

Prescot to Cronton Cycleway

Flood Risk Assessment

Project number: 60629784

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Quality information

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1. Introduction

1.1 Commission

AECOM Limited (AECOM) has been commissioned by Knowsley Council (known as 'The Client' hereafter) to produce a Flood Risk Assessment (FRA) to support a planning application for the proposed Prescot to Cronton Cycleway works (the 'Proposed Development'). The Proposed Development is located off Fox's Bank Lane in Prescot, Merseyside, L35 5SS. A location plan is provided in Appendix A.

1.2 Background

The Site is located to the south of Fox's Bank Brook adjacent to Penny Lane, approximately 1.65 km north west of Cronton. The works are proposed to install a cycleway in line with the Speed Reduction Scheme on Fox's Bank Lane.

The Environment Agency Flood Zone Map available online¹, and reproduced as Figure 4-1, shows the Site is located across Flood Zones 1 to 3. The definition of flood zones, according to the Planning Practice Guidance² (PPG), are summarised in Table 1.1 below.

The National Planning Policy Framework³ (NPPF) and the PPG specifies that planning applications for development proposals located within Flood Zone 2 or 3 (river and sea flooding) should be accompanied by a site- specific FRA.

The FRA should be proportionate to the degree of flood risk and appropriate to the scale, nature and location of the development. The FRA should identify and assess all forms of flooding to and from the development, demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking into account the vulnerability of the Proposed Development and assess the potential impact of climate change on flood risk.

Table 1.1 Environment Agency Flood Zone Definitions

Flood Zone	Definition	Risk of flooding
Flood Zone 1	Land that has a low probability of flooding (less than 1 in 1,000 annual probability of river or sea flooding (<0.1%))	Low
Flood Zone 2	Land that has a medium probability of flooding (between 1 in 100 and 1 in 1,000 annual probability of river flooding (0.1-1%), or between 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.1-0.5%))	Medium
Flood Zone 3a	Land that has a high probability of flooding (1 in 100 year or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%))	High
Flood Zone 3b (Functional Floodplain)	This zone comprises land where water has to flow or be stored in times of flood.	Very High

Source: Planning Practice Guidance (2021)

1.3 Scope of Services

The aim of this study is to undertake a FRA that is proportionate to the nature and scale of the Proposed Development (a proposed road crossing and cyclepath across agricultural land), which determines flood risk posed to the Site, and arising as a result of the Proposed Development and recommends suitable mitigation measures where required.

¹ Environment Agency. Flood Map for Planning. Available at: <https://flood-map-for-planning.service.gov.uk/>

² Communities and Local Government, (2021); Planning Practice Guidance. Available at: <http://planningguidance.planningportal.gov.uk>

³ Communities and Local Government, (2021); National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

The objectives of this report are to:

- Consult with the Environment Agency and Knowsley Council LLFA (in their role as Lead Local Flood Authority (LLFA)) in relation to fluvial flood risk and their requirements for management of any risk;
- Collect and review existing information relating to flood risk posed to the Site from all sources (including tidal, fluvial, surface water, groundwater, artificial sources and sewer and drainage infrastructure);
- Assess the flood risk to the Site under existing and post-development conditions (taking into account climate change); and
- Outline any mitigating measures needed to ensure the Proposed Development and its users will be safe for the lifetime of the development.

1.4 Data Sources

The baseline conditions for the Site have been established through a desk study using publicly available information. This information has been utilised to inform the assessment made within the FRA.

Data collected and used to inform this assessment is described in Table 1.2.

Table 1.2 Sources of Data Reviewed

Purpose	Data Source	Comments
Identification of Hydrological Features	1: 10,000 Ordnance Survey (OS) mapping	Identifies the position of the Site, local hydrological features, and riparian owners.
Historical Land Use and Hydrological Features	Historic OS maps dating back from 1842- Present ⁴	Identifies historical land use change and hydrological features over the last 176 years.
Identification of Existing Flood Risk	Environment Agency Flood Zone Map (online ¹)	Identifies fluvial/ tidal inundation extents.
	Environment Agency Flood Risk from Surface Water Map (online ⁵)	Identification of flood risk from surface water.
	Environment Agency Flood Inundation Mapping ⁶	Provides information on the risk of flooding from reservoirs (artificial sources).
	Environment Agency Groundwater Conditions Map ⁷	Identification of groundwater designations through geology.
	Mersey Estuary: Catchment Flood Management Plan ⁸ Knowsley Council Preliminary Flood Risk Assessment (PFRA) ⁹ Knowsley Council Strategic Flood Risk Assessment (SFRA) – 2009 ¹⁰ Knowsley Council Local Flood Risk Management Strategy (2017) (LFRMS) ¹¹	Assesses flood risk across the Knowsley Council boundary area. Includes flood risk from fluvial/tidal, sewers, overland flow and groundwater.
	British Geological Survey (BGS) records ¹² .	Provides details of geology and hydrogeology in the vicinity of the Site.
Identification of Historical Flooding	SFRA PFRA	Provides details of historical flooding.

⁴Ordnance Survey. Maps from 1857-1986. Available at: <http://www.oldmapsonline.org/>

⁵ Environment Agency. Flood Risk from Surface Water Available at: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?map=SurfaceWater>

⁶ Environment Agency. Flood Risk from Reservoirs. Available at: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?map=Reservoirs>

⁷ Environment Agency. Groundwater. Available at: <http://magic.defra.gov.uk/MagicMap.aspx>

⁸ Environment Agency (2009). Mersey Estuary: Catchment Flood Management Plan. Available at: <https://www.gov.uk/government/publications/mersey-estuary-catchment-flood-management-plan>

⁹ Knowsley Council Preliminary Flood Risk Assessment (PFRA). Available at:

<https://www.knowsley.gov.uk/residents/roads/flood-risk-management>

¹⁰ Knowsley Council (2009). Strategic Flood Risk Assessment (SFRA). Available at:

<https://www.knowsley.gov.uk/residents/roads/flood-risk-management>

¹¹ Knowsley Council (2016). Local Flood Risk Management Strategy. Available at:

<https://www.knowsley.gov.uk/residents/roads/flood-risk-management>

¹² British Geological Survey (BGS) records. Available at: <https://www.bgs.ac.uk/map-viewers/geology-of-britain-viewer/>

Purpose	Data Source	Comments
	Consultation with Environment Agency (Appendix B)	
Details of the Proposed Development	Development Plan Drawings (Appendix C)	Provides details of the Proposed Development.

2. Site Information

2.1 Site Location and Context

The Site is located on land between Fox Bank Lane and Penny Lane approximately 1.65 km north west of Cronton, Merseyside. The Site is centred on National Grid Reference (NGR) SJ47949 89040. The red line boundary for the Proposed Development is shown Appendix C).

The Site currently comprises a new cycleway adjacent to the Fox's Bank Brook. The Site is bordered by agricultural land and access is gained via Fox's Bank Lane, Penny Lane or local public rights of way/ local tracks. Bluebell Farm, with Woodlands Caravan Site beyond, are located to the north of the Site and a small number of individual dwellings are located along Penny Lane to the east. Fox Bank Lane borders the site to the west, beyond which is Halsnead Park.

2.2 Local Water Features

The following local water features near the Site have been identified through the inspection of OS 1: 10,000 mapping:

- Environment Agency Main River: Fox's Bank Brook meanders through agricultural land adjacent to the Site. The river originates north-east of the Site and flows in a westerly direction to join Ochre Brook;
- Environment Agency Main River: Whiston Brook flows to the east of Bluebell Farm and Woodlands Farm Caravan Site. The watercourse flows from north to south forming a confluence with Fox's Bank Brook approximately 10m from the eastern boundary of Bluebell Farm; and
- Ordinary Watercourses: A series of unnamed land drains are located approximately 100m south of the Site and appear to drain agricultural land to the south of the Site.

There are no other surface water features located in the area local to the Site.

2.3 Historical Land Use and Water Features

Historical OS mapping dating from 1883 to the present day was reviewed. From the earliest known mapping the Fox's Bank Brook watercourse, Fox's Bank Lane and Penny Lane are configured as they exist today.

2.4 Topography

The Site is relatively flat with a general slope from north-east to south-west. Review of the OS mapping indicates that the Site is at an elevation of 27-29m AOD with the highest levels to the north and north west, along Fox's Bank Brook and Fox Bank Lane, and the lowest levels to the south and south west.

2.5 Geology and Hydrogeology

Information considered pertinent to the Site has been taken from the Geo-Environmental and Geo-Technical Baseline Assessment.

Table 1.3 Geological and Hydrogeological Information for the Site

	Geological Unit	Permeability	Aquifer Status
Made Ground	Made ground (undivided) is mapped under the site	N/A	N/A
Superficial Geology	Alluvium (clay, silt, sand & gravel) is mapped under the site	Very low to high	Secondary A Aquifer – Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers classified as minor aquifers.

	Geological Unit	Permeability	Aquifer Status
Solid Geology	Triassic Sandstone is mapped underlying the site.	Low	Principal Aquifer – Layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

Source: https://consultations.knowsley.gov.uk/Documents/Baseline_Geo_Environmental.pdf

The EA Groundwater Mapping indicates the Site lies within in a Source Protection Zone (SPZ). Groundwater SPZs monitor the risk of contamination from any activities that may cause pollution to the surrounding area.

2.6 The Proposed Development

The Proposed Development involves works to install a cycleway in line with the Speed Reduction Scheme on Fox's Bank Lane.

The Proposed Development comprises a new road crossing on Fox's Bank Lane and a new cycleway/bridle path from Fox's Bank Lane across agricultural land to Penny Lane.

- Removal of hedges / existing vegetation for visibility purposes
- High friction surfacing
- Installation of a new horse holding area
- Wire mesh fencing to be placed along the lease boundary extents
- Dropped kerbs for horse crossing
- Installation of a new shared use area
- K barrier with a horse step for access
- Turning head area

A plan showing the layout of the proposed development works is presented as Appendix C.

3. Planning Policy and Guidance

The Sections below consider the planning policies and guidance of relevance to the Proposed Development with regards to flood risk from all sources and appropriate mitigation measures which should be considered.

3.1 National Planning Policy Context

The NPPF is supported by the PPG, an online resource published in March 2014 and updated in 2021. The PPG supersedes the PPS25 Practice Guide¹³ and the Technical Guidance to the National Planning Policy¹⁴, as detailed in the Ministerial Statement 'Making the planning system work more efficiently and effectively'¹⁵.

The NPPF and PPG must be taken into account in the preparation of local and neighbourhood plans and are a material consideration in planning decisions. It constitutes guidance for local planning authorities (LPAs) and decision-takers, both in drawing up plans and as a material consideration in determining applications.

