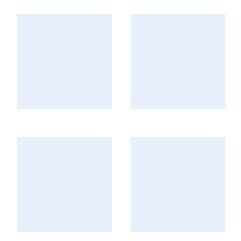
AESC Plant 3 Reference number GB01T22A29 10/11/2023



## WATER FRAMEWORK ASSESSMENT







## **AESC PLANT 3**

### WATER FRAMEWORK ASSESSMENT

IDENTIFICATION TABLE	
Client/Project owner	AESC UK
Project	AESC Plant 3
Study	Water Framework Assessment
Date	10/11/2023
Reference number	GB01T22A29

APPROVAL						
Version	Name		Position	Date	Modifications	
	Author	T Dawe	Associate	08/11/2023		
1	Checked by	G Pellegrino	Associate	10/11/2023	First issue	
	Approved by	B Sharp	Assoc. Director	10/11/2023		
	Author			DD/MM/YY		
2	Checked by			DD/MM/YY		
	Approved by			DD/MM/YY		





#### **TABLE OF CONTENTS**

1.	INTRODUCTION & PROJECT DESCRIPTION	4
1.1	INTRODUCTION	4
1.2	SITE DESCRIPTION	4
1.3	DEVELOPMENT DESCRIPTION	5
2.	ASSESSMENT METHODOLOGY & SCREENING	6
2.1	WFD BACKGROUND	6
2.2	Assessment methodology	6
2.3	WATER FRAMEWORK BODIES	7
2.4	Screening	7
2.5	WFD BODY STATUS	8
3.	WFD ASSESSMENT	8
3.2	RIVER DON SURFACE WATER BODY	8
3.3	TYNE CARBONIFEROUS LIMESTONE AND COAL MEASURES GROUNDWATER BODY	10
4.	SUMMARY	12

#### **LIST OF FIGURES**

Figure 1.	Site location	4
Figure 2.	Proposed layout	5

### **LIST OF TABLES**

Table 1.	WRD Body Status 2019	8
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#### LIST OF APPENDICES

Appendix A	Drawings
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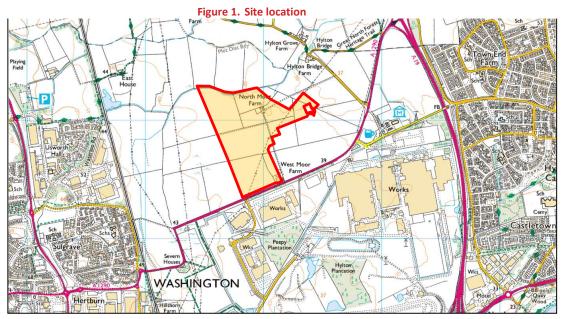
WFD Water body information Appendix B



### 1. INTRODUCTION & PROJECT DESCRIPTION

#### 1.1 Introduction

- 1.1.1 AESC UK proposes to develop a second battery factory (AESC Plant 3) and warehouse on farmland immediately west of their AESC Plant 2 development that is currently under construction. The site is partially located within the boundaries of the International Advanced Manufacturing Park (IAMP) ONE Phase 2 on land near the Nissan UK's Sunderland factory.
- 1.1.2 The site is located north of the A1290 Washington Road. The former West Moor Farm (now demolished) was near the south-east corner. North Moor Farm is close to the north-east corner of the site. The location of AESC Plant 3 is shown on **Figure 1**.



Source: Ordnance Survey. Crown Copyright reserved.

#### **1.2** Site Description

- 1.2.1 The AESC Plant 3 site occupies approximately 32ha of arable farmland between the A1290 Washington Road and Usworth Burn, which flows eastward past the northern end of the site. The site abuts the AESC Plant 2 to the east and will share access onto International Drive with that development. Farmland and open ground lie to the west with the edge of Washington 1km away.
- 1.2.2 Part of the access route to the Proposed Development passes through the IAMP ONE area where both Plants 2 and 3 will share an access route onto International Drive. The majority of the Plant 3 scheme lies outside of the IAMP limits. Part of the Plant 3 site boundary overlaps with the planning application boundary for AESC Plant 2, which is now under construction. The majority of the Plant 3 scheme lies outside the area allocated for development within the IAMP Area Action Plan and on land designated, and implemented, as an Ecological and Landscape Mitigation Area.

AESC Plant 3		
Water Framework Assessment	GB01T22A29	
	10/11/2023	Pa



1.2.3 The Usworth Burn passes to the north of the site and joins the River Don north-east of the site prior to reaching Hylton Bridge. A series of field-boundary ditches currently drain the land, the larger part draining northwards into the Burn and the remainder flowing south to discharge into a dyke and culvert that runs along the southern side of the A1290 or draining eastwards towards Plant 2.

#### **1.3** Development description

1.3.1 The proposed development comprises erection of a building to be used for the manufacture of batteries for electric vehicles, an assembly & warehousing building, an office building, a sub-station, gatehouse, ancillary compounds/structures and associated infrastructure provision, access, parking, drainage and landscaping. The proposed layout is shown in Figure 2 which also shows the adjacent Plant 2. National Grid power lines run alongside the western and northern sides of the proposed development. A larger-scale plan is included in Appendix A together with a drawing of the project's landscaping layout.

