



## Preston and South Ribble Flood Risk Management Scheme Area 1 and 2

**Design and Access Statement** 

| Final December 2020

**Environment Agency** 

In partnership with:







## Preston and South Ribble Area 1 and 2 Flood Risk Management Scheme

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## **1. Introduction and Site Context**

## 1.1 Introduction

This Design and Access Statement (DAS) has been prepared by Jacobs to inform and accompany an Application for Planning Permission under the Town and Country Planning Act 1990 (as amended). The application has been submitted to Lancashire County Council (LCC) on behalf of the Environment Agency for works associated with Areas 1 and 2 of the Preston and South Ribble Flood Risk Management Scheme (FRMS).

The Preston and South Ribble FRMS is located within the administrative boundaries of Preston City Council (PCC) and South Ribble Borough Council (SRBC). However, LCC will be acting as the determining authority for the planning application.

The purpose of this DAS is to support the case for the approval of the works associated with Areas 1 and 2 of the Preston and South Ribble FRMS, providing an explanation of the design principles and concepts that have been applied and how the design has evolved and been guided by the physical constraints of the site and consultation with statutory consultees, stakeholders and the local community.

## 1.2 What is a Design and Access Statement?

The Town and Country Planning (Development Management Procedure) (England) Order 2015 (DMPO) establishes the legal requirements for a DAS. Paragraph 9.(1)(a) identifies that a DAS is required to support an application for planning permission for all major development, with Paragraph 9.(2) detailing that except where paragraph (4) applies, that a statement should be submitted which explains:

"(a) the design principles and concepts that have been applied to the development; and

(b) how issues relating to access to the development have been dealt with."

Further elaboration regarding the requirements for a DAS is provided in Paragraph 9.(3), which states that a DAS should:

"(a) explain the design principles and concepts that have been applied to the development;

(b) demonstrate the steps taken to appraise the context of the development and how the design of the development takes that context into account;

(c) explain the policy adopted as to access, and how policies relating to access in relevant local development documents have been taken into account;

(d) state what, if any, consultation has been undertaken on issues relating to access to the development and what account has been taken of the outcome of any such consultation; and

(e) explain how any specific issues which might affect access to the development have been addressed."

The Government's guidance for a DAS was originally set out in Circular 01/2006 Guidance on Changes to the Development Control System. To complement this, the Commission for Architecture and the Built Environment (CABE), which subsequently merged into the Design Council, published further guidance - Design and Access Statements: How to write, read and use them (2006). This document lists the matters which must be considered within a DAS and sets out the questions which would need to be answered to address each matter.

Further guidance in respect of the preparation of DAS was published by the Department for Communities and Local Government in March 2011 - Planning applications: information requirements and validation. This guidance advised in Paragraph 101 that: *"The level of detail required in a design and access statement depends on the scale"* 

and complexity of the application... Statements must be proportionate to the complexity of the application, but need not be long".

This document was withdrawn and replaced by the National Planning Practice Guidance (NPPG) which launched on the 6 March 2014. Paragraph: 029 of the NPPG confirms the requirements for a DAS and confirms that:

"A Design and Access Statement is a concise report accompanying certain applications for planning permission and applications for listed building consent. They provide a framework for applicants to explain how the proposed development is a suitable response to the site and its setting, and demonstrate that it can be adequately accessed by prospective users. Design and Access Statements can aid decision-making by enabling local planning authorities and third parties to better understand the analysis that has underpinned the design of a development proposal.

The level of detail in a Design and Access Statement should be proportionate to the complexity of the application, but should not be long".

It is worth noting that the DMPO identifies in Paragraph 9.(4)(c) that Paragraph 9.(2) referenced above does not apply to an application for planning permission which is for engineering operations. The proposed Scheme for which planning consent is being sought constitutes an engineering operation and as such there is no legal requirement to submit a DAS. However, given the proposed Scheme constitutes major development we considered it best practice to submit a DAS to explain the design principles applied and how these have been influenced by engineering, environmental, social and economic requirements and constraints.

## 1.3 Site Context

Preston is a city located in central Lancashire to the north of the River Ribble. South Ribble is a non-metropolitan district and borough of Lancashire located to the south of the River Ribble (refer to Figure 1). The two authorities have a combined population of approximately 235,000 (estimated population in Mid-2018). There are two main rivers within the authorities – the River Ribble which bisects the authorities and the River Darwen which joins the River Ribble at Walton-le-Dale, as well as numerous watercourses and drainage systems. There are extensive flood defences on both of these watercourses which provide part of the wider flood risk management for the Preston and South Ribble areas.



Figure 1: Location of Preston

Areas 1 and 2 of the Preston and South Ribble FRMS are located along the north and south banks of the River Ribble to the south of Preston City Centre (refer to Figure 2). The proposed Scheme will extend from north of Liverpool Road Bridge at Sea Cadets to the West Coast Main Line (WCML) on the north bank (Area 1) and from Penwortham Methodist Church and the old railway embankment running towards Golden Way to Penwortham Old Bridge and along the river to the WCML on the south bank (Area 2). The proposed works will primarily involve the replacement of existing flood defences and therefore the majority of the works will take place along the existing alignments.



Figure 2: General Site Location

## 2. The Site

## 2.1 Site Description

This planning application seeks to obtain planning consent for the new and improved flood defences associated with Areas 1 and 2 of the FRMS. The proposed Scheme will deliver on the requirements of the Preferred Option selected through the optioneering process outlined in Section 3. The application site for the proposed Scheme is defined by the red line boundary shown on the Site Location Plan (ENV0000009C-JAC-ZZ-ZZ-DR-PL-0002) and in Figure 3 below. The application site covers a total area of 85,996m<sup>2</sup> (8.6ha), which is inclusive of both areas of works and temporary compounds and access requirements.

The proposed Scheme is located to the south of Preston city centre and extends eastwards along the River Ribble corridor from Portway Park and Ride and the A59 Liverpool Road bridge to the railway viaduct carrying the WCML. The river defines the southern edge of Preston. The area is predominantly urban with housing, offices, commercial units, car parks, recreational areas, formal parks and allotments adjacent to the riverside. The areas of Broadgate and Lower Penwortham extend to the north and south of the river corridor respectively. These well-defined residential neighbourhoods have a similar density and built character.

In summary, Areas 1 and 2 cover the following extents:

- Area 1: covers Riversway and Broadgate and is located on the right (north) bank of the River Ribble, to the south of the city centre. This area is approximately 1.3km long and extends from Liverpool Road Bridge (also known as Penwortham New Bridge) upstream to the WCML.
- Area 2: covers Lower Penwortham and is located on the left (south) bank of the River Ribble, to the south of the city centre. This area is approximately 0.8km long, extending from the old railway embankment around Penworthham Methodist Church to Penwortham Old Bridge. It then turns upstream and extends along the left bank of the River Ribble to the WCML.



Figure 3: Application Site Location

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## <u>Area 1</u>



Figure 4: Area 1 Site Location

Area 1 comprises the residential suburbs of Broadgate bound by Preston city centre to the north, the WCML to the east, and an existing flood defence wall adjacent to the River Ribble to the south and west. The A59 and Liverpool Road bisect the area and form one of the major routes into Preston city centre from the south of the river. The area has a generally flat topography adjacent to the river (6m AOD) gently rising to 25m AOD to the north-west.

The site comprises of a suburban residential area of predominantly Victorian red brick terraced houses with slate roofs of varying styles on a uniform layout; with smaller areas of Georgian terraces and 1930s semi-detached houses. Georgian red brick terraces with bay windows and front gardens with low brick walls of varying styles extend along the north side of Broadgate. Further east, red brick and rendered 1930s semi-detached houses extend along Broadgate, Maresfield Road and Kilruddery Road.



Photo 1: View along Broadgate looking east along the existing concrete flood wall and Preston Guild Wheel cycle path.

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The Area is bisected by a number of residential streets. The WCML extends from north to south along the upstream extent of the proposed scheme. Recreation areas are associated with St Stephen's Primary School, Preston Cricket Club and BAC/EE Preston Social and Sports Association along South Meadow Lane. The Preston Guild Wheel, a 21 mile cycle and walking route, and Ribble Way long distance path extends along the south side of Broadgate and Riverside adjacent to the existing concrete flood wall.

Vegetation cover is limited to mature trees and woodland within areas of public open space, along the edge of recreation areas and within the gardens of residential properties. Mature trees within the slightly elevated wide grass verge along the south side of Broadgate, and self-sown trees along the wet-side of the existing concrete flood wall that extends along the south side of Broadgate and Riverside providing a green setting. There are few street trees along adjacent streets to the north where the terraced housing opens directly onto the street.