The NPPF and PPG recommend that Local Plans should be supported by a SFRA and develop policies to manage flood risk from all sources. This should take into account advice from the Environment Agency and other relevant flood risk management bodies, such as LLFAs and Internal Drainage Boards (IDBs). Local Plans should apply a sequential, risk-based approach to the location of developments. This is done to seek to mitigate flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by:

- Applying the Sequential Test;
- Applying the Exception Test, if necessary;
- Safeguarding land from development that is required for current and future flood management;
- Using opportunities offered by new development to reduce the causes and impacts of flooding; and
- Seeking opportunities to facilitate the relocation of existing development, including housing, to more sustainable locations if climate change is expected to increase flood risk.

3.1.1 The Sequential and Exception Tests

The overall aim of the Sequential Test is to steer new development to areas designated as Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1 areas, LPAs allocating land in Local Plans or determining planning applications for development at any particular location should take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2 areas, applying the Exception Test if required. Only where there are no reasonably available sites in Flood Zone 1 or 2 areas should the suitability of sites in Flood Zone 3 be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

For the Exception Test to be passed:

- It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a SFRA where one has been prepared; and,
- A site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall.

Both elements of the test will have to be passed for development to be allocated or permitted.

3.1.2 Development and Flood Risk Vulnerability

The NPPF considers the vulnerability of different forms of development to flooding and classifies proposed uses accordingly.

Section 7, Paragraph 066 of the PPG illustrates a matrix which identifies which vulnerability classifications are appropriate within each flood zone. This can be seen below in Table 3.1.

¹³ Communities and Local Government, (2012); 'Planning Policy Statement 25: Development and Flood Risk, Practice Guidance'

¹⁴ Communities and Local Government, (2012); 'Technical Guidance to the National Planning Policy Framework'

¹⁵ Communities and Local Government (2014); 'Making the planning system work more efficiently and effectively'

Table 1.4 Flood Risk Vulnerability and Flood Zone Compatibility

Flood Risk Classification	Vulnerability	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone 1		✓	✓	✓	✓	✓
Flood Zone 2		✓	✓	Exception test required	✓	✓
Flood Zone 3a	Exception test required	✓	✗	Exception test required	✓	
Flood Zone 3b (Functional Floodplain)	Exception test required	✓	✗	✗	✗	

Key

✓ Development is appropriate.

✗ Development should not be permitted

The Proposed Development is classed as 'water compatible' in Table 3.1 (flood risk vulnerability classification) of the Flood Risk and Coastal Guidance¹⁶.

The Environment Agency Flood Map for Planning indicates the Site is located across Flood Zones 1 to 3, as such based on the classification shown in Table 3.1 the Exception Test is not required. The development is a cycleway through agricultural land and therefore the consequences of flooding would be low

3.2 Local Planning Policy

3.2.1 Knowsley Council Local Plan

The Knowsley Council Local Plan was adopted by the Council in January 2016¹⁷ and provides a framework approach for the growth of the Borough up to 2028.

Relevant development and flood risk policies include Policy CS22: Sustainable and Low Carbon Development and Policy CS24: Managing Flood Risk.

Table 1.5 Relevant Core Strategy Policies

Relevant Policy	Sub-Category	Summary
Policy CS22: Sustainable and Low Carbon Development	10.2	New development will be required to meet high standards of sustainable design and construction. This includes managing flood risk through the use of Sustainable Drainage Systems (SuDS) and flood resilient design for infrastructure and property.
Policy CS24: Managing Flood Risk	All	New development that may cause an unacceptable risk of flooding on the site or elsewhere will not be permitted and new development should preferably be located in areas of low probability of flooding. New development in areas of medium or high flood risk will only be permitted if evidence has been submitted to demonstrate the development could not be practicably located in an area of lower flood risk All developments within an area of flood risk or larger than one hectare in size shall be accompanied by a site-specific Flood Risk Assessment (FRA) New development shall include flood mitigation measures, where necessary, to manage flood risk associated with or caused by the development.

¹⁶ Environment Agency (2021). Flood Risk and Coastal Guidance. Available at: <https://www.gov.uk/guidance/flood-risk-and-coastal-change#Table-3-Flood-risk-vulnerability>

¹⁷ Knowsley Council (2016) Local Plan. Available at: <https://www.knowsley.gov.uk/residents/building-and-planning/local-plan/adopted-documents>

Relevant Policy	Sub-Category	Summary
		The drainage of new development shall be designed to reduce surface water run-off rates to those associated with a green-field site by site by treating it at its source.

Source: < <https://localplanmaps.knowsley.gov.uk/documents/knowsley-local-plan-adopted-core-strategy.pdf>>

3.3 Other Relevant Policy and Guidance

Table 1.6 Summary of other policy and guidance

Policy/Plan	Summary
Flood Risk Management Strategy ¹¹	As a LLFA, Knowsley Council has a responsibility to develop a Local Flood Risk Management Strategy (LFRMS) which sets out a clear plan for future flood risk management in the Borough, ensuring people, businesses communities and other risk management authorities have an active role in how flood risk is managed. The Knowsley Council LFRMS was published in 2017 to 'provide an overview and assessment of local flood risk in Knowsley and set out objectives and measures for how Knowsley Council will manage and reduce local flood risk. The LFRMS state that the councils will work in partnership with the EA, Canal & Rivers Trust, United Utilities and other Risk Management Authorities
Surface Water Management Plan ¹⁸	The Surface Water Management Plan (SWMP) has the broad aim of evidencing the general flood risk across the whole district, identifying areas of flood risk requiring further, more detailed investigation.
Level 1 Strategic Flood Risk Assessment ¹⁰	The SFRA forms an essential reference tool providing the building blocks for future strategic planning. The Councils use the evidence provided in the SFRA to inform their knowledge of flooding, refine information on the EA Flood Map for Planning and determine the variations in flood risk from all sources of flooding. The SFRA form the basis for preparing appropriate policies for flood risk management within the area. The primary objective of the SFRA is to enable the Council to apply the Sequential and Exception Test in the development allocation and development management process set out in the NPPF. The SFRA also takes into account the impacts of climate change.

¹⁸ Knowsley Council (2016) Surface Water Management Plan. Available at: <http://www.knowsley.gov.uk/knowsleycouncil/media/Documents/knowsley-mbc-sustainable-drainage-and-surface-water-management-guidance-for-developers-august-16.pdf>

4. Baseline Flood Risk Assessment

The NPPF requires the effects of all sources of flood risk to and from a development are considered within a FRA. The FRA should demonstrate how identified risks should be managed so that the development remains safe throughout its lifetime, taking into account climate change.

This review was undertaken using publicly available information to assess the flood risk at the Proposed Development.

4.1 Historical Flooding

Environment Agency records show that there are no historic records of flooding from Fox's Bank Brook and the SFRA has no reports of flooding in proximity to the Site.

4.2 Flooding from Fluvial and Tidal Sources

The Environment Agency Flood Map for Planning, presented as Figure 4.1 below, indicates that the Site is located across Flood Zones 1, 2 and 3 which are defined in Table 1.1. The Environment Agency mapping shows the Site is not located in an area that benefits from flood defences.

4.2.1 Tidal Sources

The Site is not located near the sea or any tidally influenced watercourse, therefore the risk of flooding from this source is not considered further as part of this assessment.

4.2.2 Fluvial Sources – Main River

The Fox's Bank Brook meanders through agricultural land adjacent to the Site. The river flows in a westerly direction towards Ochre Brook.

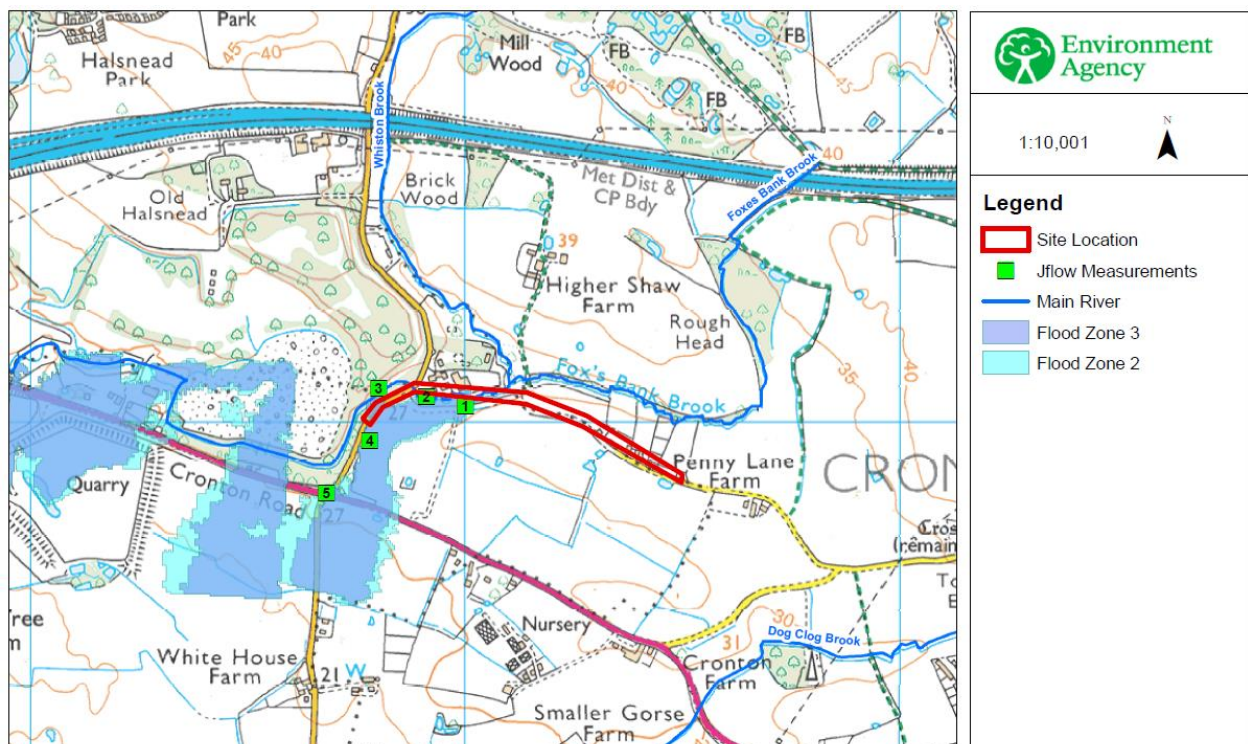


Figure 1-1 Environment Agency Detailed Flood Map centred on Fox's Bank Lane

The detailed flood map shows the Site is located across Flood Zones 1, 2 and 3. The crossing works along Fox's Bank Lane, such as the installation of the new horse holding area, take place in Flood Zone 1 and are therefore at low risk of flooding. The proposed cyclepath is located adjacent to Fox's Bank Brook is partially located in Flood Zones 2 and 3 (the eastern end towards Fox's Bank Lane) and therefore at medium and high risk of flooding. The remaining length of cyclepath located towards Penny Lane is located within Flood Zone 1.

