

## Port of Tyne Car Terminal Upgrade Scoping Report



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# Port of Tyne Car Terminal Upgrade Scoping Report

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Author: Ian Buchan  
Reviewer: Paul Darnbrough

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EnviroCentre  
Craighall Business Park  
8 Eagle Street  
Glasgow  
G4 9XA

0141 341 5040  
[www.envirocentre.co.uk](http://www.envirocentre.co.uk)  
[info@envirocentre.co.uk](mailto:info@envirocentre.co.uk)

Offices:  
Glasgow  
Banchory

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# 1 INTRODUCTION

## 1.1 Background

The Port of Tyne in North East England is one of the UK's major deep sea ports - a vital trading gateway to Europe and beyond.

Investment of over £120m in the past 10 years has created the infrastructure to deliver continued growth of the Port's diverse businesses, encompassing conventional and bulk cargoes, car terminals, cruise and ferry, logistics and estates. As a result, the Port of Tyne contributes over £500m p.a. to the regional GVA and supports some 10,500 jobs in the North East region. The success of the Port of Tyne and the support it provides in partnership with business and manufacturing is a major factor in the North East region being the only UK region to have a net balance of trade – i.e. exporting more than importing. The Port's stated aim is to continue to develop a vibrant and sustainable port for the benefit of the national and regional economy.

The Port now operates a three Car Terminals to support amongst others Nissan and VW.

These are the Tyne Distribution Centre on the north side of the river Tyne, the Tyne Car Terminal on the south side and the Höegh Northern Terminal also on the south of the river – handling vehicles for many of the world's major car manufacturers.

The Port of Tyne's car handling business has been accelerating quickly over the past five years. The number of units in 2011 and 2012 reached record numbers, achieving 667,000 units, helped by a strong transshipment performance which saw an increase of 65,000 cars per year. This makes the Port of Tyne the UK's largest car exporter and the fifth largest car handling port in Europe.

Nissan currently exports from the south side of the Tyne at Tyne Dock whilst Audi and VW operate from the North side of the river. The car terminal utilised by Nissan is positioned adjacent to the western boundary of Tyne Dock, which is formed by the River Don, and is accessed directly off Jarrow Road. It is entirely separate from the Port's other operations at Riverside Quay.

With a high security reception and storage facilities, and a rail distribution terminal, the Port's car terminals have traditionally been considered to be one of the most versatile and efficient handling terminals in the UK and the Port of Tyne is recognised as a major European vehicle handler. Whilst the Port of Tyne facility could previously meet global car handling rates of 7.5 cars/ man.hr, Nissan recognise that in recent years, due to a combination of speed restrictions and congestion, the actual rate has reduced to 6.5 cars/ man.hr. Moreover Nissan recognise that, in order to improve its cost competitiveness and to attract new 3<sup>rd</sup> party business a handling rate of 10 cars/ man.hr is required.

Following discussions with Nissan the Port has determined the need for additional storage space at their terminal's Operational Area. This is principally to store vehicles at the Port and facilitate faster turnaround for ships and more efficient loading for import / export within the UK, to the rest of Europe and internationally. Furthermore, improvements are required to the Port's berthing facilities in order to accommodate the ever increasing size of vessels issued for transporting cars around the world. Therefore, the upgrades proposed have the potential to bring significant economic and social benefits to Tyneside, the wider north east and the UK as a whole.

This Scoping Report aims to assess the environmental and socio economic issues associated with the potential expansion to the Operational Area.

## 1.2 The Scoping Process

For projects that require Environmental Impact Assessment (EIA), the scoping exercise, undertaken early in the project, allows identification of the environmental issues which require assessment. Scoping provides an opportunity for dialogue between the applicant and the relevant Statutory and Non-Statutory Consultees, including Non-Government Organisations, to:

- obtain their views on the proposal;
- identify potential impacts;
- identify existing environmental information; and
- agree methods for the assessment of the nature and significance of these impacts, thus ensuring that all relevant environmental issues are covered by the EIA.

This enables the project to be designed to avoid or minimise negative environmental impacts and provides an opportunity to incorporate positive environmental enhancements into the project.

The Scoping Report has been prepared to assist South Tyneside Council (STC) and key consultation bodies in forming an opinion as to the likely effects of the development, it describes the proposal and provides information with regard to the legislative and physical environment and aims to provide information sufficient to their decision making. It seeks to identify and obtain agreement on the relevant environmental issues that are likely to be associated with the proposed development in order to ensure that the EIA is correctly focused. Equally the scoping exercise aims to eliminate those environmental issues which do not require further consideration within the EIA or where a reduced assessment (i.e. not a full ES Chapter) is considered acceptable.

Additional objectives of EIA scoping are:

- To establish the availability of baseline data;
- To request the statutory consultees to provide any relevant environmental information relating to the site and surrounding area;
- To define a survey and assessment framework from which a comprehensive overall assessment can be produced;
- To provide a focus for the consenting authority and the consultees' considerations – in terms of:
  - The potential impacts to be assessed;
  - The assessment methodologies to be used;
  - Other areas which should be assessed; and
  - Other issues.

The information contained in this document is based on the current understanding of the nature of the proposed development and preliminary assessment of the potential environmental impacts.

Key subjects addressed in the scoping report are:

- Legal requirements;
- Proposed framework for the Environmental Impact Assessment;
- Consultation;
- A description of the nature and purpose of the development option;
- Outline of the environmental assessment methodology;
- A description of the possible effects of the proposed developments on the environment;
- Results of initial desk studies and site surveys;
- Potential sensitivity of receiving environment;
- Maps and plans sufficient to identify the site and any other matters considered of relevance; and Comment on issues not to be addressed.

The Scoping Report comprises the following sections:

- Section 2: Description of the proposed development
- Section 3: Stakeholder Consultation
- Section 4: EIA Methodology
- Section 5: Planning Context
- Section 6-10: EIA Topic Areas
- Section 11: Scoping Summary

In addition, to ensure an appropriate level of consultation, the scoping report will be forwarded to key stakeholders on approval from Port of Tyne. A list of consultation stakeholders is provided in Section 3 of this report.

### **1.2.1 The Legislative Context**

The continued management and development of the Port is subject to European and National legislation of which the following is the principal legislation relevant to the current development programme:

- Council Directive 85/337/EEC (the 'EIA Directive') as amended by 97/11/EEC and 2003/35/EC;
- Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011;
- The Marine Works (Environmental Impact Assessment) Regulations 2007;
- Marine and Coastal Access Act 2009; and
- Coastal Protection Act 1949 (as amended).
- Harbours Act 1964

This request is for a scoping opinion as per part 4, regulation 13 of the Town and Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 2011.

A Marine Licence will also be required from the Marine Management Organisation (MMO) in accordance with the Marine and Coastal Access Act 2009 (MCAA) that has been in force since 6 April 2011

### **1.3 Scoping Report Contributors**

This scoping report was compiled by EnviroCentre Ltd with input from the following parties:

- Storeys Edward Symmons; and
- S.A.J Transport Consultants.

## 2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

### 2.1 Introduction

This section provides details of the proposed development option site and a description of the proposal.

### 2.2 Site History

In the second century, the Romans established a port on the River Tyne to trade grain, wood, hides, salt, lead, wool and fish in return for wine, leather, cloth, tiles and metal imported from Northern Europe, Spain and Italy. During this period the river Tyne grew in strategic importance as a supply line to the many forts along Hadrian's Wall. In medieval times, trade centred on the export of wool, hides, grindstones and lead, but it was the steady growth in the export of coal from 1600 onwards, together with the heavy duties levied on river users, that gave Newcastle its prosperity as coal steadily increased in importance. The City of Newcastle maintained its effective monopoly on the coal trade right up until the mid-nineteenth century.

Today the Port of Tyne bulk and conventional cargo business handles coal, wood-pellet, grain, scrap, steel and other cargoes. Since Nissan began manufacturing operations at Washington, Sunderland in the 1980s, and the development of both export and importing car terminals, the volume of cars handled at the Port of Tyne has grown exponentially and it is now the UK's largest car exporter, and the fifth largest car handling port in Europe.

The Port of Tyne's Tyne Car Terminal is primarily used to both import and export cars by ship. Vehicles are off-loaded from car carrying vessels docked at the Nissan Operational Area initially into the "first point of rest" (FPR) from where they are either stored or distributed around the UK or Europe. Similarly car transporters from the Washington factory are off-loaded and stored at their "last point of rest" (LPR) at the Nissan Operational Area prior to reloading and transportation on other vessels around Europe.

The Port of Tyne provides Nissan with the ability to export from its plant at Washington and at the same time to import vehicles manufactured elsewhere and distribute these to the rest of Europe. The ability to "back load" ships, which ensures that they make journeys to and from the port as near to fully laden as possible, makes its operations in the north east of England cost-effective.

The Nissan Operational Area was originally reclaimed from the mud flats associated with the River Don to expand the Port. Nissan is currently utilising this land to full capacity and land immediately to the south has also been utilised for storage in recent years.

Storeys Edward Symmons Group (SESG) has undertaken preliminary planning assessments and subsequently EnviroCentre Ltd was appointed in August 2014 to undertake the environmental scoping study for the proposed development.

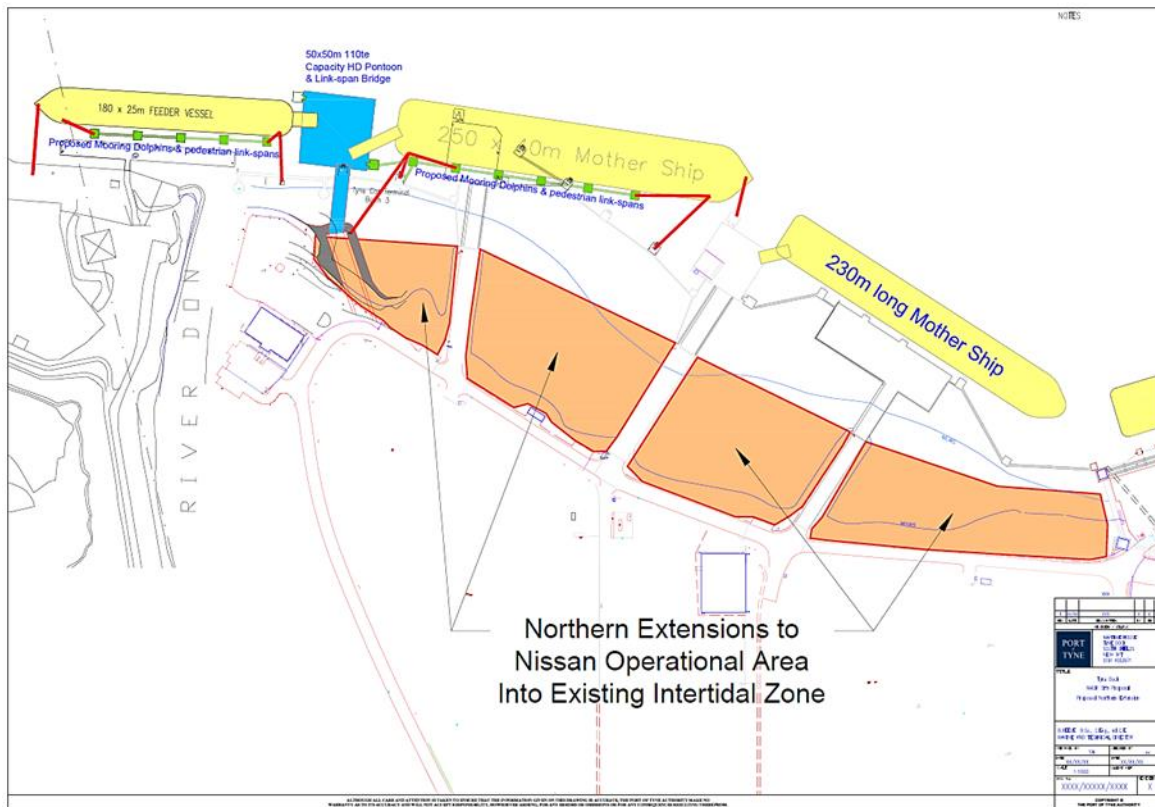
### 2.3 Description of the Proposed Development

Following discussions between the Port of Tyne and Nissan it is proposed to upgrade the Nissan Operational Area and associated Vessel Berths (Figure 2.1). The project is intended to serve two purposes:

- (1) To provide FPR/LPR areas immediately adjacent to the vessels to increase loading velocity to consistently achieve the 10 cars/man.hr target and to ultimately reduce vessel turnaround times.



- (2) To reconfigure the berths to accommodate two mother ships and one smaller 'city' class vessel rather than the current configuration which permits only one mother ship and two city vessels. The Port will be able to accommodate the trend for increasing vessel sizes and therefore maintain its competitive position. Through the economies of scale that this change will provide overall shipping costs will reduce and equally importantly this will enable the Port to continue to assist regional business in achieving the most cost-effective and efficient way to get their goods to international markets.



**Figure 2-1: Nissan Operational Area and associated Vessel Berths**

The operation at the Nissan Car Terminal has remained relatively unchanged over the last five years despite the increase in the number of vehicles that the Port handles. With growing demand there is a need to increase space at the Port to ensure Nissan operations remain viable, and compete with international standards.

It is proposed to undertake the proposed works in two distinct phases which are:

**Phase 1:** The infilling operation will comprise the first phase of the project, and will take place during late 2015 through to early 2016. The infill material will be transported to the site by ship and discharged directly from the ship into the areas to be infilled.

- The creation of additional levelled ground by way of an extension of the existing storage area into the River Tyne by 90 meters;
- The import of circa 120,000m<sup>3</sup> of inert material by ship for infilling which will be discharged into the infill area directly from the vessel. 3 to 4 vessels will be required.
- It is envisaged that a 6 month infilling period will be required however the timescale will be determined largely by the ground conditions and the type of material used for infilling. This information is still to be confirmed and will be subject to site investigations works and a full interpretive report from a geotechnical engineer.

- Customer timescale requirements also dictate that only minimal periods of surcharging to promote settlement of the areas will take place. Once infilled the areas will be levelled and coarsely surfaced to allow immediate use. Once phase 2 of the project is complete final surfacing will take place.

**Phase 2:** The second phase of the project will comprise of the linkspan construction during 2016 to 2017

- The removal and replacement of one pontoon and associated mooring dolphins in a western location. This will provide space for the mooring of two larger mother ships along the length of the quay with a feeder vessel at the western end moored to new mooring dolphins with an associated pedestrian link span adjacent to South Tyneside Council's existing berth. The new pontoon and associated mooring dolphins will not extend into the River beyond the existing equipment;
- The new mooring dolphins would be created by piling into the river bed. The pontoon will be a floating structure with a link span bridge connecting the pontoon with the land. Thus creating a further berth which can handle large mother ships up to 250m in length.
- There may be a requirement to undertake dredging in front of the pontoon and the River Don entrance.

There is an estimated 2.5 year timetable for all works, two years for installing the mooring dolphins and floating pontoon works and 6-9 months for the infilling works (Figure 2-2). Although the works will be affected in 2 stages there may be a short period of overlap in the early stages.



**Figure 2-2: Reconfiguration of Car Terminal Berths**

## 2.4 Alternatives

A number of alternatives to achieve some or all of the desired objectives have been considered below.

### 2.4.1 Berth Reconfiguration.

The possibility exists to develop the existing ro-ro facility at the North side of the port estate (Whitehill Point) to accommodate Nissan. The terminal is however already occupied and heavily used by VW and no additional car parking space adjacent to the berths is available. The use of this area would also require transporters to use the Tyne Tunnel which was seen as an additional barrier. This option was hence discounted by Nissan. There are no viable other options to achieve the customer requirement of being able to berth 2 mother ships and one feeder vessel at the South side of the river other than the one proposed.

Table 2-1 below summarises the advantages and disadvantages of this option and a summary appraisal.

**Table 2-1: Alternatives: Berth Reconfiguration**

Option	Advantage	Disadvantage	Overall Assessment
<b>Berth Reconfiguration</b>			
<b>Develop existing Ro-ro facilities at Whitehill Point to accommodate Nissan expansion requirements.</b>	Existing berths immediately adjacent to quayside	Already occupied by VW and likely to be even more congested than existing Nissan facility	Does not achieve customer cost efficiency requirements and construction costs prohibitive hence not viable
		The Ro-Ro 4 berth is only 7m deep at LAT (WHP jetty berth is only 8.5m deep at LAT). All mother vessels require 10m at LAT. This will result in additional capital dredging & reconstruction of the berths and quay walls.	
		The Ro-Ro 4 & WHP Jetty berth would need a new pontoon and link span to accommodate the quarter ramps of the mother vessels. This accompanied with the points above means the scheme would cost more than the development of the existing Nisan terminal.	
		Access from the Ro-Ro berths to the hinterland is not direct and therefore NM(UK) are unlikely to achieve any target loading rates from these berths.	
		Only capacity to berth 2 ships at one time	
		Transporters would need to travel through Tyne tunnel which imposes extra time and cost.	
		Area is accessed by a poor quality road which is already heavily used by VW HGV traffic servicing Interterminals and Owen Pugh.	
		Remote from current operational hub at South Side and would require duplication of staff	
		Port will lose its crucial layby facility at Whitehill point	

### 2.4.2 FPR/LPR car parking facilities.

The following list of alternative options to achieve some or all of the desired objectives have also been considered:

- Construct multi-storey car parking facility at Northerly end of existing compound; and
- Construct a raised car parking deck over intertidal area.

Table 2-2 below summarises the advantages and disadvantages of the options and a summary appraisal.

**Table 2-2: FPR/LPR Car Parking Facilities.**

Option	Advantage	Disadvantage	Overall Assessment
<b>FPR/LPR Facilities</b>			
<b>Construct multi-storey car parking facility in existing Nissan compound</b>	No loss/damage to local habitat and wildlife sites apart from short term disturbance during construction phase	Does not provide required increase in loading rates as vehicles are still stored >200m away from vessels.	Does not achieve customer key requirements and presents significant level of disruption to existing operations during construction phase.  Option not viable
	Does not require marine license	Very disruptive to existing operations – 14weeks to construct one module (500 car parking spaces)	
	May be possible under PDR	Likely to require higher capital cost than infilling option for equivalent car parking area	
		Higher noise impacts	
<b>Build suspended deck over intertidal area.</b>	Provides required increase in loading rates	Almost ten times the capital cost of infilling option	Capital cost prohibitive and does not provide better option for migratory birds. No/low benefit from large additional capital cost.
	Maintains shallow water nursery for fish	Impact on migratory birds same as complete infilling as they will not use habitat due to enclosed aspect of the site and very disturbed nature. Also approx. 1500 piles will need to be driven. Massive effect on habitat during construction period which is likely to be around 18 months.	
	No loss of existing car parking capacity	Very difficult to construct very disruptive to existing loading operations	
		1500 piles may affect the hydrology.	

## 3 CONSULTATION AND STAKEHOLDERS

### 3.1 Previous Consultation

#### South Tyneside Council (STC)

An informal view was sought from South Tyneside Council (STC) on 11th November 2013 concerning the “draft screening request” in connection with the Port’s proposals to upgrade the Nissan Operational Area, in which a request was made for a meeting to discuss the proposals. It was the consideration of the Planning Officer that “in his opinion the proposal would be subject to an Environmental Impact Assessment (EIA) because it would involve the permanent loss of intertidal mudflat habitat that forms part of the local site of wildlife interest and is an Site of Nature Conservation Interest (SNCI) but also stated that mudflats and saltmarsh are Biodiversity Action Plan priority habitats.

#### Marine Management Organisation (MMO)

A meeting was then requested between the Environment Agency, STC, Nissan, Port of Tyne and Marine Management Organisation (MMO) to discuss the draft screening and the purpose of the meeting was to discuss the development and the issues that had been raised. This meeting took place on 16<sup>th</sup> January 2014. A copy of the meeting minutes prepared by the MMO are attached to Appendix A.

From this preliminary informal discussion of the draft screening, the issues identified as being of particular importance include the following:

- Environmental Impact Assessment would likely be required;
- Biodiversity / Ecology requires assessment;
- Alternative compensatory areas may be required to satisfy encroachment policy;
- Flood Risk Assessment required;
- Dredging, contamination issues and sampling needs to be assessed.

