existing railing along the eastern stretch would be removed as the new wall would provide the required guarding height. This would provide a less cluttered and more visually attractive appearance. The existing trees and paving would be retained in place.

It is proposed that the new concrete wall would be faced to match the existing stone and coping finish of the wall along the eastern end of the quay. The new wall would however be wider in width, at approximately 550mm, to incorporate the concrete core.

The interspersed glass panels have been largely proposed and located to respond to existing features along the rivers edge.

The first section of glass panels, going from east to west, would wrap around the stone steps that lead down to the waters edge. This would provide a visual connection with this historic feature that formerly provided direct interaction with the river.

A continuous stretch of stone wall is proposed along the length of the front to Barrington's Hospital. This would provide a cohesive treatment when viewing the hospital from the opposite side of the river.

The wall would also reduce the visual impact of the pontoon infrastructure in relation to the hospital. This would be the case both in views across the river to the hospital and when exiting the hospital looking out over the river.

The next section of glass panels would wrap around the second set of stone steps leading down to the waters edge. The extents of the panels would be determined by the outer edge wall of the steps. This would retain a section of stone wall, at each corner of the quay wall step in, and would provide definition to the element of the steps.

The final stretch of glass panels would be located where the three openings currently exist. The sections of wall between the openings would also become glass panels. This would open up a wider stretch thereby providing a greater level of interaction with the river. This stretch of glass panels would also be centred between the existing statues in the adjacent beer garden area.

The existing stone wall would then tie this section back into the parapet of Matthew Bridge.

The lengths of the glass panels around the steps down to the river would need to be bespoke to ensure they are balanced in appearance.

All the trees along this stretch will be retained. Three new trees are also proposed. One of these replaces a tree that came down this year. The other two would be planted to the east of the western steps, either side of the existing tree in that location. These would ensure a continuance to tree planing along the quays as the existing mature trees die off in years to come.

The access to the pontoon would be walled across as part of the flood defence works. Flood gates were considered for this location to provide level access to the pontoon. However this was rejected by LCCC. It was also confirmed by Irish Waterways that inclusive access, although useful, is not integral or essential for the pontoon.

A set of steps is therefore proposed to provide access over the stone wall to the pontoon. The new wall will roughly follow the alignment of the existing pontoon wall with the steps built on top of the northwestern corner of the existing pontoon.

**Precedent Images**



Wels-next-the-sea glass flood wall



Wels-next-the-sea glass flood wall



Existing stone wall along eastern section of George's Quay.

## Landscape & Public Realm Design Strategy

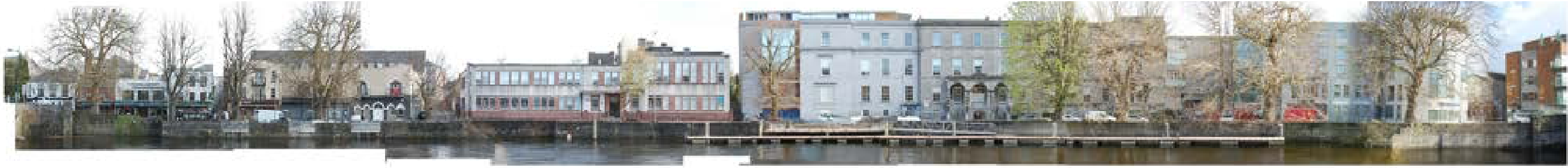
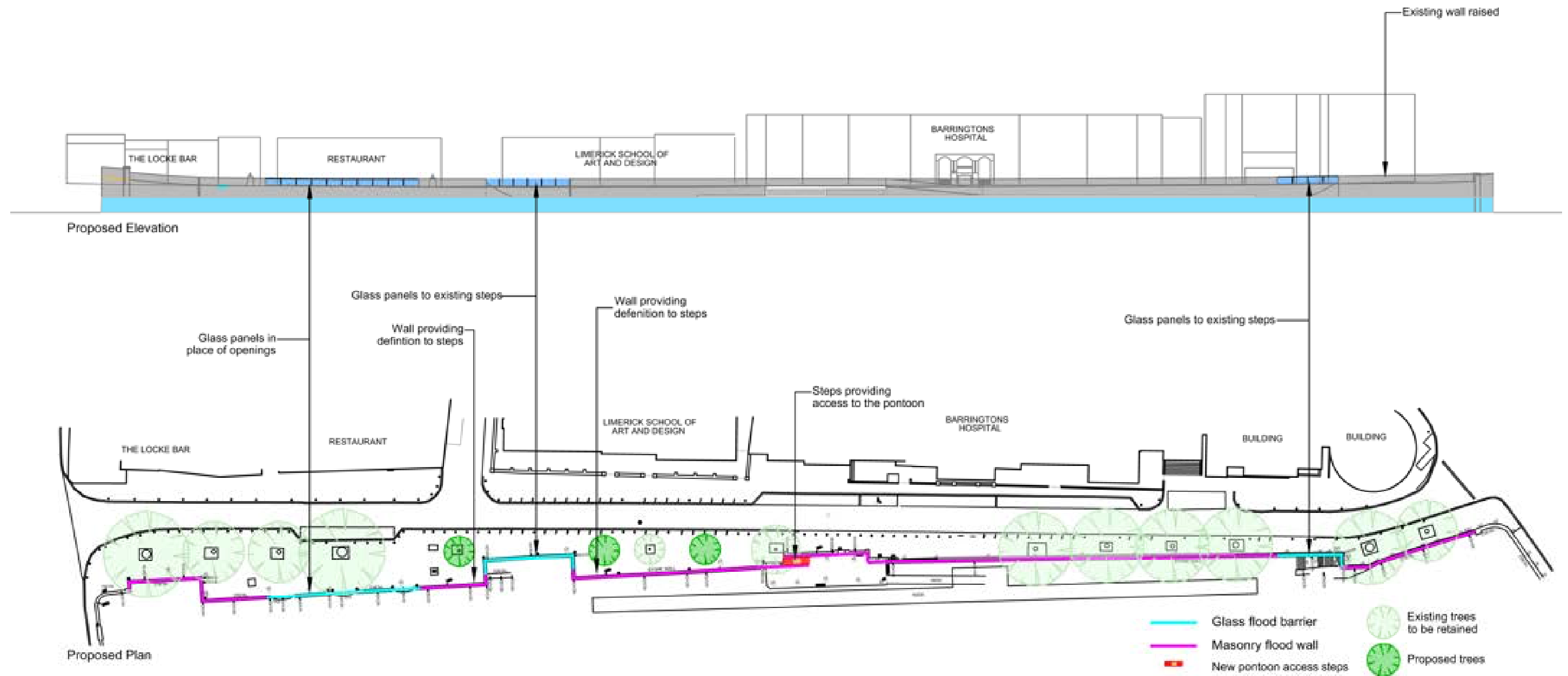


Photo Elevation



Elevation and plan illustrating the break up of the sections of wall along George's Quay to be upgraded and the sections to be replaced with glass panels.



## 1.12 Area B3 - Potato Market and Civic Buildings



Railing to be replaced with glass panels across opening.

### Potato Market to City Hall

#### Existing situation

The existing cantilevered viewing opening and Sylvester O'Halloran bridge access in the Potato Market are both below the required flood defence level. The gateway to the Curragower Boat Club and lands of the boat club are also below the required flood protection level.

The Courthouse is constructed adjacent to the quay edge with the associated privacy railing located on top of the quay wall. A cantilevered boardwalk provides pedestrian access around the riverside of the Courthouse privacy railings. The boardwalk and the quay wall around the Courthouse are also below the required flood protection level.

