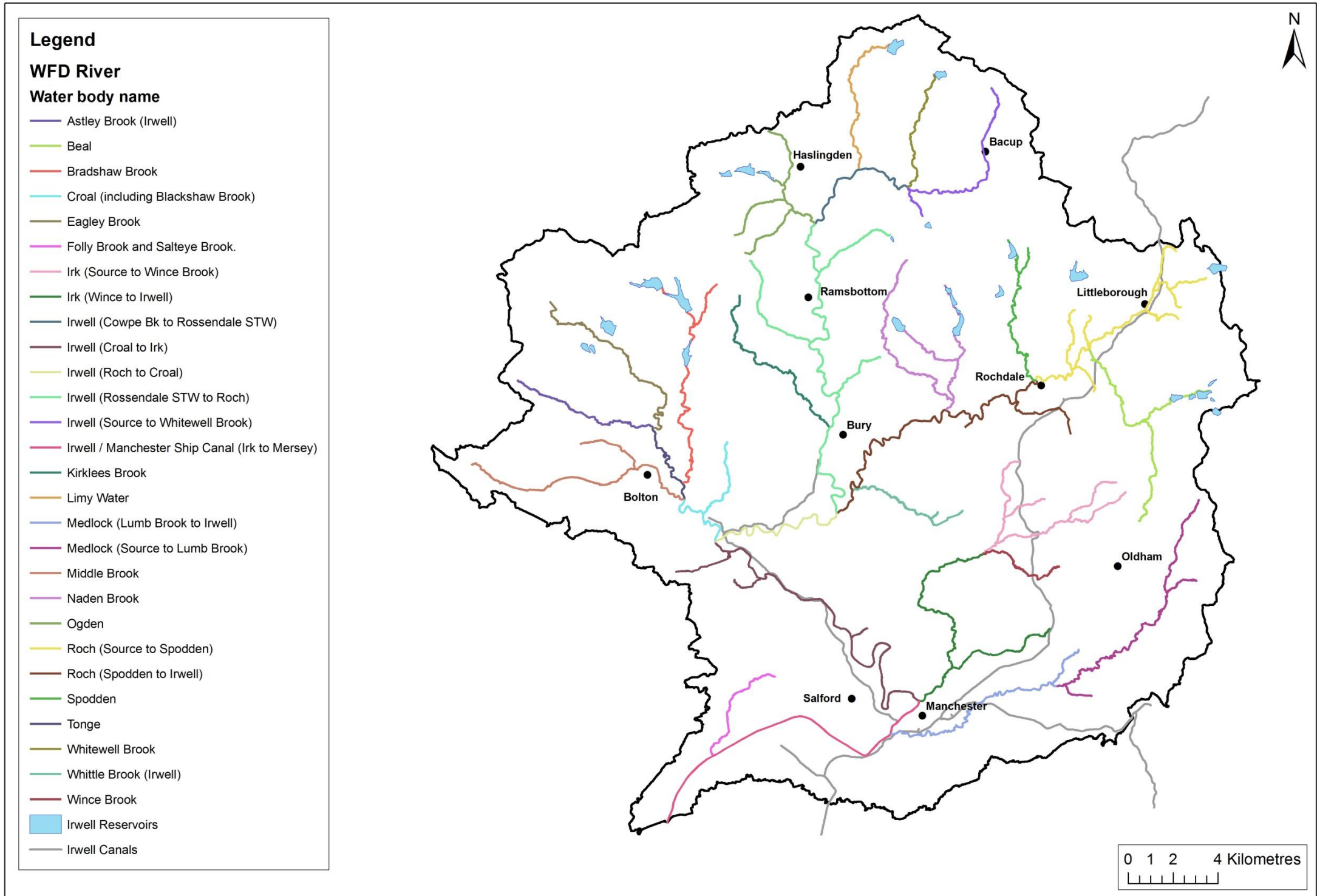


## River Irwell Management Catchment – Evidence and Measures

Greater Manchester Combined Authority

Water body output maps

# The Irwell Management Catchment



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<b>Water body ID</b>	<b>Water body Name</b>
GB112069064660	<a href="#">Irwell (Source to Whitewell Brook)</a>
GB112069064670	<a href="#">Whitewell Brook</a>
GB112069064641	<a href="#">Irwell (Cowpe Bk to Rossendale STW)</a>
GB112069064680	<a href="#">Limy Water</a>
GB112069064650	<a href="#">Ogden</a>
GB112069064620	<a href="#">Irwell (Rossendale STW to Roch)</a>
GB112069064610	<a href="#">Kirklees Brook</a>
GB112069060840	<a href="#">Irwell (Roch to Croal)</a>
GB112069061451	<a href="#">Irwell (Croal to Irk)</a>
GB112069064720	<a href="#">Roch (Source to Spodden)</a>
GB112069064690	<a href="#">Beal</a>
GB112069064730	<a href="#">Spodden</a>
GB112069064600	<a href="#">Roch (Spodden to Irwell)</a>
GB112069064710	<a href="#">Naden Brook</a>
GB112069061250	<a href="#">Whittle Brook (Irwell)</a>
GB112069064570	<a href="#">Eagley Brook</a>
GB112069064560	<a href="#">Astley Brook (Irwell)</a>
GB112069064530	<a href="#">Tonge</a>
GB112069064540	<a href="#">Middle Brook</a>
GB112069064550	<a href="#">Croal (including Blackshaw Brook)</a>
GB112069061161	<a href="#">Irk (Source to Wince Brook)</a>
GB112069061120	<a href="#">Wince Brook</a>
GB112069061131	<a href="#">Irk (Wince to Irwell)</a>
GB112069061452	<a href="#">Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey)</a>
GB112069061151	<a href="#">Medlock (Source to Lumb Brook)</a>
GB112069061152	<a href="#">Medlock (Lumb Brook to Irwell)</a>
GB112069061430	<a href="#">Folly Brook and Salteye Brook.</a>
GB112069064580	<a href="#">Bradshaw Brook</a>

Click on a water body to navigate to that map

# Water body name

## Issues:

- Lists the issues in the water body and their causes

## Opportunities:

- Based on the issues what are the main opportunities for the Partnership. This excludes water company issues and the Mitigation Measures Actions as these are presented as other opportunities below.

## Mitigation Measure Actions:

- A list of the Mitigation Measures Actions identified in the water body by the Environment Agency. The number in brackets corresponds to the number on the map (if location is given).

## Irwell Catchment Partnership (ICP) Projects:

- Lists the current Irwell Catchment Partnership Proposed Projects in the water body. Score given in brackets.

Comments provided during the Workshop on the 10<sup>th</sup> February

## Opportunity theme symbols



Fisheries – barrier removal



Physical modifications



Water quality

Map of the waterbody indicating the location of Irwell Catchment Partnership Projects, Mitigation Measures Actions, Environment Agency sampling locations, consented discharges, and priority barriers for eel.

**United Utilities (UU) Proposed works:**  
Details of UU improvement schemes

**Comments:** APEM's comments about the opportunities in the water body.

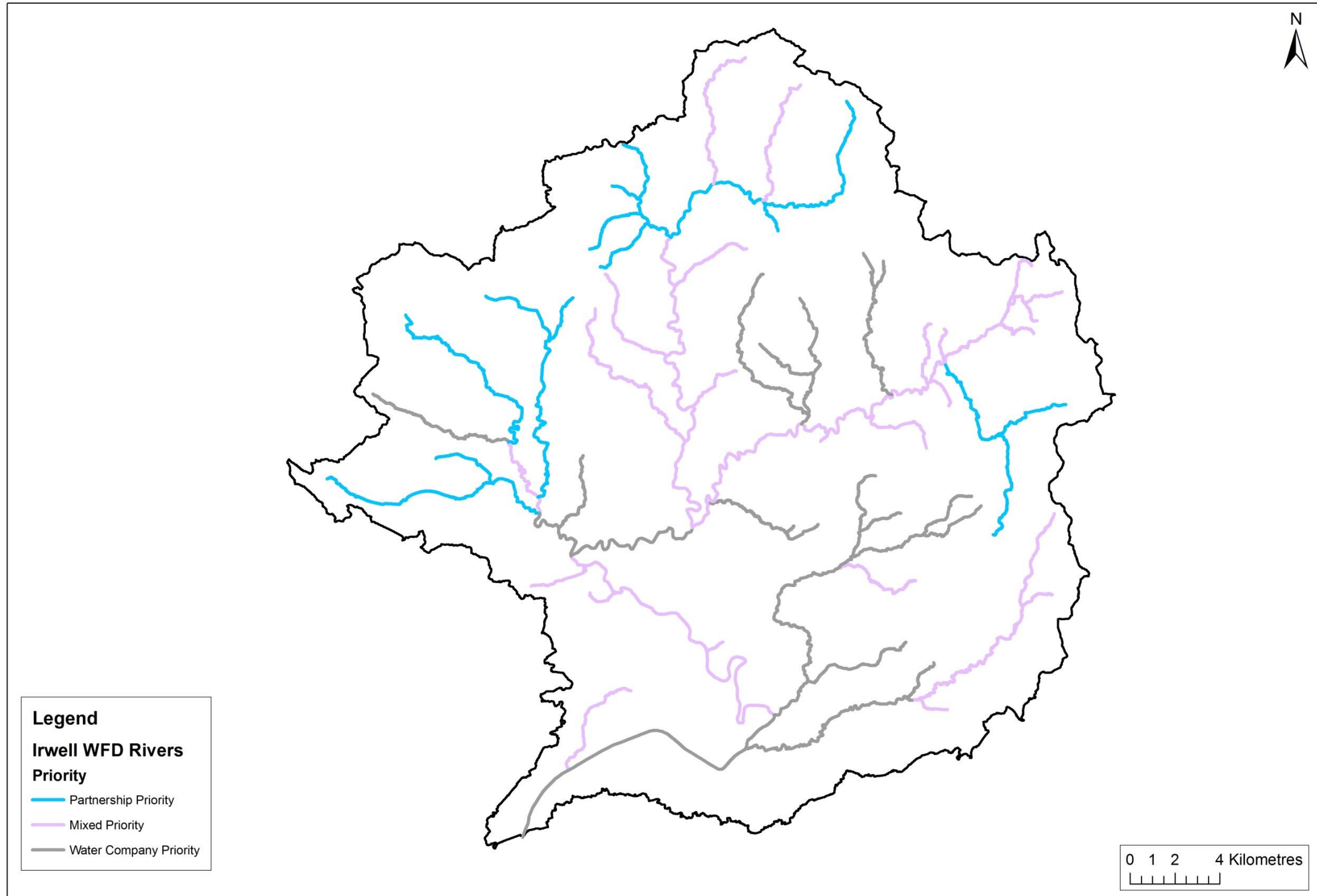
**Conclusion:** APEM's conclusion about the opportunities in the water body. Partnership priority, mixed priority or water company priority.

**Next steps:** comments provided during the Workshop on the 10<sup>th</sup> February, from stakeholders, regarding the next steps. These are not APEM comments.

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# Summary



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# Irwell (Source to Whitewell Brook)



## Issues:

- Physical modification – weirs, culverts, cascade, modified channel. Urbanisation, water regulation
- Unknown sources affecting invertebrates and phosphate
- Barriers to fish migration
- Minewater discharges

## Opportunities:

- Investigate unknown sources of phosphate and what is impacting invertebrates. Data supports elevated phosphate but only just above Good status. Confirm if this is an issue.
- Barrier removal
- Riparian redevelopment (Gary Morris EA)

## Mitigation Measure Actions:

- Remove obsolete structures (142-146, 148, 149, 156, 157, 159)
- Re-opening culverts (147)
- Remove or soften hard bank (150, 151, 154)
- In-channel morph diversity (152, 153, 158, 160)
- Set-back embankments (155)
- Waterfoot open culvert (161)
- Invasive species techniques (162)
- Educate landowners (164)
- Sediment management strategy (163)

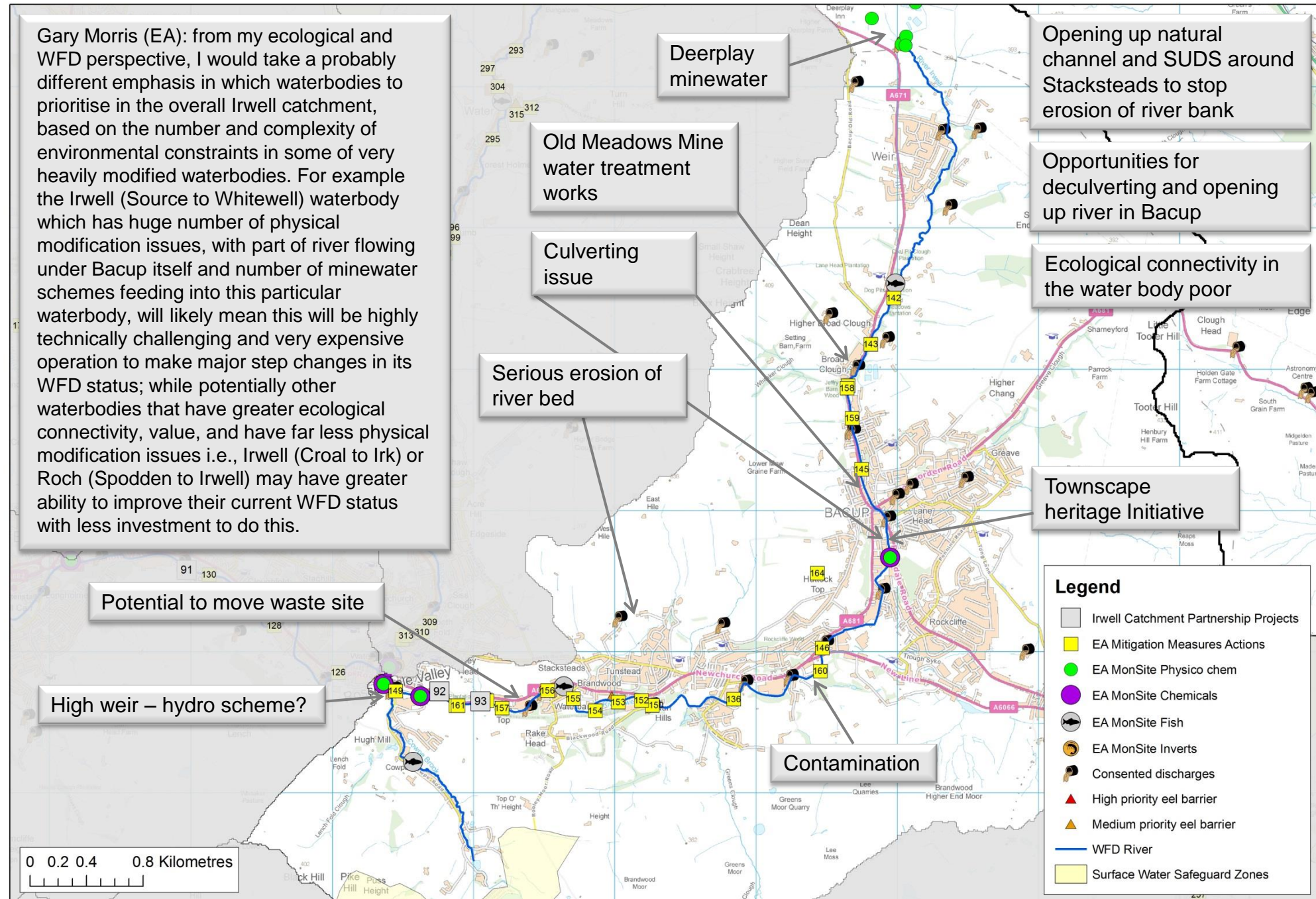
## ICP Projects:

- No. 92/93 De-culverting of River Irwell at Waterfoot (14)

**Comments:** No water company issues identified and no upstream water bodies. Offers a range of options for the partnership. Heavily urbanised area so physical modifications may be difficult but one project already proposed. Opportunity for joint diffuse pollution investigation in downstream water bodies (Limy Water, Whitewell Brook, Irwell Cowpe Brook to Rossendale STW).

**Conclusion:** High priority

Gary Morris (EA): from my ecological and WFD perspective, I would take a probably different emphasis in which waterbodies to prioritise in the overall Irwell catchment, based on the number and complexity of environmental constraints in some of very heavily modified waterbodies. For example the Irwell (Source to Whitewell) waterbody which has huge number of physical modification issues, with part of river flowing under Bacup itself and number of minewater schemes feeding into this particular waterbody, will likely mean this will be highly technically challenging and very expensive operation to make major step changes in its WFD status; while potentially other waterbodies that have greater ecological connectivity, value, and have far less physical modification issues i.e., Irwell (Croal to Irk) or Roch (Spodden to Irwell) may have greater ability to improve their current WFD status with less investment to do this.