Regulatory feedback at that stage suggested that the habitat had very significant biodiversity value and was very important for wintering birds. It was however also recognised at that time that:

- (1) The published data aggregated bird count data obtained for three separate areas (Jarrow Slake Intertidal mudflats, the River Don Salt flats and The Northumberland Dock) and the value of each site individually was not clear.
- (2) The bird count data predated the construction of the original car terminal and the disturbed nature of the site probably has resulted in a reduction in the bird populations using the site.
- (3) The site no longer had the visual appearance of a traditional intertidal mudflat and now appeared to be more sand flat which could have affected the feeding value of the site.

Over 2014 further works to characterise the site and its habit value were hence undertaken.

Sampling and analysis of sediment from the site showed that the base material is actually muddy sand containing less than 3% organic material not consistent with the OSPAR and UKBAP definitions of a mudflat which typically contains high levels of organics. The feeding value of the site is hence questionable.

A wintering bird survey undertaken over the winter of 2014-15 also showed that, whilst there were still small numbers of protected birds using the site the numbers were much less significant and indeed the highest counts were obtained from the Northumberland dock area.

This data was presented to planners at South Tyneside Council at a meeting on 13<sup>th</sup> February 2015, an informal response to which was received on 11th March (see appendix A). The response in particular highlighted the presence of Turnstone on the site (a qualifying feature for the Northumbria Coast SPA) suggested that a Habitats Regulation Assessment may be required as there may be a functional linkage between the site and the Northumbria Coast SPA and a significant effect on the SPA cannot be ruled out at this stage.

In order to further explore this aspect Natural England has been engaged through their Discretionary Advice Service. Further bird count data has also been obtained from the WeBS database to support the assessment.

### **Natural England**

Port of Tyne and EnviroCentre met with Natural England (NE) on Thursday 30th April 2015 to discuss the outcome of advice provided by Natural England as part of their "Discretionary Advice Service" (refer to Appendix A).

The initial assessment below has concluded that a likely significant effect on the Northumbria Coast SPA (by virtue of Turnstone which are a qualifying feature of the SPA) and the Northumberland Shore SSSI (by virtue of Redshank and Ringed Plover) cannot be ruled out with the limited data that we have and as it stands a Habitat Regulation Assessment is required. This precautionary approach is enshrined in the habitats regulations. If data could be gathered which proved that there is no interchange between the sites then a different conclusion could potentially be reached.

Natural England stated that Turnstone are primarily a marine bird which feed on invertebrates and flies on rocky intertidal shore lines etc. It is likely that the upriver sites do not support their preferred food source due to the lack of rocky areas. The lack of rocky habitat at the Northumberland dock probably also explains why they have not been seen there. Being a marine bird they also like an undisturbed open aspect which the current area provides.

The key question is whether the type of habitat can be recreated that the mudflats provide in the mitigation strategy? It was clear that the birds are feeding on the rocks at the edge of the original infilled area. Port of Tyne stated that as we infill the mudflats the same rocky feature could be recreated which would compensate. However, this would not be ideal as the openness of the site would be lost and being much closer to the ships would make the site more disturbed. As such it was the opinion NE that they would be less likely to use it.

The option of creating a rocky feature on the Northumberland dock was then discussed. NE however stated that the site was extraordinarily good for Redshanks and they would not want to encourage anything that jeopardised that. The possibility of creating a rocky habitat on the river Don shore line was also discussed. Natural England suggested that the birds were unlikely to use it because it is quite enclosed and disturbed with dog walkers. Also the birds like to stay near to the main river and tend not to use tributaries. The area is already designated as salt marsh and the EA may object to anything which changes river flow and which may affect the various areas of shallow salt marsh. That option for Turnstone was hence ruled out.

Port of Tyne suggested that the revetment adjacent to the Tyne tanker berth on the north side could be a good potential rocky habitat creation site and it was discussed at length. It was agreed that the current smooth hand placed rocks could be removed and replaced with coarse rock armour which would suit the birds very well. NE suggested that the creation of some additional groyne type structures perpendicular to the shoreline would encourage mud deposition and might well encourage other wading birds (such as the Ringed Plover) to use the site. This has been seen to have significant benefit in other projects such as the one in Morecambe Bay. This was seen as a good potential mitigation and as such it was agreed that we would work together with NE (and possibly the EA) to agree how the set up the site for maximum value..

It was agreed that there is probably enough capacity at the Northumberland Dock to accommodate the numbers of Redshank using the Nissan Area. Indeed they are almost certainly interchanging frequently between the sites already.

There was however, a significant discussion about the observed feeding habits of the Ringed plover. NE made the point that whilst significant numbers were seen at the Nissan site none were noted on the Northumberland dock or the River Don Saltmarsh. NE stated that there was clearly something there to attract them which we also need to understand. NE stated that these birds have short stubby beaks and feed in shallow salty sediment at the tidal interface and tend to move up and down with the tide. Whilst the proposed groyne structure on the north side will provide some feeding value for these birds in the opinion of NE there was clearly a need to create some additional mudflat close by which these birds can use to compensate for the loss at the Nissan site. In response Port Of Tyne presented the mudflat creation project which was previously developed to compensate for the proposed culverting of the Don Gut. The land at the confluence of the Don and Don gut is currently owned by the port up to the fence line and by the local authority beyond it. Under the current proposal the conversion of the port land only would deliver around 0.4 hectares of additional mudflat. NE stated that it would be better to use the full corner of land which would create 0.6 to 0.7 hectares and would seem adequate compensation to them. In the same way as above detailed discussions would be needed to design the habitat to create the best feeding value for the birds but again this could be formalised in a planning condition. The port recognised that they will need to engage the local authority with a view to the purchase or lease of their section of the proposed development site.

### **Environment Agency**

A meeting with the Environment Agency (EA) was held on 1st May 2015 to discuss the mudflat area adjacent to the Nissan Operational Area (refer to Appendix A).

Whilst the EA generally agree with the sediment assessment/characterisation methodology used they did not necessarily agree with the report's conclusion that the area is not mudflat but sandflat (the sediment study was undertaken on 1st September 2014 and a summary can be viewed in Section 8.3 with the full results in Appendix D).

The EA stated that the definitions are very vague and open to interpretation and for them the feeding value in the sediment not the level of organics is the most important consideration. If the mud is laden with significant numbers of polychaetes (worms) then it is in their opinion mudflat. This of course will be established by the benthic and invertebrate surveys which are to be carried out as part of the EIA, however these must follow EA guidelines. They referred to observations from the site visit that whilst there are some sandy areas, in their view the site still contains a significant area of mudflat. Until the results of the invertebrate survey are known they will work on the basis that it is still mudflat and as such is UKBAP priority for which the policy position is no encroachment. The EA did state that the project timescales are very ambitious.

Potential mitigation and what had been proposed and agreed with Natural England was then discussed. As regards compensation the EA has an equity calculator tool which they use and the proposals need to be screened against that. The tool assesses the value of mudflat against factors such as scarcity and quality and puts a monetary value on it. They cited a similar project at Bran Sands (Middlesbrough) which proposed to develop about 4 hectares of relatively low quality mudflat which our report seems to suggest this is. That project concluded that a compensation value of around £1million was required. We should therefore estimate the cost of the proposed mitigations against that sum to see how well it compares.

The EA stated that there is little opportunity to provide compensation within the site boundary and a commuted sum to a third party may be an appropriate method of compensation. It would be useful to think about the process you propose for undertaking this, who would be the third party, the planning mechanisms and whether this will be finalised prior to submission to South Tyneside Council/ MMO.

The EA stated that the area was not just important for migratory birds but also for migratory fish and that the site is important as it provides a nursery for juvenile fish and this needed to be considered in the EIA.

Since the project potentially altered the hydromorphology of the river then that also needed to be considered. I explained that this had already been screened into the EIA and would be covered.

They also stated that a water framework directive assessment would also be required.

### **3.2 Proposed Consultation**

With specific reference to the proposed development the following consultees have been identified as the bodies with whom we anticipate consulting with as part of the Scoping and EIA:

- South Tyneside Council (STC)
- Marine Management Organisation (MMO)
- Environment Agency (EA)
- Highways Agency (HA)
- Natural England (NE)
- English Heritage (EH)
- Health & Safety Executive (HSE)
- Maritime and Coastguard Agency
- Centre for Environment, Fisheries and Aquaculture Science (CEFAS)

Alongside the statutory consultees it is also recommended that a series of non-statutory bodies should also be consulted where relevant to give professional judgement on the proposed development option, in relation to this project



## 4 EIA METHODOLOGY

### 4.1 Introduction

The purpose of the EIA process is to ensure that the environmental impacts and the resulting effects of the proposed development, both positive and negative, are assessed systematically, prior to a planning decision being made. The results of the EIA will be presented in an Environmental Statement (ES) and used to inform the decision-making process. The ES should identify, describe and assess the likely significant effects of the development on the environment, both direct and indirect, with reference to:

- Human beings;
- Climate;
- Fauna;
- Landscape;
- Soil;
- Air;
- Water; and
- Any interactions between the above.

Following the scoping process as described in Chapter 1, the EIA involves the following key stages:

**Baseline Studies:** identification of existing environmental conditions through review of existing information and monitoring and field studies as required, to provide a datum against which to assess the likely significant impacts of the proposed development;

**Potential impacts:** identification of potential impacts specific to the development.

**Assessment of Impacts:** identification and assessment of likely significant impacts on the environment from the proposed development, with quantification of impacts where possible;

**Mitigation:** the identification of measures to avoid, reduce or compensate these impacts; and

**Residual Impacts:** identification of residual impacts after mitigation.

### 4.2 Assessment Terminology and Criteria

In order to evaluate environmental impacts and determine their significance, it is important that assessment criteria are identified. In most instances environmental standards and guidelines are available. The various methodologies that will be used within each specialist area will be identified within the appropriate section of the ES.

Where formal guidance is not available, the assessment of impact significance will rely on IEMA guidance and professional judgment that is based on a documented methodology for that assessment. While there may be some variation between topic areas, the assessment will generally take into account the following:

- The type of impact (i.e. positive, negative, direct, indirect, temporary, permanent, cumulative);
- The probability of the impact occurring (i.e. certain, uncertain);
- The policy importance or sensitivity of the resource under consideration, in a geographical context (i.e. international, national, regional, district or local);
- The magnitude of the impact in relation to the resource that has been evaluated (quantified if possible or, if not, using the scale high, medium, or low); and
- Any potential cumulative impacts.

Where practicable, mitigation measures to avoid reduce or offset any adverse environmental impacts of the proposed development will be built into the overall scheme design. Other mitigation measures may include constraints on particular aspects of construction methodology or mode of operation. Therefore, the final assessment will take account of the mitigation measures and will only consider any predicted residual impacts.

With regard to potential cumulative impacts these will be discussed in relation to development impacts between different topic areas, (e.g. the cumulative impacts of noise and dust from the proposals) and also in terms of other developments in the local area for which planning consent has been granted.

### **4.3 Topic Areas**

On the basis of professional judgement and a review of previous informal discussions, the topics to be included within the scope of the EIA and subsequent Environmental Statement (ES) are listed and will be discussed in the following chapters:

- Planning Context;
- Water Environment;
- Ecology (Including Ornithology);
- Sediment Assessment;
- Socio-Economic; and
- Cumulative Effects.

The approach to the scoping assessment of each of these topic areas is outlined in the following sections with the inclusion of baseline data where available. A planning context chapter would also be included in the ES. Similarly for and sediments impacts, associated with the proposed development option, discussion will be included within the ES and, if required, a technical appendix.

The assessments will consider the potential environmental impacts related to both the construction and operational phases where applicable. In relation to Cumulative Impacts this assessment will be included in the ES as a chapter.

On the basis of professional judgement and review of baseline conditions, full impact assessment is not considered necessary for the following topics, the rationale for which is provided below:

- Traffic and Transport;
- Air Quality;
- Noise;
- Landscape & Visual; and
- Archaeology and Cultural Heritage.

#### **Traffic and Transport**

The land reclamation works will involve the importation of circa 120,000m<sup>3</sup> of inert material for infilling. This material will however be imported by ship and will be delivered directly to the infill area by a ship mounted boom. The project will therefore have little or no impact on to traffic movement in the area.

The transport related issues associated with the proposed development have been assessed against national and local policies set out in the following documents:

- National Planning Policy Framework; March, 2012
- The Third Local Transport Plan for Tyne and Wear, 2011-2021
- South Tyneside Local Development Framework – Core Strategy; September 2010
- South Tyneside Local Development Framework – Central Jarrow Area Action Plan; September 2010

The principal objective of the policies in the above documents is to support the promotion of accessibility by all modes of travel in order to support sustainable economic growth.

The proposed development is to upgrade the existing Nissan Operational Area and associated Vessel Berths.

**National Planning Policy Framework (NPPF)** states plans and decisions should take account whether:

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- Safe and suitable access to the site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts are severe.

**The Third Local Transport Plan (LTP3)** for Tyne and Wear sets out the ten-year transport strategy for the area from 2011 to 2021. The Plan is produced by the Tyne and Wear Integrated Transport Authority (TWITA) on behalf of the six LTP Partners – the five local authorities in Tyne and Wear (Gateshead, Newcastle, North Tyneside, South Tyneside, and Sunderland) plus Nexus.

The LTP3 is focused on ways to address challenges within three key areas:

- Supporting economic development and regeneration;
- Addressing climate change; and
- Supporting safe and sustainable communities.

South Tyneside Local Development Framework (LDF) Core Strategy supports sustainable developments that:

- regenerate the River Tyne and coastal corridors including the Tyne Gateway at South Shields,
- support development that reflects the scale and functions of main towns of South Shields, Jarrow and Hebburn,
- promote opportunities along the A19 Economic Growth Corridor,
- ensure the sustainability of our settlements by reducing the emissions which cause climate change and adapting to its effects; and
- Maximise the re-use of previously developed land, in the built out areas.

The Port of Tyne is included in the Key Diagram of the LDF Core Strategy.

**The Central Jarrow Area Action Plan** has also identified the support of the development of the Port of Tyne as a key driver of the region's economy.

The proposal to upgrade the existing Nissan Operational Area and associated Vessel Berths provides opportunities to maximise the use of the existing infrastructure at the Port of Tyne. It is considered that the proposed development is consistent with objectives set out in the national and regional documents for sustainable developments.

## **Baseline Assessment**

The Site is located at the Port of Tyne, which is accessed via the A185/Pilgrimsway signal-controlled crossroad junction.

The Port of Tyne is located approximately 1km to the west of the A19/A185 grade separated interchange.

The A19 forms part of the trunk road network and provides links to North Tyneside and Northumberland to the north, and Wearside, Teesside, and North Yorkshire to the south.

The route between the Site and the A19 is an established HGV route for the existing Port of Tyne development.

## **Potential Impacts**

It has been assumed that the completion of the expansion of the Nissan Operational Area will generate no additional vehicular trips to the surrounding road network. Any expected increase in trip generation associated with the export of vehicles would be accommodated under the extant planning permission for the Port of Tyne operations.

Overall, it is not considered that the proposed development will have any material traffic and transportation impacts to the surrounding road network. Traffic and Transport will hence be scoped out of the Environmental Statement.

## **Air Quality**

The site currently operates as a port facility which would remain relatively unchanged post construction. We understand there have been no complaints received by the council relating to the Nissan Operational Area on the grounds of dust emissions and air quality. The closest residential area is identified as properties on Slake Road circa 300m distance from the infilling works.

The main impact on air quality is considered to occur during the construction phase when fugitive dust can be generated through construction activities. The Port routinely monitors dust at the Port in relation to cargo handling, and mitigation measures are currently in operation which could be used to ensure effective dust control during construction. Dust associated with the proposed development will be addressed within the Cumulative Effects section, and procedures to minimise dust arising during the construction phase will be addressed within a Construction Environmental Management Plan (CEMP).

While at present traffic generation is not expected to change significantly, if any of the criteria identified above is met then we would re-consult with South Tyneside Council Environmental Health Department to define the scope of the air quality assessment. However, AQ is not considered to lead to significant environmental effects and therefore no further study will be undertaken as part of the EIA.

The proposed development is set within an existing working Port, therefore, it is not considered that the proposed development will have a significant environmental impact on air quality, particularly dust, and an Environmental Management Plan based on best practice dust control could be agreed with the authorities and would be appropriate in this instance.

## **Noise**

This project is similar in a number of ways to the 2014 Riverside Quay Extension project where noise impacts could arise from receipt of rock for land reclamation and from piling activities. Whilst the initial receipt of rock demonstrated that this activity has the potential for significant noise impacts the handling technique was significantly modified to discharge directly into the water and no noise impacts arose from subsequent receipts

of rock. The proposed infilling of the intertidal area will be executed in the same manner and minimal noise impacts are expected.

Piling activities associated with the construction of the new berth arrangement also have the potential for noise impacts in the same way as the construction of the Riverside Quay Extension. Noise modelling however predicted that noise impacts at sensitive receptors would not significantly add to the day time background. This was confirmed by noise monitoring during piling.

The Port of Tyne, in consultation with the Council’s Environmental Health Service, has developed and operates to an Operational Noise Management Plan (Parsons Brinckerhoff, June 2012). The Noise Management Plan identifies 6 receptors which are considered to be particularly susceptible to noise generated by port activities i.e. noise sensitive receptors, which are located in the area surrounding the Port of Tyne facilities. These six noise sensitive receptors are listed below and shown in Figure 4-1.

1. The Captains Row
2. Temple Town
3. Hudson Street
4. Newcastle Road
5. Slake Road
6. Coble Dene



**Figure 4-1: Noise Receptor Locations**

As shown in Figure 4-1, the closest residential receptor to the Nissan Operational Area is Receptor No. 05 “Slake Road”, which is some 175 meters from the Port boundary and approximately 300 m southwest from the proposed reclamation land areas.

In addition the Port has two unmanned noise monitoring units which are identified as A and B in Figure 4-1. The two unmanned noise monitoring units will be used to assess noise levels during the construction and operation of the proposed development.

The whole development site will be contained within the active and operational area of the Port of Tyne that includes transportation of coal, scrap and other metals. Given that this is a working Port with frequent changes in noise level it is considered that all the proposed construction works are likely to be accommodated within the existing background noise levels if undertaken in normal working hours.

It is acknowledged that during the construction phase of the development it will be necessary to undertake some piling activities for the installation of the mooring dolphins and pontoon. This impact will be a short term temporary activity that will introduce a new noise source to the local area in addition to other usual construction activities associated with transport and tipping of fill material.

The proposed development is set within an existing working Port, accordingly, it is not considered that the proposed development will have a significant environmental impact in terms of noise.

Taking the above into account it is considered that noise will not be significant and an Environmental Management Plan based on best practice noise control could be agreed with the authorities and this approach would be appropriate in this instance.

### **Landscape & Visual**

The site is located within the large Port of Tyne estate in South Shields and adjacent to St Paul's Conservation Area. The proposed development is not expected to be sensitive in terms of visual impact as all works will be at the level of the existing Nissan Operational Area.

Any views of the extended area would be limited to those from the north side of the Tyne and on the western boundary from St Paul's Church and Monastery although these are most likely to be screened by vegetation. The site is not highly visible or generally visited and views are likely to be similar to existing views (Figure 4-2). The infilling works are up to ground level only and of a similar character to existing so giving rise to similar views. There are no significant ground features on completion of the project and no changes in landscape character from existing. The mooring dolphins and pontoons are also similar in character to existing and will not extend into the River beyond their existing location.



**Figure 4-2: Proposed development area**

Accordingly, it is not considered that the proposed development will have a significant environmental impact in terms of visual impact. The proposed development is set within an existing built up area and the proposed extension will not appear out of place in terms of their location, massing or height.

It is considered that given the type of works to be undertaken and the scale of works within the Port setting that a full detailed landscape and visual assessment will not be required for the EIA.

### **Archaeology and Cultural Heritage**

In order to inform this scoping a rapid study has been undertaken, highlighting the potential for unrecorded cultural heritage assets, and identifying designated and undesignated assets both within the proposed development area and within the immediate vicinity.

There are no designated cultural heritage features (Scheduled Monuments or Listed Buildings) within the development area.

Within the surrounding 500m of the proposed development a number of other recorded cultural heritage features were noted. These largely relate to the recent maritime heritage of the area, and include features such as the timber ponds within Jarrow Slake; maritime losses dating between the 18th and 20th centuries; and docks (including the Tyne Dock itself) and shipyards. There are also a number of cultural heritage finds in the area such as stone axes and red deer and ox bones.

Further sites of interest within the wider vicinity include two Scheduled Monuments; the village of Jarrow (SM26575) and St Paul's Monastery, Jarrow (SM26515); this scheduling also contains two Grade I Listed Buildings, The Church of St Paul (LB303745) and the ruins of Jarrow Monastery (LB303745).