Photo 2: View from Riverside looking east, the existing concrete flood wall extends along the south side of the road. Properties have views above the existing flood wall across the River Ribble towards Riverside Road on the south bank of the river filtered by occasional self-sown trees along the wet-side of the existing flood wall.

The Area is relatively enclosed and inward looking except for filtered views south from Broadgate and Riverside towards the existing flood wall with some views across the river visible between self-sown vegetation along the wet-side of the existing flood wall. There are a number of heritage assets along Area 1 including Penwortham Old Bridge which is Grade II Listed and a designated Scheduled Monument and the Railway Viaduct which is also Grade II Listed.



Photo 3: View from Miller Gardens apartments looking eastwards. To the east the area is more open with views towards Ribble Sidings on the south bank of the river. The existing flood wall ends at Miller Gardens apartments.

The eastern extents of Area 1 comprise of the WCML and Miller Park which form part of Avenham Conservation Area. This part of Area 1 is situated approximately 1km to the south of Preston city centre on land which slopes southwards down to the River Ribble (from 25m to 6m AOD).

The Grade II\* listed Avenham and Miller Parks take the form of traditional Victorian parkland designed and created by Edward Milner during the 1860s. The parks are separated by the East Lancashire Railway embankment, which closed in the 1970s although the viaduct across the river remains and is Grade II listed. Miller Park is smaller and more formal in character than Avenham Park. The northern side of the park has three terraces which gently slope southwards down towards the River Ribble. The park has a formal layout with a number of features including Derby Walk, an Italianate terrace and a listed fountain together with the Derby memorial statue, grotto and ornate floral displays. To the north, the former Park Hotel along East Cliff overlooks the park. Avenham Park lies to the east of Miller Park and was created from a natural amphitheatre and contains Avenham Walk, the Belvedere and Swiss Chalet, Japanese Garden, Avenham Pavilion and the Boer War Memorial. Both parks have distinctive Victoriana style cast iron benches, streetlamps and railings.



Photo 4: View looking southwards from the Miller Park's terraces, mature trees within the Grade II\* listed park filter and obscure views of the River Ribble in the summer months.

To the south east extents of the Area, the tree lined riverside walk extends along the southern edge of the parks following the contours of the River Ribble and continues further east towards Frenchwood Knoll and a recreation ground. The route forms part of the Preston Guild Wheel, and the Ribble Way long distance path.

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Photo 5: View looking west along Riverside Walk towards the railway viaduct (Grade II listed). Avenue trees define the scenic riverside route along the southern edge of Miller Park.

Both parks contain a large number of mature trees and areas of mature ornamental shrub planting which provide some screening of adjacent railway embankments and housing to the north. There are open views along the River Ribble corridor and of more open agricultural and recreational land on the left bank (south) of the river from riverside walk and from the more open areas within the parks. The open agricultural and recreation land forms part of the setting of the riverside walk and the adjacent historic parks.

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### <u>Area 2</u>



Figure 5: Area 2 Site Location

Area 2 is located on the left (south) bank of the River Ribble, to the south of Preston city centre. This area is approximately 0.8km long, extending from the old railway embankment around Penworthham Methodist Church to Penwortham Old Bridge. It then turns upstream and extends along the left bank of the River Ribble to the WCML.



Photo 6: View along Riverside Road looking east along the existing flood wall, self-sown trees on the wet-side of the existing concrete flood wall create a feeling of enclosure, and filter and screen views of the river during the summer months.

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Photo 7: View along Ribble Sidings looking south-east from the existing play area towards more modern residential properties on Margaret Road. In the background, mature trees screen the WCML embankment from view during the summer months.

Area 2 is bisected by a number of residential streets. The WCML extends from north to south along the eastern boundary of the area. The B5254 Leyland Road extends north to south to the western side of the Area and is the main commercial street in the area. The Area is located near to three small areas of public open space, which include Ribble Sidings, which is situated to the north of Margaret Road, a small open space at the end of Hawkhurst Road, and an area to the west of Havelock Road. Penwortham Cricket Club is located to the far south of the Area.



Photo 8: View of open space at the end of Hawkhurst Road, mature trees filter and screen the River Ribble corridor from view during the summer months.

Vegetation cover comprises mature trees and woodland strips along the WCML and a number of old railway lines that bisect the Area, within recreation areas and on the existing flood embankment that extends along the north side of Ribble Sidings. There are a few street trees with some trees, hedgerow and shrubs in front gardens.

The Area contains a number of PRoW and bridleways along old railway lines and the south bank of the River Ribble. The Area is relatively enclosed and inward looking except for residential properties along Riverside where there are open views of the River Ribble above the existing flood wall. The Area contains few heritage assets with the exception of the Grade II Listed Penwortham Old Bridge. There are extensive areas of allotments, formal recreational areas at Penwortham Holme Recreation Centre, and Penwortham Cemetery. The wider area is bisected and separated from adjacent suburban areas by major transport routes and a number of old railway lines all edged with mature woodland and trees.



Photo 9: View looking south-east along the B2524 Leyland Road, a small area of terraced housing and shops, Penwortham Methodist Church and a day nursery are located within the LLCA. In the background, mature trees define the route of the old railway line and embankment.

There are extensive belts of mature trees, woodland and hedgerows adjacent to transport corridors, allotment and recreation areas, which generally screen these areas from view from adjacent residential areas. There are few minor public roads adjacent to the Area, and Penwortham Methodist Church and a small number of commercial and residential properties are located along B2354 Leyland Road.



Photo 10: View looking north along Holme Road (PRoW 7-9-FP1), mature trees filter views of adjacent allotments and recreation areas to the west. Mature trees extend along the east side of the road filtering views of the adjacent River Ribble corridor.

Views within the vicinity of the Area are generally contained by woodland, tree belts and hedgerow adjacent to transport corridors and recreational sites. Views from Leyland Road across the River Ribble corridor are filtered by mature trees and scrub located along the south bank of the river.

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Photo 11: NCR 62 and PRoW 7-9-FP22 extend along the north-west side of the old railway embankment from the B5254 Leyland Road in the north-east to the A582 Golden Way in the south-west. The route is edged with mature trees and shrubs which filter and screen views of adjacent allotment areas to the north-west.

## 3. Evaluation

## 3.1 Overview

The overall aim of the proposed Scheme is to deliver new and improved flood defences to achieve a SoP of 1.33% AEP over a 100-year period, when taking into consideration, engineering, environmental, social and economic constraints. To achieve this objective, works are required along the north and south banks of the River Ribble, consisting of a combination of concrete flood walls, concrete flood walls with glass panels on top, revetment works, flood gates, flood embankments, along with some other ancillary works, such as the infilling of a railway culvert, footpath raising and reprofiling, along with landscape mitigation and enhancement proposals.

## 3.2 The Need for the Scheme

In 2015, Storm Eva resulted in significant rainfall across the River Ribble catchment and a flood event estimated to have been 2.9% AEP on the River Ribble, and a 1.33% AEP event on the River Darwen. The existing defences defended areas of Preston and South Ribble against any damage to property, although a number of properties were flooded in Walton-le-Dale and Higher Walton. Modelling determined that had the storm been centred 10 - 15 km northwards, then the rainfall intensity across the catchment would have been higher and the resulting flood event would have overtopped the defences. Since this event, the Environment Agency has undertaken an extensive appraisal process to identify the best way to invest funding for improved flood defences in Preston and South Ribble.

## 3.3 Alternative Options

A long list of options was developed in accordance with the Flood and Coastal Erosion Risk Management Appraisal Guidance (FCERM-AG).

The Long List of Options presented a comprehensive review of the various measures for managing flood risk throughout Preston and South Ribble. Table 2.1 below provides a summary of the proposed measures and the reason for progressing or rejecting of each option.

## Long List Options

- Option 1: Do nothing this option would result in blockages at key structures and failure of defences. It was taken forward for further assessment (shortlisted) to provide a baseline for all other options to be compared against.
- Option 2: Do Minimum this option would result in some blockages at key structures and breaches of defences further into the appraisal period. It presents the 'existing situation' and therefore was shortlisted as the baseline against which all new investment options to be compared against.
- Option 3: Linear defences this option consisted of solid permanent defences along the existing alignments and was shortlisted as the main current response. It was noted that the proposed height of the defences would constrain visibility over the river.
- Option 4: Linear defences this option would consist of active management / transparent defences in targeted areas. It was shortlisted for potential supplementary measures. Active management measures could be constructed in a short space of time, prior to a flood event (e.g. demountable defences). Operational staff availability was noted as a key issue for active management measures. The transparent measures (e.g. glass panels) would help retain views of the river, however they do require an increased maintenance regime.
- Option 5: Flood storage this option was rejected as it was considered to be unviable based on the lack of suitable candidate areas, high costs of construction, high operation and maintenance demands, the significant risks that would be introduced and the major negative environmental impact.

