In Parliament – Session 2022 - 2023

HS2

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 2 and Additional Provision 2 Environmental Statement

Volume 5: Appendix WR-001-00000

Water resources and flood risk

Water Framework Directive compliance assessment addendum

S108_B

In Parliament – Session 2022 - 2023

HS2

High Speed Rail (Crewe – Manchester)

Supplementary Environmental Statement 2 and Additional Provision 2 Environmental Statement

Volume 5: Appendix WR-001-00000
Water resources and flood risk

Water Framework Directive compliance assessment addendum

S108_B

Annex A: Revised detailed impact assessment tables

Table A.1: Wistaston Brook (GB112068055280) detailed impact assessment - effects on current status

Wistaston Brook (GB112068055280)					Detailed Impact Assessment									Detailed Impact Assessment Outcome				
Water body type:	**River**	**Watercourse (receptor value):**			Tributary of Swill Brook 1 (Moderate)			Tributary of Gresty Brook 1 (Moderate)			Gresty Brook (High)			**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	**Not A/HMWB**	**Scheme component (Unique ID):**			Crewe Tunnel (GB112068055280-T-01-BT-01)			Crewe Tunnel (GB112068055280-T-02-BT-01)			Crewe Tunnel (GB112068055280-MW-01-BT-01)							
Overall Status (2015):	**Bad**	**Description of scheme component:**			*A 6.2km long x 8.8m internal diameter bored tunnel up to a*			*A 6.2km long x 8.8m internal diameter bored tunnel up to a*			*A 6.2km long x 8.8m internal diameter bored tunnel up to a*							
Overall Status Objective:	**Good by 2027**	**Impact type from scheme component:**			**Impacts from bored tunnel are scoped out of detailed impact assessment at Preliminary Assessment stage, unless flagged as a risk in Groundwater WFD assessment**													
Overall Status (2019)	**Bad**																	
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**2019 Status**														
Biological	**Fish**	Bad	Good by 2027	Bad	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Good	Good by 2015	Good	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Poor	Good by 2027	Moderate	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	Moderate	Good by 2015	Moderate	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Good by 2027	Poor	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2016	High	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A (high)	N/A	-	-	-	-	-	-	-	-	-	-	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	-	-	-	-	-	-	-	-	-	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				-	-	-	-	-	-	-	-	-	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				-	-	-	-	-	-	-	-	-	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				-	-	-	-	-	-	-	-	-	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				-	-	-	-	-	-	-	-	-	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				-	-	-	-	-	-	-	-	-	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	-	-	-	-	-	-	-	-	-	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.2: Valley Brook (Englesea Brook to Weaver) (GB112068055310) detailed impact assessment - effects on current status

Valley Brook (Englesea Brook to Weaver) (GB112068055310)					Detailed Impact Assessment			Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**Valley Brook (High)**			**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			**Crewe Tunnel (GB112068055310-MW-01-BT-01)**							
Overall Status (2015):	Moderate	**Description of scheme component:**			*A 6.2km long x 8.8m internal diameter bored tunnel up to a max. depth of 42.7m below ground level.*							
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**			**Impacts from bored tunnel are scoped out of detailed impact assessment at Preliminary Assessment stage, unless flagged as a risk in Groundwater WFD assessment**							
Overall Status (2019):	Moderate											
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**2019 Status**								
Biological	**Fish**	Bad	Good by 2027	Bad	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Bad	Good by 2027	Moderate	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	N/A	N/A in 2015	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Good by 2027	Poor	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Ammonia	Good	Good by 2015	Good	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Temperature	HIgh	Good by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A (high)	N/A in 2015	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	River continuity				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated

Table A.3: Weaver (Marbury Brook to Dane) (GB112068060460) detailed impact assessment - effects on current status

Weaver (Marbury Brook to Dane) (GB112068060460)					**Detailed Impact Assessment**												**Detailed Impact Assessment Outcome**				
Water body type:	River	**Watercourse (receptor value):**			**Tributary of River Weaver 2 (Moderate)**																
Hydromorphological designation:	Not AHMWB	**Scheme component (Unique ID):**			Park Hall Culvert (GB112068060460-T-01-CVR-01)			Access track culvert (un-named) (GB112068060460-T-01-CVA-01)			River Weaver Tributary Realignment (GB112068060460-T-01-RE-01)		A530 Nantwich Road Offline East Culvert GB112068060460-T-01-CVN-01			A530 Nantwich Road Offline West Culvert GB112068060460-T-01-CVR-02			**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Overall Status (2015):	Poor	**Description of scheme component:**			*Culvert (over 100m in length) - extension or rebuild of an existing culvert under West Coast Mainline*			*Short culvert for access track to attenuation pond*			*Watercourse realigned to flow through two culverts (A530 Nantwich Road Offline East and West Culverts) under highway realignment. Approx. length of realignment 260m including culverts.*		*Culvert under A530 Nantwich Road overbridge, approx 25m in length*			*Culvert under A530 Nantwich Road overbridge, approx 25m in length*						
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**																			
Overall Status (2019):	Poor																				
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**2019 Status**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**				
Biological	**Fish**	Poor	Good by 2027	Poor	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Poor	Good by 2027	Poor	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Poor	Good by 2027	Poor	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	Good	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. No deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Good by 2027	Poor	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Good	Good by 2015	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A (high)	N/A	-	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.4: Shropshire Union Canal, Market Drayton to Ellesmere Port (GB71210133) detailed impact assessment - effects on current status

Shropshire Union Canal, Market Drayton to Ellesmere Port (GB71210133)					Detailed Impact Assessment				Detailed Impact Assessment Outcome				
Water body type:	Canal	**Watercourse (receptor value):**			**Shropshire Union Canal (Very high)**								
Hydromorphological designation:	Artificial	**Scheme component (Unique ID):**			Shropshire Union Canal Offline Overbridge (GB71210133-MW-01-OB-01)	Shropshire Union Canal Viaduct No.2 (GB71210133-MW-01-VD-01)	Shropshire Union Canal Viaduct No.1 (GB71210133-MW-01-VD-02)	Shropshire Union Canal Viaduct No.3 (GB71210133-MW-01-VD-03)	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Overall Status (2015):	Moderate	**Description of scheme component:**			*Clear Span Bridge approx. 126m long, 20m wide*	*An 8.0m wide x 84.5m long RC box girder viaduct, approx 7m max height.*	*An 8.0m wide x 84.5m long RC box girder viaduct, approx 7m max height.*	*A 14.0m wide x 84.5m long RC box girder viaduct, up to 7.6m in height above existing ground level.*					
Overall Status Objective:	Good by 2021	**Impact type from scheme component:**											
Overall Status (2019):	Moderate				**Shading**	**Shading**	**Shading**	**Shading**					
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**2019 Status**									
Biological	**Fish**	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Biological dissolved oxygen demand (BOD)	High	Good by 2015	N/A	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.5: Dane (Wheelock to Weaver) (GB112068060470) detailed impact assessment - effects on current status

Dane (Wheelock to Weaver) (GB112068060470)					Detailed Impact Assessment		Detailed Impact Assessment Outcome				
Water body type:	River			**Watercourse (receptor value):**	**River Dane (Very high)**						
Hydromorphological designation:	Not A/HMWB			**Scheme component (Unique ID):**	River Dane Viaduct (GB112068060470-MW-01-VD-01)						
Overall Status (2015):	Bad			**Description of scheme component:**	*A 14.0m wide x 1.13km RC box girder viaduct comprising 26 spans up to a max. height*						
Overall Status Objective:	Moderate by 2027			**Impact type from scheme component:**							
Overall Status (2019):	Moderate										
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Biological	**Fish**	Good	Good by 2015	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Bad	Good by 2027	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Moderate	Moderate by 2015	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Poor by 2015	Poor	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.6: Trent and Mersey Canal, summit to Preston Brook Tunnel (GB71210247) detailed impact assessment - effects on current status

Trent and Mersey Canal, summit to Preston Brook Tunnel (GB71210247)					Detailed Impact Assessment					Detailed Impact Assessment Outcome			
Water body type:	Canal	**Watercourse (receptor value):**			**Trent and Mersey Canal (Very High)**								
Hydromorphological designation:	Artificial	**Scheme component (Unique ID):**			River Dane Viaduct (GB71210247-MW-01-VD-01)	Puddinglake Brook Viaduct (GB71210247-MW-01-VD-02)	Trent and Mersey Canal Viaduct (GB71210247-MW-01-VD-03)						
Overall Status (2015):	Moderate	**Description of scheme component:**			*A 14.0m wide x 1.13km RC box girder viaduct comprising 26 spans up to a max. height of 28.9m.*	*A 14.0m wide x 160m long RC box girder viaduct comprising 4 x 40.0m spans up to a max. Height of approx 10m*	*An approx 14.0m wide x 283m long RC box girder viaduct comprising 4x19.4m span,2x28.0 span,2x27.3m span and 1x39 span up to a max. height of approx 12.6m.*	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Overall Status Objective:	Moderate by 2015	**Impact type from scheme component:**			**Shading**	**Shading**	**Shading**					
Overall Status (2019):	Moderate											
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**2019 Status**								
Biological	**Fish**	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Biological dissolved oxygen demand (BOD)	N/A	N/A	N/A	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	N/A	N/A	N/A	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Fail	Fail by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.7: Puddinglake Brook (GB112068060220) detailed impact assessment - effects on current status

Puddinglake Brook (GB112068060220)					Detailed Impact Assessment		Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**Puddinglake Brook (High)**		**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	Not A/HMWB	**Scheme component (Unique ID):**			Puddinglake Brook Viaduct (GB112068060220-MW-01-VD-01)	Puddinglake Brook Overbridge (GB112068060220-MW-01-OB-01)					
Overall Status (2015):	Poor	**Description of scheme component:**			*A 14.0m wide x 160m long RC box girder viaduct comprising 4 x 40.0m spans up to a max. Height of approx 10m.*	*Whatcroft Hall Lane temporary road realignment*					
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**			**Shading**	**Shading**					
Overall Status (2019):	Poor										
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**2019 Status**							
Biological	**Fish**	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Moderate	Good by 2027	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Poor	Good by 2027	Poor	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	Poor	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Good by 2027	Poor	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Moderate	Good by 2021	Poor	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.8: Wade Brook (GB112068060370) detailed impact assessment - effects on current status

Wade Brook (GB112068060370)					Detailed Impact Assessment									Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**Gad Brook (Moderate)**	**Tributary of Gad Brook 3 (Moderate)**	**Wade Brook (High)**											
Hydromorphological designation:	Not A/HMWB	**Scheme component (Unique ID):**			Gad Brook Viaduct (GB112068060370-T01-VD-01)	Gad Brook Viaduct (GB112068060370-T02-VD-02)	Wade Brook Viaduct (GB112068060370-MW-04-VD-03)	Extension of existing culvert (GB112068060370-MW-04-CVX-01)			A556 Shurlach Road Realignment - Highway Drainage Outfall (GB112068060370-MW-04-HD-01)		Wade Brook Overbridge (GB112068060370-MW-04-OB-01)					
Overall Status (2015):	Poor	**Description of scheme component:**			*A 14.0m wide x 980.0m RC box girder viaduct comprising 28 x 35.0m spans up to a max. height of 17.6m.*	*A 14.0m wide x 980.0m RC box girder viaduct comprising 28 x 35.0m spans up to a max. height of 17.6m.*	*A 14.0m wide x 285.0m long RC box girder viaduct comprising 2 x 30.0m spans, 4 x 35.0m spans, 50.0m and 35.0m span up to a max. height of 17.5m.*	*Access road follows route of existing road and crosses watercourse. No culvert in design drawings, but assumed that in worst-case precautionary basis this will require extension of existing culvert.*			*Road drainage outfalls from A556 Shurlach Road Realignment. Drains to Wade Brook. Foiled HEWRAT assessment due to existing high background concentrations above EQS in the watercourse, but passed further metal bioavailability assessment*		*Offline Overbridge for A556 Shurlach Road over Wade Brook, approximately 105.0m in length.*					
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**																
Overall Status (2019):	Poor																	
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**2019 Status**	**Shading**	**Shading**	**Shading**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Drainage (changes in water quantity or quality due to discharge of surface water runoff to surface water body):**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Biological	**Fish**	N/A	N/A	N/A	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Poor	Good by 2027	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Poor	Good by 2027	Poor	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Good by 2027	Moderate	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Moderate	Good by 2027	Bad	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	Moderate	High by 2027	Moderate	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when additional mitigation applied. No deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Fail	Good by 2027	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.9: Peover Eye (GB112068060390) detailed impact assessment - effects on current status

Peover Eye (GB112068060390)		Detailed Impact Assessment									Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**Tributary of Peover Eye (Moderate)**				**Peover Eye (High)**						
Hydromorphological designation:	Not A/HMWB	**Scheme component (Unique ID):**			**Smoker Brook Viaduct (GB112068060390-T-01-VD-01)**		**Tributary of Peover Eye - watercourse realignment (GB112068060390-T-01-RE-01)**		**Smoker Brook Viaduct**		**Peover Eye - watercourse realignment (GB112068060390-MW-02-RE-01)**				
Overall Status (2015):	Poor	**Description of scheme component:**			*An approx 14.0m wide x 805.5m long RC box girder viaduct comprising 18 x 44.8m*		*Two realignments of Tributary of Peover Eye of 46m and 20m in length respectively, to*		*An approx 14.0m wide x 805.5m long RC box girder viaduct comprising 18 x 44.8m*		*Realignment of Peover Eye for 44m to avoid viaduct pier*				
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**			**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Overall Status (2019):	Bad																
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**													
Biological	**Fish**	Poor	Good by 2027	Bad	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	High	Good by 2015	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Moderate	Good by 2027	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Good by 2027	Moderate	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.10: Smoker Brook (Gale Brook to Wincham Brook) (GB112068060410) detailed impact assessment - effects on current status

Smoker Brook (Gale Brook to Wincham Brook) (GB112068060410)					Detailed Impact Assessment							Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**Smoker Brook (High)**		**Waterless Brook / Arley Brook (High)**	**Tabley Brook**	**Tributary of Tabley Brook 9**			**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	Not A/HMWB	**Scheme component (Unique ID):**			Smoker Brook Viaduct (GB112068060410-MW-01-VD-01)		Arley Brook Viaduct (GB112068060410-MW-03-VD-02)	Site access clear span bridge over Tabley Brook (GB112068060410-T-01-OB-01)	Hoo Green Box (GB112068060410-T-10-TP-01)	Hoo Green south cutting retaining wall (GB112068060410-T-10-CU-01)	Hoo Green north cutting (GB112068060410-T-10-CU-02) (with retaining walls)					
Overall Status (2015):	Poor	**Description of scheme component:**			*An approx 14.0m wide x 805.5m long RC box girder viaduct comprising 18 x 44.8m spans up to a max. height of 24.7m.*		*A 14.0m wide x 201.0m long precast 'W'-type PCC beams and in-situ deck viaduct comprising 3 x 33m span and 3x 34m span), up to max approx height of 12.2m.*	*Overbridge / clear span bridge associated with temporary access road crossing Tabley Brook*	*297m long box structure Up to 8.7mbgl*	*Hoo Green south cutting retaining wall is approx. 360m in length, with a maximum cutting depth of 7.5m. The cutting will penetrate the glacial till and the Mercia Mudstone Group.*	*Hoo Green north cutting is approx. 2.7km in length, with a maximum of 17.3m cutting depth. Hoo Green nouth cutting retaining wall is approx. 500m in length, with a maximum of 10.2m cutting depth.*					
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**														
Overall Status (2019):	Bad															
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Shading**	**Shading**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**					
Biological	**Fish**	Poor	Good by 2027	Bad	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Good by 2027	Moderate	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	Good	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.11: Bollin (Ashley Mill to Manchester Ship Canal) (GB112069061382) detailed impact assessment - effects on current status

Bollin (Ashley Mill to Manchester Ship Canal) (GB112069061382)					Detailed Impact Assessment							Detailed Impact Assessment Outcome				
Water body type:	River			**Watercourse (receptor value):**	**Millington Clough (High)**		**Agden Brook (Moderate)**		**Tributary of River Bollin 10 (Moderate)**	**Tributary of River Bollin 11 (Moderate)**		**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	HMWB			**Scheme component (Unique ID):**	Millington Clough Underbridge (GB112069061382-MW-05-UB-01)	Millington Clough Offline Underbridge (GB112069061382-MW-05-UB-02)	Agden Brook Viaduct (GB112069061382-MW-06-VD-01)	Millington Cutting (GB112069061382-MW-06-CU-01)	Millington Cutting (GB112069061382-T-07-CU-01)	Millington Cutting (GB112069061382-T-08-CU-01)	Rostherne Cutting Retaining Wall West (GB112069061382-T-08-CU-02)					
Overall Status (2015):	Moderate			**Description of scheme component:**	*Millington Clough Underbridge approx. 58m in length and max. 5.6m above existing ground level (Confirm component naming and height)*	*Offline Overbridge for Peacock Lane Access Track over Millington Clough*	*A 119.0m long concrete box girder viaduct, up to 13.7m high, comprising 5 x 27.17m spans.*	*1.46km long Up to a depth of 11.4mbgl Connects with Manchester to Liverpool Junction*	*1.46km long Up to a depth of 11.4mbgl Connects with Manchester to Liverpool Junction*	*1.46km long Up to a depth of 11.4mbgl Connects with Manchester to Liverpool Junction*	*110m long Varying in depth up to 6.8mbgl*					
Overall Status Objective:	Moderate by 2015			**Impact type from scheme component:**	**Shading**	**Shading**	**Shading**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**					
Overall Status (2019):	Moderate															
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**												
Biological	**Fish**	Poor	Good by 2027	Poor	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Moderate	Good by 2027	Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Moderate by 2027	Poor	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Good	Good by 2027	Good	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.12: Birkin Brook - Mobberley Brook to River Bollin (including Rostherne Brook) (GB112069061370) detailed impact assessment - effects on current status

Birkin Brook - Mobberley Brook to River Bollin (including Rostherne Brook) (GB112069061370)					Detailed Impact Assessment															
Water body type:	River	Watercourse (receptor value):			Blackburn's Brook (Moderate)	Birkin Brook (High)	Tributary of Birkin Brook 1 (Middle House Brook) (Moderate)													
Hydromorphological designation:	Not A/HMWB	Scheme component (Unique ID):			Blackburn's Brook Viaduct (GB112069061370-MW-01-VD-01)	Blackburn's Brook Viaduct (GB112069061370-MW-02-VD-02)	Tributary of Birkin Brook 1 Offline East Culvert (GB1120691370-T-04-CV-03)			Mid Cheshire Line Offline South Culvert (GB112069061370-T-04-CV-04_			Ashley Railhead Offline Temporary Culvert South (GB112069061370-T-04-05)			Tributary of Birkin Brook 1 Overflow Channel (GB112069061370-T-04-RE-02a)		Mobberley Road Offline Culvert (GB112069061370-T-04-CV-07)		
Overall Status (2015):	Bad	Description of scheme component:			*An approx 384.0m long concrete box girder viaduct, up to 10.4m max. height, comprising 1 x 32.5m spans, 1 x 32.0m spans, 7 x 40.0m spans and 1x 39.5m span*	*An approx 384.0m long concrete box girder viaduct, up to 10.4m max. height, comprising 1 x 32.5m spans, 1 x 32.0m spans, 7 x 40.0m spans and 1x 39.5m span*	*Currently indicated as a culvert to provide access to Lower House Farm field. May be replaced by an overbridge. Length approx 34m*			*Permanent structure following removal of Ashley Railhead Culvert (construction) to convey flood flows - length under Mid Cheshire railine = 26.5m*			*Temporary culvert: approx length = 165m to be replaced by an open channel after decommission of the Ashley Railhead*			*Overflow channel for flood flow. Includes an overspill weir to pass water into the overflow channel.*		*Culvert carrying flood overflow channel under Mobberley Road length = 45m*		
Overall Status Objective:	Moderate by 2027	Impact type from scheme component:																		
Overall Status (2019):	Bad																			
WFD Status Element	WFD Quality Element	RBMP Cycle 2 2015 Status	RBMP Cycle 2 Status Objective	Status 2019	Shading	Shading	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream
Biological	Fish	Bad	Good by 2027	Bad	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macroinvertebrates	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macrophytes and Phytobenthos - combined	Moderate	Moderate by 2015	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
Physicochemical	Dissolved oxygen	Poor	Good by 2027	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Phosphate	Moderate	Moderate by 2015	Good	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Ammonia	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
Specific Pollutants	Copper, Triclosan, Zinc	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.
Hydromorphological	Quantity and dynamics of water flow	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
Chemical	Priority substances	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.

Table A.12: Birkin Brook - Mobberley Brook to River Bollin (including Rostherne Brook) (GB112069061370) detailed impact assessment - effects on current status

Birkin Brook - Mobberley Brook to River Bollin (including Rostherne Brook) (GB112069061370)																			
Water body type:	River	Watercourse (receptor value):																	
Hydromorphological designation:	Not A/HMWB	Scheme component (Unique ID):			Tributary of Birkin Brook 1 Offline West Culvert (GB112069061370-T-04-CV-07)			Realignment (GB112069061370-T-06-RE-03) (required due to Ashley Railhead)		Mobberley Road Offline Overbridge (GB112069061370-T-06-OB-02)	Extension of existing culvert (GB112069061370-T-06-CVX-03)			Ashley Road Offline East Culvert (GB112069061370-T-06-CVH-04)			Mid Cheshire Line Offline North Culvert (GB112069061370-T-04-CV-08)		
Overall Status (2015):	Bad	Description of scheme component:			*Length = 7.5m*			*Approx. length of realignment 680m - permanent realignment proposed due to Ashley Railhead being in place for c.5years*		*Bridge over realigned channel*	*Tributary crosses track at location of existing culvert. No additional culvert shown in gigi, so assumed to be extension of existing culvert*			*Ashley Road Offline East Culvert approx. 22m in length*			*Length approx 21m to replace existing culvert*		
Overall Status Objective:	Moderate by 2027	Impact type from scheme component:			Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Shading	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream
Overall Status (2019):	Bad																		
WFD Status Element	WFD Quality Element	RBMP Cycle 2 2015 Status	RBMP Cycle 2 Status Objective	Status 2019															
Biological	Fish	Bad	Good by 2027	Bad	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macroinvertebrates	High	Good by 2015	High	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macrophytes and Phytobenthos - combined	Moderate	Moderate by 2015	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
Physicochemical	Dissolved oxygen	Poor	Good by 2027	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Phosphate	Moderate	Moderate by 2015	Good	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Ammonia	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
Specific Pollutants	Copper, Triclosan, Zinc	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.
Hydromorphological	Quantity and dynamics of water flow	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
Chemical	Priority substances	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.