4.2.2.1 Modelled Flood Water Levels

As part of the data consultation response the Environment Agency have provided modelled flood water levels for Fox's Bank Brook for a 1% (1 in 100) AEP and 0.1% (1 in 1000) AEP flood event (Table 4.1). These flood levels are derived from the Environment Agency's National Generalised Modelling (JFlow) and as such is not sufficiently accurate for site specific use.

Table 1.7 National Generalised Modelling Data (m AOD)

Map Reference	Model Node Reference	Easting	Northing	Undefended 1% AEP (1 in 100 year)	Undefended 0.1% AEP (1 in 1000 year)
1	J Flow Measurement	348002	389037	29.24	29.41
2		347913	389057	29.14	29.24
3		347802	389077	33.44	33.44
4		347782	388957	29.42	29.42
5		347682	388837	26.54	26.54

The modelling data does not reflect the topography of the area as Map Reference 3 indicates that flood water levels increase from 29.24m AOD to 33.44m AOD, suggesting water is flowing uphill or a significant inflow is entering the watercourse. In reality, the stretch of Fox's Bank Brook to the west of Fox's Bank Lane is at a similar level to the cyclepath location, however, the road is elevated between the two locations so flood water would not be able to enter this area from the west of Fox's Bank Lane.

Any potential flooding from Fox's Bank Brook adjacent to the proposed cyclepath appears to be routed to the south and south west across the fields towards Cronton Road. Should flooding occur post development, this flood route would not change.

The development proposals are for a new stretch of cyclepath across agricultural land therefore undertaking a detailed modelling study to inform the assessment would not be proportionate to the level of development proposed.

4.2.3 Fluvial Sources – Ordinary Watercourses

A series of unnamed land drains are located approximately 100m south of the Site and appear to drain agricultural land to the south of the Site.

Smaller watercourses with catchment areas less than 3km fall under the jurisdiction of LLFAs and there is no associated hydraulic model or modelled flood water data available to inform the assessment. As a proxy, the Environment Agency RoSWF maps, primarily used to represent surface runoff; can also be used to identify flooding from Ordinary Watercourses/land drains.

Mapping shows that the flood extent for the unnamed land drains do not extend into the site.

The Proposed Development is considered to be at low risk of flooding from smaller watercourses.

4.3 Surface Water (Overland Flow)

Surface water flooding is caused by overland flow that results from rainfall that fails to drain into the ground through infiltration, instead travelling over the ground surface. This can be exacerbated where the permeability of the ground is low due to the type of soil (such as clayey soils) and geology or land use including urban developments with impermeable surfaces.

The Environment Agency RoFSW maps indicate areas at risk from surface water flooding when rainwater does not drain away through the normal drainage systems or soak into the ground, but instead lies on or flows over the ground. The RoFSW flood map for the Proposed Development can be viewed on the EA website. Risk from surface water flooding is defined in Table 4.2.

Table 1.8 Definition of risk from surface water flooding

Risk of flooding	Definition
Very Low	Each year, the area has a chance of flooding of less than 1 in 1000 (0.1%)
Low	Each year, the area has a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%)
Medium	Each year, the area has a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%)
High	Each year, the area has a chance of flooding of greater than 1 in 30 (3.3%)

The map shows that the new Fox's Bank Lane road crossing and the proposed cycleway in proximity to Fox's Bank Lane is at 'high' risk of flooding from surface water. This area reflects an area of low topography where surface water run-off pools and this was observed during a site visit where ground conditions in the corner of the field adjacent to Fox's Bank Lane can be described as waterlogged with standing water visible.

The risk of flooding from surface water decreases to the east towards Penny Lane with the majority of the cycleway at 'low' or 'very low' risk of flooding from surface water sources.

4.4 Artificial Waterbodies

Artificial flood sources include raised channels such as canals or storage features such as ponds and reservoirs. The site is not located in proximity to any artificial waterbody and the Environment Agency Longterm Flood Risk Maps indicate the Proposed Development is not located in an area at risk of flooding should a reservoir failure occur.

As a consequence, the risk of flooding from artificial waterbodies is not considered further in this assessment.

4.5 Groundwater Sources

Groundwater flooding can occur when groundwater levels exceed ground surface levels as a result of periods of sustained high rainfall. The underlying geology has a major influence on where this type of flooding takes place; it is most likely to occur in low-lying areas underlain by permeable rocks (aquifers) where the water table is more likely to be at shallow depth.

4.5.1 Geology and Hydrogeology

The 1:50,000 British Geological Survey (BGS) Map of Britain indicates that most of the Site is mapped on superficial deposits consisting of alluvium (clay, silt, sand and gravel). The bedrock geology mapped underlying the site comprises of Triassic sandstone. Further information is summarised in Table 2.1.

4.5.2 Groundwater Levels

There are over one hundred and twenty BGS borehole records for the Site which encounter groundwater in the approximate range 1.5-4.5 m below ground level.

It is unlikely groundwater will be encountered in excavations during construction works with limited below ground works expected to take place. However, should localised groundwater emergence occur it is considered this can easily be dealt with by the use of a small pump, and would not increase flood risk from groundwater sources to the area during or after the construction process.

4.5.3 Groundwater Flooding

Groundwater flooding is not a particular cause for concern for the Site. There are no reports of groundwater flooding or issues that the Environment Agency are aware of and no historical records of groundwater flooding are reported in the SFRA in proximity to the Site.

Based on the above data the risk of groundwater flooding to the Site is considered to be 'low'.

4.6 Flooding from Drainage and Sewerage Infrastructure

Flooding from drains, sewers and surface waters are normally interconnected. Insufficient or reduced drainage capacity within the sewer network can result in drainage capacity being exceeded causing extensive surface water

flooding. Likewise, increased volumes of surface water can overload sewers and drains, causing the drainage network to backup and surcharge causing surface water flooding.

The Site is located within agricultural land and therefore drainage infrastructure in this area will be limited. Drainage infrastructure is present beneath Cronton Road, to the south of the proposed development site.

United Utilities is the water company that serves the Knowsley administrative area. As part of the SFRA, United Utilities provided records from their Floods Registers which are used to record flood incidents attributable to their sewer networks, whether that be from foul and / or surface water sewers. The historical mapping, included within the SFRA, shows that the Site is not located in an area that is known to contain any sewer networks.

On the basis of the available information, the Site is not considered to be at risk of flooding from drainage and sewerage infrastructure.

5. Climate Change

The EA published updated climate change guidance in July 2021¹⁹. The guidance indicates that climate change is likely to increase

- peak river flows;
- peak rainfall intensity;
- sea level rise; and
- wave height and offshore wind speed.

For the purpose of this assessment, sea level rise, wave height and offshore wind speed are not included as the Site is not considered to be at risk of flooding from tidal sources.

5.1 Peak River Flow Allowances

For proposed developments in areas of fluvial flood risk, the flood risk vulnerability classification, flood zone and lifetime of development are of a particular importance to determine the correct climate change allowance as detailed in Table 5.1.

Table 1.9: EA Climate Change Allowances to apply based upon the Flood Zone and Development Land Use Vulnerability.

	Water Compatible	Less Vulnerable	More Vulnerable	Highly Vulnerable	Essential Infrastructure
Flood Zone 1	CA	CA	CA	CA	CA
Flood Zone 2	CA	CA	CA	CA	HCA
Flood Zone 3a	CA	CA	CA	X	HCA
Flood Zone 3b	CA	X	X	X	HCA

CA = Central Allowance; HCA = Higher Central Allowance; X = Development not permitted

The Proposed Development is currently located across all three flood zones and defined as 'water compatible'. Therefore, the central allowance is used to represent the potential impact of climate change on fluvial flood levels. Table 5.2 lists the peak river flow allowances from the EA guidance²⁰ for the Lower Mersey management catchment in which the Site is located.

The +44% allowance for climate change is therefore applicable to the lifetime of the proposed development which, as a worst-case scenario, is assumed to be approximately 60 years.

¹⁹ Environment Agency (2021) Flood risk assessments: climate change allowances. Available at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

²⁰ Environmental Agency. (2021). Climate Change Allowances. Available at: <https://environment.data.gov.uk/hydrology/climate-change-allowances?mgmtcatid=3007>

Table 1.10: Peak River Flow Allowances for the Proposed Development**Proposed Development:****Prescot to Cronton Cycleway**

Management Catchment	Lower Mersey
Flood Zone	Flood Zone 3
Flood Risk Vulnerability Classification	Water Compatible
Lifetime of Development	60
Climate Change Allowance to be Assessed	2080s Central (44%)

5.2 Peak Rainfall Intensity Allowance

Increased rainfall affects river levels and land and urban drainage systems. Table 5.3 shows anticipated changes in extreme rainfall intensity in small and urban catchments. For FRAs and SFRAs, both the central and upper end allowances need to be assessed to understand the range of impacts.

Table 1.11: Peak Rainfall Intensity Allowance in small and urban catchments

Applies across all of England	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115
Upper End	10%	20%	40%
Central	5%	10%	20%

6. Post-Development Flood Risk Assessment

The NPPF requires site specific FRAs accompanying planning applications to assess the risk of all sources of flooding to and from the Proposed Development, and to demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

6.1 Fluvial Flooding

6.1.1. Main River

The Site is located across Flood Zones 1, 2 and 3 and classed as a water compatible infrastructure under the NPPF flood risk vulnerability classification. Although the proposed cyclepath is located partially in Flood Zone 3, the path does not need to stay open in times of flooding.

The cyclepath will be raised so the development is level with the southern bank of Fox's Bank Brook and therefore will not obstruct floodwater flow routes into and across the adjacent field. The risk of flooding will therefore not increase significantly to the surrounding greenfield areas.

Over the proposed lifetime of the development (assumed to be 60 years), peak river flows are expected to increase by 44% , however, the presence of the proposed development will not increase flood risk to the surrounding area above that which occur should the cyclepath not be present..

The risk of flooding would therefore not increase from the baseline scenario and will remain at low to high risk of flooding from Fox's Bank Brook.

6.1.2. Ordinary Watercourses

A series of unnamed land drains/ Ordinary Watercourses) are located approximately 100m south of the Site and appear to drain agricultural land to the south of the Site, however mapping shows that the flood extent for the unnamed land drains do not extend into the site boundary.

Although peak river flows are expected to increase by 44% over the lifetime of the development, given the distance from the cyclepath location and lower topography (land levels fall away towards Cronton Road, it is unlikely that the proposed development will be at risk of flooding from these smaller Ordinary Watercourses.

The risk of flooding from fluvial Ordinary Watercourse sources remains low post-development.