- Option 6: River conveyance improvements this option was rejected as the structures along the River Ribble cause little to no flow constriction in the 1% (1 in 100 year) AEP present day event. Two bridges constrain the river flows along the Darwen in extreme storm events, however removal would pass forward flows downstream and therefore potentially increase flood risk to Walton-Le-Dale.
- Option 7: Natural Flood Management (NFM) this option was rejected as it was not considered viable along main rivers such as the Ribble and the Darwen due to the significant widths and flows. However, opportunities to deliver NFM measures on the smaller watercourses will be investigated.
- Option 8: Urban redevelopment / renaturalisation of the river this option was rejected as the majority of the riverside areas are predominantly urban and residential and therefore such a measure would come at significant cost.
- Option 9: Property level protection / Property flood resilience such as airbrick covers, flood doors, etc this option was shortlisted to reduce flood risk to outlying or isolated properties, however it was not considered an effective option for large areas at flood risk with high depths of flooding.

### **Short List Options**

The following short-listed options were taken forward for detailed analysis, with the 'do nothing' and 'do minimum' options providing baselines by which the 'do something' options could be compared:

- Option 3: Linear defences Sustain current standard of protection (maintain existing defence heights);
- Option 4: Linear defences Improve the SoP (1.33% AEP based on 2050's climate change levels);
- Option 5: Linear defences improve SoP (1.33% AEP based on 2080's climate change levels); and
- Option 6: Linear defences and flood storage improve SoP.

## 3.4 Preferred Option

Following hydraulic modelling of the options and subsequent economic analysis and early stakeholder engagement, the preferred option for the FRMS to be taken forward was based on Option 5, which provides the highest level of protection. It consists of raising and/or replacing the existing defences, combined with the utilisation of glass panels to reduce the impact on views over the river corridor.

## 4. Proposed Scheme Overview

## 4.1 General Site Layout

The site for the proposed Scheme has been subdivided into Areas 1A, 1B, 1C and 1D along the north bank of the River Ribble and Areas 2A, 2B, and 2C along the south bank of the river. The following provides a summary of the works proposed within each sub area as defined on the Site Layout Plan (ENV0000009C-JAC-ZZ-ZZ-DR-PL-0001). A detailed description of the proposals is provided within Section 7 and presented on the full package of submitted drawings.



Figure 6: Site Layout Plan

## 4.2 Area 1 Proposed Works

## <u>Area 1</u>

The proposed works in Area 1 are located on the north bank of the River Ribble, to the south of the city centre. This area is approximately 1.2km long, extending from Liverpool Road Bridge upstream to the WCML. The proposed works in this area will consist of:

## Area 1A

• Replacement of the existing concrete wall, with a new concrete wall, between Liverpool Road bridge and Penwortham Old Bridge.

## Area 1B

- Replacement of the existing concrete wall, with a new concrete wall with glass panels on top, along Riverside between Penwortham Old Bridge and Miller Gardens Apartments;
- A new flood gate located in front of Miller Gardens Apartments;
- A new concrete wall along the boundary of the BAC/EE Preston Social and Sports Association cricket pitch between Miller Gardens Apartments and Ribble Cottage;
- A new flood gate located adjacent to Ribble Cottage;
- Replacement of the existing concrete wall, with a new concrete wall with glass panels on top, running on the river side of the road between Ribble Cottage and the railway viaduct; and
- In addition, 3 lengths of the existing river bank from just downstream of Old Penwortham Bridge to the WCML will be stabilised with a blockwork revetment. From the Penwortham Old Bridge to the WCML these lengths are approximately 68m, 230m, and 150m respectively.

## Area 1C

• A concrete wall and two flood gates adjacent to the western end of the WCML railway bridge.

## Area 1D

• New access gates, slipway, resurfacing works and footpath/cycleway realignment at Preston Sea Cadets.

## 4.3 Area 2 Proposed Works

## <u>Area 2</u>

The proposed works in Area 2 are located on the south bank of the River Ribble, to the south of the city centre. This area is approximately 0.8km long, extending from Penwortham Methodist Church to Penwortham Old Bridge and then along Riverside Road upstream to the WCML. Proposed defences comprise:

## Area 2A

- A new concrete wall to the west and south of the Penwortham Methodist Church running along the allotment boundary, tying into the old railway embankment;
- Road raising at the entrance to Penwortham Methodist Church; and

• Ground raising along the footpath that cuts through the disused railway embankment into Penwortham Residential Park.

## Area 2B

- Replacement of the existing concrete wall, with a new concrete wall with glass panels on top, along Riverside Road extending upstream from the Cadent Gas pipe bridge;
- New concrete wall along the river front linking Riverside Road to Ribble Sidings. A Redi-Rock retaining wall and inclined embankment will be constructed to stabilise the existing bank; and
- An earth embankment along the river front of Ribble Sidings, replacing the existing embankment.

## Area 2C

• Filling in a culvert under the WCML, approximately 500m inland from the River Ribble.

## 4.4 Landscape Proposals

Mitigation measures will be required in order to avoid, reduce, remedy or compensate for any adverse landscape or visual effects of the proposed Scheme in accordance with planning and environmental policy. This will consist of both primary mitigation and secondary mitigation. Primary mitigation aims to prevent negative impacts and maximise positive impacts through integral design, whilst secondary mitigation will address unavoidable negative impacts that cannot be mitigated by primary mitigation. These are detailed further in Section 7.

Existing vegetation will be retained wherever practicable and the alignments of the defences throughout the proposed Scheme have been adjusted in order to achieve this. Vegetation protection measures will be put in place prior to the commencement of the construction works and will be informed by a Tree Protection and Arboricultural Method Statement. An Environmental Clerk of Works will monitor implementation and compliance with these measures. Trees and other vegetation located very close to the working area or impacted by the unavoidable incursion of plant and machinery within the root zones will be retained where safe to do so and will be monitored during the five-year establishment period. Precautionary measures will be taken in these circumstances to help protect root zones during the works. For the Ribble Sidings habitat creation area, it has been agreed that SRBC will take on the long-term maintenance after an initial one year establishment period.

Opportunities for contributing to environmental outcome measures have been noted during the development of the proposed Scheme. Discussions regarding several enhancement measures have been held with PCC and SRBC.

The enhancement proposals identified include, but are not limited to, the following:

- Enhancements within Broadgate Gardens open space to include new footpath route to seating areas and pollinator friendly planting, and incorporation of the existing viewing platform layout into the replacement flood wall design;
- Ecological and landscape enhancements at Ribble Sidings;
- Enhancements within open space at the end of Hawkhurst Road to include new footpath routes, tree and shrub planting;
- Interpretation boards relating to heritage assets such as Penwortham Old Bridge;
- Tree planters and seating along Riverside and near Penwortham Old Bridge to enhance the streetscene; and
- Signage and route demarcations to the Preston Guild Wheel route.

The proposed mitigation and enhancement measures are presented on the Environmental Masterplans (ENV0000009C-JAC-ZZ-42X-DR-L-0001; and ENV0000009C-JAC-ZZ-ZZ-00-DR-L-0002 to ENV0000009C-JAC-ZZ-ZZ-00-DR-L-0009).

## 4.5 Construction Compounds

Temporary construction compounds will be required for the duration of the construction period. The main works compound is proposed to be located at Portway Park and Ride Car Park, with smaller satellite compounds located at Broadgate Gardens and Preston Sports Club Car Park for the Area 1 works. For Area 2, lay down areas for the outlying works will include an area to the north west of the Golden Way, adjacent to the footpath and amenity grassland of Ribble Sidings, and within the St Mary Magdalene Primary School adjacent to the WCML underpass.

## 5. Involvement

#### 5.1 Introduction

Consultation and engagement have been ongoing throughout the conception and design of the proposed works. A Consultation Statement has been prepared and is included in Section 7 of the Planning Statement. The following provides a short summary of how the local community and stakeholders have been involved throughout the process and how this has influenced the proposed Scheme.

#### 5.2 Stakeholder Engagement Plan

A Stakeholder Engagement Plan has been prepared to help co-ordinate the engagement required to deliver the works.

