

Appendix 10.2

Water Framework Directive (WFD) Screening
and Scoping Note for Application 4



Water Framework Directive Screening and Scoping Assessment for Application 4 Redbank Neighbourhood (Outline Application)

DATE:	25 April 2023	CONFIDENTIALITY:	Restricted
SUBJECT:	Water Framework Directive Screening and Scoping Assessment		
PROJECT:	Red bank and Danztic Street	AUTHOR:	Jessica Christie
CHECKED:	Frances Marlow	APPROVED:	Sarah Hamilton

INTRODUCTION

WSP has been commissioned by Far East Consortium Ltd to obtain planning permission for a residential-led, mixed used development for the Red Bank Neighbourhood and part of the New Town Neighbourhood. The entire redevelopment, formerly referred to as the 'Northern Gateway', covers approximately 155 hectares (ha) of land to the North of Manchester City Centre between Victoria Station, NOMA and the Northern Quarter in the South-West, and Queens Park and the intermediate ring road (Queens Road) to the North-East. This includes, but is not limited to residential dwellings, commercial / retail uses, cafes, restaurants, community uses, employment uses, and social infrastructure (including a primary school and health centre) (hereafter referred to as 'Application 4'). Separate planning applications have been created for each neighbourhood, split into Outline (Application 4) and Full (Application 5). This Water Framework Directive (WFD) Screening and Scoping Assessment has been undertaken to exclusively support the Outline planning Application 4. A detailed WFD assessment will be required once the detailed design is complete. This document sets out the scope of the detailed WFD assessment for Application 4.

SITE DESCRIPTION

Application 4 of the 'Redbank' Site (a brownfield site) is located at National Grid reference (NGR) SJ 84457 99434 (**Figure 1**). Application 4 is located in the Lower Irk Valley, with the River Irk running through the southern area of the Site, flowing north-east to south-west. At present, the area is occupied by commercial and industrial units to the south-west and an area of dense woodland to the north-east.



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- Key:
- Application 4 Boundary (Outline)
 - Application 4 building plots

P02	3/04/2023	JC	Second ISSUE	FM	SH
P01	01.03.23	JC	FIRST ISSUE	FM	SH
REV	DATE	AUTH	DESCRIPTION	CHK	APP

DRAWING
A - AUTHORISED AND ACCEPTED



8 First St
Manchester
M15 4RP

CLIENT:Far East Consortium Ltd. (FEC)

PROJECT:
Redbank and Dantzic Street Masterplan

TITLE:
Figure 1 : Application 4 (Outline) Boundary with Plots

DRAWN: JC	CHECKED: FM	APPROVED: FM
PROJECT 70079268	SCALE 1:1	DATE: 14/04/2023
DRAWING 70079268-WSP-DR-0003		RFV: B
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Geomorphology and Historical Management

The River Irk is a heavily modified watercourse and is the only main river that flows through Application 4. Images of the existing condition of the River Irk at Redbank are displayed in **Appendix A**. National River Flow Archive (NRFA) data was used to gauge baseline conditions of the River Irk. River gauging station Irk at Collyhurst Weir (69043) is located within the Proposed Development, NGR (SJ848996).

At this location its catchment area is approximately 72.3 km². The channel baseflow index is 0.6. The Q95 flow for the River Irk is 0.916 m³/s, and its mean flow is 1.948 m³/s.¹ This watercourse is monitored under the Water Framework Directive (WFD). The Proposed Development interacts with the monitored Irk (Wince to Irwell) water body (GB112069061131), which lies within the Rock Irk Medlock operational catchment and the Irwell management catchment² within Cycle 3 (2019), the water body had a 'Moderate' ecological status and a 'Fail' chemical status. The River Irk fails on chemical status due to pollution from Mercury and its compounds, Perfluorooctane sulphonate (PFOS), Polybrominated diphenyl ethers (PBDE) and Cypermethrin (Priority hazardous).

Reasons for not achieving 'Good' status include:

- Point source pollution from sewage discharge (continuous) - pollution is phosphate and ammonia.
- Physical modification from water industry and local / central government.
- Diffuse source pollution from agriculture, urban and transport.

The criteria constraining ecological status to 'Moderate' is reported to be attributable to invertebrates and elevated phosphate levels under the physio-chemical quality elements. The water body is targeted to achieve 'Good' biological status by 2027 and 'Good' chemical status by 2063.

Review of Ordnance Survey (OS) mapping shows that Application 4 has no ordinary watercourses within its site boundary³. Historical maps indicate that Application 4 has a long history of industrial land use, Victorian and pre-Victorian infrastructure⁴.

A site walkover was conducted in September 2022. It was observed that a high degree of channel modification was present. Brick walls are present on either side of the riverbank throughout the development. Several features were identified along the watercourse, including a weir and footbridge - both upstream of Application 4 (**see Appendix A**).

Groundwater

The geology underlying Application 4 comprises glacial Till and alluvium superficial deposits underlain by the Chester Formation (sandstone), Manchester Marls Formation (mudstone), and the Collyhurst Sandstone Formation. The published geological map of the region indicates that Made Ground is present above the superficial deposits across the entire Proposed Development.

The superficial and bedrock units are given a classification by the Environment Agency based on their geological and aquifer properties. Glacial Till is designated as a Secondary (undifferentiated) aquifer and alluvium is designated as Secondary A aquifer, which are aquifers of minor value with lower permeability layers that store and yield limited amounts of groundwater. The Chester and Collyhurst Sandstone

¹ NRFA Station Mean Flow Data for 69043 - Irk at Collyhurst Weir (ceh.ac.uk)

² Irk (Wince to Irwell) | Catchment Data Explorer | Catchment Data Explorer

³ Ordnance Survey (2022) available online: <https://osmaps.ordnancesurvey.co.uk/>

⁴ View map: Ordnance Survey, Lancashire CIV (includes Manchester; Salford.) - Ordnance Survey Six-inch England and Wales, 1842-1952 (nls.uk)

Formations are designated as Principal aquifers, which is a designation given to aquifers that provide significant quantities of groundwater for water supply and may support rivers, lakes, and wetlands. The Manchester Marl Formation is designated as a Secondary B aquifer and may act as a confining layer between the higher permeability Chester Formation and Collyhurst Sandstone Formation. The sandstone aquifers are likely to be in hydraulic connection with the River Irk.

The Environment Agency's 2017 groundwater vulnerability map shows the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties (Environment Agency, 2023)⁵. The groundwater vulnerability map indicates that the Application 4 Study Area is classified as a Medium-Low to Low groundwater vulnerability zone. This is likely attributed to the coverage of the low permeability glacial Till superficial aquifer.