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# Whitewell Brook



**Issues:**

- Flow – Impoundment - water storage
- Source of phosphate unknown
- Physical modification – weirs, culverts, cascade. Urbanisation, water regulation

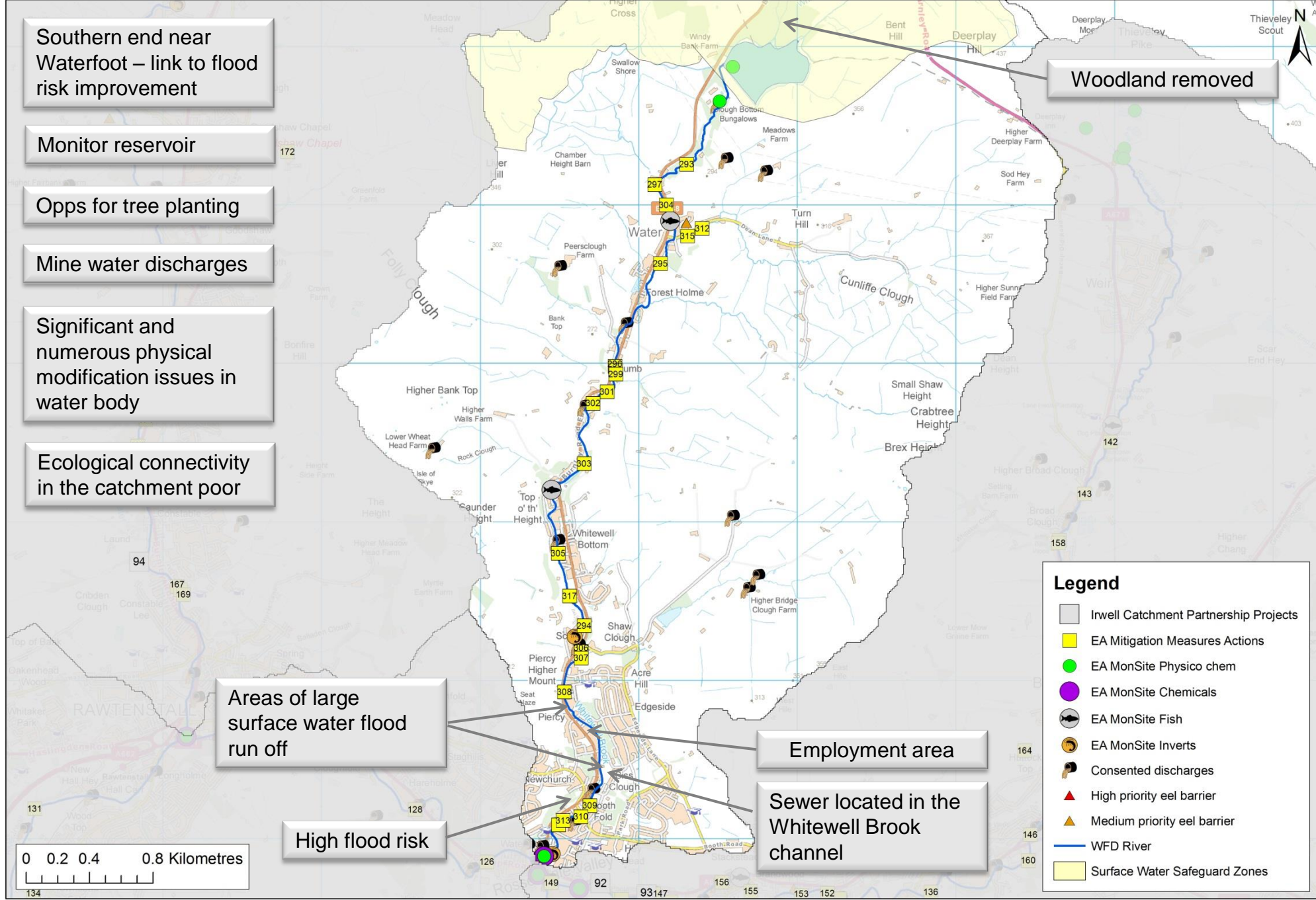
**Opportunities:**

- Investigate source of phosphate
- Riparian redevelopment (Gary Morris, EA)

**Mitigation Measure Actions:**

- Remove obsolete structures (293,294,297,299,300,302-305,307-309,311,312,314)
- Re-opening culverts (295,310,315)
- Remove or soften hard bank (296,298,301,306)
- In-channel morph diversity (313)
- Sediment management strategy (316)
- Invasive species techniques (317)

**ICP Projects:**  
None



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**Comments:** Range of opportunities but there are water company impacts. Clough Bottom reservoir in upstream suffers elevated total phosphorus due to diffuse sources. Could tie in with other opportunities in nearby water bodies in collaboration with UU.  
**Conclusion:** Medium priority

**Next steps:** Work with farmers and UU around flow and moorland restoration and investigating phosphate sources (e.g. septic tanks) via facilitation fund. CSF type activity around sediment reduction.



# Irwell (Cowpe Bk to Rossendale STW)



## Issues:

- Diffuse source – sediment, unknown, urban and transport. Suspected.
- Point source – Industrial/trade discharge (non EPR). Suspected.
- Source of phosphate unknown
- Physical modification - Urbanisation, flood protection

## Opportunities:

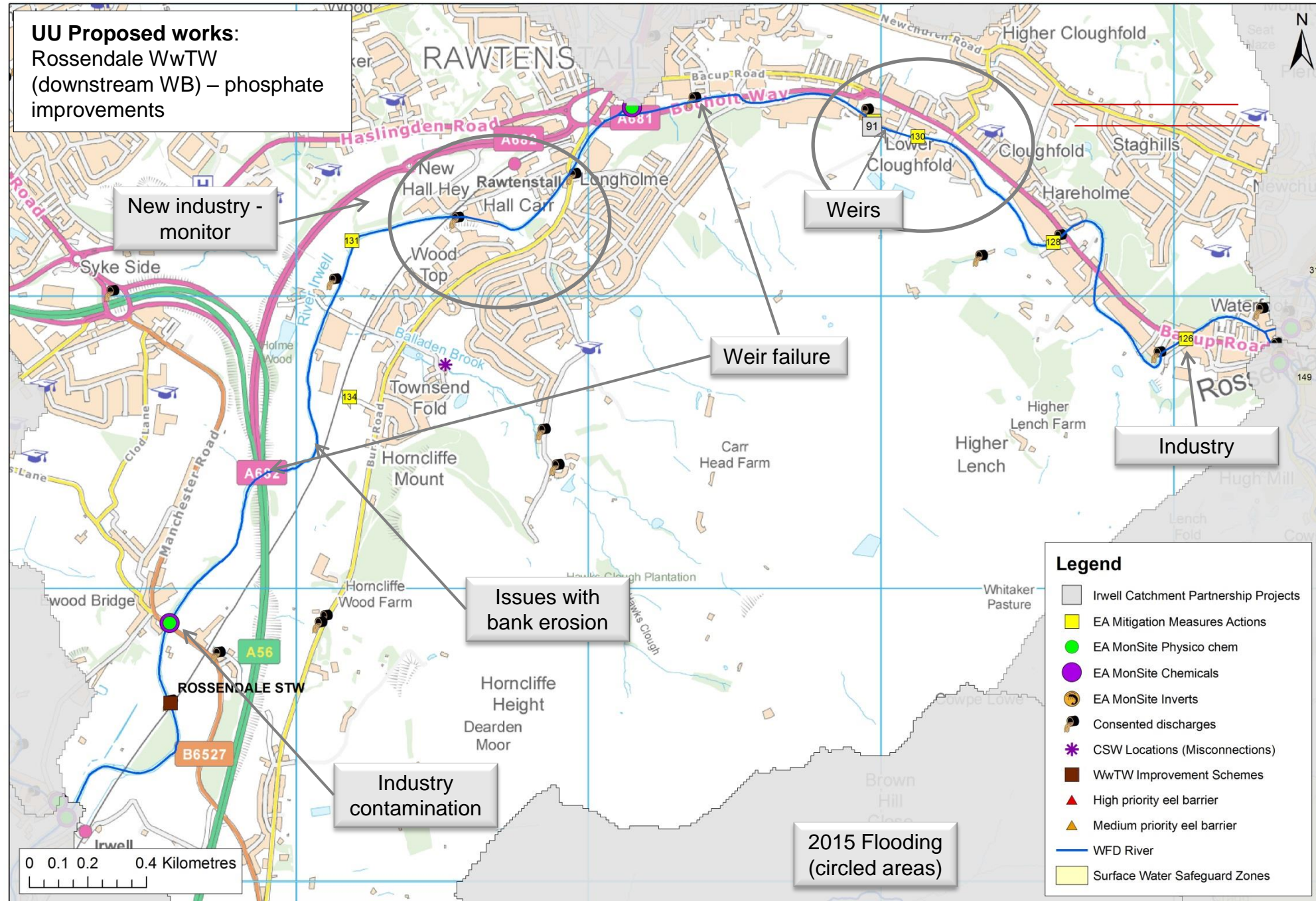
- Diffuse source investigation and management
- Investigate source of phosphate: possible upstream sources on Limy Water and/or Whitewell Brook. Psychic modelling indicates phosphate load from agriculture U/S.
- Investigate and manage non water company issues (all issues)

## Mitigation Measure Actions:

- Remove obsolete structures (126, 127, 129)
- In-channel morph diversity (128, 130)
- Fish pass (131)
- Invasive species techniques (132, 136)
- Educate landowners (134)
- Sediment management strategy (133, 135)

## ICP Projects:

- No. 91 River Irwell restoration (8)



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**Comments:** No water company issues identified at the moment so offers a range of options for the partnership. Upstream water bodies do suffer elevated phosphate but the source of this is unknown. Opportunity for joint diffuse pollution investigation in these water bodies (Limy Water, Whitewell Brook, Irwell Source to Whitewell Brook). Water quality is poor (pH and phosphate) so this should be addressed first.

**Conclusion:** Offers a range of options which could be addressed to target WFD compliance. High priority

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# Limy Water



## Issues:

- Unknown reasons for failing elements (M&P and phosphate)
- Physical modification – concrete lined channel, weirs. Urbanisation, water regulation (water industry)
- Barriers to fish migration

## Opportunities:

- Investigate cause of failures. Psychic modelling indicates moderate phosphate load from agriculture across the water body. Issue is D/S at the confluence with the River Irwell, so suggests other inputs between the reservoir and the Irwell however concentrations only marginally above good status

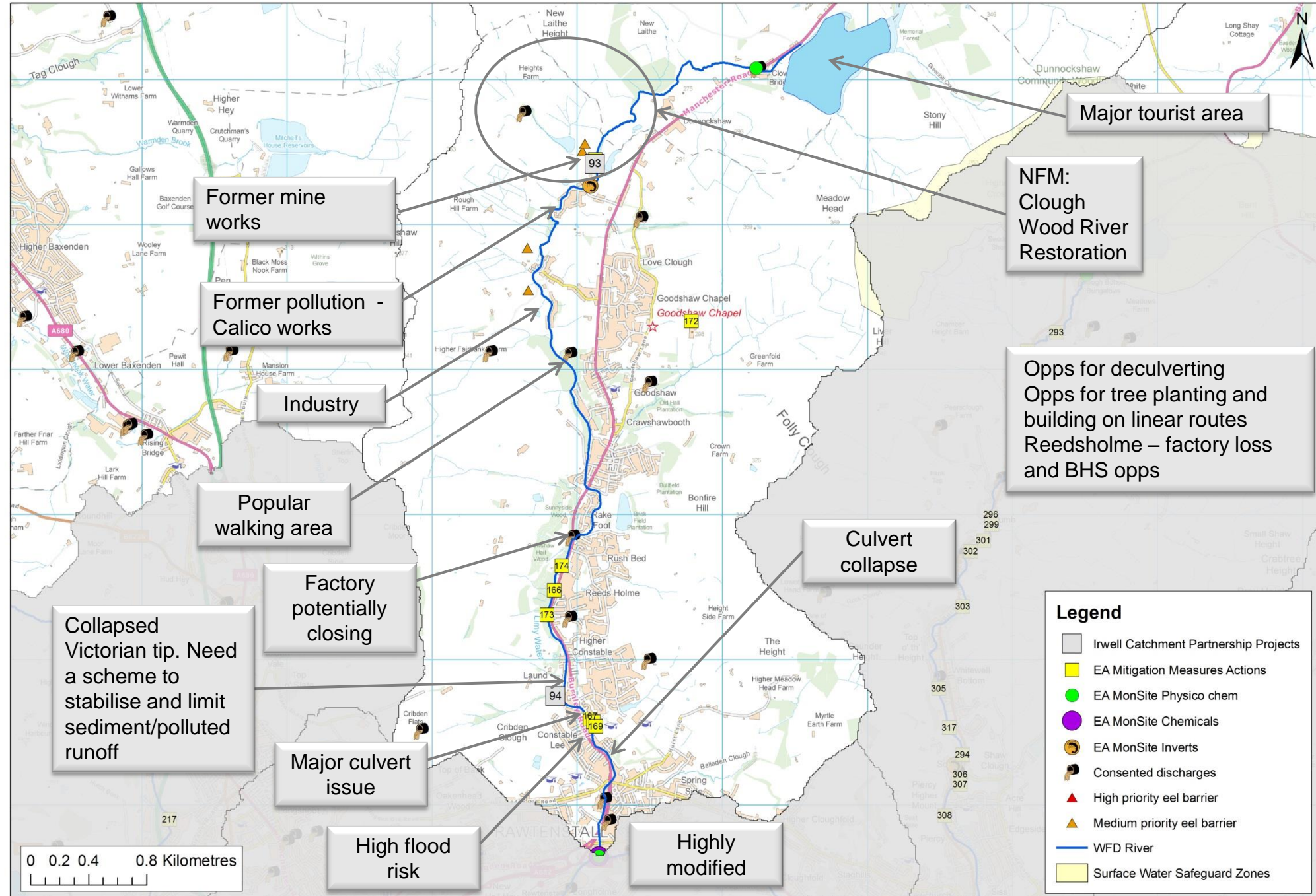
## Mitigation Measure Actions:

- Remove or soften hard bank (165)
- Fish passes (166)
- Remove obsolete structures (167-169)
- Reopening culverts
- Invasive species techniques (170)
- Educate landowners (172)
- Sediment management strategy (171)

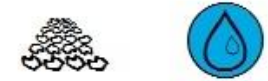
## ICP Projects:

- No. 94 Limy Water river restoration (12)
- No. 93 Limy Water river restoration (10)

**Comments:** Requires further investigation of the RFNAGS. Opportunity for joint diffuse pollution investigation in surrounding water bodies (Whitewell Brook, Irwell Cowpe Brook to Rossendale STW and Source to Whitewell). Clowbridge Reservoir upstream with elevated total phosphorus. Diffuse management has potential to benefit UU. **Conclusion:** Requires further investigation of RFNAGS. Medium priority



# Ogden



## Issues:

- Source of phosphate unknown
- Physical modifications – storage lagoon, weirs, canalised channels. Urbanisation and water regulation

## Opportunities:

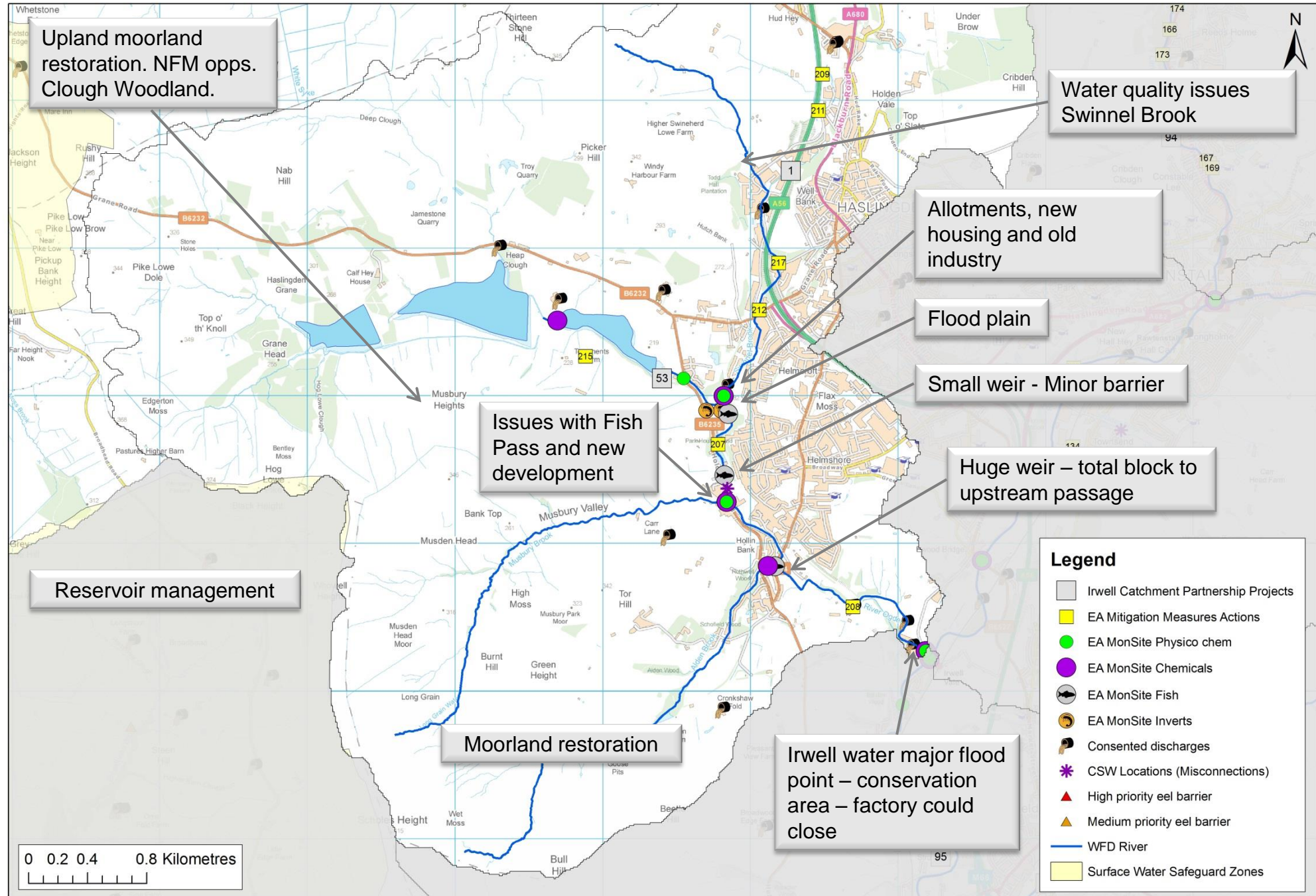
- Investigate source of phosphate
- Barrier removal/modification

## Mitigation Measure Actions:

- Enhance ecology (207)
- Remove obsolete structures (208,211)
- Remove or soften hard bank (209)
- In-channel morph diversity (210)
- Re-opening culvert (212)
- Invasive species techniques (213)
- Sediment management strategy (214)
- Educate landowners (215)
- Q95 compensation flow

## ICP Projects:

- No. 1 Industrial Estates – managing urban diffuse pollution (20)
- No. 53 Ogden Brook Compensation Flow (10)



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**Comments:** Upstream reservoirs suffering elevated total phosphorus due to diffuse sources so opportunity for UU engagement. Opportunity for joint diffuse pollution investigation in surrounding water bodies (Limy Water, Whitewell Brook, Irwell Cowpe Brook to Rossendale STW and Source to Whitewell). Offers a range of opportunities for the partnership with UU collaboration. **Conclusion: High priority**

**Next steps:** 1) Swinnel Brook area – maximise flood plain benefits. 2) Build on SSSI designation (West Pennines SSSI). 3) Monitor minewater. 4) Work with farmers to educate regarding moorland restoration and NFM and CSF inspired practices (via facilitation fund).