6.2 Surface Water Runoff Generation and Overland Flow

Climate change must be taken into account when considering surface water runoff generated by development sites. This is usually represented by increasing the peak rainfall intensities (Table 5.4). An increase in rainfall intensity will result in an increase in runoff rates and volumes from the development, exacerbated by increased areas of impermeable surface associated with the Proposed Development, though the impact of this is expected to be minimal due to the scale of the development and the inclusion of a permeable strip either side of the path where water will be routed to and can infiltrate to ground.

As the rainfall intensities and storm events are likely to increase under the climate change scenario, the risk of flooding from surface water, which is currently considered to be high towards Fox's Bank Lane, is expected to increase at the Site, however the presence of the cycleway will not increase this risk above what would occur should the cyclepath not be present..

6.3 Groundwater Flooding

The predicted increase in the wetness of winters and the intensity of storm events could impact groundwater level fluctuations across the Site, and possibly increase the level of the water table. As the likelihood of groundwater emergence under the climate change scenario is likely to increase, the potential for groundwater flooding to impact the Proposed Development may also increase.

The Site is currently considered to be at low risk of flooding from groundwater sources.

As a consequence of climate change, groundwater emergence could potentially occur on the agricultural land adjacent to the development however, the risk of this occurrence is not elevated due to the presence of the road crossing and cyclepath.

The risk of groundwater flooding is considered to remain a low risk over the lifetime of the development.

6.4 Flooding from Drainage Infrastructure

The development is not located in proximity to any sewer or drainage infrastructure.

7. Flood Management Measures

The following mitigation measures will be considered to reduce the probability of flooding during extreme events and residual risks should also be considered. These measures will help to reduce the impact of a flood event should it occur.

7.1 Mitigation from Fluvial Flooding

The Site is located across Flood Zones 1, 2 and 3 and therefore considered to be at a low, medium and high risk of fluvial flooding. The proposed road crossing is located at an elevated level along Fox's Bank Lane, within Flood Zone 1. The cyclepath, to the east near Fox's Bank Lane and adjacent to Fox's Bank Brook is located in Flood Zone 2 and 3, whilst the eastern cyclepath extent towards Penny Lane is located in Flood Zone 1.

As the proposed development is only partially located within Flood Zone 3 and is considered water compatible (i.e. the development is allowed to flood and there is no requirement for the cyclepath to provide access during a flood event) there is no requirement to raise the proposed development above the flood water level. The presence of the cyclepath will not obstruct the flow of floodwater into the adjacent field and the risk of flooding will not increase above what would occur with climate change if the cyclepath was not in-situ.

Signage will be used to increase public awareness to the possibility of flooding and should a flood event occur the cyclepath will not be accessible.

7.2 Mitigation against Surface Water Flooding

The impact of the development on surface water flooding is not expected to be significant. Permeable strips either side of the path will allow infiltration of surface water to ground and mitigating any increase in impermeable surface.

7.3 Mitigation against Groundwater Flooding

The risk of flooding from groundwater is considered to be low. Although there is a potential risk for groundwater emergence as a result of climate change in the adjacent agricultural field this risk would be no higher than if the cyclepath was not in-situ.

7.4 Mitigation against Flooding from Drainage & Sewer Infrastructure

There is no drainage or sewer infrastructure present at the Site, therefore no mitigation is required.

8. Off-Site Impacts and Residual Risk

8.1 Off-Site Impacts

The installation of new infrastructure will increase the impermeable area associated with the Proposed Development, therefore increasing the surface water runoff to the off-site adjacent greenfield areas. This increase, however, is not expected to be significant and is mitigated by permeable strips either side of the cycleway which will allow infiltration of surface water to ground.

The cyclepath will be raised to the same level as the top of bank along the southern bank of Fox's Bank Brook, however, the cycle path will not obstruct flood flow routes to and across agricultural land to the south and south west. It is not expected that this small area of raised land located with the Flood Zone 3 extent will significantly increase the risk of flooding from Fox's Bank Brook and the provision of flood compensatory storage is not considered proportionate to the scale, nature and location of the cyclepath which is considered water compatible and can be allowed to flood.

The development is surrounded by agricultural land and will not significantly increase the risk of flooding above that which would occur should the cyclepath not be in-situ when climate change is taken into account.

8.2 Residual Risk

Although there are no historic flood events for the proposed development site or the surrounding areas, the site will remain at risk of flooding during higher probability storm events. Should a flood event occur, the cyclepath (located in the Flood Zone 2 and Flood Zone 3 flood extents) would flood. As noted in Section 7, if this was to occur the cyclepath would be un-useable over the duration of the event. Signage would be used along the length of the route to alert the general public to the possibility of flooding during periods of inclement weather.

9. Conclusions

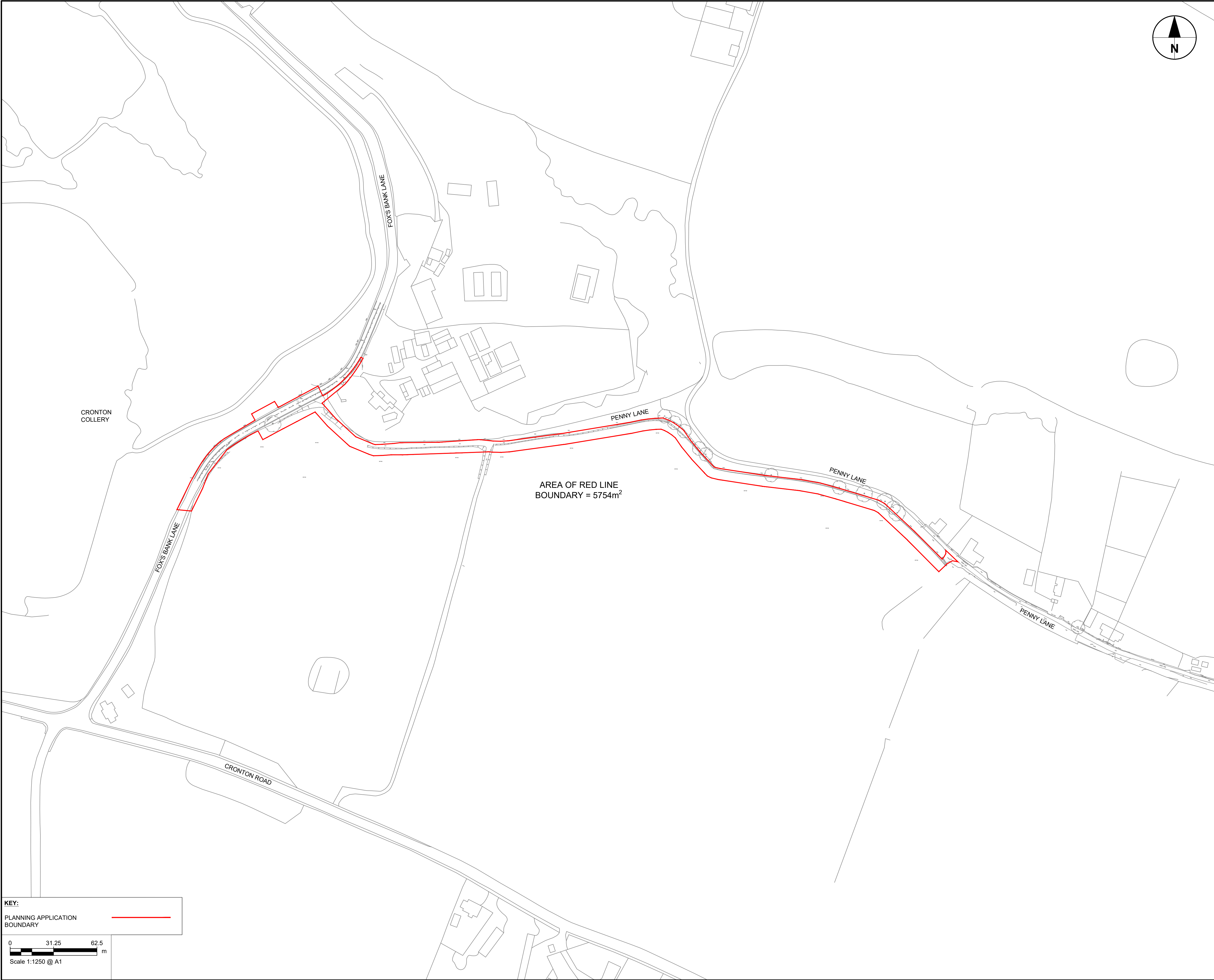
AECOM has prepared this FRA on behalf of Knowsley Council in accordance with the NPPF to support a planning application for the proposed Preston to Cronton Cycleway works in Prescot, Merseyside.

The following conclusions can be made regarding flood risk to the Site and to off-site areas as a result of the Proposed Development:

- The FRA has considered all potential sources of flooding to the Site, including tidal, fluvial, groundwater, land drainage, overland flow, artificial sources, and sewer drainage arrangements. Climate change has also been considered, which is expected to increase the peak rainfall intensity by up to 40% and increase peak river flows by up to 44% over the lifetime of the development;
- The Site is not at risk of flooding from tidal sources;
- The Site lies across Flood Zones 1, 2 and 3 and as such is at low, medium and high risk of fluvial flooding from Main Rivers.
- The risk of flooding from Ordinary Watercourses is considered to be low when considering the impact of climate change on fluvial flows;
- The flood risk vulnerability classification for the site is designated as 'water compatible' in the PPG and is therefore considered appropriate in the planning context for development in Flood Zones 2 and 3, subject to appropriate mitigation measures being implemented for any identified flood risk.
- The Sequential Test is considered to be passed for the Proposed Development by virtue of the fact that it is water compatible development. The Exception Test is not applicable in this case;
- The Environment Agency RoFSW maps indicate the Site is generally at low risk of flooding from surface water with an area of high risk located adjacent to Fox's Bank Lane to the west.
- The use of impermeable surfacing along the length of the cyclepath has the potential to increase the rates of surface water run-off. However, it is expected that the increase in surface water run-off will not be significant and permeable strips either side of the cycleway will be constructed to allow infiltration of surface water to ground;
- The risk of flooding from artificial sources and sewers is very low. There are no historical flood events recorded from drainage or sewer infrastructure in proximity to the Site;
- The risk of flooding from groundwater is considered to be low.
- Flood mitigation measures appropriate to the scale and nature of the proposed development are proposed, and include signage to raise public awareness to the possibility of flooding;

At this stage, based on the findings to date, AECOM considers that the flood risk from all sources, to and from the Site can be mitigated to a level which is low and acceptable.