Table A.12: Birkin Brook - Mobberley Brook to River Bollin (including Rostherne Brook) (GB112069061370) detailed impact assessment - effects on current status

Birkin Brook - Mobberley Brook to River Bollin (including Rostherne Brook) (GB112069061370)								Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**						**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	Not A/HMWB	**Scheme component (Unique ID):**			**Ashley Railhead Offline Temporary Culvert North (GB112069061370-T-04-CV-09)**							
Overall Status (2015):	Bad	**Description of scheme component:**			*Temporary culvert for construction railhead. Length approx 50m to be replaced by an open channel after decommission of the Ashley Railhead*							
Overall Status Objective:	Moderate by 2027	**Impact type from scheme component:**			**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**					
Overall Status (2019):	Bad											
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**								
Biological	**Fish**	Bad	Good by 2027	Bad	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	High	Good by 2015	High	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Moderate	Moderate by 2015	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	Poor	Good by 2027	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Moderate by 2015	Good	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.13: Rostherne Mere (GB31232650) detailed impact assessment - effects on current status

Rostherne Mere (GB31232650)					Detailed Impact Assessment						Detailed Impact Assessment Outcome				
Water body type:	Lake			Watercourse (receptor value):	Rostherne Mere (Very high)						Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies	Overall effect on quality element at water body scale	Additional mitigation requirements	Residual effect on quality element at water body scale	WFD compliance outcome - potential for deterioration of current status of quality element at water body scale
Hydromorphological designation:	Not A/HMWB			Scheme component (Unique ID):	Millington Cutting (GB31232650-LAKE-01-CU-01) including:		Rostherne Cutting (GB31232650-LAKE-01-CU-02) including:		Hoo Green North Cutting (GB31232650-LAKE-01-CU-03) including:						
Overall Status (2015):	Bad			Description of scheme component:	*Millington cutting is approx. 1.46km in length, with a maximum of 12.7m cutting*		*Rostherne Cutting Is approx. 0.8km in length, with a maximum 7.8m cutting depth.*		*Hoo Green north cutting is approx. 0.9km in length, with a maximum of 17.3m*						
Overall Status Objective:	Moderate by 2027			Impact type from scheme component:	Changes in lake hydrological regime / Changes to water body hydromorphology	Changes in water quality due to discharge of groundwater to surface water	Changes in lake hydrological regime / Changes to water body hydromorphology	Changes in water quality due to discharge of groundwater to surface water	Changes in lake hydrological regime / Changes to water body hydromorphology	Changes in water quality due to discharge of groundwater to surface water					
Overall Status (2019):	Bad														
WFD Status Element	WFD Quality Element	RBMP Cycle 2 2015 Status	RBMP Cycle 2 Status Objective	Status 2019											
Biological	Fish	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates (Chironomids)	Good	Good by 2015	Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phytoplankton	Poor	Good by 2027	Poor	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Bad	Good by 2027	Bad	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	Dissolved oxygen	Poor	Good by 2027	Poor	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Acid neutralising capacity	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Total Phosphorus	Bad	Poor by 2027	Bad	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Salinity	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	Copper	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	Hydrological Regime	Supports Good	Supports Good by 2015	High	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Morphology	High		High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	Priority substances	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.14: Sugar Brook (GB112069061350) detailed impact assessment - effects on current status

Sugar Brook (GB112069061350)								Detailed Impact Assessment Outcome				
Water body type:	River			**Watercourse (receptor value):**	**Tributary of Sugar Brook (Moderate)**							
Hydromorphological designation:	Not A/HMWB			**Scheme component (Unique ID):**	Extension of existing culvert (GB112069061350-T-02-CVX-01)							
Overall Status (2015):	Moderate			**Description of scheme component:**	*Tributary crosses Ashley Railhead footprint adjacent to existing railway culvert.*							
Overall Status Objective:	Good by 2027			**Impact type from scheme component:**								
Overall Status (2019):	Moderate											
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Biological	**Fish**	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Good	Good by 2015	High	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Good by 2027	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.15: Bollin (River Dean to Ashley Mill) (GB112069061381) detailed impact assessment - effects on current status

Bollin (River Dean to Ashley Mill) (GB112069061381)					**Detailed Impact Assessment**											
Water body type:	River			**Watercourse (receptor value):**	**River Bollin (Very High)**			**Tributary of River Bollin 2**							**Tributary of River Bollin 3**	
Hydromorphological designation:	Not A/HMWB			**Scheme component (Unique ID):**	**River Bollin Offline Bridge Widening (GB112069061381-MW-01-UB-01)**	**Highway Drainage Outfalls M56 (GB112069061381-MW-01-HD-01)**	**River Bollin East Viaduct (GB112069061381-MW-01-VD-01)**	**Tributary of River Bollin 2 Realignment (GB112069061381-T-02-RE-01)**		**Tributary of River Bollin 2 Offline culvert (GB112069061381-T-02-CV-01)**			**M56 East Tunnel (GB112069061381-T-02-BT-01)**		**Tributary of River Bollin 3 Realignment (GB112069061381-T-03-RE-02)**	
Overall Status (2015):	Moderate			**Description of scheme component:**	*River Bollin Offline Bridge Widening North* *River Bollin Offline Bridge Widening South*	*Road drainage outfalls from M56. Three drainage outfalls from M56 junction changes fail HEWRAT assessment, but passed further metal bioavailability assessment resulting in minor localised effects*	*A 100.0m long viaduct comprising 1x 21.3m span and 1 x 32.4m span and 1x25.m span, up to a max. height of 12.3m.*	*Approx 64m length*		*Approx length = 96m*			*133m long box structure* *Up to a maximum depth of 11m*		*Approx 222m length*	
Overall Status Objective:	Moderate by 2015			**Impact type from scheme component:**	**Shading**	**Drainage (changes in water quantity or quality due to discharge of surface water runoff to surface water body);**	**Shading**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**
Overall Status (2019):	Moderate															
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**												
Biological	**Fish**	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macroinvertebrates	N/A	N/A	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macrophytes and Phytobenthos - combined	N/A	N/A	Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Phosphate	Poor	Moderate by 2027	Poor	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
	Ammonia	Poor	Good by 2027	Moderate	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
	Temperature	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.

Table A.15: Bollin (River Dean to Ashley Mill) (GB112069061381) detailed impact assessment - effects on current status

Bollin (River Dean to Ashley Mill) (GB112069061381)													
Water body type:	River			Watercourse (receptor value):								Tributary of River Bollin 5	
Hydromorphological designation:	Not A/HMWB			Scheme component (Unique ID):	Tributary of River Bollin 3 M56 Drain Offline Culvert (GB112069061381-T-03-CV-02)			Tributary of River Bollin 3 M56 Offline Culvert (GB112069061381-T-03-CV-03)			M56 East Tunnel (GB112069061381-T-03-BT-01)	Tributary of River Bollin 5 Realignment (GB112069061381-T-03-RE-04)	
Overall Status (2015):	Moderate			Description of scheme component:	*Approx length = 8m*			*approx length = 298m*			*133m long box structure Up to a maximum depth of 11m*	*Approx 205m length*	
Overall Status Objective:	Moderate by 2015			Impact type from scheme component:									
Overall Status (2019):	Moderate												
WFD Status Element	WFD Quality Element	RBMP Cycle 2 2015 Status	RBMP Cycle 2 Status Objective	Status 2019	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Shading	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream	Footprint	Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream
Biological	Fish	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macroinvertebrates	N/A	N/A	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macrophytes and Phytobenthos - combined	N/A	N/A	Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
Physicochemical	Dissolved oxygen	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Phosphate	Poor	Moderate by 2027	Poor	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
	Ammonia	Poor	Good by 2027	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
Specific Pollutants	Copper, Triclosan, Zinc	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.
Hydromorphological	Quantity and dynamics of water flow	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
Chemical	Priority substances	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.

Table A.15: Bollin (River Dean to Ashley Mill) (GB112069061381) detailed impact assessment - effects on current status

Bollin (River Dean to Ashley Mill) (GB112069061381)												**Detailed Impact Assessment Outcome**	
Water body type:	River			**Watercourse (receptor value):**	**Tributary of River Bollin 6**								
Hydromorphological designation:	Not A/HMWB			**Scheme component (Unique ID):**	**Tributary of River Bollin 6 Offline Culvert (GB112069061381-T-05-CV-06)**			**Tributary of River Bollin 6 Realignment (GB112069061381-T-05-RE-05)**		**Thorns Green Cutting (GB112069061381-T-05-CU-01)**		**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**
Overall Status (2015):	Moderate			**Description of scheme component:**	*Approx length = 75m*			*Approx 22m*		*1km in length, with a maximum cutting depth of 11m and width of 76m.*			
Overall Status Objective:	Moderate by 2015			**Impact type from scheme component:**									
Overall Status (2019):	Moderate												
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**			
Biological	**Fish**	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Widespread adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.
	Macroinvertebrates	N/A	N/A	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Widespread adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.
	Macrophytes and Phytobenthos - combined	N/A	N/A	Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Widespread adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.
	Phosphate	Poor	Moderate by 2027	Poor	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.
	Ammonia	Poor	Good by 2027	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	None	Widespread adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Widespread adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Widespread adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.

Table A.15: Bollin (River Dean to Ashley Mill) (GB112069061381) detailed impact assessment - effects on current status

Bollin (River Dean to Ashley Mill) (GB112069061381)							
Water body type:	River	**Watercourse (receptor value):**					
Hydromorphological designation:	Not A/HMWB	**Scheme component (Unique ID):**					
Overall Status (2015):	Moderate	**Description of scheme component:**					
Overall Status Objective:	Moderate by 2015	**Impact type from scheme component:**					
Overall Status (2019):	Moderate						
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Biological	**Fish**	Moderate	Good by 2027	Moderate	Additional mitigation for the footprint impacts of muliple culverts has been identified and is partially included in the design of realignments. However there is some uncertainty over how naturalised the realignments can be in this location and also how essential the smaller watercourses are for biological quality elements. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders, to identify appropriate mitigation measures to mitigate any significant effects on hydromorphology from the cumulative imapct of culverts and road drainage. On a precautionary basis, until such time as these investigations are carried out, a residual significant effect will remain.	Widespread adverse effect anticipated until mitigation is confirmed. Potential deterioration in status of quality element at water body scale.	Non compliant - risk of deterioration from current status
	Macroinvertebrates	N/A	N/A	Moderate	Additional mitigation for the footprint impacts of muliple culverts has been identified and is partially included in the design of realignments. However there is some uncertainty over how naturalised the realignments can be in this location and also how essential the smaller watercourses are for biological quality elements. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders, to identify appropriate mitigation measures to mitigate any significant effects on hydromorphology from the cumulative imapct of culverts and road drainage. On a precautionary basis, until such time as these investigations are carried out, a residual significant effect will remain.	Widespread adverse effect anticipated until mitigation is confirmed. Potential deterioration in status of quality element at water body scale.	Non compliant - risk of deterioration from current status
	Macrophytes and Phytobenthos - combined	N/A	N/A	Good	Additional mitigation for the footprint impacts of muliple culverts has been identified and is partially included in the design of realignments. However there is some uncertainty over how naturalised the realignments can be in this location and also how essential the smaller watercourses are for biological quality elements. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders, to identify appropriate mitigation measures to mitigate any significant effects on hydromorphology from the cumulative imapct of culverts and road drainage. On a precautionary basis, until such time as these investigations are carried out, a residual significant effect will remain.	Widespread adverse effect anticipated until mitigation is confirmed. Potential deterioration in status of quality element at water body scale.	Non compliant - risk of deterioration from current status
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Moderate by 2027	Poor	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Poor	Good by 2027	Moderate	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	N/A	N/A	N/A	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Additional mitigation for the footprint impacts of culverts has been identified and is partially included in the design of realignments. However there is some uncertainty over how naturalised the realignments can be in this location. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders, to confirm the most appropriate mitigation measures to mitigate the combined effects of culverts on watercourses. On a precautionary basis, until such time as these investigations are carried out, a residual significant effect will remain.	Widespread adverse effect anticipated until mitigation is confirmed. Potential deterioration in status of quality element at water body scale.	Non compliant - risk of deterioration from current status
	River depth and width variation				Additional mitigation for the footprint impacts of culverts has been identified and is partially included in the design of realignments. However there is some uncertainty over how naturalised the realignments can be in this location. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders, to confirm the most appropriate mitigation measures to mitigate the combined effects of culverts on watercourses. On a precautionary basis, until such time as these investigations are carried out, a residual significant effect will remain.	Widespread adverse effect anticipated until mitigation is confirmed. Potential deterioration in status of quality element at water body scale.	Non compliant - risk of deterioration from current status
	Structure and substrate of the river bed				N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Additional mitigation for the footprint impacts of culverts has been identified and is partially included in the design of realignments. However there is some uncertainty over how naturalised the realignments can be in this location. Further investigations will be undertaken in consultation with the Environment Agency and other stakeholders, to confirm the most appropriate mitigation measures to mitigate the combined effects of culverts on watercourses. On a precautionary basis, until such time as these investigations are carried out, a residual significant effect will remain.	Widespread adverse effect anticipated until mitigation is confirmed. Potential deterioration in status of quality element at water body scale.	Non compliant - risk of deterioration from current status
Chemical	**Priority substances**	Good	Good by 2015	Fail	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.16: Timperley Brook (GB112069061260) detailed impact assessment - effects on current status

Timperley Brook (GB112069061260)					Detailed Impact Assessment							Detailed Impact Assessment
Water body type:	River	**Watercourse (receptor value):**			**Tributary of Timperley Brook 1 (Moderate)**							
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			**Offline Culvert North (GB112069061260-T-01-CV-01)**			**Offline Culvert South (GB112069061260-T-01-CV-02)**			**Realignment 1 (GB112069061260-T-01-RE-01)**	
Overall Status (2015):	Moderate	**Description of scheme component:**			*Approx length = 82m*			*Approx length = 8m*			*Approx 128m length. WFD mitigation for loss of open channel under Manchester airport station , includes daylighting /removing existing culvert*	
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**										
Overall Status (2019):	Moderate											
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**
Biological	**Fish**	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.
	Macroinvertebrates	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.
	Macrophytes and Phytobenthos - combined	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.
Physicochemical	**Dissolved oxygen**	Good	Good by 2015	Good	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Phosphate	Moderate	Good by 2027	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.
	Ammonia	Good	Good by 2015	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.

Table A.16: Timperley Brook (GB112069061260) detailed impact assessment - effects on current status

Timperley Brook (GB112069061260)											
Water body type:	River	**Watercourse (receptor value):**			**Tributary of Timperley Brook 1 (Moderate)**						
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			**Manchester Airport High Speed cutting and retaining wall north (GB112069061260-T-01-CU-01)**	**Highway Drainage - M56 East and West Link Realignment/ Access to Manchester Aiport High Speed Station/ Runger Lane Realignment**	**Realignment 2 (GB112069061260-T-01-RE-02)**		**Realignment 3 (GB112069061260-T-01-RE-03)**		
Overall Status (2015):	Moderate	**Description of scheme component:**			*Manchester Airport High Speed cutting is approx. 255m in length, with a maximum of 15.5m cutting depth. The cutting will penetrate penetrate the glacial till and the Mercia Mudstone Group. The Manchester Airport High Speed cutting retaining wall north is 1.8km in length, all of which will be below ground level.*	*Road drainage outfall from M56 East and West Link Realignment/ Access to Manchester Aiport High Speed Station/ Runger Lane Realignment. Screened in for HEWRAT assessment though this shows that the proposed drainage design will provides dilution of the existing high background copper concentration.*	*Approx 122m length. WFD mitigation for loss of open channel under Manchester airport station includes daylighting /removing existing culvert*		*Approx 91m length WFD mitigation for loss of open channel under Manchester airport station*	
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**									
Overall Status (2019):	Moderate										
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Drainage (changes in water quantity or quality due to discharge of surface water runoff to surface water body);**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	
Biological	**Fish**	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	
	Macroinvertebrates	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	
	Macrophytes and Phytobenthos - combined	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	
Physicochemical	**Dissolved oxygen**	Good	Good by 2015	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	
	Phosphate	Moderate	Good by 2027	Moderate	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	
	Ammonia	Good	Good by 2015	Moderate	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	
	Temperature	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	
	River continuity				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	Structure and substrate of the river bed				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	Structure of the riparian zone				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	

Table A.16: Timperley Brook (GB112069061260) detailed impact assessment - effects on current status

Timperley Brook (GB112069061260)					Detailed Impact Assessment Outcome										
Water body type:	River	**Watercourse (receptor value):**			**Timperley Brook (Moderate)**										
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			**Brooks Drive Offline Culvert (GB112069061260-MW-01-CV-03)**			**Realignment West (GB112069061260-MW-01-RE-04)**		**Realignment East (GB112069061260-MW-01-RE-05)**		**Field Access Culvert South (GB112069061260-MW-01-CV-04)**		
Overall Status (2015):	Moderate	**Description of scheme component:**			*Approx length = 20m replacing assumed existing culvert*			*Approx 136m length. WFD mitigation for loss of open channel under Manchester airport station*		*Approx. 193m length. WFD mitigation for loss of open channel under Manchester airport station*		*Approx length = 5m* *2x Existing culverts to be moved to maintain access*		
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**												
Overall Status (2019):	Moderate													
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**
Biological	**Fish**	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macroinvertebrates	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Macrophytes and Phytobenthos - combined	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
Physicochemical	**Dissolved oxygen**	Good	Good by 2015	Good	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Phosphate	Moderate	Good by 2027	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Ammonia	Good	Good by 2015	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.

Table A.16: Timperley Brook (GB112069061260) detailed impact assessment - effects on current status

Timperley Brook (GB112069061260)					Detailed Impact Assessment Outcome								
Water body type:	River	**Watercourse (receptor value):**			**Timperley Brook (Moderate)**								
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			**Field Access Culvert North (GB112069061260-MW-01-CV-05)**			**Timperley Brook Inverted Siphon (GB112069061260-MW-01-IS-01)**			**Timperley Brook Realignment (GB112069061260-MW-01-RE-01)**		
Overall Status (2015):	Moderate	**Description of scheme component:**			*Approx length = 5m* *2x Existing culverts to be moved to maintain access*			*Timperley Brook Culvert would be constructed as an inverted siphon under the station, rejoining the existing watercourse west of the station. Siphon expected to be approximately 170m in length, plus additional realignment of up to 120m.*			*Timperley Brook realigned (approx length 330m) downstream of Brooks Drive as offsite mitigation for impact of inverted siphon. This will also provide a flood compensation area.*		
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**											
Overall Status (2019):	Moderate												
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Footprint**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	
Biological	**Fish**	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Widespread adverse effect anticipated despite embedded mitigation. There is a risk that there could be deterioration in the status of the quality element at the water body scale. Requires consideration of additional mitigation and residual effect.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	
	Macroinvertebrates	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Widespread adverse effect anticipated despite embedded mitigation. There is a risk that there could be deterioration in the status of the quality element at the water body scale. Requires consideration of additional mitigation and residual effect.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	
	Macrophytes and Phytobenthos - combined	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Widespread adverse effect anticipated despite embedded mitigation. There is a risk that there could be deterioration in the status of the quality element at the water body scale. Requires consideration of additional mitigation and residual effect.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	
Physicochemical	**Dissolved oxygen**	Good	Good by 2015	Good	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	
	Phosphate	Moderate	Good by 2027	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	
	Ammonia	Good	Good by 2015	Moderate	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	
	River continuity				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Widespread adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	Structure and substrate of the river bed				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	
	Structure of the riparian zone				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Element is insensitive to impact. No measurable change to quality element.	
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	

Table A.16: Timperley Brook (GB112069061260) detailed impact assessment - effects on current status

Timperley Brook (GB112069061260)										
Water body type:	River	**Watercourse (receptor value):**								
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			**Manchester Airport High Speed Station Cutting Retaining Wall (GB112069061260-MW-01-CU-01)**	**Highway Drainage - M56 East and West Link Realignment/ Access to Manchester Aiport High Speed Station/ Runger Lane Realignment (GB112069061260-MW-01-HD-01)**	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Overall Status (2015):	Moderate	**Description of scheme component:**			*Manchester Airport High Speed cutting is approx. 255m in length, with a maximum of 15.5m cutting depth. The cutting will penetrate penetrate the glacial till and the Mercia Mudstone Group. The Manchester Airport High Speed cutting retaining wall north is 1.8km in length, all of which will be below ground level.*	*Road drainage outfall from M56 East and West Link Realignment/ Access to Manchester Aiport High Speed Station/ Runger Lane Realignment: Drains to timperley siphon. Fails HEWRAT assessment, but passed further metal bioavailability assessment resulting in minor localised effects.*				
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**								
Overall Status (2019):	Moderate				**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Drainage (changes in water quantity or quality due to discharge of surface water runoff to surface water body);**				
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**						
Biological	**Fish**	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	Additional mitigation for the effects of the siphon and highway drainage has now been embedded in the design at AP2. No further mitigation is required.	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	Additional mitigation for the effects of the siphon and highway drainage has now been embedded in the design at AP2. No further mitigation is required.	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Moderate	Good by 2027	Moderate	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	Additional mitigation for the effects of the siphon and highway drainage has now been embedded in the design at AP2. No further mitigation is required.	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	Good	Good by 2015	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Good by 2027	Moderate	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Good	Good by 2015	Moderate	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	Additional mitigation for the effects of the siphon and highway drainage has now been embedded in the design at AP2. No further mitigation is required.	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	Additional mitigation for the effects of the siphon and highway drainage has now been embedded in the design at AP2. No further mitigation is required.	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	None	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.17: Sinderland Brook (Fairywell Brook and Baguley Brook) (GB112069061270) detailed impact assessment - effects on current status

Sinderland Brook (Fairywell Brook and Baguley Brook) (GB112069061270)						Detailed Impact Assessment		Detailed Impact Assessment Outcome			
Water body type:	River			**Watercourse (receptor value):**	**Baguley Brook (Moderate)**	**Mill Brook (Moderate)**	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	HMWB			**Scheme component (Unique ID):**	Manchester Tunnel GB112069061270-MW-03-BT-01 Altrincham Road Vent Shaft	Manchester Tunnel GB112069061270-T-02-BT-01					
Overall Status (2015):	Moderate			**Description of scheme component:**	*Consists of twin bored tunnels 12.8km in length, 7.55m internal diameter, and max. 43.0m deep. There are 37 cross passages.* *Altrincham Road Vent Shaft has a 24.0m internal diameter and is up to 48.6mbgl*	*Consists of twin bored tunnels 12.8km in length, 7.55m internal diameter, and max. 43.0m deep. There are 37 cross passages.*					
Overall Status Objective:	Good by 2027			**Impact type from scheme component:**							
Overall Status (2019):	Moderate										
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Changes in flow velocity and volume**	**Impacts from bored tunnel are scoped out of detailed impact assessment at Preliminary Assessment stage, unless flagged as a risk in Groundwater WFD assessment**					
Biological	**Fish**	N/A	N/A	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	N/A	N/A	Poor	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	N/A	N/A in 2015	N/A	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Good by 2027	Poor	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	N/A	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	N/A	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.18: Mersey (upstream of Manchester Ship Canal) (GB112069061030) detailed impact assessment - effects on current status

Mersey (upstream of Manchester Ship Canal) (GB112069061030)					Detailed Impact Assessment			Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**River Mersey (Very high)**	**Tributary of River Mersey 2 (Moderate)**		**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			Manchester Tunnel GB112069061030-MW-01-BT-01	Manchester Tunnel GB112069061030-T-02-BT-01						
Overall Status (2015):	Moderate	**Description of scheme component:**			*Consists of twin bored tunnels 12.8km in length, 7.55m internal diameter, and max. 43.0m deep. There are 37 cross passages.*	*Consists of twin bored tunnels 12.8km in length, 7.55m internal diameter, and max. 43.0m deep. There are 37 cross passages. Palatine Road Vent Shaft is 41.5m by 51.0m internal diameter and depth of 36.6mbgl*						
Overall Status Objective:	Moderate by 2015	**Impact type from scheme component:**										
Overall Status (2019):	Moderate				**Impacts from bored tunnel are scoped out of detailed impact assessment at Preliminary Assessment stage, unless flagged as a risk in Groundwater WFD assessment**	**Changes in flow velocity and volume / Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Changes in water quality due to discharge of groundwater to surface water body**					
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**								
Biological	**Fish**	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	N/A	N/A	N/A	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	N/A	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Poor by 2015	Poor	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Good	Good by 2015	Good	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	N/A	Element is insensitive to impact. No measurable change to quality element.	N/A	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	N/A	Impacts on element screened out at preliminary assessment stage.	N/A	N/A	Compliant - no deterioration in quality element status anticipated

Table A.19: Fallowfield Brook (GB112069061410) detailed impact assessment - effects on current status

Fallowfield Brook (GB112069061410)								Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**Cringle Brook (Moderate)**			**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			**Manchester Tunnel GB112069061410-MW-01-BT-01**							
Overall Status (2015):	Moderate	**Description of scheme component:**			*Consists of twin bored tunnels 12.8km in length, 7.55m internal diameter, and max. 43.0m deep. There are 37 cross passages.*							
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**			**Impacts from bored tunnel are scoped out of detailed impact assessment at Preliminary Assessment stage, unless flagged as a risk in Groundwater WFD assessment**							
Overall Status (2019):	Moderate											
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**								
Biological	**Fish**	N/A	N/A	N/A	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	N/A	N/A	Moderate	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	N/A	N/A	N/A	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Phosphate	Moderate	Good by 2027	Moderate	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Ammonia	Good	Good by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	River continuity				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated

Table A.20: Platt Brook (Source to Fallowfield Brook) (GB112069061060) detailed impact assessment - effects on current status

Platt Brook (Source to Fallowfield Brook) (GB112069061060)												Detailed Impact Assessment Outcome				
Water body type:	River	**Watercourse (receptor value):**			**Fallowfield Brook (Moderate)**			**Gore Brook (Moderate)**			**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	HMWB	**Scheme component (Unique ID):**			Manchester Tunnel GB112069061060-MW-01-BT-01			Manchester Tunnel GB112069061060-MW-03-BT-01							
Overall Status (2015):	Moderate	**Description of scheme component:**			*Consists of twin bored tunnels 12.8km in length, 7.55m internal diameter, and max. 43.0m deep. There are 37 cross passages.*			*Consists of twin bored tunnels 12.8km in length, 7.55m internal diameter, and max. 43.0m deep. There are 37 cross passages.*							
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**			**Impacts from bored tunnel are scoped out of detailed impact assessment at Preliminary Assessment stage, unless flagged as a risk in Groundwater WFD assessment**										
Overall Status (2019):	Moderate														
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**											
Biological	**Fish**	N/A	N/A	N/A	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Bad	Good by 2027	Bad	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Good	Good by 2015	Good	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2015	High	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Good by 2027	Poor	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Ammonia	Moderate	Good by 2027	Good	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	High	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2015	Supports Good	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	River continuity				-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	Good	Good by 2015	Fail	-	-	-	-	-	-	None	None	N/A	None	Compliant - no deterioration in quality element status anticipated

Table A.21: Medlock (Lumb Brook to Irwell) (GB112069061152) detailed impact assessment - effects on current status

Medlock (Lumb Brook to Irwell) (GB112069061152)					Detailed Impact Assessment						Detailed Impact Assessment Outcome				
Water body type:	River			**Watercourse (receptor value):**	**River Medlock (High)**						**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
Hydromorphological designation:	HMWB			**Scheme component (Unique ID):**	Piccadilly Approach Viaduct (GB112069061152-MW-01-VD-01)	Fairfield Street Offline Overbridge (GB112069061152-MW-01-OB-01)	Daylighting of existing culvert (GB112069061152-MW-01-DY-01)								
Overall Status (2015):	Moderate			**Description of scheme component:**	*A 420.0m long post tensioned voided RC deck, varying in width from 25.0m to 47.0m before reducing to two 12.7m wide viaducts as it enters the station structure.*	*Offline overbridge (clear span bridge) for realigned Fairfield Street. Approx 30m in length and 16m wide.*	*Deculverting of approx. 100m of River Medlock beneath the Piccadilly Approach Viaduct, in conjunction with creating flood compensation areas adjacent to the watercourse*								
Overall Status Objective:	Moderate by 2015			**Impact type from scheme component:**											
Overall Status (2019):	Moderate														
WFD Status Element	**WFD Quality Element**	**RBMP Cycle 2 2015 Status**	**RBMP Cycle 2 Status Objective**	**Status 2019**	**Shading**	**Shading**	**Changes to water body hydromorphology leading to changes in river processes and habitats upstream and downstream**	**Shading**	**Footprint**	**Creation of new habitats**					
Biological	**Fish**	Poor	Moderate by 2027	Poor	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Macroinvertebrates	Moderate	Good by 2021	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Macrophytes and Phytobenthos - combined	Moderate	Moderate by 2015	Moderate	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Localised adverse effect anticipated when balanced against embedded mitigation. However, no deterioration in status of quality element anticipated at the water body scale. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
Physicochemical	**Dissolved oxygen**	High	Good by 2015	High	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	pH	High	Good by 2016	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Phosphate	Poor	Poor by 2015	Poor	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Ammonia	Moderate	Good by 2027	High	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Element is insensitive to impact. No measurable change to quality element.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Temperature	High	Good by 2015	Good	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Element is insensitive to impact. No measurable change to quality element.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Negligible effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
Specific Pollutants	**Copper, Triclosan, Zinc**	High	High by 2015	High	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	NA	N/A	Compliant - no deterioration in quality element status anticipated
Hydromorphological	**Quantity and dynamics of water flow**	Supports Good	Supports Good by 2027	Supports Good	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Connection to groundwater bodies				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Impacts on element screened out at preliminary assessment stage.	Element is insensitive to impact. No measurable change to quality element.	Element is insensitive to impact. No measurable change to quality element.	None	Element is insensitive to impact. No measurable change to quality element.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	River continuity				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	River depth and width variation				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Structure and substrate of the river bed				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
	Structure of the riparian zone				Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Negligible effect anticipated when balanced against embedded mitigation. No measurable change in quality element anticipated. Additional mitigation not required.	Impacts on element screened out at preliminary assessment stage.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	Localised beneficial effect anticipated. However, no increase in quality element status anticipated at the water body scale.	None	Localised beneficial effect anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	NA	N/A	Compliant - no deterioration in quality element status anticipated
Chemical	**Priority substances**	N/A	N/A	Fail	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	Impacts on element screened out at preliminary assessment stage.	None	Impacts on element screened out at preliminary assessment stage.	NA	N/A	Compliant - no deterioration in quality element status anticipated

Table A22: Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) detailed impact assessment - effects on current status

Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) (Secondary aquifer (undifferentiated))					Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment
EA Management Catchment:	North West GW	Scheme component (ID):			GB41202G991700-TP-01		GB41202G991700-BT-02		GB41202G991700-VT-03		GB41202G991700-VT-04		GB41202G991700-TP-05		GB41202G991700-CR-06		GB41202G991700-C-08		GB41202G991700-OF-09	GB41202G991700-VF-14	GB41202G991700-RT-15		GB41202G991700-VF-16	GB41202G991700-RT-18		GB41202G991700-VF-19	GB41202G991700-VF-22	GB41202G991700-RT-26		GB41202G991700-VF-27	GB41202G991700-OF-30	GB41202G991700-ST-31		GB41202G991700-OF-33	GB41202G991700-BP-34		GB41202G991700-BP-35		GB41202G991700-OF-36	GB41202G991700-OF-37	GB41202G991700-HD-38a and 38b	GB41202G991700-VF-41	GB41202G991700-VF-42	GB41202G991700-VF-43
		Scheme component type:			Tunnel Portal		Bored Tunnel		Vent shaft		Vent shaft		Tunnel Portal		Cutting with retaining structure		Cutting		Overbridge Foundations	Viaduct Foundations	Retaining Wall		Viaduct Foundations	Retaining Wall		Viaduct Foundations	Viaduct Foundations	Retaining Wall		Viaduct Foundations	Overbridge Foundations	Station/Depot		Overbridge Foundations	Borrow Pit		Borrow Pit		Overbridge Foundations	Overbridge Foundations	Highways Drainage discharge	Viaduct Foundations	Viaduct Foundations	Viaduct Foundations
Overall Status (2015):	Poor	Scheme component name:			Crewe Tunnel South porous portal		Crewe Tunnel		Cowley Way vent shaft		Middlewich Street vent shaft		Crewe Tunnel North porous portal		Crewe North portal (retained cutting)		Coppenhall Moss cutting		Footpath Crewe 29/1 overbridge	Warmingham Moss southbound approach viaduct No.1	Warmingham Moss southbound box structure No.1		Warmingham Moss southbound connecting viaduct	Warmingham Moss southbound box structure No.2		Warmingham Moss southbound approach viaduct No.2	Warmingham Moss northbound approach viaduct No.1	Warmingham Moss northbound box structure		Warmingham Moss northbound approach viaduct No.2	Footpath Minshull Vernon 8/1 accommodation overbridge	Crewe North rolling stock depot (RSD)		A530 Nantwich Road overbridge	MA02 Cohesive Borrow Pit A		MA02 Cohesive Borrow Pit B		Clive Green Lane overbridge	Shropshire Union Canal offline overbridge	Highways drainage discharge from realigned Clive Green Lane into Tributary of River Weaver 4 and River Wheelock 4	Shropshire Union Canal viaduct No.3	Shropshire Union Canal viaduct No.1	Shropshire Union Canal viaduct No.2
Overall Status Objective:	Good by 2027	Impact type from scheme component:			Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions		"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions
WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status																																								
Quantitative	Quantitative Saline Intrusions	Good	Good by 2015	Good	No likely saline or other intrusion of poor quality water as no sources of poor quality water identified in the vicinity.	No likely saline or other intrusion of poor quality water as no sources of poor quality water identified in the vicinity.	No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no measurable change in groundwater levels is anticipated.	The tunnel will be 6.2km long, 8.8m in diameter at a maximum depth of 43m bgl. The presence of the tunnel will have no measurable change on saline intrusion as these issues are associated with long-term abstractions.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no lowering of groundwater levels anticipated.	The tunnel portal will be 150m long at a maximum depth of 16.8m bgl. The presence of the tunnel will have no measurable change on saline intrusion as this issue is associated with long-term abstractions.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.	No measurable impact of saline intrusions due to scale of works relative to water body scale.		There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.
	Quantitative Water Balance	Good	Good by 2015	Good	The cutting may intersect the saturated zone of the aquifer and some dewatering may be required during construction. Dewatering radius of influence has been assessed as a maximum of 470m, however a retaining structure will be used so dewatering requirements will be smaller. There may be local impacts on water balance but water which may be removed from the aquifer during construction would, where reasonably practicable, be discharged back to the catchment. Dewatering and discharge arrangements would be designed in detail following site investigation in consultation with, and ensuring appropriate permits are in place, with the Environment Agency.	There is potential for the portal cutting to create a damming effect if it cuts through the thickness of the aquifer and prevents groundwater flow across the cutting (retained structure), altering the local water balance. Dewatering, drainage and discharge arrangements would be designed in detail following site investigation in consultation with, and ensuring appropriate permits are in place, with the Environment Agency, to reduce any damming effect.	No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no measurable change in groundwater levels is anticipated.	The tunnel will be 6.2km long, 8.8m in diameter at a maximum depth of 43m bgl. The presence of the tunnel will have no measurable change on water balance as these issues are associated with long-term abstractions.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	There is potential for the portal to create a damming effect if it cuts through the thickness of the aquifer and prevents groundwater flow across the portal, altering the local water balance. Dewatering, drainage and discharge arrangements would be designed in detail following site investigation in consultation with, and ensuring appropriate permits are in place, with the Environment Agency, to reduce any damming effect.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	There is potential for the portal to create a damming effect if it cuts through the thickness of the aquifer and prevents groundwater flow across the portal, altering the local water balance. Dewatering, drainage and discharge arrangements would be designed in detail following site investigation in consultation with, and ensuring appropriate permits are in place, with the Environment Agency, to reduce any damming effect.	This shallow cutting is likely to have no measurable change on quantitative water balance due to scale of works relative to water body scale.	This shallow cutting is likely to have no measurable change on quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.	No measurable change to quantitative water balance due to scale of works relative to water body scale.		There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	Good	Good by 2027	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Moss Bridge Marsh LWS and Spring Plantation Grassland LWS are located just within the ROI of the Crewe North portal (retained) cutting. There is potential that the catchment area for groundwater levels in the habitat to be lowered due to permanent drawdown caused by the cutting. This could lead to a minor localised reduction in groundwater levels.	None present within or in close proximity down-hydraulic gradient of ROI.	Moss Bridge Marsh LWS and Spring Plantation Grassland LWS are located just within the ROI of the Coppenhall Moss cutting. There is potential that the catchment area for groundwater levels in the habitat to be lowered due to permanent drawdown caused by the cutting. This could lead to a minor localised reduction in groundwater levels.	No measurable damming effect from this open cutting	Piling may obstruct the flow of groundwater in the superficial deposits and an upper section of the bedrock in the immediate vicinity of the foundations for the bridge. Any impacts are likely to be extremely localised. No measurable changes expected on Moss Bridge Marsh LWS consdering the extent and depth of the superficial and bedrock aquifers.	Piling may obstruct the flow of groundwater in the superficial deposits and an upper section of the bedrock in the immediate vicinity of the foundations for the viaducts. Any impacts are likely to be highly localised and no measurable changes expected on Spring Plantation Grassland LWS consdering the extent and depth of the superficial and bedrock aquifers.	Dewatering due to presence of Warmingham Moss southbound box structure No.1 may reduce groundwater levels. Any impacts are likely to be highly localised and no measurable change on Spring Plantation Grassland LWS and Moss Bridge Marsh LWS anticipated when taking into account the extent and depth of the superficial and bedrock aquifers.	Secant piling may obstruct the groundwater flow in the superficial deposits and an upper section of the bedrock in the immediate vicinity of the foundations for the retaining wall. Any impacts are likely to be highly localised and no measurable change on Spring Plantation Grassland LWS and Moss Bridge Marsh LWS anticipated when taking into account the extent and depth of the superficial and bedrock aquifers.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Temporary dewatering during construction has the potential to lower groundwater levels, but is not expected to impact on the Wimboldsley Wood SSSI	Crewe North RSD will include extensive hardstanding and could reduce local rainfall recharge to the glacial till aquifer. The RSD is located in the catchment for Tributary of River Weaver 3, which flows through Wimboldsley Wood SSSI. Localised changes to groundwater flow to this watercourse and any features in the SSSI which are dependent it are possible. This is assessed as a minor localised impact on the SSSI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The tunnel is located in the Mercia Mudstone aquifer and therefore is unlikely to impact on groundwater flow pathways in the superficial deposits.	The tunnel is located in the Mercia Mudstone aquifer and therefore is unlikely to impact on groundwater flow pathways in the superficial deposits.	Temporarily lowering of groundwater levels to below 43m bgl could result in reduced flow within Gresty Brook during construction, due to drawdown of water within ROI. However, no measurable change expected due to the use of secant pile walls in the superficial deposits and installation of SCL in the bedrock shortly after construction which will limit the impact on any groundwater dependent surface receptors.	No measurable changes due to small scale of works compared to scale of body of water and embedded mitigation (secant pile walls in superficial deposits and installation of SCL in bedrock shortly after construction).	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Moss Bridge Marsh LWS and Spring Plantation Grassland LWS are located just within the ROI of the Coppenhall Moss cutting. There is potential that the catchment area for groundwater levels in the habitat to be lowered due to permanent drawdown caused by the cutting. This could lead to a minor localised reduction in groundwater levels.	No measurable change due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	The Tributary of Fowle Brook 1 and Hoggins Brook are in close proximity to the overbridge which has the potential to obstruct groundwater flow towards the watercourses. Any impacts are likely to be highly localised. No measurable changes on groundwater flow into the watercourses expected due to embedded mitigation (bentonite and temporary casing).	The Tributary of Fowle Brook 1 and Hoggins Brook are crossed by the Proposed Scheme which has the potential to obstruct groundwater flow towards the watercourses. However, any groundwater intercepted by the viaducts would still discharge to the watercourses via the drainage system of the Proposed Scheme, upstream of the route away from the viaducts. As a result, no measurable changes on groundwater flow into Tributary of Fowle Brook 1 and Hoggins Brook are expected.	The Tributary of Fowle Brook 1 and Hoggins Brook are crossed by the Proposed Scheme so have the potential to obstruct groundwater flow towards the watercourses. However, any groundwater intercepted by the viaducts would still discharge to the watercourses via the drainage system of the Proposed Scheme, upstream of the route away from the viaducts. As a result, no measurable changes on groundwater flow into Tributary of Fowle Brook 1 and Hoggins Brook are expected.	No measurable changes due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	Below ground structures have the potential to obstruct groundwater flow towards Hoggins Brook. Hoggins Brook will be diverted for approximately 1km of the watercourse, including a culvert under Warmingham Moss viaducts. There will be no measurable change to groundwater flow to this watercourse from construction.	Below ground structures have the potential to obstruct groundwater flow towards Hoggins Brook. Hoggins Brook will be diverted for approximately 1km of the watercourse, including a culvert under Warmingham Moss viaducts. There will be no measurable change to groundwater flow to this watercourse from construction.	No measurable changes due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	Below ground structures have the potential to obstruct groundwater flow towards Hoggins Brook. Hoggins Brook will be diverted for approximately 1km of the watercourse, including a culvert under Warmingham Moss viaducts. There will be no measurable change to groundwater flow to this watercourse from construction.	Below ground structures have the potential to obstruct groundwater flow towards Hoggins Brook. Hoggins Brook will be diverted for approximately 1km of the watercourse, including a culvert under Warmingham Moss viaducts. There will be no measurable change to groundwater flow to this watercourse from construction.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Spring 100m south of Wimboldsley Hall is located within land required for construction of Crewe North RSD. Temporary dewatering during construction has the potential to lower groundwater levels in proximity to the spring. Any impacts are likely to be localised and temporary. Drainage from the Proposed Scheme will be discharged at the spring. Therefore, the spring will receive some flow from the facilities drainage network of the Proposed Scheme during and post-construction. Minor impact on the spring as the timing of flow may differ from the natural groundwater flow in the area but an attenuation pond will act to regulate the flow to the spring.	Crewe North RSD will include extensive hardstanding and could reduce local rainfall recharge to the glacial till aquifer. Spring 100m south of Wimboldsley Hall is located within land required for construction of Crewe North RSD. Both during and following construction of the Crewe North RSD, there may be reduced groundwater baseflow to the spring. Where possible springs will be protected or re-established. Drainage from the Proposed Scheme will be discharged at the spring. Therefore, the spring will receive some flow from the facilities drainage network of the Proposed Scheme during and post-construction. Minor impact on the spring as the timing of flow may differ from the natural groundwater flow in the area but an attenuation pond will act to regulate the flow to the spring.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical	Chemical Saline Intrusions	Good	Good by 2015	Good	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body.	No measurable change due to embedded mitigation (secant pile walls in superficial deposits and installation of SCL in bedrock shortly after construction).	No measurable change due to scale of works relative to water body.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.		Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA01.	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.		None in community area MA02.	None in community area MA02.	None in community area MA02.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Poor	Good by 2027	Poor	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Moss Bridge Marsh will be partially removed during construction. For the remaining habitat, the temporary works have the potential to affect water quality, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The ROI of Coppenhall Moss includes Moss Bridge Marsh. There is the potential to alter groundwater and surface water quality which may be migrated along new pathways created during construction of the cutting. This will be mitigated through the implementation of the draft CoCP.	Some localised effects to Moss Bridge Marsh may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	The temporary works have the potential to affect groundwater quality to Spring Plantation Grassland LWS, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to Spring Plantation Grassland LWS and Moss Bridge Marsh LWS, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to Spring Plantation Grassland LWS and Moss Bridge Marsh LWS, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	No measurable change due to embedded mitigation and proposed works for Crewe North RSD are largely above ground.	No measurable change due to embedded mitigation and proposed works for Crewe North RSD are largely above ground.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Chemical Dependent Surface Water Body	Poor	Good by 2027	Poor	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The Proposed Scheme intersects Gresty Brook and Valley Brook at the surface in two locations in Crewe, however, the Proposed Works occur at depth below ground level therefore no measurable changes are expected.	The Proposed Scheme intersects Gresty Brook and Valley Brook at the surface in two locations in Crewe, however, the Proposed Works occur at depth below ground level therefore no measurable changes are expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Temporary works intersect Tributary of Fowle Brook 1, therefore some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Temporary works intersect Tributary of Fowle Brook 1. Localised temporary impacts from creation of pathways are anticipated to occur due to temporary reductions in groundwater contributions. This will be mitigated through the implementation of the draft CoCP.	Some localised effects to Tributary of Fowle Brook 1 and Hoggins Brook may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects to Tributary of Fowle Brook 1 and Hoggins Brook may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects to Tributary of Fowle Brook 1 and Hoggins Brook may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects to Tributary of Fowle Brook 1 and Hoggins Brook may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable change due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	No measurable change due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	No measurable change due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	No measurable change due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	No measurable change due to small scale and alignment of works compared to scale of body of water and embedded mitigation.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary works have the potential to affect groundwater quality although this is likely to be localised and temporary.	The temporary works have the potential to affect groundwater quality although this is likely to be localised and temporary.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	General Chemical Test	Poor	Good by 2027	Poor	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.

Table A22: Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) detailed impact assessment - effects on current status

Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) (Secondary aquifer (undifferentiated))	
EA Management Catchment:	North West GW
Overall Status (2015):	Poor
Overall Status Objective:	Good by 2027

WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	
	Scheme component (ID):				GB41202G991700-C-47		GB41202G991700-RT-48		GB41202G991700-RT-49	
	Scheme component type:				Retaining Wall		Retaining Wall		Retaining Wall	
	Scheme component name:				Clive Green North cutting		Clive Green North embankment retaining wall		Middlewich box structure	
	Impact type from scheme component:				Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative	Quantitative Saline Intrusions	Good	Good by 2015	Good	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this cuttings will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this cuttings will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. No dewatering is ancipated during construction.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.
	Quantitative Water Balance	Good	Good by 2015	Good	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this cuttings will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this cuttings will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. No dewatering is ancipated during construction.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	Good	Good by 2027	Good	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical	Chemical Saline Intrusions	Good	Good by 2015	Good	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.
	Chemical Drinking Water Protected Areas (DrWPA)	Good	Good by 2015	Good	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Poor	Good by 2027	Poor	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Chemical Dependent Surface Water Body	Poor	Good by 2027	Poor	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	General Chemical Test	Poor	Good by 2027	Poor	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.

WFD Quality Element	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment
Scheme component (ID):	GB41202G991700-BP-50		GB41202G991700-RT-51		GB41202G991700-HD-54b	GB41202G991700-VF-54	GB41202G991700-VF-56
Scheme component type:	Borrow Pit		Retaining Wall		Highways Drainage Discharge	Viaduct Foundations	Viaduct Foundations
Scheme component name:	MA02 Cohesive Borrow Pit C		Stanthorne South embankment retaining wall		A54 Middlewich Road	A54 Middlewich Road viaduct	River Dane viaduct
Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions		"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative Saline Intrusions	No measurable changes from saline intrusions due to scale of works and shallow depth of borrow pit relative to water body scale.	No measurable changes from saline intrusions due to scale of works and shallow depth of borrow pit relative to water body scale.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. No dewatering is ancipated during construction.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.		There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.
Quantitative Water Balance	No measurable changes on quantitative water balance due to scale of works and shallow depth of borrow pit relative to water body scale.	No measurable changes on quantitative water balance due to scale of works and shallow depth of borrow pit relative to water body scale.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. No dewatering is ancipated during construction.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, this retaining walls will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.		There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.	There is a history of localised subsidence due to dissolution within the fields adjacent to the area of this scheme component. However, piling will be of limited spatial extent and will not lead to damming. If additional excavation, grouting and reinforcement are required, these are not expected to occur in water bearing strata. These are unlikely to impact water body status.
Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.		None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	It is currently unclear to what extent the River Dane, Bostock LWS and Bull's Wood and Meadow LWS and ancient woodland are supported by groundwater. If additional construction options are required to mitigate and stabilise the unstable ground conditions, there is potential to disrupt groundwater flow to these habitats. Embedded mitigation does not account for such components and therefore closer assessment is required once construction options are confirmed. Oak Clump ancient woodland is located upgradient of the Proposed Scheme hence is unlikely to be impacted by permanent below ground structures.
Quantitative Dependent Surface Water Body	During dewatering and excavation of the cohesive borrow pit, groundwater levels in proximity to spring at pond 100m east of Beckett Avenue, Clive are likely to be reduced. However, as dewatering abstraction will be discharged to the Tributary of River Wheelock 5, upstream of spring at pond 100m east of Beckett Avenue, Clive which will mitigate this impact leading, no measurable change is expected. Backfill material for this borrow pit is likely to have a similar permeability to the material extracted so no measureable impact expected.	Potential spring 140m north of Yew-Tree Farm, Coalpit Lane will be lost during material excavation. This potential spring forms the headwaters of Tributary of River Wheelock 5, to which baseflow will be reduced leading to a temporary minor impact. However, dewatering abstraction will be discharged to the Tributary of River Wheelock 5, upstream of spring at pond 100m east of Beckett Avenue, Clive which will mitigate this impact on the watercourse. Backfill material for the borrow pit will be of similar permeability to the extracted material. If practicable the spring will be re-established once work is complete, but localised impacts are possible	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.		None present within areas with history of localised subsidence or in close proximity down-hydraulic gradient of ROI.	Permanent piled foundations of the viaduct may obstruct groundwater flow towards the River Dane. This is likely to be highly localised and may cause localised increases and decreases in the baseflow to the river over approximately 1km. These localised changes will balance each other and overall, there is expected to be no measurable change in the baseflow to the river.
Impact type from scheme component:	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical Saline Intrusions	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.		Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.	Additional stabilisation and mitigation may be required due to unstable ground conditions relating to dissolution related subsidence. The is a possibility that this could mobilise poor quality, saline water however due to scale of works and embedded mitigation the effects of this are likely to be minor.
Chemical Drinking Water Protected Areas (DrWPA)	None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.		None in community area MA02.	None in community area MA02.
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	It is likely that the River Dane, Bostock LWS is supported by groundwater flow from the alluvium and river terrace deposits. If additional construction options are required to mitigate and stabilise the unstable ground conditions there is potential to affect groundwater and surface water quality. Embedded mitigation does not account for such components and therefore closer assessment is required once construction options are confirmed.
Chemical Dependent Surface Water Body	Borrow pit restoration strategy will ensure no long-term adverse impacts on Tributary of River Wheelock 5.	Borrow pit restoration strategy will ensure no long-term adverse impacts on Tributary of River Wheelock 5.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	It is likely that the River Dane receives some groundwater flow from the alluvium and river terrace deposits. If additional construction options are required to mitigate and stabilise the unstable ground conditions there is potential to affect groundwater and surface water quality. Embedded mitigation does not account for such components and therefore closer assessment is required once construction options are confirmed.
General Chemical Test	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	No measurable change due to scale and shallow depths of borrow pits relative to groundwater body. Implementation of embedded mitigation measures also assumed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but likely to be restricted to the superficial deposits, pending further investigations.	Some localised effects may be anticipated but these are unlikely to impact waterbody status. Embedded mitigation does not account for these potential construction options with regards to the foundation component of this scheme component therefore closer assessment is required once construction options are confirmed.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.

