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Northumbrian Water - Water Resources Management Plan 2024

Environmental Report - Appendix J

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Environmental Report - Appendix J

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J. High Level Screening Assessment

J.1 Background

J.1.1 As a precursor to the SEA, high-level environmental screening (HLS) assessments for the WRMP24 options were completed in January and February 2022. These were undertaken to highlight environmental risks and constraints at an early stage in the options development process, in accordance with UK Water Industry Research (UKWIR) guidance¹. The environmental screening findings were used to inform rejection of options to avoid potentially significant environmental effects, and to identify suitable mitigation measures to be incorporated into option development. The HLS results were also taken forward into the WRMP SEA and HRA assessments.

J.2 Assessment methodology

J.2.1 The HLS assessments were completed using an online GIS tool (AStRO) which automatically generates RAG outputs by cross analysing each option's footprint with relevant feature geospatial datasets sourced from data.gov.uk. Table J.1 contains an overview of the key environmental topics explored and the designations and receptors therein. The RAG ratings for potential option impact on each individual designation/receptor were determined using the criteria outlined in Table J.2.

Table J.1: Environmental Designations / Receptors used in the High-Level Environmental Screening

Key Topic	Designations/Receptors
Ecology	Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site, Site of Special Scientific Interest (SSSI) including geological SSSIs, Local Nature Reserves (LNR), National Nature Reserve (NNR), Marine Protected Areas (MPA) (including Marine Conservation Zones (MCZ)), Ancient Woodlands, Priority Habitats
Historic Environment	Listed Buildings, Conservation Areas, Scheduled Monuments, Registered Battlefields, Registered Parks and Gardens
Water	Source Protection Zones (SPZ), Flood Zones 2 and 3, Nitrate Vulnerable Zones (NVZ)
Landscape	Area of Outstanding Natural Beauty (AONB), Ancient Woodland
Geology and Soils	Agricultural land, Authorised Landfill Sites, Historic Landfill Sites
Air	Air quality management areas (AQMAs)

¹ UK Water Industry Research (UKWIR) (2021). Environmental Assessments for Water Resources Planning (21/WR/02/15) Available at: [Environmental Assessments for Water Resources Planning \(ukwir.org\)](https://www.ukwir.org)

Table J.2: RAG criteria and definitions for High-Level Screening Assessments

Topic	Dataset	Features	RAG criteria		
			Red	Amber	Green
Air Quality		Air quality management areas (AQMAs)	N/A	Within or within 500m of an AQMA (potential for significant effect).	Over 500m from an AQMA (low potential for significant effect).
Biodiversity, Flora and Fauna	Statutory designated sites	Special areas of conservation (SAC), Special protection area (SPA), RAMSAR	Less 400m from designated site and/or major adverse effects on linkages to designated sites, and/or their qualifying features.	Within 400m to 5000m of a designated site and/or moderate/minor adverse effects on linkages to designated sites, and/or their qualifying features.	Over 5000m from a designated site. No adverse effects on linkages to designated sites, and/or their qualifying features.
		Sites of special scientific interest (SSSI)	Direct effect/ encroachment upon SSSI and/or major adverse effects on linkages to designated sites, and/or their qualifying features.	Within 500m of a SSSI and/or moderate/minor adverse effects on linkages to designated sites, and/or their qualifying features.	Over 500m from a SSSI. No adverse effects on linkages to designated sites, and/or their qualifying features.
		National Nature Reserves	N/A	Encroachment upon NNR	Within 500m from a National Nature Reserve
		Local Nature Reserves	N/A	Encroachment upon LNR	Within 500m from a Local Nature Reserve
	Non-statutory sites	Ancient Woodland	Encroaching upon Ancient Woodland	Within 500m of an Ancient Woodland	Over 500m from an Ancient Woodland
		Priority habitats and Irreplaceable undesignated habitats	Direct land take from Priority habitats and irreplaceable undesignated habitats such as chalk heath	Within 500m of undesignated priority habitats and Irreplaceable undesignated habitats.	Over 500m from undesignated priority habitats and Irreplaceable undesignated habitats.
Historic Environment		Listed buildings			