The objectives of the plan are to:

- Provide a framework for the appropriate level of engagement with stakeholders throughout the proposed Scheme:
- Ensure opportunities are provided for residents to provide feedback on the proposed Scheme during the design phase;
- Allow stakeholders to understand the process of funding allocation, and manage expectations about what work the funding will, and won't, cover;
- Provide simple, clear and high quality information to stakeholders throughout the proposed Scheme through the use of plain English text, multimedia channels, the provision of translation services and clear visuals;
- Provide information on how flooding may be affected by climate change, and how this has been incorporated • into the proposed Scheme;
- Develop stakeholders understanding of flood risk in the area, and how it affects them now and in the future;
- Ensure that the vision and core objectives for the project include, where possible, the aspirations of stakeholders and partners; and
- Empower communities by helping them to make a consultation response through effective and accessible ٠ communication of scheme information.

#### 5.3 Stakeholders

The following represents the list of key stakeholders which the Environment Agency has consulted throughout the development of the proposed Scheme:

- LCC Departments •
- PCC Departments
- SRBC Departments •
- Natural England
- **Highways England** •
- Historic England •
- Marine Management Organisation •
- Local MP and Councillors
- Parish Councils .
- Preston & South Ribble business interests •
- Landowners •

## Adjacent business landowners/tenants

- Other land interests e.g. riparian owners/right holders •
- Local residents Adjacent residents
- Local residents Other residents
- General public
- Recreational users of surrounding area
- Guild Wheel
- Allotments
- Sea cadets ٠
- Sport England •

#### Internal Consultation 5.4

Internal consultation with Environment Agency consultees has taken place including with the following departments:

National Environmental Assessment & Sustainability including Landscape & Heritage; •

- Fisheries, Biodiversity & Geomorphology;
- Sustainable Places (Planning);
- Estates; and
- Contaminated land.

## 5.5 Stakeholder Consultation

Consultation has been carried out with statutory consultees, non-statutory stakeholders, local organisations and members of the general public during the scoping and detailed design stages of the proposed Scheme. Prior to this, the project team also made concerted efforts to ensure that all interested parties were engaged, and their views considered throughout the pre-planning stages.

The project team has utilised a number of approaches to engaging the community, local businesses and stakeholders. Table 2 in the Planning Statement provides a summary, whilst Table 3 identifies some of the more common queries raised during the engagement and how the proposed Scheme has responded. Of particular note it identifies that the following amendments have been made to the proposed Scheme design:

- Revision of flood defence wall heights in some areas, where appropriate and where flood protection can still be meaningfully achieved;
- Introduction of glass panels into the scheme design in residential areas, where appropriate; and
- Modification to the colour and finish of flood defence walls.

## 5.6 Summary and Conclusions

Consultation with statutory consultees, local residents and other relevant bodies has been paramount to the Scheme's design development. Involvement has taken place at key points in the design phases to inform the public and other stakeholders.

Wherever possible, the project team have invited comment and feedback from local residents on the proposed designs and decisions to ensure the proposals are acceptable. The input of landowners, local residents and other stakeholders has therefore been invaluable throughout the design process and has helped shape the final design.

The Consultation Statement provided in Section 7 of the Planning Statement confirms that, where possible, opportunities have been taken to refine the design to reflect the comments received from residents, statutory consultees and other key stakeholders, and explains how such amendments have been incorporated into the final detailed design for the proposed Scheme. This is particularly pertinent to the implementation of glass panels on the flood walls that are now proposed across certain areas of the proposed Scheme.

## 6. Planning Policy Appraisal

An appraisal of the proposed Scheme against relevant planning policy is provided in Section 6 of the Planning Statement that accompanies this application. The proposed Scheme has been carefully designed to ensure it complies with both national and local planning policy and guidance. In general, the proposed Scheme is considered to be in conformity with policies and guidance set out in the statutory development plans for LCC, PCC and SRBC, the National Planning Policy Framework, Planning Practice Guidance and a number of other relevant plans, polices and strategies. In particular, there is compliance with those policies which seek to reduce and manage flood risk, promote good design and protect and enhance the natural and historic environment.

## 7. Design

## 7.1 Design Overview

To deliver the proposed Scheme the Environment Agency are proposing to increase the standard of flood protection to the local community through the improvement of existing flood defences. The new defences along the north and south banks of the River Ribble will consist of a combination of concrete flood walls, concrete flood walls with glass panels on top, revetment works, flood gates, flood embankments, along with some other ancillary works, such as the infilling of a railway culvert, footpath raising, along with landscape mitigation and enhancement proposals. The proposed Scheme is illustrated on the submitted drawings and detailed in the following sections and figures.

## 7.2 Use

The majority of the works should not conflict with or change the existing uses across the site, as the new defences generally follow the alignment of existing defences. However, inevitably there will be some minor changes to the use of land, notably some encroachment into the river where bank stabilisation works are required along parts of Areas 1 and 2.

## 7.3 Amount, Scale and Layout

The overall application site comprises an area of approximately 78,605m<sup>2</sup> (7.86 ha). The Site Layout Plan (ENV0000009C-JAC-ZZ-ZZ-DR-PL-0001) shows the general layout of the proposals across both Areas 1 and 2. In addition, separate General Arrangement Plans have been prepared covering each location in more detail.

For Area 1 refer to the following General Arrangement Plans for Areas 1A, 1B, 1C and 1D:

- Area 1A General Arrangement Plan 1 to 3 (ENV0000009C-JAC-ZZ-41A-DR-PL-0001 to 0003);
- Area 1B General Arrangement Plan 1 to 3 (ENV0000009C-JAC-ZZ-41B-DR-PL-0001 to 0003);
- Area 1C General Arrangement Plan 1 of 1 (ENV0000009C-JAC-ZZ-41C-DR-PL-0001); and
- Area 1D General Arrangement Plan 1 of 1 (ENV0000009C-JAC-ZZ-41D-DR-PL-0001).

For Area 2 refer to the following General Arrangement Plans for Areas 2A, 2B, 2C:

- Area 2A General Arrangement Plan 1 to 2 (ENV0000009C-JAC-ZZ-42A-DR-PL-0001 to 0002);
- Area 2B General Arrangement Plan 1 to 3 (ENV0000009C-JAC-ZZ-42B-DR-PL-0001 to 0003); and
- Area 2C Network Rail Underpass GA & Sections (ENV0000009C-JAC-ZZ-42C-DR-PL-0001).

The layout of the site has been dictated by the existing flood defence infrastructure; the land form of the site; the proximity to environmental features; neighbouring land uses and properties; and construction requirements and constraints. The design of the proposed Scheme has been presented on the drawings accompanying this application, including the above referred General Arrangement Plans, along with cross sections, long sections and design details for each element of the proposed works.

## <u>Area 1</u>

The amount, scale and layout of the works within each sub area can be described as follows:

## Area 1A

- Replacement of the existing concrete wall ranging from 0.75m to 1.23m high, with a new 566m long precast concrete flood wall ranging from 1.08m to 1.53m high, extending between Liverpool Road bridge and Penwortham Old Bridge; and
- Installation of a 68m long revetment on the wet-side of the new flood wall downstream of Penwortham Old Bridge.

The height variations in the defences and any associated ground level changes are identified on the following drawings for Area 1A:

- Area 1A Long Sections 1 of 5 (ENV0000009C-JAC-DZ-41A-DR-PL-0005);
- Area 1A Long Sections 2 of 5 (ENV0000009C-JAC-DZ-41A-DR-PL-0006);
- Area 1A Long Sections 3 of 5 (ENV0000009C-JAC-DZ-41A-DR-PL-0007);
- Area 1A Long Sections 4 of 5 (ENV0000009C-JAC-DZ-41A-DR-PL-0008); and
- Area 1A Long Sections 5 of 5 (ENV0000009C-JAC-DZ-41A-DR-PL-0009).



Figure 7: Area 1A - Typical Long Section of Pre-Cast Concrete Flood Wall

## Area 1B

- Replacement of the existing concrete flood wall ranging from 0.78m to 1.08m high, between Penwortham Old Bridge and the Cadent Gas Pipe Bridge, with a new 35m long pre-cast concrete flood wall ranging from 1.73m to 1.91m high, incorporating 0.8m high glass panels;
- Installation of a 230m long revetment on the wet-side of the new flood wall between the pipe bridge and Miller Gardens apartments;
- Replacement of the existing concrete flood wall ranging from 0.78m to 1.08m high along Riverside between the Cadent Gas Pipe Bridge and Miller Gardens Apartments with a new 234m pre-cast concrete flood wall ranging from 1.35m to 2.07m high, incorporating 0.8m high glass panels;
- Installation of a new 7m wide, 1.35m high steel flood gate at Miller Gardens Apartments, consisting of two 3.5m wide sections and associated support pillars. A timber post and rail fence will be installed along the riverfront to prevent access to the top of the revetment;
- New 44m long pre-cast concrete flood wall up to 1.44m high, incorporating 0.8m high glass panels, extending upstream from the new flood gate in front of Miller Gardens Apartments;
- A new 127m long pre-cast concrete flood wall ranging from 1.37m to 2.29m high along the boundary of the BAC/EE Preston Social and Sports Association cricket pitch between Miller Gardens Apartments and Ribble Cottage.
- Installation of a new 7m wide, 1.35m high steel flood gate at Ribble Cottage, consisting of two 3.5m wide sections and associated support pillars. A timber post and rail fence will be installed to prevent access to the top of the revetment;
- Replacement of the existing 1.09m high concrete flood wall between Ribble Cottage and the WCML; with a new 145m long pre-cast concrete flood wall ranging from 1.92m to 2.32m high, incorporating 0.8m high glass panels; and
- Installation of a 150m long revetment on the wet-side of the new flood wall extending from Ribble Cottage to the WCML.