The bedrock aquifers (Chester, Manchester Marls, and Collyhurst Sandstone Formations) underlying Application 4 are within the Manchester and East Cheshire Permo-Triassic Sandstone Aquifers Groundwater Water Body (GB41201G101100).⁶ The groundwater body covers a surface catchment area of 367.346 km².

The Overall, Quantitative, and Chemical status of the groundwater body is classified as 'Poor' (2019 Cycle 3) with an objective of achieving 'Good' Overall, Quantitative, and Chemical status by 2021. The reasons for not achieving 'Good' status include saline intrusion (Quantitative and Chemical from natural and other pressures) and an unknown activity under investigation.

There are no Source Protection Zones (SPZs), Drinking Water Safeguard Zones (Groundwater), or Groundwater Dependent Terrestrial Ecosystems (GWDTEs) within Application 4 or within a 1 km study area radius.

Ecology and Water Quality

WATER QUALITY

Application 4 is located in an urban environment, constrained by existing roads, footpaths, and buildings. Within the vicinity of Application 4, the River Irk passes through heavily urbanised sections, which may influence water quality within the water body.

During the site walkover, it was noted that the River Irk channel had a high turbidity, suggesting a substantial number of pollutants and suspended sediments in the river. Litter and debris were also noted within the channel and alongside channel banks.

In 2019 (Cycle 3), the chemical status of the River Irk (Wince to Irwell) water body was classified as 'Fail', due to the presence of three priority hazardous substances, mercury, and its compounds, Perfluorooctane sulphonate (PFOS), and polybrominated diphenyl ethers (PBDE⁷).

The 2019 (Cycle 3) physio-chemical status of the River Irk (Wince to Irwell) water body was classified as 'Moderate' overall. Five physio-chemical components were classified as 'High', these were acid neutralising capacity, dissolved oxygen, biochemical oxygen demand, temperature, and pH. The reason for physio-chemical elements not achieving 'Good' status was stated by the Environment Agency as pollution from wastewater and physical modifications to the channel.

⁵ Groundwater Vulnerability Maps (2017) on MAGIC - data.gov.uk

⁶ Manchester and East Cheshire Permo-Triassic Sandstone Aquifers | [Catchment Data Explorer](#) | [Catchment Data Explorer](#)

⁷ Irk (Wince to Irwell) | [Catchment Data Explorer](#) | [Catchment Data Explorer](#)
Open WIMS data

A search of the Environment Agency's water quality archive returned surface water quality data from a survey carried out between 7 April 2022 and 6 February 2023, at a sampling location approximately 200 m downstream of the Proposed Development (NGR SJ 84125 99196)⁸. Water temperature for the water body fluctuates seasonally ranging from approximately 6.4°C in winter to 17°C in early summer. The pH minimally fluctuates, ranging between 7.84 and 8.17. Dissolved oxygen saturation varies between 10 mg/l and 11.6 mg/l.

FISH

The River Irk (Wince to Irwell) has no current data for fish quality element. A search of the Environment Agency's Ecology and Fish Data explorer returned fish data for a single catch electric fishing survey carried out in 2018, at a monitoring location approximately 10km downstream (NGR SD9190300725)^{9, 10}. A total of four fish species were recorded in the survey, with the majority of the catch being minnow *Phoxinus phoxinus*.

A fish habitat survey was undertaken by Arup in May 2021 and a detailed fish survey was undertaken by RSK in September 2021 to establish baseline conditions for fish populations along the River Irk. Both surveys concluded that the fish species observed reflects the poor abiotic and biotic conditions of the River Irk, resulting in the absence of other less tolerant species, such as brown trout, which ordinarily would be expected to occupy such habitats. Overall, the survey indicates that the River Irk supports a fish community with low species diversity.

AQUATIC MACROINVERTEBRATE

A review of Water Framework Directive (WFD) status in River Irk Upper (GB112069061161) and River Irk Lower (GB112069061131)¹¹ showed the invertebrates Biological quality elements (BQE) was classified as 'Poor' status suggesting a significantly impaired invertebrate population with low diversity and abundance of species. A search of the Environment Agency's Ecology and Fish Data Explorer returned macroinvertebrate data from a survey carried out in 2018, at a sampling location approximately 10 km upstream of the proposed development (NGR SD8746906025). No protected species were identified in either sample (Spring/Summer). However, the invasive non-native species (INNS), the New Zealand mud snail *Potamopyrgus antipodarum* was recorded in both the spring and summer samples.

MACROPHYTES

In 2019 (Cycle 3), the Macrophytes / Phytobenthos quality element was assessed as being of 'Poor' status in the River Irk (Wince to Irwell) water body. A search of the Environment Agency's Ecology and Fish Data Explorer returned macrophyte data from a survey carried out in 2018, at a sampling location approximately 0.3 km upstream of the Proposed Development (NGR SJ8486399641). A total of 10 taxa were recorded; no protected species were noted, but the INNS Himalayan Balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum*, and Japanese knotweed *Fallopia japonica* were recorded. The taxa identified were dominated by flowering macrophytes.

⁸ <https://environment.data.gov.uk/water-quality/view/landing>

⁹ [EA Ecology & Fish Data Explorer](#)

SCREENING OF WFD WATER BODIES

The River Irk (Wince to Irwell) (GB 112069061131) is located within Application 4 boundary. It has a hydromorphological designation of a heavily modified water body (HMWB). The water body is 17.85 km in length and has a catchment area of the WFD waterbody is 30.975km².

In addition to the River Irk (Wince to Irwell) WFD water body (GB 112069061131), the following surface water bodies were considered within this screening exercise:

- Irwell (Croal to Irk) Water body WFD water body (GB112069061451) is located 0.62 km upstream of Application 4. There are no proposed works within this water body.
- Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey) WFD water body (GB112069061131) is located 0.61 km downstream from Application 4. There are no proposed works within this water body.
- Medlock (Lumb Brook to Irwell) WFD water body (GB112069061152) is located 2.7 km downstream of Application 4. There are no proposed works within this water body.
- Rochdale Canal, western section water body WFD water body (GB71210517) is located 1.13 km, adjacent to Application 4. It is hydrologically connected to the River Irk 8.5 km upstream of the Application 4. There are no proposed works within this water body.