The Wearmouth-Jarrow bid for World Heritage status has been withdrawn after an evaluation by the International Council on Monuments and Sites (ICOMOS). The assessment by ICOMOS concludes that "ICOMOS recommends that the Twin Monastery of Wearmouth-Jarrow, United Kingdom, should not be inscribed on the World Heritage List." The report's findings were due to be considered by officials from the United Nations

Educational, Scientific and Cultural Organisation (UNESCO), with a final decision expected to be made during the World Heritage Committee's annual meeting in St Petersburg, Russia, between June 24 and July 6 2012.

The decision to withdraw was made jointly by the Department for Culture, Media and Sport (DCMS), English Heritage and the Wearmouth-Jarrow Partnership to avoid the bid being turned down by UNESCO World Heritage Committee. The Bishop of Jarrow has suggested that the bid may be submitted again but significant further work needs to be done in light of the findings of the ICOMOS report.

Of consideration under the issue of Cultural Heritage Value is, therefore, the impact on the existing statutory designations including the listed St Paul's church and monastery ruins and their settings, Schedule Ancient Monument and St Paul's Conservation Area each of which are on the western side of the River Don.

Mitigation of identified physical impacts is likely to include preservation in situ as far as reasonably practicable and preservation by record where this is not possible. Mitigation measures will include the operation of protocols and procedures for the reporting and handling of any archaeological discoveries made during the course of the proposed works; and when required, a suitable programme of archaeological works to be agreed with the County Archaeologist.

Taking the above into account it is considered that a Construction Environmental Management Plan based on good practice could be agreed with the authorities and would be appropriate in this instance. This position will be summarised in an introductory section of the ES.



## 5 PLANNING CONTEXT

This section considers the current planning policy and guidance relevant to the proposals as set out in the National Planning Policy Framework (NPPF) and the development plan for South Tyneside Council.

### 5.1 National Planning Policy Framework

The National Planning Policy Framework (The Framework) was published on 27th March 2012. This provides the Government's overarching policy framework for planning and replaces the previous Planning Policy Guidance and Statements. The Framework is a material consideration in the determination of applications but does not form part of the Development Plan.

#### ***Presumption in Favour of Sustainable Development***

The Framework reflects the 2004 Act in requiring that applications for planning permission must be determined in accordance with the development plan unless material considerations indicate otherwise. At the heart of the Framework is a presumption in favour of sustainable development 'which should be seen as a golden thread running through plan making and decision taking' (paragraph 14). However, Paragraph 119 of the framework states that the presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered. It should be noted that the removal of the presumption in favour of sustainable development in these instances does not preclude developments which require this type of assessment, merely that demonstration of sustainability as described in the framework does not necessarily provide an indication of the overall appropriateness or acceptability of a proposed development.

#### ***Core planning principles***

The Framework sets out the core planning principles (paragraph 17) that should underpin both plan-making and decision taking. Among the 12 principles, the Framework encourages high quality design and a good standard of amenity, and the effective use of land by re using land that has been previously developed.

#### ***Building a strong, competitive economy***

Section 1 of the NPPF sets out the Government's commitment 'to securing economic growth in order to create jobs and prosperity' (paragraph 18). Accordingly paragraph 19 states:

The Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Planning should operate to encourage and not act as an impediment to sustainable growth. Therefore significant weight should be placed on the need to support economic growth through the planning system.'

In recognising the potential impact of planning policies on the attractiveness and viability of development, paragraph 21 cautions: 'Investment in business should not be over-burdened by the combined requirements of planning policy expectation.'

#### ***Planning conditions and obligations***

Paragraph 203 of The Framework details that "Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or obligations". Furthermore, paragraph 206 of The Framework states: "Planning conditions should only be imposed where

they are necessary, relevant to planning and to the development to be permitted, enforceable, precise and reasonable in all other respects”.

### **Natural Environment**

Paragraph 113 of the Framework states that ‘distinctions should be made between the hierarchy of international, national and locally designated sites, 24 so that protection is commensurate with their status and gives appropriate weight to their importance’.

In addition, paragraph 118 details a range of principles that local planning authorities should apply when determining applications in order to conserve and enhance biodiversity, these include considering the availability of alternative sites, possible mitigation measures or as a last resort, compensation before refusing planning applications.

### **Historic environment**

Given the relationship of the proposal site to the listed buildings and sites of archaeological interest at the St. Paul’s monastery site it is also important to have regard for the advice contained within Section 12 – Conserving and enhancing the historic environment of the framework which details approaches to be taken in relation to the conservation of the historic environment.

### **Implementation**

Finally, the Framework provides important advice on implementation at Annex 1 paragraph 215, stating that ‘due weight should be given to relevant policies in existing plans according to their degree of consistency with the framework (the closer the policies in the plan to the policies in the Framework, the greater the weight they may be given)’. This is an important consideration in assessing the weight that should be given to the policies of South Tyneside Council.

## **5.2 South Tyneside Local Development Plan**

In determining planning applications local planning authorities’ decisions should be “in accordance with the development plan unless material considerations indicate otherwise”. Section 38 of the Planning and Compulsory Purchase Act 2004 details that the development plan consists of regional spatial strategies; and, the development plan documents that have been adopted or approved.

However, the Localism Act of 2011 introduced reforms to the planning system, including the abolition of regional spatial strategies and the introduction of local plans and neighbourhood planning.

The current development plan for the site, therefore, comprises:

### **South Tyneside Council Core Strategy (June 2007)**

The South Tyneside Core Strategy (CS) was published in June 2007 and is the central document in the South Tyneside Local Development Framework. The Core Strategy sets out the overall strategic direction for the plan and contains policies and proposals to drive forward the delivery of the Council’s strategic aims. The Core Strategy contains a number of policies and proposals which apply to the application site. In particular, a key element of Policy ST1 which sets out the spatial strategy for South Tyneside is to ‘regenerate the River Tyne. This policy is expanded upon at paragraph 1.12 which states that: *‘The area has a history of shipbuilding, mining, heavy engineering and port related industries. Although much has declined, some of these industries form an important part of the Borough’s local economy, which is becoming more diverse by expanding into the culture and tourism sectors as well as aspiring to the knowledge-based sector. We need to make sure that this progress continues.’*

However, in addition to the plans stated strategic aim of regenerating the River Tyne, the River Tyne corridor is also designated as a wildlife corridor under Core Strategy Policy EA3 - Biodiversity and Geodiversity which aims to 'optimise conditions for wildlife, implement the Durham Biodiversity Action Plan and tackle habitat fragmentation' this policy goes on to specifically recognise mudflats as 'priority habitats' within which developers must ensure that 'new development would result in no net loss of biodiversity value'. Policy EA3 also states that the Council will:

- 'Protect and strengthen populations of Priority or other protected species,
- Enhance the biodiversity value of wildlife corridors; and,
- Where appropriate, restrict access and usage in order to conserve an area's biodiversity value.'

At the time of its publication the Core Strategy promoted the designation of the nearby St Paul's Church as a World Heritage Site. However, the UK's nomination of the Wearmouth-Jarrow twin monastic site to become a World Heritage Site was formally withdrawn in January 2014 at the recommendation of ICOMOS and UNESCO, and subsequent agreement of central Government and Sunderland and South Tyneside Councils.

### **Development Management Policies DPD (December 2011)**

The South Tyneside Development Management Policies DPD was produced to assist in the implementation of the Core Strategy. The document sets out development management policies to address locally distinctive issues that are not covered elsewhere by national policy or other Local Development Framework documents. Details contained within this document which are of particular relevance to the proposal are summarised below.

Policy DM2 states that South Tyneside Council will 'promote and facilitate economic growth and prosperity, in accordance with regional and local aspirations'. In support of this policy, Paragraph 3.10 recognises '*the special circumstances relating to the Port of Tyne, and also the creation of new economic development land at Tyne Dock. The future development of Port of Tyne land at Tyne Dock and Jarrow Slake is supported in Policy SA3 (and paragraph 4.6) of the Site-Specific Allocations DPD and in Policy J4 (and paragraph 4.4) of the Central Jarrow Area Action Plan. In terms of Policy DM2, it is anticipated that there would be some flexibility in the application of the policy to recognise the long term benefits of such development.*'

Policy DM6 - Heritage Assets and Archaeology states that the Council will '*support development proposals that protect, preserve, and where possible enhance the historic, cultural and architectural character and heritage, visual appearance and contextual importance of our heritage assets and their settings, including... St. Paul's Monastery and the site of the former Village of Jarrow.*' This policy relates to the statutory designation of St. Pauls.

Policy DM7 – Biodiversity and Geodiversity sets out a range of criteria in relation to the individual and cumulative detrimental impacts of development upon the integrity of sites with recognised biodiversity or geodiversity value. This policy also goes on to state that '*Development within or outside these designations will only be approved where the benefits of development clearly outweigh any adverse impact on the site, and any broader impacts on the national network of Sites of Special Scientific Interest. Exceptions will only be made where no reasonable alternatives are available. In such cases, we will use planning conditions and/or planning obligations to mitigate or compensate for the harmful effects of the development, and through good design seek opportunities to incorporate biodiversity and geodiversity features into the development.*'

Policy DM7 of the Development Management Policies DPD is also supported by The Local Wildlife and Geodiversity Sites Technical Appendices (June 2010). The Technical Appendices document provides a summary of all of the Local Development Framework's Local Wildlife and Geodiversity Site designations. Pages 48-49 include a detailed description of the Jarrow Slake Mud Flats including a description of the habitats included, details of the species it hosts and details of the sites designation history and status, pages 87-89 provides a

similar description of the nearby and related River Don Saltmarsh. Both of these sites are designated as Local Wildlife Sites.

### **Central Jarrow Area Action Plan (September 2010)**

The Central Jarrow Area Action Plan (AAP) is the detailed development plan document for the Central Jarrow area. It sets out the more detailed strategy and vision, policies and site-specific land allocations for the Jarrow town centre, riverside and Bede's World area. Specific site allocations and land designations are illustrated on the AAP's accompanying proposals map which extends to cover the Nissan Operational Area.

Although the AAP also identifies the development constraints affecting the proposal site which are highlighted in the Core Strategy and Development Management DPD, it also recognises the important economic role that the Port of Tyne plays in the local economy.

As such, Policy J1 – Strategic Vision for Central Jarrow aims to '*support the development of the Port of Tyne as a key driver of the region's economy*'. In addition, Policy J4 - Economic Development Opportunities in Jarrow states that '*The economic growth and prosperity of Jarrow will be promoted by supporting the future development needs of the Port of Tyne to enable it to adapt and operate efficiently as a key gateway to trade, where it would not adversely impact on St. Paul's and its setting...*'. Land in the Ownership of the Port of Tyne is also identified in the accompanying proposals map.

In addition, Policy J10 Protecting the Built Environment Assets of Jarrow also states that '*We will work with partners to increase the sense of historic place by protecting the integrity and setting of the area by:*

*E) investigating ways to reduce the visual impact of existing large structures; and,*

*F) working in partnership with the Port of Tyne Authority to integrate and balance the needs and aspirations of the working Trust Port.*

This policy is also supported by paragraph 6.6 which states that the Council are '*working with private landowners to encourage appropriate refurbishment of boundary structures and enhanced landscaping measures to help screen and thus reduce the visual impact of neighbouring industrial land uses, such as the Jarrow Oil Terminal at Quay Corner and the Port of Tyne's developments at Jarrow Slake.*'

However, Policy J11- Protecting the Natural Environment Assets of Jarrow of the AAP sets out development criteria in relation to the Jarrow Slake Mudflats which is broadly in line with Policy DM7 described above.

### **Site Specific Allocations DPD (April 2012)**

Policy SA3 Economic Development Opportunities states that '*Economic growth and prosperity will be promoted and facilitated, in accordance with local and regional aspirations*'. The policy goes on to state that South Tyneside Council will '*support future development of the Port of Tyne at Tyne Dock and Jarrow Slake to enable it to adapt and operate efficiently as a key strategic gateway to trade*'.

Policy SA3 is supported by paragraph 4.6 which emphasizes that '*The Port of Tyne plays a significant role in promoting economic growth, investment and prosperity in South Tyneside, both directly and indirectly.*' And goes on to state that the council will '*assess such proposals on their own merits should they come forward*'.

## 6 WATER ENVIRONMENT

The water environment in this context is considered to encompass hydrology, hydrogeology, water quality, hydromorphology, artificial drainage systems and the risk of flooding. This section of the EIA would therefore address all these subject areas.

The Water Framework Directive (WFD) (Council Directive 2000/60/EC) aims to protect and enhance water bodies within Europe and covers all estuarine and coastal waters out to 1 nautical mile. This requires that there is no deterioration in the quality of surface or groundwater bodies and aims to achieve good ecological status or potential. The implications of the WFD must be considered when assessing this project and the details of how compliance will be achieved provided in the ES.

### 6.1 Context

The proposed development, as described in Section 2, has the potential to cause changes to the baseline hydrological conditions on land and the hydrodynamic processes within the River Tyne. Given the importance of the water environment as a valued resource, and the importance of ensuring sustainable development, an assessment of the potential effects is considered essential.

The assessment would identify sensitive issues within the proposed development site by establishing the current baseline and assessing the proposed site design and potential impacts within this context.

### 6.2 Baseline Assessment

The site is located within the heavily modified Tyne estuary where water levels are influenced by the interaction of flows on the River Tyne with tidal conditions. (Figure 6-1). The River Don flows into the Tyne to the west of the Nissan plant and a smaller tributary flows along the southern boundary of the site.



Figure 6-1: Approximate Area of Nissan Operations

### **6.2.1 Hydromorphology and Water Quality**

The historic infilling of the quay and the presence of the existing berths has already altered hydrodynamics of the River Tyne from the natural conditions and the river is regularly dredged to maintain navigation depths.

The Tyne catchment has historically been subjected to extensive mining activities which have resulted in sediment contamination (particularly with heavy metals) across the catchment, including the tidal stretch. Industrial activities have historically also contributed to sediment and water contamination in this area. The Water Framework Directive – River Basin Management Plans (Estuary) on the EA website indicated the Tyne estuary is heavily modified hydromorphologically and has moderate ecological quality and failing chemical quality. Sediment quality is further discussed in Section 8.

### **6.2.2 Flood Risk**

Environment Agency (EA) flood maps show the existing berths to lie within the floodplain, while the reclaimed areas of the site are not considered to be at risk of fluvial/coastal flooding for the 1 in 200 year return period event, although a small area to the north east of the site is considered to be at risk during an extreme 1 in 1000 year return period event.

A river flow gauging station on the River Tyne is located at Bywell approximately 12km upstream of the site and the North Shields tide gauge is located near the site, where normal tidal range is ~5m and the highest recorded tidal level was 6.898mCD (Chart Datum). Climate change predictions indicate that sea levels could rise by up to 0.375m by the 2050's as a result of climate change.

The site is currently hard standing and is not in hydraulic continuity with groundwater. It is assumed that all surface water runoff drains to the Tyne, either directly or via outfalls. This would be confirmed during a site walkover to establish existing drainage conditions.

Assessment of flood risk and hydraulic processes has been previously undertaken for the extension of the Riverside Quay and this work will be referred to during the assessment for the Nissan site.

## **6.3 Potential Impacts**

The proposed development will involve the following key construction and operation activities that have the potential to impact the water environment within the site and environs:

- Removal and replacement of one pontoon and associated mooring dolphins;
- Construction of new pontoons and dolphins (piling);
- Potential re-routing of existing drainage outfalls;
- Infilling of reclaimed area (i.e. with terrestrially sourced material);
- Dredging in an area adjacent to the River Don and pontoons; and
- General construction activities.

The key receptor in terms of the water environment is considered to be River Tyne estuary. The River Don is unlikely to be significantly affected by the proposal development.

The potential impacts include:

- Alterations in Tyne flow current velocities due to the reduction in river cross sectional area and introduction of new piles in the channel (resulting changes in sedimentation/erosion pattern);
- Physical effects on habitats and species as a result of activities in the water environment, *i.e.* increased suspended sediments;
- Surface water management due to introduction of new impermeable surfaces (reclamation) and potential re-routing of existing drains;
- Contamination of Tyne water and bed sediments through construction, spillages (oil, fuels and suspended solids), sediment transfer and drainage outfall diversions, and the potential mobilisation of contaminated bed material; and
- Changes to flooding characteristics and climate change implications

The above impacts are all initially considered to be of potential significance and therefore require investigation and assessment.

The EIA will address the potential for the project, in particular the narrowing of the channel and introduction of piled structures, to induce changes to tidal and flow current velocities and the potential effect this would have on erosion and deposition patterns in the Tyne. Previous hydrodynamic modelling undertaken as part of the Tyne Dock infilling will be reviewed to determine the likely impacts. The impacts that these changes would have on ecological receptors will be considered as part of the ecology study.

During the works there is the potential for adverse effects as a result of both piling and dredging activity on marine receptors. In particular, the historic industrial use of the Tyne estuary gives rise to concerns that contaminated sediments may be identified within the area proposed for dredging and without mitigation could mobilise into the channel. The new mooring dolphins would be created by piling into the river bed and will disturb the bed sediments which may lead to a slight increase in suspended solids and potential migration of dissolved phase contaminants. In order to give consideration to the impacts of the project as a whole, the ES will also contain an assessment of the likely potential impact of dredging requirements on the local hydrodynamic regime and provide full rationale to support any predictions. Previous environmental assessments associated with the Tyne Dock infill and Riverside Quay expansion concluded that this is considered low and limited to the construction phase; however this will be reviewed as part of the EIA process. The risk of contamination due to construction will also be assessed *i.e.* the release of oils, fuels, cement and increased sediment load.

The risk of flooding will also be assessed and changes in sea level, storm surge and wave action due to climate change will be considered.

## 6.4 Methodology

Assessment will be undertaken in accordance with current European and national legislation, guidance and good practice. It is expected that there will be collaboration between hydrologists, ecologists and engineers in order to develop an optimum outline design with regards to surface water management and inform good construction practice.

The components of the assessment are as follows:

- Desk based review of the design of the proposed development in relation to the local water environment;
- Consultation with key stakeholders including EA and South Tyneside Council to obtain relevant information and to ensure their concerns are addressed within the study;
- Baseline assessment
  - Review topography and ground conditions at the site and environs;
  - Review of hydrology of the Tyne, catchment characteristics, water quality conditions, water abstraction/discharge information;
  - Review of river processes including bathymetry, tidal levels, river and tidal flow currents, wave action, surge and funnelling, bed sediment type and distribution, sediment transport and deposition; and
  - Reporting of baseline conditions to provide a basis for assessment of the potential impact.
- Impact assessment
  - Identification of sensitive receptors and environmental constraints;
  - Identification of potential impacts;
  - Assessment of impact significance during Construction Phase and Operational Phase;
  - Identification and assessment of mitigation measures to reduce or avoid any potential impacts of the proposed development; and
  - Statement of residual impacts.

Assessment of the potential for particulate and chemical contamination of water will be central to the assessment. The prevention of pollution during construction and operational phases will be a specific focus of the ES and recommendations made for the adoption of good working practices in line with appropriate guidance.

The proposed development will be considered in light of potential flood conditions due to drainage (surface water runoff and diversion of existing outfalls), and existing flood risk from the rivers and sea. The Flood Risk Assessment previously undertaken for the infilling of Tyne Dock and Riverside Quay will be reviewed and referenced as appropriate. The potential effects of climate change will be assessed according to the UKCP09 (UK climate programme 2009) and The River Tyne to Flamborough Head Shoreline Management Plan 2 (Royal Haskoning, 2007) which presented the following tidal levels and extreme sea levels (Table 6-1) and the following offshore significant wave heights (Table 6-2) for this section of coastline.

**Table 6-1: Astronomical Tidal Levels and Extreme Sea Levels**

Astronomical Tidal Level (mODN)			Extreme Sea Level for Stated Return Period (mODN)				
MLWS	MHWS	HAT	1:10yr	1:25yr	1:50yr	1:100yr	1:200yr
-2.15	2.15	2.85	3.04	3.17	3.23	3.34	3.41

(source: Royal Haskoning, 2007)

**Table 6-2: Offshore Significant Wave Heights (m) for Different Wave Directions**

Return Period (years)	Significant Offshore Wave Height (m)
0.1	4.24
1	6.08
10	7.92
20	8.48
100	11.61

(Source: Royal Haskoning, 2007)



The Nissan Operational Area is sheltered from wave action within the River Tyne under most conditions and wave action is considered to be negligible. Previous hydrodynamic modelling undertaken as part of the Tyne Dock infilling will be reviewed to determine likely impacts on flow and sedimentation patterns and identify any requirement for further modelling.