Appendix A Site Location



KEY:

PLANNING APPLICATION
BOUNDARY

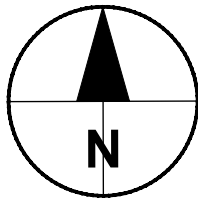
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31.25

62.5

m

Scale 1:1250 @ A1



PROJECT

PRESCOT TO CRANTON
CYCLEWAY

CLIENT



Knowsley Council
Yorkon Buildings, Archway Road, Huyton,
L36 9YU
tel. 0151 489 6000
www.knowsley.gov.uk

CONSULTANT

AECOM
4th Floor, Merchants Court
2-12 Lord Street
Liverpool, L2 1TS
www.aecom.com

NOTES

- TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION / INFORMATION.
- DIMENSIONS AND LEVELS ARE IN METRES UNLESS OTHERWISE STATED.
- DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
- ALL LEVELS RELATE TO ORDNANCE DATUM.
- THIS DRAWING HAS BEEN PRODUCED USING TOPOGRAPHICAL SURVEY CARRIED OUT BY "MALCOLM HUGHES LAND SURVEYORS" IN MAY 2020 AND OS MAPPING RECEIVED FROM KNOWSLEY COUNCIL ON 9TH MARCH 2020.
- REFER TO DRAWING NO. 60629784-SHT-30-PCP0-CT-0100 TO 0101 FOR SCHEME LOCATION PLAN.
- FOR DESIGN PROPOSALS, REFER TO DRAWINGS 60629784-SHT-30-PCP8-CT-0101 TO 0105.

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ISSUE/REVISION

I4	21/09/2021	CLIENT COMMENTS
I3	31/08/2021	SOLID BOUNDARY
I2	27/08/2021	BOUNDARY COLOUR CHANGE
I1	01/07/2021	FOR INFORMATION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60629784

SHEET TITLE

PHASE 8
PLANNING APPLICATION
BOUNDARY

SHEET NUMBER

60629784-SHT-10-PCP8-CT-0001

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Appendix B Environment Agency Data Consultation



28th October 2021

External Relations Team
Environment Agency
Quadrant 2
99 Parkway Avenue
Sheffield
S9 4WF

Our Ref: Prescot to Cronton Cycleway (Knowsley Phase 8)

Your Ref:

Dear Sir/Madam,

Re: Prescot to Cronton Cycleway (Knowsley Phase 8)

AECOM has been commissioned to prepare a Flood Risk Assessment for Prescot to Cronton Cycleway (Knowsley Phase 8). The Site is located off Fox's Bank Lane in Prescot, Merseyside. The footprint of the Proposed Development covers an area of approximately 0.58 ha of undeveloped greenfield land and the Site is centred on National Grid Reference (NGR) SJ479890. A location plan is provided at the end of this letter.

Flood Risk Data Request

In line with the Environment Agency's standing advice, AECOM proposes to produce a Flood Risk Assessment that considers the risk to the site from all sources, rivers and the sea, streams, surface water run-off, sewers, groundwater, etc. AECOM will also make recommendations for managing surface water runoff according to sustainable drainage principles.

The Environment Agency's (EA) Flood Map for Planning indicates that the Site is located within Flood Zone 3.

AECOM would like to request the following information:

- Confirmation of the sites flood zoning;
- Any detailed maps of historical flood extents at the site and details of any other flood level or flood extent data related to the site that may be relevant, including any photographs or other anecdotal information;
- Details of any flood defences for the area, their condition, anticipated lifetime and statutory flood defence levels;
- Details of any known surface water flooding problems in the area and confirmation of any designated critical drainage areas (CDAs);
- Provision of mapping showing the areas susceptible to surface water flooding and the flood map for surface water (AStSWF and uFMfSW);
- Details of groundwater levels in the vicinity of the site and of the risk of rising groundwater levels and provision of mapping (AStGWF); and

It is likely that some of the above information would be covered by provision of a Product 4 data package. It would also be useful to know the origin of the flood extents that have been used to generate the Flood Zones on the EA Flood Map for Planning.

I look forward to hearing from you.

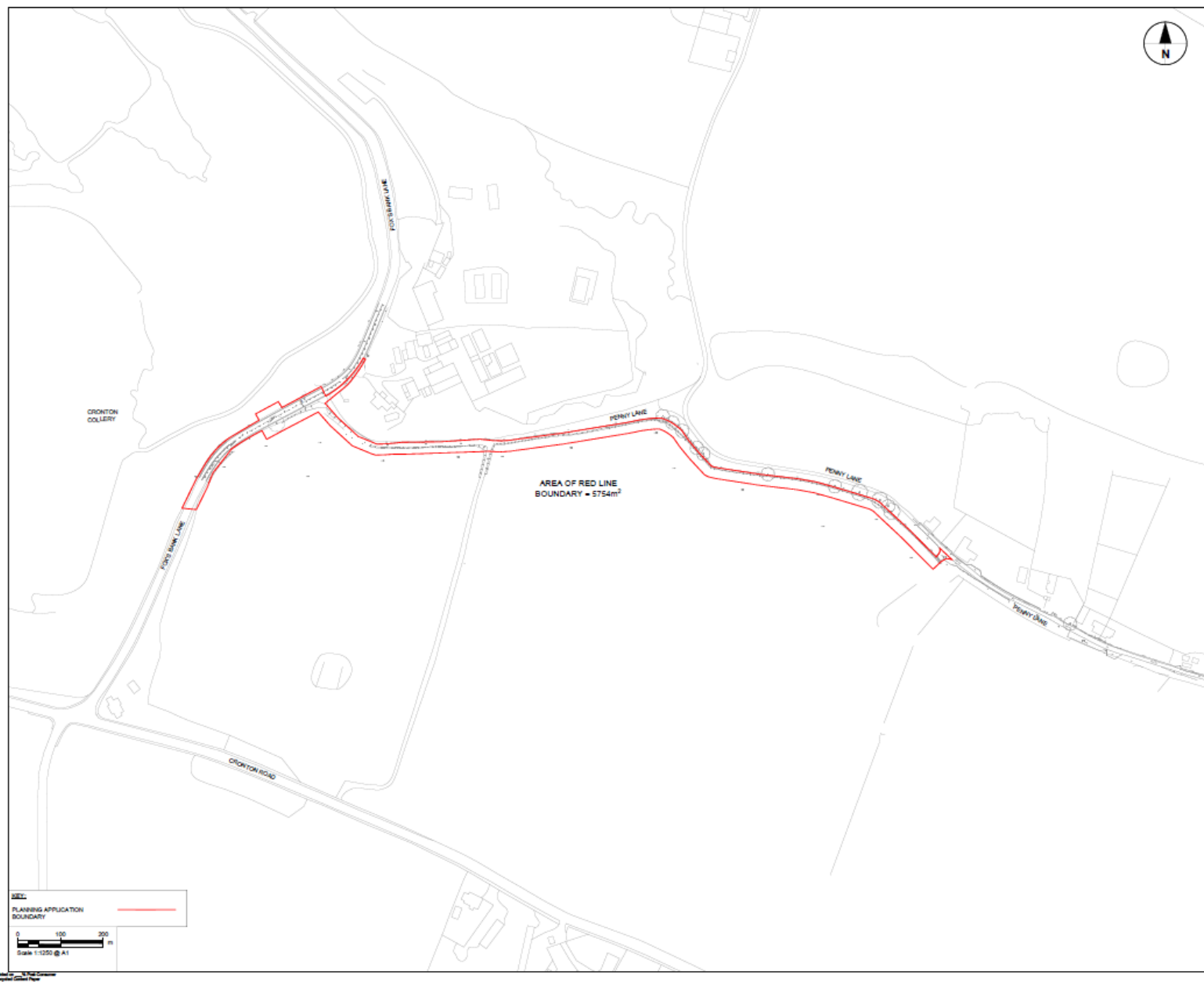
Yours sincerely for
AECOM Limited

A handwritten signature in brown ink that reads "Frances Lee".

Frances Lee
Flood and Coastal Consultant

T: +44 (0)7467 702518
Frances.Lee3@aeom.com

Site boundary map below:



Lee, Frances

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 01 November 2021 10:13
To: Lee, Frances
Subject: [EXTERNAL] GMMC238946AB Response attached from the Environment Agency
Attachments: EA Data Request Prescott to Cronton Cycleway FRA.pdf;
GMMC238946AB_DFM.PDF; GMMC238946AB_Table.pdf

Dear Fran,

Thank you for your enquiry which was received on 28/10/21.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

I enclose the data requested.

We have no records of flooding affecting the site. However, this does not mean flooding has not occurred in the past or that it will not flood in future. We recommend that you also contact United Utilities and Knowsley District Authority who may hold additional information (the former especially in relation to sewer flooding).

There are no modelled watercourses within the vicinity of the site. The data provided is J-Flow, which is broad scale National Generalised Modelling and as such is not sufficiently accurate for use in Flood Risk Assessments.

There are no flood defences within the vicinity of the site.

Flood risk from surface water can be found at <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

From April 2015 Lead Local Flood Authorities became the statutory consultee for surface water flood risk in relation to planning applications. They are now the appropriate body to assess applicants/developers surface water drainage proposals and the Local Planning Authority should consult the LLFA as necessary during determination of applications.

On 12th September 2014 Defra published a new consultation on delivering SuDS. The consultation document set out an alternative approach to the one envisaged in the Flood & Water Management Act 2010. The proposals dropped all the key provisions of Schedule 3 and the idea of establishing SuDS Approval Boards (SABs). The alternative approach was adopted and a written statement made on 18th December 2014 to Parliament:- <https://www.gov.uk/government/speeches/sustainable-drainage-systems>. The alternative approach sets out an expectation that "major developments" should incorporate SuDS designs. The supporting "Non Statutory Technical Standards for SuDS was also issued in March 2015":- <https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards>. It is no longer the EAs role to comment on the suitability of a developer's surface water drainage design as to whether it meets the National Planning Policy Framework, Non-Statutory Standards, the Council's policies or any relevant SFRA requirements. If the LLFA wishes to consult us as part of their SuDS design assessment (i.e. if discharge is proposed direct to a "main river") this can be done directly with the EA's PSO Team here. Accordingly, if you have not already done so, we recommend you discuss your surface water drainage proposals directly with the LLFA. This development may require a permit

under the Environmental Permitting (England and Wales) Regulations 2010 from the Environment Agency for any proposed works or structures, in, under, over or within eight metres of the top of the bank of a watercourse, designated a 'main river'. This was formerly called a Flood Defence Consent. Some activities are also now excluded or exempt. A permit is separate to and in addition to any planning permission granted. Further details and guidance are available on the GOV.UK website:
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Flood Map for Planning: <https://flood-map-for-planning.service.gov.uk/>

For additional flood risk information, advice and support in your area, please visit: <https://thefloodhub.co.uk/>

The National Flood Forum also offers advice on obtaining insurance, particularly for those properties deemed at high risk. This is helped by the government-backed scheme 'Flood Re' which enables those at risk to shop around for affordable insurance. They also offer advice on property resilience, flood prevention and mitigation measures which we hope you will find useful. For this information please visit:
<http://www.nationalfloodforum.org.uk/>

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Anne Ball
Customer and Engagement Officer
Greater Manchester, Merseyside and Cheshire
Email: inforequests.gmmc@environment-agency.gov.uk

From: Lee, Frances [<mailto:Frances.Lee3@aeacom.com>]
Sent: 28 October 2021 15:24
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: Data Request: Prescott to Cronton Cycleway Flood Risk Assessment

Hello,

Please see attached a request for data to support a Flood Risk Assessment for the Prescott to Cronton Cycleway.