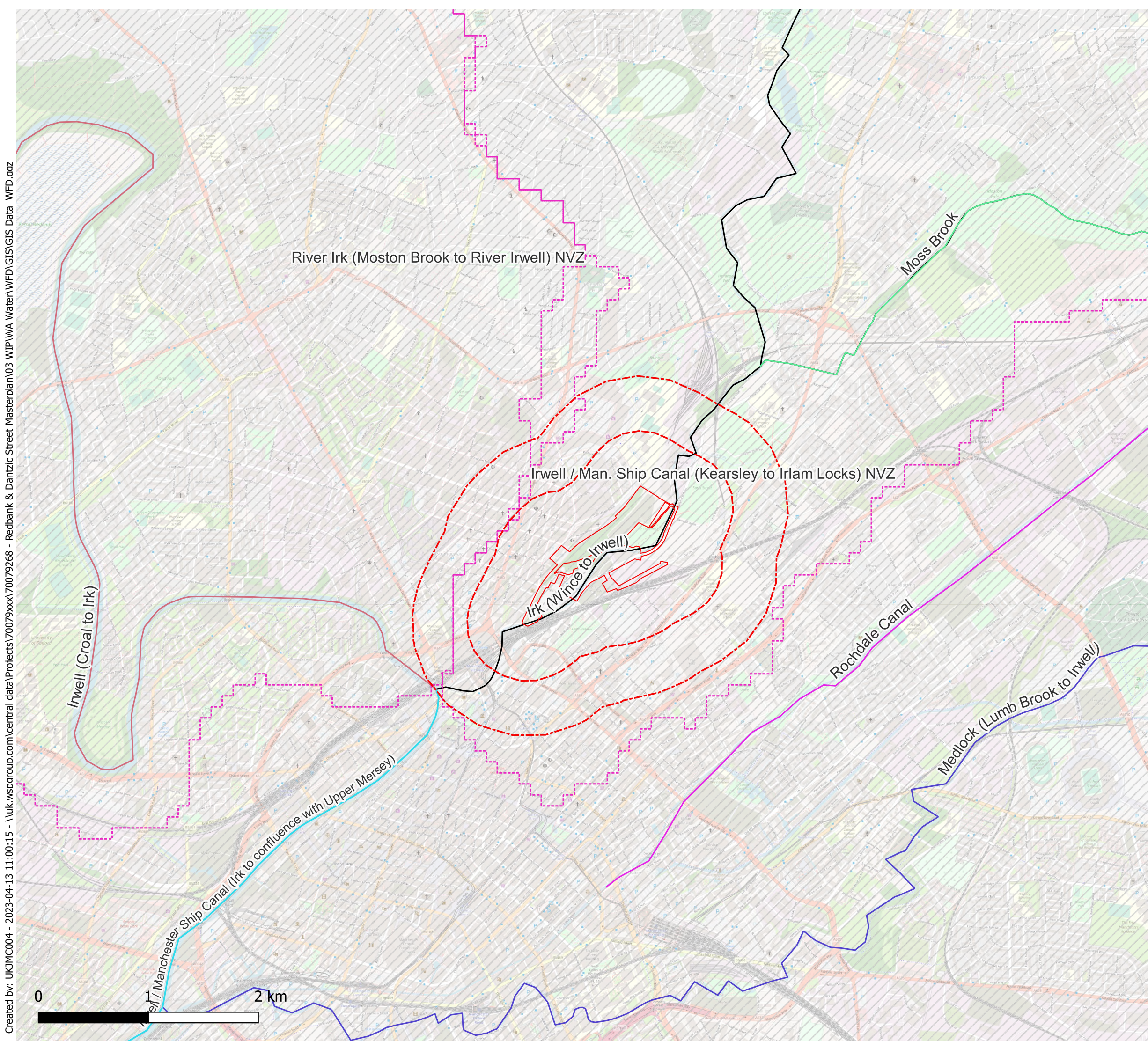
All WFD water bodies located within 5 km of Application 4 are highlighted in **Figure 2**.

There are no other WFD water bodies located within 5 km of the Proposed Development which are hydrologically connected to the Site. There is one groundwater body located within the Application 4 boundary: The Manchester and Cheshire East Permo-Triassic Sandstone Aq Operational Catchment (GB41201G101100).

The location of the water bodies considered in this screening exercise are presented in **Figure 2**. The ecological status for each water body and the screening exercise conclusion for each water body are presented in **Table 1** and **Table 2**.

Two WFD surface water bodies have been screened in for assessment (River Irk (Wince to Irwell) and Irwell / Manchester Ship Canal (Irk to confluence with upper Mersey)) due to hydromorphological and ecological impact. However, these impacts are not anticipated to be significant at a water body scale. It is proposed that a detailed assessment would be undertaken following the approval of planning permission and submitted to the Environment Agency with a Flood Risk Activity Permit (FRAP) Application.

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Application 4 Boundary (Outline)

1km RLB Buffer

500m buffer

Nitrate Vulnerable Zone

Manchester and Cheshire East
Permo-Triassic Sandstone Aq

WFD Surface Water bodies

Irk (Wince to Irwell)

Irwell (Croal to Irk)

Irwell / Manchester Ship Canal (Irk to confluence)

Medlock (Lumb Brook to Irwell)

Moss Brook

Rochdale Canal

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DRAWING
A - AUTHORISED AND ACCEPTED

No 8 First Street, Manchester, M15 4RP
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CLIENT:

Far East Consortium Ltd. (FEC)

PROJECT:

Redbank and Dantzie Street Masterplan

TITLE:

Application 4 (Outline) WFD Surface water and Groundwater bodies

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RFV: A		

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Table 1 – Screening of WFD Surface Water Bodies

WFD Water body	WFD ID	Type	Ecological Status / Potential	Chemical status	Screening Assessment	Justification
Irk (Wince to Irwell) Water body	GB112069061131	River (HMWB)	Moderate	Moderate	IN	This water body lies within the site.
Irwell (Croal to Irk) Water body	GB112069061451	River (HMWB)	Moderate	Moderate	OUT	This water body is upstream of the confluence between the Irk and the Irwell. This confluence is 0.62 km from the site.
Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey)	GB112069061131	River (HMWB)	Moderate	Moderate	IN	This water body is hydrologically connected to the site (0.61 km downstream of the River Irk).
Medlock (Lumb Brook to Irwell) water body	GB112069061152	River (HMWB)	Moderate	Moderate	OUT	This water body is hydrologically connected to the Irwell / Manchester Ship Canal. However, it is a sufficient distance downstream from the site (2.7 km from the site).
Rochdale Canal, western section water body	GB71210517	River (HMWB)	Moderate	Fail	OUT	This water body is 1.13 km from the site, however hydrological connection is 8.5 km upstream and therefore a sufficient distance from the site.