Potential impacts arising from the development will be predicted and evaluated by comparison with environmental quality standards, sediment quality standards, and water and sediment quality objectives. The observed baseline data will initially be used along with expert opinion to qualitatively assess the potential impacts and the significance to receptors.

The assessment will be carried out with reference to the following regulatory controls and associated guidance:

- Marine and Coastal Access Act 2009;
- Water Framework Directive 2000 (WFD);
- Port of Tyne Environmental Policy;
- Coastal Protection Act 1949 (as amended);
- EC Habitats Directive;
- Groundwater control – design and practice (C515), CIRIA (2000);
- The reclaimed and recycled construction materials handbook (C513), CIRIA (1999);
- Control of Water Pollution from Construction Sites, CIRIA (2001);
- Development of a groundwater vulnerability screening methodology for the Water Framework Directive (WFD28), (SNIFFER) (2004);
- Coastal and marine environmental site guide (C584), CIRIA (2003);
- Bunkering Code of Practice, Marine Conservation Association;
- EA Pollution Prevention Guidelines 1- 26 (where appropriate); and
- EA Engineering Good Practice Guidance (where appropriate).

## 7 ECOLOGY (INCLUDING ORNITHOLOGY)

### 7.1 Context

The proposed development, as described in Section 2, has the potential to impact upon the terrestrial and marine habitats and species and the links between them.

#### 7.1.1 Ecological Legislation

With cognisance of the legislative and policy background to nature conservation in England (listed below), the following sections outline the current baseline ecological knowledge of the site and its immediate environs, and the approach considered appropriate to achieve a reliable assessment of potential impacts and effects on ecology, along with the identification of suitable mitigation.

- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the 'Habitats Directive');
- EC Directive 79/409 on the Conservation of Wild Birds;
- The Conservation of Habitats and Species Regulations 2010;
- The Wildlife and Countryside Act (as amended) 1981;
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Natural Environment and Rural Communities Act 2006; and
- Planning Policy Statement 9: Biodiversity and Geological Conservation

### 7.2 Baseline Assessment

#### 7.2.1 Desk Study

To inform the scoping report a desk study was completed. The desk study involved a search for any statutory and non-statutory designated sites, notable habitats and species within a 5km radius from the site using the following sources:

- UK Biodiversity Action Plan:  
<http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/ukactionplan.aspx> ;
- Durham Biodiversity Action Plan (BAP): [www.durhambiodiversity.org.uk](http://www.durhambiodiversity.org.uk) ;
- Northumberland Biodiversity Action Plan  
[http://www.nwt.org.uk/sites/default/files/files/Nland\\_Biodiversity\\_Action\\_Plan.pdf](http://www.nwt.org.uk/sites/default/files/files/Nland_Biodiversity_Action_Plan.pdf);
- Joint National Conservation Committee (JNCC) website: [www.jncc.gov.uk](http://www.jncc.gov.uk);
- Nature on the map website: [www.natureonthemap.org.uk](http://www.natureonthemap.org.uk); and
- South Tyneside Council website: [www.southtyneside.gov.uk](http://www.southtyneside.gov.uk).

The following list identifies key documents available to support the Ecological Impact Assessment (EIA) for Port of Tyne:

- Tyne Dock Infill EIA (2009);
- FEPA Licence Application Supplementary Environmental Review, EnviroCentre Report Number 3643. February 2009;
- Riverside Quay ES, EnviroCentre Report Number 4941. January 2013

- MMO Licence Application Supplementary Environmental Review, EnviroCentre Report Number 5519 . June 2013
- Tyne Dock Reclamation ES (Rev. 3). Port of Tyne Authority. November 2008;
- New Tyne Crossing Environmental Statement. Ove Arup and Partners Ltd. May 2002;
- River Tyne Crossing Salmon and Sea Trout Tracking Programme Annual Reports 2003-2008. CEFAS. 2003 – 2008;
- Tyne Tunnel Ecological Survey and Assessment: Jarrow Wharf. Argus Ecological Services. July 2008;
- Extended Phase 1 Habitat Assessment of Land Adjacent to the River Tyne, Northumberland. Parsons Brinckerhoff Ltd. February 2009;
- New Tyne Crossing – Preliminary Dredge Pipeline Routes. Aquatic Environments. February 2009;
- Tyne Dock Infill - Outline Method Statement', Bouygues Travaux Publics, Report number 83118 (Reference NTC-M-BYG-02-RIV-83118-PO2, revision PO2);
- Soil Mechanics Report, Soil Mechanics, Report 8122, November 2008;
- Tyne Dock Archaeological Assessment and Recording, University of Newcastle, 1999; and
- E3 Ecology Ltd (2014). Port of Tyne: Upgrading of the Nissan Operational Area and Associated Vessel Berths .Report

A number of statutory designated sites were identified within 5km of the site, the closest of which include Sites of Special Scientific Interest (SSSI), the Northumbria Coast SPA, and the Durham Coast SAC.

A number of non-statutory designated sites were also identified within 5km of the site. The western extent of Port of Tyne is adjacent to the River Don Salt Marsh Local Wildlife Site (LWS). LWS's are designated as being of local conservation interest by local authorities, and are of material consideration when planning applications are being determined. The Jarrow Slake LWS is located at the mouth of the River Don, and is a remnant intertidal mudflat noted for the presence of foraging wading and wetland birds (including redshank, curlew, lapwing, dunlin, ringed plover and teal) and saltmarsh vegetation with regionally rare plants such as sea spurrey, scurvy grass and sea aster (Table 7-1).

**Table 7-1: Designated Sites**

Designated Sites	Site Name	Distance from Tyne Dock (Within 5km)
Ramsar/ Special Protection Area (SPA)	Northumbria Coast	4km NE
Special Area of Conservation (SAC)/ Site of Special Scientific Interest (SSSI)	Durham Coast	4km NE
Site of Special Scientific Interest (SSSI)	Northumberland Shore	4km E
	Tynemouth to Seaton Sluice	4km NE
	West Farm Meadow, Boldon	4km NE
	Boldon Pastures	4km SW
	Harton Down Hill (SSSI and LNR)	4km S
	Cleadon Hills (SSSI and LNR)	4km SE
Local Nature Reserve (LNR)	Marsden Quarry	4km NNW
	Wallsend Dene	4km SSE
	Primrose Nature Reserve	5km SW
	Station Burn and Colliery Wood	5km S
	Newton Garth and Tiledsheds Nature Reserve	5.0km NW
Local Wildlife Sites (LWS)*	Jarrow Slake	0.3km
	River Don Salt Marsh	0.3 km SSW

\* Most of the 52 LWS in South Tyneside are within 5km of the site. These two are the most relevant.

### 7.2.2 Birds

The proposed development could have an impact on wintering birds. Figure 7-1 provides an overview of ornithological sites. A brief review of the bird populations at the various sites within the Tyne Estuary is presented in Table 7-2 which is taken from the Environmental Statement for the New Tyne Crossing. According to information for the Jarrow Slake LWS description, the site is an important roosting and foraging site for resident, wintering and migratory species, and in particular waders. Numbers such as 1000+ Golden Plover, 300+ Redshank and 100+ Dunlin have previously been recorded. Other notable species such as Turnstone and Purple Sandpiper (qualifying interests of the Northumberland Coast SPA) have also been recorded. Specifically addressing the issue of Redshank, which has historically been a concern of South Tyneside Council and the Environment Agency, indicates that the area at Wallsend to Jarrow is a significant habitat for Redshank. This includes an area to the north of the River Tyne adjacent to Northumbrian Water Sewerage Treatment as shown in Figure 7-2. Land ownership in the area indicates, as shown in Figure 7-3 (with the Port ownership in blue) that Port of Tyne own a part of this wetland area but Northumbrian Water own a significant area of the wetlands as well.

**Table 7-2: Peak Monthly Count Data for Wildfowl and Waterfowl Using the Tyne Estuary from Webs data (After Norman 1999)**

Species	North Shields	Wallsend -Jarrow	Dunston	Blaydon	Ryton Willows	Overall*
Great Crested Grebe ( <i>Podiceps cristatus</i> )	1					1
Cormorant ( <i>Phalacrocorax x carbo</i> )	48	67	23	23	8	41
Grey Heron ( <i>Ardea cinerea</i> )	1	1	5	4	2	9
Mute Swan ( <i>Cygnus olor</i> )			5			5
Teal ( <i>Anas crecca</i> )	11	16	341	36		384
Mallard ( <i>Anas platyrhynchos</i> )	2	11		4	22	22
Pochard ( <i>Aythya farina</i> )				2		2
Common eider ( <i>Somateria mollissima</i> )	10					10
Goldeneye ( <i>Bucephala crangula</i> )				3	21	21
Red breasted Merganser ( <i>Mergus merganser</i> )	2					2
Moorhen ( <i>Gallinula chloropus</i> )					8	8
Coot ( <i>Fulica atra</i> )					6	6
Oystercatcher ( <i>Haematopus ostralegus</i> )	30					30
Ringed plover ( <i>Charadrius hiaticula</i> )	16			5		16
Golden plover ( <i>Pluvialis apricaria</i> )	1	332	1400			1550
Lapwing ( <i>Vanellus vanellus</i> )		440	1301	200	70	1901
Knot ( <i>Calidris canutus</i> )	1					1
Sanderling ( <i>Calidris alba</i> )	33					33
Purple sanderling ( <i>Calidris maritima</i> )	46					46
Dunlin ( <i>Calidris alpina</i> )	220		239			281
Culrew ( <i>Numenius arquata</i> )	6	16	35	4		59
Redshank ( <i>Tringa totanus</i> )	137	423	123	26	3	519
Turnstone ( <i>Arenaria interpres</i> )	29	4				33
<b>Total Wildfowl</b>	<b>598</b>	<b>1314</b>	<b>3472</b>	<b>308</b>	<b>144</b>	<b>5085</b>

**North Shields:** Tyne Pier to North Shields Fish Quay, north shore of estuary only

**Wallsend to Jarrow:** Northumberland Dock and adjacent to river, Jarrow Slake and River Don tidal area

**Dunston:** Redheugh bridge to Scotswood Bridge (A1), both banks.

**Blaydon:** Scotswood bridge to Newburn bridge, both banks

**Ryton willows:** Newburn bridge to Clara vale, both banks

\***Overall** total for each species refers to the peak number counted in the whole estuary in any one month.

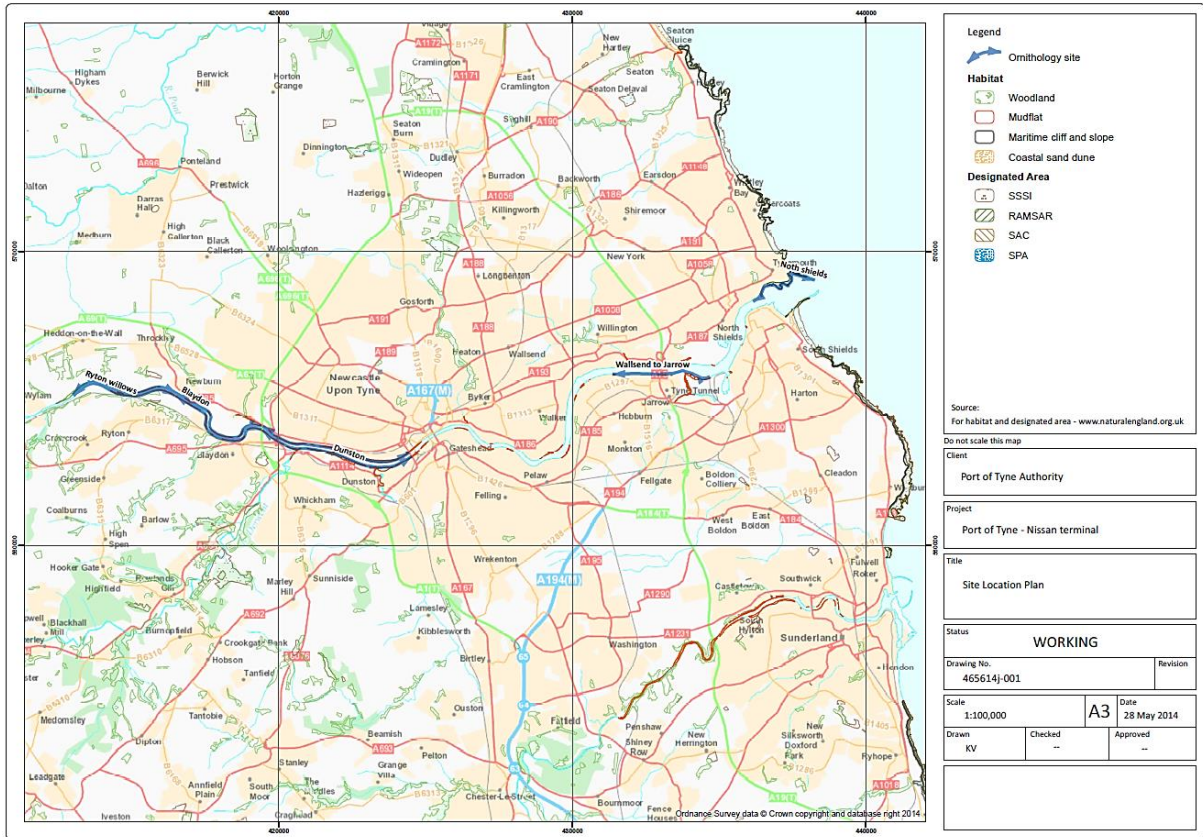
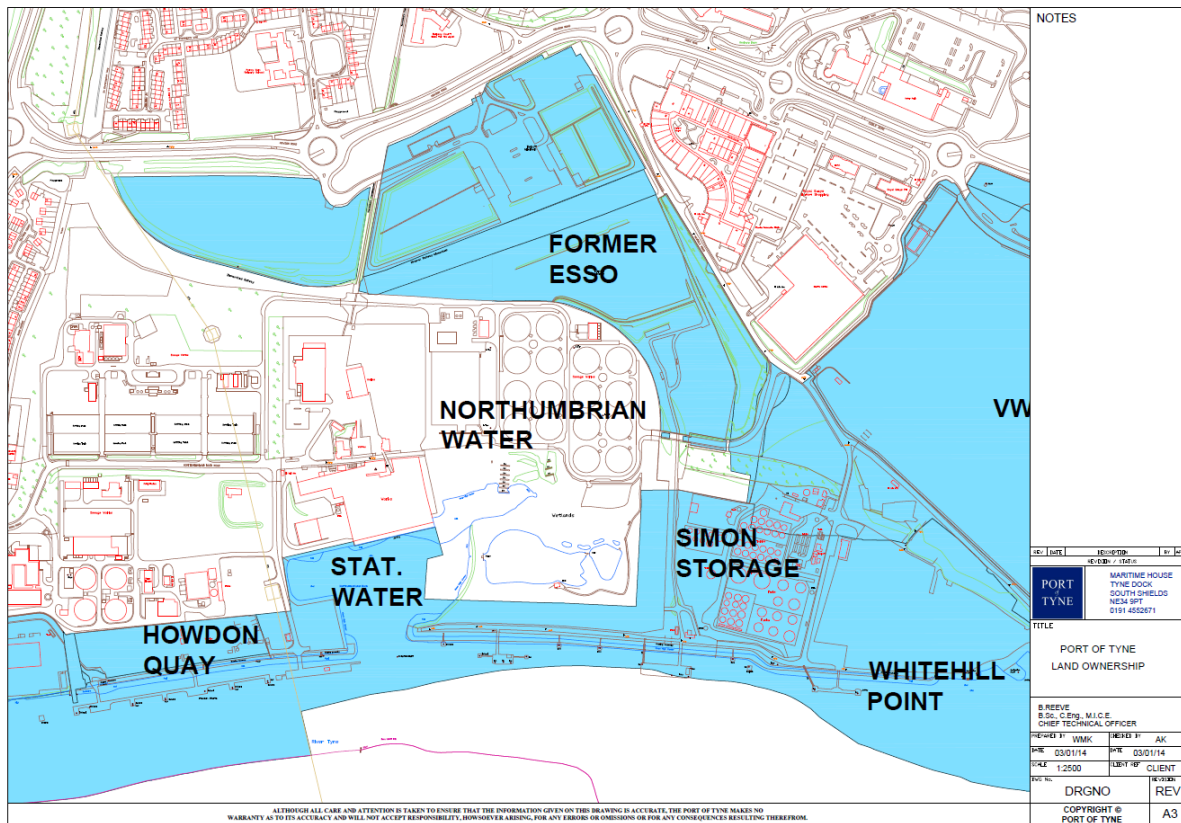


Figure 7-1: Ornithology Sites – Overview



Figure 7-2: Northumbrian Water Sewerage Treatment Facility to the North of the Proposed Development Area



**Figure 7-3: Land Ownership (Port of Tyne owned land in blue)**

A recent survey undertaken by E3 Ecology (2014) has provided an overview of bird distribution over the wider area which may be influenced by the proposed Nissan Operational Area development. The following is extracted from the report in order to supplement the historic data presented in Table 7-2 above.

**The Site**

*“One of the larger areas of mudflat in the local area, but heavily disturbed during one survey, with a large transporter ship present, only two redshank were then present. The staithe provide a high tide roosting option for waders, cormorant and gulls, but are likely to be quite highly disturbed. The site lies on the flightline for kittiwake commuting between the Gateshead nest sites and the North Sea. Small numbers (<10) will feed off the site and roost on the jetties. Bird numbers did not accord with those reported in the Local Wildlife Site designation, but visual access was generally poor.”*

**The Don Saltmarsh**

*“The area by the River Don was well visited by a number of dog walkers that can approach to the water’s edge, increasing disturbance. Also signs of antisocial behaviour were noted. The River Don supported a number of waders and wildfowl where mudflats are exposed by the tide. Birds move to and fro across the river from the River Don to Northumberland Dock.”*

**Northumberland Dock**

*“The highest density of birds were in the Northumberland Dock zone where 110 Redshank and 80 Teal were present on one visit and in the recent past E3 ornithologists have recorded up to 400 Redshank, 300 Dunlin and several hundred Teal here, with higher numbers in cold weather when the Tyne remains ice free.”*

*Northumberland Dock is used by birds as both a roosting site (on piers and rocky sea defences) and a feeding site (mainly on intertidal mud). There is a lot of commuting takes place between Northumberland Dock and the mouth of the River Don on the south side of the river, and to Boldon Flats LWS some 5.5km to the south east. The dock area has held wintering Greenshank, Spotted Redshank, Common Sandpiper and Green Sandpiper in recent winters. Creation of a freshwater pond bordering the site has encouraged birds into the area. This is a Shelduck breeding site.”*

#### **Tyne Main**

*“Zone with the least numbers of birds. The area of exposed mud is smaller in this zone, and as a consequence, numbers of birds are smaller. Redshank use the site but most other birds present were gulls.”*

#### **Kings Meadow**

*“Except for 37 teal, few birds were present. Higher numbers were present outside the site. One of largest areas of exposed mud within the study area and one of the better sites of those assessed. The area is likely to be watched by a band of dedicated Gateshead birders, and is adjacent to the RSPB offices, and some quite extensive bird records may be available for this area. Mud occurs on both sides of the river, though birds appear to prefer the north bank. The staithe on the southern bank can support good numbers of gulls. E3 have recorded large flocks of golden plover in this section and bar and black tailed godwit during other survey work.”*

#### **Elswick**

*“The main feature was a roosting flock of 73 Redshank (despite the low tide) and use by teal. The only zone where Dunlin was present. Also of note was 1 Grey Wagtail. The area has in recent years attracted large numbers of gulls due to presence of a tip at Greenside. These have roosted on waste ground bordering the river. However, only small numbers were present during this survey. There is an otter holt near the tank factory.”*

### **7.2.3 Wintering Bird Survey**

EnviroCentre Ltd undertook monthly surveys from September 2014 through to March 2015 and focussed on three main sites:

- 1) Nissan Dock;
- 2) The Neighbouring River Don Saltmarsh; and
- 3) Northumberland Dock & Wetland Area.

The Nissan Dock and the River Don Saltmarsh are located on the south side of the River Tyne. The Northumberland Dock & Wetland Area is located immediately to the north on the north bank of the River Tyne.