Topic	Dataset	Features	RAG criteria		
	Statutory designated sites	Scheduled monuments Conservation Area	Direct effect on heritage sites or assets	Within 500m of heritage site or feature	Over 500m from heritage site or feature
	Non statutory designated sites	Registered Parks and Gardens Registered Battlefields			
Landscape	Statutory Designations	Areas of outstanding natural beauty (AONB)	Encroachment upon AONB	Within 500m of an AONB	Over 500m from an AONB
Geology and soils		Agriculture land classification Landfill sites	Within Grade 1 or 2 land classification (likely significant effect) Within authorised landfill site (likely significant effect).	Within Grade 3 land classification (potential for significant effect) Within 500m of an authorised landfill site and/or directly through historic landfill site (potential for significant effect).	Within other or unclassified land (low potential for significant effect). Over 500m from an authorised or historic landfill site (low potential for significant effect).
Water	Groundwater	Groundwater source protection zones Nitrate Vulnerable Zone	Within Zone 1 Within a Nitrate Vulnerable Zone	Within Zone 2 N/A	Within Zone 3 Outside a Nitrate Vulnerable Zone
	Surface water	Flood risk zones	Within Flood Risk Zone 3	Within Flood Risk Zone 2	Within Flood Risk Zone 1

J.3 Summary of assessment results

RAG output options

J.3.1 Following HLS assessments, the results were fed back to the design team for review. For receptors where a red RAG rating was identified, the option would either be rejected, or, alternatively, mitigation and/or minor amendment to the option design was proposed so the

option could be taken forward to the later stages of environmental screening. The full HLS RAG scoring definitions are outlined in **Table J.3**.

Table J.3: High-Level Screening Scoring Definitions

Score	Definition
	Recommend rejecting option or adjust design – major or direct effects on designated features. Option at current design would cause irreversible loss to a sensitive designated feature.
	Take option forward but further assessment and mitigation required – moderate effects on designated features. Option would cause loss of designated features, but effects could be mitigated.
	Take option forward – minor/no effect on designated features.

J.3.2 Please note that because HLS responses were subsequently used to inform further engineering design to avoid impacts on environmental receptors, certain outputs from the original HLS assessment will now no longer apply to the current option designs, or concern options that have since been removed from the WRMP. Additionally, the results from the later stage of integrated environmental assessments cover the same environmental effects as the HLS, but in greater detail as well as covering additional environmental considerations. Nevertheless, a summary of HLS outcomes for the five supply-side options initially considered for inclusion in the WRMP are provided below for completeness.

Proposed mitigation and/or design changes

J.3.3 **Table J.4** below shows red screening outputs from the HLS assessment of option BOT-TRA-001, providing an outline example of the typical impact description and proposed mitigation provided by the design team following an HLS assessment. The recommendation for this option, following HLS, was to proceed with mitigation.

Table J.4: Option BOT-TRA-001 - Red HLS screening outcomes with proposed mitigation

Red flagged feature(s)	HLS assessor comment	Proposed mitigation from Design Team Option Review
SPAs / Potential SPAs (pSPA)	Option overlaps / is within 400m of Northumberland Marine SPA. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required. Option also within 5000m of Holburn Lake & Moss SPA(s). No direct impact likely, but potential for indirect impact.	The main risk will be during the construction phase, and this can be managed.
Sites of Specific Scientific Interest (SSSIs)	Option overlaps River Coquet and Coquet Valley Woodlands (0.01%) SSSI. Direct impact likely. Option also within 500m of Bewick and Beanley Moors SSSI. No direct impact likely, but potential for indirect impact.	A trenchless technique will be required to exit the work and cross the river so there should be minimal disruption to the river. The next phase of engineering will consider re-routing to avoid the woodland.
Ancient Woodland	Option overlaps Brotherwick Banks (1.24%) ancient woodland. Avoid impacts on these habitats where possible (e.g., by using trenchless techniques). If not practicable, compensation required post construction.	Given the constraints it is likely we will need to consider a route to the South to avoid the woodland area.