# Irwell (Rossendale STW to Roch)



## Issues:

- Point source – sewage discharge, water industry
- Physical modification – recreation, flood protection, urbanisation
- Barriers to fish migration
- Elevated nitrate concentrations

## Opportunities:

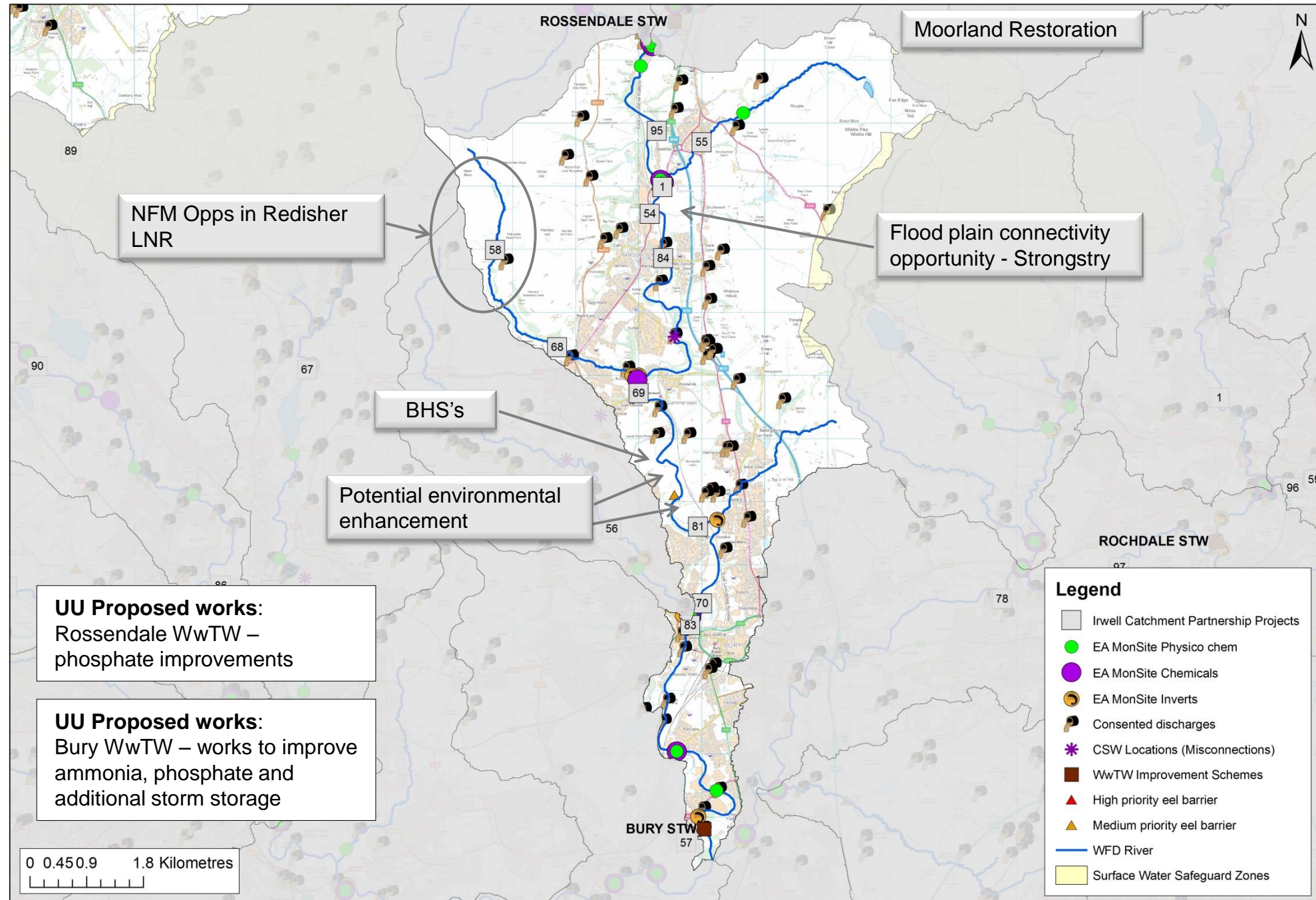
- Psychic modelling indicates high phosphate load from agriculture across the water body.
- Barrier removal
- Channel renaturalisation and habitat enhancement.

## Mitigation Measure Actions:

None

## ICP Projects:

- No. 1 Industrial estates – Managing urban diffuse pollution (20)
- No. 95 River Irwell floodplain restoration (13)
- No. 84 River Irwell restoration (10)
- No. 55 Deaden Brook Stubbins Mill redevelopment No. (9)
- 58 Holcombe Iron works dig (9)
- No. 83 River Irwell restoration (9)
- No. 70 Bury Ground community hydro (4)
- No. 81 Burrs Country Park (4)
- No. 69 The Island, Summerseat Printworks (4)
- No. 54 Stubbins Estate (3)
- No. 68 Redisher Works Deculvert+Holcombe Brook (3)



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**Comments:** Majority of issues are due to water company however RFNAGS are macrophytes and phytobenthos, phosphate and mitigation measures. M&P and phosphate due to water company so works could improve these.

**Conclusion:** Medium priority.

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# Kirklees Brook



**Issues:**

- Physical modifications – barriers to fish migration, urbanisation, water regulation (water industry)

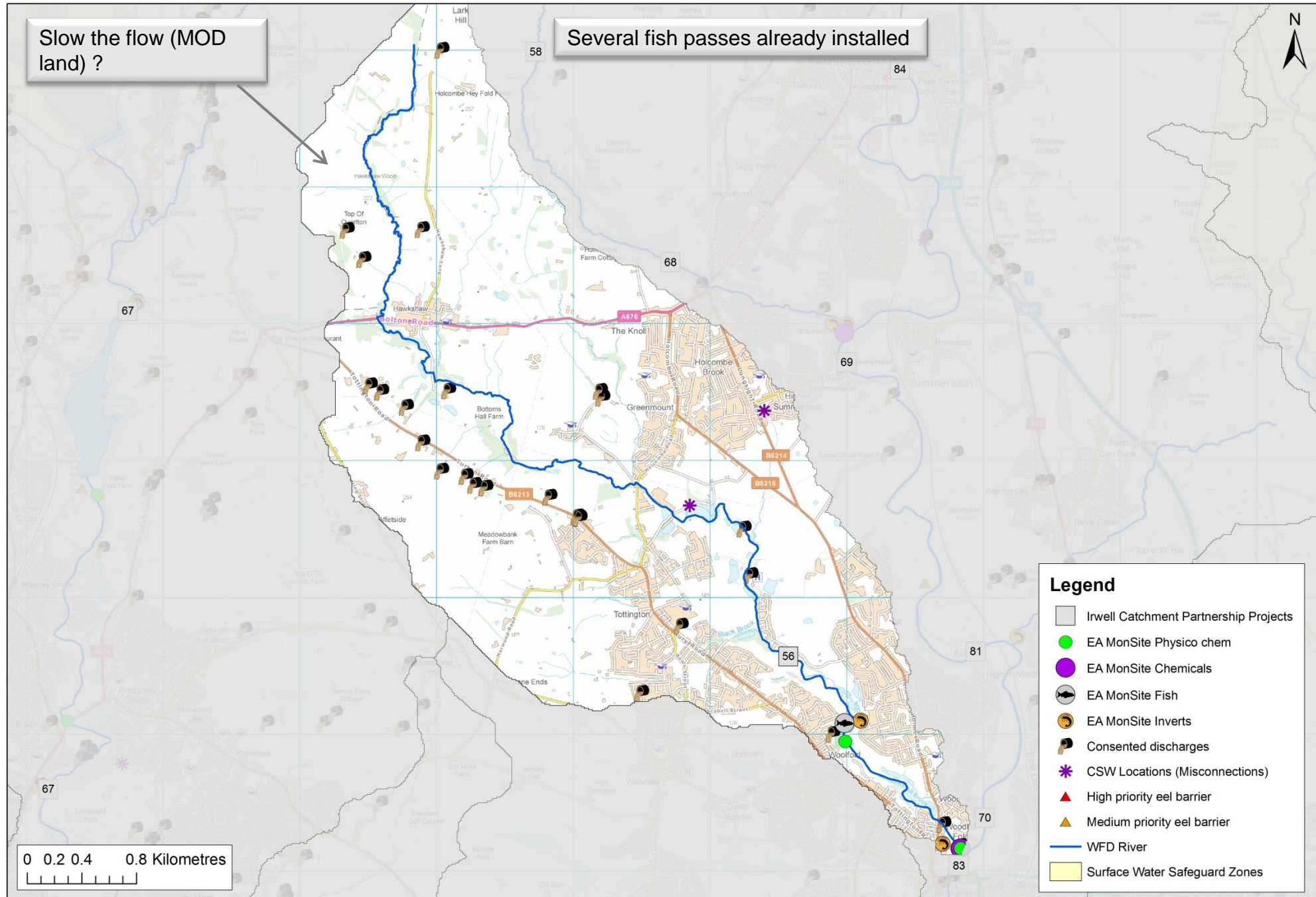
**Opportunities:**

- Barrier removal
- Channel renaturalisation and habitat enhancement.

**Mitigation Measure Actions:**  
None

**ICP Projects:**

- No. 56 Kirklees Brook Archaeological Dig (0)



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**Comments:** Physical modifications are the causes of failures. Numerous barriers to migration along the Brook. Has work already been done to address some of these? Downstream water bodies aren't high priority for work as they have a lot of issues.  
**Conclusion:** Medium priority



# Irwell (Roch to Croal)

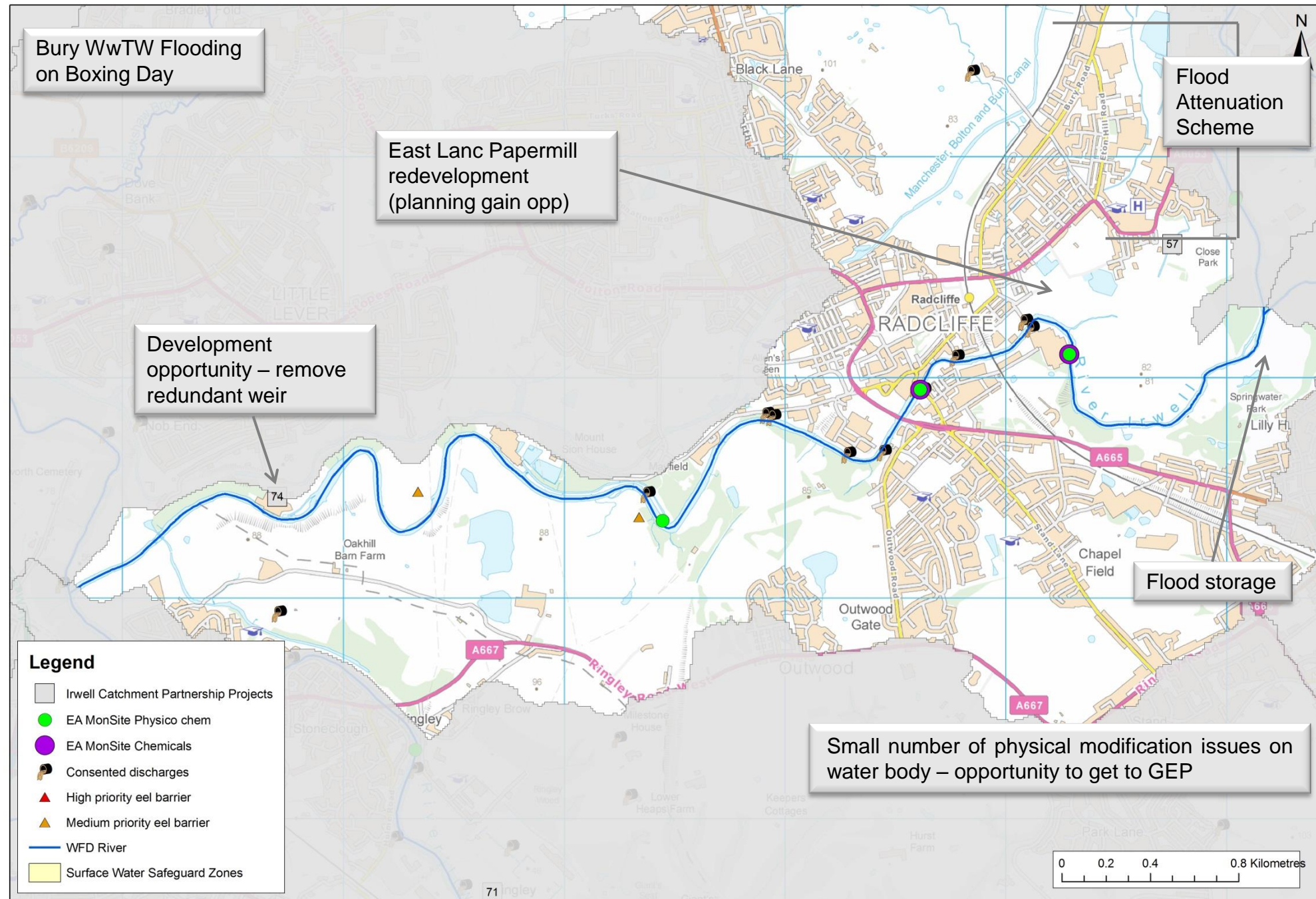


- Issues:**
- Point source – sewage discharge, water industry
  - Diffuse source – drainage
  - Physical modification – flood protection, urbanisation, recreation
  - Barriers to fish migration

- Opportunities:**
- Diffuse source management
  - Channel renaturalisation and habitat enhancement
  - Barrier removal

**Mitigation Measure Actions:**  
None

- ICP Projects:**
- No. 57 Close Park HLF (10)
  - No. 74 Cream Mill (10)



Small number of physical modification issues on water body – opportunity to get to GEP

**Comments:** Majority of issues are due to water company  
**Conclusion:** Low priority.



# Irwell (Croal to Irk)

## Issues:

- Point source – sewage discharge, water industry and industrial discharge (EPR)
- Diffuse source – unknown urban and transport, contaminated land,
- Physical modification – inland navigation and flood protection, urbanisation
- Source of some chemical issues unknown
- Barriers to fish migration
- NVZ
- Excessive suspended sediment

## Opportunities:

- Investigate and manage non water company impacts

## Mitigation Measure Actions:

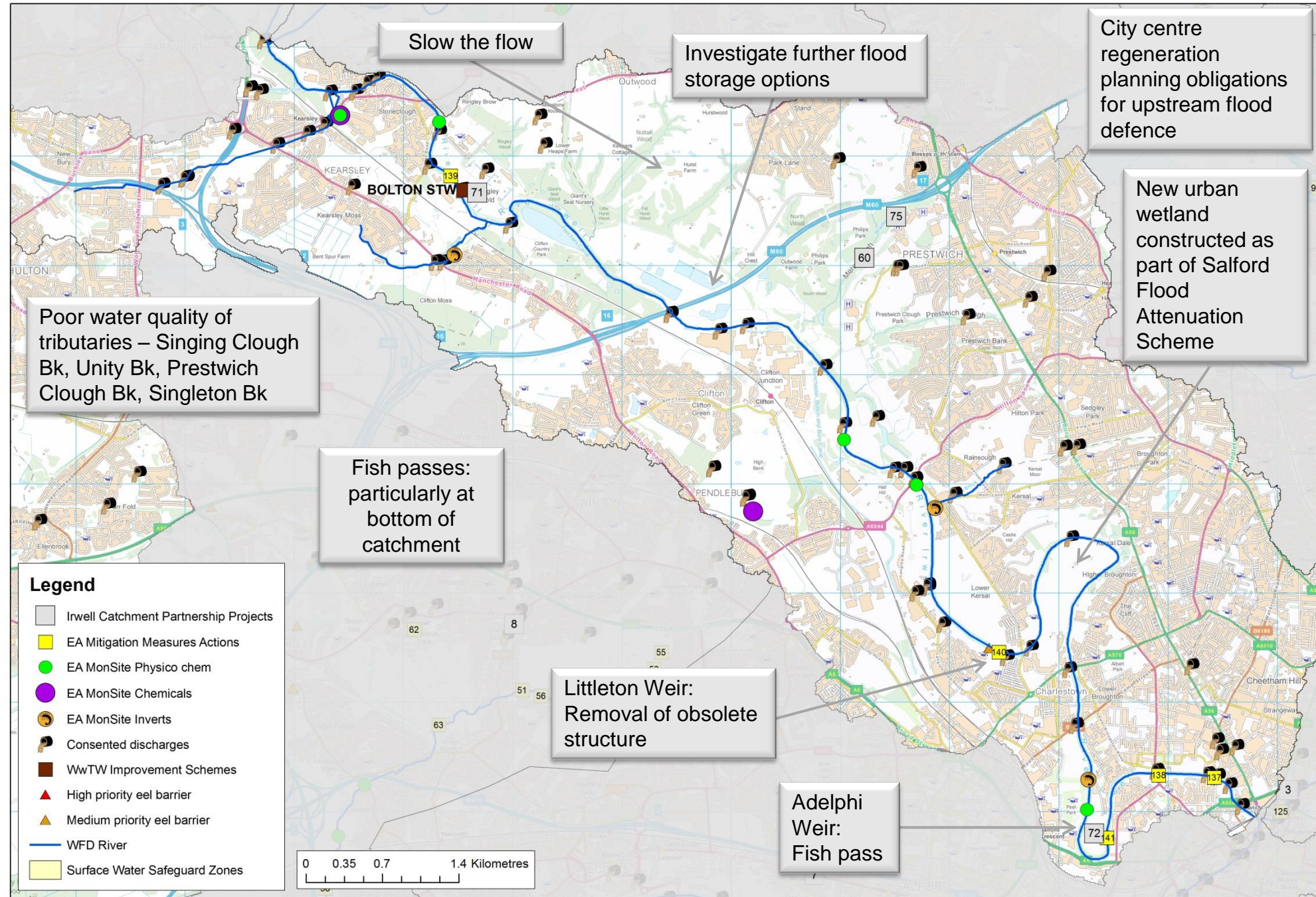
- Fish passes (Ringley and Adelphi – 139, 141)
- Remove obsolete structure (140)
- Invasive species techniques (137)
- Sediment management strategy (138)

## ICP Projects:

- No. 60 Prestwich Clough Regeneration (17)
- No. 72 Peel Park HLF (10)
- No. 75 Bradley Brook in Mere Clough re-meandering (9)
- No. 71 Maximising biodiversity on WwTW land (5)
- No. 32 Fish pass – Adelphi Weir (4)

## UU Proposed works:

Bolton WwTW – improvements to address ammonia and phosphate and additional storm storage.