The Nissan Dock and the River Don Saltmarsh counts were conducted on the same day. The Northumberland Dock & Wetland Area counts were conducted the following day during each survey visit.

Diurnal “through the tide” counts were undertaken every half hour over a period of six hours (with the exception of the River Don Saltmarsh, where counts were undertaken 3 times per visit due to access reasons—during low, mid and high tides). This allowed for peak counts to be compared against the tidal cycle and to establish if a particular area is important for roosting or foraging. All counts were conducted from locations which afforded excellent views of the target sites. See Appendix B for these locations.

All waterfowl, wader, diver, rail, grebe and gull species were recorded.

A total of 30 target species were recorded during the surveys. The peak counts of each species for each of the three survey areas are displayed in Table 7-3 below.

**Table 7-3: Peak Counts of Species recorded**

Species	Nissan Dock		Northumberland Dock and Wetland Area		River Don	
	Max Count	Ave Monthly Max	Max Count	Ave Monthly Max	Max Count	Ave Monthly Max
Black-headed Gull	217	84	220	132	12	3
Black-tailed Godwit	0	0	3	1	0	0
Common Gull	1	0	0	0	0	0
Coot	0	0	2	1	0	0
Cormorant	7	3	3	1	1	0
Curlew	6	4	26	10	46	10
Dunlin	59	14	36	11	0	0
Eider	2	1	0	0	0	0
Gadwall	1	0	2	0	0	0
Golden Plover	0	0	0	0	0	0
Goldeneye	0	0	1	0	0	0
Great Black-backed Gull	4	1	2	1	3	0
Great Crested Grebe	0	0	0	0	0	0
Grey Heron	3	1	25	14	2	1
Herring Gull	126	44	8	4	1	0
Kittiwake	4	1	1	0	0	0
Knot	0	0	1	0	0	0
Lapwing	2	0	53	18	0	0
Little Grebe	0	0	0	0	2	0
Mallard	8	3	33	22	8	5
Moorhen	1	0	10	7	0	0
Mute Swan	4	2	4	2	2	1
Oystercatcher	4	1	0	0	0	0
Pochard	0	0	0	0	0	0
Purple Sandpiper	0	0	0	0	0	0
Red-breasted Merganser	0	0	0	0	0	0
Redshank	55	27	226	161	30	15
Red-throated Diver	1	0	0	0	0	0
Ringed Plover	23	15	0	0	0	0
Sanderling	0	0	0	0	0	0
Shelduck	20	5	27	11	2	1
Snipe	2	0	3	1	0	0
Teal	21	10	292	191	53	16
Tufted Duck	0	0	7	2	0	0
Turnstone	23	11	0	0	4	1
Wigeon	0	0	2	0	0	0

In addition to the surveys, five year summary Wetland Bird Surveys (WeBS) counts (2008/09 – 2012/13) was obtained. Data was supplied by the Wetland Bird Survey (WeBS), a partnership between the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee (the last on behalf of the statutory nature conservation bodies: Natural England, Natural Resources Wales and Scottish Natural Heritage and the Department of the Environment Northern Ireland) in association with the Wildfowl and Wetlands Trust.



The five year winter peak counts for 2008/09 – 2012/13 can be found in Table 7-4 below.

**Table 7-4: Five year summary for Tyne Estuary – Jarrow Slake and East Howdon. Five year winter peak counts, and month in which this was recorded**

Species	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	Mean Peak
Mute Swan	3 (MAR)	4 (DEC)	8 (DEC)	3 (NOV)	4 (MAR)	4
Shelduck	20 (MAR)	11 (MAR)	27 (JAN)	17 (FEB)	9 (FEB)	17
Wigeon	0	0	3 (JAN)	0	0	1
Gadwall	0	0	5 (DEC)	1 (MAR)	0	1
Teal	41 (JAN)	111 (DEC)	263 (DEC)	174 (JAN)	145 (FEB)	147
Mallard	7 (NOV)	26 (NOV)	66 (DEC)	22 (JAN)	46 (JAN)	33
Pochard	0	2 (JAN)	0	0	0	0
Tufted Duck	0	26 (FEB)	112 (DEC)	0	4 (FEB)	28
Eider	0	3 (DEC)	3 (NOV)	0	1 (NOV)	1
Little Grebe	1 (NOV)	3 (FEB)	4 (JAN)	1 (DEC)	0	2
Cormorant	14 (MAR)	23 (NOV)	20 (NOV)	15 (JAN)	16 (NOV)	18
Grey Heron	12 (JAN)	13 (JAN)	12 (FEB)	9 (JAN)	2 (JAN)	10
Moorhen	2 (FEB)	4 (FEB)	3 (JAN)	3 (FEB)	5 (DEC)	3
Coot	0	0	2 (JAN)	0	2 (FEB)	1
Oystercatcher	1 (MAR)	0	2 (JAN)	0	0	1
Ringed Plover	1 (MAR)	0	0	0	0	0
Lapwing	308 (JAN)	202 (NOV)	8 (DEC)	0	5 (JAN)	105
Dunlin	70 (FEB)	1 (DEC)	132 (JAN)	27 (FEB)	4 (FEB)	47
Snipe	3 (DEC)	3 (DEC)	1 (DEC)	0	0	1
Woodcock	0	0	1 (DEC)	0	0	0
Curlew	7 (FEB)	8 (JAN)	6 (NOV)	9 (JAN)	6 (NOV)	7
Redshank	302 (NOV)	176 (DEC)	204 (FEB)	95 (NOV)	92 (FEB)	174
Turnstone	13 (MAR)	12 (JAN)	1 (NOV)	0	2 (NOV)	6
Kittiwake	26 (MAR)	1 (MAR)	4 (MAR)	36 (MAR)	48 (MAR)	23
Black-headed Gull	468 (FEB)	469 (JAN)	738 (JAN)	521 (FEB)	580 (DEC)	555
Mediterranean Gull	0	1 (JAN)	0	0	0	0
Common Gull	7 (JAN)	271 (DEC)	297 (DEC)	189 (JAN)	78 (DEC)	168
Lesser Black-backed Gull	1 (JAN)	0	0	2 (MAR)	0	1
Herring Gull	17 (MAR)	78 (MAR)	34 (DEC)	80 (DEC)	44 (DEC)	51
Great Black-backed Gull	2 (NOV)	6 (NOV)	4 (JAN)	13 (DEC)	5 (DEC)	6

To summarise, the Nissan Dock area supported species in relatively low numbers, with a few notable exceptions (listed in the table 7-3). The species recorded were predominately present during low and mid tides, with very few remaining a high tide. Although suitable habitat is present at the site, minimal evidence of roosting was recorded, likely due to the disturbed nature of the site.

On the whole, only small numbers of birds were recorded along the area by the River Don. The site is heavily disturbed, frequented by dog walkers, with fly-tipping also noted.

The highest density of birds were recorded within Northumberland Dock, regularly supporting high numbers of Black headed Gull (peak of 220), Redshank (peak of 226) and Teal (peak of 292). The area at Northumberland Dock is used for both feeding and roosting, with the adjacent Howdon Wetland area used for preening/bathing and roosting.

The 2014/15 survey results are comparable to the WeBS data obtained, with similar peak numbers recorded for a range of species.

The Nissan Dock site and the River Don were two of the three sites to support Turnstone. Turnstone, a qualifying interest for the Northumbria Coast SPA, was recorded on all seven survey visits, from a low count of 4 to a peak count of 23 on 11/11/14. This represents 1.3% of the Northumbria SPA population (1739 individuals). All of the Turnstone records concern feeding birds with the exception of the final visit in March 2015 when four birds were roosting at high tide. However these four birds were roosting on one of the pontoons and not the sandflat area itself (no ships were berthed on this particular day and as a result the site was unusually free of disturbance). The majority (~95%) of Turnstone feeding activity was restricted to small areas of rocks covered with seaweed, with the remaining feeding activity on the sandflat. A small area (~20 m<sup>2</sup>) of isolated rocky habitat on the sandflat, and the rocky man-made infill areas along the site boundary were the preferred feeding site for Turnstone. The numbers recorded during 2014/15 winter survey is higher than the winter peak counts recorded between the period 2008/09 – 2012/13. It is however notable from the WeBS data that a peak counts of 22 and 15 Turnstone was actually recorded in April of 2008/9 and 2012/13.

All counts at the Nissan Dock site were broken down into four distinct areas as this was the only way the counts could be completed due to visibility issues. Below is a table which shows the breakdown of where the three species were recorded as a percentage of all recordings of each species over all counts. The cell locations A1, A2, A3 and A4 are detailed on the site map (refer to the Wintering Bird Report, Appendix B). It should also be noted that cells A1 and A2 are physically larger in area to cells A3 and A4. The small area of rocky habitat I refer to above for Turnstone feeding activity is in cell A2.

	A1	A2	A3	A4
Redshank	12%	38%	42%	8%
Ringed Plover	6%	73%	20%	1%
Turnstone	13%	36%	23%	28%

Redshank – the vast majority of the time birds were feeding on site. Negligible roosting recorded.

Ringed Plover – birds were recorded feeding and loafing on site. No roosting recorded.

Turnstone – birds were feeding on site. Negligible roosting recorded.

Further details of the survey methods, results and interpretation can be found in Appendix B of this report.

#### 7.2.4 Natural England Consultation

Natural England have been consulted, via their Discretionary Advice Service (DAS) and on a meeting held on 30<sup>th</sup> April 2015, for advice on the proposed development and impact on the Northumberland Coast SPA and SSSI. The full report can be found in Appendix C of this report, but can be summarised as follows:

- Based on the information provided, a likely significant effect on the Northumberland Coast SPA cannot be excluded, either individually or in combination with other plans or projects;
- Natural England are also concerned that the proposed operations are likely to damage the interest features of the Northumberland Shore SSSI;
- During the meeting held on 30<sup>th</sup> April 2015, mitigation measures were discussed, namely the potential to create alternative feeding areas on the north bank of the River Tyne east of Northumberland Dock, and the River Don adjacent to the Nissan Dock, replicating feeding areas at the Northumberland Coast SPA and Northumberland Shore SSSI. Natural England has said these measures have the potential to adequately mitigate for the loss of habitat at Nissan Dock.

#### 7.2.5 Habitats

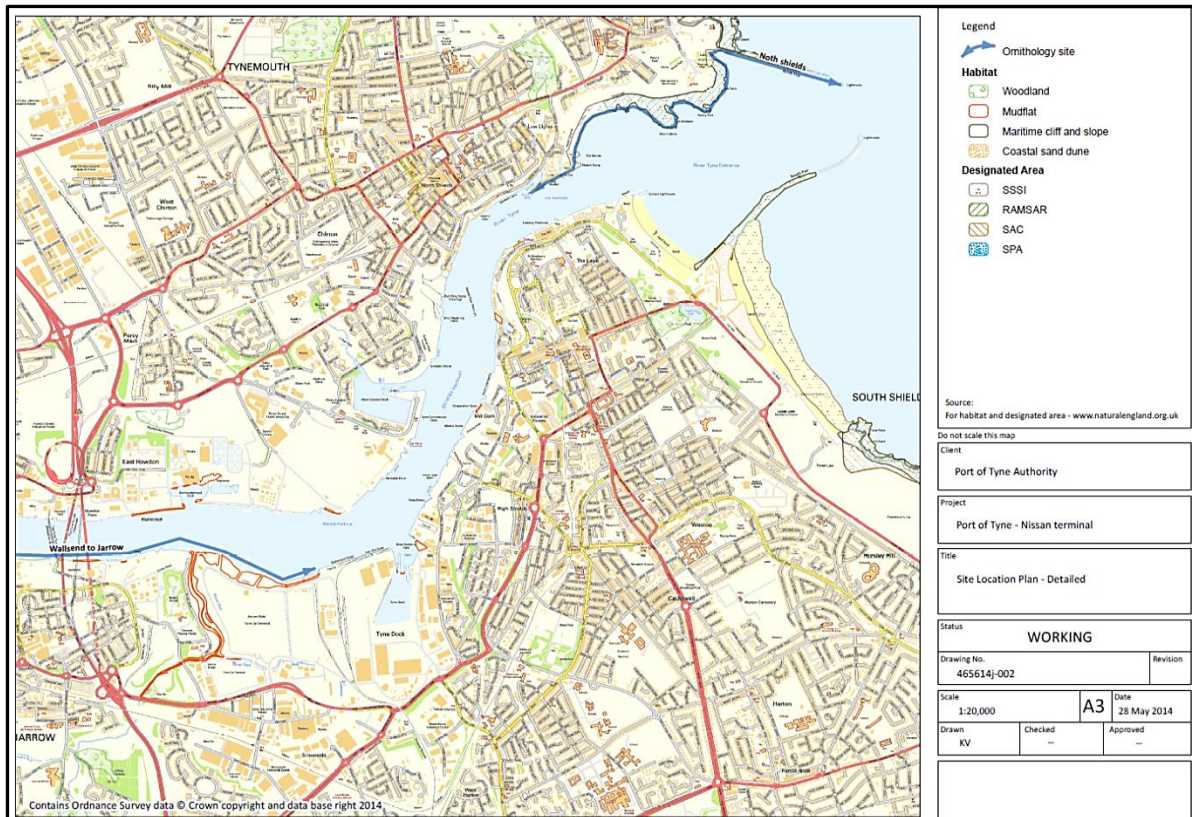
An important issue is the loss of mudflat habitat as a result of the proposed development, as it is subject to Local Biodiversity Action Plans (LBAP) and is UKBAP priority habitat. However, it is important to emphasise that the mudflat, adjacent to the Nissan facility, does not form any special designation and Figure 7-4 shows the position of SSSI, RAMSAR, SAC and SPA sites. The only designation that the development site has is a Site of Nature Conservation Interest (SNCI). It is clear however that South Tyneside Council and Environment Agency consider loss of mudflat to be a concern.

#### Sediment Quality and Physical Makeup

Sediment sampling and analysis was undertaken in September 2014 to determine the quality of the mudflat (Refer to section 8.3 and Appendix D). The sampling assessment has focused on reviewing the physical quality of the material with respect to typical mudflat habitat. In addition it has included a review of chemical quality to consider potential environmental impact from contaminants and the quality to sustain birds.

The results of sediment sampling at Port of Tyne were based on a total of six sediment samples from depths of up to 0.5m are as follows. The samples were tested for a full suite of determinands in line with CEFAS action level assessment. The interim chemical results for the site have identified elevated concentrations of lead, zinc and cadmium within the samples which exceed the CEFAS Action Level 1 criteria. One sample, Location 3 0.25-0.5, recorded concentrations of lead in excess of the CEFAS Action Level 2 criteria, which is representative of potential risk to environmental receptors.

The sediment analysis also incorporated particle size distribution and total organic carbon assessment. The particle size distribution identified that the bulk of the sediment was formed of fine sand (57% on average of the sample weight). Silts and clays were found to form 32% of the sample weight on average with the remaining 11% formed of medium sands. The average total organic carbon concentration of the samples was noted to be 1.8% on average. The OSPAR definition for intertidal mudflats *Sediments consist mainly of fine particles, mostly in the silt and clay fraction (particle size less than 0.063 mm in diameter), though sandy mud may contain up to 80% sand (mostly very fine and fine sand), often with a high organic content.*



**Figure 7-4: Site Location Plan - Detailed**

On the basis of the sediment sample results the particle size analysis indicates that the material could be classified as muddy sand. It is noted, however, that the concentration of total organic carbon is very low. Information obtained from the UK Marine SACs Project ([http://www.ukmarinesac.org.uk/communities/intersand-mud/ism2\\_4\\_3.htm](http://www.ukmarinesac.org.uk/communities/intersand-mud/ism2_4_3.htm)) indicates that the results are more indicative of sand flats –

*These have low levels of organic matter and are well oxygenated in the surface layers (Eagle, 1973)*

*Intertidal and subtidal sands are well-oxygenated though the tidal pumping of overlying water. Their mobile nature produces a deeper anaerobic layer (>15cm) and that any organic matter incorporated into the sediment is degraded rapidly. High energy areas have a low carbon to nitrogen ratio due to the low organic content and reduced productivity and the rapid degradation of labile organic material. Microbial activity is low in areas of higher energy as there is limited organic detritus available for bacterial degradation coupled with the particles' comparatively low surface area to volume ratio providing a surface for microbial populations.*

### 7.2.6 River Ecology and Fisheries

An initial desk study highlighted the Tyne River's overall importance as a fishery and the importance of several species including Salmon, Sea Trout, Lamprey and the Tyne River's importance as a fishery. In addition, aquatic mammals require consideration.

The ecological studies undertaken for the Tyne Tunnel 2 (TT2) development, Tyne Dock Infill and Riverside Quay, highlighted important salmonid fisheries associated with the River Tyne. Salmon (*Salmo salar*) and Sea Trout (*Salmo trutta*) have been well-recorded by the Cefas River Tyne Crossing Salmon and Sea Trout Tracking Programme. Salmon and Sea Trout are internationally protected species under the Habitats Directive and are listed on the UK BAP.

The Cefas Salmon and Sea Trout tagging project has studied the movements of these species through estuarine and fresh water sections of the river between Riding Mill and the Tyne Estuary.

The area at the Nissan Operational Area has limited vegetation and there is a degree of sediment accumulation thus providing limited foraging opportunities. In addition, there are regular visits by vessels docking at the Nissan facility that create noise disturbance and turbulence.

### **7.2.7 Salmonids (Salmon and Sea Trout)**

The presence of salmonid species in the River Tyne is well documented; in particular CEFAS conducted the River Tyne Crossing Salmon and Sea Trout Tracking Programme, which has produced a series of annual reports (2003-2008). The following provides a summary of the available information:

Adults: The above study states that after entering the river, both Salmon and Sea Trout move through construction zone 2 relatively quickly, with residence times in this area being approximately 4 hours for Salmon and 2 hours for Sea Trout. The optimum time for migration is considered to be during high (flood) tide.

The study suggests that the highest levels of adult salmonid migration along the River Tyne occur in early to mid-summer. However, more general UK trends indicate that Salmonid migration numbers could be more prominent in the Tyne during late summer.

It was noted that dissolved oxygen levels below 5mg l<sup>-1</sup> may impede the upstream migration of adult salmonid, these conditions occurred during 19 days during the summer of 2007 due to natural events.

Smolts: CEFAS data also indicates that smolts have a much shorter residency time than the adults, moving through the TT2 zone 2 in approximately 2.5 hours.

Smolt migration activity tends to be at its peak during late April into early May, during ebbing tides.

### **7.2.8 Lamprey (*Petromyzon spp.*), Eels (*Anguilla spp.*) and Other Fish**

Lampreys are European Protected Species, both these and European Eels are also listed as UK BAP species. These species are known to be present on the River Tyne although no specific information exists regarding fish populations within the vicinity of the Nissan facility. However, due to the nature of the sediments present in vicinity of the proposed development it is unlikely to provide a suitable long term habitat for either Lamprey or eels.

### **7.2.9 Marine Mammals**

No records of aquatic mammals (e.g. dolphins) have been recorded in the vicinity of the proposed development however, they have been recorded at the mouth of the River Tyne.

## **7.3 Potential Impacts**

The potential impacts of the proposed works at the Nissan Operational Area shall be identified for each aspect and stage of the development, thereafter an ecological impact assessment (EclA) shall be carried out using quantitative and qualitative approaches.

The current understanding of the site and its ecological sensitivities allow us to predict that the EclA will be based on the following broad themes:

- Direct habitat loss;
- Loss of foraging, roosting and breeding opportunities;
- Severance;
- Loss of life;
- Physical disturbance;
- Noise and vibration disturbance;
- Dust impacts; and
- Coastal processes and hydrological impacts on ecology (to be assessed in consultation with the water environment team).

European Protected Species (EPS) are protected from disturbance by The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007.

Marine mammals (otters, grey seals) and fish (salmonids, Lamprey) are sensitive to noise and vibration as they use sound for communication, navigation, and the detection of prey. Sound is classed as one of the main factors with the potential to cause disturbance to marine protected species.

The proposed development may have an opportunity to provide positive impacts on the site's ecology; positive impacts will therefore also be considered.

The EclA will seek to evaluate site habitats and species, both marine and terrestrial and place them into context based consultation and published guidance. The characteristics of the impact will be identified and an assessment of the impact on sensitive or valued ecological receptors will be made in order to ascertain whether the impacts will be significant.