Red flagged feature(s)	HLS assessor comment	Proposed mitigation from Design Team Option Review
	Option also within 500m of Blagdon Dean ancient woodland. No direct impact likely, but potential for indirect impact.	
Priority Habitats	<p>Option overlaps:</p> <p>1. Deciduous woodland (4012.68m²)</p> <p>Avoid impacts on these habitats where possible (e.g., by using trenchless techniques). If not practicable, reinstatement or compensation required post construction.</p> <p>Total area (m²) of Priority Habitat types in brackets.</p>	The route will be reviewed to avoid these areas.
Scheduled Monuments	Option overlaps Springhill Roman Camp and Low Buston medieval settlement Scheduled monuments. Direct impacts likely.	<p>The Roman camp is an issue that cannot be avoided</p> <p>The medieval settlement can be avoided with minor re-routing.</p>
Flood Zone 3	Within FZ3, above ground infrastructure should be avoided within Flood Zone unless there are no alternatives.	We can't avoid these areas, but this can be managed through appropriate design.
Nitrate Vulnerable Zone (NVZ)	Option in NVZ.	This can't be avoided – we will need to manage and mitigate during construction.

J.3.4 This process was subsequently repeated for all the options assess. If the high-level screening results lead to an option being rejected at the design stage, this was reported in the rejection register found in Appendix A of the Supply Option Development Report (100104977-RP-BOT-001). The HLS information for the options has subsequently been superseded by the more detailed environmental assessments undertaken for the options.

Summary of Outcomes

J.3.5 The following section provides a summary of the high-level screening assessment outcomes for the five potential WRMP24 Supply Side options. For each option, a table of features with red and amber screening outcomes is provided, alongside a comment detailing the reason for the assigned score, as well as a comment, where appropriate, on the proposed mitigation to reduce or neutralise impacts.

BOT-ABS-002

Table J.5: Summary of High-Level Screening Outcomes for Option BOT-ABS-002

Feature	Screening Outcome (RAG)	Comment	Mitigation
Biodiversity, Flora and Fauna (Statutory Designations)			
SACs/candidate SACs (cSAC) and SCIs	Amber	Option within 5000m of River Tweed SAC. No direct impact likely, but potential for indirect impact.	N/A
Biodiversity, Flora and Fauna (Habitats)			
Priority Habitats	Amber	Option within 500m of deciduous woodland. No direct impact likely, but potential for indirect impact.	N/A
Historic Environment			
Grade II Listed Structures	Amber	Option within 500m of Duddo Tower; Former Church of St James and Attached School Buildings; Milepost ¾ Mile Northeast of Duddo Grade II Listed Structure(s). No direct impacts likely but could impact setting of the heritage assets.	N/A
Scheduled Monuments	Amber	Option within 500m of Duddo Tower Scheduled Monument. No direct impacts likely but could impact setting of the heritage assets.	N/A
Soils			
Agricultural Land	Amber	Option overlaps agricultural land (Best and Most Versatile (BMV) land): Grade 3 (311448.53m ²). Permanent loss should be on non-BMV land where possible and only on BMV land where there are no other alternatives. Reinstatement or reprovion required post construction. Total area (m ²) intersecting with study area in brackets.	Impact is temporary, reinstatement post construction is proposed as required mitigation.
Water (Ground)			
Source Protection Zones	Red	Option footprint within SPZ, Zone 1.	Unavoidable, waste management is proposed as required mitigation.
Water (Surface)			
Nitrate Vulnerable Zone	Red	Option in NVZ.	Unavoidable, this will need to be managed during construction through appropriate mitigation.