Table 2 – Screening of WFD Groundwater bodies

WFD body	Water	WFD ID	Type	Overall Status / Potential	Quantitative Status	Chemical Status	Screening Assessment	Justification
Manchester and East Cheshire Permo-Triassic Sandstone Aquifers Water Body -		GB41201G101100	Groundwater	Poor	Poor	Poor	IN	This groundwater body directly underlies the site.

PROTECTED AREAS

The WFD specifies that areas requiring special protection under European Commission directives and waters used for the abstraction of drinking water are identified as protected areas. The types of protected areas that must be included in the register are:

- Areas designated for the abstraction of water for human consumption (Drinking Water Protected Areas).
- Areas designated for the protection of economically significant aquatic species (Freshwater Fish and Shellfish).
- Bodies of water designated as recreational waters, including areas designated as Bathing Waters.
- Nutrient-sensitive areas, including areas identified as Nitrate Vulnerable Zones under the Nitrates Directive or areas designated as sensitive under Urban Wastewater Treatment Directive (UWWTD).
- Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection.

Several protected areas have been identified within the 2 km study area for this screening exercise. Justification for the screening in or out of these areas from further assessment is summarised in **Table 3**.¹²

*Table 3 – Screening of Protected Areas*¹³

Protected Areas	Designation	Distance from site	Screening Assessment	Justification
Rochdale Canal	Site of Special Scientific Interest (SSSI)	5 km upstream of Application 4.	OUT	Hydrologically upstream from Application 4.
Rochdale Canal	Site for Special Area of Conservation (SAC)	4.3 km north-east of Application 4.	OUT	Hydrologically upstream from the Application 4.
Nitrate Vulnerable Zone NVZ ID (S643)	Nitrate Vulnerable Zone	All of Application 4 lies within a Nitrate Vulnerable Zone.	IN	Application 4 lies within a Nitrate Vulnerable Zone.

¹³ <https://magic.defra.go.uk/MagicMap.aspx>

Protected Areas	Designation	Distance from site	Screening Assessment	Justification
Hollinwood Branch Canal	Site of Specific Scientific Interest (SSSI)	>5 km from Application 4.	OUT	Not hydrologically connected to Application 4.

PROPOSED DEVELOPMENT

Application 4 is represented in **Figure 3** and is made up of the following:

- Residential led mixed use development comprising of mid to high rise buildings with a variety of uses at ground floor level and mainly residential uses at first floor level and above. Only plots RB 06, RB07, RB10, RB16 and RB17 and associated infrastructure are within the flood plain.
- New site drainage proposed for new infrastructure works.
- New outfall proposed for plot RB10. The full detail design of this structure will need to be approved by the Environment Agency as part of the design development of the plot.
- Modifications of the River Irk, including terracing and wetland area. Works are to occur directly in the channel.
- Temporary construction areas.
- Temporary access tracks.

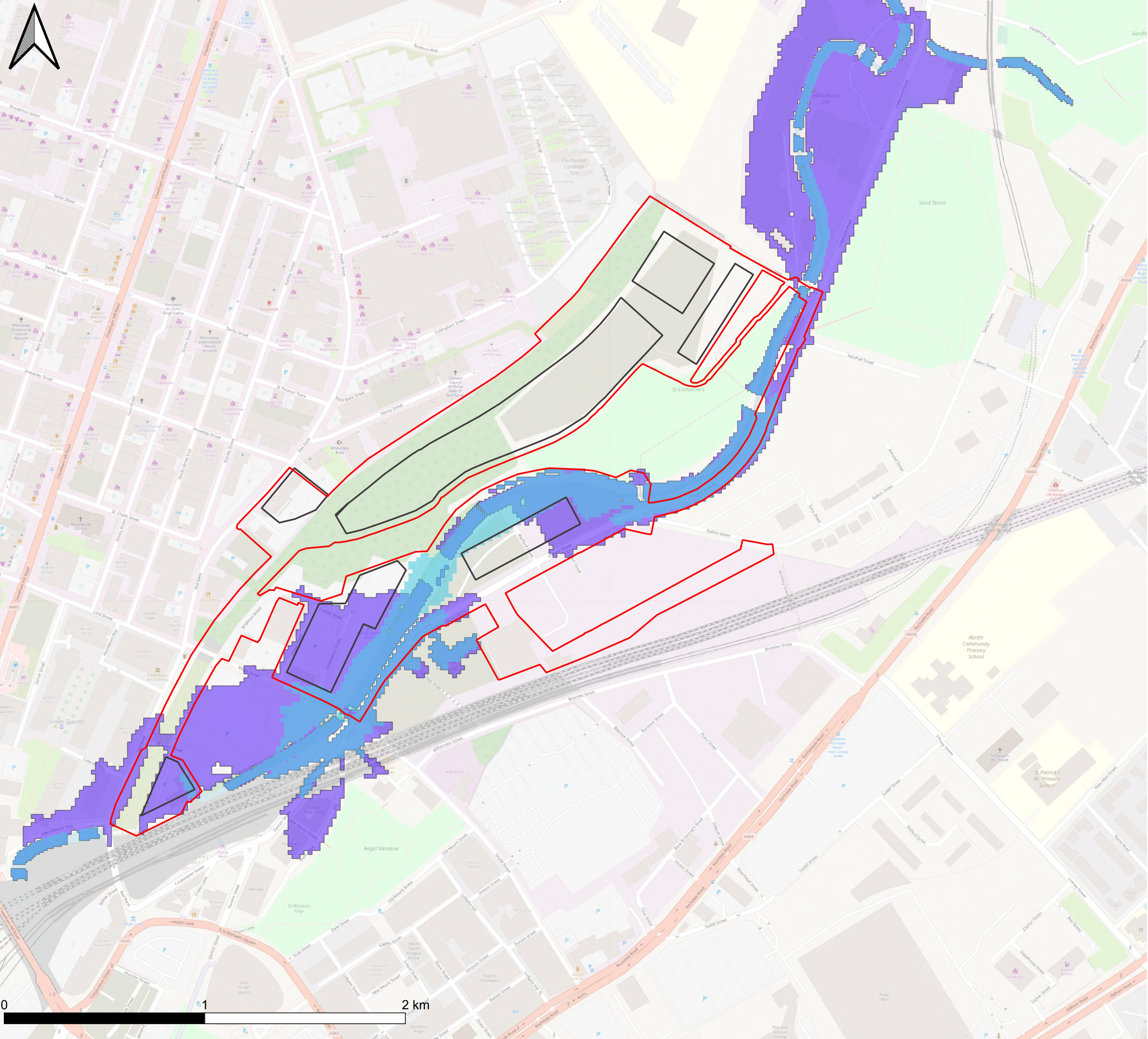
It has been assumed that appropriate pollution prevention and best practice guidelines would be followed during construction and operation of the Proposed Development. The CEMP and CIRIA guidance 'C532 control of water pollution from construction sites will be used to mitigate construction activities.