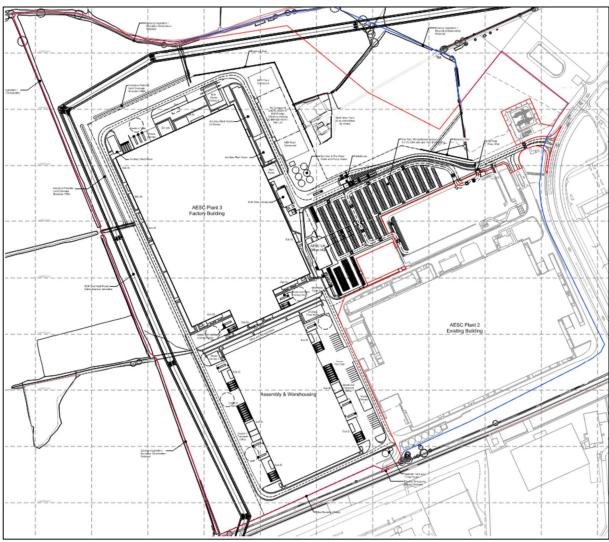


Figure 2. Proposed layout

Source: IAMP AAP

AESC Plant 3	
Water Framework Assessment	GB01T22A29
	10/11/2023



1.3.2 The facility will employ up to 1,900 staff across the factory, warehouse and offices.

### 2. ASSESSMENT METHODOLOGY & SCREENING

#### 2.1 WFD Background

- 2.1.1 The Water Framework Directive (WFD) was a European Parliament directive designed to improve and integrate the way water, from all sources, was managed throughout Europe. Much of the implementation work in the UK was intended to be undertaken by competent authorities such as the Environment Agency (EA) and Local Authorities. It came into force in 2000 and was transposed into UK law in 2003. This was revisited further in 2017 under the Water Environment (WFD) (England & Wales) Regulations of that year.
- 2.1.2 Member States were originally required to achieve good chemical and ecological status for inland and coastal waters by 2015 though that date has since been deferred.
- 2.1.3 An associated 'daughter directive', Directive 2006/118/EC (the Groundwater Daughter Directive) came into force in 2006, intended to protect groundwater against pollution and deterioration.
- 2.1.4 Much current environmental policy and legislative framework in England had derived from EU practices and sources: the principal example is the WFD. The UK's withdrawal from the EU has been managed thus far mainly by the Environment (EU Exit) Regulations 2019 which took effect upon departure, though more recent actions by government to reduce the extent to which historical EU-derived legislation remains in statute risks removing some environmental legislation and the associated protections of the water environment.

#### 2.2 Assessment methodology

- 2.2.1 The WFD sets out a number of 'Environmental Objectives' for surface water and groundwater bodies as follows:
  - Prevent deterioration in the quality of water-based ecosystems, protect them and improve their ecological quality.
  - Aim for all water bodies to achieve good status or potential by 2015 or by2027 where not originally feasible under the WFD criteria.
  - Comply with the requirements of WFD protected areas where appropriate.
  - Conserve habitats and species that depend directly upon water for their form and quality.
  - Promote sustainable use of water.
  - Reduce and/or phase out the use of pollutants that present a specific threat to water-based ecosystems both above and below ground.
  - Assist in managing flood risk and drought risk impacts upon the local water environment.
- 2.2.2 For the purposes of the WFA process, these are translated into four specific objectives against which the impact of the Proposed Development upon local surface and

AESC Plant 3			
Water Framework Assessment		GB01T22A29	
	1	10/11/2023	Page 6/ 17



groundwater bodies is assessed to determine whether and how the scheme meets the WFD objectives and where it actively promotes them. These objectives are as follows.

- The Proposed Development does not cause the Biological status of the water bodies to deteriorate.
- The Proposed Development does not hinder any water body from achieving its target status objectives.
- The Proposed Development does not permanently prevent or impede other water bodies in the same River Basin district from achieving their target status objectives.
- The Proposed Development contributes to delivery of the WFD objectives.

#### 2.3 Water Framework Bodies

- 2.3.1 The local surface water and groundwater WFD bodies are as follows, based upon the Northumbrian River Basin Management Plan.
  - GB103023075690 River Don from source to tidal limit (surface water)
  - GB510302402900 River Wear (surface water)
  - GB510302310200 River Tyne (surface water)
  - GB40302G701500 Tyne Carboniferous Limestone and Coal Measures (CLCM) (ground water)
  - GB40302G701600 Wear CLCM (ground water)
- 2.3.2 Protected areas are where special protection is required by other EC Directives and/or where abstraction for drinking water takes place. No such areas (e.g. Nitrate Vulnerable Zone, Drinking Water Safeguard Zone) are present at this site.

#### 2.4 Screening

- 2.4.1 The Proposed Development directly affects the River Don water body, which discharges to the River Tyne about 10km downstream. The Tyne is considered to be too far downstream to warrant consideration in relation to the Proposed Development.
- 2.4.2 The Hylton Dene Burn, to which the south-eastern corner of the site is thought to drain, is not represented by a specific WFD water body. It discharges into the River Wear about 5km downstream of the site and likewise is considered to be too far downstream to warrant consideration in relation to the Proposed Development.
- 2.4.3 The River Wear and River Tyne water bodies will therefore be excluded from this assessment.
- 2.4.4 The proposed Development site lies wholly within the Tyne CLCM groundwater body though the boundary with the Wear CLCM is not far to the south. Given the poor permeability of the ground and the limited speed of groundwater movement that results, the Wear CLCM will be excluded from this assessment.



#### 2.5 WFD Body Status

2.5.1 The current status of the two water bodies under consideration – the River Don body and the Tyne CLCM groundwater unit – are shown in Table 3. This information is taken from the EA's website and dates from 2019.

<b>T</b> - 1-1 - 4		D a da	<b>C1</b>	2040
Table 1.	WKD	воау	Status	2019

UNIT	HYDROMORPHOLOGY	ECOLOGICAL	CHEMICAL
GB103023075690B River Don	Heavily modified	Moderate	Fail
GB40302G701500 Tyne CLCM	N/A	N/A	Poor

- 2.5.2 The chemical failures for the Don were caused by levels of mercury or associate compounds and PBDE compounds.
- 2.5.3 The biological elements were revisited in 2022 and the 'invertebrates' marker had deteriorated from 'good' in 2019 to 'poor'.
- 2.5.4 The Tyne CLCM water body was classed for its quantitative status as 'good' in 2019.
- 2.5.5 Mine water was cited as the key reason for the poor chemical rating. The area has a significant mining past, evidenced by a number of former mines nearby: Boldon to northeast, Wardley and North Follingsby to north-west, Springwell and Usworth to west, Castletown to south-east.
- 2.5.6 The information summaries for both water bodies are included in **Appendix B** for information,

#### **3. WFD ASSESSMENT**

3.1.1 The key change presented by the Proposed Development is to create a substantial built and paved environment on what is currently arable farmland, poorly permeable and needing extensive agricultural field drainage to render the land usable for that purpose. Some effects arising from this development will be temporary during construction: others will be associated with the long-term operation of the new facility.

#### **3.2** River Don surface water body

#### Hydromorphological

3.2.1 The Proposed Development is set back from the Usworth Burn channel and has no direct physical effect upon the channel, nor the channel upon the Development. A potential increase in flows arising from uncontrolled run-off during construction and then during the scheme's operational phase will be managed firstly by the contractor during construction and then by the permanent drainage system thereafter. The cessation of arable farming and the associated regular disturbance to the land (ploughing, etc) will

AESC Plant 3		
Water Framework Assessment	GB01T22A29	
	10/11/2023	



reduce the transfer of silt from the fields into the Burn though this is only a small change in the wider context of the River Don catchment (42 km<sup>2</sup>) compared with the site area (approx. 0.3 km<sup>2</sup>).