BOT-ABS-007

Table J.6: Summary of High-Level Screening Outcomes for Option BOT-ABS-007

Feature	Screening Outcome (RAG)	Comment	Mitigation
Biodiversity, Flora and Fauna (Statutory Designations)			
SACs/candidate SACs (cSAC) and SCIs	Red	Option is within 400m of River Tweed SAC. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required.	Unavoidable due to location of existing infrastructure that is incorporated in this option. Mitigation will be required during construction.
SSSIs	Amber	Option within 500m of Tweed Catchment Rivers – England: Till Catchment SSSI. No direct impact likely, but potential for indirect impact.	N/A
Biodiversity, Flora and Fauna (Habitats)			
Priority Habitats	Amber	Option within 500m of: Traditional orchard; Good quality semi-improved grassland; Deciduous woodland.	N/A
Historic Environment			
Conservation Area	Amber	Option within 500m of Wooler Conservation area(s). No direct impacts likely but could impact setting of the heritage assets.	N/A
Grade II Listed Structures	Amber	Option within 500m of Garage and Workshop Circa 10 yards North West of the Tankerville Arms; Milepost by Millvale; The Old Vicarage; The Tankeville Arms; Wooler Mill Grade II Listed Structure(s). No direct impacts likely but could impact setting of the heritage assets.	N/A
Soils			
Agricultural Land	Red	Option overlaps: Agricultural land (Best and Most Versatile (BMV) land): Grade 2 (6986.31m ²) / Grade 3 (12516.99m ²). Permanent loss should be on non-BMV land where possible and only on BMV land where there are no other alternatives. Reinstatement or reprovion required post construction. Total area (m ²) intersecting with study area in brackets.	Reprovion will be required post construction as loss will be permanent.
Water (Ground)			
Source Protection Zones	Red	Option within SPZ. Zone 1.	Unavoidable, waste management will be required as mitigation.
Water (Surface)			

Feature	Screening Outcome (RAG)	Comment	Mitigation
Flood Zone 3	Red	Option within FZ3, above ground infrastructure should be avoided within Flood Zone unless there are no alternatives.	Areas cannot be avoided, but impacts can be managed through appropriate design.
Flood Zone 2	Amber	Option within FZ2, above ground infrastructure should be avoided within Flood Zone unless there are no alternatives.	N/A

BOT-TRA-001

Table J.7: Summary of High-Level Screening Outcomes for Option BOT-TRA-001

Feature	Screening Outcome (RAG)	Comment	Mitigation
Biodiversity, Flora and Fauna (Statutory Designations)			
RAMSAR Sites	<i>Amber</i>	Option within 5000m of Holburn Lake & Moss; Lindisfarne; Northumbria Coast RAMSAR sites. No direct impact likely, but potential for indirect impacts. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required.	N/A
SACs/candidate SACs (cSAC) and SCIs	<i>Amber</i>	Option within 5000m of Tweed Estuary; Berwickshire & North Northumberland Coast; North Northumberland Dunes; River Tweed SACs.	N/A
SPAs / potential SPAs (pSPA)	<i>Red</i>	Option overlaps / is within 400m of Northumberland Marine SPA. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required. Option also within 5000m of Holburn Lake & Moss SPA(s). No direct impact likely, but potential for indirect impact.	The main risk will be during the construction phase, and this can be managed through appropriate mitigation.
SSSIs	<i>Red</i>	Option overlaps River Coquet and Coquet Valley Woodlands (0.01%) SSSI. Direct impact likely. Option also within 500m of Bewick and Beanley Moors SSSI. No direct impact likely, but potential for indirect impact.	A trenchless technique will be required to exit the work and cross the river so there should be minimal disruption to the river. The next phase of engineering will consider re-routing to avoid the woodland.
Biodiversity, Flora and Fauna (Habitats)			
Ancient Woodland	<i>Red</i>	Option overlaps Brotherwick Banks (1.24%) ancient woodland. Avoid impacts on these habitats where possible (e.g., by using trenchless techniques). If not practicable, compensation required post construction. Option also within 500m of Blagdon Dean ancient woodland. No direct impact likely, but potential for indirect impact.	Given the constraints it is likely we will need to consider a route to the South to avoid the woodland area.