INFRASTRUCTURE IN THE FLOODPLAIN

It was established that the definition of 'infrastructure in the floodplain' refers to any development, any associated landscaping and infrastructure located within the flood extents of the River Irk, as identified within the flood modelling exercises for 'Application 4' and 'Application 5', which are currently subject to EA approval. This is also to include any building foundations and pilings proposed into bedrock aquifer (work locations currently unknown).

Infrastructure known to be in the floodplain:

- RB06-07
- RB10
- RB16-17



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Key:

Application 4 Boundary (Outline)

Application 4 building plots

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DRAWING
A - AUTHORISED AND ACCEPTED



8 First St
Manchester
M15 4RP

CLIENT:Far East Consortium Ltd. (FEC)

PROJECT:
Redbank and Dantzie Street Masterplan

TITLE:
Figure 3 : Application 4 (Outline) Development within the floodplain

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SITE DRAINAGE

Surface water from the Proposed Development is to be discharged to the River Irk via the adoptable site wide HIF (Housing Infrastructure fund) drainage system (Part of Application 2 and 3). As part of the HIF works any existing surface water connections will be diverted from the combined sewer and into the newly installed surface water system. Outfalls 1, 2 and 3 are part of the HIF drainage system, with outfall 4 being adopted as part of Application 4 (Outline). Plots RB5a to RB5c will discharge to outfall 1. Plots RB01 to RB04; RB06; RB08 and RB12b will discharge to outfall 2. Plot RB07 will discharge to outfall 3. RB16 and RB17 sit south of the River Irk. It is currently anticipated that these plots will drain to the River Irk via a new surface water carrier drain in Dantzic Street provided as part of Application 5. New outfall associated with the carrier drain on the River Irk is assessed in WFD Application 5 assessment.

No infiltration drainage works are proposed. Drainage strategy has been designed to not capture groundwater (impermeable). A Detailed Quantitative Risk Assessment (DQRA) and Piling Risk Assessment (if required) will be undertaken to prevent and mitigate potential contamination of groundwater.

NEW OUTFALL

Plot RB10 will discharge to the River Irk via a new outfall. This outfall will not be provided as part of the HIF proposals and will therefore need to be designed, detailed, and approved by the EA as part of the design development of the plot. The location of the new outfall supporting RB10 is unknown at this stage and will require further assessment.

TERRACING AND WETLAND AREA

Terracing is to occur between plots RB 06-07 and RB16-17 on the River Irk, as compensatory flood storage. Terracing will involve lowering the crest of the existing vertical channel wall and re-profiling the top of the bank to widen the channel cross-section. There will be riparian planting and wetland habitat created in the terraced areas. Terracing will require direct works to the channel and bank side, potentially leading to changes in flow. There is betterment at the RB10 plot with the terracing applied at RB16-17 and RB06-07 as described above.

TEMPORARY CONSTRUCTION AREAS

It is proposed to utilise the compound area to offload, store and handle materials for the proposed works. Strict management of materials will be controlled by the CEMP to mitigate any adverse impacts to water quality or WFD status.

TEMPORARY ACCESS TRACKS

Construction traffic would access plots RB16-17 via the A6010 Queens Road and Collyhurst Road. For plots RB1-7, 10 and 12, construction traffic would access the plots via Redbank and North Street to the junction with the A6665 Cheetham Hill Road, and then onto the A6010 Queens Road. Temporary access roads will be controlled by a Construction Traffic Management Plan (CTMP), to mitigate any impact to water quality.

DEMOLITION OF GROUND WORKS

This activity involves the demolition of the ground cover and existing structures located within the Site which are not part of the Proposed Development.

SCREENING OF ACTIVITIES

The activities associated with Application 4 and the potential for each activity to result in potential impacts on the River Irk (Wince to Irwell) and Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey) water body are summarised in **Table 4**. Scoping assessments to identify which elements should be considered for further assessment are summarised in **Table 5**. It should be noted that an outfall has been added as an activity within the Application 4 WFD. Due to further design changes, the outfall was not suggested or conclusive at the time WSP consulted with the EA regarding WFD screening and scoping opinions. The new outfall has been screened in at this time.

Table 4 – WFD screening of activities

Activity	Phase	WFD water body impacted	Screening Outcome	Justification
Site Drainage	Construction	Irk (Wince to Irwell) Water body Irwell/Manchester Ship Canal (Irk to confluence with Upper Mersey)	IN	Potential to impact water quality and biological elements from site drainage discharging to River Irk.
Outfall	Operation	Irk (Wince to Irwell) Water body Irwell/Manchester Ship Canal (Irk to confluence with Upper Mersey)	IN	Potential to impact water quality and biological elements from site drainage discharging to River Irk.
Infrastructure in the floodplain	Operation	Irk (Wince to Irwell) Water body Manchester and Cheshire East Permo-Triassic Sandstone Aq Operational Catchment	IN	Works to happen within the floodplain and areas where groundwater levels are shallow.
Temporary construction compounds	Construction	N/A	OUT	Temporary works with no detrimental effect on surrounding environment. Temporary mitigation controlled via CEMP.
Temporary access tracks	Construction	N/A	OUT	Temporary works with no detrimental effect on surrounding environment. Temporary mitigation controlled via CEMP.
Terracing	Operation	Irk (Wince to Irwell) Water body	IN	Works to happen in and adjacent to the watercourse. It is likely that

Activity	Phase	WFD water body impacted	Screening Outcome	Justification
		Manchester and Cheshire East Permo-Triassic Sandstone Aq Operational Catchment		betterment will come from this activity. This activity is likely to expected to provide betterment to the watercourse.
Demolition of ground works	Construction	Irk (Wince to Irwell) Water body Manchester and Cheshire East Permo-Triassic Sandstone Aq Operational Catchment	IN	Works to happen adjacent to the watercourse, including excavations.

SCOPING OF QUALITY ELEMENTS

The activities screened in for assessment have been taken forward for the scoping of quality elements. The quality elements scoped in and out of detailed assessment are presented in **Table 5** and **6**, along with the justification for this scoping conclusion.