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**Comments:** Lots of issues to address including water company impacts however works planned at Bolton could minimise these. Is a downstream water body in the catchment – impacts from upstream if not addressed. Water industry impacts likely to outweigh benefit of addressing other impacts until these are addressed. **Conclusion: Medium priority.**

Workshop comments: Relatively small number of heavily modified issues in water body compared to other water bodies in the catchment. Also lowest water body on the catchment – greater ecological connectivity with wider catchment

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## Issues:

- RFNAGS unknown or based on suspect data (fish, M&P, iron)
- Physical modification - Urban and transport, local and central government, water industry
- Barriers to fish migration
- Excessive suspended sediment

## Opportunities:

- Further opportunities limited by uncertainty over RFNAGS

## Mitigation Measure Actions:

- Diffuse pollution management
- Remove obsolete structures (219, 224-228, 234, 237, 240, 241)
- Remove or soften hard banks (220-223, 232, 233, 235, 236, 238, 239)
- In-channel morph diversity (229, 230)
- Fish passes (231, 242)
- Alter channel culvert bed (245)
- Invasive species techniques (247, 252)
- Sediment management strategy (253, 248)
- Align and attenuate flow (249, 254)
- Educate landowners (255)
- Reopening culvert (243)
- Set back embankments (246)
- Flood bunds (250)
- Flood plain connectivity (251)

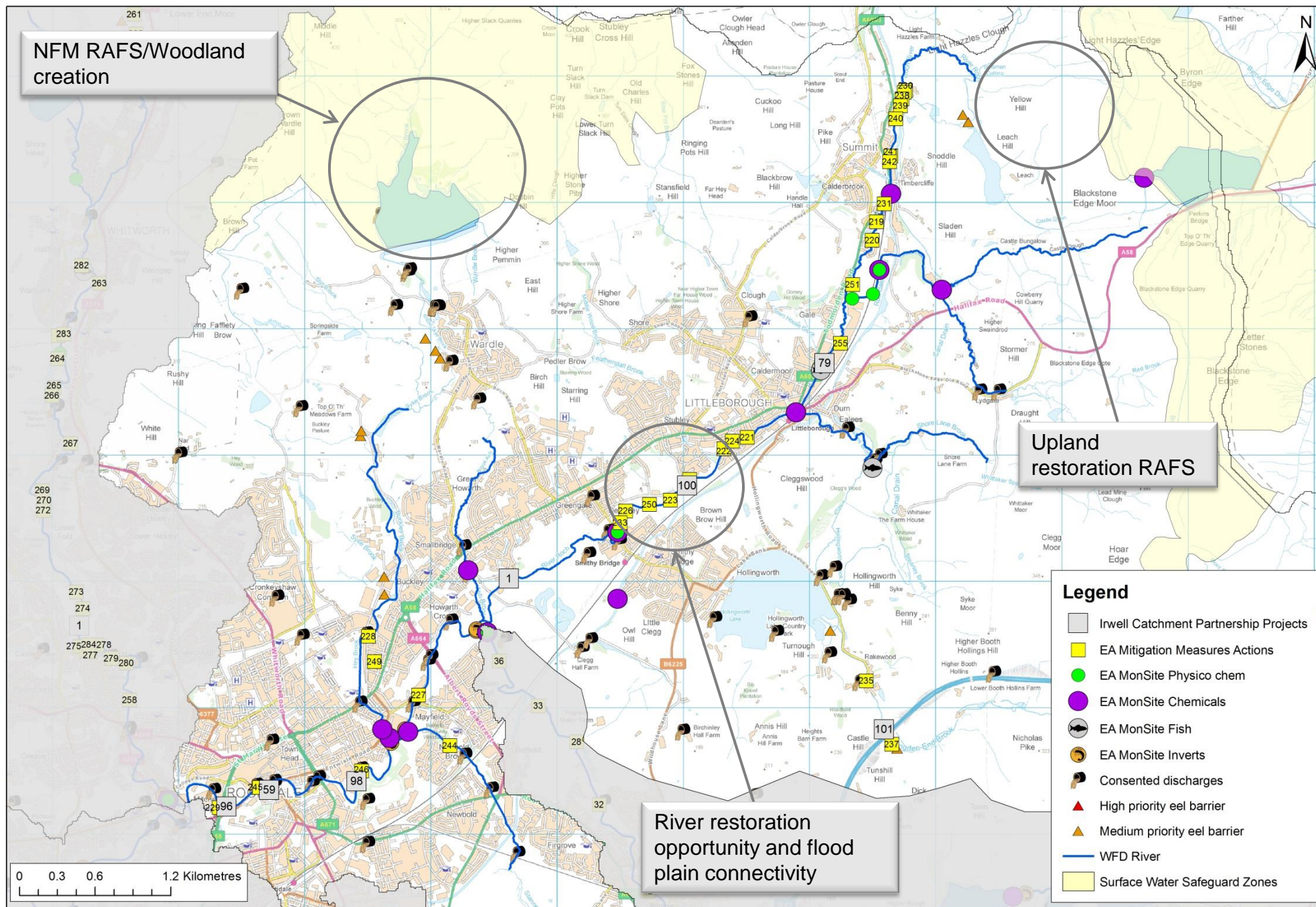
## ICP Projects:

- No. 1 Industrial Estates – Managing Urban Diffuse Pollution (23)
- No. 100 River corridor restoration(15)
- No. 96 River Roch river restoration, Rochdale town centre (13)
- No. 99 Stanney Brook No. restoration (13)
- No. 59 Rochdale TC Daylighting (11)
- No. 98 Removal of redundant flood wall (5)
- No. 101 Longden End Brook catchment restoration (5)
- No. 79 Slowing the flow – Littleborough (3)

# Roch (Source to Spodden)



**UU Planned works:** Algae - implement relevant measures identified in safeguard zone action plan to reduce nutrient input into raw water and reverse the deteriorating trend.



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**Comments:** Further investigation of RFNAGS required as all except MMA unknown or based on suspect data. MMA provide good list of opportunities to address this RFNAGS, many of which are covered by current RR project proposals. Could tie in with work on the Beal.

**Conclusion:** Medium priority

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# Beal



## Issues:

- Diffuse sources -contaminated land, urban and transport, suspected.
- Unknown sources of diffuse and other pressures.
- Physical modification - weirs and culverts. Urbanisation, water regulation, flood protection.
- Barriers to fish migration (weirs).
- Excessive suspended sediment.
- Water stressed catchment.

## Opportunities:

- Diffuse source management – tie in with UU
- Investigate other sources
- Barrier removal
- Riparian redevelopment (Gary Morris, EA)

## Mitigation Measure Actions:

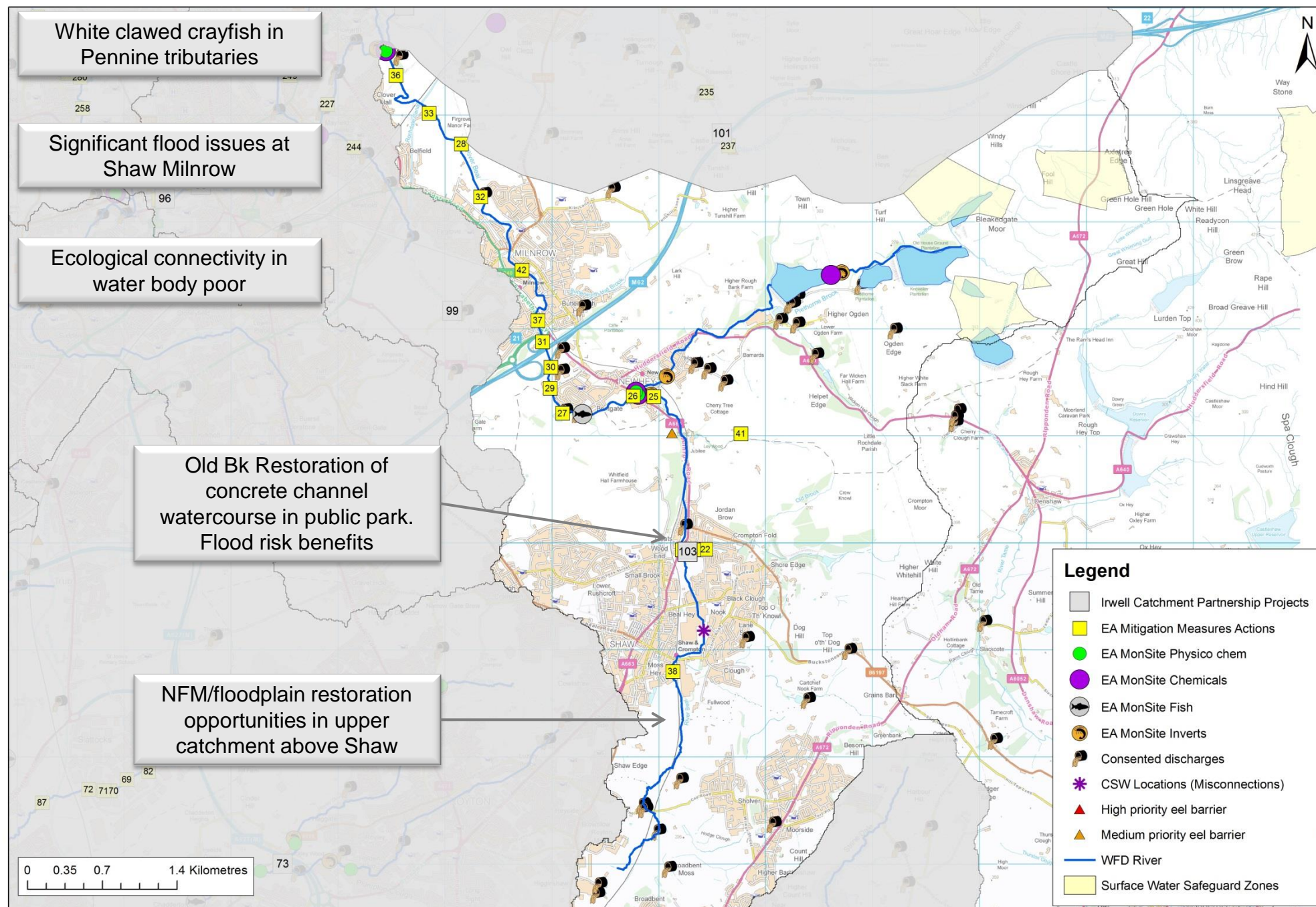
- In-channel morph diversity (22, 29)
- Remove obsolete structures (23, 24, 30-33)
- Remove or soften hard bank: stone bank and weir (25-28, 34)
- Floodplain connectivity (35,38)
- Preserve or restore habitats (36)
- Invasive species techniques (39)
- Educate landowners (41)
- Alter culvert channel bed
- Reopening culverts (37)
- Sediment management strategy (40)

## ICP Projects:

- No. 103 Old Brook and River Beal river rehabilitation project (14)
- No. 106 Invasive species – Shaw Parish (9)

**Comments:** No water company issues to resolve in the river. Reservoirs upstream (Ogden and Piethorn) do have elevated total phosphorus due in part to diffuse catchment sources (agriculture and rural land management). Investigation and management of this throughout the water body catchment therefore likely to have beneficial impacts on water company assets. Fish and invertebrates are failing due to contaminated land but unsure of why if water quality elements are at Good or High status? Requires clarification. Cause of M&P failure unknown. Work could therefore be undertaken by the Partnership to investigate and manage these issues and tie in with UU. This has the potential to improve WFD status of 3 of the 4 river RFNAGS. Project concerning physical modification already proposed with potential EA funding.

**Conclusion: High priority**



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# Spodden



## Issues:

- RFNAGS unknown or based on suspect data (fish, M&P)
- Physical modification – cascade, culvert, weirs, dam, concrete channels. Urbanisation, flood protection, water regulation, drinking water supply
- Barriers to fish migration
- Excessive suspended

## Opportunities:

- Investigate RFNAGS

## Mitigation Measure Actions:

- Re-opening culverts (259,260, 271,277)
- Remove obsolete structures (258,261-263,267,268,270,272,273,276,280)
- Remove or soften hard bank (264,278,279)
- Preserve or restore habitats (265,266,269,284)
- Fish passes (274)
- In-channel morph diversity (275)
- Educate landowners (281)
- Sediment management strategy (282)
- Flood plain connectivity (283)

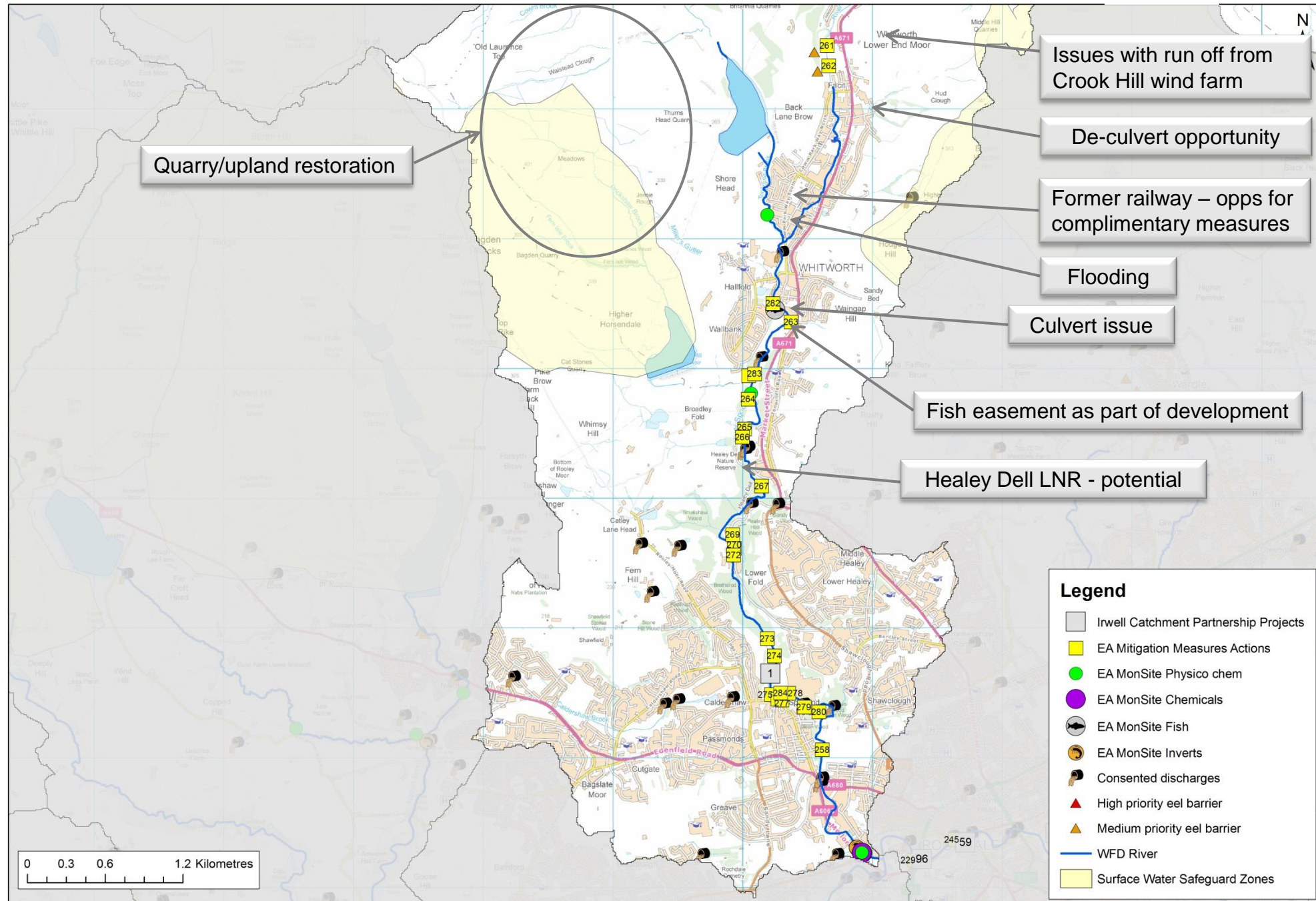
## ICP Projects:

- No. 1 Industrial Estates – Managing Urban Diffuse Pollution (20)

**Comments:** Need to clarify RFNAGS. Cowme reservoir suffers elevated total phosphorus from diffuse sources (agriculture and rural land management). Opportunity for collaboration to tackle diffuse pollution but need to confirm if this is an issue in the river too.

**Conclusion:** Low priority

**Next steps:** 1) Build on opps for enhancement via Local Nature Reserve. 2) Opening up culverting and flood plain in central Whitworth



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# Roch (Spodden to Irwell)



## Issues:

- Diffuse source - Drainage - housing and mixed. Suspected.
- Point source - Industrial/trade discharge (non EPR), suspected. Sewage discharge (water industry).
- Physical modification - urbanisation, water regulation
- Barriers to migration

## Opportunities:

- Investigate and manage non water company issues
- Barrier removal

## Mitigation Measure Actions:

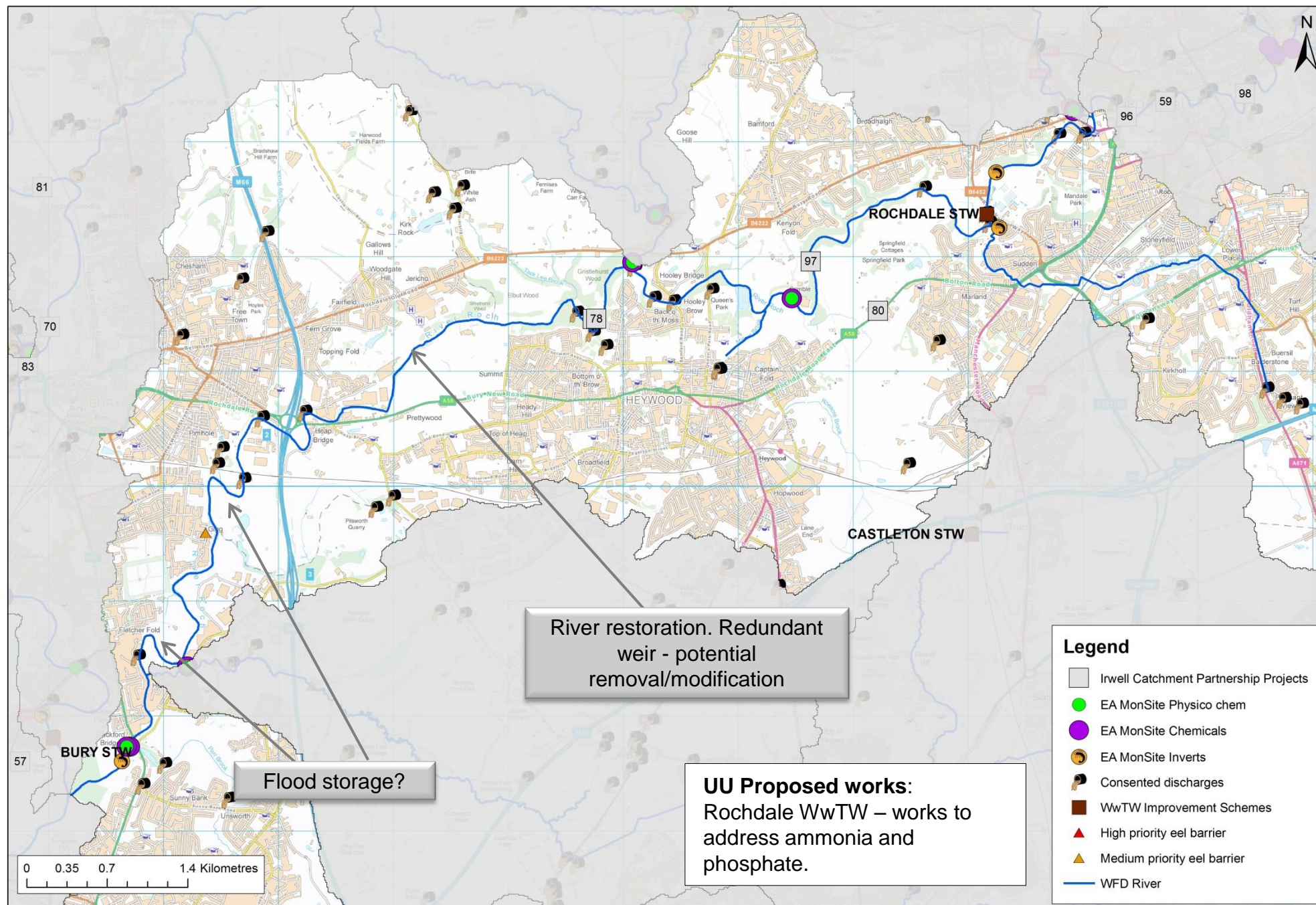
- Diffuse pollution management – restrict plumbing and drainage works by unqualified people

## ICP Projects:

- No. 26 Gristlehurst Meadows restoration (17)
- No. 97 River Roch river restoration - weir, Crimble Mill (6)
- No. 80 Weir notching (5)
- No. 104 Roch Valley Meadows (4)
- No. 78 Meadows and Ponds Reinstatement – Gristlehurst (0 no details)

**Comments:** Opportunities for diffuse pollution management however there are water company issues affecting phosphate and macrophytes and phytobenthos. Works at Rochdale could address these leaving drainage and physical modifications issues to address. Stakeholder feedback that there are a relatively small number of modification issues in this water body compared to other Irwell water bodies.