## **7.4 Methodology**

### **7.4.1 Consultation**

Consultation shall be carried out as documented in Section 3, to obtain a Scoping Opinion. It is anticipated that further ecology specific consultation may be necessary as part of the EIA, but that this is likely to be confined to specific technical matters. The opinions provided through the scoping process will be used to define the ecology survey requirements and to inform the EclA.

Survey detail and requirement can be clarified and further defined once the scoping process has been completed.

### **7.4.2 Assessment**

An Ecological Impact Assessment (EclA) will be carried out according to the most recent guidance from CIEEM (CIEEM, 2006 and 2010). This will take into account the proposed development's effects upon the habitats and species within the area (terrestrial and estuarine); their scale, intensity and the means by which they can be mitigated, enhanced (in the case of positive impacts) and/or compensated (such as through habitat management, in the case of negative impacts). The EclA shall be reported as a topic chapter within the ES.

Given that there is the potential for Turnstone and Purple Sandpiper to be present at the site, a Habitat Regulations Assessment (HRA) may be required as part of the ES. However, given that the surveys recorded a peak of 23 Turnstone (representing 1.3% of the SPA population), and the results of the WeBS surveys, and that no Purple Sandpiper, it is likely that the integrity of the SPA and the conservation objectives of the SPA will not be undermined.

### **7.4.3 Field Surveys**

All survey work will be undertaken and verified by experienced and competent ecologists, who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM). The surveys will be designed using methods and guidelines endorsed by Natural England (NE) and CIEEM. The following outlines the proposed scope of works and methods considered necessary to inform the EclA.

An otter survey will extend along both banks of the River Tyne at the site, plus 200m up and downstream from the site boundary, where access allows. The survey will followed best practice guidelines (Chanin, 2003). A search will be made for suitable habitat and field signs.

## 8 SEDIMENT ASSESSMENT

### 8.1 Context

The proposed development requires the depositing of material on the riverbed and intertidal area, and possibly some dredging to create new depth locally. These activities can potentially result in environmental impacts due to release of suspended solids into the water column, and should contaminants be present within sediment they also may therefore become suspended and dispersed. We acknowledge also that piling will be required for new structures.

### 8.2 Baseline Assessment

#### 8.2.1 Sediment quality within the River Tyne

##### Existing data

Sediment quality is of direct relevance to the 'health' of intertidal and subtidal flora and fauna and, hence, can affect the quality of food sources and habitats. This section therefore describes the known physical and chemical characteristics of sediments within the Tyne Estuary.

Baseline sediment quality data has been obtained from the Royal Haskoning *Tyne Maintenance Dredging Baseline Document* (2013).

Unlike water quality, there are no quantified UK Environmental Quality Standards (EQS) for *in-situ* sediment quality. The only guidance for sediment quality is defined as "standstill (no deterioration)" and is required for most EC Dangerous Substances List 1 parameters. In the absence of appropriate UK standards, data for the Tyne Estuary have been compared against two sets of guidelines to provide a basic assessment regarding the existing degree of contamination within the sediments.

- CEFAS guideline Action Levels for the disposal of dredged material; and,
- Canadian Sediment Quality Guidelines for the Protection of Aquatic life.

##### CEFAS Action Levels

CEFAS guideline Action Levels (AL) for the disposal of dredged material are not statutory contaminant concentrations for dredged material, but are used as part of a weight of evidence approach to decision-making on the disposal of dredged material to sea. The Action Levels are presented in Table 8-1. Action Levels are not pass/fail criteria, but triggers for further assessment. Accordingly, if concentrations are below Action Level 1, the refusal of disposal at sea on the grounds of contamination is unlikely. If concentrations fall between Levels 1 and 2, then further assessment is likely to be required. If concentrations exceed Level 2, then the dredged material may not be acceptable for disposal at sea. All data is considered on a case by case basis.

It is likely only the CEFAS AL are relevant for the purpose of assessment as this is what infill etc. will be compared against



**Table 8-1: CEFAS guideline Action Levels for dredged material (CEFAS, 2006)**

Contaminant / compound	Action Level 1 mg/kg dry weight (ppm)	Action Level 2 mg/kg dry weight (ppm)
Arsenic	20	100
Mercury	0.3	3
Cadmium	0.4	5
Chromium	40	400
Copper	40	400
Nickel	20	200
Lead	50	500
Zinc	130	800
Organotins; TBT DBT MBT	0.1	1
Polychlorinated Biphenyls (PCB), sum of ICES 7	0.01	none
PCB's, sum of 25 congeners	0.02	0.2
DDT	*0.001	none
Dieldrin	*0.005	None

\*these levels were set in 1994

### 8.2.2 Historical Contamination Issues

Historical pre dredge sampling works have highlighted areas of contamination on several occasions with some of key contaminants identified as Tributyl Tin (TBT) and metals. Port of Tyne holds a large data set on sediment quality from previous dredging campaigns which identify historical problem areas. These areas change with time as sediment of varying quality moves between locations, but it is known that metals, particularly elevations of lead and zinc, are an area of concern. There are currently no monitoring requirements attached to the marine licences issued for maintenance dredging activities within the study area.

### 8.2.3 Historical dredging operations

Maintenance dredging activities along the River Tyne have been undertaken relatively consistently over the past 5 years. A dredging operation in 2006 saw the deepening of the channel (to the Swinging Circle and car berths) from 8.6m to 9.1m bCD. This was found to have no significant impact upon siltation rates experienced elsewhere within the river.

In March 2010 the first phase of a second deepening of the channel was undertaken where the Entrance Channel between the Tyne Piers and the Narrows, South Shields was deepened to 10.0m bCD. Approximately 204,000 tonnes of sand was recovered from dredging the channel and was re-used in the backfilling of the second Tyne Tunnel.

In April 2011 the second phase of the channel deepening was undertaken. The channel from the Narrows, South Shields to the Swinging Circle, Jarrow was deepened to 10.0m bCD and the main operational berths Riverside Quay and Tyne Bulk Terminal were dredged to 13.0m bCD. During this exercise approximately 642,000 tonnes of silt, clay and rock were dredged of which 50,000 tonnes were placed ashore to aid in the infilling of Tyne Dock and the remaining dredged material was deposited equally between Souter Point and North Tyne disposal sites.

During 2011 the combined totals for capital and maintenance dredging came to just over 1 million tonnes of material. This was the largest amount dredged in one year in the history of the Port of Tyne. During this period the Port maintained close control on all dredging activity and at no point were there any environmental issues reported with either dredge operations or during disposal at sea.

A number of areas along the River Tyne have been excluded from the previous FEPA and now deemed marine licences since 1998 as a result of elevated metal concentrations. Further information is provided in Table 8-2.

**Table 8-2: Exclusion areas from the Port of Tyne previous FEPA Licences**

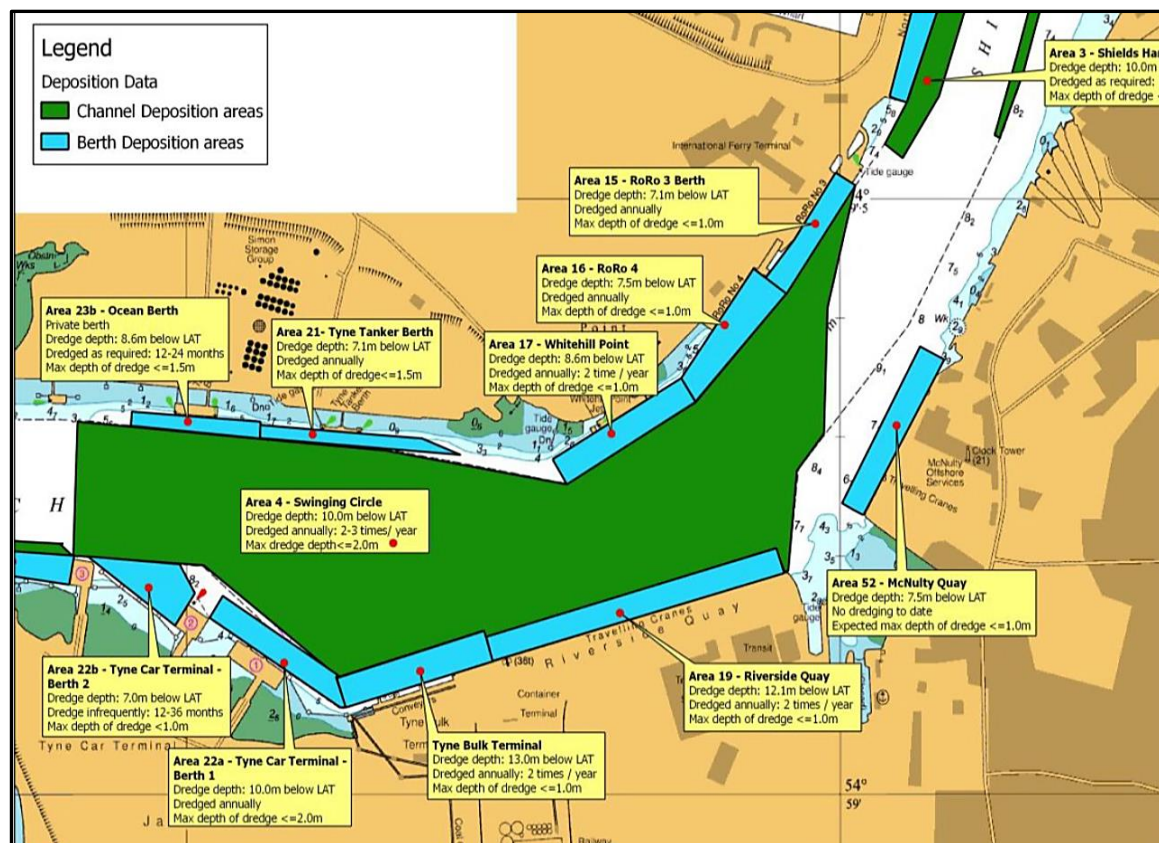
Date	Area excluded	Reason for exclusion
1998	Millennium Bridge	High metal contamination
2001	St Peters Marina	High metal contamination
2002	Hillgate Quay	Zinc concentrations 7 times greater than DEFRA Action Level 1 (AL1)
2002	Newcastle Quay 12 – 19 berths	Zinc concentrations 9 times greater than AL1
2002	Bill Point Channel	Zinc concentrations 6 times greater than AL1. TBT concentrations 14 times greater than AL1
2003	Newcastle Quay 22-26 berths	Zinc concentrations 7 times greater than AL1
2007	Ouseburn	High concentrations of copper and mercury
2007	Newcastle Quay 5 – 9 berths	Zinc concentrations 9 times greater than AL1
2007	Newcastle Quay 27-28 berths	Zinc concentrations 9 times greater than AL1

All depths are subject to change and are dependent upon operational constraints.

### 8.2.4 Dredging operations

It should be noted that the current deemed marine licence contains no monitoring or timing constraints. Dredging is usually undertaken over a 3 to 4 day period at any one time, using a Trailing Suction Hopper dredger (TSHD) operated by a third party dredging company under contract to the Port. At other times a plough dredger is used to remove any shoaling areas or high spots and ridges left by the TSHD to achieve the required navigable depth. In the past the Port relied upon contract plough dredgers to carry out the work but since November 2011 have the use of their own plough dredger, Sir Bobby Robson, working on the river.

An image detailing the areas of accretion (as defined by loss of navigable depth) that are dredged on a ‘regular’ basis, an assessment of frequency and the maximum depth dredged from each area are shown in Figures 8-1 and 8-2.



**Figure 8-1: Deposition image showing Areas 3, 4, 15, 16, 17, 19, 21, 22(a&b), 23(b) and 52 (as supplied by Port of Tyne Authority)**

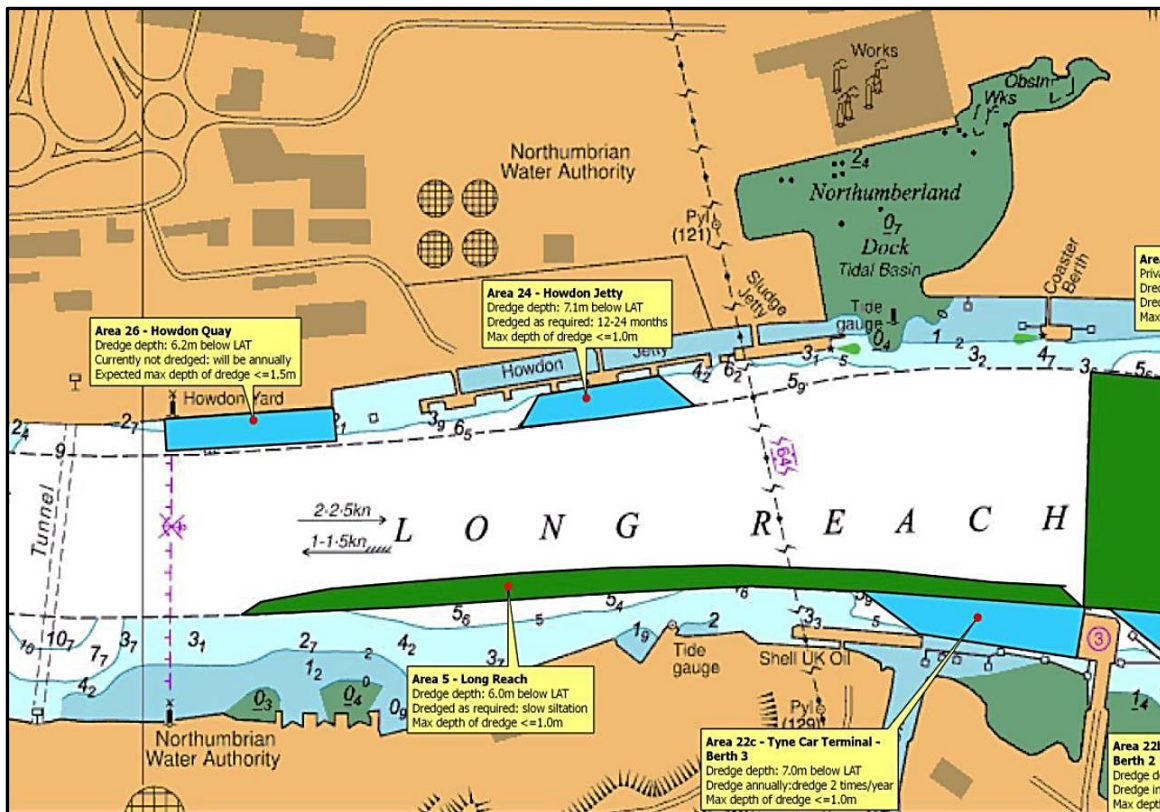


Figure 8-2: Deposition image showing Areas 5, 22(c), 24 and 26 (as supplied by Port of Tyne Authority)

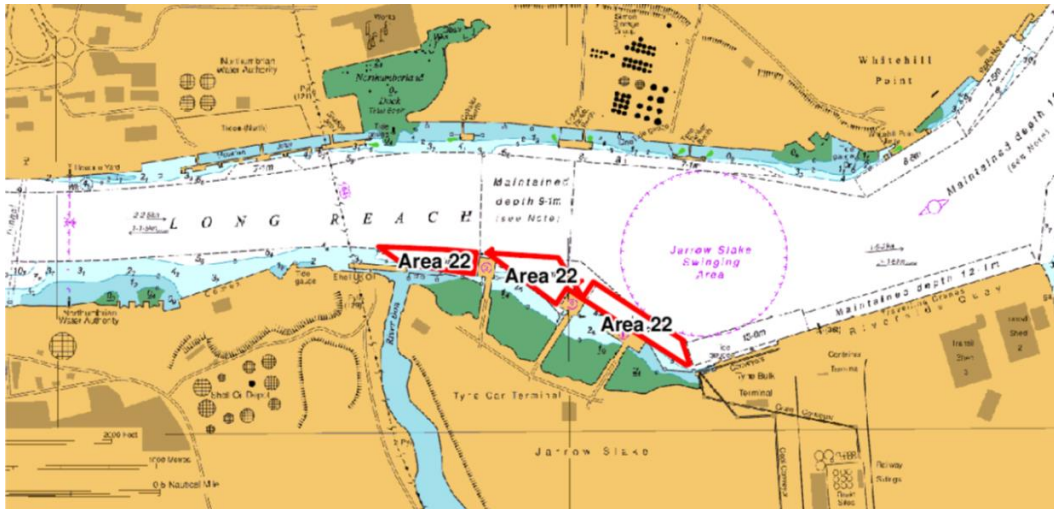
### 8.2.5 Monitoring requirements

There are currently no monitoring requirements attached to the deemed marine licences issued for maintenance dredging activities within the study area. However, the Port of Tyne Authority has a three-month rolling survey programme which includes the stretch of river between the estuary mouth and the swinging circle. This programme is rather complex as the river is split into channel and berths.

The Port's berths are sounded every 3 months, more in actuality because of ongoing dredging requirement, and the rest of the berths tend to be sounded annually for navigational purposes.

A summary of material dredged (tonnes) from 2000 – 2011 is provided in Table 8-3.

**Table 8-3: Maintenance dredge area - data sheet**



<b>Area number</b>		22		
<b>Location</b>		Tyne Car Terminal - Berths 1,2 & 3		
<b>Latitude</b>		54° 59.17 N		
<b>Longitude</b>		1° 28.05 W		
<b>Nature of dredge area</b>		Berth (Berth 1 – 10.0m CD; Berth 2 – 7.0m CD; Berth 3 – 7.0m CD)		
<b>Excluded from offshore disposal?</b>		No		
<b>Year</b>	<b>Tonnes</b>	<b>Histogram of dredged material per year</b>		
2000	4,113			
2001	1,512			
2002	4,032			
2003	9,600			
2004	14,995			
2005	7,654			
2006	16,058			
2007	9,378			
2008	14,341			
2009	18,003			
2010	14,692			
2011	5,637			
<b>Preferred Dredging Method</b>				
Trailer Suction Dredger	X	Grab Dredger	X	Backhoe Dredger
Bucket Dredger		Plough Dredger	X	Water Injection Dredger
<b>Disposal Area</b>				
North Tyne (TY070)	X	Souter Point (Outer) (TY080)	X	Other (see Notes)
<b>Notes</b>				
No significant issues				

There is no Sediment quality data for Polychlorinated Byphenyls at Area 22.

**Table 8-4: Metals/Tins mg/kg (ppm) dry wt**

Location	TS%	AS	CD	CR	CU	HG	NI	PB	ZN	DBT	TBT
Area 22 Tyne car terminal surf	37.17	26	0.00	40	38	0.30	32	137	242	< LOD	0.040
Exceedance of AL1											

### 8.3 Sediment Samples

Port of Tyne contracted EnviroCentre Ltd. to undertake the collection of 6 sediment samples (from three locations) at the proposed Car Terminal Upgrade site. The samples were collected to determine the physical make-up of the existing substrate, and to review chemical quality.

The purpose of these samples is to provide supporting information in relation to the Scoping Assessment (and are detailed in EnviroCentre Report No 6467, January 2015 which is attached as Appendix D of this report), to allow for assessment of chemical sediment quality against CEFAS assessment criteria and to evaluate the physical properties of the sediment deposit with respect to habitat classification.

#### Mudflat Definition

Geotechnical analysis was carried out to determine the physical make-up of the sediment deposit with respect to typical mudflat habitat.

The OSPAR definition for intertidal mudflats (detailed in Oskar Report No 2008-07 *Descriptions of habitats on the OSPAR list of threatened and/or declining species and habitats*) incorporates the following definition in relation to the physical consistency of a mud flat –

*“Sediments consist mainly of fine particles, mostly in the silt and clay fraction (particle size less than 0.063 mm in diameter), though sandy mud may contain up to 80% sand (mostly very fine and fine sand), often with a high organic content.”*

The UKBAP (UK Biodiversity Action Plan Priority Habitats Definition, 2011) definition of mudflats notes – *Mudflats are sedimentary intertidal habitats created by deposition in low energy coastal environments particularly estuaries and other sheltered areas. Their sediment consists mostly of silts and clays with a high organic content.*

#### 8.3.1 Chemical Quality Action Levels – AL1 Vs AL2

An assessment of the chemical quality of the sediment in the development area was undertaken using the criteria relating to the disposal to sea if dredged (CEFAS Action Level 1 and 2).

Sediment with contaminants below Action Level 1 (AL1) is generally considered to be below background levels for contamination.

For samples between AL1 and AL2, additional risk assessment may be required including further sampling and testing to fully identify pockets of contamination or implementation of bioassays to assess the materials. This would need to be agreed and approved by CEFAS

Material above AL2 is generally considered to be contaminated by CEFAS assessment criteria.