Table 5 - WFD scoping of Application 4 activities against WFD quality elements for the River Irk (Wince to Irwell) and Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey)

WFD water quality element	Site drainage	New Outfall	Infrastructure in the floodplain	New outfall	Demolition of ground works
Biological Quality Elements					

WFD water quality element	Site drainage	New Outfall	Infrastructure in the floodplain	New outfall	Demolition of ground works
Fish	In – potential change to water quality affecting aquatic habitat.	In - potential change to water quality affecting aquatic habitat.	Out – No works within the channel to alter aquatic habitat.	In - Any instream works have the potential to temporarily affect normal fish behaviour and movement through changes in flow dynamics, noise, and vibration.	Out – no change to the aquatic habitat.
Invertebrates	In – potential change to water quality affecting aquatic habitat.	In- potential change to water quality affecting aquatic habitat.	Out – No works within the channel to alter aquatic habitat.	In - Any instream works have the potential to impact the aquatic macroinvertebrate community through changes in flow dynamics. Temporary loss of habitat may also occur due to the instream works.	Out – no change to the aquatic habitat.

WFD water quality element	Site drainage	New Outfall	Infrastructure in the floodplain	New outfall	Demolition of ground works
Macrophytes and Phytoplankton	In – potential change to water quality affecting aquatic habitat.	In – potential change to water quality affecting aquatic habitat.	Out – works set back from the channel and riparian zone.	In - Any instream works have the potential to impact the macrophyte community through changes in flow dynamics. Any removal of riparian vegetation has the potential to reduce shading and cause the spread of INNS, that may impact the macrophyte community	Out – no change to the aquatic habitat.
Hydromorphological quality elements					
Quantity and Dynamics of Flow	In – Drainage from the site added to existing network which discharges to the River Irk.	In- works to occur directly in the channel installing an additional discharge to the river.	In – potential change to flood flow dynamics.	In – works to occur directly in the channel installing an additional discharge to the river.	Out – no works in the channel. Potential construction impacts controlled by measures in the CEMP.
Connections to Groundwaters	Out – surface water improvements only with shallow excavations.	Out – Surface water changes only.	Out – shallow excavations.	Out – Surface water changes only.	Out – No works to impact groundwater.

WFD water quality element	Site drainage	New Outfall	Infrastructure in the floodplain	New outfall	Demolition of ground works
River Continuity	Out – no changes to the channel. Outfall assessed separately.	In – Added flows to the river may impact continuity.	Out – no works within the channel.	In – Added flows to the river may impact continuity.	Out – no works in the channel. Potential construction impacts controlled by measures in the CEMP.
River Depth and Width Variation	Out – no changes to the structure of the river. Outfall assessed separately.	In – Outfall will be a fixed structure within the channel.	Out – no works within the channel.	In – Outfall will be a fixed structure within the channel.	Out – no works in the channel. Potential construction impacts controlled by measures in the CEMP.
Structure and Substrate of the Riverbed	In – Potential deposition of suspended solids runoff.	In – Potential scour at outfalls.	Out – no works within the channel.	In – Potential scour at outfalls.	Out – no works in the channel. Potential construction impacts controlled by measures in the CEMP.
Structure of the Riparian Zone (INNS)	Out – no changes to riparian zone.	In – New structure located within the riparian zone.	Out – no works within the riparian zone (works located c.100m from the river).	In – New structure located within the riparian zone.	Out – no works in the channel. Potential construction impacts by measures in the CEMP.
	Physico-chemical quality elements				

WFD water quality element	Site drainage	New Outfall	Infrastructure in the floodplain	New outfall	Demolition of ground works
Thermal conditions	In – potential impacts to water quality from discharge of site drainage to the River Irk.	Out – likely negligible change to shading over moving water which is unlikely to alter the temperature.	Out – no works within the channel or the riparian zone. Construction impacts controlled via the measures in the CEMP.	Out – likely negligible change to shading over moving water which is unlikely to alter the temperature.	Out – no works in the channel. Potential construction impacts controlled through the measures in the CEMP.
Oxygenation conditions		In - Any removal of riparian vegetation has the potential to reduce oxygen levels in the watercourse.		In - Any removal of riparian vegetation has the potential to reduce oxygen levels in the watercourse.	
Salinity		Out – Structure will not affect water quality. Potential construction impacts controlled through the measures in the CEMP.		Out – Structure will not affect water quality. Potential construction impacts controlled through the measures in the CEMP.	
Acidification					
Nutrient conditions					
Specific pollutants					
Priority Substances and Priority Hazardous Substances					

Table 6 – WFD scoping of Application 4 activities against WFD Groundwater quality elements for the Manchester and Cheshire East Permo-Triassic Sandstone Aquifer Operational Catchment

WFD water quality element	Site drainage	Infrastructure in the floodplain	Terracing	Demolition of ground works
Quantitative				
Quantitative	Out – no impact expected. Proposed drainage strategy not expected to intercept groundwater. Overall area of hardstanding not expected to significantly increase.	Out – no impact expected. No significant intrusive works into WFD groundwater body proposed which could require long-term dewatering.	Out – no impact expected. Shallow excavations only. No significant intrusive works into WFD groundwater body proposed which could require dewatering.	Out – no impact expected. Shallow excavations only. No significant intrusive works into WFD groundwater body proposed which could require dewatering.
Water Balance	Out – no impact expected. Proposed drainage strategy not expected to intercept groundwater. Overall area of hardstanding not expected to significantly increase.	Out – no impact expected. Foundations and pilings associated with infrastructure not expected to impact overall groundwater flow towards River Irk or water levels. No significant impact to groundwater recharge potential compared to existing hardstanding.	Out – no impact expected. Shallow excavations only. No significant impact to groundwater recharge potential or groundwater flow and water levels.	Out – no impact expected. Shallow excavations only. No significant impact to groundwater recharge potential or groundwater flow and water levels.
GWDTE	Out – no GWDTEs present within -Proposed Development or 2 km radius.	Out – no GWDTEs present within Proposed Development or 2 km radius.	Out – no GWDTEs present within Proposed Development or 2 km radius.	Out – no GWDTEs present within -Proposed Development or 2 km radius.
Dependent Surface Water bodies	Out – no impact expected. Proposed drainage strategy not expected to intercept groundwater.	Out – no impact expected. Foundations and pilings associated with infrastructure not expected to impact overall groundwater flow towards River Irk or water levels. No significant impact to groundwater recharge potential compared to existing hardstanding.	Out – no impact expected. Shallow excavations only. No significant intrusive works into WFD groundwater body proposed which could require long-term dewatering.	Out – no impact expected. Shallow excavations only. No significant intrusive works into WFD groundwater body proposed which could require dewatering.
Quantitative Saline Intrusion	Out – no impact expected. Proposed drainage strategy not	Out – no impact expected. No significant intrusive works into	Out – no impact expected. Shallow excavations only. No	Out – no impact expected. Shallow excavations only. No