**Conclusion:** Medium priority



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# Naden Brook



**Issues:**

- Physical modification – water regulation
- Water stressed catchment
- Barrier to fish migration - reservoir

**Opportunities:**

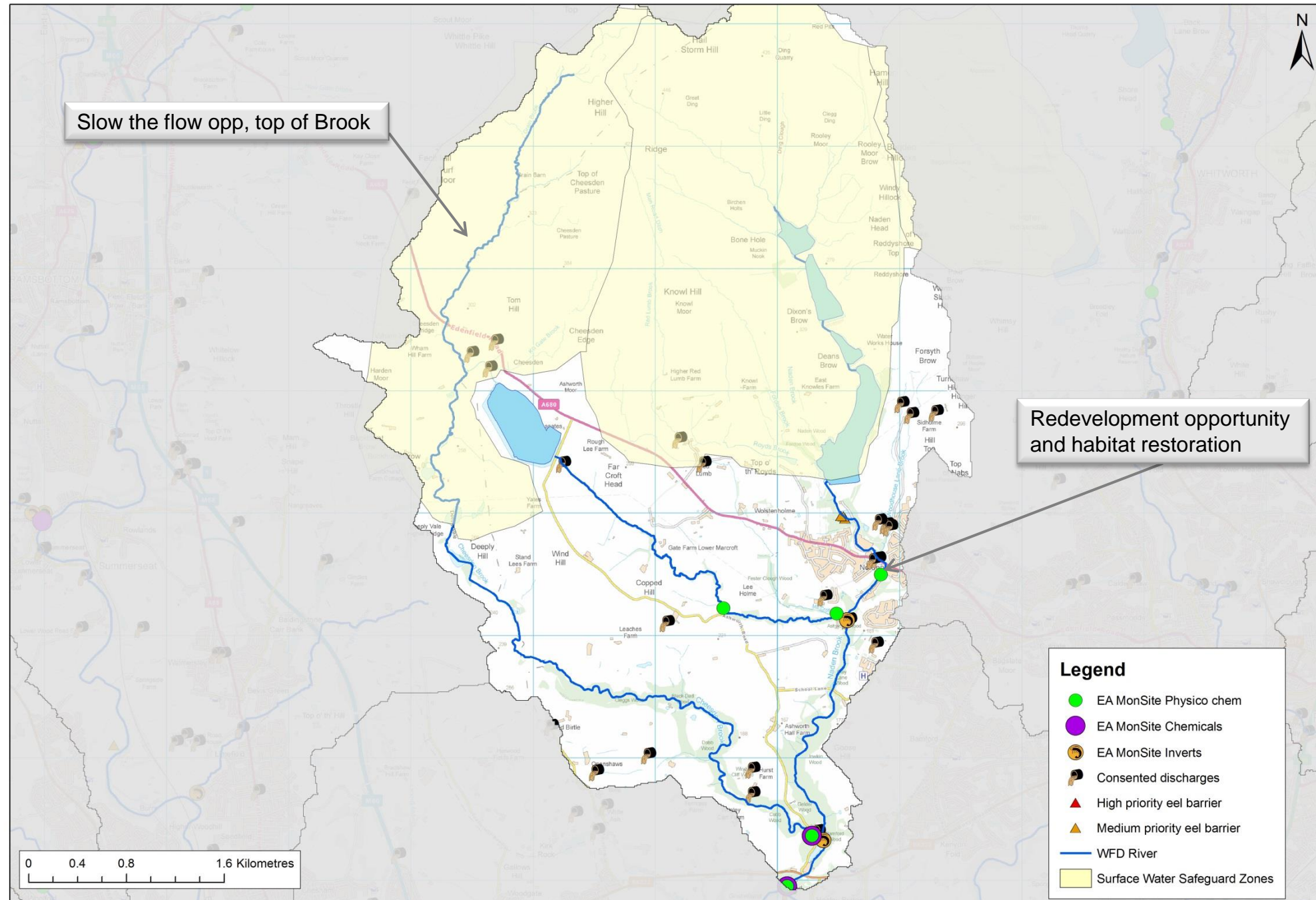
Limited as water company issues

**Mitigation Measure Actions:**

None

**ICP Projects:**

None



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**Comments:** RFNAGS is MMA: the reservoirs so water company. Could install a fish pass into and out of the reservoir but very little river upstream. The reservoirs could provide good habitat for fish (e.g. eel) to grow but then you would have to get them out again.

**Conclusion:** Low priority



# Whittle Brook (Irwell)



## Issues:

- RFNAGS sources all unknown
- Barriers to migration
- Excessive suspended sediment

## Opportunities:

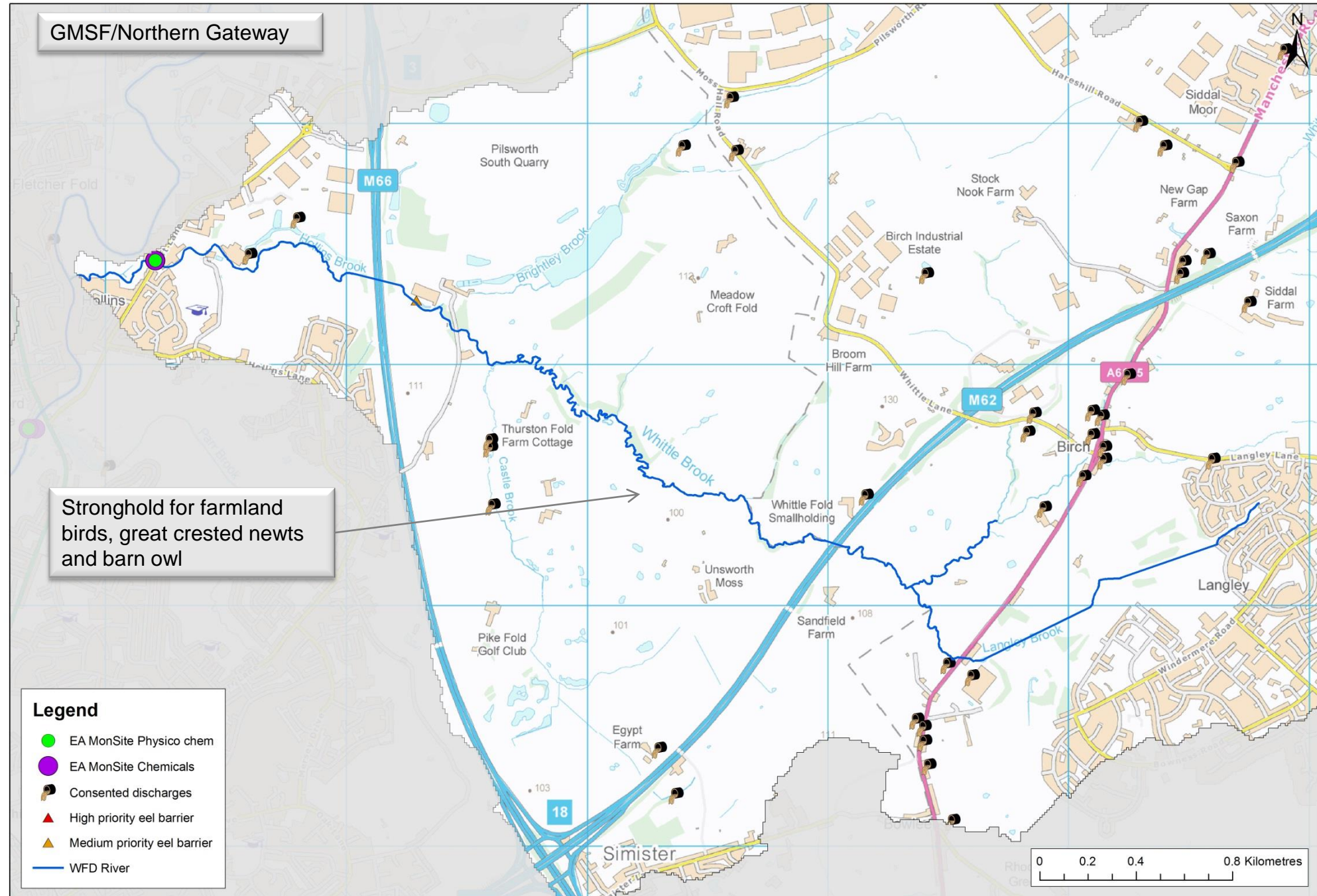
- Investigate RFNAGS
- Barriers to migration

## Mitigation Measure Actions:

Not a RFNAGS

## ICP Projects:

None



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**Comments:** Requires more investigation of the RFNAGS.

**Conclusion:** Low priority

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# Eagley Brook



## Issues:

- Physical modification – Barriers to fish migration. Water regulation, urbanisation.
- Source of phosphate unknown

## Opportunities:

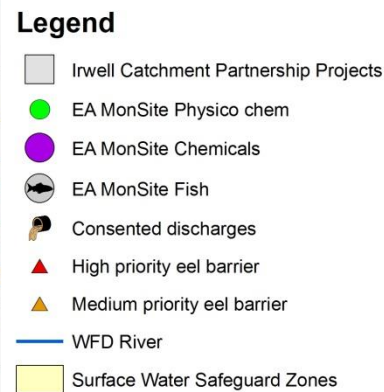
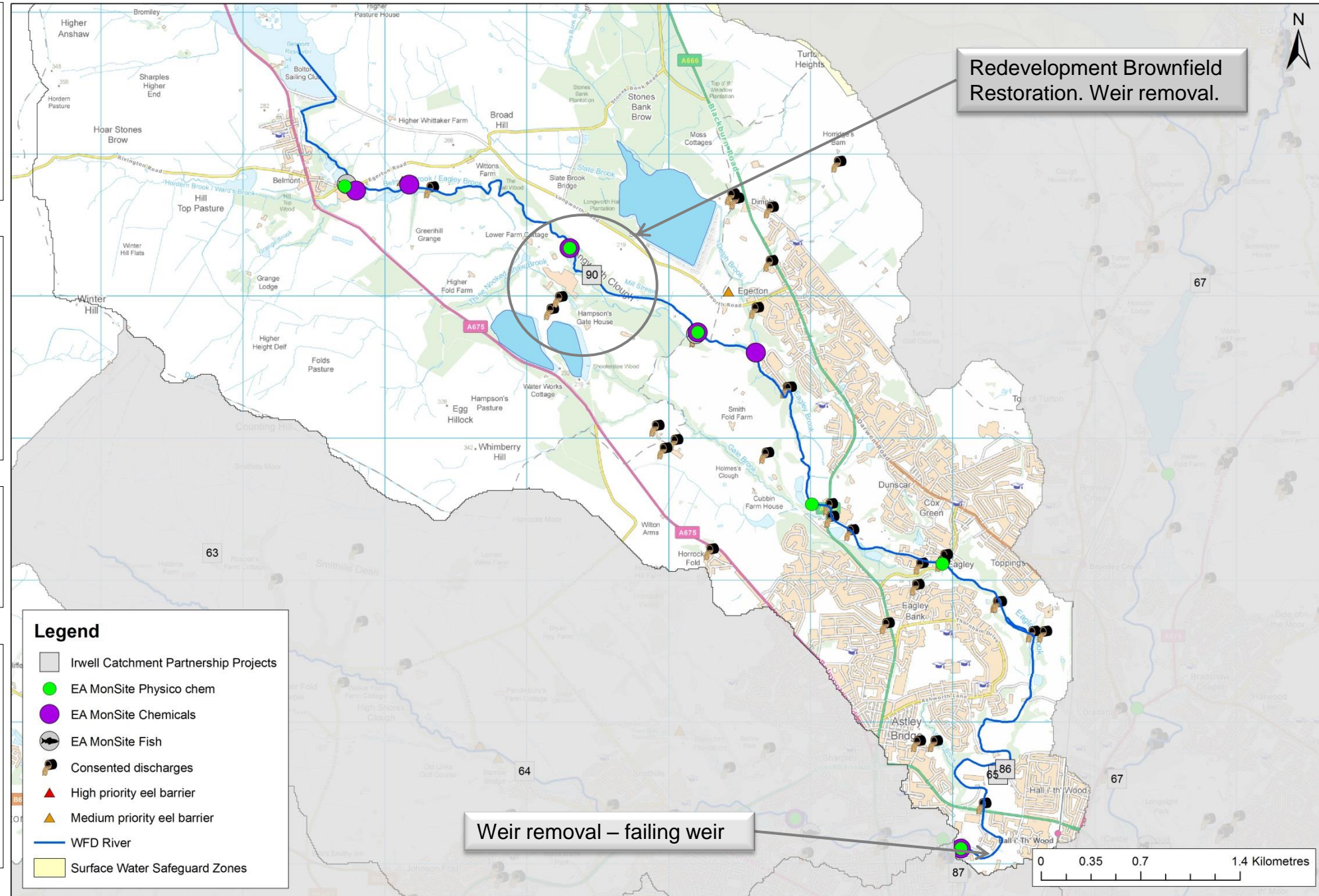
- Investigate source of phosphate (issue appears to be in middle reaches u/s of Delph Brook but appears to be improving). Psychic modelling indicates load from agriculture.

## Mitigation Measure Actions:

- Improve modified habitat: remove or easement of barriers to fish migration

## ICP Projects:

- No. 65 Hallinth Wood (13)
- No. 87 Eagley Brook restoration (13)
- No. 86 Eagley Brook restoration (13)
- No. 90 Eagley Brook restoration (13)



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**Comments:** There are already proposed projects to address barriers to migration which are a RFNAGS for both the fish element and MMA. Could therefore represent a good opportunity to address all WFD issues.

**Conclusion:** Good opportunity to improve WFD status with a few actions. High priority.

**Next steps:** Modelling identifies load from agriculture – work with farmers on catchment sensitive farming to reduce phosphate load.



# Astley Brook (Irwell)



## Issues:

- Diffuse sources - unknown (pending investigation), urban and transport, suspected.
- Point source - industrial/trade discharge (non EPR), suspected.
- Physical modifications – weirs, canalised channels, culverts.
- Barriers to fish migration (weirs).

## Opportunities:

- Diffuse sources requiring investigation. Psychic modelling indicates high phosphate and suspended sediment loads from agriculture
- Confirm point source impact

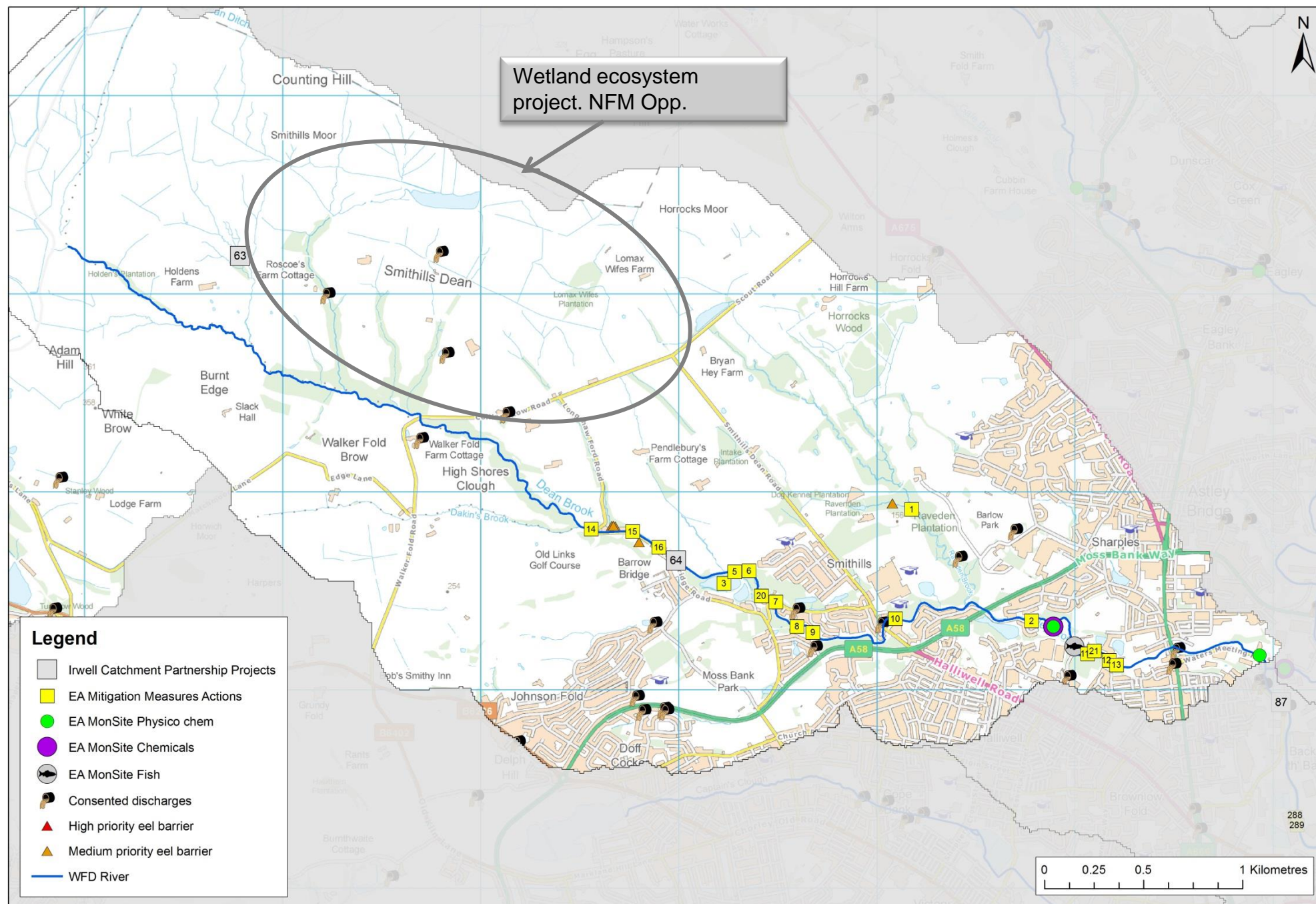
## Mitigation Measure Actions:

- Remove obsolete structures (1, 9-15)
- In-channel morph diversity (2, 5, 17)
- Preserve or restore habitat (3)
- Remove or soften hard bank (4, 21)
- Fish passes (6, 16)
- Re-opening culverts (7, 8)
- Sediment management (18)
- Invasive species techniques (19)
- Align and attenuate flow (20)

## ICP Projects:

- No. 64 Barrow Bridge concrete channel, weirs, mill ponds (18)
- No. 63 Smithills, slow the flow (8)

**Next steps:** 1) Work with farmers to preserve and restore habitats – moorland habitat. 2) Work with farmers on catchment sensitive farming activity to address point and diffuse sources of phosphate and sediment. Potential facilitation fund. 3) Investigate restoration via Stewardship ‘ Making Space for Water’



**Comments:** Water quality good (pH only failing element and not persistent problem and uncertain classification). No water company issues to resolve and no upstream water bodies. Fish are a failing element due to unknown diffuse sources and there is a lot of physical modification in the downstream half of the water body. Potentially a lot of habitat upstream of the town but no understanding of the suitability of this or current use by ecology as all monitoring sites are in the downstream reaches. May be more benefit working in the nearby Eagley and Bradshaw Brooks which have bigger catchments? The EA have commented that fisheries benefits may be difficult to predict and attain without good understanding of trout status and distribution in the Brook. Opportunities to address the diffuse issues in the water body though.