There are also a number of masonry arch culverts and service outfalls in the quay wall.

#### Engineering proposals

The cantilevered viewing opening in the Potato Market (see photo below) is to be removed and replaced with glass panels in the opening. This would retain the open character of the opening and views to the water.

A flood wall with stepped and ramped access is proposed within the Potato Market at the access to the Sylvester O'Halloran bridge. It is proposed that any wall treatment associated with this new access would be finished in a stone surface in keeping with that of the adjacent building.

The existing Potato Market walls along the edges with the River and the Curragower Boat Club would be repaired where required to achieve the appropriate flood defence capabilities. Demountable barriers will be provided for the garage door and club door at Curragower Boat Club.

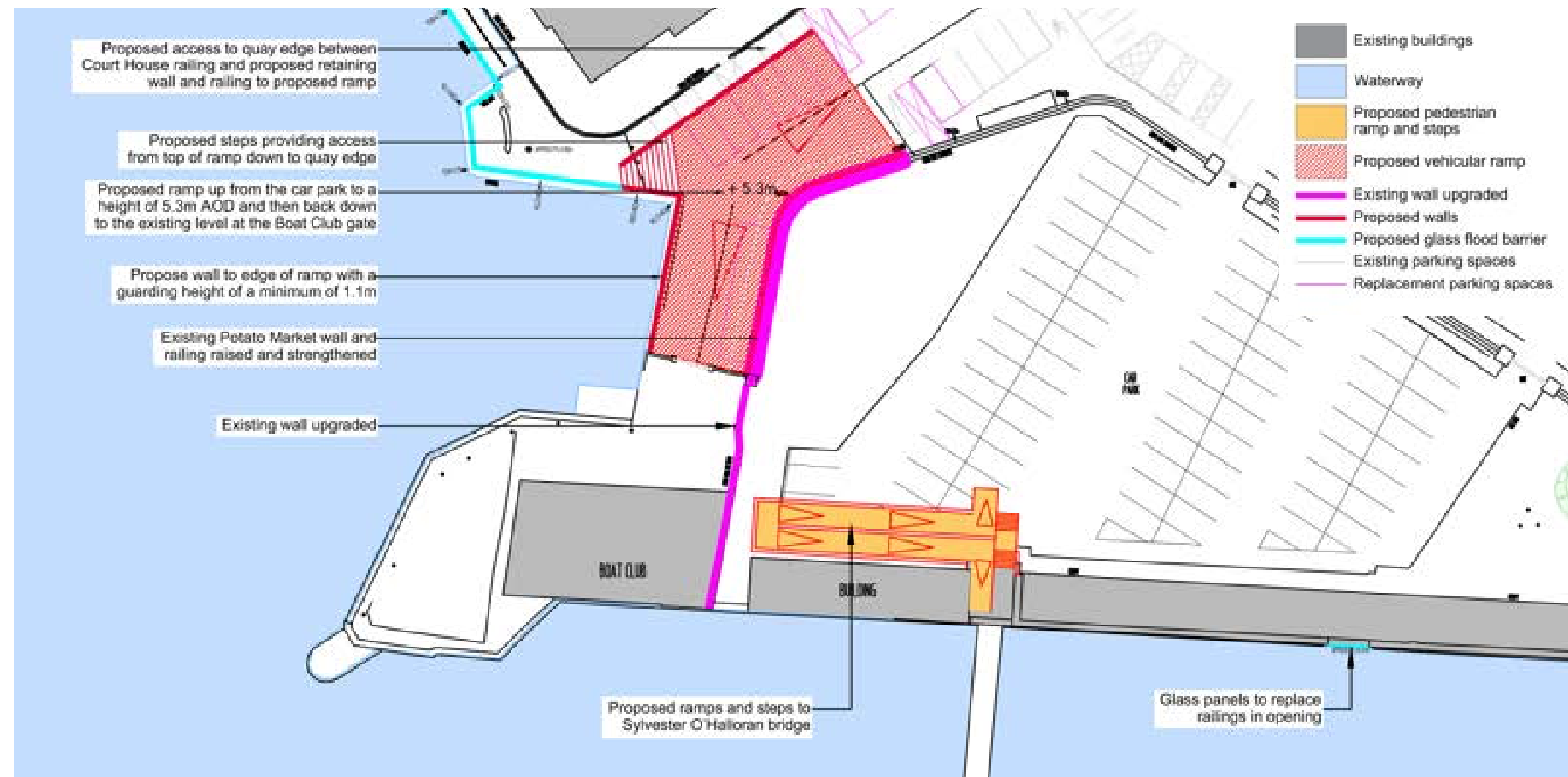
The access road from the Courthouse car park to the Boat Club is to be ramped upwards to achieve the required flood defence level of 5.3m. This would then ramp back down again to meet the existing level at the Boat Club gateway. The ramps would be at a gradient of approximately 1 in 10.

This would also involve raising, repairing and reinforcing of the base wall to the Potato Market railings, as shown on the elevation on the following page. This is to provide both retaining capabilities to the proposed ramp and also the required flood defence height and requirements. A new flood wall will connect the high point of the riverside of the new ramp with the existing gateway walls to the Curragower Boat Club.

Steps and a narrow alley between the new ramp and the Courthouse railings would maintain access to the riverside of the Courthouse from the carpark. However, this would likely be unpleasant with cars parked at a level above pedestrians and This would result in a reduction in car parking spaces and cars parked on the raised level above the edge of the Courthouse.

The sections on the following pages demonstrate how the ramp would relate to the existing features of the Courthouse on one side and the Potato Market on the other.

Glass panels would extend along the top of the quay wall from the centre of the new ramp and along a new cantilevered boardwalk as far as the northern edge of the Courthouse.



Engineering proposals: Ramped access to Boat Club.

## Landscape & Public Realm Design Strategy



Existing building within the Potato Market



Curragower Boat Club boundary wall

### Potato Market

At the Bridge Street junction adjacent to the Potato Market it is proposed to raise the ground level slightly to 5.1m AOD. This will ensure that George's Quay and Merchants Quay are two separate flood cells that cannot affect one another in any way in terms of flooding.

The existing cantilever in the riverside opening in the Potato Market would be removed and the railing replaced with a glass flood defence panel.

The engineered pedestrian ramp and steps to the Sylvester O'Halloran bridge has been adapted slightly. It has been stepped out 1.5m from the existing building edge to allow access to the building frontage.

The ramps have been designed to a 1 in 16 slope with 2m wide landings every approximately 4m. The steps now turn at a right angle to allow the end of the dry-side ramp to run alongside. This layout minimises the disruption to the car parking layout. The outer walls of the ramps and steps would be faced to match the adjacent building and minimise the visual intrusion as far as possible.