Many thanks,

Fran

Frances Lee BSc (Hons), MSc
Pronouns: She, Her

Flood and Coastal Consultant, Water, Ports & Power, UK
M +44 7467 702518
Frances.Lee3@aeacom.com

Click [here](#) to connect with me on LinkedIn

AECOM
5th Floor

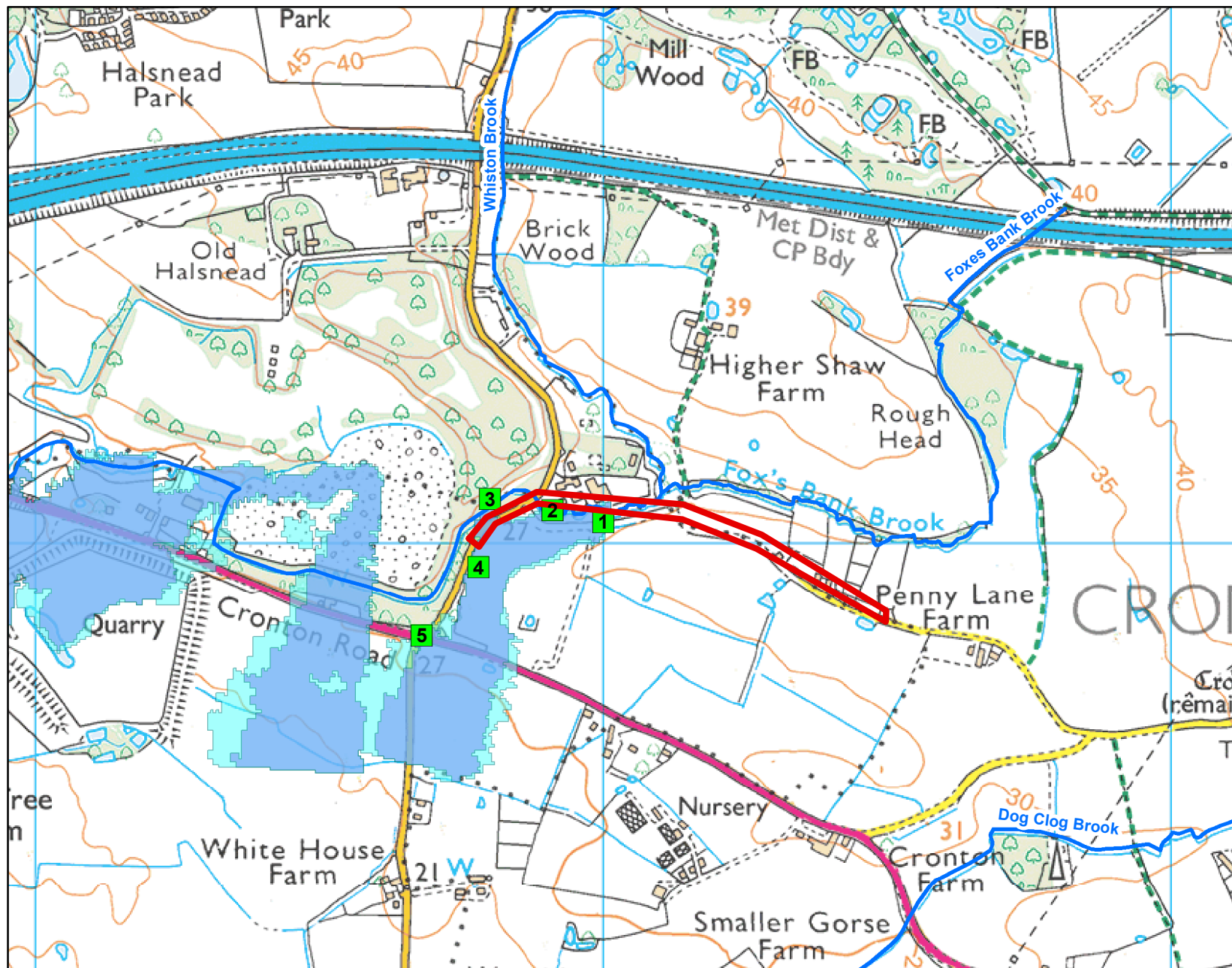
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Detailed Flood Map centred on Fox's Bank Lane, Whiston, L35 3ST. Created on 01/11/2021 [GMMC238946AB]



1:10,001



Legend

-  Site Location
-  Jflow Measurements
-  Main River
-  Flood Zone 3
-  Flood Zone 2

Map Reference	Model Node Reference	Easting	Northing	Data	Undefended	
					1 % AEP (1 in 100 year)	0.1 % AEP (1 in 1000 year)
1	J flow Measurement	348002	389037	Modelled Water Level (m aodN)	29.24	29.41
2		347913	389057	Modelled Water Level (m aodN)	29.14	29.24
3		347802	389077	Modelled Water Level (m aodN)	33.44	33.44
4		347782	388957	Modelled Water Level (m aodN)	29.42	29.42
5		347682	388837	Modelled Water Level (m aodN)	26.54	26.54

Model data taken from National Generalised Modelling (JFLOW), 2004

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

Please note: J-Flow is broadscale National Generalised Modelling and as such is not sufficiently accurate for use in Flood Risk Assessments.

Climate Change Scenario - We do not hold climate change measurements at this location. For further guidance on climate change within the GMMC area please see the attachment 'Flood risk assessments: Climate change allowances'. Particularly section 3, table B which shows the Local precautionary allowances for potential climate change impacts.

Lee, Frances

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 12 November 2021 10:14
To: Lee, Frances
Subject: [EXTERNAL] GMMC238946AB Response 2 attached from the Environment Agency
Attachments: EA Data Request Prescott to Cronton Cycleway FRA.pdf; GMMC238946AB_DFM.PDF; GMMC238946AB_Table.pdf

Dear Fran,

Following my response sent on 1/11/21, our Groundwater team have sent the comments below:

- Details of groundwater levels in the vicinity of the site and of the risk of rising groundwater levels and provision of mapping (AStGWF);

Areas Susceptible to Groundwater Flooding (AStGWF) Map.

Please see;

<https://data.gov.uk/dataset/f0329412-b46a-49b0-9f30-abef8c4b807e/groundwater-flooding-susceptibility>

Contact British Geological Survey (BGS) regarding this dataset

Kind regards,

Anne Ball
Customer and Engagement Officer

From: GMMC Info Requests
Sent: 01 November 2021 10:13
To: Frances.Lee3@aeacom.com
Subject: GMMC238946AB Response attached from the Environment Agency

Dear Fran,

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I enclose the data requested.

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For additional flood risk information, advice and support in your area, please visit: <https://thefloodhub.co.uk/>

The National Flood Forum also offers advice on obtaining insurance, particularly for those properties deemed at high risk. This is helped by the government-backed scheme ‘Flood Re’ which enables those at risk to shop around for affordable insurance. They also offer advice on property resilience, flood prevention and mitigation measures which we hope you will find useful. For this information please visit: <http://www.nationalfloodforum.org.uk/>

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Please get in touch if you have any further queries or contact us within two months if you’d like us to review the information we have sent.

Kind regards,

Anne Ball
Customer and Engagement Officer
Greater Manchester, Merseyside and Cheshire
Email: inforequests.gmmc@environment-agency.gov.uk

From: Lee, Frances [<mailto:Frances.Lee3@aeom.com>]
Sent: 28 October 2021 15:24
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Subject: Data Request: Prescott to Cronton Cycleway Flood Risk Assessment

Hello,

Please see attached a request for data to support a Flood Risk Assessment for the Prescott to Cronton Cycleway.

Many thanks,

Fran

Frances Lee BSc (Hons), MSc
Pronouns: She, Her

Flood and Coastal Consultant, Water, Ports & Power, UK
M +44 7467 702518
Frances.Lee3@aeom.com

[Click here to connect with me on LinkedIn](#)

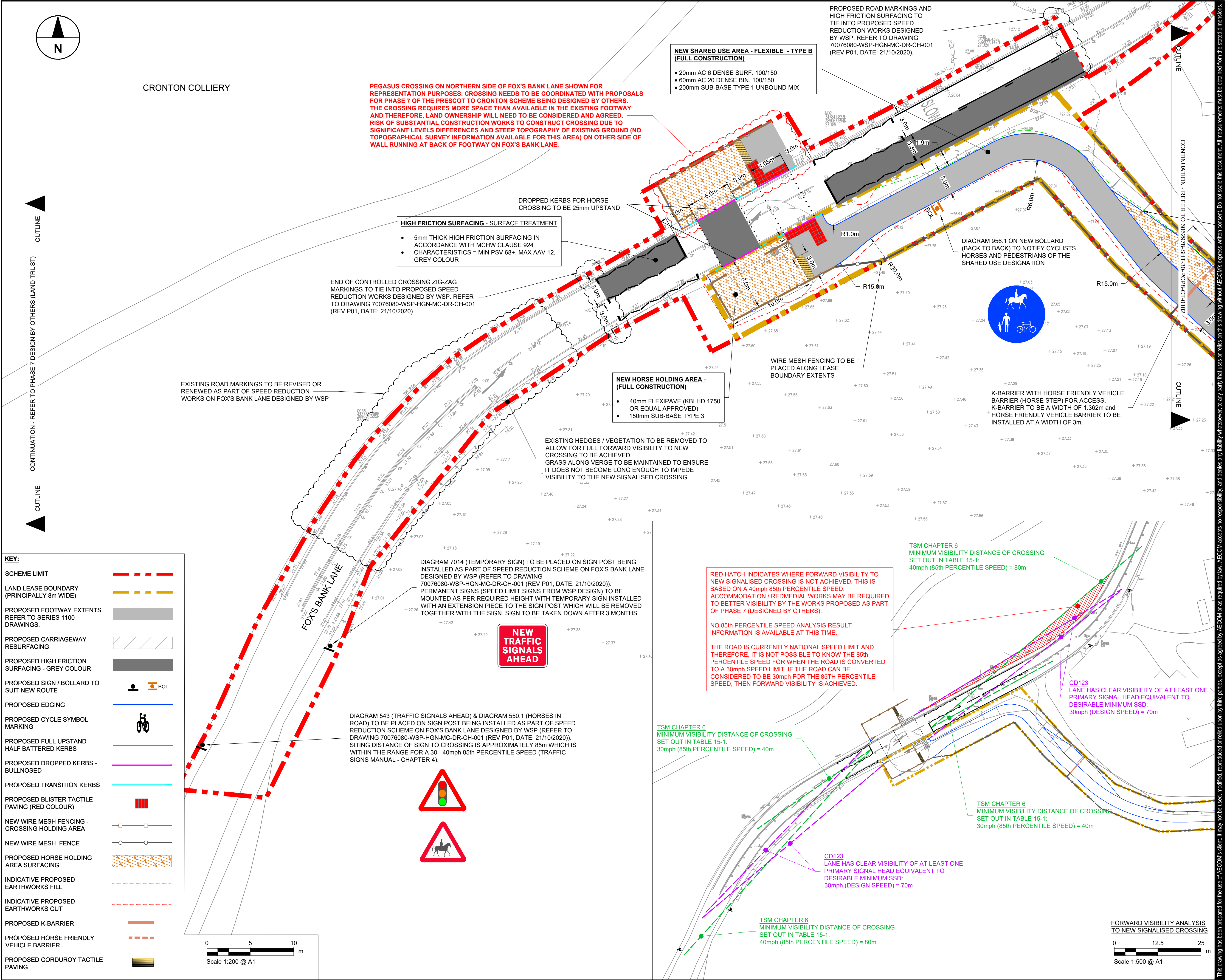
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5th Floor
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Leeds, LS11 9AR
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Appendix C Proposed Development Drawings