Feature	Screening Outcome (RAG)	Comment	Mitigation
Priority Habitats	<i>Red</i>	Option overlaps: Deciduous woodland (4012.68m ²). Avoid impacts on these habitats where possible (e.g., by using trenchless techniques). If not practicable, reinstatement or compensation required post construction. Total area (m ²) of Priority Habitat types in brackets.	The route will be reviewed to avoid these areas.
Historic Environment			
Grade II Listed Structures	<i>Amber</i>	Option within 500m of 33 Grade II listed structure(s). No direct impacts likely but could impact setting of the heritage assets.	N/A
Grade I Registered Parks and Gardens	<i>Amber</i>	Option within 500m of Alnwick Castle Grade I Registered Parks and Garden. No direct impacts likely but could impact setting of the heritage assets.	N/A
Scheduled Monuments	<i>Red</i>	Option overlaps Springhill Roman Camp and Low Buston medieval settlement Scheduled monuments. Direct impacts likely.	The Roman camp is an issue that cannot be avoided. The medieval settlement can be avoided with minor re-routing.
Soils			
Agricultural Land	<i>Amber</i>	Option overlaps: Agricultural land (Best and Most Versatile (BMV) land): Grade 3 (1028994.37m ²) and Grade 4 agricultural land (50126.36m ²). Permanent loss should be on non-BMV land where possible and only on BMV land where there are no other alternatives. Reinstatement or reprovion required post construction. Total area (m ²) intersecting with study area in brackets.	N/A
Authorised Landfill Sites	<i>Amber</i>	Option footprint is within 500m of Linkhamdean Waste Disposal Site landfill site(s).	N/A
Historic Landfill Sites	<i>Amber</i>	Option footprint is within 500m of Alnmouth; Denwick Quarry; Denwick South Quarry; Warkworth Treatment Works; Denwick North Quarry; Lesbury; East Ancroft Farm; East Ancroft Farm Extension; Silvermoor Farm historic landfill site(s).	N/A
Water (Surface)			

Feature	Screening Outcome (RAG)	Comment	Mitigation
Flood Zone 3	<i>Red</i>	Option within FZ3, above ground infrastructure should be avoided within Flood Zone unless there are no alternatives.	Areas cannot be avoided, but impacts can be managed through appropriate design and mitigation.
Flood Zone 2	<i>Amber</i>	Option within FZ2, above ground infrastructure should be avoided within Flood Zone unless there are no alternatives.	N/A
Nitrate Vulnerable Zone	<i>Red</i>	Option in NVZ.	This can't be avoided – will need to be managed during construction through appropriate mitigation.

BOT-TRA-002

Table J.8: Summary of High-Level Screening Outcomes for Option BOT-TRA-002

Feature	Screening Outcome (RAG)	Comment	Mitigation
Biodiversity, Flora and Fauna (Statutory Designations)			
SACs/candidate SACs (cSAC) and SCIs	Red	Option overlaps River Tweed (0.02%) SAC. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required.	Trenchless techniques required to cross rivers (infringing areas) therefore mitigation is already being employed. Further mitigation will be required during the construction phase.
SSSIs	Red	Option overlaps Tweed Catchment Rivers - England: Till Catchment (0.03%) SSSI. Direct impact likely. Option also within 500m of Bewick and Beanley Moors SSSI. No direct impact likely, but potential for indirect impacts.	Trenchless techniques required to cross rivers (infringing areas) therefore mitigation is already being employed. Further mitigation will be required during the construction phase.
Biodiversity, Flora and Fauna (Habitats)			
Ancient Woodland	Amber	Option within 500m of Cardingmill Plantation ancient woodland. No direct impact likely, but potential for indirect impact.	N/A
Priority Habitats	Red	Option overlaps: Deciduous woodland (7086.77m ²); Lowland heathland (13078.26m ²); No main habitat but additional habitats present (7762.94m ²). Avoid impacts on these habitats where possible (e.g., by using trenchless techniques). If not practicable, reinstatement or compensation will be required post construction. Total area (m ²) of Priority Habitat types in brackets.	Pipeline rerouting should be able to relieve some of the issues. If unavoidable, trenchless techniques to be considered, else compensation will be required post construction.
Historic Environment			
Conservation Area	Amber	Option within 500m of Wooler Conservation area. No direct impacts likely but could impact setting of the heritage assets.	N/A
Grade II* Listed Structures	Amber	Option within 500m of Percys Cross With Enclosing Wall and Railings Grade II* Listed Structure(s). No direct impacts likely but could impact setting of the heritage assets.	N/A
Grade II Listed Structures	Amber	Option within 500m of 15 Grade II listed structure(s). No direct impacts likely but could impact setting of the heritage assets.	N/A