WFD Quality Element	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment
Scheme component (ID):	GB41202G991700-VF-59	GB41202G991700-VF-61	GB41202G991700-VF-63	GB41202G991700-HD-64a	GB41202G991700-OF-65	GB41202G991700-VF-66	GB41202G991700-VF-68	GB41202G991700-VF-70
Scheme component type:	Viaduct Foundations	Viaduct Foundations	Viaduct Foundations	Highways Drainage discharge	Overbridge Foundation	Viaduct Foundations	Viaduct Foundations	Viaduct Foundations
Scheme component name:	Puddinglake Brook viaduct	Trent and Mersey Canal viaduct	Gad Brook viaduct	Highways drainage discharge from realigned A556 Shurlach Road into Broken Cross Drains	Wade Brook offline overbridge	Wade Brook viaduct	Lostock Gralam viaduct	Smoker Brook viaduct
Impact type from scheme component:	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions		"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative Saline Intrusions	No measurable changes from saline intrusions due to scale of works relative to water body scale.	No measurable changes from saline intrusions due to scale of works relative to water body scale.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering required.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering required.	No measurable changes from saline intrusions due to scale of works relative to water body scale.	No measurable changes from saline intrusions due to scale of works relative to water body scale.
Quantitative Water Balance	No measurable changes on quantitative water balance due to scale of works relative to water body scale.	No measurable changes on quantitative water balance due to scale of works relative to water body scale.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering required.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering required.	No measurable changes on quantitative water balance due to scale of works relative to water body scale.	No measurable changes on quantitative water balance due to scale of works relative to water body scale.
Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	None present within or in close proximity down-hydraulic gradient of ROI.	The permanent below ground features, such as piled foundations of the Trent and Mersey Canal viaduct, have the potential to locally alter groundwater flow in the superficial and bedrock aquifers supporting Whatcroft Lane Wetlands LWS and SBI. Due to the location and minor extent of the piers within the much larger area of the aquifers, no measurable change to groundwater flow pathways to the habitat expected.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The permanent below ground features, such as piled foundations of the Smoker Brook viaduct, have the potential to locally alter groundwater flow in the superficial and bedrock aquifers. Due to the location and minor extent of the piers within the much larger area of the aquifers, no measurable change to groundwater flow pathways to the Wincham Brook Valley & Mill Wood LWS and SBI are expected.
Quantitative Dependent Surface Water Body	Below ground structures have the potential to obstruct groundwater flow towards Puddinglake Brook. Due to the location and minor extent of the piers within the much larger area of the aquifers, no measurable change to groundwater flow pathways to the watercourse expected.	Below ground structures have the potential to obstruct groundwater flow towards Puddinglake Brook. Due to the location and minor extent of the piers within the much larger area of the aquifers, no measurable change to groundwater flow pathways to the watercourse expected.	Viaduct intersects Gad Brook and Tributary of Gad Brook 3. No measurable changes due to embedded mitigation - i.e. no or minimal dewatering required.		Wade Brook offline overbridge crosses the Wade Brook and has the potential to impact baseflow. Groundwater flow in the superficial deposits is likely to follow topography and flow towards the watercourse. Therefore, groundwater flow is expected to be parallel to the route, and piles are not expected to have a measurable change on groundwater flow to Wade Brook.	Wade Brook offline overbridge crosses the Wade Brook and has the potential to impact baseflow. Groundwater flow in the superficial deposits is likely to follow topography and flow towards the watercourse. Therefore, groundwater flow is expected to be parallel to the route, and piles are not expected to have a measurable change on groundwater flow to Wade Brook.	None present within or in close proximity down-hydraulic gradient of ROI.	Below ground structures of Smoker Brook viaduct have the potential to obstruct groundwater flow towards Tributary of Peover Eye and Peover Eye. These effects are likely to be highly localised and overall no measurable change to groundwater flow to the watercourses are expected.
Impact type from scheme component:	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical Saline Intrusions	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	There is a risk of piling works forming a conduit for groundwater movement during construction, possibly leading to halite dissolution, as piles are expected to reach the Northwich Halite Member. If a conduit for groundwater movement is likely to be formed during construction, active aquifer protection measures will be deployed during piling to mitigate the geotechnical risk of subsidence, in addition to the application of the draft CoCP.	There is a risk of piling works forming a conduit for groundwater movement during construction, possibly leading to halite dissolution, as piles are expected to reach the Northwich Halite Member. If a conduit for groundwater movement is likely to be formed during construction, active aquifer protection measures will be deployed during piling to mitigate the geotechnical risk of subsidence, in addition to the application of the draft CoCP.
Chemical Drinking Water Protected Areas (DrWPA)	None in community area MA02.	None in community area MA02.	None in community area MA02.		None in community area MA02.	None in community area MA02.	None in community area MA02.	None in community area MA02.
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	None present within or in close proximity down-hydraulic gradient of ROI.	Whatcroft Lane Wetland LWS and SBI is adjacent to the Proposed Scheme, therefore, there is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Wincham Brook Valley & Mill Wood LWS and SBI is adjacent to the Proposed Scheme, therefore, there is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.
Chemical Dependent Surface Water Body	Due to the location and minor extent of the piers within the much larger area of the aquifers, no measurable change on groundwater flow pathways to the Puddinglake Brook expected.	Due to the location and minor extent of the piers within the much larger area of the aquifers, no measurable change on groundwater flow pathways to the Puddinglake Brook expected.	Works proposed to intersect Gad Brook and Tributary of Gad Brook 3. Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.		Works proposed to intersect Wade Brook. Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Works proposed to intersect Wade Brook. Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	None present within or in close proximity down-hydraulic gradient of ROI.	Works proposed to intersect Tributary of Peover Eye and Peover Eye. Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.
General Chemical Test	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated due to scale of works but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated due to scale of works but these are unlikely to impact waterbody status due to embedded mitigation.

WFD Quality Element	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment	
Scheme component (ID):	GB41202G991700-VF-74	GB41202G991700-HD-76a	GB41202G991700-VF-77	GB41202G991700-RT-82		GB41202G991700-RT-83	
Scheme component type:	Viaduct Foundations	Highways Drainage discharge	Viaduct Foundations	Retaining Wall		Retaining Wall	
Scheme component name:	Arley Brook viaduct	M6 realignment	M6 Mere viaduct	Hoo Green South embankment No.2 retaining wall		Hoo Green viaduct	
Impact type from scheme component:	"Damming" of groundwater flow and reduction in groundwater contributions		"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative Saline Intrusions	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
Quantitative Water Balance	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	The permanent below ground features, such as piled foundations of the Arley Brook viaduct, have the potential to locally alter groundwater flow in the superficial and bedrock aquifers. Due to the location and minor extent of the piers within the much larger area of the aquifers, no measurable change to groundwater flow pathways to the Arley and Waterless Brook Corridor LWS are expected.		None present within or in close proximity down-hydraulic gradient of ROI.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
Quantitative Dependent Surface Water Body	Below ground structures of Arley Brook viaduct have the potential to obstruct groundwater flow towards Waterless/Arley Brook. These effects are likely to be highly localised and overall no measurable change to groundwater flow to the watercourse is expected.		Tributary of Tabley Brook 4 is crossed by the Proposed Scheme and Tributary of Tabley Brook 6 and 8 are present within the immediate vicinity of the viaduct. No measurable change expected as Tributary of Tabley Brook 4 is located upgradient of the Proposed Scheme and Tributary of Tabley Brook 6 and 8 will receive baseflow from the drainage network.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	The retaining structure has the potential to disrupt groundwater flow to the Tributary of Tabley Brook 9. However, no measurable change anticipated due to scale of works and embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	The retaining structure has the potential to disrupt groundwater flow to tributaries of Tabley Brook, However, no measurable change anticipated due to scale of works and embedded mitigation.
Impact type from scheme component:	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical Saline Intrusions	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	The temporary dewatering will disrupt groundwater levels but will have no measurable changet on saline intrusions.	The temporary dewatering will disrupt groundwater flow paths but will have no measurable changet on saline intrusions.
Chemical Drinking Water Protected Areas (DrWPA)	None in community area MA03.		None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Arley and Waterless Brook Corridor LWS is intersected by the Proposed Scheme, therefore, there is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.		None present within or in close proximity down-hydraulic gradient of ROI.	Belt Wood GWDTE is located 160m down-hydraulic gradient of the proposed scheme component. However, no measurable changes anticipated due to the scale of works and embedded mitigation.	Belt Wood GWDTE is located 160m down-hydraulic gradient of the proposed scheme component. However, no measurable changes anticipated due to the scale of works and embedded mitigation.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.
Chemical Dependent Surface Water Body	Waterless/Arley Brook is intersected by the Proposed Scheme. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.		Tributary of Tabley Brook 4 is intersected by works. However, no measurable changes anticipated due to scale of works and embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	The temporary works have the potential to affect groundwater quality to Tributary of Tabley Brook 9, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to Tributary of Tabley Brook 9, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.
General Chemical Test	Some localised effects may be anticipated due to scale of works but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.

WFD Quality Element	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment
Scheme component (ID):	GB41202G991700-CR-87		GB41202G991700-BF-76b	GB41202G991700-CR-88		GB41202G991700-OF-91	GB41202G991700-HD-106a
Scheme component type:	Cutting with retaining structure		Highways Drainage discharge to ground (offline drain) - construction only	Cutting with retaining structure		Overbridge Foundations	Highways Drainage discharge
Scheme component name:	Hoo Green North cutting		A556 (Chapel Lane Drain)	Hoo Green West cutting		A50 overbridge	Highways drainage discharge from realigned A6144 Paddock lane into A6144 Field Drains
Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions		Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	
Quantitative Saline Intrusions	The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	The temporary dewatering will disrupt groundwater flow paths but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings which will give an increased risk of groundwater flooding. However, land drains have been included on the upgradient side of the route of the Proposed Scheme. Therefore, the land drainage will ensure that there is no measurable change in risk of groundwater flooding.		The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	The temporary dewatering will disrupt groundwater flow paths but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	
Quantitative Water Balance	The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	The temporary dewatering will disrupt groundwater flow paths but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings which will give an increased risk of groundwater flooding. However, land drains have been included on the upgradient side of the route of the Proposed Scheme. Therefore, the land drainage will ensure that there is no measurable change in risk of groundwater flooding.		The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	The temporary dewatering will disrupt groundwater flow paths but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	
Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	The radius of influence of the cutting includes potential spring at Dobb Lane, Yew Tree Farm, A50 which supports undesignated habitat. Localised impacts on this habitat are likely	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	
Quantitative Dependent Surface Water Body	The radius of influence of the cutting includes potential spring at Dobb Lane, Yew Tree Farm, A50 which supports undesignated habitat and feeds into Tributary of Millington Clough 1. Minor localised impact on surface water flow is likely. Tributaries of Millington Clough 1 to 4 are located within the radius of influence of the cutting thus will likely receive reduced baseflow. Scheme drainage will discharge to the tributaries of Millington Clough downstream of the cutting thereby reducing flow in a section of the tributaries of Millington Clough upstream of the crossing. Localised minor impact on Tributaries of Millington Clough 1 to 4 with mitigation with drainage discharge.	Tributaries of Millington Clough 1 to 4 are crossed by the Proposed Scheme and as such groundwater flow to these watercourses is likely to be intercepted. Scheme drainage will discharge to the tributaries of Millington Clough downstream of the cutting thereby reducing flow in a section of the tributaries of Millington Clough upstream of the crossing. Localised minor impact on Tributaries of Millington Clough 1 to 4 with mitigation with drainage discharge.		The radius of influence of the cutting includes potential spring at Dobb Lane, Yew Tree Farm, A50 which supports undesignated habitat and feeds into Tributary of Millington Clough 1. Minor localised impact on surface water flow is likely. Tributaries of Millington Clough 1 to 4 are located within the radius of influence of the cutting thus will likely receive reduced baseflow. Scheme drainage will discharge to the tributaries of Millington Clough downstream of the cutting thereby reducing flow in a section of the tributaries of Millington Clough upstream of the crossing. Localised minor impact on Tributaries of Millington Clough 1 to 4 with mitigation with drainage discharge.	Tributaries of Millington Clough 1 to 4 are crossed by the Proposed Scheme and as such groundwater flow to these watercourses is likely to be intercepted. Scheme drainage will discharge to the tributaries of Millington Clough downstream of the cutting thereby reducing flow in a section of the tributaries of Millington Clough upstream of the crossing. Localised minor impact on Tributaries of Millington Clough 1 to 4 with mitigation with drainage discharge.	None present within or in close proximity down-hydraulic gradient of ROI.	
Impact type from scheme component:	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical Saline Intrusions	The temporary dewatering will disrupt groundwater levels but will have no measurable changet on saline intrusions.	The temporary dewatering will disrupt groundwater flow paths but will have no measurable changet on saline intrusions.		The temporary dewatering will disrupt groundwater levels but will have no measurable changet on saline intrusions.	The temporary dewatering will disrupt groundwater flow paths but will have no measurable changet on saline intrusions.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	
Chemical Drinking Water Protected Areas (DrWPA)	None in community area MA03.	None in community area MA03.		None in community area MA03.	None in community area MA03.	None in community area MA03.	
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.		None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	
Chemical Dependent Surface Water Body	The temporary works have the potential to affect groundwater quality to tributaries of Millington Clough, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Millington Clough, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.		The temporary works have the potential to affect groundwater quality to tributaries of Millington Clough, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Millington Clough, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	
General Chemical Test	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised construction effects may be anticipated but these are unlikely to impact waterbody status.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status.

Table A22: Weaver and Dane Quaternary Sand and Gravel Aquifer:

Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) (Secondary aquifer (undifferentiated))					**Detailed Impact Assessment**	
EA Management Catchment:	North West GW	**Scheme component (ID):**			GB41202G991700-CR-115	
Overall Status (2015):	Poor	**Scheme component type:**			Cutting with retaining structure	
		Scheme component name:			Hoo Green South cutting retaining wall	
Overall Status Objective:	Good by 2027	**Impact type from scheme component:**				
WFD Status Element	**WFD Quality Element**	**2015 RBMP Cycle 2 Status**	**2015 RBMP Cycle 2 Status Objective**	**2019 Status**	**Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control**	**"Damming" of groundwater flow and reduction in groundwater contributions**
Quantitative	**Quantitative Saline Intrusions**	Good	Good by 2015	Good	The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.
	Quantitative Water Balance	Good	Good by 2015	Good	The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Some localised damming effects may be anticipated but not likely to be significant on the waterbody scale
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	Good	Good by 2027	Good	Belt Wood LWS and SBI is a potential GWDTE 160m east, down-hydraulic gradient, of the Proposed scheme component. The upper reaches of Tributary of Tabley Brook 9, which runs through Belt Wood, are within the potential zone of influence of the cutting. This could impact groundwater levels within the habitat. Some drainage from the Proposed Scheme will be discharged into a watercourse upstream of Belt Wood which should compensate for some of reduction in groundwater contribution.	Belt Wood LWS and SBI is a potential GWDTE 160m east, down-hydraulic gradient, of the Proposed scheme component. The retaining wall has the potential to intercept groundwater flow to the Tributary of Tabley Brook 9 which runs through Belt Wood. A small proportion of groundwater may be intercepted that will otherwise discharge to this watercourse. Some drainage from the Proposed Scheme will be discharged into a watercourse upstream of Belt Wood which should compensate for some of the flow lost.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	The retaining structure has the potential to disrupt groundwater flow to the Tributary of Tabley Brook 8 and 9. Localised effects anticipated due to scale of works and embedded mitigation
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	**Creating or altering of pathways along which existing poor quality groundwater can migrate**
Chemical	**Chemical Saline Intrusions**	Good	Good by 2015	Good	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA03.	None in community area MA03.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Poor	Good by 2027	Poor	Belt Wood GWDTE is located 160m down-hydraulic gradient of the proposed scheme component. However, no measurable change anticipated due to the scale of works and embedded mitigation.	Belt Wood GWDTE is located 160m down-hydraulic gradient of the proposed scheme component. However, no measurable change anticipated due to the scale of works and embedded mitigation.
	Chemical Dependent Surface Water Body	Poor	Good by 2027	Poor	The temporary works have the potential to affect groundwater quality to Tributary of Tabley Brook 8 and 9, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to Tributary of Tabley Brook 8 and 9, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.
	General Chemical Test	Poor	Good by 2027	Poor	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.

Table A22: Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) detailed impact assessment - effects on current status

Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) (Secondary aquifer (undifferentiated))					Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	
EA Management Catchment:	North West GW	Scheme component (ID):			GB41202G991700-CR-116		GB41202G991700-RT-117		GB41202G991700-CR-119		GB41202G991700-CR-120	
Overall Status (2015):	Poor	Scheme component type:			Cutting with retaining structure		Retaining Wall		Cutting with retaining structure		Cutting with retaining structure	
		Scheme component name:			Hoo Green South cutting retaining wall		Hoo Green (box) tunnel		Hoo Green North cutting retaining wall		Hoo Green North cutting retaining wall	
Overall Status Objective:	Good by 2027	Impact type from scheme component:										
WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative	Quantitative Saline Intrusions	Good	Good by 2015	Good	The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings and no measureable change in saline intrusion is expected.	The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings and no measureable change in saline intrusion is expected.	The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings and no measureable change in saline intrusion is expected.
	Quantitative Water Balance	Good	Good by 2015	Good	The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Some localised damming effects may be anticipated but not likely to be significant on the waterbody scale	The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Some localised damming effects may be anticipated but not likely to be significant on the waterbody scale	The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Some localised damming effects may be anticipated but not likely to be significant on the waterbody scale	The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Some localised damming effects may be anticipated but not likely to be significant on the waterbody scale
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	Good	Good by 2027	Good	Belt Wood LWS and SBI is a potential GWDTE 160m east, down-hydraulic gradient, of the Proposed scheme component. The upper reaches of Tributary of Tabley Brook 9, which runs through Belt Wood, are within the potential dewatering zone of influence. This could impact groundwater levels within the habitat. Some drainage from the Proposed Scheme will be discharged into a watercourse upstream of Belt Wood which should compensate for some of reduction in groundwater contribution.	Belt Wood LWS and SBI is a potential GWDTE 160m east, down-hydraulic gradient, of the Proposed scheme component. The retaining wall has the potential to intercept groundwater flow to the Tributary of Tabley Brook 9 which runs through Belt Wood. A small proportion of groundwater may be intercepted that will otherwise discharge to this watercourse. Some drainage from the Proposed Scheme will be discharged into a watercourse upstream of Belt Wood which should compensate for some of the flow lost.	Belt Wood LWS and SBI is a potential GWDTE 160m east, down-hydraulic gradient, of the Proposed scheme component. The upper reaches of Tributary of Tabley Brook 9, which runs through Belt Wood, are within the potential dewatering zone of influence. This could impact groundwater levels within the habitat. Some drainage from the Proposed Scheme will be discharged into a watercourse upstream of Belt Wood which should compensate for some of reduction in groundwater contribution.	Tributary of Tabley Brook 9 runs through Belt Wood and the upper reaches of this watercourse are within the ROI. A small proportion of groundwater flow may be intercepted that will otherwise discharge to this watercourse. Some drainage from the Proposed Scheme will be discharged into a watercourse upstream of Belt Wood which should compensate for some of the flow lost through the habitat.	No measurable changes as habitats are located outside of the radius of influence of the retaining wall.	Hoo Green viaduct crosses the zone of influence upgradient of the Rostherne Mere Ramsar site/SSSI topographic catchment. Mitigation includes drainage from cuttings extending across and outside the Rostherne Mere catchment, pumped to recharge trenches. If any groundwater is intercepted by the Hoo Green viaduct, the recharge from trenches should compensate for the reduction in groundwater flow. Belt Wood LWS and SBI is located outside of the ROI but downgradient of the Proposed Scheme. Therefore, the structures may intercept baseflow in the groundwater catchment to the habitat. Localised minor impact as groundwater levels in the habitat may be lowered during construction.	No measurable changes as habitats are located outside of the radius of influence of the retaining wall.	Hoo Green viaduct crosses the zone of influence upgradient of the Rostherne Mere Ramsar site/SSSI topographic catchment. Mitigation includes drainage from cuttings extending across and outside the Rostherne Mere catchment, pumped to recharge trenches. If any groundwater is intercepted by the Hoo Green viaduct, the recharge from trenches should compensate for the reduction in groundwater flow. Belt Wood LWS and SBI is located outside of the ROI but downgradient of the Proposed Scheme. Therefore, the structures may intercept baseflow in the groundwater catchment to the habitat. Localised minor impact as groundwater levels in the habitat may be lowered during construction.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	The retaining structure has the potential to disrupt groundwater flow to the Tributary of Tabley Brook 8 and 9. Localised effects anticipated due to scale of works and embedded mitigation	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to dewatering resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9.	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to interception of groundwater flow to the watercourse by below ground structures resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9.	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to dewatering resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9. Discharge from cutting drainage network will help to maintain flows in the watercourse.	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to interception of groundwater flow to the watercourse by below ground structures resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9. Discharge from cutting drainage network will help to maintain flows in the watercourse.	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to dewatering resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9. Discharge from cutting drainage network will help to maintain flows in the watercourse.	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to interception of groundwater flow to the watercourse by below ground structures resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9. Discharge from cutting drainage network will help to maintain flows in the watercourse.
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical	Chemical Saline Intrusions	Good	Good by 2015	Good	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Poor	Good by 2027	Poor	Belt Wood GWDTE is located 160m down-hydraulic gradient of the proposed scheme component. However, no measurable change anticipated due to the scale of works and embedded mitigation.	Belt Wood GWDTE is located 160m down-hydraulic gradient of the proposed scheme component. However, no measurable change anticipated due to the scale of works and embedded mitigation.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.
	Chemical Dependent Surface Water Body	Poor	Good by 2027	Poor	The temporary works have the potential to affect groundwater quality to Tributary of Tabley Brook 8 and 9, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to Tributary of Tabley Brook 8 and 9, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.
	General Chemical Test	Poor	Good by 2027	Poor	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.