PROJECT

PRESCOT TO CRANTON
CYCLEWAY

CLIENT



Knowsley Council
Yorkon Buildings, Archway Road, Huyton,
L36 9YU
tel. 0151 489 6000
www.knowsley.gov.uk

CONSULTANT

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4th Floor, Merchants Court
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Liverpool, L2 1TS
www.aecom.com

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6. REFER TO DRAWING NO. 60629784-SHT-30-PCP0-CT-0100 TO 0101 FOR SCHEME LOCATION PLAN.
7. FOR TRAFFIC SIGNAL DESIGN INFORMATION, REFER TO DRAWING 60629784-SHT-30-PCP8-CT-1251.

DETAILED DESIGN

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D2 21.05.2021	CLIENT & PLANNING REVIEW
D1 11.01.2120	DETAILED DESIGN
I/R	

PROJECT NUMBER

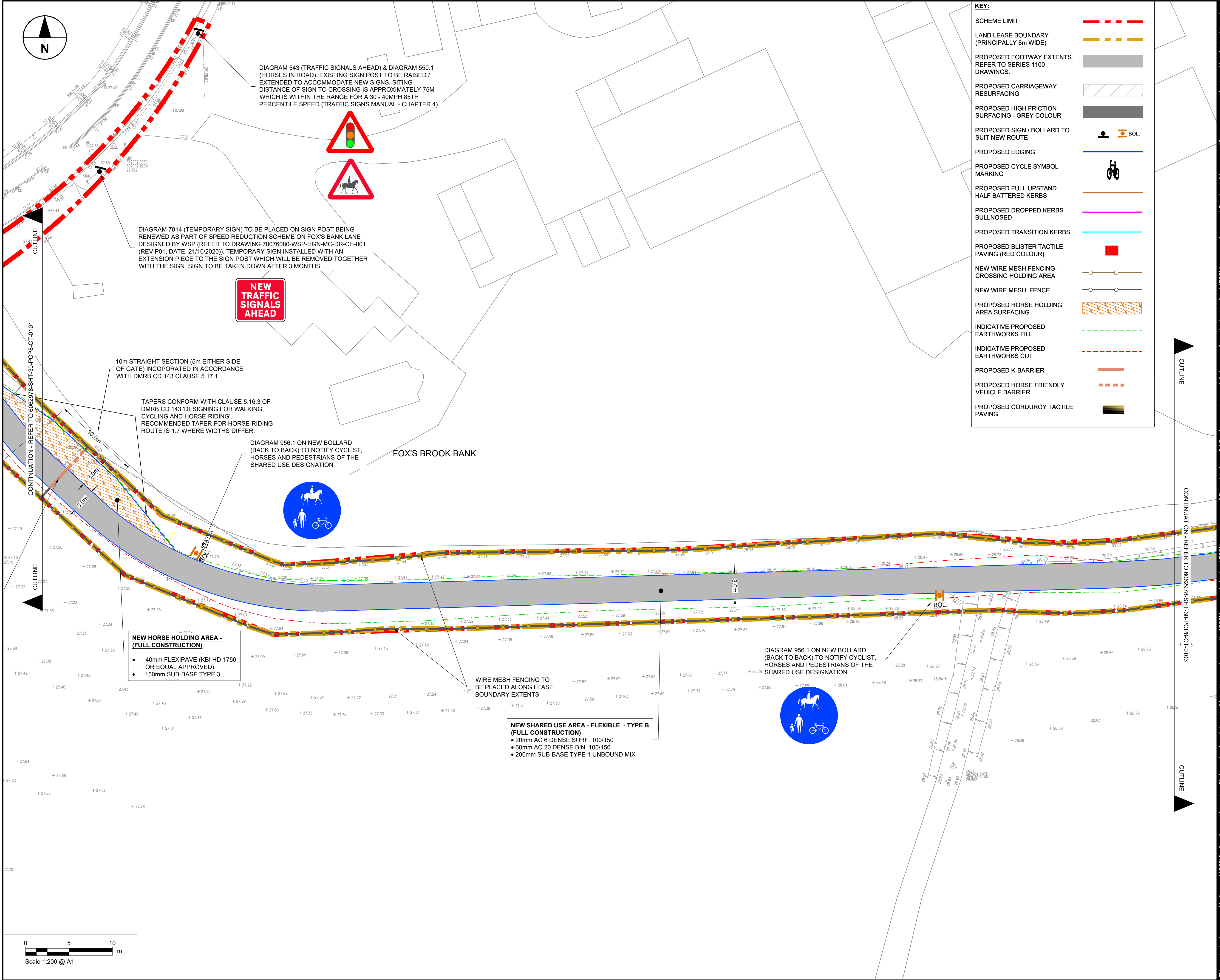
60629784

SHEET TITLE

PHASE 8
GENERAL ARRANGEMENT
(SHEET 1)

SHEET NUMBER

60629784-SHT-30-PCP8-CT-0101



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PROJECT

PRESCOT TO CRANTON CYCLEWAY

CLIENT



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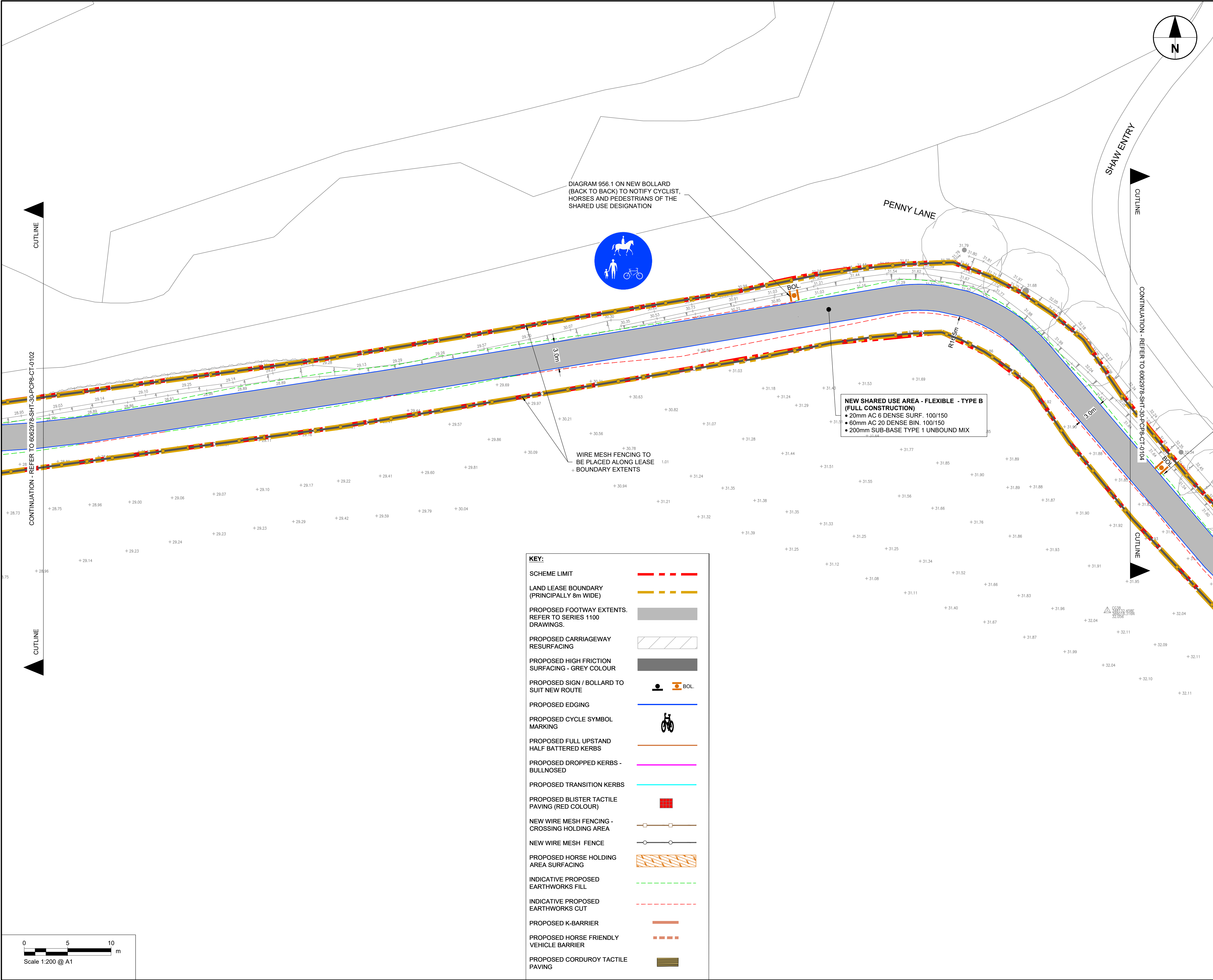
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SHEET TITLE

PHASE 8
GENERAL ARRANGEMENT
(SHEET 2)