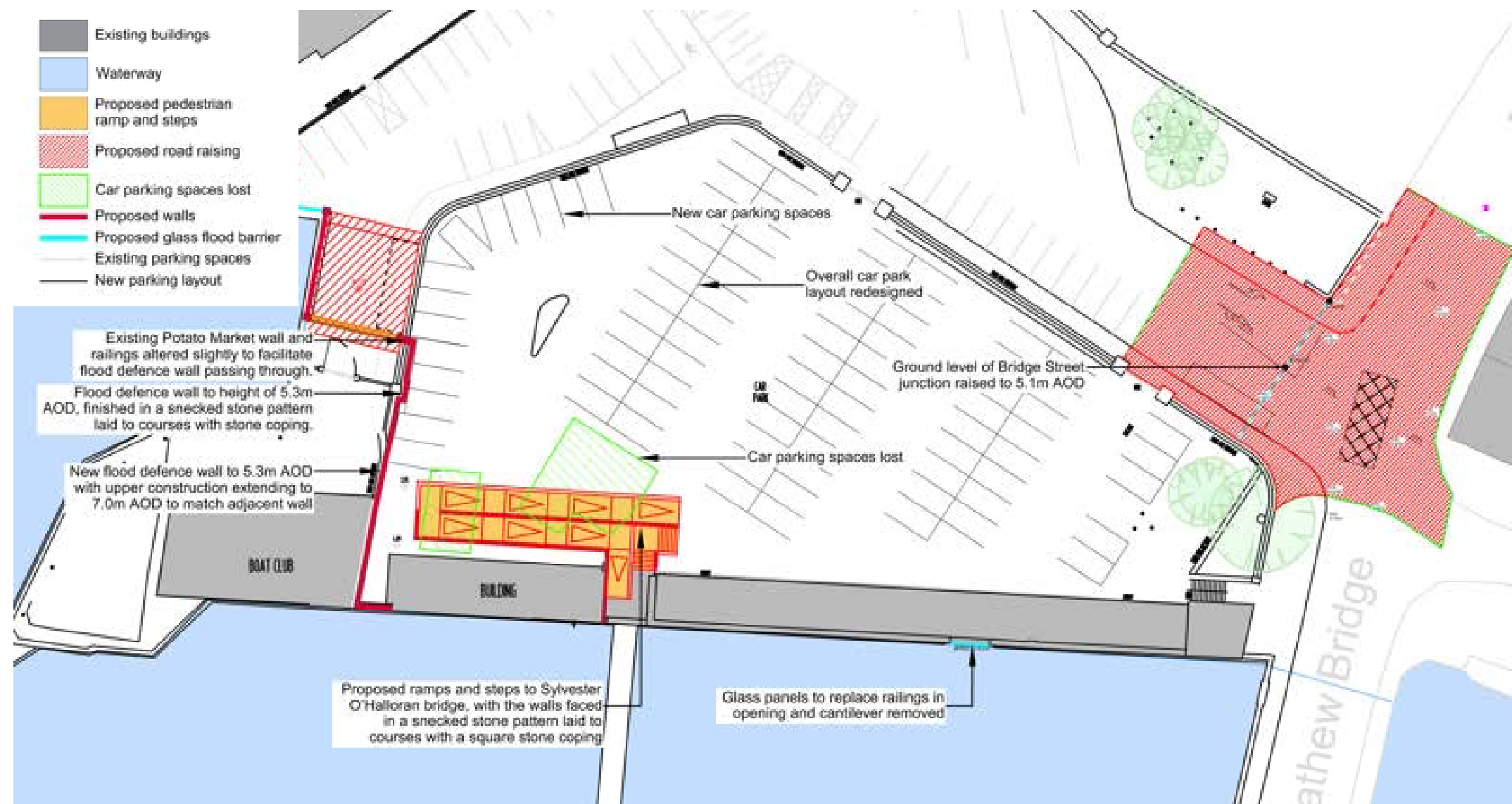
The alignment of the ramp to the west has been limited to ensure access to doorway in the western end of the existing building (see adjacent photograph).

A new flood defence wall will be built adjacent to the existing boundary wall with Curragower Boat Club. The overall height of the wall will be approximately 2.8m although the flood defence element will not extend the entire height of the wall. This overall height ensures that the top of the new wall will relate to the section of coping on the southern edge of the former gateway in the wall.

When the wall meets the large pier forming the start of the boundary railings it will drop in height to the required flood defence level of 5.3m AOD. This is within 10cm of the top height of the existing wall below the railings. The new flood defence wall will extend along the inside of the Potato Market railings for approximately 4m before turning to the west and passing through the boundary wall and railings.

This will be done in such a way to minimise any alteration to the existing boundary wall and railings. For example the coping will be laid so that there is a join along the alignment of the railings with holes cut on the ends of the coping so that the railing is not altered in any way.

The wall will be faced with rough hewn stone in a snecked pattern laid to courses with a rounded cope to match the existing coping stone on the existing boundary wall.





## Landscape & Public Realm Design Strategy

### Curragower Access - Potato Market Elevations

The elevations below illustrate the view of the Potato Market wall and railing leading up to the access to the Boat Club. The proposed engineering scenario illustrates how the existing wall would need to be raised in order to incorporate the proposed ramp. This would be achieved by adding an additional course to the wall and the railings shortened to maintain the overall existing height.

The relationship of the proposed ramp with the existing Potato Market wall would be awkward and disjointed. This would be further contributed to by cars parked at an angle due to the slope of the ramp.

### Curragower Access - Courthouse Elevations

The elevations on the following page illustrate the relationship between the Courthouse and the Boat Club access. The proposed engineering scenario illustrates how the ramp would rise up and dominate the existing Courthouse railings. This would be especially so when cars are parked along the ramp.

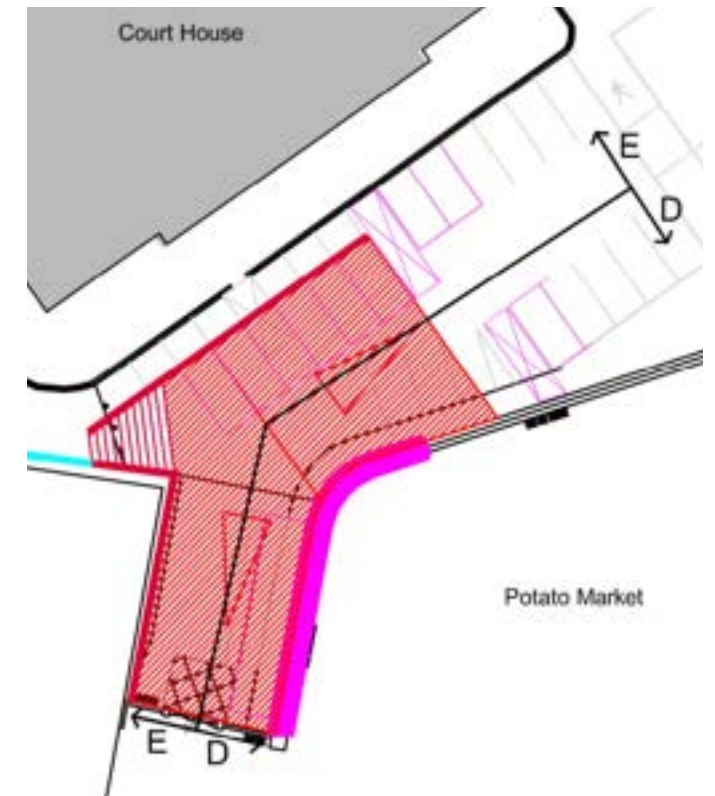
The path providing access to the river's edge between the far side of the ramp and the Courthouse railing would therefore be very confined. This would be further exasperated by the potential for people to be stood on top of the ramp well above those walking along the path.

The judges gateway in the existing Courthouse railing could be retained where it is. Alternatively, it could be moved further eastwards to the pedestrian crossing at the base of the ramp and avoid the confined walkway.