WFD Quality Element	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment
Scheme component (ID):	GB41202G991700-C-121		GB41202G991700-VF-123	GB41202G991700-VF-126	GB41202G991700-C-127	GB41202G991700-C-128	GB41202G991700-OF-129	GB41202G991700-OF-130
Scheme component type:	Cutting		Viaduct Foundations	Viaduct Foundations	Cutting	Cutting	Overbridge Foundations	Overbridge Foundations
Scheme component name:	Hoo Green North cutting		Peacock Lane viaduct	Agden Brook viaduct	Millington cutting	Millington North cutting	Millington Footpath 7/4 accommodation overbridge	A556 Chester Road overbridge
Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative Saline Intrusions	The temporary dewatering will disrupt groundwater levels but will have no measurable change on saline intrusions. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings and no measureable change in saline intrusion is expected.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	Localised adverse effect when balanced against embedded mitigation. Cutting is 11m deep and extends for 1462m and intersects Agden Brook. Dewatering may be required due to depth of groundwater and nature of works.	Localised/temporary adverse effect when balanced against embedded mitigation. Dewatering may be required due to depth of groundwater and nature of works. Therefore lowering in groundwater levels anticipated.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.
Quantitative Water Balance	The temporary dewatering will disrupt groundwater levels but will have no measurable change on water balance. Permanent secant piled retaining walls are to be built along the entire length of the Hoo Green cuttings thereby significantly reducing the requirement for dewatering.	Some localised damming effects may be anticipated but not likely to be significant on the waterbody scale	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Localised/temporary adverse effect when balanced against embedded mitigation. Cutting is 11m deep and extends for 1462m and intersects Agden Brook. Dewatering may be required due to depth of groundwater and nature of works. Therefore lowering in groundwater levels anticipated which could impact water balance. Cutting drainage will be discharged back into the local watercourses.	Localised/temporary adverse effect when balanced against embedded mitigation. Dewatering may be required due to depth of groundwater and nature of works. Therefore lowering in groundwater levels anticipated which could impact water balance. Cutting drainage will be discharged back into the local watercourses.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.
Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	No measurable changes as habitats are located outside of the radius of influence of the retaining wall.	Hoo Green viaduct crosses the zone of influence upgradient of the Rostherne Mere Ramsar site/SSSI topographic catchment. Mitigation includes drainage from cuttings extending across and outside the Rostherne Mere catchment, pumped to recharge trenches. If any groundwater is intercepted by the Hoo Green viaduct, the recharge from trenches should compensate for the reduction in groundwater flow. Belt Wood LWS and SBI is located outside of the ROI but downgradient of the Proposed Scheme. Therefore, the structures may intercept baseflow in the groundwater catchment to the habitat. Localised minor impact as groundwater levels in the habitat may be lowered during construction.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The zone of influence of the Millington cutting includes parts of Yarwood Heath Covert and Rostherne Mere. Groundwater could be lowered within the ROI and, hence, would reduce groundwater contribution to the habitats and impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on water levels are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment.	The zone of influence of the Millington North cutting includes parts of Rostherne Mere. Groundwater in this sub-catchment area could be intercepted within the zone of influence and, hence, would discharge to the drainage in the cuttings. Impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on water levels are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment.	None present within or in close proximity down-hydraulic gradient of ROI.	The A556 Chester Road overbridge will be constructed as a tangent pile wall which has potential to impact on groundwater flow pathways. No measurable change to groundwater flow as the tangent pile wall is expected to impact a minor extent in comparison to the areal extent of the superficial and bedrock aquifer. The overbridge may intercept some of the groundwater flow to Rostherne Mere. However, given the main inflow to the habitat is from Rostherne Brook no meaurable change on groundwater flow from the overbridge is expected.
Quantitative Dependent Surface Water Body	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to dewatering resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9. Discharge from cutting drainage network will help to maintain flows in the watercourse.	Likely localised impacts on surface water flows in Tributary of Tabley Brook 9 possible due to interception of groundwater flow to the watercourse by below ground structures resulting in a slight reduction in baseflow to 1km of the northern branch of Tributary of Tabley Brook 9. Discharge from cutting drainage network will help to maintain flows in the watercourse.	Below ground structures of Peacock Lane viaduct have the potential to obstruct groundwater flow towards Millington Clough. Groundwater intercepted by the viaduct would be discharged into Tributary of Millington Clough 1, an upstream tributary of Millington Clough, via the drainage system. Therefore, no measurable change to the baseflow to Millington Clough expected.	Agden Brook is present within the immediate vicinity of the Agden Brook viaduct. There is the potential for adverse impacts on baseflow to parts of Agden Brook. Any below ground structures have the potential to obstruct groundwater flow towards the watercourse. However, any groundwater intercepted by the viaduct would still discharge into Agden Brook via the drainage system of the Proposed Scheme both upstream and downstream of the route. As a result, no measurable change on Agden Brook expected.	Groundwater flow into Agden Brook and Tributary of River Bollin 10 and 11 may be a reduced due to interception of baseflow. This would be mitigated by the drainage system of the Proposed Scheme which would discharge water 80m downstream of the Proposed Scheme so there would be a minor tempory reduction in groundwater flow to this stretch of Agden Brook. Tributary of River Bollin 11 is supported by a low value land drainage outfall and is located within the ROI. Tributary of River Bollin 10 is located 50m outside of the ROI. As water intercepted by the Proposed Scheme will be diverted to Blackburn's Brook, the upper reaches of these watercourses may receive reduced baseflow resulting in localised impact on flow to Tributary of Bollin Brook 10 and 11.	Groundwater flow into Tributary of River Bollin 10 and 11 may be a reduced due to interception of baseflow by the cutting however this would be mitigated by the drainage system of the Proposed Scheme. Tributary of River Bollin 11 is supported by a low value land drainage outfall and is located within the ROI. Tributary of River Bollin 10 is located approximately 50m outside of the ROI. As water intercepted by the Proposed Scheme will be diverted to Blackburn's Brook, the upper reaches of these two watercourses may receive minor temporary reduction in baseflow.	None present within or in close proximity down-hydraulic gradient of ROI.	The A556 Chester Road overbridge will be constructed as a tangent pile wall which has potential to impact on groundwater flow to Tributary of River Bollin 11. The tangent pile wall is expected to impact a minor extent in comparison to the areal extent of the superficial and bedrock aquifers, and thus no measurable change is expected.
	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical Saline Intrusions	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.	Temporary lowering of groundwater levels is unlikely to impact on drawing in of poor quality water. Mitigation to reduce the zone of influence is in place.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Localised/temporary adverse effect when balanced against embedded mitigation. Cutting is 11m deep and extends for 1462m and intersects Agden Brook. Dewatering may be required due to depth of groundwater and nature of works. Therefore lowering in groundwater levels anticipated.	It has been assumed that groundwater levels within the glacial till and bedrock are at ground level and that groundwater flow within the glacial till may be affected by the cutting. Application of the draft CoCP will ensure that materials and fluids used during construction are managed so that there is no significant adverse effect on groundwater quality.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
Chemical Drinking Water Protected Areas (DrWPAs)	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA03.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	Hoo Green viaduct and ROI are located within the Rostherne Mere Ramsar site/SSSI topographic catchment. There is the potential to alter groundwater and surface water quality during construction. This will be mitigated through the draft CoCP. There is the potential to alter groundwater quality to Belt Wood LWS and SBI during construction. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The ROI of the Millington cutting includes parts of Yarwood Heath Cover and Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	The zone of influence of the Millington cutting includes parts of Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	The A556 Chester Road overbridge will be constructed as a tangent pile wall which has potential to impact on groundwater flow pathways. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.
Chemical Dependent Surface Water Body	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Tabley Brook, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary works have the potential to affect groundwater quality to tributaries of Millington Clough, although this is likely to be localised and temporary. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Agden Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of River Bollin 10 and 11. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of River Bollin 10 and 11. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary construction works have the potential to affect groundwater quality to Tributary of River Bollin 6. This will be mitigated through the implementation of the draft CoCP.
General Chemical Test	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.

WFD Quality Element	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	
Scheme component (ID):	GB41202G991700-CR-131		GB41202G991700-C-132	GB41202G991700-C-133	GB41202G991700-OF-134	GB41202G991700-CR-136	
Scheme component type:	Cutting with retaining structure		Cutting	Cutting	Overbridge Foundations	Cutting with retaining structure	
Scheme component name:	Rostherne cutting retaining wall west		Rostherne cutting	Rostherne North cutting	Yarwood Heath Farm accommodation overbridge	Rostherne cutting retaining wall east	
Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative Saline Intrusions	No measurable change to saline intrusions due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change to saline intrusions due to scale of works relative to water body scale.	No measurable change to saline intrusions due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change to saline intrusions due to scale of works relative to water body scale.	The presence of the cutting will have no measurable change on saline intrusions as this issue is associated with long-term abstractions.
Quantitative Water Balance	Localised and temporary adverse effect on water balance due to dewatering during construction.	No measurable change due to scale of works relative to water body and embedded mitigation.	Localised and temporary adverse effect on water balance due to dewatering during construction.	Localised and temporary adverse effect on water balance due to dewatering during construction.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Localised and temporary adverse effect on water balance due to dewatering during construction.	The presence of the cutting will have no measurable change on water balance as this issue is associated with long-term abstractions.
Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	The zone of influence of the retaining wall includes parts of Rostherne Mere. Groundwater in this sub-catchment area could be intercepted within the zone of influence and, hence, would discharge to the drainage in the cuttings. Impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on water levels are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment. The timing of the recharge may be different to the timing of natural groundwater discharge. However, the additional discharge from the extended area of the cuttings would mean that the total discharge exceeds the natural groundwater discharge area.	The zone of influence of the retaining wall includes parts of Rostherne Mere. Groundwater in this sub-catchment area could be intercepted within the zone of influence and, hence, would discharge to the drainage in the cuttings. Impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on groundwater flow are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment.	The zone of influence of the retaining wall includes parts of Rostherne Mere. Groundwater in this sub-catchment area could be intercepted within the zone of influence and, hence, would discharge to the drainage in the cuttings. Impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on water levels are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment. The timing of the recharge may be different to the timing of natural groundwater discharge. However, the additional discharge from the extended area of the cuttings would mean that the total discharge exceeds the natural groundwater discharge area.	The zone of influence of the retaining wall includes parts of Rostherne Mere. Groundwater in this sub-catchment area could be intercepted within the zone of influence and, hence, would discharge to the drainage in the cuttings. Impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on water levels are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment. The timing of the recharge may be different to the timing of natural groundwater discharge. However, the additional discharge from the extended area of the cuttings would mean that the total discharge exceeds the natural groundwater discharge area.	None present within or in close proximity down-hydraulic gradient of ROI.	The zone of influence of the Rostherne cutting includes parts of Rostherne Mere. Groundwater in this sub-catchment area could be intercepted within the zone of influence and, hence, would discharge to the drainage in the cuttings. Impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on water levels are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment.	The zone of influence of the Rostherne cutting includes parts of Rostherne Mere. Groundwater in this sub-catchment area could be intercepted within the zone of influence and, hence, would discharge to the drainage in the cuttings. Impact on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Although the potential impacts on groundwater flow are small, mitigation will include drainage being pumped to recharge trenches above Rostherne Mere from an area of the cuttings extending a considerable distance outside the Rostherne Mere catchment.
Quantitative Dependent Surface Water Body	Lowering of groundwater levels during construction could reduce groundwater contributions to Tributary of River Bollin 11.	Groundwater flow into Tributary of River Bollin 11 may be a reduced due to interception of baseflow by the cutting however this would be mitigated by the drainage system of the Proposed Scheme. Tributary of River Bollin 11 is supported by a low value land drainage outfall and is located within the ROI. Tributary of River Bollin 10 is located approximately 50m outside of the ROI. As water intercepted by the Proposed Scheme will be diverted to Blackburn's Brook, the upper reaches of these two watercourses may receive reduced baseflow which is considered to be a minor impact on flow.	Birkin Brook may receive reduced groundwater discharge due to the lowering of groundwater levels during dewatering for construction of the Rostherne cutting which would otherwise make a minor contribution to the baseflow to Birkin Brook. Groundwater intercepted by the cutting will be diverted to Rostherne Mere and/or Blackburn's Brook via the drainage system of the Proposed Scheme and therefore, no measurable change on the baseflow of Birkin Brook and Blackburn's Brook is expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Birkin Brook may receive reduced groundwater discharge due to the lowering of groundwater levels during dewatering for construction of the Rostherne cutting which would otherwise make a minor contribution to the baseflow to Birkin Brook. Groundwater intercepted by the cutting will be diverted to Rostherne Mere and/or Blackburn's Brook via the drainage system of the Proposed Scheme and therefore, no measurable change on the baseflow of Birkin Brook and Blackburn's Brook is expected.	Birkin Brook may receive reduced groundwater discharge due to the lowering of groundwater levels during dewatering for construction of the Rostherne cutting which would otherwise make a minor contribution to the baseflow to Birkin Brook. Groundwater intercepted by the cutting will be diverted to Rostherne Mere and/or Blackburn's Brook via the drainage system of the Proposed Scheme and therefore, no measurable change on the baseflow of Birkin Brook and Blackburn's Brook is expected.
	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical Saline Intrusions	No measurable change to saline intrusions due to scale of works relative to water body scale.	No measurable change to saline intrusions due to scale of works relative to water body scale.	No measurable change to saline intrusions due to scale of works relative to water body scale.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
Chemical Drinking Water Protected Areas (DrWPAs)	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	The zone of influence of the cutting includes parts of Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	The zone of influence of the cutting includes parts of Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	The zone of influence of the cutting includes parts of Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	The zone of influence of the cutting includes parts of Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	The zone of influence of the cutting includes parts of Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	The zone of influence of the cutting includes parts of Rostherne Mere. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.
Chemical Dependent Surface Water Body	The temporary construction works have the potential to affect groundwater quality to Birkin Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Birkin Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Birkin Brook. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary construction works have the potential to affect groundwater quality to Birkin Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Birkin Brook. This will be mitigated through the implementation of the draft CoCP.
General Chemical Test	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	The cutting will remove some superficial deposits along the line of the cutting, creating a shorter pathway for surface water to discharge into the bedrock. This could cause a change in groundwater chemistry. However, considering the scale of works relative to water body scale and embedded mitigation, no measurable changes are expected.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	The cutting will remove some superficial deposits along the line of the cutting, creating a shorter pathway for surface water to discharge into the bedrock. This could cause a change in groundwater chemistry. However, considering the scale of works relative to water body scale and embedded mitigation, no measurable changes are expected.

WFD Quality Element	Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	
Scheme component (ID):	GB41202G991700-RT-137		GB41202G991700-VF-139	GB41202G991700-VF-140	GB41202G991700-RT-143	
Scheme component type:	Retaining Wall		Viaduct Foundations	Viaduct Foundations	Retaining Wall	
Scheme component name:	Rostherne East box structure		Blackburn's Brook North viaduct	Blackburn's Brook South viaduct provision	Ashley embankment retaining wall	
Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions
Quantitative Saline Intrusions	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change due to scale of works relative to water body and embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body and embedded mitigation.
Quantitative Water Balance	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change due to scale of works relative to water body, shallow depth of works and embedded mitigation.	No measurable change due to scale of works relative to water body and embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body and embedded mitigation.
Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Minor localised impact as there potential for piling from Rostherne East box structure and Blackburn's Brook North viaduct to affect the flow path of groundwater to Hancock's Bank South and North due to changes to conditions in superficial deposits and the upper section of the bedrock.	Minor localised impact on Hancock's Bank South as there is potential for piling from Blackburn's Brook North viaduct to affect the supply and flow path of groundwater to Hancock's Bank South.	Minor localised impact on Hancock's Bank South as there is potential for piling from Blackburn's Brook South viaduct to affect the supply and flow path of groundwater to Hancock's Bank South.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
Quantitative Dependent Surface Water Body	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Birkin Brook and Blackburn's Brook may receive reduced baseflow due to the interception of groundwater by the Rostherne East box structure that would otherwise make a minor contribution to the baseflow of these watercourses. Groundwater intercepted by the box structure will be diverted into Blackburn's Brook by the drainage system of the Proposed Scheme, thereby mitigating the impact of groundwater interception. Blackburn's Brook is an upstream tributary of Birkin Brook and therefore there will be no measurable change to the baseflow of Birkin Brook and Blackburn's Brook.	There is the potential for minor adverse impacts on baseflow to Blackburn's Brook and Birkin Brook. These watercourses are crossed by the Proposed Scheme and any below ground structures have the potential to obstruct groundwater flow towards the watercourses. However, groundwater will be intercepted by the drainage system for the Proposed Scheme. No measurable changes expected as the groundwater to Blackburn's Brook will be discharged upstream of the Proposed Scheme.	There is the potential for minor adverse impacts on baseflow to Blackburn's Brook and Birkin Brook. These watercourses are crossed by the Proposed Scheme and any below ground structures have the potential to obstruct groundwater flow towards the watercourses. However, groundwater will be intercepted by the drainage system for the Proposed Scheme. No measurable changes expected as the groundwater to Blackburn's Brook will be discharged upstream of the Proposed Scheme.	There is potential for minpr localised impacts on groundwater levels in proximity to Tributary of Birkin Brook 4 during dewatering for the construction of the retaining wall. Groundwater contribution reduced by the retaining wall would discharge into the downstream tributary, Tributary of Birkin Brook 1, via the drainage system and watercourse diversions of the Proposed Scheme. As a result, the watercourses, particularly Tributary of Birkin Brook 4, may experience reduced baseflow.	There is potential for minpr localised impacts on groundwater levels in proximity to Tributary of Birkin Brook 4 during dewatering for the construction of the retaining wall. Groundwater contribution reduced by the retaining wall would discharge into the downstream tributary, Tributary of Birkin Brook 1, via the drainage system and watercourse diversions of the Proposed Scheme. As a result, the watercourses, particularly Tributary of Birkin Brook 4, may experience reduced baseflow.
	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical Saline Intrusions	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	It has been assumed that groundwater levels within the glacial till and bedrock are at ground level and that groundwater flow within the glacial till may be affected by the cutting. Application of the draft CoCP and best practice construction methods will ensure new pathways are not created.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
Chemical Drinking Water Protected Areas (DrWPAs)	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	The box structure has potential to impact on groundwater flow pathways to Hancock's Bank South. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	There is the potential to alter groundwater and surface water quality during construction near to Hancock's Bank South. This will be mitigated through the implementation of the draft CoCP.	There is the potential to alter groundwater and surface water quality during construction near to Hancock's Bank South. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
Chemical Dependent Surface Water Body	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	The temporary construction works have the potential to affect groundwater quality to Birkin Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Blackburn's Brook and Birkin Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Blackburn's Brook and Birkin Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of Birkin Brook 4. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of Birkin Brook 4. This will be mitigated through the implementation of the draft CoCP.
General Chemical Test	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.

Table A22: Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) detailed impact assessment - effects on current status

Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) (Secondary aquifer (undifferentiated))					Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment
EA Management Catchment:	North West GW	Scheme component (ID):			GB41202G991700-ST-145		GB41202G991700-ST-146		GB41202G991700-VF-147	GB41202G991700-OF-148	GB41202G991700-OF-150	GB41202G991700-C-151
Overall Status (2015):	Poor	Scheme component type:			Station/Depot		Station/Depot		Viaduct Foundations	Overbridge Foundation	Overbridge Foundation	Cutting
		Scheme component name:			Ashley Infrastructure Maintenance Base - Rail (IMB-R)		Ashley railhead		Mid-Cheshire (railway) viaduct and Mobberley Road viaduct	Mobberley Road offline overbridge	Back Lane accommodation overbridge	Thorns Green cutting
Overall Status Objective:	Good by 2027	Impact type from scheme component:			Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control
WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status								
Quantitative	Quantitative Saline Intrusions	Good	Good by 2015	Good	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body and embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to shallow nature of works relative to water body and embedded mitigation.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.
	Quantitative Water Balance	Good	Good by 2015	Good	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body and embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to shallow nature of works relative to water body and embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Minor localised impacts on water balance likely.
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	Good	Good by 2027	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Piling may obstruct the flow of groundwater in the superficial deposits and an upper section of the bedrock in the immediate vicinity of the foundations for the overbridge. Any impacts are likely to be localised. Taking into account the extent and depth of the superficial and bedrock aquifers, no measurable changes expected on Ecclesfield Wood SBI and LWS.	Minor localised impact on Mill Wood, Castle Mill and Brickhill Wood which are partially located within ROI and might receive reduced groundwater contribution and lowering of groundwater level. Ecclesfield Wood and Jackson's Bank East are outside of the zone of influence of Thorns Green cutting, so are unlikely to receive lowered groundwater level during dewatering for construction of the cutting but the upstream catchments of the habitats may be within the ROI.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	No measurable changes as embedded mitigation and proposed works are largely above ground.	Ashley IMB-R may intercept groundwater in superficial deposits that would otherwise provide baseflow to Tributary of Birkin Brook 4. No measurable changes expected as embedded mitigation (diverted flow incorporated into watercourse diversions and drainage network) and the proposed works are largely above ground. 200m stretch of Tributary of Birkin Brook 4 will be lost due to watercourse diversions for the railhead but water intercepted will be discharged to downstream watercourses.	No measurable changes as embedded mitigation and proposed works are largely above ground.	Ashley IMB-R may intercept groundwater in superficial deposits that would otherwise provide baseflow to Tributary of Birkin Brook 4. No measurable changes expected as embedded mitigation (diverted flow incorporated into watercourse diversions and drainage network) and the proposed works are largely above ground. 200m stretch of Tributary of Birkin Brook 4 will be lost due to watercourse diversions for the railhead but water intercepted will be discharged to downstream watercourses.	There is potential for minor localised impacts on baseflow to Tributary of Birkin Brook 2 and 3. Any below ground structures have the potential to obstruct groundwater flow towards the watercourses. However, any groundwater intercepted by the viaduct would discharge into the downstream tributary, Tributary of Birkin Brook 1, via the drainage system and watercourse diversions of the Proposed Scheme. As a result, the watercourses, particularly Tributary of Birkin Brook 3, may experience reduced baseflow.	Tributaries of Birkin Brook 1 and 2 are in close proximity to the overbridge which has the potential to obstruct groundwater flow towards the watercourses. Any impacts are likely to be localised but no measurable changes expected as temporary and permanent effects on groundwater flow into the watercourses due to embedded mitigation (bentonite and temporary casing).	Tributary of Birkin Brook 2 is in close proximity to the overbridge which has the potential to obstruct groundwater flow towards the watercourse. Any impacts are likely to be localised. No measurable changes expected as temporary and permanent effects on groundwater flow into the watercourses due to embedded mitigation (bentonite and temporary casing).	The cutting may lower groundwater levels in proximity to the River Bollin thus reducing baseflow to the river. The drainage system of the Proposed Scheme will divert any groundwater intercepted by Thorns Green cutting to the River Bollin meaning there is no impact on flow in the river. Seasonal springs 130m south-east and 115m south-east of Pigleystair Bridge, River Bollin and Pigleystair Bridge, River Bollin are unlikely to be significantly impacted by a temporary reduction in groundwater level during dewatering for construction. Also flow from Spring at Pigleystair Bridge, River Bollin will be collected by the drainage system and discharged back into the surface watercourse downstream.
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**
Chemical	Chemical Saline Intrusions	Good	Good by 2015	Good	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measureable changes due to scale of works and embedded mitigation
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Poor	Good by 2027	Poor	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	There is the potential to alter groundwater and surface water quality during construction near to Ecclesfield Wood. This will be mitigated through the implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality at Mill Wood, Castle Mill and Brickhill Wood during the construction phase. This will be managed through implementation of the draft CoCP.
	Chemical Dependent Surface Water Body	Poor	Good by 2027	Poor	There is potential to impact groundwater quality to Tributary of Birkin Brook 4 which is located partly within the land required for construction. This will be mitigated through the implementation of the draft CoCP.	There is potential to impact groundwater quality to Tributary of Birkin Brook 4 which is located partly within the land required for construction. This will be mitigated through the implementation of the draft CoCP.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Tributary of Birkin Brook 1, 2 & 3 are located within or close to the land required for construction, and major realignment and culverting works are proposed on the tributaries of Birkin Brook. Localised impact on groundwater quality may be expected.	The temporary construction works have the potential to affect groundwater quality to Tributary of Birkin Brook 2 and 3. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of Birkin Brook 1 and 2. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of Birkin Brook 2 and River Bollin. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of Birkin Brook 2 and River Bollin. This will be mitigated through the implementation of the draft CoCP.
	General Chemical Test	Poor	Good by 2027	Poor	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable change on waterbody status due to embedded mitigation.	No measurable change on waterbody status due to embedded mitigation.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.