- 3.2.2 There is a heightened risk of silt wash-off during construction whilst the site is stripped of topsoil and is disturbed by the construction activities for a prolonged period compared with the farming cycle. However this is a temporary condition and is planned to last less than three years. The contractor will be obliged to provide and maintain silt management arrangements during that phase to control this risk.
- 3.2.3 The construction of new buildings and paved areas will reduce the connectivity of the land with the water table in those areas due to the blockage of the existing flowpath from the land's surface into the ground (despite the poor permeability of the land). The attenuation features that are part of the scheme drainage will be lined with impermeable membranes in order to contain the run-off prior to completing the full SuDS sequence for water-quality management.
- 3.2.4 The Proposed Development has a neutral impact upon the Burn's current morphological behaviour and does not interfere with any potential future interventions that might be considered to seek to mitigate the historic modifications of the Burn and Don's channels.

#### Ecological

- 3.2.5 The main impact with ecological implications created by the Proposed Development involve the erosion of fine material (i.e. silt) from the farmland into the Brun that affects the channel bed further downstream. This is particularly important where the bed contains areas of gravel which support breeding or living habitats for a range of fauna from the microscopic level up to fish spawning in the gravel. The cessation of farming and associated regular disturbance of the land will reduce this effect to a small degree in the wider Don catchment once the site is operational.
- 3.2.6 As noted in the hydromorphological section above, the risk of silt erosion and transfer into the river is heightened during construction due to the intensity and duration of disturbance to the land during that phase. It is only a temporary condition and will be addressed by the site management regime put in by the contractor. The new site drainage system includes features to capture and hold silt washed from roofs and roads.

#### Chemical

- 3.2.7 The main impact with chemical implications created by the Proposed Development involves the cessation of farming and the application of fertilisers or pesticides, offset by the introduction of vehicle traffic and the associated diffuse pollution from road run-off. This is less of a risk during the construction phase until such time as the accesses and parking are formed together with their drainage systems. Those systems include features to intercept and hold various pollutants.
- 3.2.8 The specific manufacturing processes for this scheme involve some materials that are classed as 'hazardous'. The Proposed Development design will block the creation of direct pathways that would otherwise enable transmission of such substances to the Burn and

AESC Plant 3		
Water Framework Assessment	GB01T22A29	
	10/11/2023	Pa



Don. There should therefore be a negligible risk of such pollutants reaching the water environment.

#### Assessment

- 3.2.9 The Proposed Development creates a number of potential impacts upon the water quality of the River Don. Some are temporary during the construction phase whilst others are long-term during the operational phase. It is possible to mitigate those impacts, whether by temporary measures to control silt wash-off during construction or by the installation of vortex separator units in the permanent development drainage to intercept road pollution (fine material, hydrocarbons) washed off roadways and parking areas.
- 3.2.10 The newly-created sources of pollution within the Proposed Development are offset by the ending of farming activities and the associated use of fertilisers and pesticides on the site. This will reduce the ongoing diffuse agricultural pollution affecting the Don catchment.
- 3.2.11 Turning to the four specific WFD objectives, the Proposed Development is considered to support the Biological status of the River Don water body against further deterioration, principally due to the introduction of water quality controls in the new site drainage and the cessation of farming and regular disturbance of the land reducing silt load in the river.
- 3.2.12 The Proposed Development does not hinder the River Don water body from achieving its target status objectives. The scheme is set back from the river channel and will not impede any future intervention to mitigate historic modifications of the river channel. The change in land use and provision of new surface drainage are considered to be neutral as to impact upon the river's chemical and biological character.
- 3.2.13 The Proposed Development does not permanently prevent or impede other water bodies in the same River Basin district from achieving their target status objectives. The River Don water body flows into the River Tyne estuary about 4km upstream from its mouth. The scheme is very small in the context of the River Don catchment size and its impacts are mainly localised to the site itself.
- 3.2.14 The Proposed Development may contribute to delivery of the WFD objectives through the changes in water-borne pollution sources and controls within the site. The proposed landscaping of peripheral areas will enhance local habitats and offset loss of the farmland habitats replaced by the new buildings but does not directly involve work to the river channel.

#### **3.3** Tyne Carboniferous Limestone and Coal Measures groundwater body

#### Quantitative

3.3.1 The construction of new buildings and roadways/parking together with new drainage systems will locally disconnect recharge over a substantial area from the water table beneath the site. The poor permeability of the ground however limits the impact of this effect upon shallow groundwater and it is considered to have minimal impact upon the deeper groundwater body. The attenuation features will be limed to prevent such

AESC Plant 3		
Water Framework Assessment	GB01T22A29	
	10/11/2023	



infiltration as might occur in order to ensure that all run-off passes through the full sequences of SuDS features appropriate to the run-off source.

3.3.2 The changes to the nature of the site during construction will have minimal effect initially but the forming of pavements and buildings will progressively reduce the area of recharge to the shallow water table. Such changes will have negligible impact upon the deeper groundwater body.

#### Chemical

- 3.3.3 The Proposed Development's impact upon the deeper groundwater in the bedrock will be minimal due to the physical separation in tandem with the poor permeability of superficial ground. The changes from farming to manufacturing and in the associated nature of pollutant sources will in time affect the shallow groundwater but the dominant sources of pollution to the groundwater body (former mines) are unaffected by this scheme.
- 3.3.4 Any pollution occurring during construction is likely to be localised and in small quantities. The contractor will operate a spill management process that should contain any such incidents and the residual risk of pollution to groundwater is negligible.

#### Assessment

- 3.3.5 The Proposed Development has negligible impact upon the groundwater body, due principally to the depth of the groundwater body and the poor permeability of the superficial layers.
- 3.3.6 The newly-created sources of pollution within the Proposed Development are offset by the ending of farming activities and the associated use of fertilisers and pesticides on the site. This will reduce the ongoing diffuse agricultural pollution affecting area but the impact of this change is not expected to reach beyond the shallow water table.
- 3.3.7 The existing groundwater quality is dominated by pollution originating from old deep mine workings.
- 3.3.8 In respect of the four specific WFD objectives as those relate to groundwater, the first is not relevant as biological quality is not a WFD aspect of groundwater.
- 3.3.9 The Proposed Development does not hinder the Tyne CLCM groundwater body from achieving its target status objectives. The scheme does not affect or modify the old mine workings but does not prevent any future actions to address those (though this is currently deemed technically unfeasible).
- 3.3.10 The Proposed Development does not permanently prevent or impede other water bodies in the same River Basin district from achieving their target status objectives. The Wear CLCM groundwater body is close by but is not considered to be affected by this scheme..
- 3.3.11 The Proposed Development is not considered to meaningfully contribute to delivery of the WFD objectives for the Tyne CLCM as it does not involve or affect the deep mine workings that are the principle source of pollution to the groundwater unit. Such changes in groundwater quality as may result from the scheme are considered to be confined to the water table in the shallow superficial ground.