**Conclusion:** Low Priority

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# Tonge



## Issues:

- Sediment – unknown
- Point source – sewage discharge
- Physical modification - urbanisation

## Opportunities:

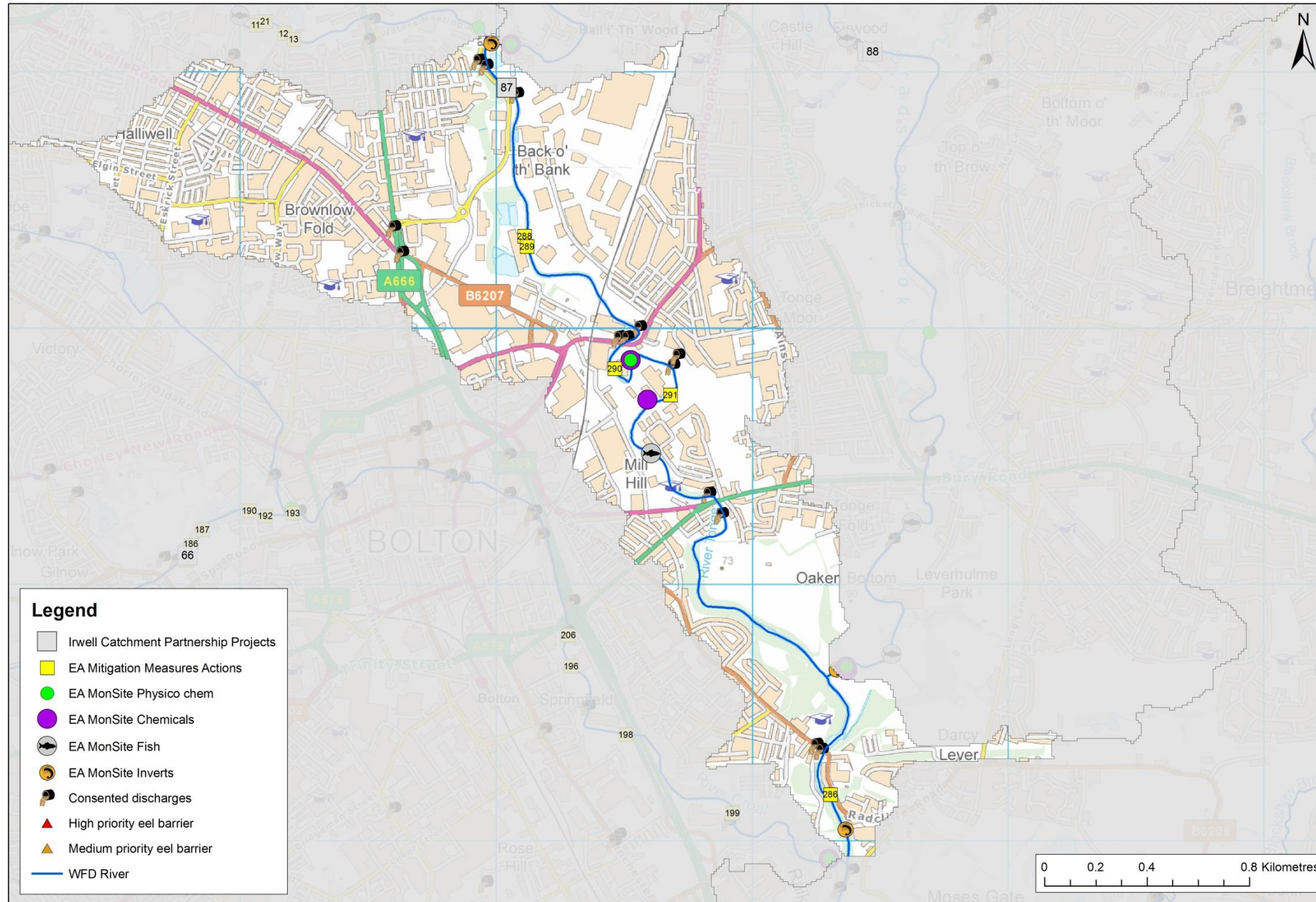
- Investigate source of sediment

## Mitigation Measure Actions:

- Remove obsolete structures (287-290)
- Removal or softening of hardband reinforcements (291)
- Invasive species techniques (285)
- Sediment management strategy (286)

## ICP Projects:

- None – think 87 in the wrong place



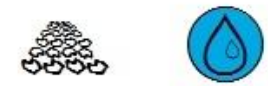
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**Comments:** Range of opportunities but there are water company impacts. Could tie in with work in adjacent water bodies.

**Conclusion:** Medium priority

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# Middle Brook

## Issues:

- Diffuse source – drainage - mixed and housing, mixed agriculture/drainage. Suspected.
- Point source – sewage discharge, water industry. Suspected.
- Physical modification – urbanisation.
- Excessive nutrients and sediments.

## Opportunities:

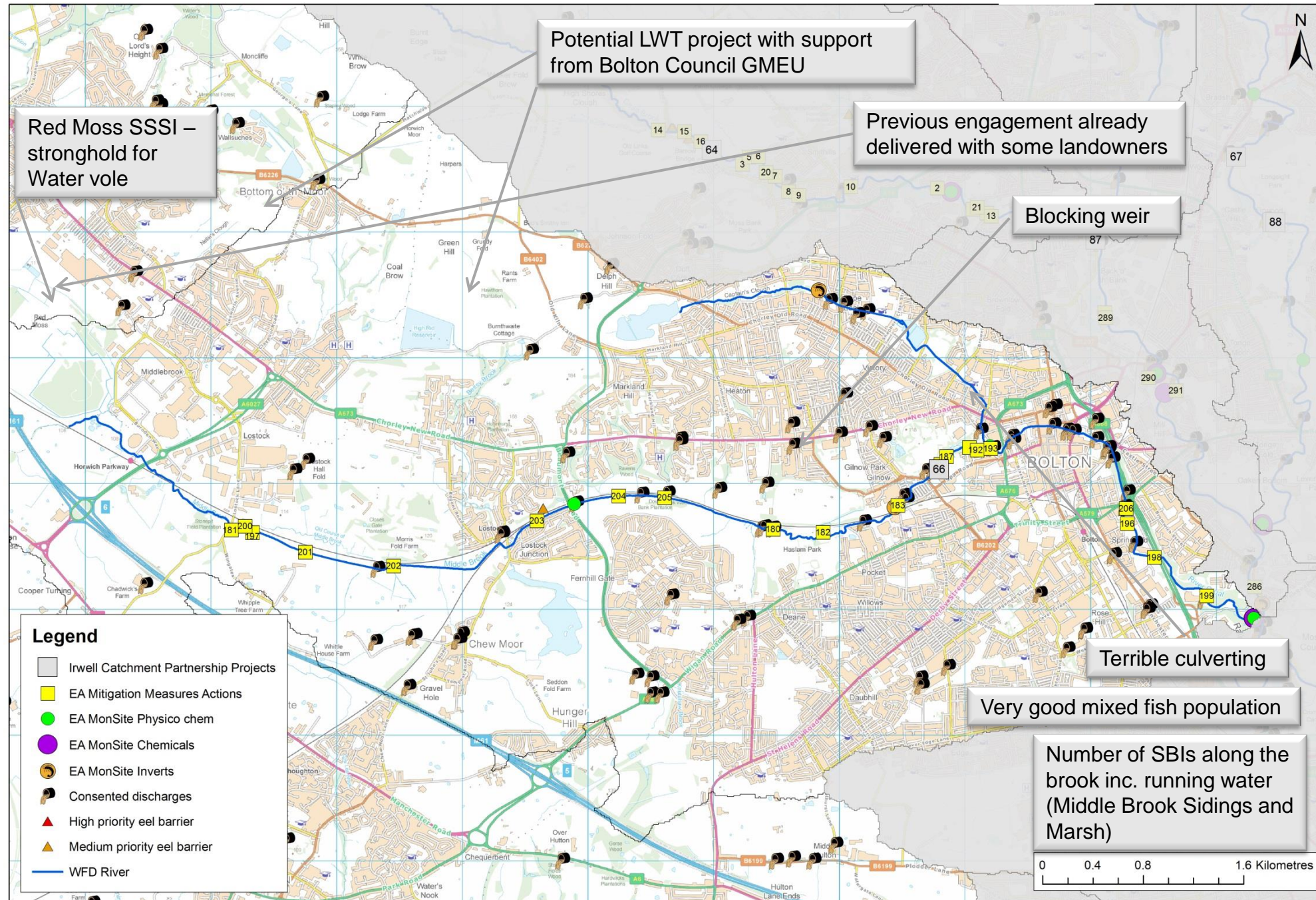
- MMA

## Mitigation Measure Actions:

- Diffuse pollution management
- Enhance ecology (179,201)
- Remove obsolete structures (180,184,188,193,196,199)
- In-channel morph diversity (181,183,190,192,195)
- Preserve or restore habitats (182,186,187,197)
- Remove or soften hard bank (185,189,191,200)
- Alter culvert bed (194,198)
- Re-opening culverts (202)
- Educate landowners (203)
- Sediment management strategy (204)
- Flood plain connectivity (205)

## ICP Projects:

- No. 66 Queens Park, weir and mill pond (10)



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**Comments:** Diffuse sources given as cause of most RFNAGS. Opportunity to potentially improve the status of 3/4 RFNAGS. Range of MMA which would address this RFNAGS. Would tie in with work on Eagley and Bradshaw Brooks.

**Conclusion:** High priority

**Next steps:** Project to liaise with landowners where diffuse pollution/excessive nutrients to introduce buffer strips along Middle Brook – what do they need to make this happen? Incentives? Possible driver could be Water vole population migration along the Brook from Red Moss SSSI led by LWT.





# Croal (including Blackshaw Brook)



## Issues:

- Point sources – sewage discharge, water industry
- Diffuse source – contaminated land
- Physical modification – culverts and weirs. Flood protection, urbanisation and land drainage.
- Barriers to fish migration
- Other pressures – ecological recovery time, urban and transport
- Source of phosphate unknown

## Opportunities:

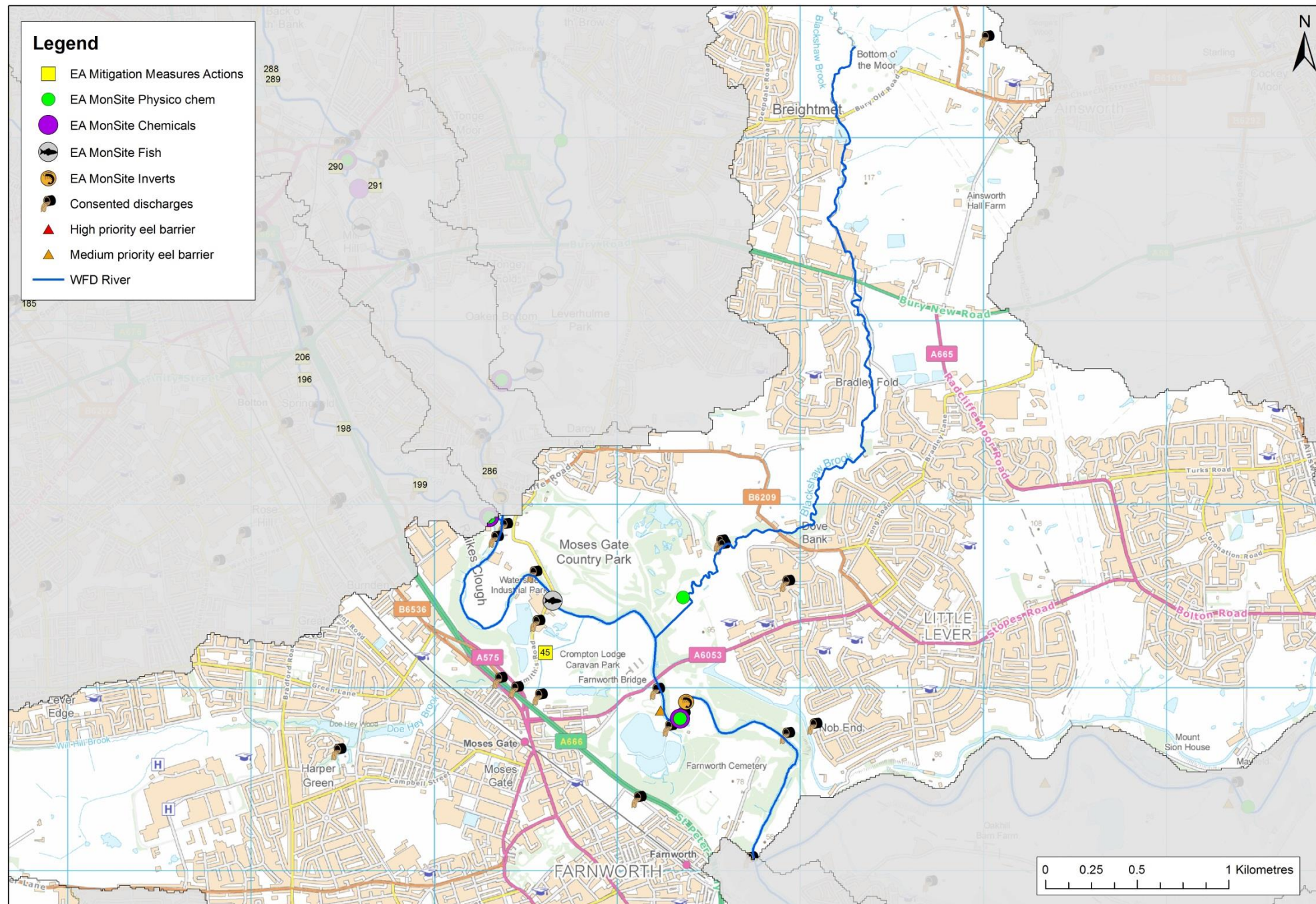
- Investigate source of phosphate
- Barrier removal (RFNAGS)

## Mitigation Measure Actions:

- Contaminated land
- In-channel morph diversity (45)

## ICP Projects:

- None



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**Comments:** A lot of issues to address here including water company point sources. Opportunities to investigate and manage diffuse sources, and determine the cause of elevated phosphate. Psychic modelling indicates higher phosphate load from agriculture U/S so this could be investigated and managed. Physical modifications cause of fish and invertebrate failure.

**Conclusion:** likely to be extensive work required here to address these issues including water company.  
**Low priority.**

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# Irk (Source to Wince Brook)



## Issues:

- Point source – sewage discharge, water industry, industrial discharge (EPR), unsewered domestic sewage.
- Diffuse source - Drainage - housing, contaminated land, trading/industrial estates, sewage discharge (diffuse).
- Physical modification – urbanisation, flood protection
- Barriers to fish migration.
- Other pressures – ecological recovery time, urban and transport.
- NVZ
- Invasive (Gary Morris, EA)

## Opportunities:

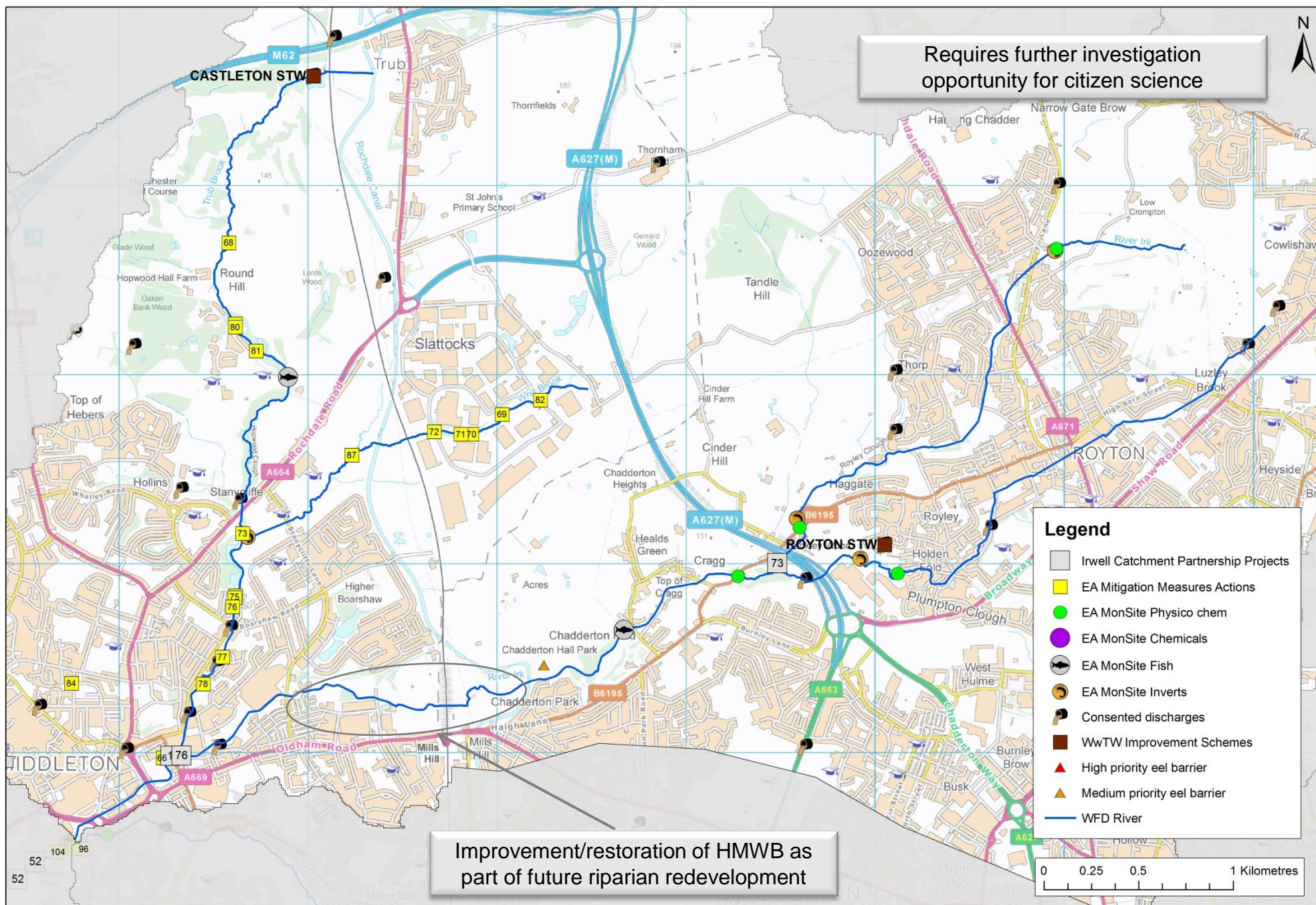
- Investigate and manage non water company sources
- Barrier removal (RFNAGS)
- Riparian development (Gary Morris, EA)

## Mitigation Measure Actions:

- Re-opening culverts (66)
- In channel morphological diversity (67)
- Remove obsolete structures (68,70,71,73-76,79-81)
- Preserve or restore habitats (69,72)
- Enhance ecology (77,82)
- Remove or soften hard bank (78)
- Invasive species technique (83, 86)
- Sediment management strategy (85)
- Align and attenuate flow (84,87)

## ICP Projects:

- No. 1 Industrial Estates – Managing Urban Diffuse Pollution (21)
- No. 76 Slow the flow in Whit / Trub / Irk (5 little information)
- No. 73 Royton recompense (1 no information)



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**UU Proposed works:** Castleton WwTW – improvements to address BOD, ammonia, phosphate. Additional storm storage. Closure of Royton WwTW and transfer of flows to Oldham WwTW.