WFD Status Element	WFD Quality Element	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment
	Scheme component (ID):	GB41202G991700-OF-151A	GB41202G991700-OF-152	GB41202G991700-VF-154	GB41202G991700-C-156	GB41202G991700-OF-157	GB41202G991700-RT-157A		GB41202G991700-OF-157B
	Scheme component type:	Overbridge Foundations	Overbridge Foundations	Viaduct Foundations	Cutting	Overbridge Foundations	Retaining Wall		Overbridge Foundations
	Scheme component name:	Thorns Green Accommodation Offline Overbridge	Castle Mill Lane overbridge	River Bollin East viaduct	Ringway cutting	Sunbank Lane overbridge	M56 J6 Southbound Merge Offline Retaining Wall		M56 Jct 6 Gyratory Offline Overbridge West
	Impact type from scheme component:	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions
Quantitative	Quantitative Saline Intrusions	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.
	Quantitative Water Balance	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	There is potential for piling from River Bollin East viaduct to affect groundwater flow paths to Sunbank Wood and Ponds and Mill Wood, Castle Mill habitats, but no measurable change expected as the habitats are located slightly upgradient of the Proposed Scheme. A minor localised impact on a small area of the habitat which is located within the ROI so may receive reduced baseflow.	Wood Near Chapel Lane is located within the radius of influence and may receive reduced groundwater flow due to interception by the cutting. However, groundwater flow can be assumed to follow topography which is likely parallel to the route and thus will have a minor impact. Sunbank Wood and Ponds is outside of the radius of influence but may receive reduced groundwater flow in the catchment upgradient of the habitat. Considering the effects of the cuttings cover a small areal extent of the habitat, no measurable change expected on this habitat.	Piling may obstruct the flow of groundwater in the superficial deposits and an upper section of the bedrock in the immediate vicinity of the foundations for the overbridge. Any impacts are likely to be localised. Taking into account the extent and depth of the superficial and bedrock aquifers, no measurable change expected impact on Sunbank Wood and Ponds.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	None present within or in close proximity down-hydraulic gradient of ROI.	Piling may obstruct the flow of groundwater in the superficial deposits and an upper section of the bedrock in the immediate vicinity of the foundations for the overbridge. Any impacts are likely to be localised.
	Quantitative Dependent Surface Water Body	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Below ground structures have the potential to obstruct groundwater flow towards the River Bollin in the vicinity of the viaduct. However, any groundwater intercepted by the viaduct would still discharge into the River Bollin via the drainage system of the Proposed Scheme downstream of the route so no measurable change on the River Bollin expected.	Ringway cutting could potentially intercept groundwater that would otherwise make a minor contribution to the baseflow of the River Bollin and its tributaries. Groundwater intercepted by the Ringway cutting would, however, be discharged to the River Bollin. As a result, no measurable change on groundwater flow to the River Bollin expected.	Tributary of River Bollin 3 is in close proximity to the overbridge which has the potential to obstruct groundwater flow towards the watercourse. Any impacts are likely to be localised. No measurable change to groundwater flow expected due to embedded mitigation (bentonite and temporary casing).	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Tributary of River Bollin 3 is in close proximity to the overbridge which has the potential to obstruct groundwater flow towards the watercourse. Any impacts are likely to be localised. No measurable change to groundwater flow expected due to embedded mitigation (bentonite and temporary casing).
		Creating or altering of pathways along which existing poor quality groundwater can migrate	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**
Chemical	Chemical Saline Intrusions	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
	Chemical Drinking Water Protected Areas (DrWPAs)	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The viaduct piles have potential to impact on groundwater flow pathways to Sunbank Wood and Ponds and Mill Wood, Castle Mill. There is the potential to alter groundwater and surface water quality during construction near to this site. This will be mitigated through the implementation of the draft CoCP.	There is potential for impacts on groundwater quality to Wood Near Chapel Lane and Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Wood near Chapel Lane SBI during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Wood near Chapel Lane SBI during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.
	Chemical Dependent Surface Water Body	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary construction works have the potential to affect groundwater quality to the River Bollin. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to the River Bollin and its tributaries. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of River Bollin 3. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary construction works have the potential to affect groundwater quality to Tributary of River Bollin 3. This will be mitigated through the implementation of the draft CoCP.
	General Chemical Test	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.

WFD Status Element	WFD Quality Element	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	
	Scheme component (ID):	GB41202G991700-RT-157C		GB41202G991700-CR-158		GB41202G991700-CCRT-159		GB41202G991700-RT-159A	
	Scheme component type:	Retaining Wall		Cutting with retaining structure		Cut and Cover Tunnel with Retaining Structure		Retaining Wall	
	Scheme component name:	M56 J6 Wilmslow Road Link Road Offline Retaining Wall		M56 cutting retaining wall		M56 East tunnel		M56 Jct 6 Northbound Merge Offline Retaining Wall	
	Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions
Quantitative	Quantitative Saline Intrusions	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.
	Quantitative Water Balance	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Sunbank Wood and Ponds are located downstream and downgradient of this feature and therefore may receive reduced groundwater flow due to interception by below ground structures. This structure covers a small areal extent of the habitat, and flow to the surface watercourse is being augmented by drainage water directed from elsewhere in the scheme downstream of this structure, so the impact on the habitat is minor.	Sunbank Wood and Ponds located within the ROI so may receive lowered groundwater level in the potential dewatering radius of influence. However, the retaining wall should minimise the dewatering needed.	Sunbank Wood and Ponds located downgradient of the cutting retaining wall so may receive reduced groundwater flow in the catchment due to inteception by below ground structures. Considering the effects of the cuttings cover a small areal extent of the habitat, the impact on this habitat is minor.	Sunbank Wood and Ponds located within the ROI so may receive lowered groundwater level in the potential dewatering radius of influence. Reatining structures will reduce the need for dewatering.	Sunbank Wood and Ponds located downgradient of the cutting retaining wall so may receive reduced groundwater flow in the catchment due to inteception by below ground structures. Considering the effects of the cuttings cover a small areal extent of the habitat, the impact on this habitat is minor.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Quantitative Dependent Surface Water Body	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Tributary of River Bollin 2 and 3 are located within the potential dewatering radius of influence which may lower groundwater levels and reduce contribution to these watercourses. Spring at Keepers Cottage, Sunbank Lane (south) and potential spring at Keepers Cottage, Sunbank Lane (north) are located within the ROI. The retaining wall along the cutting will reduce ROI but groundwater level supporting the springs may be reduced by dewatering leading to a localised reduction in flow.	Tributary of River Bollin 2 and 3 are located within the ROI of the M56 East tunnel which may intercept groundwater flow to these watercourses. Minor impact as no mitigation is designed in the drainage network of the Proposed Scheme. Spring at Keepers Cottage, Sunbank Lane (south) and potential spring at Keepers Cottage, Sunbank Lane (north) are located within the ROI. Some groundwater flow feeding the springs may be intercepted by the M56 East tunnel leading to a localised reduction in flow.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
		Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**
Chemical	Chemical Saline Intrusions	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
	Chemical Drinking Water Protected Areas (DrWPAs)	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Chemical Dependent Surface Water Body	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary construction works have the potential to affect groundwater quality to Tributary of River Bollin 2 and 3. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of River Bollin 2 and 3. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	General Chemical Test	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.

WFD Status Element	WFD Quality Element	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	
	Scheme component (ID):	GB41202G991700-RT-159B		GB41202G991700-BF-160		GB41202G991700-RT-160A		GB41202G991700-RT-160B	
	Scheme component type:	Retaining Wall		Bridge Foundations		Retaining Wall		Retaining Wall	
	Scheme component name:	M56 J6 Southbound Diverge Offline Retaining Wall		A538 Wilmslow Road offline overbridge		M56 Jct 6 Hale Road Link Overbridge Retaining Wall		M56 J6 THG Attenuation Tank Retaining Wall	
	Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions
Quantitative	Quantitative Saline Intrusions	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.
	Quantitative Water Balance	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Potential to reduce groundwater flow to Spring at Keepers Cottage, Sunbank Lane (south) due to interception by below ground structures. This spring is being artificially channelled to the receiving watercourse due to the road being built on its natural surface expression.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Potential to reduce groundwater flow to Potential Spring 120m east of Keepers Cottage, Sunbank Lane, which is 2.5m away. Retained cut is parallel to hydraulic gradient which limits the impact the structure will have on the spring. Minor impact due to interception of groundwater by below ground structures.
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Sunbank Wood and Ponds located downgradient of the cutting retaining wall so may receive reduced groundwater flow in the catchment due to interception by below ground structures. Considering the effects of the cuttings cover a small areal extent of the habitat, the impact on this habitat is minor.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Quantitative Dependent Surface Water Body	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
		Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**
Chemical	Chemical Saline Intrusions	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
	Chemical Drinking Water Protected Areas (DrWPAs)	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	The Proposed Scheme has potential to impact groundwater quality to Sunbank Wood and Ponds during the construction phase. This will be managed through implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Chemical Dependent Surface Water Body	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	General Chemical Test	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.

Table A22: Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) detailed impact assessment - effects on current status

Weaver and Dane Quaternary Sand and Gravel Aquifers (GB1202G991700) (Secondary aquifer (undifferentiated))					Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment Outcome				
EA Management Catchment:	North West GW	Scheme component (ID):			GB41202G991700-RT-161		GB41202G991700-CR-162		GB41202G991700-C-163		GB41202G991700-CR-164		GB41202G991700-OF-165	GB41202G991700-OF-166	GB41202G991700-OF-167	GB41202G991700-ST-168		GB41202G991700-RT-169		GB41202G991700-OF-170	GB41202G991700-OF-171	GB41202G991700-TP-172		GB41202G991700-BT-173		GB41202G991700-RT-174		GB41202G991699-VT-175						
Overall Status (2015):	Poor	Scheme component type:			Retaining Wall		Cutting with retaining structure		Cutting		Cutting with retaining structure		Overbridge Foundations	Overbridge Foundations	Overbridge Foundations	Station/Depot		Retaining Wall		Overbridge Foundations	Overbridge Foundations	Tunnel Portal		Bored Tunnel		Retaining Wall		Vent Shaft						
		Scheme component name:			A538 Wilmslow Road offline retaining wall		Manchester Airport High Speed Station cutting retaining wall south		Manchester Airport High Speed Station cutting		Manchester Airport High Speed Station cutting retaining wall north		A538 Hale Road overbridge (south)	A538 Hale Road overbridge (north)	Hasty Lane NMU underpass extension	Manchester Airport High Speed Station		Davenportgreen Wood offline reinforced soil retaining wall		Raised Metrolink overbridge	Thorley Lane overbridge	Manchester Tunnel South porous portal		Manchester Tunnel		Altrincham Road vent shaft access road retaining wall		Altrincham Road vent shaft						
Overall Status Objective:	Good by 2027	Impact type from scheme component:																																
WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies	Overall effect on quality element at water body scale	Additional mitigation requirements	Residual effect on quality element at water body scale	WFD compliance outcome - potential for deterioration of current status of quality element at water body scale
Quantitative	Quantitative Saline Intrusions	Good	Good by 2015	Good	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	The groundwater impacts as a result of the station will be dominantly due to the earthworks of the cuttings and retaining walls which have been assessed separately. The remainder of the station will be built following these earthworks and therefore be "above ground". Whilst minor effects are anticipated (as a result of additional foundations etc) due to embedded mitigation strategies of the earthworks prior to the construction of the station, no measurable changes are expected.		No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No measurable change on saline intrusions due to scale of works relative to water body scale.	No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no lowering of groundwater levels anticipated.	The tunnel will consist of twin bore tunnels 12.8km in length, 7.55m internal diameter and maximum 45.0m bgl. The presence of the tunnel will have no measurable changes on saline intrusion as this issue is associated with long-term abstractions.	No measurable changes on saline intrusions due to scale of works relative to water body scale.	No measurable changes on saline intrusions due to scale of works relative to water body scale.	Unlikely to be affected at a water body scale compared to scale of works. There is no existing known saline water at depth.	Unlikely to be affected at a water body scale compared to scale of works. There is no existing known saline water at depth.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	TBC - Further investigations needed to understand the risks of drawing poor quality water into the aquifer due to construction over the Halite deposits.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Quantitative Water Balance	Good	Good by 2015	Good	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.			No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation and scale of works.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation and scale of works.	No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no lowering of groundwater levels anticipated.	The tunnel will consist of twin bore tunnels each with 7.55m internal diameter. The tunnel creates an extended cylinder of no flow although changes in groundwater level due to a partial barrier to flow created by the tunnel are expected to be highly localised. The presence of the tunnel will have no measurable changes on water balance.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation and scale of works.	Unlikely to be affected at a water body scale compared to scale of works.	Unlikely to be affected at a water body scale compared to scale of works.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	TBC - Further investigations needed to understand the groundwater levels and the likely complex heterogeneous nature of the aquifer.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Groundwater Dependent Terrestrial Ecosystems (GWDTE) Test	Good	Good by 2027	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Sunbank Wood and Ponds is within the zone of influence of M56 East tunnel and Manchester Airport High Speed Station cutting retaining wall south meaning there may be localised changes in groundwater level supporting this habitat due to dewatering. Some groundwater flow feeding the springs at Keepers Cottage, Sunbank Lane may drain to the cuttings, leading to a localised change in flow.	Sunbank Wood and Ponds is within the zone of influence of M56 East tunnel and Manchester Airport High Speed Station cutting retaining wall south meaning there may be localised changes in groundwater flow supporting this habitat due to interception by the cutting retaining structures. There is potential for the retaining structures to reduce groundwater flow in the catchment upgradient of the habitat.	Sunbank Wood and Ponds is within the zone of influence of M56 East tunnel and Manchester Airport High Speed Station cutting meaning there may be localised changes in groundwater level supporting this habitat due to dewatering. The groundwater level supporting the springs at Keepers Cottage, Sunbank Lane may lower, leading to a localised change in groundwater contribution to the springs.	Sunbank Wood and Ponds is within the zone of influence of M56 East tunnel and Manchester Airport High Speed Station cutting meaning there may be localised changes in groundwater flow supporting this habitat due to interception by the below ground works.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.			None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The tunnel is located in bedrock aquifers (predominantly Mercia Mudstone and Sherwood Sandstone) and therefore is unlikely to impact on groundwater levels in the superficial deposits.	The tunnel is located in bedrock aquifers (predominantly Mercia Mudstone and Sherwood Sandstone) and therefore is unlikely to impact on groundwater flow in the superficial deposits.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Blackcarr Wood and Baguley Bottoms habitat is partially located within the ROI of the vent shaft. Some temporary localised effects may be anticipated during construction but these are unlikely to impact waterbody status due to embedded mitigation (use of secant piled walls through the shallow aquifer). Wythenshawe Park and Gib Lane Wood and Round Wood habitats are also partially located within the ROI but no measurable changes due to embedded mitigation (use of secant piled walls through the shallow aquifer).	Unlikely to be affected at a water body scale compared to scale of works.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	TBC - Further investgations needed to understand the groundwater levels and the likely complex heterogeneous nature of the aquifer.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Potential spring at hotel on Hasty Lane is located within the ROI of the cutting . This feature will be lost during construction, together with any groundwater flow feeding the potential spring. The potential spring discharges into Tributary of Timperley Brook 1, which may receive localised reduced baseflow due to the loss of the spring (and interception of groundwater by the cutting retaining wall). However, drainage will be discharged to Tributary of Timperley Brook 1 downstream of the route of the Proposed Scheme.	Timperley Brook may receive reduced baseflow due to the interception of groundwater by the cutting retaining wall. However, groundwater intercepted would be diverted by the drainage network of the Proposed Scheme and discharged to Timperley Brook downstream of the route of the Proposed Scheme. Therefore, a short section of the brook, approximately 300m in length, may receive reduced baseflow. Track and highways drainage will be discharged into the brook helping to support flow, but the timing may change therefore localised impacts possible	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.			Timperley Brook may receive reduced baseflow due to the lowering of groundwater level during dewatering for the retaining wall.The Proposed Scheme crossing is proposed as an inverted siphon with an outfall at the retaining wall. This will lower the impact from lowering groundwater levels as the watercourse will be in pipe.	Timperley Brook may receive reduced baseflow due to the interception of groundwater by the retaining wall. The Proposed Scheme crossing is proposed as an inverted siphon with an outfall at the retaining wall. This will reduce the interception of groundwater flow as the watercourse will be in pipe.	Timperley Brook may receive reduced baseflow due to the interception of groundwater by the below ground structures of the overbridge. The Proposed Scheme crossing is proposed as an inverted siphon. This will reduce the impact of the interception of groundwater flow as the watercourse will be in pipe.	None present within or in close proximity down-hydraulic gradient of ROI.	Fairywell Brook is located within the ROI and may receive reduced groundwater contribution due to lower groundwater levels. Any groundwater intercepted by the portal will be discharged by the drainage network of the Proposed Scheme into Fairywell Brook downstream of the crossing with the Proposed Scheme. As such, a short stretch of the watercourse (20m) will receive reduced baseflow. However, considering the scale of this watercourse compared to the area of reduced flow, no measurable changes expected.	Fairywell Brook is located within the ROI and groundwater that would otherwise discharge into this watercourse may be intercepted by the portal. Any groundwater intercepted by the portal will be discharged by the drainage network of the Proposed Scheme into Fairywell Brook downstream of the crossing with the Proposed Scheme. As such, a short stretch of the watercourse (20m) will receive reduced baseflow. However, considering the scale of this watercourse compared to the area of reduced flow, no measurable changes expected.	The tunnel is located in bedrock aquifers (predominantly Mercia Mudstone and Sherwood Sandstone) and therefore is unlikely to impact on groundwater levels in the superficial deposits.	The tunnel is located in bedrock aquifers (predominantly Mercia Mudstone and Sherwood Sandstone) and therefore is unlikely to impact on groundwater flow in the superficial deposits.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Baguley Brook and Tributary of Baguley Brook are located close to Altrincham Road vent shaft and may receive reduced baseflow during construction, although the tributary appears to be in culvert in the immediate vicinity of the shaft. Some localised effects from dewatering during construction may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (use of secant piled walls through the shallow aquifer) and because the tributary is in culvert.	Unlikely to be affected at a water body scale compared to scale of works.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	TBC - Further investigations needed to understand the likely effects on GWDTEs.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate					
Chemical	Chemical Saline Intrusions	Good	Good by 2015	Good	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	The groundwater impacts as a result of the station will be dominantly due to the earthworks of the cuttings and retaining walls which have been assessed separately. The remainder of the station will be built following these earthworks and therefore be "above ground". Whilst minor effects are anticipated (as a result of additional foundations etc) due to embedded mitigation strategies of the earthworks prior to the construction of the station, no measurable changes are expected.		No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	TBM will provide tail grouting which minimises the risk of creating a pathway along the line of the tunnel.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects from dewatering may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (secant pile walls in superficial deposits) to limit the requirement for dewatering. Impacts will be localised and relatively short term. There is no existing known saline water at depth so low risk of significant changes in groundwater quality during dewatering.	Some localised effects from dewatering may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (using SCL techniques in a sequentially controlled process with ground treatment as considered necessary). Impacts will be localised and relatively short term. There is no existing known saline water at depth so low risk of significant changes in groundwater quality during dewatering.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	TBC - Further investigations needed to understand the risks of drawing poor quality water into the aquifer due to construction over the Halite deposits.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.			None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA06.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	Additional mitigation not required.	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	Compliant - no deterioration in quality element status anticipated
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Poor	Good by 2027	Poor	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Sunbank Wood and Ponds is located in close proximity west and down-hydraulic gradient of the proposed works. There is potential for localised impact at this GWDTE and the springs at Keepers Cottage, Sunbank Lane and further investigation is required to determine the impact.	Sunbank Wood and Ponds is located in close proximity west and down-hydraulic gradient of the proposed works. There is potential for localised impact at this GWDTE and the springs at Keepers Cottage, Sunbank Lane and further investigation is required to determine the impact.	Sunbank Wood and Ponds is located in close proximity west and down-hydraulic gradient of the proposed works. There is potential for localised impact at this GWDTE and the springs at Keepers Cottage, Sunbank Lane and further investigation is required to determine the impact.	Sunbank Wood and Ponds is located in close proximity west and down-hydraulic gradient of the proposed works. There is potential for localised impact at this GWDTE and the springs at Keepers Cottage, Sunbank Lane and further investigation is required to determine the impact.	None in community area MA06.	None in community area MA06.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.			None in community area MA06.	None in community area MA06.	None in community area MA06.	None present within or in close proximity down-hydraulic gradient of ROI. Ponds adjacent to the site but unlikely to be impacted due to nature of the works.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts to GWDTEs in ROI, no measurable changes are expected.	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts to GWDTEs in ROI, no measurable changes are expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	Some localised effects may be anticipated on Blackcarr Wood and Baguley Bottoms but these are unlikely to impact waterbody status due to embedded mitigation (use of secant piled walls through superficial deposits).	Some localised effects may be anticipated on Blackcarr Wood and Baguley Bottoms but these are unlikely to impact waterbody status due to embedded mitigation (use of secant piled walls through superficial deposits).	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	TBC - Further investigations needed to understand the groundwater levels and the likely complex heterogeneous nature of the aquifer.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Chemical Dependent Surface Water Body	Poor	Good by 2027	Poor	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary construction works have the potential to affect groundwater quality to Tributary of Timperley Brook 1, 2 and 3, and Timperley Brook. This will be mitigated through the implementation of the draft CoCP.	The temporary construction works have the potential to affect groundwater quality to Tributary of Timperley Brook 1, 2 and 3, and Timperley Brook. This will be mitigated through the implementation of the draft CoCP.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.			Timperley Brook is intersected by the proposed works. There is potential for it to be impacted but no measurable changes are expected due to embedded mitigation.	Timperley Brook is intersected by the proposed works. There is potential for it to be impacted but no measurable changes are expected due to embedded mitigation.	Timperley Brook is adjacent to the proposed works. There is potential for it to be impacted but no measurable changes are expected due to embedded mitigation.	None present within or in close proximity down-hydraulic gradient of ROI.	Fairywell Brook is located within the ROI but no measurable changes expected due to embedded mitigation.	Fairywell Brook is located within the ROI but no measurable changes expected due to embedded mitigation.	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts to surface waterbodies in ROI, no measurable changes are expected.	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts to surface waterbodies in ROI, no measurable changes are expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	The temporary construction works have the potential to affect groundwater quality to Baguley Brook and Tributary of Baguley Brook 1. This will be mitigated through the implementation of the draft CoCP, resulting in a negligible impact. The tributary is in culvert in the immediate vicinity of the vent shaft.	The temporary construction works have the potential to affect groundwater quality to Baguley Brook and Tributary of Baguley Brook 1. This will be mitigated through the implementation of the draft CoCP, resulting in a negligible impact. The tributary is in culvert in the immediate vicinity of the vent shaft.	None identified	Adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.	Further investigations needed to understand the groundwater levels and the likely complex heterogeneous nature of the aquifer.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	General Chemical Test	Poor	Good by 2027	Poor	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Construction of Manchester Airport High Speed Station cutting and retaining walls will remove a substantial part of the superficial deposits, creating a shorter pathway for surface water to discharge directly to the bedrock. This could cause a change in groundwater chemistry. Considering the extent of the works compared to the aquifer areal extent with the implementation of the draft CoCP.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Construction of Manchester Airport High Speed Station cutting and retaining walls will remove a substantial part of the superficial deposits, creating a shorter pathway for surface water to discharge directly to the bedrock. This could cause a change in groundwater chemistry. Considering the extent of the works compared to the aquifer areal extent with the implementation of the draft CoCP.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Construction of Manchester Airport High Speed Station cutting and retaining walls will remove a substantial part of the superficial deposits, creating a shorter pathway for surface water to discharge directly to the bedrock. This could cause a change in groundwater chemistry. Considering the extent of the works compared to the aquifer areal extent with the implementation of the draft CoCP.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required. Majority of works for overbridge to take place above ground level.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required. Majority of works for overbridge to take place above ground level.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required. Majority of works for overbridge to take place above ground level.			No measurable changes due to scale of works relative to water body size.	No measurable changes due to scale of works relative to water body size.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required. Majority of works for overbridge to take place above ground level.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required. Majority of works for overbridge to take place above ground level.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable changes due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	None identified	Adverse effect anticipated when scheme component effects considered in combination. There is a risk that there could be deterioration in the status of the quality element at a water body scale. Requires consideration of additional mitigation and residual effect.	Further investigations needed to understand the groundwater levels and the likely complex heterogeneous nature of the aquifer.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated

Table A23: Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers (GB41201G101700) detailed impact assessment - effects on current status

Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers (GB41201G101700) (Principal aquifer)					Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment Outcome				
EA Management Catchment:	North West GW		**Scheme component (ID):**		GB41201G101700-C-01		GB41201G101700-OF-02	GB41202G991700-HD-13a	GB41202G991700-HD-21a				
Overall Status (2015):	Poor		**Scheme component type:**		Cutting		Overbridge Foundations	Highways Drainage discharge	Highways Drainage discharge				
			Scheme component name:		Millington cutting		Millington Lane overbridge	3 highways drainage discharges into Cudheth Linear Drain 1	B5207 Wilton Lane highways drainage discharge to ground				
Overall Status Objective:	Good by 2027		**Impact type from scheme component:**		**Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control**	**"Damming" of groundwater flow and reduction in groundwater contributions**	**"Damming" of groundwater flow and reduction in groundwater contributions**			**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
WFD Status Element	**WFD Quality Element**	**2015 RBMP Cycle 2 Status**	**2015 RBMP Cycle 2 Status Objective**	**2019 Status**									
Quantitative	**Quantitative Saline Intrusions**	Poor	Good by 2027	Poor	No measurable change expected from saline intrusions due to scale of works relative to water body scale.		No measurable change expected from saline intrusions due to scale of works relative to water body scale.			None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
	Quantitative Water Balance	Good	Good by 2015	Good	Localised and temporary effect when balanced against embedded mitigation. Cutting is 11m deep and extends for 1462m and intersects Agden Brook. No information on groundwater levels in the sandstone in this area, so on a precautionary basis assumed to be at ground level. Dewatering likely to be required due to depth of groundwater and nature of works. Therefore lowering in groundwater levels anticipated which could impact water balance in this small area of Sandstone.		No measurable change due to scale of works and embedded mitigation.			None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	Millington cutting radius of influence includes part of Rostherne Mere and Yarwood Heath Covert. Groundwater in this area could be intercepted and lowered within the radius of influence. Impact anticipated on groundwater spring flows into Rostherne Mere Ramsar site/SSSI. Track drainage from the cutting will be pumped to recharge trenches above the mere to ensure no measurable change on water levels in Rostherne Mere. The timing of the recharge may be different to the timing of natural groundwater discharge. However, the additional discharge from the extended area of the cuttings would mean that the total discharge exceeds the natural groundwater discharge area.		None present within or in close proximity down-hydraulic gradient of ROI.			None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	Agden Brook is within the radius of influence of Millington cutting so groundwater level may be reduced in proximity to the watercourse. However, this watercourse is likely to be supported by the overlying superficial deposits rather than the Sandstone. Any water intercepted by the drainage system would be discharged into Agden Brook approximately 80m downstream of the Proposed Scheme so there would be a reduction in flow along this stretch of the Agden Brook reach, leading to a minor localised impact on groundwater flow to Agden Brook.		None present within or in close proximity down-hydraulic gradient of ROI.			None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	N/A	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**				
Chemical	**Chemical Saline Intrusions**	Poor	Good by 2027	Poor	No measurable change expected from saline intrusions due to scale of works relative to water body scale.		No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.			None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
	Chemical Drinking Water Protected Areas (DrWPAs)	Poor	Good by 2027	Poor	None in community area MA06.		None in community area MA06.			None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	The radius of influence of Millington cutting includes Rostherne Mere and Yarwood Heath Covert. There is the potential to alter groundwater and surface water quality during temporary dewatering for construction near to these habitats. This will be mitigated through the implementation of the draft CoCP.		None present within or in close proximity down-hydraulic gradient of ROI.			None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
	Chemical Dependent Surface Water Body	Poor	Good by 2027	Poor	The temporary construction works have the potential to affect groundwater quality to Agden Brook. This will be mitigated through the implementation of the draft CoCP.		None present within or in close proximity down-hydraulic gradient of ROI.			None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
	General Chemical Test	Good	Good by 2015	Poor	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	The cutting will remove some superficial deposits along the line of the cutting, creating a shorter pathway for surface water to discharge into the bedrock. This could cause a change in groundwater chemistry. However, no measurable changes are expected considering the scale of works relative to water body scale and embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but likely to be restricted to the superficial deposits, pending further investigations.	Some localised effects may be anticipated but likely to be restricted to the superficial deposits, pending further investigations.	None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	N/A	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated

Table A24: Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) detailed impact assessment - effects on current status

Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) (Principal aquifer)					Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	
EA Management Catchment:	North West GW	Scheme component (ID):			GB1201G101100-BT-01		GB1201G101100-VT-02		GB1201G101100-VT-03		GB1201G101100-VT-04		GB1201G101100-TP-05		GB1201G101100-CR-06		GB1201G101100-RT-07	
Overall Status (2015):	POOR	Scheme component type:			Bored Tunnel		Vent Shaft		Vent Shaft		Vent Shaft		Tunnel Portal		Cutting with retaining structure		Retaining Wall	
		Scheme component name:			Manchester Tunnel		The Hollies vent shaft		Wilmslow Road vent shaft		Birchfields Road vent shaft		Manchester Tunnel North porous portal		Ardwick South cutting retaining wall		Ardwick box structure	
Overall Status Objective:	GOOD BY 2021	Impact type from scheme component:			Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions
WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status														
Quantitative	Quantitative Saline Intrusions	Poor	Good by 2021	Poor	No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no lowering of groundwater levels anticipated.	The tunnel will consist of twin bore tunnels 12.8km in length, 7.55m internal diameter and maximum 45.0m bgl. The presence of the tunnel will have no measurable change on saline intrusion as this issue is associated with long-term abstractions.	Minimal dewatering required due to use of full depth diaphragm walls at The Hollies vent shaft (internal dewatering only).	Unlikely to be affected at a water body scale compared to scale of works.	The construction methodology of the vent shaft assumes that external dewatering is not permitted. Diaphragm walls are not proposed as vent shaft is located in the Sherwood Sandstone. Temporary dewatering during construction could lead to upconing of deeper poor quality (connate) from underlying formation such as coal measures or drawdown of near surface (anthropogenically contaminated) water.	Unlikely to be affected at a water body scale compared to scale of works.	Shaft located in an isolated block with no flow boundaries on three sides. The construction methodology of the vent shaft assumes that external dewatering is not permitted (diaphragm walls are not proposed). Temporary lowering of groundwater levels could lead to drawing in of poor quality water from the adjacent Etruria Formation or coal measures aquifer blocks.	Unlikely to be affected at a water body scale compared to scale of works.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.
	Quantitative Water Balance	Good	Good by 2015	Good	No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no lowering of groundwater levels anticipated.	The tunnel creates an extended cylinder of no flow leading to changes in groundwater level due to a partial barrier to flow created by the tunnel. This leads to adverse localised effects for the Appleby Group, Warwickshire Group and the Cumbrian Coast Group.	Internal dewatering from the diaphragm walls will be small quantities and temporary in nature, therefore unlikely to be affected at a water body scale.	Unlikely to be affected at a water body scale compared to scale of works.	Construction methodology (such as grouting, dewatering with ejector wells) will minimise the dewatering requirements. Dewatering volume will small and temporary in nature, therefore unlikely to be affected at a water body scale.	Unlikely to be affected at a water body scale compared to scale of works.	Construction methodology (such as grouting, dewatering with ejector wells) will minimise the dewatering requirements. Dewatering volume will small and temporary in nature, therefore unlikely to be affected at a water body scale.	Unlikely to be affected at a water body scale compared to scale of works. Basement fan room could form a barrier to groundwater flow in the superficial glacial till which could lead to localised displacement of groundwater and increase the risk of groundwater flooding.	No measurable change on quantitative water balance due to scale of works relative to water body scale.	Superficial deposits are fully penetrated by the portal. The below ground stuctures may form a barrier to groundwater flow in the superficial aquifer but on the scale of the aquifer, no measurable change is expected.	No measurable change on quantitative water balance due to scale of works relative to water body scale.	Groundwater flow is not parallel to the cutting, hence the cutting is likely to partially form a barrier to groundwater flow, leading to a localised risk of groundwater flooding on the upgradient side (refer to the flood risk assessment, Volume 5, WR-005-0MA07).	No measurable change on quantitative water balance due to scale of works relative to water body scale.	Groundwater flow is not parallel to the cutting, hence the cutting is likely to partially form a barrier to groundwater flow, leading to a localised risk of groundwater flooding on the upgradient side (refer to the flood risk assessment, Volume 5, WR-005-0MA07).
	Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	The tunnel will consist of twin bore tunnels 12.8km in length, 7.55m internal diameter and maximum 45.0m bgl. No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no lowering of groundwater levels anticipated.	At shallow depth the tunnel may act as a localised groundwater dam, but no measurable change expected on flow to GWDTE.	Stenner Woods and Milgate Fields, Didsbury and Fletcher Moss and Wrengate Wood & Heycroft are located within the ROI. Due to embedded mitigation (full depth diaphragm walls) no measurable change to the habitat from the impact of dewatering is expected.	No measurable change expected on habitats from intercepting groundwater flow to Stenner Woods and Milgate Fields, Didsbury and Fletcher Moss and Wrengate Wood & Heycroft when considering scale of works compared to the water body scale.	None present within ROI of vent shaft dewatering.	None present within ROI of vent shaft dewatering.	None present within ROI of vent shaft dewatering.	None present within ROI of vent shaft dewatering.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	The tunnel will consist of twin bore tunnels 12.8km in length, 7.55m internal diameter and maximum 45.0m bgl. No dewatering along the tunnel itself as TBM in use - see embedded mitigation. Thus, no lowering of groundwater levels anticipated.	At shallow depth the tunnel may act as a localised groundwater dam, but no measurable change expected on flow to surface water bodies.	Internal dewatering from the shaft will be small quantities and temporary in nature, therefore although there may be some short term, localised effects on flow in the River Mersey and Tributary of River Mersey 2, no measurable change at the water body scale is expected.	River Mersey and Tributary of River Mersey 2 are unlikely to be affected at a water body scale when compared to the scale of works.	Internal dewatering from the shaft will be small quantities and temporary in nature, therefore although there may be some minor short term localised effects on flow in Cringle Brook, no measurable change at the water body scale is expected.	Unlikely to be affected at a water body scale compared to scale of works.	Fallowfield Brook, Cringle Brook, Tributary of Cringle Brook 1, Gore Brook and Tributary of Platt Brook 1 are fully or partially in culvert in the vicinity of the shaft and since internal dewatering from the shaft will be small quantities and temporary in nature, no measurable change is expected on the surface water bodies.	Unlikely to be affected at a water body scale compared to scale of works.	Corn Brook is located within the ROI and lowering of groundwater levels may reduce contribution to this watercourse. Corn Brook is culverted in the vicinity of the portal, and therefore, it is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow.	Corn Brook is located within the ROI and groundwater that would otherwise discharge into this watercourse may be intercepted by below ground structures. However, Corn Brook is culverted in the vicinity of the portal and therefore, it is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow.	Corn Brook is located within the ROI and may receive reduced groundwater levels. Corn Brook is culverted in the vicinity of the portal and is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow. River Medlock is outside of the ROI so is unlikely to receive lowered groundwater levels.	Corn Brook is located within the ROI and groundwater that would otherwise discharge into this watercourse may be intercepted by below ground structures. Corn Brook is culverted in the vicinity of the portal and is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow. River Medlock is outside of the ROI but downgradient of the cutting retaining wall which may intercept some groundwater flow to the watercourse. On the scale of the watercourse, no measurable change is expected.	Corn Brook is located within the ROI and may receive reduced groundwater levels. Corn Brook is culverted in the vicinity of the portal and is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow. River Medlock is outside of the ROI so is unlikely to receive lowered groundwater levels.	Corn Brook is located within the ROI and groundwater that would otherwise discharge into this watercourse may be intercepted by below ground structures. Corn Brook is culverted in the vicinity of the portal and is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow. River Medlock is outside of the ROI but downgradient of the cutting retaining wall which may intercept some groundwater flow to the watercourse. On the scale of the watercourse, no measurable change is expected.
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical	Chemical Saline Intrusions	Poor	Good by 2021	Poor	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	TBM will provide tail grouting which minimises the risk of creating a pathway along the line of the tunnel.	Minimal dewatering required due to use of full depth diaphragm walls at The Hollies vent shaft (internal dewatering only).	Due to construction methodology any pathways would be sealed once the concrete had set. Unlikely to impact waterbody status due to embedded mitigation.	Temporary lowering of groundwater levels could lead to upconing of deeper poor quality (connate) or drawdown of near surface (anthropogenically contaminated) water. However, considering that the construction methodology assumes that external dewatering is not permitted and the limited period of dewatering, the waterbody status is unlikely to be impacted. Diaphragm walls are not proposed as vent shaft is located in the Sherwood Sandstone.	Some minor localised short term effects may be anticipated but construction methodology (pathways would be progressively sealed in a staged and sequentially controlled process during construction, likely by SCL and injection grouting will be implemented if required) mean waterbody status is unlikely to be impacted.	Shaft located in an isolated block with no flow boundaries on three sides. Temporary lowering of groundwater levels could lead to drawing in of poor quality water from the adjacent Etruria Formation or coal measures aquifer blocks, leading to adverse effects on water quality. However, the construction methodology of the vent shaft assumes that external dewatering is not permitted and considering the limited period of dewatering, the waterbody status is unlikely to be impacted.	Some minor localised, temporary effects may be anticipated but construction methodology (pathways would be progressively sealed in a staged and sequentially controlled process during construction, likely by SCL and injection grouting will be implemented if required) mean waterbody status is unlikely to be impacted.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts, no measurable changes to GWDTEs in ROI are expected.	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts, no measurable changes to GWDTEs in ROI are expected.	Stenner Woods and Milgate Fields, Didsbury and Fletcher Moss and Wrengate Wood & Heycroft are located within land required for construction of the proposed works. There is potential for groundwater quality to these GWDTEs to be effected. This will be managed through implementation of the draft CoCP, so no measurable change is expected.	Stenner Woods and Milgate Fields, Didsbury and Fletcher Moss and Wrengate Wood & Heycroft are located within land required for construction of the proposed works. There is potential for groundwater quality to these GWDTEs to be effected. This will be managed through implementation of the draft CoCP, so no measurable change is expected.	None present within ROI of vent shaft dewatering.	None present within ROI of vent shaft dewatering.	None present within ROI of vent shaft dewatering.	None present within ROI of vent shaft dewatering.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Chemical Dependent Surface Water Body	Good	Good by 2015	Good	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts, no measurable changes to surface waterbodies in ROI are expected.	No dewatering along the tunnel itself and majority of works are below ground level. With embedded mitigation impacts to surface waterbodies in ROI are likely to be negligible.	The discharge location for dewatering during construction of the vent shaft has not yet been determined, but it is currently assumed to be Tributary of River Mersey 2. The dewatering discharge could lead to temporary and localised deterioration in water quality in the receiving watercourse.	Shaft will be constructed using full depth diaphragm walls which will minimise the risk of creating pathways.	Cringle Brook is in culvert in the vicinity of the shaft and therefore no impacts likely.	Shaft will be constructed using SCL which will seal pathways, minimising the risk of pathways.	Cringle Brook and Fallowfield Brook are both in culvert in the vicinity of the shaft and therefore no impacts likely.	Shaft will be constructed using SCL which will seal pathways, minimising the risk of pathways.	Corn Brook is located within the ROI and lowering of groundwater levels may reduce contribution to this watercourse. However, Corn Brook is culverted though the study area and therefore, it is unlikely to receive groundwater flow in this area. No measurable change on river flow from the portal is expected.	Corn Brook is located within the ROI and groundwater that would otherwise discharge into this watercourse may be intercepted. However, Corn Brook is culverted though the study area and therefore, it is unlikely to receive groundwater flow in this area. No measurable change on river flow from the portal is expected.	Corn Brook is culverted though the study area and therefore, it is unlikely to receive groundwater flow in this area. No measurable change on river flow from the portal is expected.	Corn Brook is in culvert through the study area so no measurable change on the watercourse is expected. River Medlock is within land required for construction of the proposed works. There is potential for these to be impacted however due to embedded mitigation, no measurable change is expected.	Corn Brook is culverted though the study area and therefore, it is unlikely to receive groundwater flow in this area. No measurable change on river flow from the portal is expected.	Corn Brook is in culvert through the study area so no measurable change on the watercourse is expected. River Medlock is within land required for construction of the proposed works. There is potential for these to be impacted however due to embedded mitigation, no measurable change is expected.
	General Chemical Test	Good	Good by 2015	Good	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some minor localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	Some minor localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	Some minor, localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	Some minor, localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	Some minor, localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	Some minor, localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (a contingency action plan will be agreed with the Environment Agency, prior to the start of construction, with agreed actions in place if changes in water quality are observed during groundwater monitoring programme).	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.

Table A24: Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) detailed impact assessment - effects on current status

Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) (Principal aquifer)					Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	
EA Management Catchment:	North West GW			Scheme component (ID):	GB1201G101100-CR-08		GB1201G101100-CR-08A		GB1201G101100-CR-10		GB1201G101100-RT-11	
Overall Status (2015):	POOR			Scheme component type:	Cutting with retaining structure		Retaining wall		Cutting with retaining structure		Retaining Wall	
				Scheme component name:	Ardwick North cutting retaining wall		Ardwick Access Road retaining wall		Ardwick North cutting retaining wall		Ardwick embankment retaining wall	
Overall Status Objective:	GOOD BY 2021			Impact type from scheme component:	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	"Damming" of groundwater flow and reduction in groundwater contributions
WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status								
Quantitative	Quantitative Saline Intrusions	Poor	Good by 2021	Poor	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.
	Quantitative Water Balance	Good	Good by 2015	Good	No measurable change on quantitative water balance due to scale of works relative to water body scale.	Groundwater flow is not parallel to the cutting, hence the cutting is likely to partially form a barrier to groundwater flow, leading to a localised risk of groundwater flooding on the upgradient side (refer to the flood risk assessment, Volume 5, WR-005-0MA07).	No measurable change on quantitative water balance due to scale of works relative to water body scale.	Groundwater flow is not parallel to the retaining wall, hence it is likely to partially form a barrier to groundwater flow, leading to a localised risk of groundwater flooding on the upgradient side.	No measurable change on quantitative water balance due to scale of works relative to water body scale.	Groundwater flow in the area is likely parallel to the cutting retaining wall hence us unlikely to form a barrier to groundwater flow in the area, although there may be minor local changes in groundwater level. However, taking into account the overall extent of the glacial till aquifer, no measurable change is expected.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.
	Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	Corn Brook is located within the ROI and may receive reduced groundwater levels. Corn Brook is culverted in the vicinity of the portal and is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow. River Medlock is outside of the ROI so is unlikely to receive lowered groundwater levels.	Corn Brook is located within the ROI and groundwater that would otherwise discharge into this watercourse may be intercepted by below ground structures. Corn Brook is culverted in the vicinity of the portal and is unlikely to receive groundwater flow in this area. No measurable change is expected from the portal on the river flow. River Medlock is outside of the ROI but downgradient of the cutting retaining wall which may intercept some groundwater flow to the watercourse. On the scale of the watercourse, no measurable change is expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	River Medlock is outside of the ROI so is unlikely to receive lowered groundwater levels. On the scale of the watercourse, no measurable change is expected.	River Medlock is outside of the ROI but downgradient of the cutting retaining wall which may intercept some groundwater flow to the watercourse. On the scale of the watercourse, no measurable change is expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical	Chemical Saline Intrusions	Poor	Good by 2021	Poor	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Chemical Dependent Surface Water Body	Good	Good by 2015	Good	Corn Brook is culverted though the study area and therefore, it is unlikely to receive groundwater flow in this area. No measurable change on river flow from the portal is expected.	Corn Brook is in culvert through the study area so no measurable change on the watercourse is expected. River Medlock is within land required for construction of the proposed works. There is potential for these to be impacted however due to embedded mitigation, no measurable change is expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	River Mersey is within land required for construction of the proposed works. There is potential for these to be impacted however due to embedded mitigation, no measurable change is expected.	River Mersey is within land required for construction of the proposed works. There is potential for these to be impacted however due to embedded mitigation, no measurable change is expected.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	General Chemical Test	Good	Good by 2015	Good	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.