AESC Plant 3	
Water Framework Assessment	GB01T22A29
	10/11/2023



#### 4. SUMMARY

- 4.1.1 The Proposed Development is directly associated (by location) with the River Don (source to Tyne) surface water body and the Tyne CLCM groundwater body. The Usworth Burn is closer to the site than the River Don but the two join not far downstream of the site.
- 4.1.2 The Hylton Dene Burn, to which the south-east corner of the site nominally drains, is not represented by a distinct water body. The River Wear, to which Hylton Dene Burn discharges, and the River Tyne are both considered to be beyond the direct impact of the scheme and the surface water bodies representing their respective reaches including the confluences have both been excluded from this assessment.
- 4.1.3 The Wear CLCM groundwater body extends close to the site's southern end but is also considered to be beyond the range of direct impact. This body has also been excluded from the assessment.
- 4.1.4 The River Don (and the Usworth Burn) catchment is dominated by urban run-off or by farmland run-off. The Proposed Development will involve a change in use from farming to manufacturing and an associated change in the prevailing sources of pollution.
- 4.1.5 The water quality in the Tyne CLCM groundwater body is dominated by pollution from abandoned deep mine works, well below the extent of any work under this scheme.
- 4.1.6 In terms of the four specific WFD objectives, the Proposed Development is considered to support the River Don body's Biological status against further deterioration. This objective is not relevant to groundwater units.
- 4.1.7 The Proposed Development does not hinder either the River Don water body or the Tyne CLCM from achieving their respective target status objectives.
- 4.1.8 The Proposed Development does not permanently prevent or impede other water bodies in the same River Basin district from achieving their target status objectives.
- 4.1.9 The Proposed Development may contribute to delivery of WFD objectives for the River Don water body but is considered to have no discernible effect upon the Tyne CLCM groundwater body.

## SYSTIA

Appendix A: Drawings





#### **Appendix A: Contents**

- RPS drawing 204-P04 Proposed site layout
  RPS drawing 205-P01 Proposed landscape plan







				Tree	Pla	anting									
ext	Species	;			Form		Age		Girth	He	eight	Clear	Stem	Root	_
	Acer campestre			Standard (E	Extra h	eavy)	3x	16-18	Bcm	400-450	)cm	min 200	cm	RB	-
	Acer campestre 'Streetwise'			Standard (E	Extra H	leavy)	3x	18-20	)cm	450-500	)cm	min 200	cm	RB	-
	Acer rubrum 'Armstrong'			Standard (E	Extra H	leavy)	3x	18-20	)cm	450-650	)cm	min 200	cm	RB	-
	Alnus glutinosa			Standard (E	xtra-h	eavy)	3x	16-18	Bcm	400-450	)cm	min 200	cm	RB	1
	Betula pendula			Standard (E	Extra h	eavy)	3x	16-18	Bcm	400-450	)cm	min 200	cm	RB	1
	Betula utilis jacquemontii			Standard (E	Extra H	leavy)	3x	18-20	)cm	450-500	)cm	min 200	cm	RB	1
	Liriodendron tulipifera			Standard (E	Extra H	leavy)	3x	16-18	Bcm	400-450	)cm	min 2000	cm	RB	1
	Malus sylvestris			Standard (E	Extra H	leavy)	3x	16-18	Bcm	450-500	)cm	min 200	cm	RB	
	Prunus cerasifera			Standard (E	Extra H	leavy)	3x	16-18	Bcm	400-450	)cm	min 200	cm	RB	
	Pyrus calleryana 'Chanticleer			Standard (E	Extra H	leavy)	3x	18-20	)cm	450-500	)cm	min 200	cm	RB	
	Quercus robur			Standard (E	Extra H	leavy)	3x	16-18	Bcm	400-450cm		min 200	cm	RB	
	Sorbus aucuparia		Standard (E		rd (Extra Heavy) 3x		3x	16-18	Bcm	400-450cm		min 200cm		RB	
	Tilia cordata 'Green Spire'			Standard (Extra Heavy)		3x	18-20	)cm	450-500cm		min 200cm		RB		
	1			1			1		1			•			
				Nativ	/e ŀ	ledge	Mix								
ext	Species	Root		Height		Habit			Form	A	ge	Container	Centr	res (m)	Mix %
	Cornus sanguinea	В	60-8	)cm	Bran	ched				1/2			0.250		15.00
	Crataegus monogyna	В	60-8	)cm				Transpla	ant	1/1			0.250		25.00
	Corylus avellana	В	60-8	)cm	Bran	ched				1/2			0.250		15.00 9
	llex aquifolium	С	60-8	Cm	Lead	er & Laterals						3L	0.250		15.00 9
	Rosa arvensis	В	60-8	Cm	Bran	ched				1/1			0.250		15.00
	Viburnum opulus	В	60-8	Cm	Bran	ched		Transpla	ant	1/2			0.250		15.00
		I	1				1						1		
		0													
		SI	rut	o Planti	ing										
ext	Species			Contain	or	Root	Hei	nht	Habit		Centre	es (m)			
C AL	- Opeoies					1 11001	1 100	9	i iauli	1	00110	- (···)			

Text	Species	Container	Root	Height	Habit	Centres (m)
	Choisya 'Aztec Pearl'	3L	С	30-40cm	Bushy	0.600
	Cornus alba 'Aurea'	3L	С	60-80cm	Branched	0.600
	Euonymus fortunei 'Emerald Gaiety'	5-7.5L	С	30-40cm(D)	Bushy	0.450
	Griselinia littoralis	3L	С	40-60cm	Bushy	0.600
	Hebe rakaiensis	3L	С	20-30cm	Bushy	0.450
	Hebe sutherlandii	3L	С	20-30cm(D)	Bushy	0.450
	Lonicera nitida 'Maigreen'	3L	С	30-40cm(D)	Bushy	0.600
	Lavandula angustifolia 'Rosea'	3L	С	20-30cm	Bushy	0.450
	Mahonia aquifolium 'Apollo'	3L	С	20-30cm	Branched	0.600
/S	Mahonia media 'Winter Sun'	3L	С	30-40cm	Bushy	0.600
	Olearia x haastii	3L	С	30-40cm	Bushy	0.600
OL	Prunus laurocerasus 'Otto Luyken'	3L	С	30-40cm	Bushy	0.600
	Sarcococca confusa	3L	С	20-30cm	Bushy	0.450
	Viburnum davidii	3L	С	20-30cm	Bushy	0.450
	Viburnum tinus 'Eve Price'	3L	С	30-40cm	Bushy	0.500