**Comments:** A lot of issues to address here including water company point sources. However no WQ elements are RFNAGS with all elements at Good or High Status. Unclear on the point and diffuse sources impacting fish, invertebrates and M&P (RFNAGS)? Works at Castleton could improve water quality however further investigation still required. **Conclusion: requires further investigation. Project No. 1 a good high scoring opportunity which could be rolled out across the catchment in future. Low priority.**

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# Wince Brook



## Issues:

- Point source – sewage discharge, water industry
- Diffuse source - drainage, suspected
- NVZ

## Opportunities:

- Diffuse source management

## Mitigation Measure Actions:

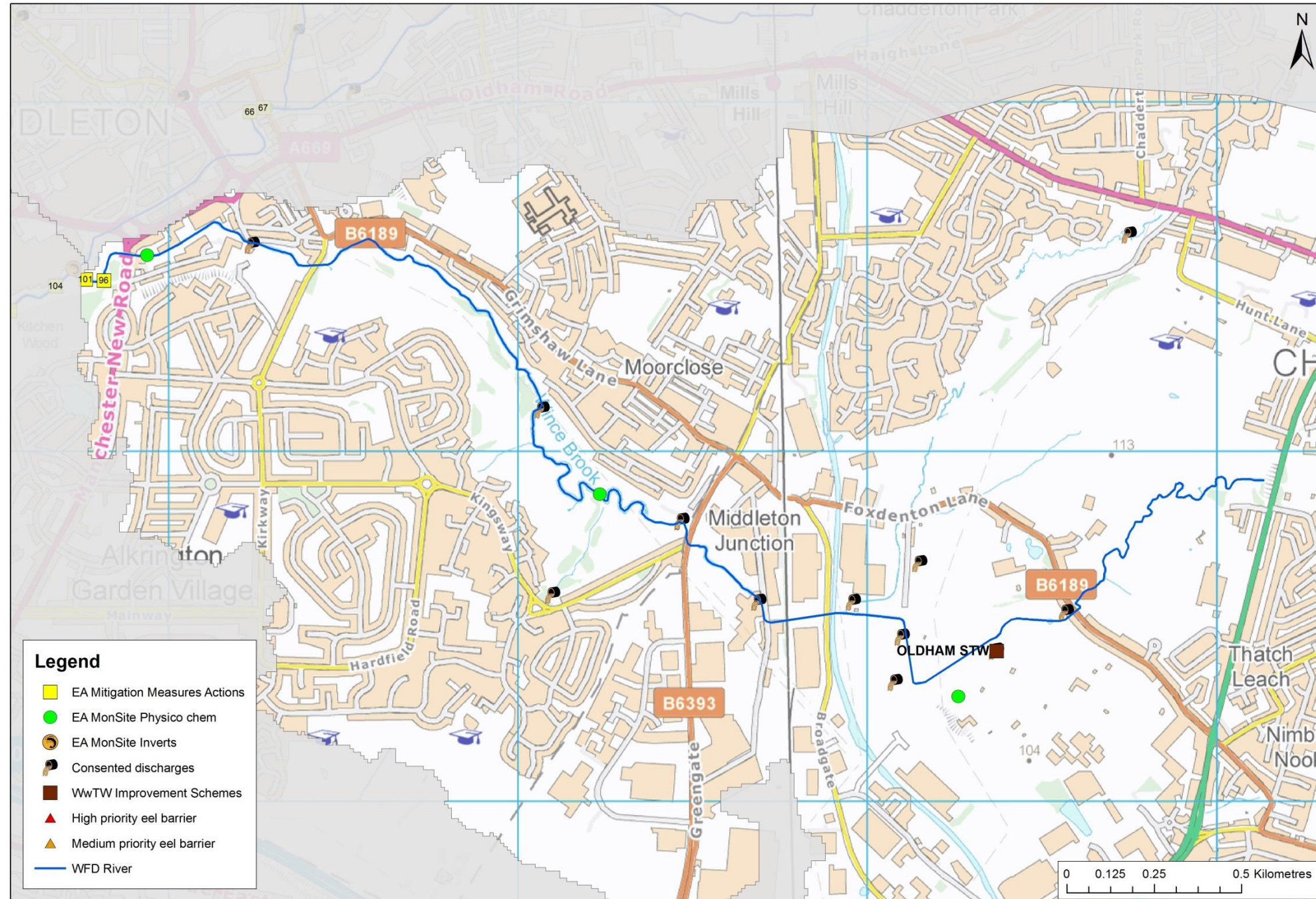
- Not RFNAGS

## ICP Projects:

None

## UU Planned works

Closure of Royton WwTW (on Irk – source to Wince Brook) and transfer of flows to Oldham WwTW. Rebuild Oldham WwTW. Issues being addressed: BOD and ammonia (RFNAGS) which are also given as causes of invertebrates RFNAGS. Potential to address 3/6 RFNAGS. Proposed improvements at Oldham to phosphate and additional storm storage. Might there be additional issues with the transfer of flows and hence increased discharge into this water body?



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**Comments:** Opportunity for diffuse source management however there are water company issues but these are being addressed under an AMP Quality Scheme.

**Conclusion:** Medium priority



# Irk (Wince to Irwell)



## Issues:

- Point source – sewage discharge, water industry
- Diffuse source – contaminated land, drainage (mixed, road runoff, housing), dairy/beef field, landfill leaching, sewage discharge (diffuse), suspected
- Physical modification - Urbanisation, drinking water supply, flood protection
- Barriers to fish migration
- NVZ
- Excessive suspended sediment

## Opportunities:

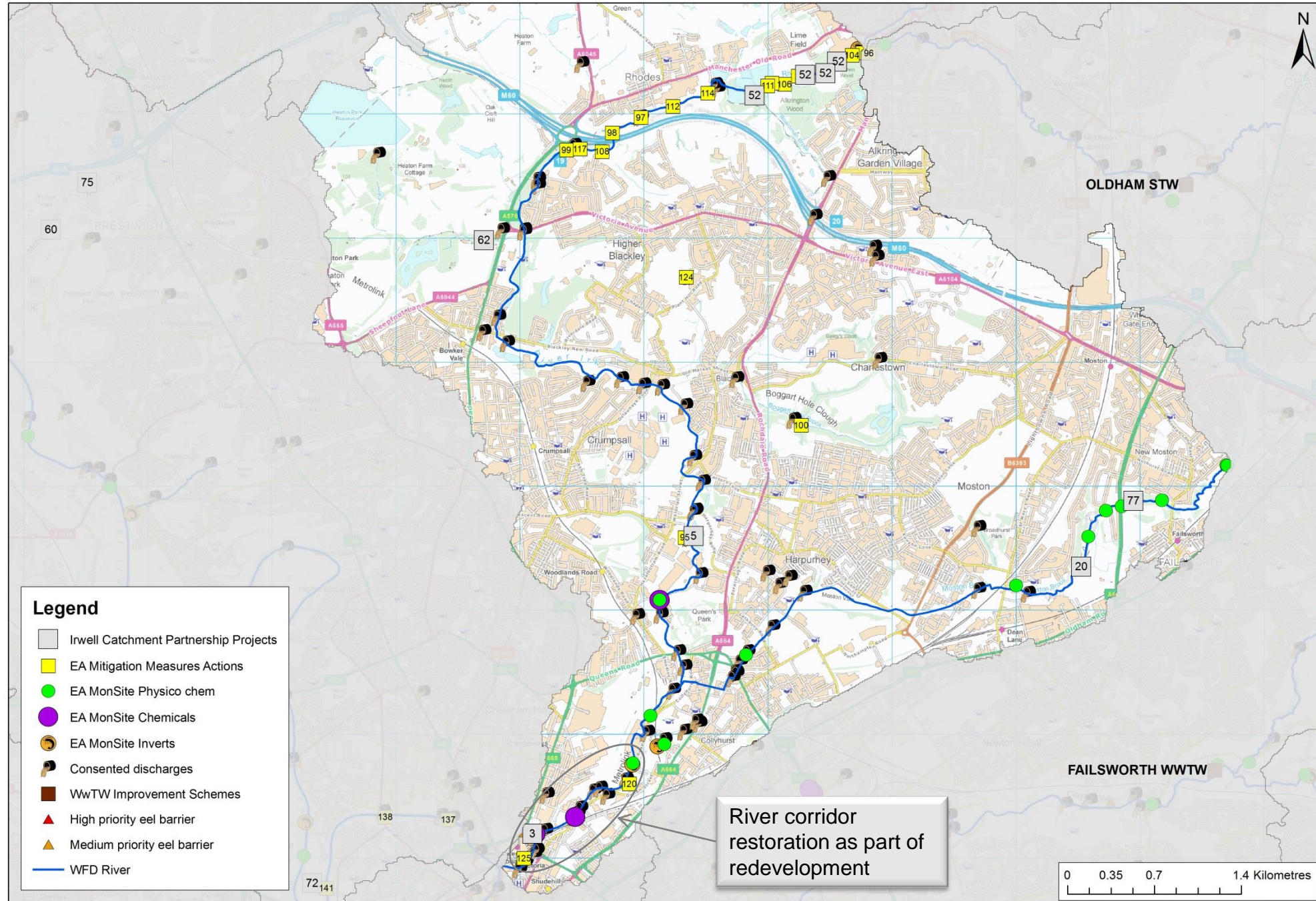
- Investigate and manage non water company sources

## Mitigation Measure Actions:

- Diffuse source management
- Remove obsolete structures (95-99,109,113)
- Remove or soften hard bank (100-108, 110-112,115, 117)
- Enhance ecology (114)
- Fish passes (116,118)
- Invasive species technique (119,121)
- Sediment management strategy (120,122)
- Align and attenuate flow (123)
- Educate landowners (124)
- Alter channel culvert bed

## ICP Projects:

- No. 5 Harpurhey Reservoirs (19)
- No. 3 green Quarter river restoration (12)
- No. 52 Reconnecting Higher Blackley (11)
- No. 19 SUDS – Hardman Fold (9)
- No. 12 SUDS – Retrofitting (8)
- No. 20 Moston Brook denaturalisation (5 no details)
- No. 77 White Hills (4)



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**Comments:** A lot of issues to address here including water company point sources. But opportunities to look at diffuse source management. Data suggest there could be a number of different sources of WQ issues. Upstream water bodies also suffer a number of issues. Has work already been done on Moston Brook?

**Conclusion:** likely to be extensive work required here to address these issues including water company. Low priority.

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# Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey)



## Issues:

- Point source – sewage discharge (water company), industrial discharge (EPR),
- Diffuse source – contaminated land
- Physical modification - Urbanisation, navigation including ports, flood protection
- Elevated nitrate concentrations

## Opportunities:

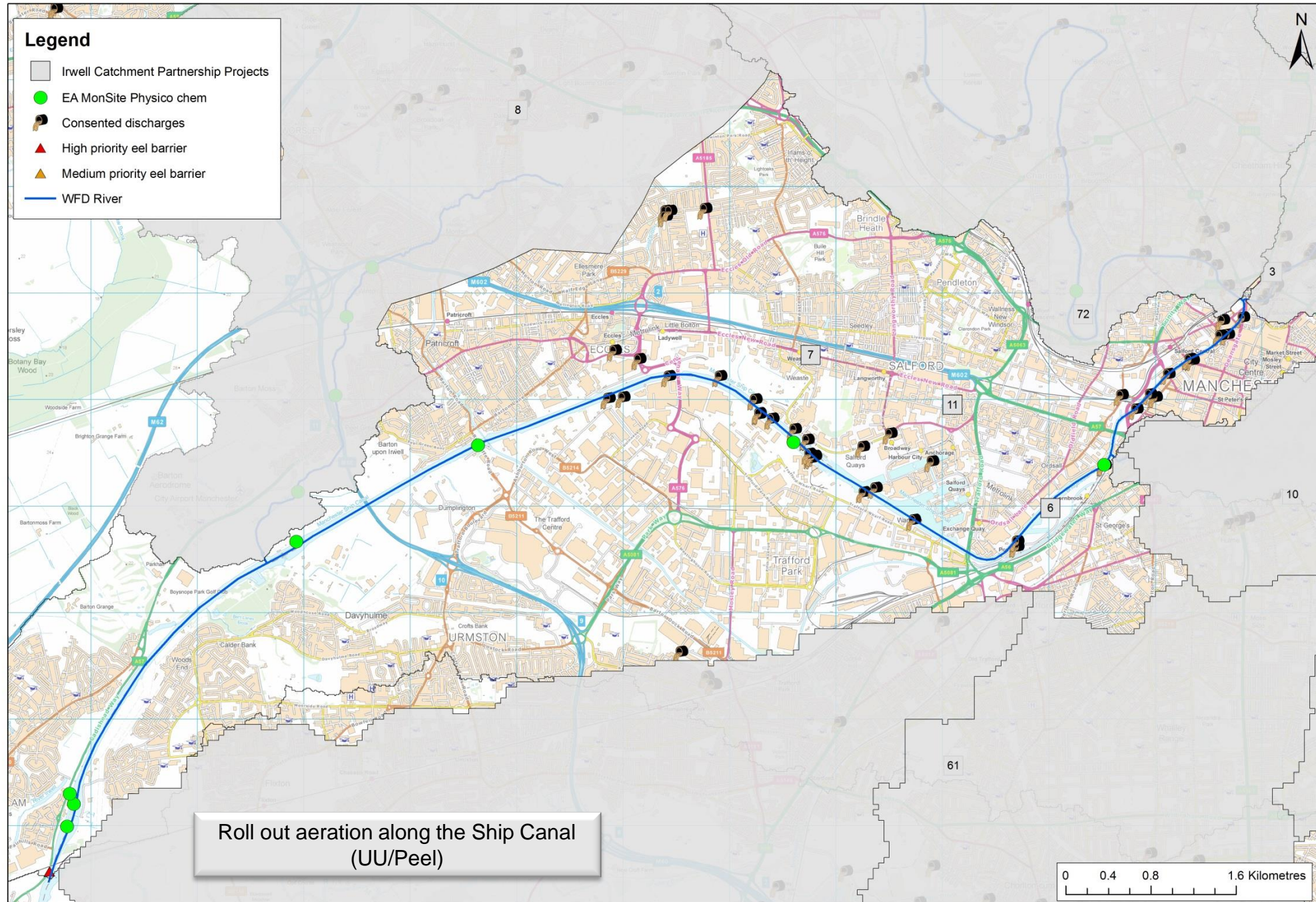
- Investigate and manage non water company impacts (contaminated land and physical modifications).

## Mitigation Measure Actions:

None

## ICP Projects:

- No. 11 Howard St Lower – SW Mgt (13)
- No. 7 Eccles New Road Street Trees (12)
- No. 9 Victoria Park Campus (12)
- No. 61 Longford Brook No. daylighting in the park (10)
- No. 6 De-culverting Cornbrook (8)



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**Comments:** Water quality RFNAGS (4 failing elements). Majority of issues are due to water company. Physical structure of the canal and use likely to limit possible modifications and their benefits.