The height variations in the defences and any associated ground level changes are identified on the following drawings for Area 1B:

Area 1B - Long Sections 1 of 6 (ENV0000009C-JAC-DZ-41B-DR-PL-0008);

- Area 1B Long Sections 2 of 6 (ENV0000009C-JAC-DZ-41B-DR-PL-0009);
- Area 1B Long Sections 3 of 6 (ENV0000009C-JAC-DZ-41B-DR-PL-0010);
- Area 1B Long Sections 4 of 6 (ENV0000009C-JAC-DZ-41B-DR-PL-0011);
- Area 1B Long Sections 5 of 6 (ENV0000009C-JAC-DZ-41B-DR-PL-0012); and
- Area 1B Long Sections 6 of 6 ((ENV0000009C-JAC-DZ-41B-DR-PL-0013).



Figure 8: Area 1B - Typical Long Section of Pre-Cast Concrete Flood Wall with Glass Panels

### Area 1C

- New 37m long pre-cast concrete flood wall ranging between 1.3m and 2.6m high along the boundary of the Preston City Council compound;
- Two new flood gates tying into the abutments of the WCML viaduct. The northern flood gate will be 1.35m in height, whilst the southern flood gate will be 1.9m high; and
- Localised areas of ground reprofiling.

The height variations in the defences and any associated ground level changes are identified on the following drawing for Area 1C:

• Area 1C - Sections and Details (ENV0000009C-JAC-DZ-41C-DR-C-0001).



Figure 9: Area 1C - Typical Long Section of Pre-Cast Concrete Flood Wall

## Area 1D

- Sea Cadets property boundary to be extended by 15m x 4.5m (67m<sup>2</sup>). Yard surface is to be tarmac to match existing surfacing and the existing boundary fence panels are to be re-used;
- Two new 3m wide by 1.1m high galvanised steel gates, to be installed for access to the new off road parking/unloading area from A5072 Stand Rod;
- New 5m x 10m Maccaferri, or similar concrete articulated mattress to replace existing surfaced ramp to provide boat launch access to the River Ribble. Ramp slope will follow existing gradient;
- Existing pedestrian/cyclist steel access railings to be removed and new wooden post and rail fence to match existing will be installed across existing footpath entry. The existing ornate pillars will be retained;
- New grasscrete surface, seeded with grass mix to provide emergency services off road parking/unloading area, incorporating 2.5m wide footpath to replace existing pedestrian access through new emergency services area; and
- Realignment of a 5.5m length of the existing cycleway to remove the sharp bend and improve visibility. This will also require the boundary fence to be realigned and the path re-surfaced with tarmac to match existing.

## <u>Area 2</u>

The amount, scale and layout of the works within the Area 2 sub areas can be described as follows:

## Area 2A

- New pre-cast concrete flood wall totalling 174m in length to replace the existing fence around Penwortham Methodist Church ranging between 0.4m and 2.47m. In order to maintain security of the allotments, fencing will be installed along the top of the new wall to ensure that a minimum height of 1.8 m is maintained around whole length of the wall;
- New road ramp to raise existing road levels by approximately 1.0 m at the entrance to Penwortham Methodist Church; and
- New ramp 8m long and 1.3m in height along the path that cuts through the disused railway embankment into the Penwortham Residential Park.

## Area 2B

- New 8m long 1.73m high concrete flood wall extending upstream from the Cadent Gas pipe bridge;
- New 191m long pre-cast concrete flood wall ranging between 1.90m and 2.31m in height, incorporating 0.6m and 0.8m high glass panels, extending along Riverside Road upstream from the Cadent Gas pipe bridge to Stanley Avenue;
- Installation of a 60m long revetment on the wet-side of the new flood wall upstream of Riverside Road;
- New 155m long pre-cast concrete flood wall ranging between 0.4m and 1.53m high along the river front linking Riverside Road to Ribble Sidings; and
- Removal of the existing 1.7m high flood defence embankment at Ribble Sidings and construction of a new 162m long 3.87m high flood defence embankment with a 3m wide crest and 1 in 3 gradient side slopes. The existing riverside footpath (NCR 55 and PRoW 7-9-BW34) will be maintained with an access ramp over the proposed flood defence embankment.

The height variations in the defences and any associated ground level changes are identified on the following drawings for Area 2B:

- Area 2B Longitudinal Section 1 of 3 (ENV0000009C-JAC-DZ-42B-DR-PL-0005);
- Area 2B Longitudinal Section 2 of 3 (ENV0000009C-JAC-DZ-42B-DR-PL-0006); and
- Area 2B Longitudinal Section 3 of 3 (ENV0000009C-JAC-DZ-42B-DR-PL-0007).

## Area 2C

• Partial infilling of a 30m long underpass under the WCML to the south east of Margaret Road, utilising foamed concrete and Redi-Rock blocks.

## 7.4 Appearance and Materials

The following section details the appearance and materials to be used for the construction of the proposed Scheme. Figure 10 shows the general location of each of the different types of intervention described.



Figure 10: Landscape Vision extract showing the location of the different flood defence interventions

## Pre-Cast Concrete Flood Wall

Pre-Cast concrete flood walls are proposed within Areas 1A, 1B, 1C, 2A and 2B. Figure 11 below provides an example of the type of finish that will be achieved for the flood walls within these Areas.



Figure 11: Example of a Pre-Cast Concrete Flood Wall

The design of the proposed pre-cast concrete flood walls within Areas 1A, 1B, 1C, 2A and 2B are presented on the following drawings, with typical details shown on Figures 12 and 13 and a visualisation of the proposed flood wall along Broadgate in Figure 14 below:

- Area 1A Typical Wall Details (ENV0000009C-JAC DW-41X-DR-PL-0001);
- Area 1A Wall Sections and Details 1 of 4 (ENV0000009C-JAC-DZ-41A-DR-PL-0001);
- Area 1A Wall Sections and Details 2 of 4 (ENV0000009C-JAC-DZ-41A-DR-PL-0002);
- Area 1A Wall Sections and Details 3 of 4 (ENV0000009C-JAC-DZ-41A-DR-PL-0003);
- Area 1A Wall Sections and Details 4 of 4 (ENV0000009C-JAC-DZ-41A-DR-PL-0004);
- Area 1B Sections and Details 4 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0004);
- Area 1B Sections and Details 5 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0005);
- Area 1C Sections and Details (ENV0000009C-JAC-DZ-41C-DR-C-0001);
- Area 2 Wall Typical Details (ENV0000009C-JAC-DW-42X-DR-PL-0001);
- Area 2A Sections and Details 1 of 3 (ENV0000009C-JAC-DZ-42A-DR-PL-0001);
- Area 2A Sections and Details 2 of 3 (ENV0000009C-JAC-DZ-42A-DR-PL-0002);
- Area 2A Sections and Details 3 of 3 (ENV0000009C-JAC-DZ-42A-DR-PL-0003);
- Area 2B Gas Pipe Bridge Sections & Details (ENV0000009C-JAC-DG-42B-DR-PL-0001);
- Area 2B Sections and Details 2 of 4 (ENV0000009C-JAC-DZ-42B-DR-PL-0002); and
- Area 2B Sections and Details 3 of 49 (ENV0000009C-JAC-DZ-42B-DR-PL-0003).



Figure 12: Area 1 - Typical Pre-Cast Concrete Flood Wall with Coping Detail



Figure 13: Area 2 - Typical Pre-Cast Concrete Flood Wall with Coping Detail



Figure 14: Visualisation of the proposed Scheme taken from the footpath along Broadgate looking downstream towards Liverpool Road Bridge

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### Pre-Cast Concrete Flood Wall with Glass Panels

Pre-Cast concrete flood walls with glass panels are proposed within Areas 1B and 2B. Figure 15 below provides an example of the type of finish that will be achieved for the flood walls within these Areas.