	Wet Woodland Mix												
ext	Species	Root	Height	Habit	Form	Age	Centres	Mix %					
	Alnus glutinosa	В	175-200cm		Feathered	2x	1.500	20.00 %					
	Betula pubescens	В	125-150cm		Feathered	2x	1.500	10.00 %					
	Betula pendula	В	175-200cm		Feathered	2x	1.500	5.00 %					
	Corylus avellana	В	60-80cm	Branched		1/2	1.000	10.00 %					
	Populus nigra	В	60-80cm	Leader & Laterals			1.500	10.00 %					
	Rhamnus cathartica	В	60-80cm	Leader & Laterals		1/1	1.000	15.00 %					
	Rhamnus frangula	В	60-80cm	Leader & Laterals		1/1	1.000	15.00 %					
	Salix caprea	В	125-150cm	Branched	Feathered	2x	1.500	15.00 %					

## PLANTING SPECIFICATION

## EXISTING TREES AND SHRUBS

Where existing trees & shrubs are to be retained they should be subject to a full arboricultural inspection for safety. Any surgery required shall be in accordance with BS 3998 (2010) 'Tree Work - Recommendations', shall comply with any existing

T.P.O requirements and shall require the prior approval of the Landscape Architect Avoid damage to branches, trunks and roots of trees. All existing trees & hedges to be retained are subject to BS 5837 (2012) 'Trees in relation to design, demolition and construction - Recommendations', and should be fully fenced off, prior to the commencement of any works, in accordance with Figure 2 (p20) at the full extent of the root protection area, as determined by section 4.6 (p10-11) and Annex D (p40). No storage of materials, disposal of rubbish, site fires, spillage of oil and chemicals, ground compaction, excavation or changes in level shall be carried out within existing tree / hedge canopies.

## PLANTING

All plants and planting to comply with the requirements of all current / relevant British Standard specifications including BS 8545 (2014) 'Trees from Nursery to Independence in the Landscape', BS 3936: Part 1 (1992), Part 2 (1990) and Part 4 (2007) and BS 4043 (1989) where applicable, BS 4428 (1989). All plants to be supplied in accordance with the plant schedule and with regard to imported stock and notifiable diseases within the Plant Health Act 1967 (revised 2009). Any plant material planted outside the recognised planting season (Nov-Feb), to be containerised stock and supplied at the sizes specified. Where possible, trees and shrubs of UK provenance are preferred.

### TREE PLANTING

A suitable method of foundation allowing for existing ground conditions is to be provided to accommodate the proposed tree planting. All trees are to be planted as shown ensuring a minimum of 5 metres from buildings and 3 metres from drainage and services. Where necessary, root barriers to be installed (supplier: GreenBlue Urban (www.greenblueurban.com), or equal approved), as recommended by

#### structural engineer. Allow for the use of container grown stock during the period 1 April to 31 October, and field grown stock from 1 November to 31 March.

SHRUB PLANTING Where a shrub planting mix has been specified, plants to be grouped in 3 No. (min.) to 7 No. (max.) single species groups. Larger species to be located towards the rear of planting beds (i.e. where against a screen wall / house frontage), or towards the

#### centre of an island planting bed. Thorny species to be located centrally within the planting bed.

RABBIT PROTECTION Contractor to assess site for presence of rabbits. If rabbits are present, contractor is

#### to provide rabbit proof fencing to either a) the entire site boundary, or b) the

boundary of all planting beds. Contractor to ensure all existing and new vegetation (ornamental and native) and seeding is protected. TOPSOIL REQUIREMENTS

To BS 3882 (2015) 'Specification for topsoil' as qualified by full contract specification. All areas shall be cultivated to a minimum depth of 150mm. Full weed, rubbish and stones over 20mm gauge shall be removed. Earth to be rolled as required and raked in two directions. Applied to all newly planted areas (except wildflower / meadow planting), to manufacturers' recommendations where appropriate.

Shrub / structure / hedge planting beds - 450mm depth

Heavy standard tree pits 1500mm dia. x 450mm depth (Note: 450mm depth subsoil to be provided below - refer to tree pit details)

#### Grass areas (excluding wildflower) - 150mm depth Where necessary increase tree pit dimensions to ensure that tree pits are at least

75mm deeper and 150mm wider than rootball. Break up bottom of pits to a depth of 150mm. Compacted glazed sides of pits should be roughened.

#### Full analysis of existing and imported topsoil required prior to use. TOPSOIL IMPROVEMENTS

Applied to all newly planted areas, to manufacturers' recommendations where appropriate:

) Incorporate 75mm depth of soil conditioner into topsoil during cultivation; 2) Incorporate Enmag CRF granular fertilizer at approx 140g per pit to standard tree pit backfill and 70g per pit to structural / ornamental shrub planting: 3) Watering - supply minimum 54 litres / tree and 4.5 litres / shrub at planting; 4) Mulch - lightly fork over planted areas before applying a 75mm depth 50-100mm grade bark mulch. Note: all trees are to have minimum 300mm dia 'weed free' mulched areas around the base to eliminate the risk of strimmer damage. Ornamental Bark to consist of predominantly matured British Pine Bark with an

even nominal particle size distribution of 5-35mm with 0% dust & fines & less than 5% wood content. The product shall be pest, disease & weed free & not have been treated with Methyl Bromide or any additives. The product shall have been tested in accordance with the requirements of BS 4790:1987, for fire resistance. NB - Watering to be carried out prior to application of bark mulch. PLANT MATERIAL TREATMENT

## NB All to be British grown stock and fully hardened off.

Root Dip - Proprietary Root Dip applied to all bare rooted stock (1) at time of lifting at nursery and (2) prior to planting. Anti-Desiccant - Proprietary anti-desiccant to be applied to foliage of all containerised

/ rootballed material in leaf, specimen conifers and evergreens etc. (1) prior to transportation and (2) during any delay in planting. Pruning - Allow for pruning of all deciduous trees and shrubs by 1/3rd following planting at Landscape Architects direction or as indicated in the planting schedule