**Conclusion:** Low priority

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# Medlock (Source to Lumb Brook)



## Issues:

- Physical modification – urbanisation
- Point source – sewage discharge, water industry
- Unknown sources of phosphate
- Barriers to fish migration
- Excessive suspended sediment

## Opportunities:

- Investigate and manage non water company issues including investigations into the source of phosphate and suspended sediment
- Barrier removal

## Mitigation Measure Actions:

- Structural modification (exact location not given)

## ICP Projects:

- No. 102 River Restoration of River Medlock at Medlock Vale (10)
- No. 82 Mills & Brooks (4)

## UU Planned works

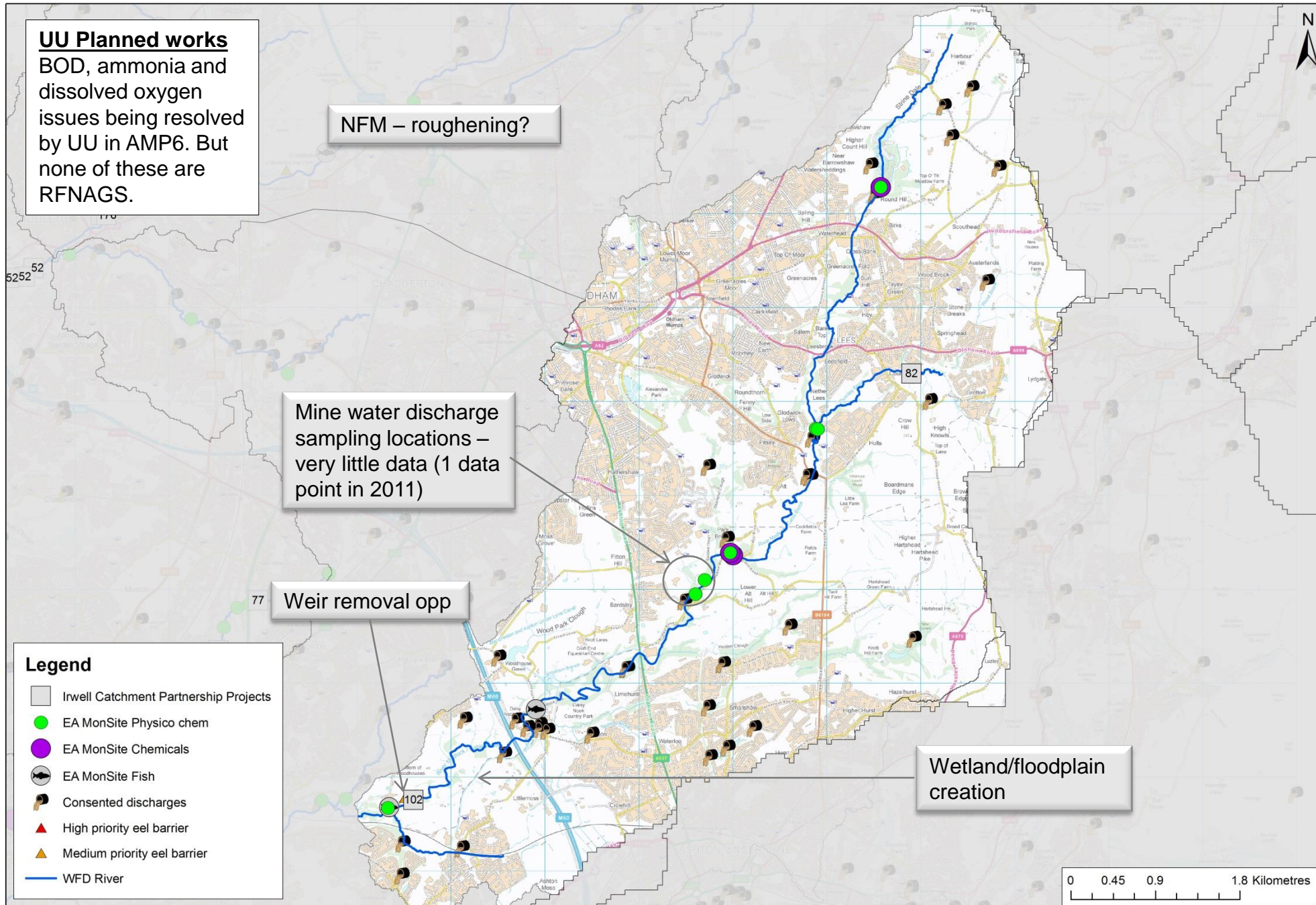
BOD, ammonia and dissolved oxygen issues being resolved by UU in AMP6. But none of these are RFNAGS.

NFM – roughening?

Mine water discharge sampling locations – very little data (1 data point in 2011)

Weir removal opp

Wetland/floodplain creation



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**Comments:** Project 102 Picked up as WFD opportunity as part of Irwell GEP project. No 82 also physical modifications. Both could therefore contribute to WFD status. However water company impacts also present.

**Conclusion:** Medium priority

**Next steps:** 1) Look at phosphate data and see when it changes – issue is in downstream reaches but data limited at upstream points. 2) Plan monitoring in relation to 1. 3) Take forward projects – develop. 4) Investigate sources of sediment.

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# Medlock (Lumb Brook to Irwell)



## Issues:

- Point source – sewage discharge, water industry,
- Diffuse source - Drainage - mixed and housing, suspected
- Physical modification – Urbanisation, flood protection
- Barriers to fish migration – industry, urban and transport
- Elevated nitrate and suspended sediment

## Opportunities:

- Investigate and manage non water company issues.
- Barrier removal

## Mitigation Measure Actions:

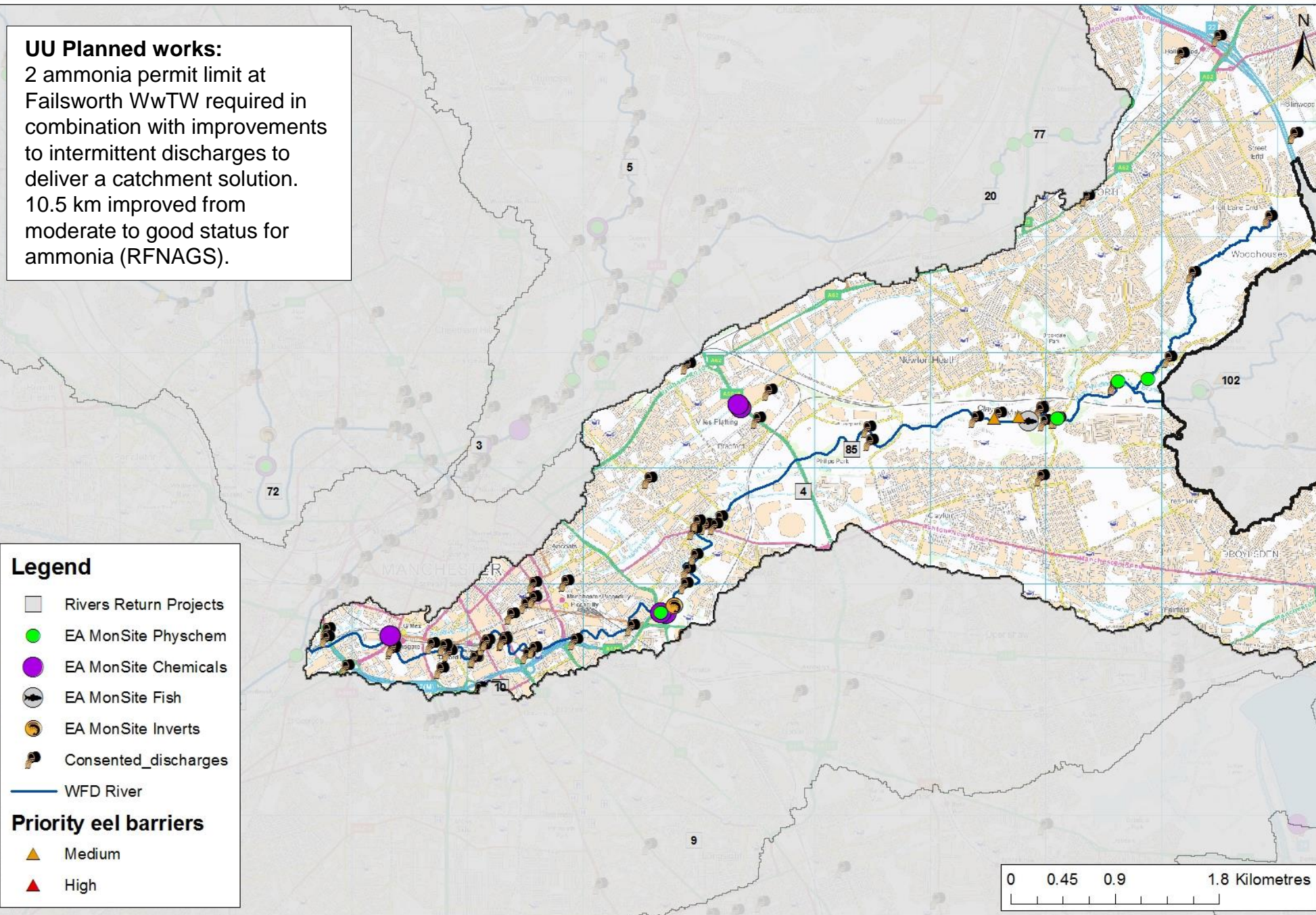
- Structural modification (exact location not given)
- Diffuse pollution management – restrict plumbing and drainage works by unqualified people (exact location not given)

## ICP Projects:

- No. 10 i-trees reboot (15)
- No. 4 River Medlock Restoration phase 2 (14) (same as 85?)
- No. 85 Philips Park – turning the red river blue (12) (same as 4?)

## UU Planned works:

2 ammonia permit limit at Failsworth WwTW required in combination with improvements to intermittent discharges to deliver a catchment solution. 10.5 km improved from moderate to good status for ammonia (RFNAGS).



EA Monitoring Sites only included if present

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**Comments:** A lot of issues to address. Water quality is poor. Majority of issues are due to water company however improvements are planned affecting ammonia. Phosphate may however remain and issue (RFNAGS). Heavily urbanised area so physical modifications may be difficult.

**Conclusion:** Low priority

**Next steps:** 1) Walkover surveys and interrogate existing data. 2) Work with planners/developers regarding opportunities in city centre for restoration. 3) Medlock Restoration II. 4) Bank restoration at Clayton.

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# Folly Brook and Salteye Brook



## Issues:

- Point source – sewage discharge, water industry
- Diffuse source – contaminated land, drainage (road runoff and mixed), suspected
- Physical modification – culverts. Urban and transport
- Elevated nitrate and suspended sediment

## Opportunities:

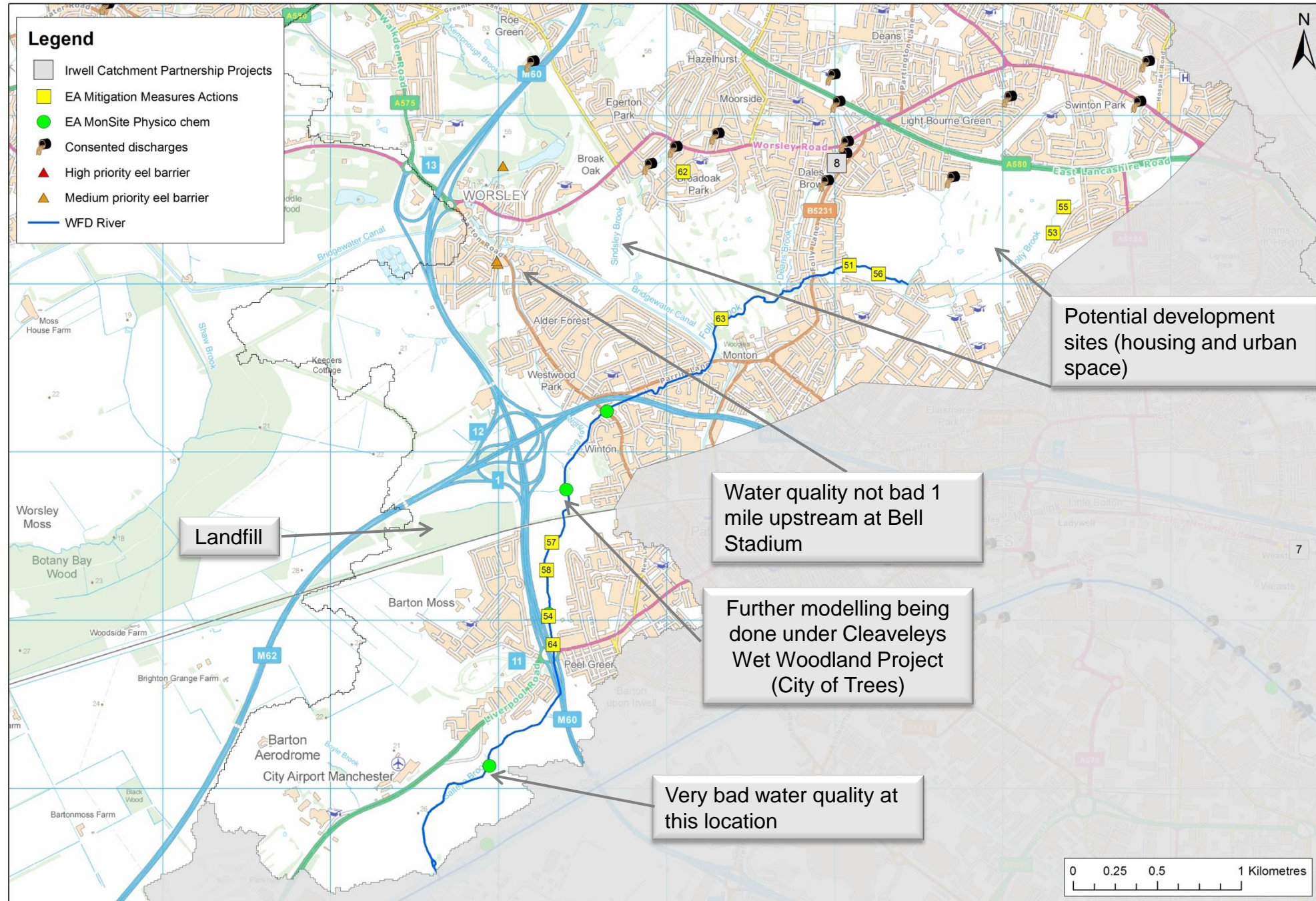
- MMA

## Mitigation Measure Actions:

- Diffuse source management
- Remove obsolete structures (50,51)
- Enhance ecology (52, 58)
- Re-opening culverts (53, 56)
- In channel morphological diversity (55, 54)
- Flood plain connectivity (57)
- Alter culvert channel bed
- Invasive species techniques (59)
- Sediment management strategy (60)
- Align and attenuate flow (61)
- Educate landowners (62)

## ICP Projects:

- No. 8 Dales Brow storm-water detention scheme (13)



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**Next steps:** 1) Undertake diffuse pollution investigation – potential motorway runoff? 2) Arrange meeting/discuss point source issues with UU.

**Comments:** Only TBT is a WQ failing element (infrequent issue) and all other WQ elements are at Good or High Status. Unclear on the point and diffuse sources impacting invertebrates (RFNAGS)? A lot of the MMA could be achievable by the Partnership however point sources from the water industry may outweigh the benefit of these but these need confirming.

**Conclusion:** requires further investigation but good opportunities for Partnership. Medium priority.





# Bradshaw Brook



## Issues:

- Cause of failure of M&P unknown.
- Physical modification – water regulation, urbanisation, culverts.
- Barriers to fish migration
- Water stressed catchment

## Opportunities:

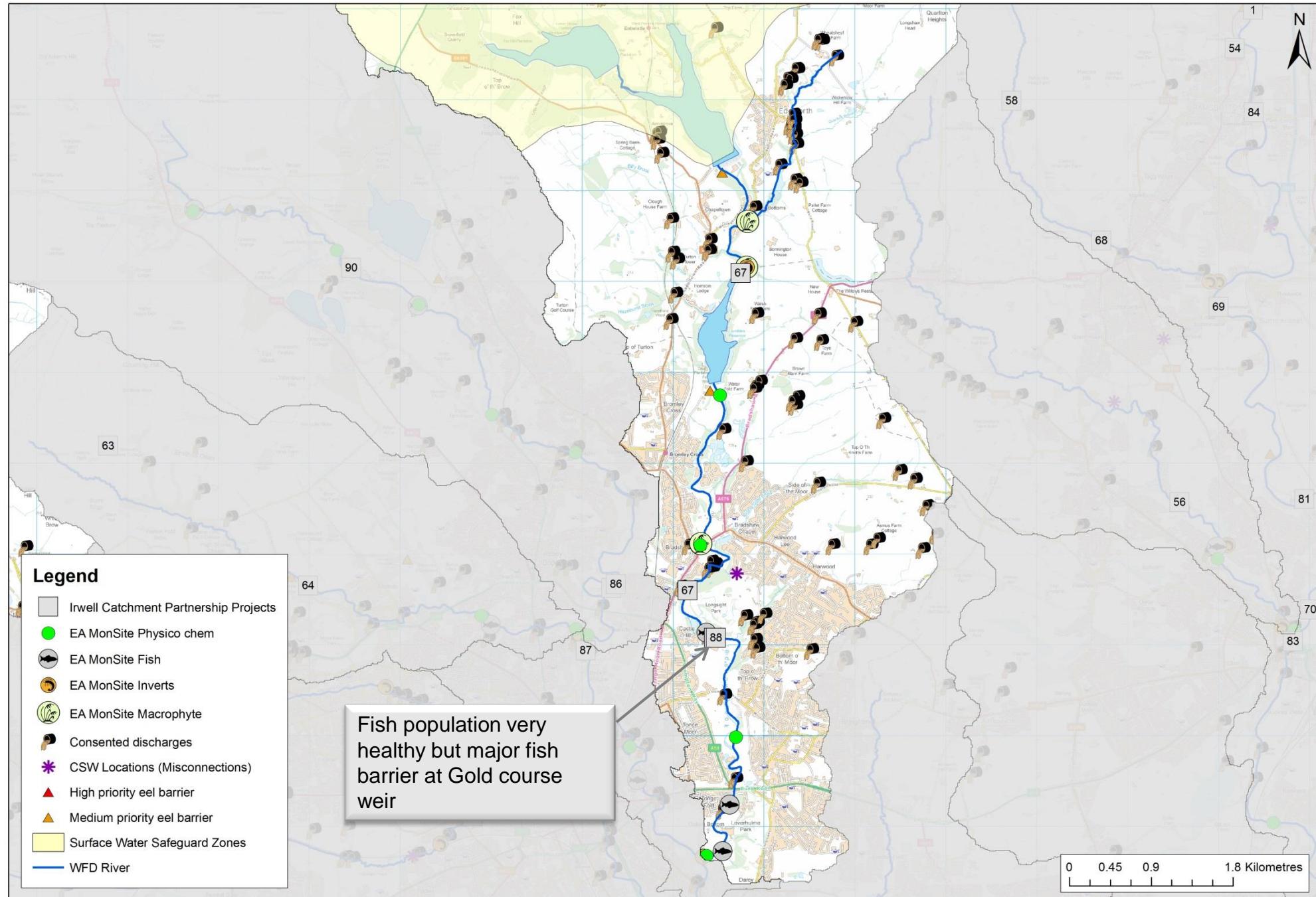
- Investigate cause of failure of M&P
- Diffuse source management – tie in with UU
- Barrier removal
- Renaturalising channel

## Mitigation Measure Actions:

- Sediment management plan (throughout water body)

## ICP Projects:

- No. 89 Bradshaw Brook river rehabilitation (11)
- No. 67 Kingfisher Trail (9)
- No. 88 Bradshaw Brook river restoration (7)



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**Comments:** Water quality good. No water company issues to resolve identified in the river. M&P and MM only failing elements. Elevated total phosphorus in Turton, Entwistle and Wayoh Reservoirs with diffuse (agriculture and rural land management) and point sources (domestic unsewered) identified. Lack of data for d/s of Jumbles Reservoir but based on current data issue (M&P) appears to be on Quarlton Brook. If these can be investigated and managed there is the potential to improve the status of 1 of the 2 failing elements. The other element (MM) could be addressed with a water body catchment wide diffuse management with tie in with UU. Barriers to migration are downstream of reservoirs so would need passes into and out of the reservoir, or around, would need to understand habitat suitability upstream and require UU buy in. Not a RFNAGS so this shouldn't take priority. UU already engaged with project 89 as landowner.

**Conclusion:** High priority

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