Figure 15: Example of flood defence walls with glass panels

The design of the proposed pre-cast concrete flood walls with glass panels within Areas 1B and 2B are presented on the following drawings, with typical details shown on Figures 16 and 17 and a visualisation of the flood wall along Riverside Road in Figure 18 below:

- Area 1B Sections and Details 1 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0001);
- Area 1B Sections and Details 2 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0002);
- Area 1B Sections and Details 3 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0003);
- Area 1B Sections and Details 7 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0007);
- Area 2B Sections and Details 1 of 4 (ENV0000009C-JAC-DZ-42B-DR-PL-0001); and
- Area 2B Sections and Details 2 of 4 (ENV0000009C-JAC-DZ-42B-DR-PL-0002).



Figure 16: Area 1 - Typical Pre-Cast Concrete Flood Wall with Glass Panels Detail

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Figure 17: Area 2 - Typical Pre-Cast Concrete Flood Wall with Glass Panels Detail



Figure 18: Visualisation of the replacement flood defence, taken from Riverside Road looking upstream towards the West Coast Mainline Viaduct

## **Redi-Rock Revetment**

Redi-Rock bank stabilisation / revetment works are proposed within Areas 1A, 1B and 2B. Figure 19 below provides an example of the type of finish that will be achieved utilising Redi-Rock within these Areas.



Figure 19: Example of Redi-Rock

The design of the proposed Redi-Rock bank stabilisation / revetment within Areas 1A, 1B and 2B are presented on the following drawings, with typical details shown on Figures 20 and 21 below:

- Area 1A Wall Sections and Details 4 of 4 (ENV0000009C-JAC-DZ-41A-DR-PL-0004);
- Area 1B Sections and Details 2 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0002);
- Area 1B Sections and Details 3 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0003);
- Area 1B Sections and Details 4 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0004); and
- Area 1B Sections and Details 5 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0005).
- Area 1B Sections and Details 6 of 7 (ENV0000009C-JAC-DZ-41B-DR-PL-0006); and
- Area 2B Sections and Details 2 of 4 (ENV0000009C-JAC-DZ-42B-DR-PL-0002).



Figure 20: Area 1 - Typical Redi-Rock Bank Stabilisation / Revetment Detail

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Figure 21: Area 2 - Typical Redi-Rock Bank Stabilisation / Revetment Detail

## Flood Embankment

A new flood defence embankment is proposed within Area 2B. Figure 22 below provides an example of the type of appearance that the flood embankment will have in this Area.



Figure 22: Example of a Flood Embankment

The design of the proposed flood embankment within Area 2B is presented on the following drawings, with typical details shown on Figure 23 below:

- Area 2B Sections and Details 3 of 4 (ENV0000009C-JAC-DZ-42B-DR-PL-0003); and
- Area 2B Sections and Details 4 of 4 (ENV0000009C-JAC-DZ-42B-DR-PL-0004).

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## Design and Access Statement



Figure 23: Area 2 - Typical Flood Embankment Details

## **Flood Gates**

Steel flood gates are proposed within Areas 1B and 1C. Figure 24 below provides an example of the appearance of the flood gates proposed within these Areas.



Figure 24: Example of a Flood Gate

The design of the proposed flood gates within Areas 1B are presented on the following drawings, with a typical detail shown on Figures 25 below:

- Area 1B Flood Gate 1 Miller Gardens Apartments (ENV0000009C-JAC-DF-41B-DR-PL-0001); and
- Area 1B Flood Gate 2 Ribble Cottage (ENV0000009C-JAC-DF-41B-DR-PL-0002).

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Figure 25: Area 1 - Typical Flood Gate Detail

## 7.5 Landscape Proposals and Mitigation

A Landscape and Visual Impact Assessment (LVIA) (ENV000009C-JAC-ZZ-ZZ-DR-L-0001) has been undertaken to consider the potential effects on landscape character and visual receptors that may arise as a result of the proposed Scheme, which has been used to inform the Scheme's landscape and mitigation proposals. The expected effects to the landscape character of Areas 1 and 2 of the FRMS and the surrounding landscape, resulting from both temporary construction activities and the long-term permanent operation of the flood defences, has been summarised below. This is detailed further in the LVIA and presented in Figure 1.2 - 'Landscape and Townscape Character Areas' of the LVIA.

## Area 1 – Construction Impacts

The proposed works are likely to result in the loss of the following landscape resources to facilitate construction of the new flood defences:

- Sea Cadets 3 young trees are to be removed adjacent to roadside footpath;
- Broadgate Gardens 10 mature trees along the landward side of the flood wall are to be removed;
- Broadgate, between Liverpool Road Bridge and Penwortham Old Bridge 540m of self-seeded trees are to be removed from riverward side of flood wall;
- Riverside, between Penwortham Old Bridge and the Cadent Gas Pipe Bridge 28m of self-seeded trees are to be removed from riverward side of flood wall;
- Riverside, between the Cadent Gas Pipe Bridge and Miller Gardens apartments approximately 10 trees are to be removed from riverward side of flood wall;
- Removal of garden vegetation from within Miller Gardens apartment grounds;
- Riverside, along the boundary of the cricket ground 150m of hedgerow is to be removed; and
- Riverside, between Ribble Cottage and WCML Viaduct approximately 10 trees are to be removed from riverward side of flood wall.
- Temporary closure of the Preston Guild Wheel, NCR 62 and the Ribble Way;
- Temporary closure of footpath along Broadgate along the line of the existing concrete flood wall; and
- Temporary loss of amenity grass areas along the length of the new replacement flood wall.

The removal of mature vegetation along the wet-side of the existing flood wall along Broadgate will open up views of construction activity from the wider area south of the river. The construction zone impacts upon the existing footpath along the north side of the existing concrete flood wall which forms part of the Preston Guild Wheel cycle route, the Ribble Way long distance path and NCR 62.

The works are likely to result in no loss of landscape resources to Miller Park. The flood defence works adjacent to the railway viaduct will have an effect on the setting at the periphery of the park. The presence of construction activity will directly impact the entrance to Miller Park (Grade II\* listed) with consequent effects on the park's character and scenic quality. These impacts will however be very localised and will not affect the wider Area.

## Area 1 – Post Construction

Following completion of construction activities, any disturbed ground will be seeded to establish amenity grass or species-rich grassland where appropriate. All lost habitat will be replanted, including the replanting of trees at a 5:1 ratio. However, due to limited space for mitigation tree planting within the immediate vicinity a number of nearby locations have been identified through discussions with the local authorities such as Fishwick Bottoms.

Broadgate Gardens will be reinstated with shrub planting, wildflower meadow and a seating area. The layout of the existing viewing platform has been incorporated into the proposed design. The replacement flood wall will be in keeping with the scale, height and character of the Area. The provision of flood walls with glass panels adjacent to residential properties combined with the removal of self-sown trees along the wet-side of the existing flood wall will significantly open up views of the adjacent river corridor.

The route of the Preston Guild Wheel cycle/footpath will be widened along the sections of revetment works from the Cadent Gas Pipe Bridge to Miller Gardens apartments, and from Ribble Cottage to the WCML viaduct. New tree planters will be located on these wider areas to enhance the existing streetscene and complement existing landscape character.

In addition, the compound areas and any disturbed ground will be reinstated.

## Area 2 – Construction Impacts

During construction the proposed works are likely to result in the loss of the following landscape resources:

- Ribble Sidings approximately 170 trees including 34 mature trees are to be removed along the existing flood embankment;
- Ribble Sidings trees along the riverfront are to be retained;
- Ribble Sidings, Hawkhurst Road frontage approximately 40 trees including 20 mature trees are to be removed;
- Riverside Road approximately 13 trees are to be removed from the riverward side of flood wall.
- Penwortham Methodist Church 1 mature tree protected by a TPO and vegetation within the grounds;
- Tie-in to old railway embankment the footpath raising is likely to require some tree works along the toe of the embankment. All these trees are protected by a woodland TPO;
- Penwortham Residential Park works to trees may also be required along the old railway embankment, which fall under the same TPO;
- WCML underpass some minor clearance of scrub required;
- Temporary closure of NCR 62 and PRoW 7-9-FP20, 7-9-FP21 and 7-9-FP22; and
- Temporary closure and diversion of NCR 55 and PRoW 7-9-BW34.

Areas adjoining the proposed works will be directly affected by construction activities for the new flood wall and replacement flood embankment, which will increase visual disturbance. The removal of mature vegetation will adversely affect landscape pattern and result in a more open landscape adjacent to the Ribble Sidings and at the end of Hawkhurst Road opening up views of construction activity from the wider area.