WFD water quality element	Site drainage	Infrastructure in the floodplain	Terracing	Demolition of ground works
	expected to intercept groundwater.	WFD groundwater body proposed which could require long-term dewatering.	significant intrusive works into WFD groundwater body proposed which could require dewatering.	significant intrusive works into WFD groundwater body proposed which could require dewatering.
Chemical				
Chemical	Out – no impact expected. Proposed drainage strategy not expected to intercept groundwater. Potential water quality impacts related to construction will be mitigated by pollution prevention controls outlined in the CEMP and Remediation Strategy. The nature of the development (residential compared to current industrial site) may potentially have a beneficial impact on the status of the WFD groundwater body.	Out – no impact expected. CEMP, Remediation Strategy, and Piling Risk Assessment for foundations and pilings will mitigate the potential for pollutants to infiltrate into the aquifer.	Out – no impact expected. Shallow excavations only. No significant intrusive works into WFD groundwater body proposed which could create a pathway for pollutants to infiltrate into the aquifer.	Out – no impact expected. Shallow excavations only. No significant intrusive works into WFD groundwater body proposed which could create a pathway for pollutants to infiltrate into the aquifer. Detailed Quantitative Risk Assessment (DQRA) and Remediation Strategy undertaken for the Proposed Development, which will prevent and mitigate the potential for pollutants to infiltrate into the aquifer.
Drinking water protected area	Out – no drinking water protected areas within Application Boundary or 2 km radius.	Out – no drinking water protected areas within Application Boundary or 2 km radius.	Out – no drinking water protected areas within Application Boundary or 2 km radius.	Out – no drinking water protected areas within Application Boundary or 2 km radius.
GWDTE	Out – no GWDTEs present within Application Boundary or 2 km radius.	Out – no GWDTEs present within Application Boundary or 2 km radius.	Out – no GWDTEs present within Application Boundary or 2 km radius.	Out – no GWDTEs present within Application Boundary or 2 km radius.
Dependent surface water bodies	Out – no impact expected. Proposed drainage strategy not	Out – no impact expected. Water quality impacts related to construction will be mitigated by	Out – no impact expected. Shallow excavations only. No significant intrusive works into	Out – no impact expected. Shallow excavations only. No significant intrusive works into

WFD water quality element	Site drainage	Infrastructure in the floodplain	Terracing	Demolition of ground works
	expected to intercept groundwater.	pollution prevention controls outlined in the CEMP or similar document. The nature of the development (residential compared to current industrial site) may potentially have a beneficial impact on the status of the WFD groundwater body.	WFD groundwater body proposed which could create a pathway for pollutants to infiltrate into the aquifer.	WFD groundwater body proposed which could create a pathway for pollutants to infiltrate into the aquifer.
Saline Intrusion	Out – no change to chemical status expected. No infiltration proposed as part of the proposed drainage strategy.	Out – no change to chemical status expected. No infiltration proposed as part of the proposed drainage strategy.	Out – no change to chemical status expected. No infiltration proposed as part of the proposed drainage strategy.	Out – no change to chemical status expected. No infiltration proposed as part of the proposed drainage strategy.

MITIGATION MEASURES

Table 7 presents the HWMB mitigation measures identified for the River Irk (Wince to Irwell) (GB11206906) water body. This table also provides a justification for how Application 4 does not prevent the implementation of these mitigation measures during the lifetime of the Proposed Development. Information within **Table 7** was informed by the EA 'Final HMWB mitigation measures' Cycle 3 (2021). All mitigation measures (MM) screened in this assessment have been given a MM status of 2a, meaning that all MM identified are not yet implemented and or functioning effectively. Therefore, MM are required to be adopted. All mitigation measures screened in will be further assessed in Application 5.

Table 7 – Demonstration that Application 4 does not prevent mitigation measures from being implemented

Category	Mitigation measure	Screening outcome	Justification
Working with physical form and function	2. Remove Obsolete structure	OUT	Mitigation measures to remove obsolete structures have been identified to be located 2.5 km upstream of Application 4. No proposed works to happen within the channel and on the riverbank will impact mitigation upstream of Application 4. Therefore, this mitigation measure is screened out for further assessment.
	4. Remove or soften hard bank	OUT	Mitigation measures to remove or soften hard banks have been identified to be located approximately 6.5 km upstream of Application 4. Proposed works are not likely to impact mitigation measures upstream of Application 4. Therefore, this mitigation measure is screened out for further assessment.
Structural modification	16. Fish passes	IN	Structural modification mitigation measures are proposed to occur approximately 125 m downstream of the Application 4. Therefore, this mitigation measure is screened in for further assessment.
	19. Enhance ecology	OUT	Mitigation measure to enhance ecology have been identified to be located > 7 km upstream of the Application 4. Proposed works are not likely to impact mitigation measures upstream of the Application 4. Therefore, this mitigation measure is screened out for further assessment.
Operations and maintenance	36. Invasive species techniques	IN	Mitigation measures for invasive species techniques have been identified to occur within the Application 4. Therefore, this mitigation measure is screened in for further assessment.
	38. Sediment management strategy	IN	Sediment management strategy mitigation techniques are proposed to occur adjacent to the River Irk (left bank), approximately 20 m from Application 4. Therefore, this mitigation measure is screened in for further assessment.
	47. Align and attenuate flow	OUT	This mitigation measure to align and attenuate flow has been identified for a location approximately 5.5 km upstream of Application 4. Proposed works are not likely to impact mitigation measures upstream of Application 4. Therefore, this mitigation measure is screened out for further assessment.

Category	Mitigation measure	Screening outcome	Justification
	54. Educate landowners	OUT	This mitigation measure to educate landowners has been identified for a location approximately 5.5 km upstream of Application 4. Proposed works would not interfere with the education of landowners in the upper catchment. Therefore, this mitigation measure is screened out for further assessment.

CONCLUSIONS

This WFD screening and scoping exercise has evaluated the potential impact of Application 4 on WFD waterbodies. The WFD waterbodies screened in for detailed assessment are the River Irk (Wince to Irwell) (GB112069061131) and the Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey) (GB112069061131). For the construction phase, demolition of ground works is screened in for detailed assessment. For the operation phase, four activities are screened in for assessment; site drainage, outfall structures, infrastructure in the floodplain and terracing / wetland works. The scoping of quality elements for the screened in water bodies have also been proposed for the detailed assessment of the Proposed Development. Three mitigation measures have been screened in for assessment, these include fish passes, invasive species techniques and sediment management strategy. These three mitigation methods will be further assessed in Application 4 detailed WFD assessment. This screening and scoping conclusion was presented to the regional fisheries, biodiversity, and geomorphological officers at the Environment Agency on the 16th February 2023. The officers agreed with the conclusions of this exercise. It should be noted that post consultation with the EA, design changes have resulted in a new outfall structure being introduced for Application 4. The activity and all water quality elements associated with this new outfall have been screened in for further assessment.