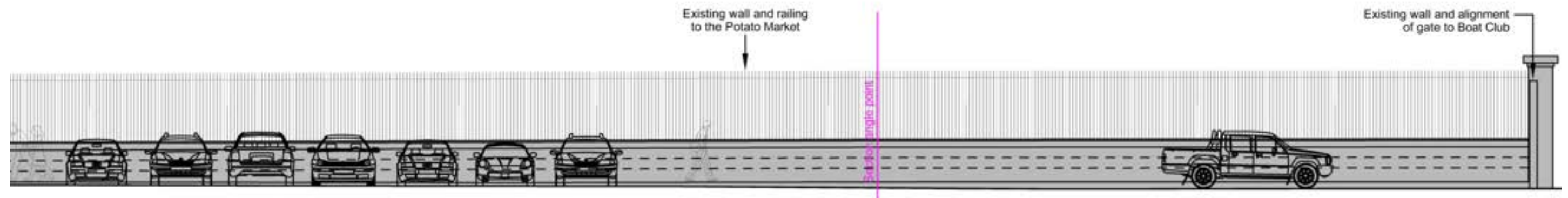
The new wall along the ramp down to the Boat Club gateway screen would screen views of the river. The ramp and the proposed wall would result in views of the river from the Potato Market becoming screened. Consequently the area has the potential to become disjointed.

### Conclusion

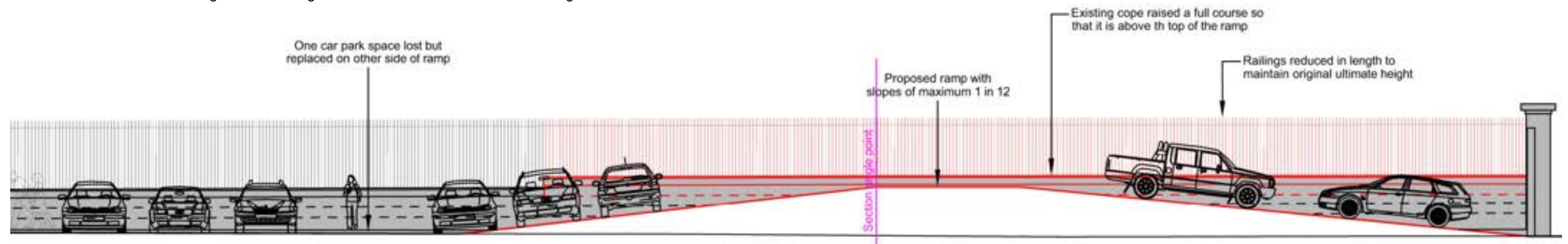
For the reasons set out on this and the previous pages the proposed engineering ramp was not therefore considered a favourable option. An alternative option was consequently considered and is set out on page 25.



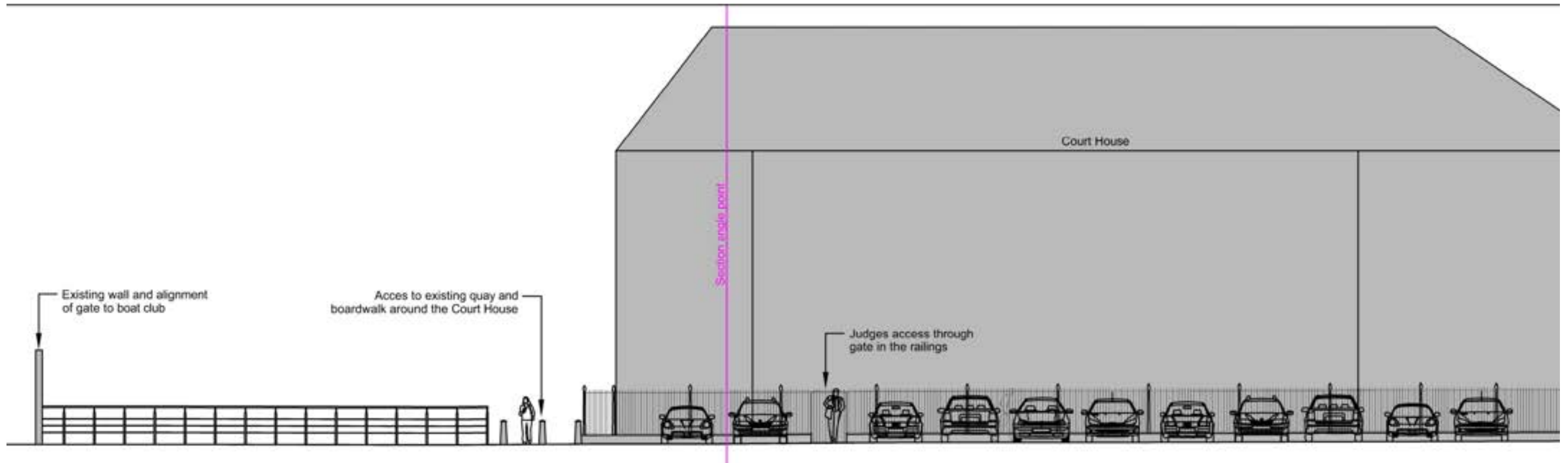
Plan showing the location of the sections.



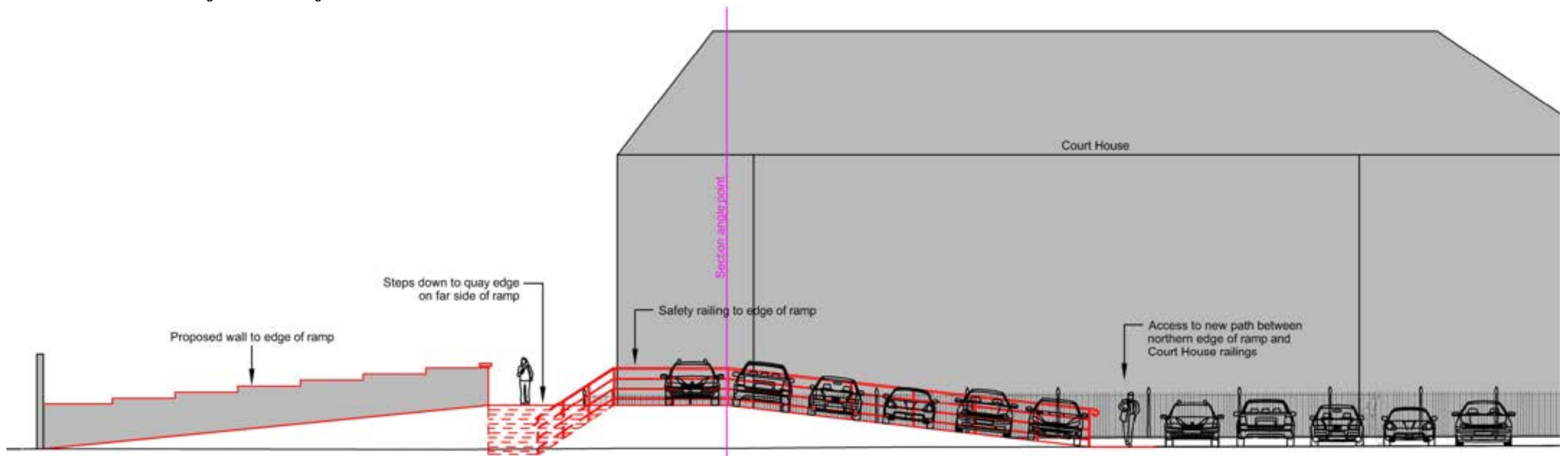
Illustrative section of the existing scenario along the outside of the Potato Market leading to the Boat Club.



Illustrative section of Option 1 illustrating the proposed ramp and associated alterations in relation to the existing wall and railing of the Potato Market.