#### 8.3.2 Sampling Requirements

The laboratory analysis undertaken as part of this investigation, included metal, organic and particle size analysis. Samples for metal and particle size analysis were sub-sampled using a plastic spoon and stored in polyethylene containers. Samples for organic analysis were collected using stainless steel spoons and stored in amber glass jars.

Sampling was undertaken on the 1st September 2014. A total of three sample locations were selected for the sampling exercise. Sample locations were marked utilising Trimble Survey equipment. Table 8-5 details the sample locations (refer to location map in Appendix D):

**Table 8-5: Sample Locations**

Sample Name	Grid Location
Location 1	NZ 34103 65740
Location 2	NZ 34217 65681
Location 3	NZ 34355 65642

Core samples were collected using a hand auger. Two samples were collected per location, a shallow sample was collected to characterise material at 0-0.25m from the surface, with a second sample collected at depth from 0.25-0.5m.

Logs detailing each sample location are provided in Appendix D

### **Sediment Summary**

Physical testing of the sediment indicates that the deposit is formed of muddy sand. Organic content in the sediment is low (< 3%). On this basis the deposit is not considered to represent a mudflat as defined by the Oskar and the UKBAP definition. The results would indicate the deposit is more appropriately classified as a sandflat

The full findings of the report can be viewed in Appendix D of this report.

## **8.4 Potential Impacts**

The key construction phases which may have an effect upon sediments as part of the development are understood to be as follows:

- The existing storage area comprising an area of levelled ground will be extended up to 90m into the River Tyne with the importation of an estimated 120,000m<sup>3</sup> of inert material;
- The removal and replacement of one pontoon and associated mooring dolphins in a western location; and
- Piles will be driven into the riverbed to create mooring dolphins.

In addition it is envisaged that some dredging may be required. The dredging requirement is not defined at present although it is noted that the new berths will be close to or on the edge of the navigable channel. There may additionally be some localised dredging immediately to the west of the proposed Feeder Berth.

We consider potential impacts would be related to infilling and potential dredging. With regard to piling we do not consider that these activities have potential to mobilise significant amounts of suspended solids and are not considered further in the context of sediment management and control.

### **8.4.1 Potential Impacts Related to the 'Mudflats'**

On the basis of the laboratory testing the following summary is noted:

- Physical testing of the sediment indicates that the deposit is formed of muddy sand.
- Organic content in the sediment is low (< 3%). On this basis the deposit is not considered to represent a mudflat as defined by the Oskar and the UKBAP definition. The results would indicate the deposit is more appropriately classified as a sandflat.

- Contaminant concentrations were generally low with respect to CEFAS action levels. Only one sample recorded an exceedance of Action Level 2 for lead concentrations.

#### **8.4.2 Potential Impacts Related to Infilling**

Infilling is expected to be carried out mainly in isolation from the river system. The vast majority of infilling is expected to take place behind either a bund or piled wall which will separate the infill from the wider water environment. Provided this takes place release of suspended solids (whether or not containing contaminants) will not take place provided good detailed design and management by the Contractor is applied.

Therefore potential impacts related to infilling can be avoided through good management and this aspect should not require investigation within the EIA process. Management requirements should be acknowledged in any Environmental Management Plan for the Works.

#### **8.4.3 Potential Impacts Related to Dredging**

The key aspect here is that much of the area which may have to be dredged is currently on an existing Maintenance Dredge Licence (either for Area 22 or the Navigable Channel). There is however a small area to the west of the proposed Feeder Berth which may also require dredging. Given that the majority of dredging is likely to take place within existing licenced areas there is clearly no contaminant issue for these areas if conducted within the depth parameters of existing licences. Should additional small areas outwith the existing licenced areas requiring dredging or deepening normal MMO application and assessment processes will apply.

As dredging has taken place in these areas historically and they are predominantly already licenced there are not envisaged to be any significant potential impacts arising from the proposals and this should not require detailed appraisal within the EIA process.

### **8.5 Methodology**

While significant impacts are not envisaged with regard to sediments we have noted below actions which should be undertaken to ensure this is the case:

- The works will require a Marine Construction license which will need to be obtained from the MMO to enable these works to proceed;
- Sampling and application to dredge will be required for any areas proposed outwith the existing licence areas or for any localised deepening within existing licenced areas;
- Environmental Management measures should be developed with the Contractor to prevent infilling from taking place within open water (e.g. infill behind piled structures or bunds of clean material of low suspended solids content); and
- Suspended solids control should be a key aspect of the Environmental Planning for the construction works.

## 9 SOCIAL & ECONOMIC

### 9.1 Key Issues and Scope

#### Importance of Car Manufacturing to the regional and national economy

##### *Employment*

The manufacturing sector is vital to the north east economy, directly employing 109,200, 11% of the total workforce of the region (compared to 8% in England).<sup>1</sup> The automotive manufacture sector is highly significant within this, directly employing 13,300, accounting for 12% of all manufacturing jobs and equating to 1.3% of all North East employees, (compared to 0.5% in England).<sup>2</sup> This represents a Location Quotient<sup>3</sup> of 2.49 for the subsector, signifying its regional importance.<sup>4</sup>

Within this, Nissan Motor Manufacturing UK (NMUK) accounts for more than 55% of the total automotive sector employment in the North East of England.

##### *Exports*

The North East region is also vital to UK's exports. Exports from the North East were £13,691m in 2012, of which 57% (£7,781m) was from transport sub-sector.<sup>5</sup> Exports from the region account for 30% of the total GVA for the region, higher proportion than in any other UK region.<sup>6</sup>

The Port of Tyne is crucial to the ability of the region to export to this level,, playing a vital and necessary role in exports from the North East to Europe and the rest of the world. As such, the Port of Tyne is recognised to be of major importance to the local economy and that of the wider North East. It contributes over £500m p.a. to the regional Gross Value Added and also supports 10,500 direct and indirect jobs, either at the Port or in the region.

#### The Proposed Development

The Port considers that proposed development would deliver positive benefits including construction related jobs together with the growth of port related business, such as additional land for the storage of cargoes or containers. The development plan, in both Regional Spatial Strategy (RSS) and the Local Development Framework (LDF), recognise this and the proposal would support their objectives to ensure the promotion and success of the port and its links with regeneration of the area and employment creation, whether directly or in-directly.

#### The importance of Nissan to the Port of Tyne

The Port of Tyne serves NMUK. It is the UK's largest car manufacturing plant. A third of all cars manufactured in the UK are a Nissan, and the company contributes £3.8bn to UK exports – with NMUK providing 1.4% of all the UK's manufactured exports.<sup>7</sup> Further, NMUK represents nearly 20% of the North East's manufacturing

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<sup>1</sup> Business Register and Employment Survey 2013

<sup>2</sup> Business Register and Employment Survey 2013

<sup>3</sup> A location quotient (LQ) provides an indication of how highly represented a sector is within the employment base of a geographic area compared to the national level. A LQ of 1 indicates that employment in the sector is equivalent to the national level, while a sector with a LQ of more than 1 denotes a high level of representation and specialisation and a LQ of less than 1 highlights that a sector is under-represented.

<sup>4</sup> Business Register and Employment Survey 2013

<sup>5</sup> HMRC 2012 cite in North East Local Enterprise Partnership (NELEP) (2013) *North East Independent Economic Review Report: April 2013*, p.15

<sup>6</sup> HMRC 2012 cite in North East Local Enterprise Partnership (NELEP) (2013) *North East Independent Economic Review Report: April 2013*, p.15

<sup>7</sup> Renault-Nissan (2015) Renault-Nissan Alliance Logistics Europe: Port of Tyne Development, April 2015, p.4



economy.<sup>8</sup> NMUK employs over 7,000 people at the Sunderland plant, representing a very significant proportion of local employment.<sup>9</sup>

The Port of Tyne has been used by NMUK for all imports/ exports since 1994, with trends for NMUK imports/exports increasing in line with demand across Europe. Demand is set to increase, and yet NMUK struggles to meet global shipping line's productivity KPIs (the target for the number of vehicles loaded/ hour globally) required to ensure it remains competitive, in part due to the distance between the loading area and the ships.<sup>10</sup> The proposed expansion is thus vital to reduce the loading distance; increasing the speed at which ships are turned around, and increasing the number of ships that can be loaded. This will in turn improve each stage of the supply chain for the manufacture and export of vehicles which will help increase the competitiveness of NMUK to sustain and increase its *"production and workforce volume in the North East of England."*<sup>11</sup>

The development represents a significant opportunity to encourage inward investment and new jobs for South Tyneside and provide improved opportunities for existing communities in the area.

### **The local context**

The borough of South Tyneside is the smallest metropolitan borough in England covering an area of 64 square kilometres and includes the towns of South Shields, Jarrow and Hebburn. Unemployment, low aspirations, health inequalities and regeneration are serious issues for the borough.

Economic growth and regeneration is key to future of the borough and the Council has set in place plans to develop key assets such as the River Tyne, town centres and employment sites to ensure that the residents and businesses benefit from key economic opportunities. However, the legacy of the decline of traditional industries remains and creating new jobs for residents is a key priority for the Council.

The population has fallen to around 148,100 people (2011 Census), down 3.1% since the 2001 Census, however, this is predicted to rise again in the coming years. South Tyneside has seen a significant rise in unemployment since the start of the recession, which has resulted in an extremely tight and competitive labour market.

The local economy has evolved over time from traditional heavy industries, such as shipbuilding and coal mining, and is now made up of manufacturing, retail and wholesale. There are also a large number of public sector jobs and many residents travel outside the borough for work. Unemployment does remain a concern. The employment rate is around 64 per cent, which is (generally) lower than England as a whole. Worklessness in some of the most deprived parts of South Tyneside has improved although overall remains high.

Whilst the proposals are not likely to give rise to further jobs at the Port during the operational phase, a significant number of jobs will be provided during the construction phase both on site and in the transportation of inert material. The Port currently employs in excess of 500 staff and the proposals will assist in sustaining existing jobs and once complete, the increased efficiency of the site will help to safeguard existing jobs at Nissan and within the supply chain. Over 40,000 jobs in the UK are supported by Nissan, 7000 at NMUK and 11,000 by Nissan's wider organisation around the UK. As stated, NMUK contributes £3.8Bn to UK exports, which is 1.5% of all UK manufactured exports. In the region, NMUK accounts for almost 20% of all manufactured exports.

As part of the Renault/Nissan Alliance, each manufacturing plant around the world must "bid" for models to manufacture. The successful bidding plants are those that provide the most efficient manufacturing solutions

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<sup>8</sup> Renault-Nissan (2015) Renault-Nissan Alliance Logistics Europe: Port of Tyne Development, April 2015, p.4

<sup>9</sup> Renault-Nissan (2015) Renault-Nissan Alliance Logistics Europe: Port of Tyne Development, April 2015, p.3

<sup>10</sup> Renault-Nissan (2015) Renault-Nissan Alliance Logistics Europe: Port of Tyne Development, April 2015, pp. 6-7

<sup>11</sup> Renault-Nissan (2015) Renault-Nissan Alliance Logistics Europe: Port of Tyne Development, April 2015, p. 8

for a specific model. This means there are winners and losers amongst all of the manufacturing sites in the Alliance. Where NMUK has been a winner on many occasions, with models such as Note, Juke and Qashqai, it has also been a loser, losing the British designed Micra to a competitor plant in France. NMUK is currently competing with 14 other plants in France and Spain and must be at its most efficient if it is to continue to win model manufacturing contracts and to continue to be the region's major private sector employer and support other jobs across the United Kingdom.

The proposals, therefore, have the potential to have considerable socioeconomic impacts reaching beyond the immediate Port area.

## 9.2 Assessment Methodology

There is no prescribed methodology or standard guidance for assessing socioeconomic and related effects in EIA. The method to be adopted will therefore be one of determining the existing circumstances (the baseline conditions) through desk based analysis and field observations/surveys where necessary. The potential effects of the Nissan Operational Area extension on this baseline will then be identified and, where relevant, mitigation measures proposed. Professional judgement will be applied to determine the significance of any predicted residual effects. The assessment will focus on the potential impacts as identified above and will be predominantly qualitative in nature.

The economic assessment of the development will include:

- The impact of the proposed development on the Nissan operations in terms of efficiency/cost savings.
- The gain in the speed of loading large ships in the regional and international market for Nissan vehicle operations.
- An assessment of the improved economic performance of the Nissan plant.

The socio-economic assessment of the development will include:

- A review of relevant social economic policy at national, regional and local levels.
- A summary of social economic baseline conditions at the site as a result of existing Port of Tyne operations.
- Identification assessment of impacts using information provided by the applicant and sub consultants to include:
  - An estimation and quantification of the Full Time Equivalent (FTE) jobs generated by the construction phase, both in the relevant sectors and the overall economy of the North East, taking account of benefits to the supply chain.
  - An estimation and quantification of the FTE jobs created by the completed and operational development, both in the relevant sectors and the overall economy of the North East, taking account of benefits to the supply chain and
  - An estimation and qualification of additional expenditure created by the completed and operational development.
- An appraisal of the impacts the developments additional jobs created in the local economy.
- Identification of appropriate mitigation measures should any adverse impacts be identified.

Beyond the estimates of job numbers, the EIA will undertake a qualitative analysis of the impact of the development on the local labour market i.e. what type of jobs will be created during the construction and the operation phases; the balance between the local labour supply and the potential labour demand in terms of skills and likely expected salary ranges; occupations; likely training needs and local opportunities.

The Socio-economic Assessment will have full chapter within the ES.

## 10 CUMULATIVE IMPACTS

In accordance with the EIA Regulations, cumulative effects of the proposed development in conjunction with other existing or approved developments will be considered.

Cumulative effects can only arise where the Nissan Operational Area scheme has a significant effect in its own right. The potential for effects in combination with other schemes that are operational / constructed, consented, or for which planning permissions are currently being sought will be examined within the EIA where appropriate. The potential for cumulative effects with other developments will be considered only when sufficient information is available, i.e. when a project is within the planning domain and there is adequate information publicly available.

Projects that will be considered in the cumulative assessment are Major Projects within 2.5km of the site boundary that have been granted planning permission and are not yet operational or have yet to be constructed. Major Projects are considered to be developments of 10,000m<sup>2</sup> in size or greater and projects that have been subject to EIA. Projects that fall outside the above criteria will only be included in the assessment if specifically identified by South Tyneside Council or other statutory consultees.

The cumulative effect of operational projects are considered to already form part of the baseline and as such would be assessed within each of the discipline chapters. Consequently the focus of the cumulative effects assessment will be the appraisal of potential significant environmental effects in the context of reasonably foreseeable future major development proposals.

Where available this information may be sourced from a project EIA. If environmental information is not available reasonable assumptions will be made on the likely environmental effects of the projects. Where significant cumulative effects are identified these will be clearly reported and if possible, mitigation measures will be recommended.

One development, the Riverside Quay (Eastern) Extension, has been identified as potentially having cumulative effects relative to the Nissan Operational Area. The Riverside Quay (Eastern) Extension and the expansion of the Nissan Operational Area have the potential to run in parallel.

The Riverside Quay (eastern) ES (EnviroCentre Report Number 4941. January 2013) examined the potential effects of the wider development, so the significant residual effects identified in the 2013 ES will be used as the basis for the cumulative effects assessment.

The Riverside Quay (Eastern) Extension development (planning application number ST/0098/13/FUL) was granted planning permission on 11/04/2013 and will comprise:

- An extension of Riverside Quay (Eastern) (formerly known as the Iron Ore Quay) in an east / downriver direction across the former entrance to the Tyne Dock. This will be constructed as an open suspended quay incorporating a retaining structure for the fill at the rear.
- Infilling to the rear of these structures up to the old dock gates and wall to an assumed level of +4.6 OD metres. The reclaimed area is shown as 26,088m<sup>2</sup> and an estimated volume of fill of 235,000m<sup>3</sup> is required. This figure is based upon an in-situ volume. No allowance has been made for material bulking or more importantly settlement.

Construction of the Quay extension will be carried out from the existing Riverside Quay using land based plant, moving forward as the deck is constructed. This removes the need for marine plant other than for dredging.

A bund will be constructed across the full 188m length of the former dock entrance, from the Riverside Quay to the Factory Quay (east) side. The bund will be built up using imported coarse granular material, initially be tipped off the edge of Riverside and Factory Quays; and then from the bund as it progresses. The river side face will be protected by a layer of rock armour. This design will isolate the infill area from the waters of the River Tyne, this is important design led mitigation for the water environment.

Given the proximity of Riverside Quay (Eastern), this will be the main development assessed within the Cumulative Impact Assessment chapter.

## 11 SCOPING SUMMARY

Based on the findings of the scoping exercise the following principal topics are considered to merit full impact assessment and to be documented as ES chapters.

- Planning Context;
- Water Environment;
- Ecology (Including Ornithology);
- Sediment Assessment;
- Socio-Economic; and
- Cumulative Effects.

The approach to the scoping assessment of each of these topic areas is outlined in the following sections with the inclusion of baseline data where available. A planning context chapter would also be included in the ES. For sediment impacts, associated with the proposed development option, discussion will be included within the ES and, if required, a technical appendix.

The assessments will consider the potential environmental impacts related to both the construction and operational phases where applicable. In relation to Cumulative Impacts this assessment will be included in the ES as a chapter.

The following topics have been discounted from further detailed assessment, primarily on the basis that for these topics, the potential for significant environmental effects is low or unlikely.

- Traffic and Transport;
- Air Quality;
- Noise;
- Landscape & Visual; and
- Archaeology and Cultural Heritage.

Supporting statements and information will be provided for each topic within the introductory chapters of the ES to justify this position.

Practical and specific mitigation measures will be proposed within each chapter and a summary section will be provided which presents a Schedule of Mitigation. It is recommended that these measures be implemented through the development and use of a Construction Environmental Management Document and Plans (CEMD and CEMPs).

A CEMD will ensure that the mitigation measures committed to in the Environmental Statement are followed during the proposed construction works and would be a working document which would be updated throughout the project. It would also provide a clear roadmap of the key roles and responsibilities during construction works.

Note: The CEMD and associated CEMPs would be finalised on receipt of Planning Consent and would aid discharge of planning conditions. It would also form part of the tender documents during the contracting phase under the proposed development option.

An Environmental Manager would be identified and would be responsible for the implementation of the Environmental Management Plan, ensuring that all agreed measures are implemented.

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# APPENDICES

# **A      INFORMAL CONSULTATION**





## **Proposed expansion to Nissan Operational area. 16 January 2014 Meeting minutes**

Present

Richard Macdonald, NE  
Cameron Sked, EA  
Jill Lee, EA  
Helen Marks, SES  
Jessica Brady, Nissan  
Andy Forster, Port of Tyne  
Tony Minton, E3  
Kevin Emmett, Port of Tyne  
Stuart McLeod, Port of Tyne  
Fern Skeldon, MMO  
Gregor McNiven, MMO

Apologies

Garry Simmonette, South Tyneside Council  
Jonathan Peters, MMO

HM informed that GM couldn't make the meeting but a draft screening had been sent to South Tyneside Council.

AF and JB gave an overview of the works and why they were required, the main driver behind the works are to increase efficiency. Nissan are looking for increased productivity regarding the loading and unloading of vehicles, plus to potential for larger ships to berth.

Increased productivity means potential to load Renault in through the Port of Tyne instead of Southampton where they are currently imported to. Launched the Dacia range through Port of Tyne to test increased load and capacity.

HM stated that the port has explored alternatives including multi storey car parks and re-siting access roads, but feel the infill is the best option. This practice has historically been acceptable in this area. They are aware of issues with the mud flats and have appointed E3 to look at Ecology.

CS raised the issue of permitted development, in the pre-screening sent to the council the question was asked if this would fall under permitted development.

HM stated the council had said an EIA would be likely therefore would not fall within permitted development.

GM discussed the principles of the Coastal Concordat and how the MMO would work with EA, NE and STC to ensure the consenting process was as smooth as possible.

AF Reiterated that the plans are more to do with getting the cars closer to the vessels for loading than expanding storage.

KE Some dredging could be required in front of the river Don expansion of pontoons to allow for 2 mother ships and 1 feeder ship as opposed to 2 smaller vessels and 1 mother ship that can be accommodated at the moment.

Port need to think about ways of minimising encroachment into the river

JL Discussed the current EA encroachment policy, and the 2 for 1 compensation required for the loss of priority habitat. Unlikely that any suitable areas could be found on the Tyne for compensation.