APPENDIX A – SITE PHOTOS



Photo 1: Looking upstream along the River Irk, approximately 0.4km upstream of the application boundary. Photo shows reinforced riverbank, overgrowth vegetation on the right bank of the river and a weir stretching across the channel.



Photo 2: Photo taken looking downstream along the River Irk, on the Left riverbank. Photos shows footbridge stretching across the width of the channel. Photo also shows slight debris within the watercourse, as well as high turbidity.



Photo 3: Photo taken on Dantzig Street looking upstream along the River Irk, on the right riverbank. Photo shows highly modified riverbank with a brick wall either side. Photo shows outlet of concrete arch culvert, dimensions unknown.



Photo 4: Photo looking upstream along the River Irk, approximately 500m from the application boundary. Photo shows protruding vegetation through riverbank walls.

APPENDIX B – RELEVANT LEGISLATION AND POLICY

This Report has been compiled with reference to relevant wildlife legislation and planning policy.

The Wildlife and Countryside Act 1981, (as amended) (WCA)

Protected birds, animals and plants are listed under Schedules 1, 5, 8 and 9 respectively of the WCA, a description of these Schedules and their meaning is provided below.

Schedule 5

Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally:

- Part 1: kill, injure, or take;
- Part 2: possess or control (live or dead animal, part or derivative);
- Part 4 (a): damage or destruct any structure used for shelter or protection;
- Part 4 (b): disturb them in a place of shelter or protection;
- Part 4 (c): obstruct access to place of shelter or protection;
- Part 5 (a): sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative);
- Part 5 (b): advertise for buying or selling.

Schedule 8

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

Schedule 9

Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or “causing to grow” in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSIs) are protected under the Act. It is an offence to intentionally or recklessly destroy or damage any of the flora, fauna, geological or physiographical features for which a SSSI is of special interest.

Invasive Non-Native Species

The Wildlife and Countryside Act 1981 makes it an offence to release into the wild any animal, plant or micro-organisms not ordinarily resident to the UK or which constitutes a known threat or is listed in Schedule 9 of the Act.

The Natural Environment and Rural Communities Act (NERC) 2006 amends the Wildlife and Countryside Act 1981 and provides the Secretary of State with powers to ban the sale of invasive non-native species known to cause damage to wildlife in England and Wales. It also provides the Secretary of State with additional

powers to issue or approve codes relating to non-native species covered by the Wildlife and Countryside Act 1981.

Salmon and Freshwater Fisheries Act 1975

This Act covers regulation of fisheries in England and Wales and includes legislation that covers the introduction of polluting effluents, the obstruction of fish passage (screens, dams, weirs, culverts etc) illegal means of fishing, permitted times of legal fishing and fishing licencing (which covers electric fishing).

Under this Act any person who causes or knowingly permits to flow, or puts or knowingly permits to be put, into any waters containing fish or into any tributaries of waters containing fish, any liquid or solid matter to such an extent as to cause the waters to be poisonous or injurious to fish or the spawning grounds, spawn or food of fish, shall be guilty of an offence.

The Act also requires that fish passes are installed on new and rebuilt barriers that affect waters frequented by salmon or migratory trout. In the future, it is likely that fish passage facilities will need to be designed to accommodate all fish species and life stages, with nature-like bypass channels being the most appropriate solution currently available.

The Eels (England and Wales) Regulations 2009

The Eels (England and Wales) Regulations 2009 implement Council Regulation (EC) No 1100/2007 of the Council of the European Union, which required Member States to establish measures for the recovery of the stock of European eel. The regulations apply to England and Wales.

They give powers to the regulators (the Environment Agency and Natural Resources Wales) to implement recovery measures in all freshwater and estuarine waters in England and Wales. The aim of the regulations is to achieve 40 per cent escapement of adult eels relative to escapement levels under pristine conditions. The measures, as set out in the legislation, by which this is to be achieved is to reduce fishing pressures, improve access and habitat quality and reduce the impact of impingement and entrainment.

Under the Regulations, the regulators can serve notice to companies detailing their legal obligation to screen intakes and outfalls for eel and/or to remove or modify obstructions to eel migration. However, it is possible for companies to be granted with exemptions if the costs of works greatly exceeds the benefits. In such a situation it is likely the regulator will seek a package of more cost-effective, “alternative measures”.

Natural Environment and Rural Communities (NERC) Act 2006

Species and Habitats of Principal Importance in England and Wales are listed under Section 41 and Section 42 respectively of the NERC Act. The Section 41 and 42 lists detail species that are of principal importance for the conservation of biodiversity in England and Wales and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

The Conservation of Habitats and Species Regulations 2019 (Habitats Regulations) (Amendments Amended) (EU Exit)

All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations, it is unlawful to: Deliberately kill, capture or disturb; Deliberately take or destroy the eggs of; and Damage or destroy the breeding site/resting place of any species protected under this legislation.

Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation. This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA).

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

The purpose of the WFD is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater and for water all water bodies (unless artificial or heavily modified) to achieve “good” ecological status.

Ecological Status is expressed in terms of five classes (high, good, moderate, poor or bad). These classes are established on the basis of specific criteria and boundaries defined against biological, physico-chemical and hydromorphological elements. Biological assessment uses numeric measures of communities of plants and animals (for example, fish and rooted plants). Physico-chemical assessment looks at elements such as temperature and the level of nutrients, which support the biology. Hydromorphological quality looks at water flow, sediment composition and movement, continuity (in rivers) and the structure of physical habitat.

The overall Ecological Status of a water body is determined by whichever of these assessments is the poorer. For example, a water body might pass ‘Good Status’ for chemical and physico-chemical assessments but be classed as ‘Moderate Status’ for the biological assessment: In this case it would be classed overall as ‘Moderate Ecological Status’. To achieve the overall aim of good surface water status, the Directive requires that surface waters be of at least Good Ecological Status and Good Chemical Status. To achieve High Status, the Directive requires that the hydromorphological Quality Elements are also in place.

When considering the effect of a development or activity on a waterbody it is a regulatory requirement under the WFD to assess if it will cause or contribute to a deterioration in status or jeopardise the waterbody achieving good status in the future.

APPENDIX C – REFERENCES

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