SHEET NUMBER

60629784-SHT-30-PCP8-CT-0102



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PROJECT

PRESCOT TO CRONTON
CYCLEWAY

CLIENT



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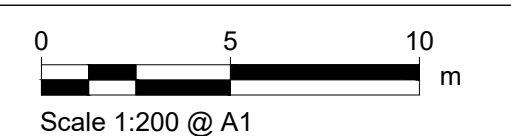
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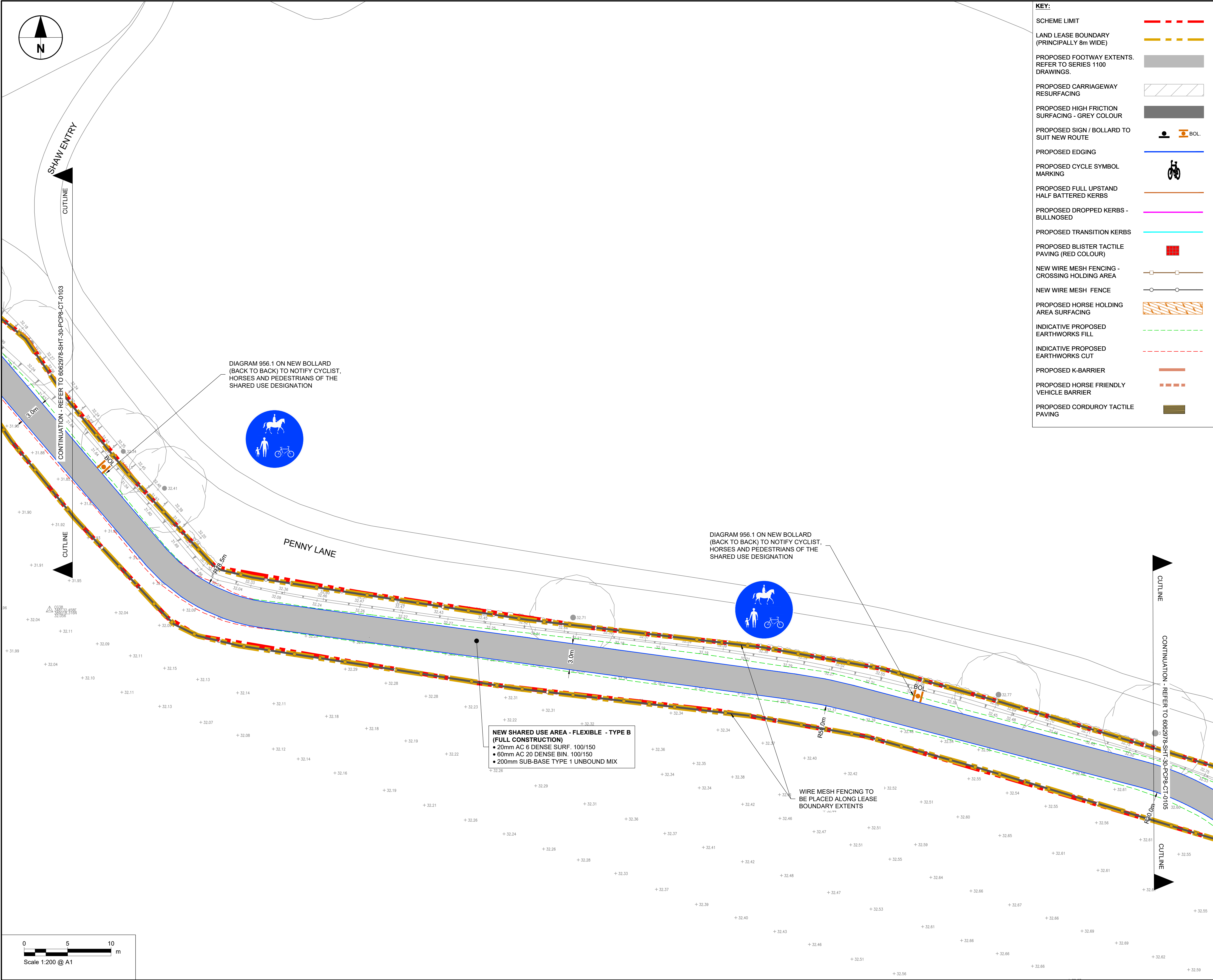
PHASE 8
GENERAL ARRANGEMENT
(SHEET 3)

SHEET NUMBER

60629784-SHT-30-PCP8-CT-0103

KEY:	
SCHEME LIMIT	---
LAND LEASE BOUNDARY (PRINCIPALLY 8m WIDE)	---
PROPOSED FOOTWAY EXTENTS. REFER TO SERIES 1100 DRAWINGS.	---
PROPOSED CARRIAGEWAY RESURFACING	---
PROPOSED HIGH FRICTION SURFACING - GREY COLOUR	---
PROPOSED SIGN / BOLLARD TO SUIT NEW ROUTE	BOL.
PROPOSED EDGING	---
PROPOSED CYCLE SYMBOL MARKING	---
PROPOSED FULL UPSTAND HALF BATTERED KERBS	---
PROPOSED DROPPED KERBS - BULLNOSED	---
PROPOSED TRANSITION KERBS	---
PROPOSED BLISTER TACTILE PAVING (RED COLOUR)	---
NEW WIRE MESH FENCING - CROSSING HOLDING AREA	---
NEW WIRE MESH FENCE	---
PROPOSED HORSE HOLDING AREA SURFACING	---
INDICATIVE PROPOSED EARTHWORKS FILL	---
INDICATIVE PROPOSED EARTHWORKS CUT	---
PROPOSED K-BARRIER	---
PROPOSED HORSE FRIENDLY VEHICLE BARRIER	---
PROPOSED CORDUROY TACTILE PAVING	---





KEY:	
SCHEME LIMIT	
LAND LEASE BOUNDARY (PRINCIPALLY 8m WIDE)	
PROPOSED FOOTWAY EXTENTS. REFER TO SERIES 1100 DRAWINGS.	
PROPOSED CARRIAGEWAY RESURFACING	
PROPOSED HIGH FRICTION SURFACING - GREY COLOUR	
PROPOSED SIGN / BOLLARD TO SUIT NEW ROUTE	
PROPOSED EDGING	
PROPOSED CYCLE SYMBOL MARKING	
PROPOSED FULL UPSTAND HALF BATTERED KERBS	
PROPOSED DROPPED KERBS - BULLNOSED	
PROPOSED TRANSITION KERBS	
PROPOSED BLISTER TACTILE PAVING (RED COLOUR)	
NEW WIRE MESH FENCING - CROSSING HOLDING AREA	
NEW WIRE MESH FENCE	
PROPOSED HORSE HOLDING AREA SURFACING	
INDICATIVE PROPOSED EARTHWORKS FILL	
INDICATIVE PROPOSED EARTHWORKS CUT	
PROPOSED K-BARRIER	
PROPOSED HORSE FRIENDLY VEHICLE BARRIER	
PROPOSED CORDUROY TACTILE PAVING	



PROJECT

PRESCOT TO CRONTON CYCLEWAY

CLIENT



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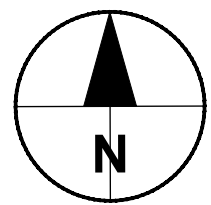
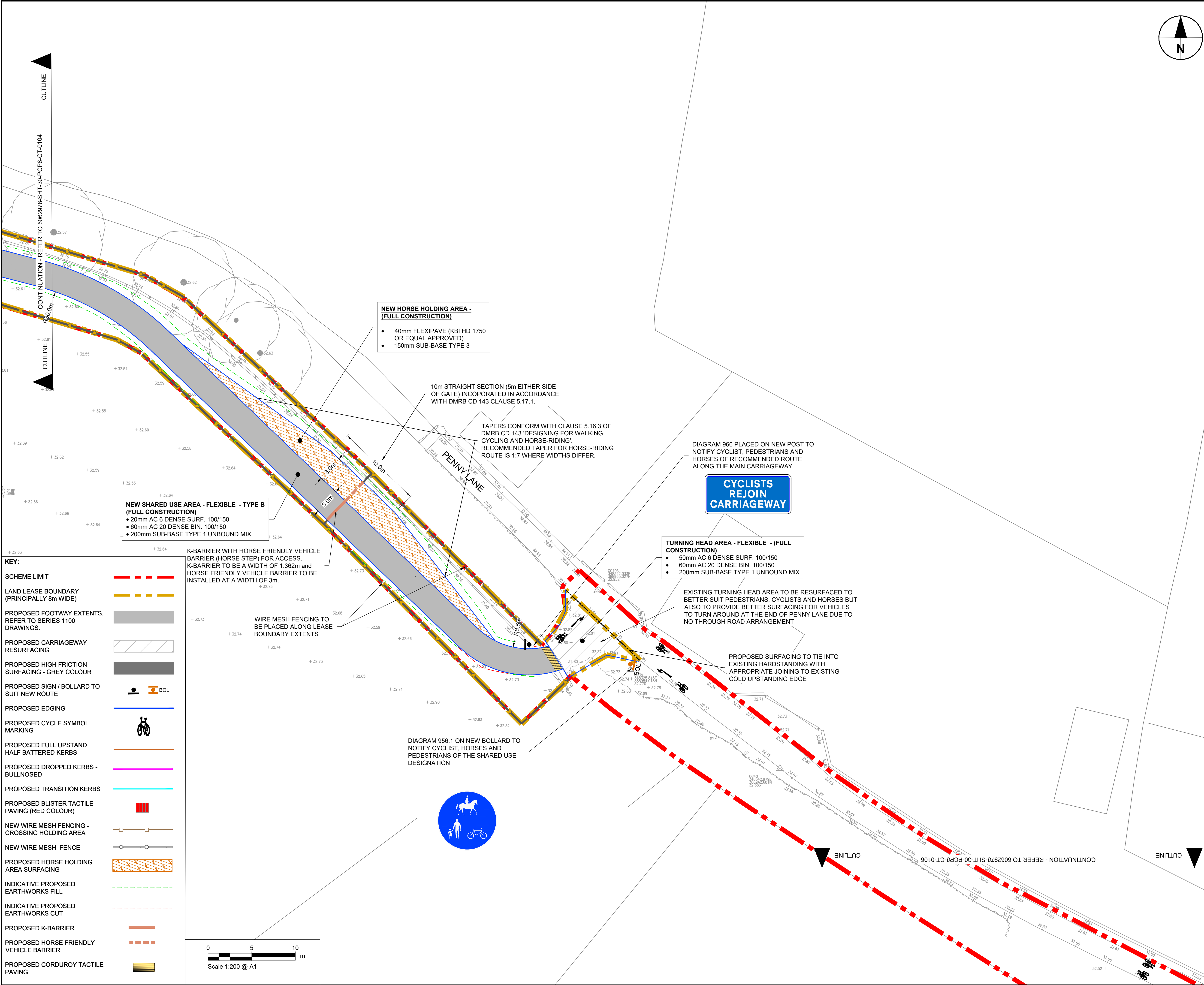
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SHEET TITLE

PHASE 8
GENERAL ARRANGEMENT
(SHEET 4)

SHEET NUMBER

60629784-SHT-30-PCP8-CT-0104



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PROJECT

**PRESCOT TO CRANTON
CYCLEWAY**

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SHEET TITLE

PHASE 8
GENERAL ARRANGEMENT
(SHEET 5)

SHEET NUMBER

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