Feature	Screening Outcome (RAG)	Comment	Mitigation
Scheduled Monuments	<i>Amber</i>	Option within 500m of Green Castle ringwork 320m south west of Humbleton Mill; Percy's Cross, Beanley; Two pillboxes near Green Castle; Round cairn on Tittington Pike; The Kettles univallate hillfort and enclosed settlement, 261m north west and 331m south west of King's Chair Scheduled monument(s). No direct impacts likely but could impact setting of the heritage assets.	N/A
Soils			
Agricultural Land	<i>Red</i>	Option overlaps: Agricultural land (Best and Most Versatile (BMV) land): Grade 2/ Grade 3; Grade 4 agricultural land; and Grade 5 agricultural land. Permanent loss should be on non-BMV land where possible and only on BMV land where there are no other alternatives. Reinstatement or reprovion will be required pot construction.	No permanent above ground construction therefore reinstatement is an appropriate solution for the entire option.
Historic Landfill Sites	<i>Amber</i>	Option footprint is within 500m of Common Road historic landfill site(s).	N/A
Water (Surface)			
Flood Zone 3	<i>Red</i>	Within FZ3, above ground infrastructure should be avoided within Flood Zone unless there are no alternatives.	N/A
Flood Zone 2	<i>Amber</i>	Within FZ2, above ground infrastructure should be avoided within Flood Zone unless there are no alternatives.	N/A

BOT-TRA-004

Table J.9: Summary of High-Level Screening Outcomes for Option BOT-TRA-004

Feature	Screening Outcome (RAG)	Comment	Mitigation
Biodiversity, Flora and Fauna (Statutory Designations)			
RAMSAR Sites	<i>Amber</i>	Option within 5000m of Lindisfarne RAMSAR site. No direct impact likely, but potential for indirect impact. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required.	N/A
SACs/candidate SACs (cSAC) and SCIs	<i>Amber</i>	Option within 5000m of Ford Moss; Berwickshire & North Northumberland Coast; River Tweed; and Tweed Estuary SAC. No direct impact likely, but potential for indirect impact. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required.	N/A
SPAs / potential SPAs (pSPA)	<i>Amber</i>	Option within 5000m of Northumberland Marine; and Northumbria Coast SPAs. No direct impact likely, but potential for indirect impact. Habitats Regulations Assessment Screening and potentially Appropriate Assessment required.	N/A
Biodiversity, Flora and Fauna (Habitats)			
Ancient Woodland	<i>Amber</i>	Option within 500m of Haydon Dean Wood (1, 2 and 3) ancient woodland. No direct impact likely, but potential for indirect impact.	N/A
Priority Habitats	<i>Red</i>	Option overlaps: Deciduous woodland (2681.64m ²); No main habitat but additional habitats present (1294.43m ²). Avoid impacts on these habitats where possible (e.g., by using trenchless techniques). If not practicable, reinstatement or compensation required post construction. Total area (m ²) of Priority Habitat types in brackets.	Minor pipeline adjustment required to remove or reduce the infringement. If not possible, trenchless techniques to be used as appropriate mitigation.
Historic Environment			

Feature	Screening Outcome (RAG)	Comment	Mitigation
Grade II Listed Structures	<i>Amber</i>	Option within 500m of Farmbuildings at East Allerdean; Farmbuildings at Murton Farm; Watchlaw Farmhouse Grade II Listed Structure(s). No direct impacts likely but could impact setting of the heritage assets.	N/A
Soils			
Agricultural Land	<i>Amber</i>	Option overlaps: Agricultural land (Best and Most Versatile (BMV) land): Grade 3 (185000.54m ²) and Grade 4 agricultural land (8190.83m ²). Permanent loss should be on non-BMV land where possible and only on BMV land where there are no other alternatives. Reinstatement or reprovision required post construction. Total area (m ²) intersecting with study area in brackets.	N/A
Water (Ground)			
Source Protection Zones	<i>Red</i>	Option footprint within SPZ, Zone 1.	Unavoidable. Waste management will be required as appropriate mitigation.
Water (Surface)			
Nitrate Vulnerable Zone	<i>Red</i>	Option in NVZ.	This can't be avoided - will need to be managed during construction through appropriate mitigation.