Tree Stakes & Ties - Stakes to be pressure treated, round, smooth and peeled Larch or Chestnut, not less than 100mm in diameter. Advanced nursery stock double staked with cross bar. TREE STAKES, TIES & GUARDS

#### Trees planted within grassed areas to be provided with appropriate conical strimmer guards. Stakes to be pressure impregnated softwood, round, peeled, straight, free of projections and pointed at one end. Minimum length and thickness to be

determined as follows: Tree type Min Dia. Overall Height Height exposed above ground Ex / Hvy Std 100mm 1.8m Tree type No. stakes No. ties

#### Ex / Hvy Std 2 GRASS SEEDED AREAS

Grass seeding generally to BS 4428 (1998) 'Code of practice for general landscape operations'. When topsoil is reasonably dry and workable grade to smooth flowing contours removing all hollows and ridges. Cultivate soil to full depth and break up any compacted topsoil. Apply approved herbicide to control perennial weeds and allow period of time to elapse as recommended by manufacturer before final cultivation. Apply proprietary pre-seeding fertilizer. Reduce top 25mm of topsoil to a fine tilth by further cultivation. Remove stones exceeding 50mm in any dimension. Sow approved grass seed mixture in accordance with suppliers recommendations during appropriate season and weather conditions, e.g. Germinal

#### (www.germinal.com) Mix A2 (Quality Lawn) (or equal approved) at 50gms/m2. Lightly harrow or rake then roll and cross-roll with lightweight roller.

Establishment cut: When grass is between 40-75mm high remove stones and debris exceeding 50mm in any dimension and roll with a lightweight roller. About 48 hours later cut grass to approximately 35mm high. Remove and dispose of all arisings. WILDFLOWER MANAGEMENT

#### Do not use fertiliser. Control weeds before sowing. Annual weeds may be hoed, buried or killed with a contract herbicide. Perennial weeds should be eradicated by a translocated glyphosate-based herbicide.

Sow mixtures either from early March to early May, or from early August to mid September, cultivate the ground to provide a fine, weed free seed bed, firm if necessary. Sow evenly at 4gms / m2, thoroughly mix one part seed with four parts dry sand to easily distribute.

Rake seed in lightly with spring-tined rake and firm soil by treading or, preferably, rolling. Water with a fine spray and keep well watered and free from unwanted Cut the sward every six-eight weeks during the first year after sowing and remove

#### the cuttings, in the following years cut in early spring before growth starts and in October once wild flowers have been shed - remove all cuttings. Establishment cut: Water all grass areas to maintain healthy growth. When grass is

50mm high remove debris, litter and any stones later in dry conditions cut grass to between 25-30mm. Remove and dispose of all arisings. PROTECTIVE FENCING

#### The contractor shall maintain fencing until all site works are complete. The contractor will then remove the fencing and reinstate the ground. The fencing will

remain the property of the contractor. Within the area so fenced, the existing ground level shall be neither raised nor lowered, all excavations shall then be carried out by The Local Planning Authority shall be advised in writing when the protective fencing has been erected so that it can be checked on site before development commences,

#### and shall thereafter be maintained during the period of construction. MAINTENANCE

Regular visits (minimum 14 No.) required during the defects liability / rectification period to maintain all planted areas in a weed and litter free condition using a combination of chemical spray and hand weeding to be agreed with the Landscape Architect. Maintenance to include watering, pruning, pest and disease control and re-mulching as required. Grass areas to be mowed at 2 week intervals during the

#### growing season. Structure planting areas shall be maintained as non competitive weed free environment by repeated applications of a glyphosate based herbicide. Persistent

weeds and unwanted scrub shall be spot treated as necessary with an alternative herbicide to be agreed with the Landscape Architect. Watering shall be carried out as necessary to maintain healthy growth or as required by the Landscape Architect.

#### NB: Final visit to be immediately prior to handing over and to include a fertilizer treatment of Enmag CRF granular fertilizer at 100g / m2 and a 25mm depth bark

mulch top up to all planted areas. BUFFER PLANTING: FEATHERED TREES AND WHIPS

Notch planting will not be permitted. All feathered trees and whips will be planted in prepared pits 600mm diameter x 600mm deep for feathered trees and 300mm diameter x 300mm deep for whips.

#### Each plant shall be placed upright in the centre of the pit with the roots spread evenly outwards and downwards without restriction, and backfilled with topsoil (to BS 3882: 2015), incorporating TPMC Tree Planting Compost (Amenity Land Solutions) (or equal approved) well mixed with topsoil backfill at a rate of 50:50 in consolidated layers, shaking the trees to remove voids.

Incorporate Enmag CRF granular fertilizer at approx 140g per pit to feathered tree pit backfill and 70g per pit to structural shrub / whip planting backfill. Supply water at a minimum 4.5 litres / whip and 18 litres / feathered tree prior to bark mulching. Feathered trees shall be staked using 1.0m long Larch or Chestnut stakes, round,

#### smooth, and peeled with 75mm diameter at the point and not less than 50mm at the butt end driven at least 600mm into the ground. Trees will be secured to the stake using a single 'Tom Tie' (www.jtoms.co.uk) or similar approved securely nailed at a point 50mm from the top of the stake to ensure no rubbing or excessive movement. The plant shall be well firmed, with the soil level 10mm above nursery level to allow for settlement. Clear away surplus soil and after watering apply a minimum 75mm deep x 300mm diameter collar of 50-75mm grade coarse bark mulch. All plants to be fitted with proprietry rabbit guards such as Tubex Ventex (www.tubex.com) (or

## SAFETY PRECAUTIONS

equal approved).

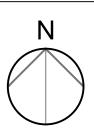
The landscape sub-contractor is to take all safety precautions to prevent any injury to any persons. The landscape sub-contractor shall comply with the requirements of the Health & Safety at Work Act 1974 and current Construction, Design and Management Regulations (2015). All subject to Local Authority approval.