## Area 2 – Post Construction

Following completion of construction activities, any disturbed ground will be seeded to establish amenity grass or species-rich grassland where appropriate. Lost habitat will be replanted and the disturbed areas of allotments will be reinstated. Mitigation and replacement tree and shrub planting within the Church grounds will complement the existing retained vegetation. The new flood wall and railings will complement the existing brick type and colour of the church building and will be in keeping with scale, height and character of the local area.

In some locations there is limited space for mitigation tree planting and therefore a nearby location has been identified at Fishwick Bottoms and within public open space next to Golden Way, following discussions with the local authority, where trees will be planted at a 5:1 ratio.

The replacement pre-cast concrete flood wall will be in keeping with scale, height and the character of the local area. The provision of flood walls with glass panels adjacent to residential properties and the removal of self-sown trees along the wet-side of the existing flood walls significantly open up views of the river corridor.

The replacement flood embankment through Ribble Sidings will be a noticeable feature within the local vicinity, however the new earthworks will not be dissimilar to the existing railway embankments that bisect the local area. A new wetland is proposed on the dry side of the new flood defence embankment which will provide new habitat and enhance the character of the area. The new flood embankment will be sown with species-rich grassland which will enhance local biodiversity. Establishing mitigation planting and the adjacent habitat area will provide further integration of the flood defence into the surrounding landscape.

### Impact on Visual Amenity

The proposed works are likely to affect the visual amenity of certain receptors, identified in Table 6 of the LVIA, during operation. Notably it will include the following:

- Introduction of a replacement flood embankment with ramps, replacement pre-cast concrete flood walls, and replacement pre-cast concrete flood walls with glass panels;
- Sections of the existing riverbank stabilised with blockwork revetment;
- Clearance of trees, scrub, ornamental shrubs, hedgerows, species rich grassland and amenity grass;
- Planting of trees, shrubs and other plants as mitigation for lost vegetation and for visual and landscape purposes. The removal of trees and other vegetation during construction will be mitigated by new planting but it will potentially take many years for this to establish, and then to grow to similar maturity, particularly with regard to trees. In certain locations there may be a medium to long term visual impact as a result. However, in some areas it will not be possible to replace lost vegetation in the same location due to underground services and/or proximity to the flood walls; and
- Introduction of new grassland and wetland areas.

## Landscape Mitigation Proposals

Mitigation measures will be required in order to avoid, reduce, remedy or compensate for any adverse landscape or visual effects of the proposed Scheme in accordance with planning and environmental policy. This will consist of both primary mitigation and secondary mitigation. Primary mitigation aims to prevent negative impacts and maximise positive impacts through integral design, whilst secondary mitigation will address unavoidable negative impacts that cannot be mitigated by primary mitigation.

In terms of primary mitigation, flood defences have been carefully designed to minimise impacts on existing landscape and visual resources and to integrate the proposed scheme as sensitively as possible into the receiving landscape. The proposed works have been developed to:

- minimise direct impacts on vegetation of landscape value, in particular specimen trees;
- minimise land-take from and maximise integration into public amenity areas;
- restrict works as far as is practicable to areas in which the proposed change will fit the receiving landscape;

- minimise the height of the replacement flood defences and use construction materials to integrate the proposed Scheme into its surrounding context; and
- utilise glazed panels and earth embankments where appropriate.

Existing vegetation will be retained wherever practicable and the alignments of the defences throughout the proposed Scheme have been adjusted in order to achieve this. Vegetation protection measures will be put in place prior to the commencement of the construction works and will be informed by the Arboricultural Impact Assessment (ENV000009C-JAC-XX-00-RP-EN-0004) and accompanying Preliminary Tree Removal Plans and Arboricultural Method Statement. An Environmental Clerk of Works will monitor implementation and compliance with these measures. Trees and other vegetation located very close to the working area or impacted by the unavoidable incursion of plant and machinery within the root zones will be retained where safe to do so and will be monitored during the five-year establishment period. Precautionary measures will be taken in these circumstances to help protect root zones during the works as far as is practicable. For the Ribble Sidings habitat creation area, it has been agreed that SRBC will take on the long-term maintenance after an initial one-year establishment period.

In addition to the primary landscape mitigation measures outlined above and the measures integrated into the design of the Scheme; the following secondary mitigation measures will also be implemented:

- replacement flood wall colour and design to integrate with surrounding areas and complement existing building materials;
- existing viewing platform within Broadgate Gardens to be incorporated as part of the proposed layout;
- Cadent Gas Pipe Bridge infill to complement existing stonework and replacement flood wall;
- replacement street furniture and hard landscaping to complement existing;
- tree species selection will be sensitive to their location, for example ornamental species will complement pathways; native species for woodland blocks and river banks;
- well considered pathway connections to integrate the new embankment and replacement flood walls with the existing path network; and
- wild flower species to selected areas of reinstatement.

These secondary mitigation measures are presented on the Environmental Masterplans accompanying this application (refer to drawings: ENV0000009C-JAC-ZZ-ZZ-DR-L-0002 to 0009).

## Landscape Enhancement Proposals

The Environment Agency seeks to deliver several enhancement measures which are presented on the Environmental Masterplans referenced above. These measures include:

- Enhancements within Broadgate Gardens to include new footpath route to seating areas and pollinator friendly planting, and incorporation of the existing viewing platform layout into the replacement flood wall design;
- Ecological and landscape enhancements at Ribble Sidings;
- Enhancements within open space at the end of Hawkhurst Road to include new footpath routes, tree and shrub planting;
- Interpretation boards relating to heritage features such as Penwortham Old Bridge;
- Tree planters and seating along Riverside and near Penwortham Old Bridge to enhance the streetscene; and
- Signage and route demarcations to the Preston Guild Wheel route.

## Landscape Vision

A Landscape Vision (ENV0000009C-JAC-ZZ-00-RP-L-0001) has been produced to promote a high quality and coherent approach to the design of hard and soft landscape and environmental elements for Areas 1 and 2 of the Preston and South Ribble FRMS, and to ensure environmental constraints and opportunities are identified and addressed during the design process. In addition to informing the design process, the document has been used to inform decision making by the Environment Agency and engagement with stakeholders; and to inform contractor analysis of costs associated with the proposed Scheme.

The objectives of the landscape vision for Areas 1 and 2 are to:

- focus on the best achievable environmental outcomes in terms of landscape and visual impact, cultural heritage and community;
- inform selection and specification of hard and soft landscape elements within the scheme; and
- ensure the design theme throughout the scheme is consistent and not piecemeal.

## 8. Access

### Site compounds and storage areas

There are three compounds proposed for the proposed Scheme as shown on the Site Layout Plan (ENV000009C-JAC-ZZ-ZZ-DR-PL-0001). The main compound will be situated within the Portway Park and Ride car park to the northern extent of the proposed Scheme, accessible via Port Way. This compound will be used as a base for the Contractors offices, lay-down area, plant and storage. The Park and Ride will be closed to the public. There will be two satellite compounds contiguous to the Scheme, one within Broadgate Gardens along Broadgate, and one within the car park of Preston Sports Club, off South Meadow Lane. The satellite compounds will have welfare facilities and plant storage with most materials being delivered direct to the works.

In addition, a number of lay down areas will be used to support the construction process. These include an area north west of the A582 Golden Way, amenity grassland in Ribble Sidings, and within St Mary Magdalene Primary School adjacent to the WCML underpass.

All land affected by the temporary compounds will be reinstated on completion of the works.

## Access to the site

A detailed Construction Traffic Management Plan (CTMP) will be prepared by the Contractor which will cover all aspects of traffic management including delivery of materials and equipment to the working area and temporary compounds. It is anticipated that the majority of deliveries and collections from site will be from the main compound.

The proposed routes will be agreed with the Local Highways Authority and detailed in the CTMP prior to the commencement of works. Traffic generated (including the movement of material on the road network and on site) will be managed in accordance with the approved CTMP.

There will be a requirement to temporarily close some minor roads in the local area to facilitate the construction works. Whilst these could be subject to change, it is currently anticipated that these will include:

- Rolling single lane closure of Broadgate between September 2021 to June 2022;
- Riverside between Penwortham Old Bridge and Miller Garden Apartments between June and December 2022;
- Riverside between the Continental Pub to the Mini Centre between September 2022 and February 2023; and
- Riverside Road between May 2022 and March 2023.

Pedestrian access to residential properties will be maintained for the duration of the road closures. Where necessary alternate access to businesses will be implemented in full consultation with those businesses affected and the local highway authority.

There will also be restricted access to the car park of Penwortham Methodist Church and to the allotments between March 2022 and June 2022. Close liaison with the church and allotment holders will be maintained throughout this period.