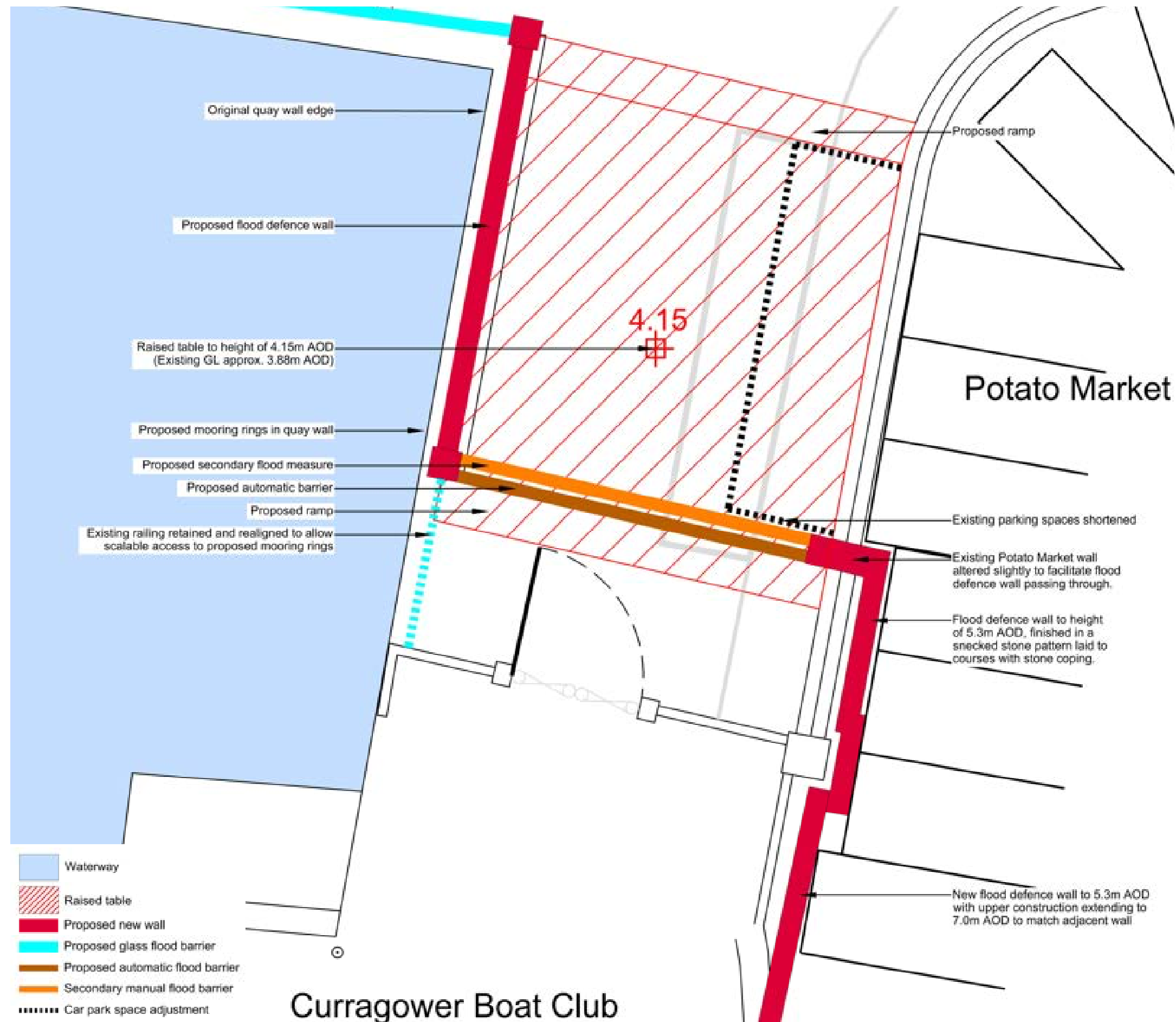


Illustrative section of the existing scenario looking towards the Courthouse and the river.



Illustrative section of Option 1 illustrating the proposed ramp and associated alterations in relation to the Courthouse.





**Design proposals**

The proposed ramp within the engineering proposals was considered to be too great an impact on the setting of the Potato Market and the adjacent Courthouse due to the scale of works required. An alternative option involving an automatic barrier was investigated.

The automatic flood barrier is proposed perpendicular to the Potato Market boundary wall where the flood defence wall has protruded through. This automatic barrier is also backed up by a secondary manual demountable flood barrier.

The barriers are enclosed by a new flood defence wall that extends northwards along the quay wall until it changes direction. This new wall will be faced and coped to match the outer face of the existing Potato Market boundary wall.

The existing railing to the south of this wall is retained and realigned. This railing will allow scalable access for the Boat Club to the proposed mooring rings in the quay wall below.

A raised table to a ground level of 4.15m AOD is proposed to the north of the barriers to protect against 1 in 10 year flood events. This will not obstruct access to the Boat Club for vehicles and boat trailers.

The existing parking space will be shortened slightly by the flood barriers. It is also proposed to realign the parking space in against the Potato Market wall. This will rationalise the space and simply access to the Boat Club.

These alternative measures would avoid the need for the large scale disruptive works required for the ramped access. As such it would provide a simple, automatic and visually unobtrusive flood defence measure to the opening. The barrier would also avoid a reduction in the number of parking spaces for the Courthouse.

Glass panels would then extend along the quay wall from the Curragower gateway walls, replacing the existing railing.

Illustrative section of Option 1 illustrating the proposed ramp and associated alterations in relation to the Courthouse.