Table A24: Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) detailed impact assessment - effects on current status

Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) (Principal aquifer)					Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment	Detailed Impact Assessment	Detailed Impact Assessment		Detailed Impact Assessment	
EA Management Catchment:	North West GW	Scheme component (ID):			GB1201G101100-VF-13	GB1201G101100-VF-14	GB1201G101100-ST-15		GB1201G101100-RT-16		GB1201G101100-RT-17		GB1201G101100-OF-18	GB1201G101100-OF-19	GB1201G101100-RT-20		GB1201G101100-RT-21	
Overall Status (2015):	POOR	Scheme component type:			Viaduct Foundations	Viaduct Foundations	Station/Depot		Retaining Wall		Retaining Wall		Overbridge Foundations	Overbridge Foundations	Retaining Wall		Retaining Wall	
		Scheme component name:			Piccadilly Approach viaduct	Piccadilly Station viaduct	Manchester Piccadilly High Speed Station		Ashton Line connection		A635 Mancunian Way southbound retaining wall		Piccadilly offline access ramp	36469 Fairfield Street offline overbridge	St Andrews Street retaining wall		Baird Street retaining wall	
Overall Status Objective:	GOOD BY 2021	Impact type from scheme component:																
WFD Status Element	WFD Quality Element	2015 RBMP Cycle 2 Status	2015 RBMP Cycle 2 Status Objective	2019 Status	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions	Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control	“Damming” of groundwater flow and reduction in groundwater contributions
Quantitative	Quantitative Saline Intrusions	Poor	Good by 2021	Poor	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale and depth of works relative to water body scale.	No measurable change expected from saline intrusions due to scale and depth of works relative to water body scale.	No measurable change expected from saline intrusions due to scale and depth of works relative to water body scale.	No measurable change expected from saline intrusions due to scale and depth of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.
	Quantitative Water Balance	Good	Good by 2015	Good	Piling may obstruct groundwater flow in the uppermost section of the aquifer which could impact on local groundwater levels. However, the viaduct is approximately parallel to the topographic gradient and groundwater flow is altered rather than impeded. No measurable change expected on groundwater levels from viaduct piled foundations in the superficial deposits.	Piling may obstruct groundwater flow in the uppermost section of the aquifer which could impact on local groundwater levels. However, the viaduct is approximately parallel to the topographic gradient and groundwater flow is altered rather than impeded. No measurable change expected on groundwater levels from viaduct piled foundations in the superficial deposits.	Temporary dewatering will be required during construction of the station basement which could impact on local groundwater levels. Some minor localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	A substantial length of the basement below the station could form a significant barrier to groundwater flow in the superficial deposits in the local area. Groundwater levels could rise on the upgradient side of the structures and may lead to groundwater flooding at the surface during high groundwater levels, or groundwater flooding of existing basements. Some minor localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (refer to the flood risk assessment, Volume 5, WR-005-0MA08).	Current construction methodology assumes internal dewatering only by pumping to a suitable temporary discharge point. As such, groundwater levels in the area of the Ashton Line connection will not be impacted and the internal watering is unlikely to impact waterbody status due to embedded mitigation.	The part cut-and-cover tunnel, part retained cutting structure could form a barrier to groundwater flow in the glacial till and the top of the bedrock aquifer in the local area. This has the potential for a minor temporary impact on the glacial till. Considering the extent of the bedrock aquifer, no measurable change from the interception of groundwater flow is expected.	No measurable change on quantitative water balance due to scale of works relative to water body scale.	The retaining wall below ground could form a barrier to groundwater movement in the local area. As a result, groundwater levels could rise on the upgradient side of the structures, potentially leading to groundwater flooding at the surface during high groundwater levels, or groundwater flooding of existing basements. These effects are anticipated to be localised and are unlikely to impact waterbody status.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some dewatering may be required during construction which could impact groundwater levels. No measurable change on quantitative water balance expected due to scale of works relative to water body scale.	The retaining wall will be constructed perpendicular to estimated groundwater flow so may act as a barrier to groundwater flow. Considering the scale of this feature compared to the areal extent of the aquifer and the construction methodology of the retaining wall (assumed contiguous piled wall at time of assessment), no measurable change on groundwater level and groundwater flooding is expected.	Some dewatering may be required during construction which could impact groundwater levels. No measurable change on quantitative water balance expected due to scale of works relative to water body scale.	The retaining wall will be constructed perpendicular to estimated groundwater flow so may act as a barrier to groundwater flow. Considering the scale of this feature compared to the areal extent of the aquifer and the construction methodology of the retaining wall (assumed contiguous piled wall at time of assessment), no measurable change on groundwater level and groundwater flooding is expected.
	Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	River Medlock passes under Piccadilly Approach viaduct so there is potential for adverse impacts on baseflow to the River Medlock. Small-scale, localised changes to baseflow are expected upgradient and downgradient of the viaduct piles, however, the overall contribution to the River Medlock baseflow is not expected to change.	River Medlock passes under Piccadilly Station viaduct so there is potential for adverse impacts on baseflow to the River Medlock. Small-scale, localised changes to baseflow are expected upgradient and downgradient of the viaduct piles, however, the overall contribution to the River Medlock baseflow is not expected to change.	River Medlock is within the ROI of dewatering so may temporarily receive reduced baseflow. Considering the scale of the River Medlock catchment and the embedded mitigation, no measurable change in baseflow is expected. Shooters Brook Downstream is partially located within the ROI for dewatering. The watercourse is culverted in the vicinity of the station so is unlikely to be affected by the temporary dewatering. No measurable change is expected.	River Medlock may receive reduced baseflow as the station could form a barrier to groundwater flow. Considering the scale of the River Medlock catchment and the embedded mitigation, no measurable change in baseflow is expected. Shooters Brook Downstream is partially located within Manchester Piccadilly station basement. The watercourse is culverted in the vicinity of the station so it is unlikely that the watercourse would be affected by the temporary dewatering. No measurable change is expected.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation (internal dewatering only).	River Medlock may receive reduced baseflow as the Ashton Line connection could form a barrier to groundwater flow. Considering the scale of the River Medlock catchment and the embedded mitigation, no measurable change is expected.	River Medlock is within the ROI of dewatering so may temporarily receive reduced baseflow. Considering the scale of the River Medlock catchment and the embedded mitigation, the temporary reduction in baseflow is unlikely to significantly affect the watercourse.	River Medlock is located downgradient of the retaining wall which is designed perpendicular to groundwater flow. It may form a barrier to groundwater flow and therefore reduce baseflow to the River Medlock. Considering the scale of the upstream River Medlock catchment and the embedded mitigation, the reduction in baseflow is unlikely to significantly affect the watercourse.	No measurable change on groundwater flow to the River Medlock expected due to scale and depth of works relative to water body scale.	No measurable change on groundwater flow to the River Medlock expected due to scale and depth of works relative to water body scale.	River Medlock is within the ROI of dewatering so may temporarily receive reduced baseflow. Considering the scale of the River Medlock catchment and the embedded mitigation, the temporary reduction in baseflow is unlikely to significantly affect the watercourse.	River Medlock is located downgradient of the retaining wall which is designed perpendicular to groundwater flow. It may form a barrier to groundwater flow and therefore reduce baseflow to the River Medlock. Considering the scale of the upstream River Medlock catchment and the embedded mitigation, the reduction in baseflow is unlikely to significantly affect the watercourse.	River Medlock is located within the ROI so groundwater levels may be lowered thereby reducing contribution to the watercourse. However, considering the scale of the upstream River Medlock catchment and the embedded mitigation, the reduction in baseflow is likely to be negligible.	River Medlock is located downgradient of the retaining wall. The retaining wall is may form barrier and reduce baseflow to the River Medway due to the interception of groundwater. Considering the scale of the upstream River Medlock catchment and the embedded mitigation, no measurable change is expected from the reduction in baseflow.
					Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate	Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	Creating or altering of pathways along which existing poor quality groundwater can migrate
Chemical	Chemical Saline Intrusions	Poor	Good by 2021	Poor	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA07/08.	None in community area MA08.	None in community area MA08.	None in community area MA08.	None in community area MA08.	None in community area MA08.	None in community area MA08.
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.
	Chemical Dependent Surface Water Body	Good	Good by 2015	Good	River Mersey is crossed by the proposed works so there is potential for these to be impacted. No measurable change due to scale of works relative to water body scale and embedded mitigation (use of bentonite to reduce fluid loss or temporary casing).	River Mersey is crossed by the proposed works so there is potential for these to be impacted. No measurable change due to scale of works relative to water body scale and embedded mitigation (use of bentonite to reduce fluid loss or temporary casing).	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change to River Medlock due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.
	General Chemical Test	Good	Good by 2015	Good	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	No measurable change due to embedded mitigation - i.e. no or minimal dewatering/permanent groundwater control required.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.

Table A24: Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) detailed impact assessment - effects on current status

Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) (Principal aquifer)					Detailed Impact Assessment		Detailed Impact Assessment		Detailed Impact Assessment Outcome				
EA Management Catchment:	North West GW	**Scheme component (ID):**			**GB1201G101100-RT-22**		**GB1201G101100-RT-23**						
Overall Status (2015):	POOR	**Scheme component type:**			**Retaining Wall**		**Retaining Wall**						
		Scheme component name:			**Sparkle Street retaining wall**		**Store Street retaining wall**						
Overall Status Objective:	GOOD BY 2021	**Impact type from scheme component:**			**Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control**	**"Damming" of groundwater flow and reduction in groundwater contributions**	**Lowering of groundwater levels and potential reduction in groundwater contributions to surface water bodies, GWDTE or groundwater abstractions by temporary dewatering/permanent groundwater control**	**"Damming" of groundwater flow and reduction in groundwater contributions**	**Cumulative effects - effects on quality element from scheme component(s) located in other WFD water bodies**	**Overall effect on quality element at water body scale**	**Additional mitigation requirements**	**Residual effect on quality element at water body scale**	**WFD compliance outcome - potential for deterioration of current status of quality element at water body scale**
WFD Status Element	**WFD Quality Element**	**2015 RBMP Cycle 2 Status**	**2015 RBMP Cycle 2 Status Objective**	**2019 Status**									
Quantitative	**Quantitative Saline Intrusions**	Poor	Good by 2021	Poor	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	No measurable change expected from saline intrusions due to scale of works relative to water body scale.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Further ground investigation needed to refine uncertainty regarding fracturing, faulting and impact on groundwater flows in the bedrock aquifers. Construction methodology has been refined to restrict the dewatering to internal methods (ejector wells, grouting and consideration of diaphragm walls etc). Which the application of these methods the risk of deterioration in the status of the quality element is minimised.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Quantitative Water Balance	Good	Good by 2015	Good	Some dewatering may be required during construction which could impact groundwater levels. No measurable change on quantitative water balance expected due to scale of works relative to water body scale.	The retaining wall will be constructed perpendicular to estimated groundwater flow so may act as a barrier to groundwater flow. Considering the scale of this feature compared to the areal extent of the aquifer and the construction methodology of the retaining wall (assumed contiguous piled wall at time of assessment), no measurable change on groundwater level and groundwater flooding is expected.	Some dewatering may be required during construction which could impact groundwater levels. No measurable change on quantitative water balance expected due to scale of works relative to water body scale.	The retaining wall will be constructed perpendicular to estimated groundwater flow so may act as a barrier to groundwater flow. Considering the scale of this feature compared to the areal extent of the aquifer and the construction methodology of the retaining wall (assumed contiguous piled wall at time of assessment), no measurable change on groundwater level and groundwater flooding is expected.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Additional ground investigation required to understand the potential groundwater levels and heterogeneous nature of the aquifer in this area.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	None	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
	Quantitative Dependent Surface Water Body	Good	Good by 2015	Good	River Medlock is located within the ROI so groundwater levels may lower thereby reducing contribution to the watercourse. Considering the scale of the River Medlock catchment and the embedded mitigation, no measurable change in baseflow is expected. Shooters Brook downstream is located adjacent to the retaining wall within the potential ROI for dewatering, assuming dewatering is required during construction. However, the watercourse is culverted throughout in the vicinity of the retaining wall. Unless there is substantial leakage through the culvert lining, the watercourse would not be affected by the temporary dewatering.	River Medlock and Shooters Brook downstream are located downgradient of the retaining wall. The retaining wall is may form barrier and reduce baseflow to the watercourses due to the interception of groundwater. Considering the scale of the upstream River Medlock catchment and the embedded mitigation, no measurable change in baseflow is expected.	River Medlock is located within the ROI so groundwater levels may lower thereby reducing contribution to the watercourse. Considering the scale of the River Medlock catchment and the embedded mitigation, no measurable change in baseflow is expected. Shooters Brook downstream is located adjacent to the retaining wall within the potential ROI for dewatering, assuming dewatering is required during construction. However, the watercourse is culverted throughout in the vicinity of the retaining wall. Unless there is substantial leakage through the culvert lining, the watercourse would not be affected by the temporary dewatering.	River Medlock and Shooters Brook downstream are located downgradient of the retaining wall. The retaining wall is may form barrier and reduce baseflow to the watercourses due to the interception of groundwater. Considering the scale of the upstream River Medlock catchment and the embedded mitigation, no measurable change in baseflow is expected.	None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	None	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
					Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control	**Creating or altering of pathways along which existing poor quality groundwater can migrate**	**Disturbing or mobilising existing poor quality groundwater by temporary dewatering or depressurisation and permanent groundwater control**	**Creating or altering of pathways along which existing poor quality groundwater can migrate**					
Chemical	**Chemical Saline Intrusions**	Poor	Good by 2021	Poor	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	No measurable change due to scale of works relative to water body scale.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Further ground investigation needed to refine uncertainty regarding fracturing, faulting and impact on groundwater flows in the bedrock aquifers. Construction methodology has been refined to restrict the dewatering to internal methods (ejector wells, grouting and consideration of diaphragm walls etc). Which the application of these methods the risk of deterioration in the status of the quality element is minimised.	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	Chemical Drinking Water Protected Areas (DrWPAs)	Good	Good by 2015	Good	None in community area MA08.	None in community area MA08.	None in community area MA08.	None in community area MA08.	None identified	N/A	None	N/A	Compliant - no deterioration in quality element status anticipated
	Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good	Good by 2015	Good	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None present within or in close proximity down-hydraulic gradient of ROI.	None identified	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated. Additional mitigation not required.	None	No measurable change anticipated when scheme component effects considered in combination. No measurable change in quality element anticipated.	Compliant - no deterioration in quality element status anticipated
	Chemical Dependent Surface Water Body	Good	Good by 2015	Good	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	No measurable change to River Medlock due to scale of works relative to water body scale.	None identified	Localised adverse effect when scheme component effects considered in combination.. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	Dewatering water will be settled and if necessary treated to ensure no deterioration in water quality	Localised effect anticipated when scheme component effects considered in combination. Following the application of appropriate mitigation no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated
	General Chemical Test	Good	Good by 2015	Good	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	Some localised effects may be anticipated but these are unlikely to impact waterbody status due to embedded mitigation.	None identified	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale. Additional mitigation not required.	TBC - Additional GI required to understand the potential groundwater levels and any potential poor quality water in this area. If GI shows that there is a risk of changes to groundwater chemistry then mitigation measures will be considered	Localised adverse effect anticipated when scheme component effects considered in combination. However no deterioration in status of quality element anticipated at water body scale.	Compliant - no deterioration in quality element status anticipated

Table A25: River Bollin (River Dean to Ashley Mill) (GB112069061381) detailed impact assessment - effects on future status objectives

Timperley Brook (GB112069061260)				Effects on attainment of status objectives (Test B)												Outcome				
	RNAGs / Measures scoped in as potentially at risk from Proposed Scheme			River Bollin			Tributary of River Bollin 2			Tributary of River Bollin 3				Tributary of River Bollin 5						
WFD status objective element	**RNAG / Measure ID**	**Relevant WFD Quality Element / RNAG(s)**	**Title / Details**	**River Bollin Offline Bridge Widening (GB112069061381-MW-01-UB-01)**	**Highway Drainage Outfalls M56 (GB112069061381-MW-01-HD-01)**	**River Bollin East Viaduct (GB112069061381-MW-01-VD-01)**	**Realignment (GB112069061381-T-02-RE-01)**	**Offline culvert (GB112069061381-T-02-CV-01)**	**M56 East Tunnel (GB112069061381-T-02-BT-01)**	**Realignment (GB112069061381-T-03-RE-02)**	**M56 Drain Offline Culvert (GB112069061381-T-03-CV-02)**	**M56 Offline Culvert (GB112069061381-T-03-CV-03)**	**M56 East Tunnel (GB112069061381-T-03-BT-01)**	**Realignment (GB112069061381-T-03-RE-04)**	**Offline Culvert (GB112069061381-T-05-CV-06)**	**Realignment (GB112069061381-T-05-RE-05)**	**Thorns Green Cutting (GB112069061381-T-05-CU-01)**	**Cumulative effects - effects on RNAG / Measure from scheme component(s) located in other WFD water bodies**	**Overall effect at water body scale**	**Additional mitigation requirements**	**Residual overall effect at water body scale following consideration of additional mitigation**	**WFD compliance outcome - potential to prevent future attainment of status objective of quality element.**
Reasons for not achieving good (RNAG)	572040	Invertebrates	Activity is Land drainage - structures and National SWMI Header is Physical modification	Scheme element does not directly affect this RNAG			Scheme element does not directly affect this RNAG	Risk to RNAG - Due to additional culverts - requires further assessment and potential mitigation			Risk to RNAG - Due to additional culverts - requires further assessment and potential mitigation	Risk to RNAG - Due to additional culverts - requires further assessment and potential mitigation			Risk to RNAG - Due to additional culverts - requires further assessment and potential mitigation			None	Risk to RNAG	Further assessment is to be completed before the risks and mitigation can be confirmed. RNAG noted to be suspected and subject to investigation & further discussion with Environment Agency required.	Widespread risk to RNAG anticipated until further assessment completed. Potential risk to RNAG at water body scale.	Non-Compliant - risk of preventing future attainment of quality element status objective.
RBMP Programme of measures (PoM)	No Programme of measures are considered to be at risk from the Proposed Scheme for this water body.																			Compliant - no prevention of future attainment of quality element status objective.

Table A26: Timperley Brook (GB112069061260) detailed impact assessment - effects on future status objectives

Timperley Brook (GB112069061260)				Effects on attainment of status objectives (Test B)				Outcome				
	RNAGs / Measures scoped in as potentially at risk from Proposed Scheme			Timperley Brook (Moderate)								
WFD status objective element	RNAG / Measure ID	Relevant WFD Quality Element / RNAG(s)	Title / Details	Timperley Brook Inverted Siphon (GB112069061260-MW-01-IS-01)	Timperley Brook Realignment (GB112069061260-MW-02-IS-01)	Manchester Airport High Speed Station Cutting Retaining Wall (GB112069061260-MW-01-RW-01)	Highway Drainage - M56 East and West Link Realignment/ Access to Manchester Aiport High Speed Station/ Runger Lane Realignment (GB112069061260-MW-01-HD-01)	Cumulative effects - effects on RNAG / Measure from scheme component(s) located in other WFD water bodies	Overall effect at water body scale	Additional mitigation requirements	Residual overall effect at water body scale following consideration of additional mitigation	WFD compliance outcome - potential to prevent future attainment of status objective of quality element.
Reasons for not achieving good (RNAG)	572020 / 572021	Mitigation Measures Assessment	Physical modification	Risk to RNAG - Additional physical modification pressure on the waterbody due to siphon although localised to short section of upper catchment which is partly already impacted by culvert.	Scheme element does not directly affect any RNAG	Scheme element does not directly affect this RNAG		None	Localised risk to RNAG	Proposed mitigation is a new open channel (linked with floodplain to create flood storage), which will reduce an existing culverted length downstream of Brooks Drive.	N/A	Compliant - no prevention of future attainment of quality element status objective.
RBMP Programme of measures (PoM)	19708	Various	Timperley Brook 46 - diffuse urban: Reduce diffuse pollution pathways (i.e. control entry to water environment); Deliver package of measures to address diffuse urban pollution. Work with Trafford Council and United Utilities to identify and remediate cross-connections in the above areas. Identify and rank all major road outfalls in the catchment and determine their impact and work with Trafford Council to address any issues.	Scheme element does not directly affect any POMs			Risk to POM - Additional contribution to urban diffuse pollution pressure due to road runoff (as calculated by HEWRAT) - requires mitigation over and above standard drainage design.	None	Risk to POM delivery	Additional mitigation identified through HEWRAT includes swale and holding tank, however further water quality baseline data and assessment is to be completed before the impacts and mitigation can be confirmed.	Widespread adverse effect anticipated until mitigation is confirmed. Potential deterioration in status of quality element at water body scale.	Non Compliant - risk of preventing future attainment of quality element status objective.
A/HMWB Mitigation Measures	TPB15	480146 - Mitigation Measures Assessment	TPB15: Open up Timperley Brook culvert parallel to Brooks Drive. Open up the 285-metre long Timperley Brook culvert parallel to Brooks Drive to restore natural riverine processes and improve the waterbody's ecological value. High ecological benefit. High cost. Medium complexity.	Scheme element does not directly affect delivery of any identified HMWB mitigation measures	Benefit to HMWB MM - watercourse realignment is in section of watercourse identified for delivery of theis measure	Scheme element does not directly affect delivery of any identified HMWB mitigation measures		None	Localised beneficial effect	N/A	N/A	Compliant - no prevention of future attainment of quality element status objective.

Table A27: Medlock (Lumb Brook to Irwell) (GB112069061152) detailed impact assessment - effects on future status objectives

Medlock (Lumb Brook to Irwell) (GB112069061152)				Effects on attainment of status objectives (Test B)			Outcome				
	RNAGs / Measures scoped in as potentially at risk from Proposed Scheme			River Medlock (High)							
WFD status objective element	RNAG/measure ID	Relevant WFD quality element/RNAG(s)	Title/details	Piccadilly approach viaduct (GB112069061152-MW-01-VD-01)	New Fairfield Street offline overbridge (GB112069061152-MW-01-OB-01)	Daylighting of existing culvert (GB112069061152-MW-01-DY-01)	Cumulative effects - effects on RNAG / Measure from scheme component(s) located in other WFD water bodies	Overall effect at water body scale	Additional mitigation requirements	Residual overall effect at water body scale following consideration of additional mitigation	WFD compliance outcome - potential to prevent future attainment of status objective of quality element.
Reasons for not achieving good (RNAG)	480131 / 480132	Mitigation Measures Assessment	Physical Modification			Removal of existing culvert helps reduce morphological pressure	N/A	Localised beneficial effect	N/A	N/A	Compliant - no prevention of future attainment of quality element status objective.
RBMP Programme of measures (PoM)	No POMS affected by scheme proposals						N/A				Compliant - no prevention of future attainment of quality element status objective.
A/HMWB Mitigation Measures	No specific measures	Mitigation Measures Assessment	No specific HMWB MMs identified at the location on the Medlock or related to culvert removal				N/A				Compliant - no prevention of future attainment of quality element status objective.

Table A28: Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) detailed impact assessment - effects on future status objectives

Manchester and Cheshire East Permo-Triassic Sandstone Aquifers (GB120G101100) (Principal aquifer)				Effects on attainment of status objectives (Test B)										Outcome				
WFD status objective element	RNAGs / Measures scoped in as potentially at risk from Proposed Scheme			Manchester Tunnel	Palatine Road Vent Shaft	Wilmslow Road Vent Shaft	Birchfields Road Vent Shaft	Manchester Tunnel North Portal	Ardwick South Cutting Retaining Wall	Ardwick Box Structure	Piccadilly Approach Viaduct	Manchester Piccadilly High Speed Station	Ardwick Embankment Retaining Wall	Cumulative effects - effects on RNAGs/Measure from scheme component(s) located in other WFD water bodies	Overall effect at water body scale	Additional mitigation requirements	Residual effect at water body scale following consideration of additional mitigation	WFD compliance outcome - potential to prevent future attainment of status objective of quality element
	RNAG/measure ID	Relevant WFD quality element/RNAG(s)	Title/details															
Reasons for Not Achieving Good (RNAG)	490676	Quantitative Saline Intrusion	Saline or other intrusion - Abstraction and flow	No effect when balanced against embedded mitigation.	With construction methodology (diaphragm walls to base) dewatering volumes will be minimal and the risk of upwelling of saline water or draw in poorer quality water from the Collyhurst Formation or Coal Measures is minimised.	With the construction methodology (the SCL will be installed to the Sherwood Sandstone Group shortly after construction and will seal off the groundwater from the ventilation shaft), limited period of dewatering and the shallow depth compared to the saline boundary, dewatering volumes will be minimal and the risk of upwelling saline water or drawing in poor quality water from the Collyhurst Formation or Coal Measures is minimised.	With the construction methodology (the SCL will be installed to the Collyhurst Sandstone Formation (Appleby Group) shortly after construction and will seal off the groundwater from the ventilation shaft), limited period of dewatering and the shallow depth compared to the saline boundary, dewatering volumes will be minimal and the risk of upwelling saline water or drawing in poor quality water from the Coal Measures is minimised.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	N/A	**Localised adverse effect anticipated.** No risk of prevention of future attainment of quality element status objective.	Further ground investigation needed to refine understanding of groundwater flow in the area considering uncertainties with fracturing and faulting. Construction methodology has been refined to restrict the dewatering to internal methods (ejector wells, grouting and consideration of diaphragm walls etc).	**Localised adverse effect anticipated.** No risk of prevention of future attainment of quality element status objective.	Compliant - no risk of prevention of future attainment of quality element status objective
Reasons for Not Achieving Good (RNAG)	509546	Quantitative Saline Intrusion	Saline or other intrusion - Chemicals	No effect when balanced against embedded mitigation.	With construction methodology (diaphragm walls to base) dewatering volumes will be minimal and the risk of upwelling of saline water or draw in poorer quality water from the Collyhurst Formation or Coal Measures is minimised.	With the construction methodology (the SCL will be installed to the Sherwood Sandstone Group shortly after construction and will seal off the groundwater from the ventilation shaft), limited period of dewatering and the shallow depth compared to the saline boundary, dewatering volumes will be minimal and the risk of upwelling saline water or drawing in poor quality water from the Collyhurst Formation or Coal Measures is minimised.	With the construction methodology (the SCL will be installed to the Collyhurst Sandstone Formation (Appleby Group) shortly after construction and will seal off the groundwater from the ventilation shaft), limited period of dewatering and the shallow depth compared to the saline boundary, dewatering volumes will be minimal and the risk of upwelling saline water or drawing in poor quality water from the Coal Measures is minimised.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	No effect when balanced against embedded mitigation.	N/A	**Localised adverse effect anticipated.** No risk of prevention of future attainment of quality element status objective.	Further ground investigation needed to refine understanding of groundwater flow in the area considering uncertainties with fracturing and faulting. Construction methodology has been refined to restrict the dewatering to internal methods (ejector wells, grouting and consideration of diaphragm walls etc).	**Localised adverse effect anticipated.** No risk of prevention of future attainment of quality element status objective.	Compliant - no risk of prevention of future attainment of quality element status objective
RBMP Programme of measures (PoM)	There are no Programme of measures for this water body.																	