## 8.1 Footpath and cycle route diversions and access

During construction works, there will be multiple temporary footpath and cycle route diversions required, including to:

• National Cycle Route (NCR) 55;

- NCR 62;
- The Preston Guild Wheel that follows the existing footpath along Broadgate and Riverside;
- The Ribble Way long-distance path along Broadgate and Riverside;
- 7-9-FP20, that meets the Golden Way footpath at the entrance to Penwortham Residential Park;
- 7-9-FP21 which forms a part of the Golden Way footpath;
- 7-9-FP22 which forms a part of the Golden Way footpath; and
- 7-9-BW34 that runs along the riverfront through Ribble Sidings

The route of these temporary closures and diversions and other temporary access requirements are shown in Figure 26 below:



Figure 26: Temporary Footpath Diversions and Closures



## 9. Drawings

Title	Drawing Reference
Site Location Plan	ENV000009C-JAC-ZZ-ZZ-DR-PL-0002
Site Layout Plan	ENV000009C-JAC-ZZ-ZZ-DR-PL-0001
Area 1A - General Arrangement 1 of 3	ENV000009C-JAC-ZZ-41A-DR-PL-0001
Area 1A - General Arrangement 2 of 3	ENV000009C-JAC-ZZ-41A-DR-PL-0002
Area 1A - General Arrangement 3 of 3	ENV000009C-JAC-ZZ-41A-DR-PL-0003
Area 1B - General Arrangement 1 of 3	ENV000009C-JAC-ZZ-41B-DR-PL-0001
Area 1B - General Arrangement 2 of 3	ENV000009C-JAC-ZZ-41B-DR-PL-0002
Area 1B - General Arrangement 3 of 3	ENV000009C-JAC-ZZ-41B-DR-PL-0003
Area 1C - General Arrangement 1 of 1	ENV000009C-JAC-ZZ-41C-DR-PL-0001
Area 1D - General Arrangement 1 of 1	ENV000009C-JAC-ZZ-41D-DR-PL-0001
Area 1 - Typical Wall Details	ENV000009C-JAC-DW-41X-DR-PL-0001
Area 1A - Wall Sections and Details 1 of 4	ENV000009C-JAC-DZ-41A-DR-PL-0001
Area 1A - Wall Sections and Details 2 of 4	ENV000009C-JAC-DZ-41A-DR-PL-0002
Area 1A - Wall Sections and Details 3 of 4	ENV000009C-JAC-DZ-41A-DR-PL-0003
Area 1A - Wall Sections and Details 4 of 4	ENV000009C-JAC-DZ-41A-DR-PL-0004
Area 1A - Long Sections 1 of 5	ENV000009C-JAC-DZ-41A-DR-PL-0005
Area 1A - Long Sections 2 of 5	ENV000009C-JAC-DZ-41A-DR-PL-0006
Area 1A - Long Sections 3 of 5	ENV0000009C-JAC-DZ-41A-DR-PL-0007
Area 1A - Long Sections 4 of 5	ENV0000009C-JAC-DZ-41A-DR-PL-0008
Area 1A - Long Sections 5 of 5	ENV000009C-JAC-DZ-41A-DR-PL-0009
Area 1B - Sections and Details 1 of 7	ENV000009C-JAC-DZ-41B-DR-PL-0001

Area 1B - Sections and Details 2 of 7	ENV000009C-JAC-DZ-41B-DR-PL-0002
Area 1B - Sections and Details 3 of 7	ENV000009C-JAC-DZ-41B-DR-PL-0003
Area 1B - Sections and Details 4 of 7	ENV000009C-JAC-DZ-41B-DR-PL-0004
Area 1B - Sections and Details 5 of 7	ENV000009C-JAC-DZ-41B-DR-PL-0005
Area 1B - Sections and Details 6 of 7	ENV000009C-JAC-DZ-41B-DR-PL-0006
Area 1B - Sections and Details 7 of 7	ENV000009C-JAC-DZ-41B-DR-PL-0007
Area 1B - Long Sections 1 of 6	ENV000009C-JAC-DZ-41B-DR-PL-0008
Area 1B - Long Sections 2 of 6	ENV000009C-JAC-DZ-41B-DR-PL-0009
Area 1B - Long Sections 3 of 6	ENV000009C-JAC-DZ-41B-DR-PL-0010
Area 1B - Long Sections 4 of 6	ENV0000009C-JAC-DZ-41B-DR-PL-0011
Area 1B - Long Sections 5 of 6	ENV000009C-JAC-DZ-41B-DR-PL-0012
Area 1B - Long Sections 6 of 6	ENV000009C-JAC-DZ-41B-DR-PL-0013
Area 1C - Sections and Details	ENV000009C-JAC-DZ-41C-DR-PL-0001
Area 1B - Flood Gate 1 Miller Gardens Apartments	ENV000009C-JAC-DF-41B-DR-PL-0001
Area 1B - Flood Gate 2 Ribble Cottage	ENV000009C-JAC-DF-41B-DR-PL-0002
Area 1 Tie-in Details 1 of 3	ENV000009C-JAC-DW-41X-DR-PL-0002
Area 1 Tie-in Details 2 of 3	ENV000009C-JAC-DW-41X-DR-PL-0003
Area 1 Tie-in Details 3 of 3	ENV000009C-JAC-DW-41X-DR-PL-0004
Area 2A - General Arrangement 1 of 2	ENV000009C-JAC-ZZ-42A-DR-PL-0001
Area 2A - General Arrangement 2 of 2	ENV000009C-JAC-ZZ-42A-DR-PL-0002
Area 2B - General Arrangement 1 of 3	ENV000009C-JAC-ZZ-42B-DR-PL-0001
Area 2B - General Arrangement 2 of 3	ENV000009C-JAC-ZZ-42B-DR-PL-0002

Area 2B - General Arrangement 3 of 3	ENV000009C-JAC-ZZ-42B-DR-PL-0003
Area 2C - Network Rail Underpass GA & Sections	ENV000009C-JAC-ZZ-42C-DR-PL-0001
Area 2 - Wall Typical Details	ENV000009C-JAC-DW-42X-DR-PL-0001
Area 2A - Sections and Details 1 of 3	ENV000009C-JAC-DZ-42A-DR-PL-0001
Area 2A - Sections and Details 2 of 3	ENV000009C-JAC-DZ-42A-DR-PL-0002
Area 2A - Sections and Details 3 of 3	ENV0000009C-JAC-DZ-42A-DR-PL-0003
Area 2B - Gas Pipe Bridge Sections & Details	ENV000009C-JAC-DG-42B-DR-PL-0001
Area 2B - Sections and Details 1 of 4	ENV0000009C-JAC-DZ-42B-DR-PL-0001
Area 2B - Sections and Details 2 of 4	ENV0000009C-JAC-DZ-42B-DR-PL-0002
Area 2B - Sections and Details 3 of 4	ENV0000009C-JAC-DZ-42B-DR-PL-0003
Area 2B - Sections and Details 4 of 4	ENV0000009C-JAC-DZ-42B-DR-PL-0004
Area 2B - Longitudinal Section 1 of 3	ENV0000009C-JAC-DZ-42B-DR-PL-0005
Area 2B - Longitudinal Section 2 of 3	ENV0000009C-JAC-DZ-42B-DR-PL-0006
Area 2B - Longitudinal Section 3 of 3	ENV0000009C-JAC-DZ-42B-DR-PL-0007
Highway Typical Details 1 of 2	ENV0000009C-JAC-ZZ-00-DR-PL-0001
Highway Typical Details 2 of 2	ENV0000009C-JAC-ZZ-00-DR-PL-0002
Draft Landscape Sketch	ENV000009C-JAC-ZZ-42X-DR-L-0001
Environmental Masterplan Sheet 1 of 8	ENV0000009C-JAC-ZZ-ZZ-DR-L-0002
Environmental Masterplan Sheet 2 of 8	ENV0000009C-JAC-ZZ-ZZ-DR-L-0003
Environmental Masterplan Sheet 3 of 8	ENV000009C-JAC-ZZ-ZZ-DR-L-0004
Environmental Masterplan Sheet 4 of 8	ENV000009C-JAC-ZZ-ZZ-DR-L-0005
Environmental Masterplan Sheet 5 of 8	ENV000009C-JAC-ZZ-ZZ-DR-L-0006

Environmental Masterplan Sheet 6 of 8	ENV000009C-JAC-ZZ-ZZ-DR-L-0007
Environmental Masterplan Sheet 7 of 8	ENV000009C-JAC-ZZ-ZZ-DR-L-0008
Environmental Masterplan Sheet 8 of 8	ENV000009C-JAC-ZZ-ZZ-DR-L-0009