## Landscape & Public Realm Design Strategy

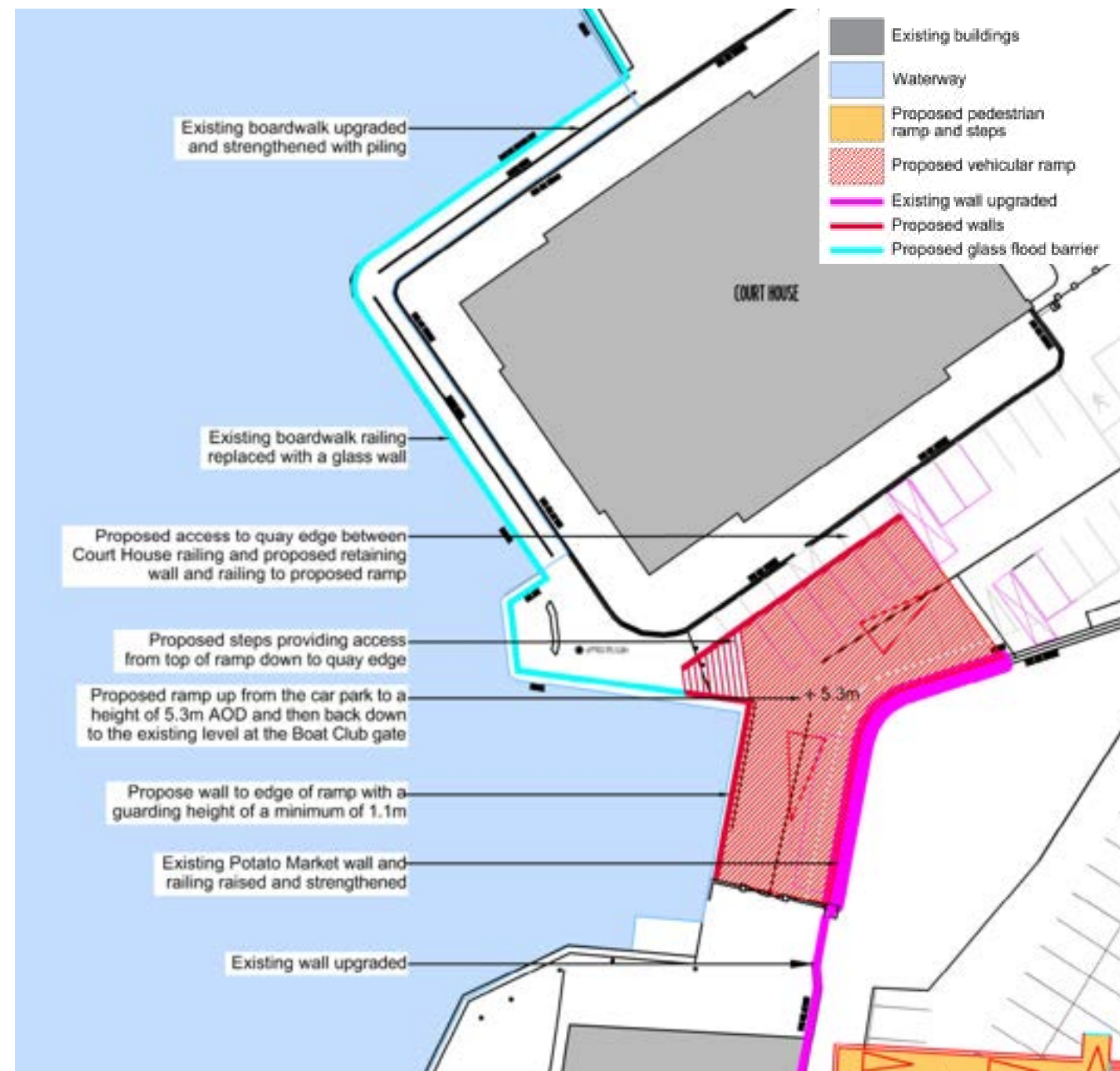
### Courthouse Options

#### Engineering proposals

This option retains the boardwalk around the Courthouse, albeit that the existing boardwalk would need to be replaced and upgraded. The glass panels would replace the existing railing along the edge of the boardwalk. The boardwalk structure would require strengthening due to the additional weight of the glass panels.

This would potentially require the introduction of piling in front of the existing historic quay wall to provide support underneath the boardwalk. This would consequently cover up the existing historic quay wall and hide it from view. It would also be intrusive to the SAC and would be costly.

As a result this option was not favoured and was therefore discounted. A number of alternative options were consequently considered for the area around the Courthouse. The preferred option is described and illustrated on the opposite side of this page whilst the other alternative options are described and illustrated on the following pages.



Engineering Proposals - Vehicle ramp to 5.3m AOD.

### Design Proposal

The existing privacy railing around the southwestern and northwestern façades of the Courthouse would be realigned inwards. A stretch of approximately 16.6m would be retained along the northern end of the northwestern façade. This maintains a railed off area for prison van parking and loading.

As a result a triangular cantilever is proposed at the corner of the quay wall along the north western edge of the Courthouse with the quay wall to the north to retain a continuous pedestrian route.

The minimum distance along the remaining northwestern façade would be a minimum of 1.3m as far as the southernmost prisoners access, reducing to 1m beyond. The distance between the railing and the building along the southwestern façade would be reduced to a minimum of 1m.

Privacy film would be applied to the lower half of the Courthouse windows due to the reduced distance between the windows and the path.

The existing cantilever boardwalk would be removed and replaced with a new narrower 50cm cantilever. This would help to open up visibility of the historic quay wall whilst providing a minimum path width of 2.4m to the realigned privacy railing.

The proposed glass panels would be aligned along the outer edge of the new cantilever. This will provide the required flood defence level, the safety guarding height and maintain open views to the water as well as open views to the Courthouse from the opposite side of the river.

The existing paving would be retained where possible, in line with subsequent guidance from LCCC, and replaced like for like where there is disruption as a result of any works. No planting is proposed in this area due to the historic nature and the existing hard realm character of the area.



Design Proposal: Realigned Courthouse railing with reduced size of cantilever.



## Landscape & Public Realm Design Strategy

### Alternative Option 1 - Removal of existing railing except for northern section

In this option the existing cantilever around the Courthouse would be removed altogether. This would open up visibility of the historic quay wall and associated features below. The pedestrian path would be rerouted along the space between the Courthouse and the existing privacy railing along the top of the quay wall edge. The path would be a minimum width of 3.3m.

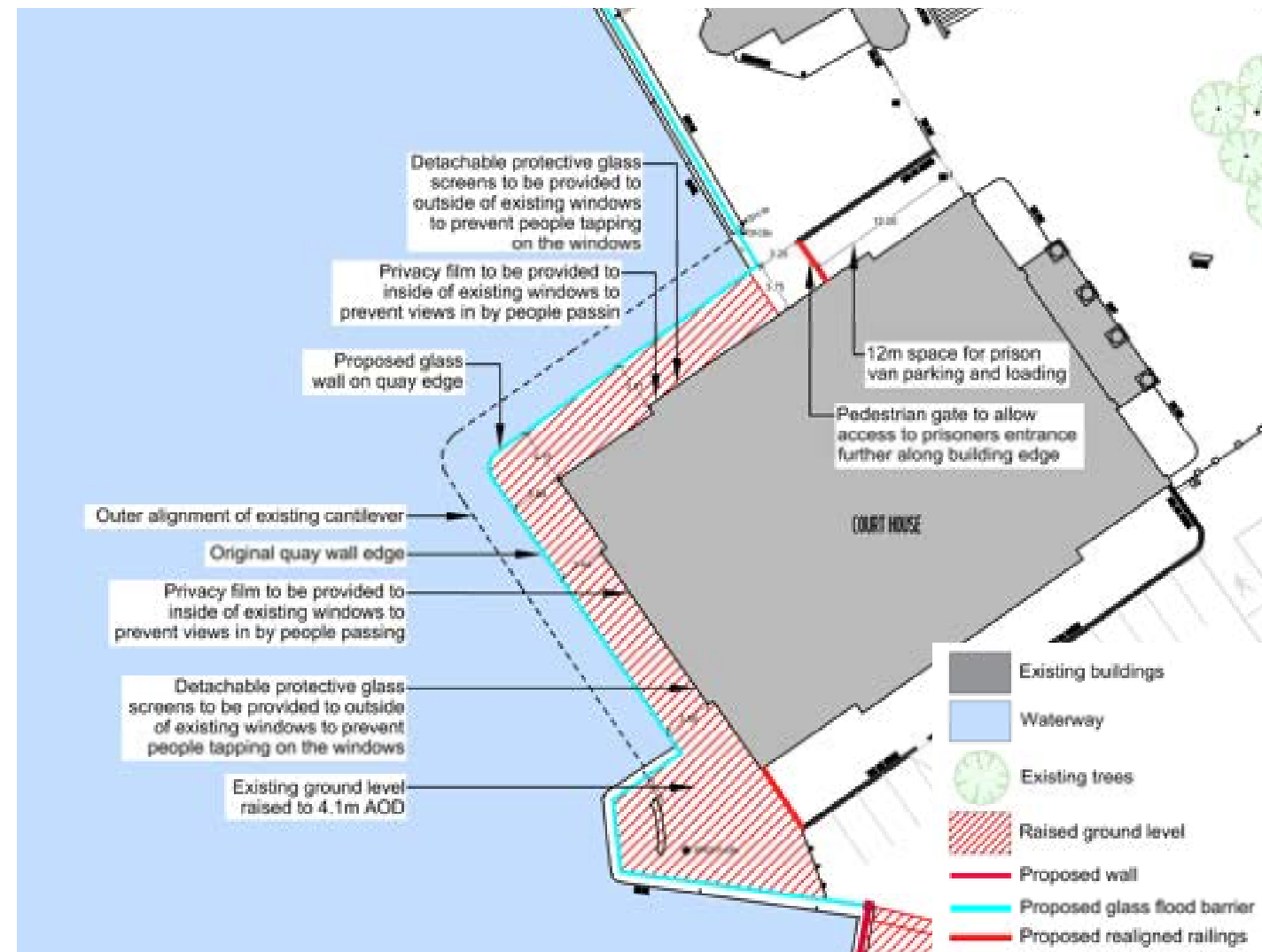
The privacy railing around the Courthouse would therefore also be removed in part. The existing railing along the southeastern edge of the Courthouse would be retained and returned to meet the southern corner of the building and close off the railed area along the southeastern façade. This retains the existing access for the judge and the existing parking layout in this area.