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P01 First Issue

Rev Description

## Sherwood House, Sherwood Avenue, Newark, Nottinghamshire, NG24 1QQ T:01636 605 700 E: rpsnewark@rpsgroup.com

Client

Title



Proposed Landscape Plan

1:1250

RPS Project Number Scale @ A0 NK020439P Information Task Team Manager Author JBT .IT

rpsgroup.com

Date Created 13/06/2023 Task Information Manager DMB

Revision

P01

## S2 (Suitable for Information) Document Number 205

Project Code - Originator - Function - Space - Type - Role - Number

JT DMB 20/09/23 By Ckd Date



**Appendix B: WFD Record information** 





#### **Appendix B: Contents**

- 0
- EA website data for GB103023075690 River Don from source to tidal limit (surface water) EA website data for GB40302G701500 Tyne Carboniferous Limestone and Coal Measures 0 (groundwater)

Data Services Platform

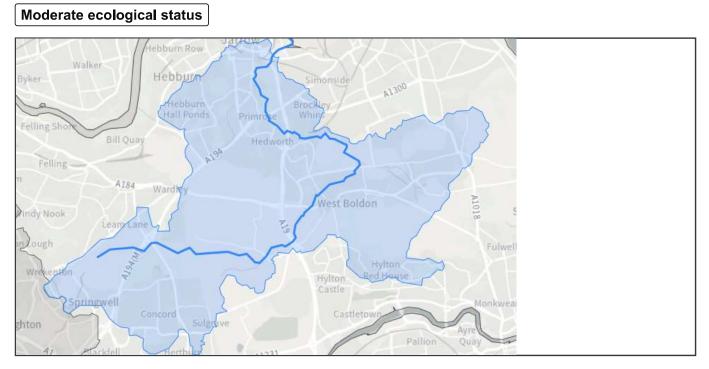


Catchment Data Explorer

Menu

Home / Northumbria / Tyne / Tyne Lower and Estuary / Don from Source to Tidal Limit

## Don from Source to Tidal Limit Water Body



#### Get Don from Source to Tidal Limit data

Download water body (Shapefile) Download water body (GeoJSON) Download classifications (CSV) Download site classifications (CSV) Download investigations (CSV) Download challenges (CSV) Download objectives (CSV) Download protected areas (CSV)

#### **Related links**

Plan maps on ArcGIS online Flood risk management plans

## **Attributes**

Water Body ID

Water Body Type

Hydromorphological designation

Catchment area

42.669 km2

Catchment area 4266.941 ha

## Classifications

Time period:

Cycle 3 🗸

assification Item	2019	2022
ological	Moderate	Moderate
Biological quality elements	Good	Poor
Invertebrates	Good	Poor
Macrophytes and Phytobenthos Combined		
Macrophytes Sub Element	Moderate	Moderate
Physico-chemical quality elements	Good	Good
Acid Neutralising Capacity		High
Ammonia (Phys-Chem)	Good	High
Dissolved oxygen	High	High
Phosphate	Good	Good
Temperature	High	High
рН	High	High
Hydromorphological Supporting Elements	Supports good	Supports good
Hydrological Regime	Supports good	Supports good
Supporting elements (Surface Water)	Moderate	Moderate
Mitigation Measures Assessment	Moderate or less	Moderate or less
Specific pollutants	High	High
Copper	High	High
Iron	High	High
Triclosan	High	High
nemical	Fail	Does not require assessmen
Priority hazardous substances	Fail	Does not require assessmen
Benzo(a)pyrene	Good	
Dioxins and dioxin-like compounds	Good	
Heptachlor and cis-Heptachlor epoxide	Good	
Hexabromocyclododecane (HBCDD)	Good	
Hexachlorobenzene	Good	
Hexachlorobutadiene	Good	
Mercury and Its Compounds	Fail	
Nonylphenol	Good	

Viewing latest data (Updated on 03 August 2023). Switch to river basin management plan data

Classification Item	2019	2022
TributyItin Compounds	Good	
Priority substances	Good	Does not require assessment
Cypermethrin (Priority)	Good	
Fluoranthene	Good	
Other Pollutants	Does not require assessment	Does not require assessment

Why do all water bodies have a chemical status of fail?

## Investigations into classification status

Classification Element	Cycle	Year	Status	Outcome
Ammonia (Phys-Chem)	2	2016	High	

# Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Physical modification	Other (not in list, must add details in comments)	Urban and transport	Mitigation Measures Assessment	<u>Details</u>
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and Its Compounds	<u>Details</u>
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	<u>Details</u>
RFD	High to Good deterioration, no action required (RFD only)	Not applicable	No sector responsible	Phosphate	<u>Details</u>

## Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0
Navigation	0	0	0	0	0	0	0

Viewing latest data (Updated on 03 August 2023). Switch to river basin management plan data

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0

## Objectives

Classification Item	Status	Year	Reasons
cological	Good	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Biological quality elements	Good	2021	Disproportionately expensive: Disproportionate burdens
Invertebrates	Good	2015	
Macrophytes and Phytobenthos Combined	Not assessed	2021	Disproportionately expensive: Disproportionate burdens
Physico-chemical quality elements	Good	2015	
Ammonia (Phys-Chem)	Good	2015	
Dissolved oxygen	Good	2015	
Phosphate	Good	2015	
Temperature	Good	2015	
рН	Good	2015	
Hydromorphological Supporting Elements	Supports good	2015	
Hydrological Regime	Supports good	2021	Disproportionately expensive: Disproportionate burdens
Supporting elements (Surface Water)	Good	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Mitigation Measures Assessment	Good	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Specific pollutants	High	2015	
Copper	High	2015	
Iron	High	2015	

Viewing latest data (Updated on 03 August 2023). Switch to river basin management plan data

Classification Item	Status	Year	Reasons
Chemical	Good	2063	Natural conditions: Chemical status recovery time
Priority hazardous substances	Good	2063	Natural conditions: Chemical status recovery time
Benzo(a)pyrene	Good	2015	
Dioxins and dioxin-like compounds	Good	2015	
Heptachlor and cis-Heptachlor epoxide	Good	2015	
Hexabromocyclododecane (HBCDD)	Good	2015	
Hexachlorobenzene	Good	2015	
Hexachlorobutadiene	Good	2015	
Mercury and Its Compounds	Good	2040	Natural conditions: Chemical status recovery time
Nonylphenol	Good	2015	
Perfluorooctane sulphonate (PFOS)	Good	2015	
Polybrominated diphenyl ethers (PBDE)	Good	2063	Natural conditions: Chemical status recovery time
Tributyltin Compounds	Good	2015	
Priority substances	Good	2015	
Cypermethrin (Priority)	Good	2015	
Fluoranthene	Good	2015	
Other Pollutants	Does not require assessment	2015	

## **Protected areas**

No data to show

# Monitoring sites which have been used to classify this water body

DON JUST U/S FARM BRGE AT MOUNT PLEASANT 43500018
DON JUST D/S CONF OF TRIB AT WARDLEY 43500145
DON JUST U/S THE LEAM SSO 43500003
<u>81719</u> 81719
<u>1746</u> 1746
<b>2131</b> 2131
DON AT JARROW CEMETERY 43500032

## **Upstream water bodies**

## **Downstream water bodies**

#### **TYNE**

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Data Services Platform



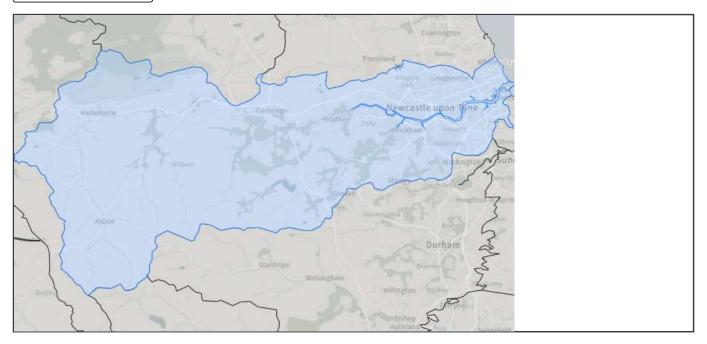
Catchment Data Explorer

Menu

<u>Home</u> / <u>Northumbria</u> / <u>Northumbria GW</u> / <u>Tyne Carboniferous Limestone and Coal Measures</u> / Tyne Carboniferous Limestone and Coal Measures

## Tyne Carboniferous Limestone and Coal Measures Water Body

Poor overall status



#### Get Tyne Carboniferous Limestone and Coal Measures data

Download water body (Shapefile) Download water body (GeoJSON) Download classifications (CSV) Download site classifications (CSV) Download investigations (CSV) Download challenges (CSV) Download objectives (CSV) Download protected areas (CSV)

#### **Related links**

Plan maps on ArcGIS online Flood risk management plans

## **Attributes**

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GB40302G701500	Groundwater Body	not applicable
<b>NGR</b> NY9483354320	Surface area 1765.251 km2	Surveillance Water Body No
<b>Groundwater area</b> 176525.11 ha		

## **Classifications**

Classification Item	2019
Overall Water Body	Poor
Quantitative	Good
Quantitative Status element	Good
Quantitative Dependent Surface Water Body Status	Good
Quantitative GWDTEs test	Good
Quantitative Saline Intrusion	Good
Quantitative Water Balance	Good
Chemical (GW)	Poor
Chemical Status element	Poor
Chemical Dependent Surface Water Body Status	Poor
Chemical Drinking Water Protected Area	Good
Chemical GWDTEs test	Good
Chemical Saline Intrusion	Good
General Chemical Test	Poor
Supporting elements (Groundwater)	
Prevent and Limit Objective	Active
Trend Assessment	No trend

Why do all water bodies have a chemical status of fail?

## Investigations into classification status

No data to show

# Reasons for not achieving good (RNAG) and reasons for deterioration (RFD)

All reasons (RFDs and RNAGs) attributed to the classification elements in this water body.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Diffuse source	Abandoned mine	Mining and quarrying	Chemical Dependent Surface Water Body Status	<u>Details</u>

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Point source	Abandoned mine	Mining and quarrying	Chemical Dependent Surface Water Body Status	<u>Details</u>
RNAG	Point source	Abandoned mine	Mining and quarrying	Chemical Dependent Surface Water Body Status	<u>Details</u>
RNAG	Point source	Abandoned mine	Mining and quarrying	General Chemical Test	<u>Details</u>

## Reasons for not achieving good status by business sector

The issues preventing waters reaching good status and the sectors identified as contributing to them. The numbers in the table are individual counts of the reasons for not achieving good status with a confidence status of 'confirmed' and 'probable', where the latest classification is less than good status. There may be more than one reason in a single water body. Note, table does not include reasons for deterioration.

Significant water management issue	Physical modifications	Pollution from waste water	Pollution from towns, cities and transport	Changes to the natural flow and level of water	Invasive non-native species	Pollution from rural areas	Pollution from abandoned mines
Agriculture and rural land management	0	0	0	0	0	0	0
Industry	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	5
Navigation	0	0	0	0	0	0	0
Urban and transport	0	0	0	0	0	0	0
Water Industry	0	0	0	0	0	0	0
Local & central government	0	0	0	0	0	0	0
Domestic general public	0	0	0	0	0	0	0
Recreation	0	0	0	0	0	0	0
Waste treatment and disposal	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
No sector responsible	0	0	0	0	0	0	0
Sector under investigation	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	5

## Objectives

Classification Item	Status	Year	Reasons
Overall Water Body	Poor	2015	Disproportionately expensive: Disproportionate burdens; Technically infeasible: No known technical solution is available
Quantitative	Good	2015	
Quantitative Status element	Good	2015	
Quantitative Dependent Surface Water Body Status	Good	2015	
Quantitative GWDTEs test	Good	2015	
Quantitative Saline Intrusion	Good	2015	
Quantitative Water Balance	Good	2015	
Chemical (GW)	Poor	2015	Disproportionately expensive: Disproportionate burdens; Technically infeasible: No known technical solution is available
Chemical Status element	Poor	2015	Disproportionately expensive: Disproportionate burdens; Technically infeasible: No known technical solution is available
Chemical Dependent Surface Water Body Status	Good	2027 - Low confidence	Disproportionately expensive: Disproportionate burdens
Chemical Drinking Water Protected Area	Good	2015	
Chemical GWDTEs test	Good	2015	
Chemical Saline Intrusion	Good	2015	
General Chemical Test	Poor	2015	Technically infeasible: No known technical solution is available

## **Protected areas**

PA Name	ld	Directive	More information
Border Mires, Kielder-Butterburn	UK0012923	Special Area of Conservation	Natural England
North Pennine Moors	UK9006272	Special Protection Area	Natural England
North Pennine Moors	UK0030033	Special Area of Conservation	Natural England
Northumbria Coast	UK9006131	Special Protection Area	Natural England
Northumbria Coast	UK11049	Ramsar Site	Natural England
Irthinghead Mires	UK11032	Ramsar Site	Natural England
Moor House-Upper Teesdale	UK0014774	Special Area of Conservation	Natural England
Roman Wall Loughs	UK0030267	Special Area of Conservation	Natural England
Cong Burn from Twizell Burn to Wear NVZ	S240	Nitrates Directive	
Smallhope Burn from Source to Browney NVZ	S236	Nitrates Directive	
Team from Source to Tyne NVZ	S234	Nitrates Directive	
Pont Burn Catchment (trib of Derwent) NVZ	S232	Nitrates Directive	

Viewing river basin management plan data. Switch to latest data

# Monitoring sites which have been used to classify this water body

## **Upstream water bodies**

## **Downstream water bodies**

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