The northern most section of the northwestern Courthouse railing would be retained for a distance of approximately 12m before returning to meet the building façade. This maintains a railed off area encompassing the eastern most doorway to the Courthouse along this façade. It also provides a railed off space for a prison van to park within.

The proposed glass panels would replace the privacy railing along the quay wall edge around. This will provide the required flood defence level, the safety guarding height and maintain open views to the water as well as open views to the Courthouse from the opposite side of the river.

Detachable, protective, opaque glass screens would be placed within the lower half of the Courthouse window openings, set forward from the existing window, along the riverside edges. This would prevent the possibility of people disturbing those within the Courthouse rooms by things such as tapping on the window or staring in. This is required due to the path now being aligned directly adjacent to the outside walls of the Courthouse along these façades.

The existing paving would be retained where possible, in line with subsequent guidance from LCCC, and replaced like for like where there is disruption as a result of any works. No planting is proposed in this area due to the historic nature and the existing hard realm character of the area.



Alternative Option 1: Cantilever removed and Courthouse railing removed except for northern section.

### Alternative Option 2 - Complete removal of existing railing

This option is similar to that of Option 1. The only difference is that the privacy railing along the northwestern edge is completely removed. This means there is no railed off area for prisoner access or for prison van parking.

The proposed glass panels would replace the privacy railing along the quay wall edge around. This will provide the required flood defence level, the safety guarding height and maintain open views to the water as well as open views to the Courthouse from the opposite side of the river.

Detachable, protective, opaque glass screens would be placed within the lower half of the Courthouse window openings, set forward from the existing window, along the riverside edges. This would prevent the possibility of people disturbing those within the Courthouse rooms by things such as tapping on the window or staring in. This is required due to the path now being aligned directly adjacent to the outside walls of the Courthouse along these façades.

The existing paving would be retained where possible, in line with subsequent guidance from LCCC, and replaced like for like where there is disruption as a result of any works. No planting is proposed in this area due to the historic nature and the existing hard realm character of the area.



Alternative Option 2: Cantilever and Courthouse railing removed.

## Landscape & Public Realm Design Strategy

### Alternative Option 3 - Realigned railing with 50cm cantilever

This option is similar to that of the design proposal with the exception that the prison van parking area is reduced down to approximately 13.5m. As a result there is also no need for the triangular section of cantilever as a continuous pedestrian route is retained without it.

The remainder of the realigned railing would be the same as the design proposal. Privacy film would be applied to the lower half of the Courthouse windows due to the reduced distance between the windows and the path.

The existing cantilever is replaced with a narrower 50cm cantilever. This would help to open up visibility of the historic quay wall whilst providing a minimum path width of 2.4m to the realigned privacy railing.

The proposed glass panels would be aligned along the outer edge of the new cantilever. This will provide the required flood defence level, the safety guarding height and maintain open views to the water as well as open views to the Courthouse from the opposite side of the river.

The existing paving would be retained where possible, in line with subsequent guidance from LCCC, and replaced like for like where there is disruption as a result of any works. No planting is proposed in this area due to the historic nature and the existing hard realm character of the area.

### Alternative Option 4 - Realigned railing without boardwalk

In this option the realignment of the privacy railing is the same as in Option 3, with the approximately 13.5m long railed off area for the prison vans. However, in this option the cantilever is removed and not replaced with any cantilever.

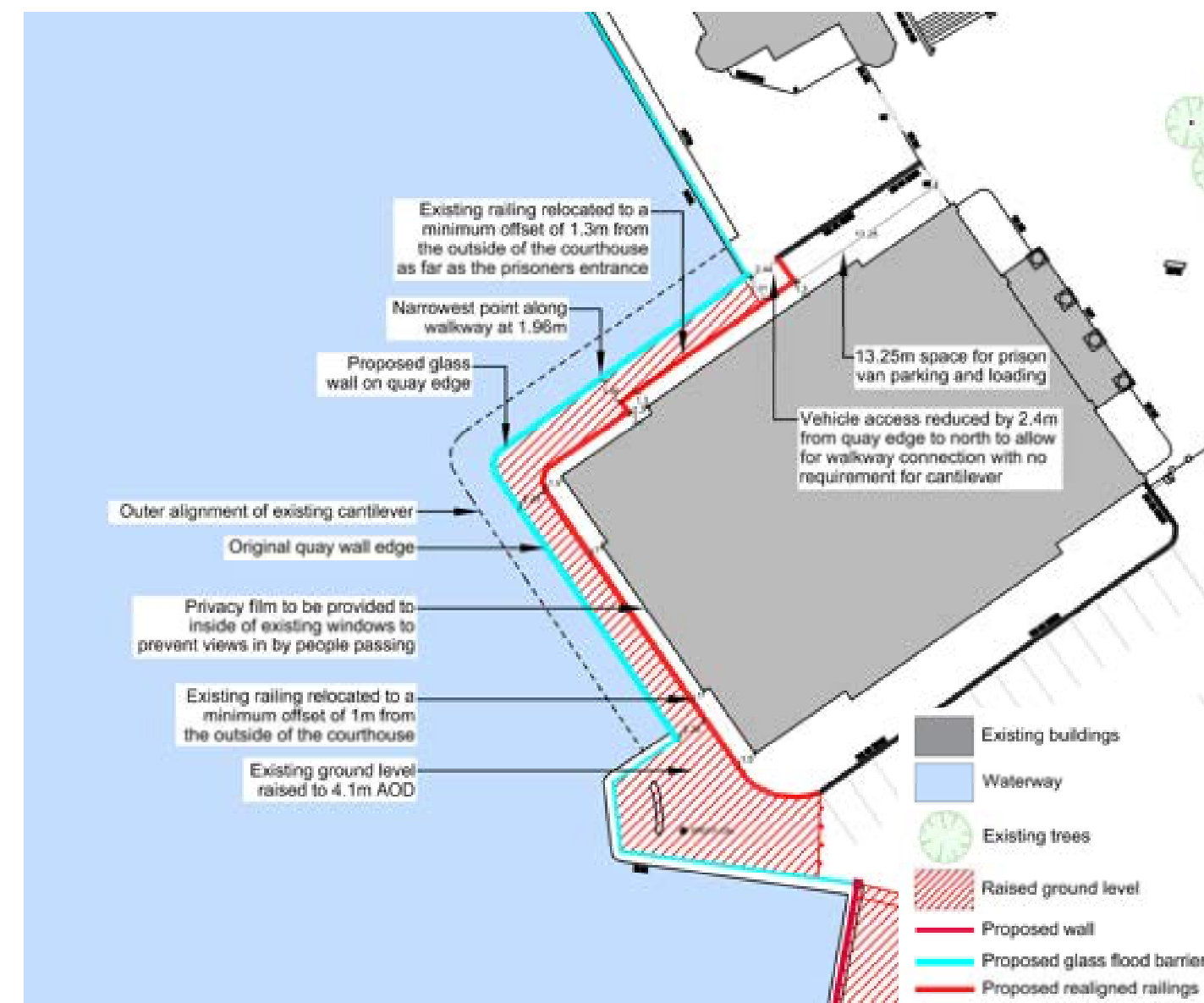
This would result in a narrower path width of between approximately 1.96m and 2.28m. However, as this path is not the only way around the Courthouse, this is not necessarily a critical issue.

The proposed glass panels would replace the privacy railing along the quay wall edge around. This will provide the required flood defence level, the safety guarding height and maintain open views to the water as well as open views to the Courthouse from the opposite side of the river.

The existing paving would be retained where possible, in line with subsequent guidance from LCCC, and replaced like for like where there is disruption as a result of any works. No planting is proposed in this area due to the historic nature and the existing hard realm character of the area.

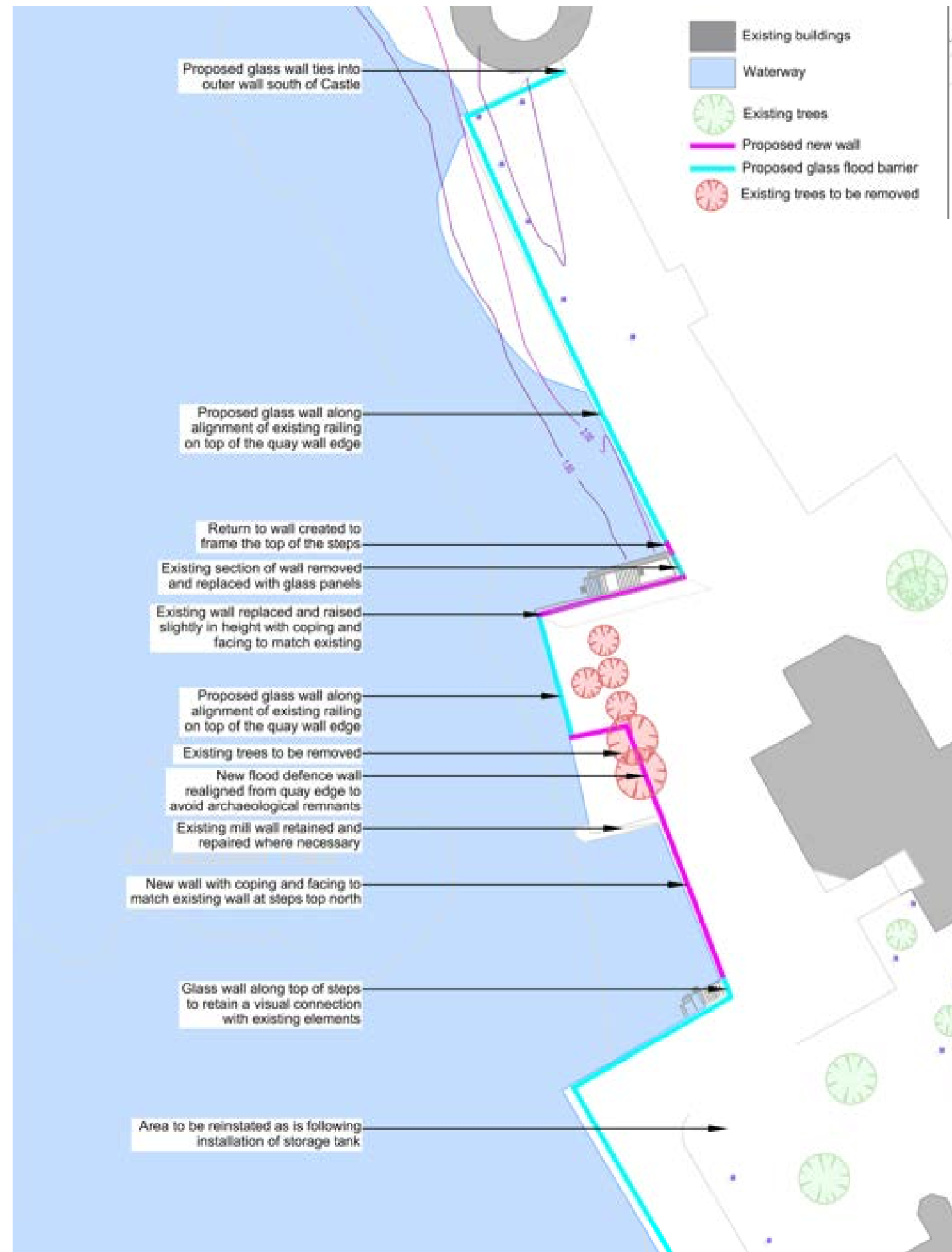


Alternative Option 3: Courthouse railings realigned, 50cm cantilever and 13.25m prison van area.



Alternative Option 4: Courthouse railings realigned, no cantilever and 13.25m prison van area.





Plan illustrating layout of proposed glass panels and replacement walls.

### City Hall to King John's Castle

#### Existing situation

A railing runs along the quay edge for the majority of this stretch. The railing terminates in a corner adjacent the outer wall of King John's Castle. There are two short stretches of low walls relating to features at the rivers edge. The first (southern) relates to the former Brewery Mill. The second (northern) relates to steps down to the waters edge.

#### Engineering proposals

The engineering proposals for this stretch involve the replacement of the existing railing and walls with glass panels for the full length.

#### Design proposals

The existing railing along the quay edge would be replaced for the most part by the proposed glass panels in line with the engineering proposals.

There are two sets of former river access steps along this stretch. The tops of both sets of steps will remain visually open as they will be bounded by the glass flood panels. This would ensure a reference to the former interaction with the river is retained.

Once passed the southern most of the two sets of steps the glass panels will then switch to a wall which will carry on passed the mill wall for approximately 10m. This is due to underground archaeological remnants associated with the mill and other features that would otherwise need to be disturbed to form foundations for the flood defence measures.

The trees in this area would be removed to facilitate works and the alignment of the flood defence measures. LCCC requested that no trees were replaced back in this area due to the archaeological sensitivity.

The wall will then return to the quay edge where it wraps around the corner replacing the second existing low wall and ends at the top of the steps. A glass panel is located at the top of the steps with a short return wall framing the other side of the steps before returning to glass flood panels once again.

The flood defence walls in this area would be to a height of 1.1m to provide the required safety guarding height. The walls would be faced and coped to match the northern most existing wall, albeit at a wider width than the existing wall.

The existing mill wall would also be retained and repaired.



Existing riverside steps and references to walls to be retained.





Existing photograph showing the relationship between the Castle and the existing railing.

The glass panels would extend from the wall at the steps along the alignment of the current railings and would tie into the outer wall south of the Castle similar to that of the existing railing.

There is potential for further future enhancement of this area as set out in Section 3 of this Strategy



Photomontage of the proposed glass panels in the context of the Castle.



The proposed glass panels will tie into the wall just south of the Castle and the existing railing tie in.