KE asked how is it determined where and how much for compensation.

JL loss of the mudflat would not be looked at favourably, and the EA would much prefer that building over the mud flat than destroying it. Asked about any known contaminants in the area and whether disposal would cause any issues.

KE not aware of any sampling done in this area however and SI had recently been undertaken at various sites on the Tyne.

What ecological work had already been undertaken?

TM Just started to look at bird counts numbers of red shank and teal but no spa/sac species difficult area to survey as little view points.

JL advised that they will need to start sampling asap in terms of invert sampling to give a year to gather data and results.

RM pointed out that NE still has responsibility for biodiversity even though the site is not designated

GM explained consenting process, including need for pre-app engagement through to the licensing phase.

JL pointed out that flood defence consent will also be required with a full flood risk assessment. Any materials used in possible infill may also require an environmental permit.

FS Pointed out that if dredging was required that the samples would need to be taken in a timely manner to prevent the application being held up.

## **RESPONSE FROM SOUTH TYNESIDE COUNCIL PLANNING DEPARTMENT FOLLOWING MEETING ON 13<sup>TH</sup> FEBRUARY 2015**

Dear all

Following our meeting the other week, we have had a detailed look through the material (the Scoping Report dated September 2014 and the two addendums-the wintering birds survey and the sample report). Our initial thoughts are that given it is your intention to submit a request for an EIA screening opinion in respect of this project, it will be necessary to deal with the following matters in order to ensure the material is comprehensive, to enable a decision to be made:

A records search with the Local Records Centre (if not already done-the reference to the desk study makes no specific reference on the point)

Habitats:

A detailed survey of the vegetation of the area will be required (the aerial photos show the southern boundary of the mud/sand flats is vegetated and this may well be saltmarsh, which is a priority habitat)

Evidence is that the mudflat/sandflat is clearly functioning as an important feature for birds (demonstrated by the bird surveys)-it is providing feeding and loafing opportunities for an assemblage of birds and is therefore at least locally significant and is yet to be established if it is nationally significant i.e. functional land/habitat to the Northumbria SPA. The ecological value of the habitat should be assessed by someone with particular expertise in this habitat type. Further information on whether tides are bringing additional food to support the birds would be useful.

It is said that there will be no impacts on adjacent Local Wildlife Sites-there is no evidence to support this statement. (Detailed work on the potential impacts on the River Don and its associated Local Wildlife Sites would be required-for example, would the development result in changes in flow / sedimentation rates and localities / access for species? Could the changes result in alterations to the exposed mudflats and saltmarsh habitats in the LWS known as Jarrow Slake and/or LWS on the north side of the river?)

Bird Surveys:

The bird survey methodology does not ascertain how the various survey areas connect or interact together for the birds, as the surveys have all been carried out on different days therefore making it difficult to understand the overall use of the area by the birds and whether they move between sites as a result of disturbance or tides. Maps showing vantage points and clarification over whether the surveys are all diurnal would be useful. Nocturnal bird surveys linked to the tides would help to create a full picture of use of the area by birds and will help ascertain whether disturbance from the existing use of the site is altering bird behaviour.

Analysis regarding the SPA/Ramsar qualifying features, Purple sandpiper and Turnstone, does not address whether the site is functionally linked to the SPA/Ramsar and further survey work is recommended to establish if this is the case. If the site is functionally linked to the SPA/Ramsar a peak count of 23 Turnstone could be significantly important (at this stage the results do not support the conclusion that there would not be a likely significant effect on the over wintering population of the qualifying species- Bird Surveys commissioned by Sunderland City Council and South Tyneside Council taking place autumn/winter 2014/2015 covering the Northumbria Coast SPA revealed Turnstone on the South Tyneside's coast heading inland with peak counts of 40 therefore this site may be very important)

A Habitat Regulation Assessment will be required, as a likely effect (on the SPA) cannot be ruled out and we would suggest that Natural England should have some input into the specific survey requirements to enable the correct evidence to be collected to support the assessment. Initial bird surveys suggest that the site may be functional land for the SPA. Bird surveys will need to tie in to the coast to understand the interaction between the areas to ascertain the importance of the proposed development site.

Other species:

Further survey work may need to be undertaken for fish

survey work for Otter needs to be undertaken to see if it is in the area and whether the proposal would have an impact. Similarly, a better understanding of marine mammal use of the area would be helpful. Have all possible sources for records been exhausted?

I feel it is important to recognise that while a decision on an EIA screening opinion is a matter for the Council, given the complex issues involved we would consult the relevant consultation bodies (Natural England, Environment Agency and the Marine Management Organisation) so it important that there is sufficient information to make a sound decision.

I trust you will appreciate that we are trying to assist in moving this project forward positively.

Regards

Gordon

**Gordon Atkinson**

**Planning Manager**

**South Tyneside Council, Town Hall & Civic Offices,  
Westoe Road, South Shields, Tyne & Wear, NE33 2RL**

**0191 424 7406**

**[gordon.atkinson@southtyneside.gov.uk](mailto:gordon.atkinson@southtyneside.gov.uk)**

**<http://www.southtyneside.info>**

## **SUMMARY NOTES FROM PORT OF TYNE AND ENVIROCENTRE MEETING WITH NATURAL ENGLAND (NE) WHICH TOOK PLACE THURSDAY 30TH APRIL 2015 (10.30AM) AT NE OFFICES, LANCASTER HOUSE, NEWCASTLE BUSINESS PARK.**

### **Additional Information Request from NE**

In their initial report, which formed the basis of the meeting, NE asked for further information on the detailed observations of how the various protected birds were using the site to inform the potential mitigation strategy. EnviroCentre responded to this info request which I (Stuart McLeod) forwarded to Natural England prior to our meeting.

### **Meeting with Natural England**

Stuart McLeod, Kevin Emmett, John Mackie (PoT), George Fleming and Matt Sullivan (EnviroCentre) met with Alistair Welch, Richard McDonald and Martin Kerby of NE. After Stuart McLeod did a brief opener Martin Kerby summarised the outcome of the work they have done so far as follows:

The initial assessment below has concluded that a likely significant effect on the Northumbria Coast SPA (by virtue of Turnstone which are a qualifying feature of the SPA) and the Northumberland Shore SSSI (by virtue of Redshank and Ringed Plover) cannot be ruled out with the limited data that we have and as it stands a Habitat Regulation Assessment is required. This precautionary approach is enshrined in the habitats regulations. If data could be gathered which proved that there is no interchange between the sites then a different conclusion could potentially be reached.

RK stated that although these birds are quite mobile they seem to be a long way from the coastal sites (4KM which is in fact the furthest recorded distance away) the implication being that they may not be coming from the SPA/SSSI. The data that EnviroCentre have gathered does not cover whether there is any interchange between the sites and no other data appears to exist in WeBS covering this aspect. RMc suggested that another years' worth of data to look at flight lines etc could be undertaken to properly address that issue. GF inquired as to whether it was practical to do that and suggested it was not. Practical or not the project timeline ruled that possibility out. In the absence of that data NE stated that they have to work on the assumption that they are coming from the European Sites and hence there is a functional connection and an appropriate assessment is required to be undertaken by the LA (competent authority). RK further stated that if they are flying all that way from the coast then there must be something special on the mudflats that is attracting them there and we need to get to the bottom of what it is to inform the potential impacts that the loss of the site will have and hence the mitigations that are required.

### **Potential Impacts and Mitigations.**

#### **Turnstone.**

MK stated that Turnstone are primarily a marine bird which feeds on invertebrates and flies on rocky intertidal shore lines etc. It is likely that the upriver sites do not support their preferred food source due to the lack of rocky areas. The lack of rocky habitat at the Northumberland dock probably also explains why they have not been seen there. Being a marine bird they also like an undisturbed open aspect which the current area provides.

The key question is whether we can recreate the type of habitat that the mudflats provide in the mitigation strategy? It was clear that the birds are feeding on the rocks at the edge of the original infilled area. We stated that as we infill the mudflats the same rocky feature could be recreated which would compensate. MK stated that this would not be ideal as the openness of the site would be lost and being much closer to the ships would make the site more disturbed. As such it was his opinion that they would be less likely to use it.

The option of creating a rocky feature on the Northumberland dock was then discussed. RK however stated that the site was extraordinarily good for Redshanks and we would not want to do anything that jeopardised that. The possibility of creating a rocky habitat on the river Don shore line was also discussed. MK suggested that the birds were unlikely to use it because it is quite enclosed and disturbed with dog walkers. Also the birds like to stay near to the main river and tend not to use tributaries. The area is already designated as salt marsh and the EA may object to anything which changes river flow and which may affect the various areas of shallow salt marsh. That option for Turnstone was hence ruled out.

SMcL suggested that the revetment adjacent to the Tyne tanker berth on the north side could be a good potential rocky habitat creation site and it was discussed at length. It was agreed that the current smooth hand placed rocks could be removed and replaced with coarse rock armour which would suit the birds very well. NE suggested that the creation of some additional groyne type structures perpendicular to the shoreline would encourage mud deposition and might well encourage other wading birds (such as the Ringed Plover) to use the site. This has been seen to have significant benefit in other projects such as the one in Morecambe Bay. This was seen as a good potential mitigation and as such it was agreed that we would work together with NE (and probably the EA) to agree how to set up the site for maximum value. A trip to the SPA/SSSI to gather data on the key features of these rocky habitats was also seen as having value. **Action: SMcL to arrange.** It was agreed that this commitment could be formalised through a planning condition and that NE would recommend this in their report.

#### **Ringed Plover/Redshank**

It was agreed that there is probably enough capacity at the Northumberland Dock to accommodate the numbers of Redshank using the Nissan Area. Indeed they are almost certainly interchanging frequently between the sites already.

There was however a significant discussion about the observed feeding habits of the Ringed plover. MK made the point that whilst significant numbers were seen at the Nissan site none were noted on the Northumberland dock or the River Don Saltmarsh. NE stated that there was clearly something there to attract them which we also need to understand. MK stated that these birds have short stubby beaks and feed in shallow salty sediment at the tidal interface and tend to move up and down with the tide. Whilst the proposed groyne structure on the north side will provide some feeding value for these birds in the opinion of NE there was clearly a need to create some additional mudflat close by which these birds can use to compensate for the loss at the Nissan site. In response SMcL presented the mudflat creation project which was previously developed to compensate for the proposed culverting of the Don Gut. The land at the confluence of the Don and Don gut is currently owned by the port up to the fence line and by the local authority beyond it. Under the current proposal the conversion of the port land only would deliver around 0.4 hectares of additional mudflat. NE stated that it would be better to use the full corner of land which would create 0.6 to 0.7 hectares and would seem adequate compensation to them. In the same way as above detailed discussions would be needed to design the habitat to create the best feeding value for the birds but again this could be formalised in a planning condition. The port recognised that they will need to engage the local authority with a view to the purchase or lease of their section of the proposed development site. **Action: AK to open discussions with LA re lease or purchase of land adjacent to River Don.**

#### **Next Steps.**

NE suggested that the proposals formed a decent compensation for the proposed loss of habitat and would recommend that in their report which they would provide to the port by Wednesday 6<sup>th</sup> May. The port stated that we would copy their report into the screening and scoping report as an appendix and make reference to it in the main body of text in the ecology section. It was also agreed that to expedite the process the port needed to meet with the LA to present the work that has been done and its conclusions. The report needed to very clearly spell out the potential risks to the European sites and the mitigations in order to assist the Local Authority with the Habitat Regulation Assessment. **Action: EnviroCentre to modify screening and scoping report to this effect. Action: PF to arrange meeting with George Mansbridge and David Crammond.**

The meeting closed at around 13.30 hrs.

## **SUMMARY NOTES FROM PORT OF TYNE MEETING WITH ENVIRONMENT AGENCY (EA) WHICH TOOK PLACE FRIDAY 1ST MAY 2015.**

Several weeks ago I (Stuart McLeod) arranged a meeting with the Environment Agency (Laura Corrigan and Cameron Sked) for Friday 1<sup>st</sup> May 2015 to discuss the project and to get their views. I also sent them the consolidated screening and scoping report. Their comments from Friday are detailed below:

- (1) Whilst the EA generally agree with the sediment assessment/characterisation methodology used (although they would have preferred some particle size analysis) they did not necessarily agree with the report's conclusion that the area is not mudflat but sandflat. They stated that the definitions are very vague and open to interpretation and for them the feeding value in the sediment not the level of organics is the most important consideration. If the mud is laden with significant numbers of polychaetes (worms) then it is in their opinion mudflat. This of course will be established by the benthic and invertebrate surveys which are to be carried out however these must follow EA guidelines. They referred to observations from the site visit that whilst there are some sandy areas, in their view the site still contains a significant area of mudflat. Until the results of the invertebrate survey are known they will work on the basis that it is still mudflat and as such is UKBAP priority for which the policy position is no encroachment. I responded that the surveys are due to be completed this week but also with the point that the no encroachment obstacle can be outweighed with socio economics.
- (2) They stated that socio economic justifications are only in relation to impacts on European sites as per the 2010 Habitats regulations and that these do not apply in the same way to UKBAP habitats. In response I stated that EA are only a statutory consultee in this process and that it is ultimately the local authorities' decision whether or not to grant permission. They are of course very mindful socio economic considerations and how they trade off against loss of habitat issues. I further stated the outcome from the meeting with NE on Thursday and that we had a decent case for mitigation.
- (3) I took them through the potential mitigations and they were relatively upbeat about what had been proposed and stated a desire to be involved in the design of the habitat creation schemes. I agreed to this. They also stated that we would need to consult with North Tyneside if works were to be undertaken on the North side. Whilst I committed that we would do this I suggested that this would probably fall under PDR but that the proposal would require a license from MMO.
- (4) They stated a view that the alternatives to complete infilling had not been adequately described in the report and this is a major area for them as defined by the UKBAP hierarchy of control of "no harm-mitigate-compensate". We should have considered mitigation through the possible alternatives. We have, in their opinion, jumped straight to the most damaging option followed by a compensation strategy. In response I explained why the other options do not work and do not provide the efficiencies that full infilling does and that the EIA/ES will have a chapter covering this aspect.
- (5) As regards compensation the EA has an equity calculator tool which they use and the proposals need to be screened against that. The tool assessment mudflat against factors such as scarcity and quality and puts a monetary value on it. They cited a similar project at Greatham (Hartlepool) which proposed to develop about 4 hectares of relatively low quality mudflat which our report seems to suggest this is. That project concluded that a compensation value of around £1million was required. We should therefore estimate the cost of the proposed mitigations against that sum to see how well it compares.
- (6) They stated that the area was not just important for migratory birds but also for migratory fish and that the site is important as it provides a nursery for juvenile fish and this needed to be considered in the EIA.

- (7) Since the project potentially altered the hydromorphology of the river then that also needed to be considered. I explained that this had already been screened into the EIA and would be covered.
- (8) They also stated that a water framework directive assessment would also be required.



## **B WINTERING BIRD REPORT**

# Port of Tyne Car Terminal Upgrade Wintering Bird Survey Report



**April 2015**

# Port of Tyne Car Terminal Upgrade Wintering Bird Survey Report

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Reviewer: Matt Sullivan

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EnviroCentre  
Craighall Business Park  
8 Eagle Street  
Glasgow  
G4 9XA

0141 341 5040  
[www.envirocentre.co.uk](http://www.envirocentre.co.uk)  
[info@envirocentre.co.uk](mailto:info@envirocentre.co.uk)

Offices:  
Glasgow  
Banchory  
Inverness

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# 1 INTRODUCTION

EnviroCentre Limited was commissioned by Port of Tyne to undertake a Wintering Bird Survey from September 2014 through to March 2015. The surveys were undertaken to inform plans to upgrade the Nissan Operational Terminal on the River Tyne.

The survey was undertaken on the north and south shores of the River Tyne and aimed to identify those species present within the survey area, establishing peak counts for individual species and the use of the survey area by birds (ie. roosting, feeding, loafing).

This report details the survey methods and the results of the survey documenting those species found to be present.

## 1.1 Aims and Objectives

The aim of the surveys and reporting is to determine the species present, numbers involved and use of the survey area by birds.

The objectives are therefore to:

- Determine the presence and abundance of wintering birds at three main locations – Nissan Dock, Northumberland Dock & Wetland Area and the River Don Saltmarsh;
- Determine the potential presence and activity of protected birds; and
- Identify potential legal and policy constraints relevant to the species found which may affect the development.

## 1.2 Project and Survey Area Description

The survey was undertaken on both the north shore and the south shore of the River Tyne.

On the south side of the Tyne, the Nissan Dock area is an area of intertidal sandflats (see supplementary sediment report for sediment classification) bounded by infill which has created the hard standing areas for car storage and mooring dolphins.

The tidal section of the River Don to the west of the Nissan Dock is a locally designated area of saltmarsh and is again bounded by infill material. It has been blighted to a certain extent by fly-tipping largely at the mouth of the river.

On the northern shore of the Tyne, the Northumberland Dock is an area of intertidal mudflats again surrounded by infill material and a dilapidated pier structure. Immediately to the east of the Northumberland Dock is a 2 hectare area of wetlands (Howdon Wetland) created by Northumbrian Water in 2000. It has a selection of man-made ponds whose water levels are controlled by sluice gates, grassland, scrub and some mature trees.

## 2 METHOD

### 2.1 Desk Study

Prior to the field surveys, a desk study was conducted to inform the field survey and to search for existing ecological information within a 5 kilometre radius of the site. The results are used to identify if the development could potentially impact upon any designated areas or notable or protected species that constitute features of those areas.

A further desk study was undertaken in order to analyse the field survey records in a regional and national context. The following sources were reviewed:

- UK Biodiversity Action Plan (UKBAP)<sup>1</sup>
- Durham Local Biodiversity Action Plan (LBAP)<sup>2</sup>

In addition to this, Wetland Bird Survey (WeBS) data was purchased from the British Trust for Ornithology (BTO) for the River Tyne: Jarrow Slake and East Howdon count sector, which our site lies within. The data comprised a five year summary of species recorded in this sector (2008/09 – 2012/13). Data was supplied by the Wetland Bird Survey (WeBS), a partnership between the British Trust for Ornithology, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee (the last on behalf of the statutory nature conservation bodies: Natural England, Natural Resources Wales and Scottish Natural Heritage and the Department of the Environment Northern Ireland) in association with the Wildfowl and Wetlands Trust.

### 2.2 Bird Conservation Criteria

The criteria used to define the current conservation status of UK bird populations are BAPs at national and local levels, and the Red, Amber and Green lists of Birds of Conservation Concern (BoCC)<sup>3</sup>.

Both the UKBAP and the network of Local BAPs were initialised in response to the 1992 Convention of Biological Diversity<sup>4</sup> signed in Rio de Janeiro (also referred to as the Rio Convention). Implemented through the Biodiversity Steering Group, the BAPs identified both the habitat types and species that were of conservation concern. Plans were then drawn up to aid protection and conservation of these priority habitats and species.

The conservation status of the species recorded along the line were evaluated by their inclusion on the UKBAP and by using the RSPB / BTO Conservation Status Criteria from the lists of BoCC, which is a simple 'traffic light' method to gauge conservation importance for those species which are not afforded protection under international or national legislation. The criteria used to evaluate this conservation concern are listed below:

#### Red-listed criteria

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<sup>1</sup>UK Biodiversity Action Plan. Available at: <http://jncc.defra.gov.uk/page-5155> (Accessed March 2015)

<sup>2</sup>Durham Local Biodiversity Action Plan. Available at <http://www.durhambiodiversity.org.uk/biodiversity-action-plan/> (accessed March 2015)

<sup>3</sup>Eaton M.A., Brown A.F., Noble D.G., Musgrove A.J., Hearn R., Aebischer N.J., Gibbons D.W., Evans A. & Gregory R.D. 2009. Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds*, **102**, 296-341. Or online at [http://www.rspb.org.uk/Images/BoCC\\_tcm9-217852.pdf](http://www.rspb.org.uk/Images/BoCC_tcm9-217852.pdf) (Accessed March 2015)

<sup>4</sup>Rio Convention: <http://www.cbd.int/> (Accessed March 2015)

- Globally threatened;
- Historical population decline in UK during 1800 – 1995;
- Rapid ( $\geq 50\%$ ) decline in UK breeding population over last 25 years; and
- Rapid ( $\geq 50\%$ ) contraction of UK breeding range over last 25 years.

#### **Amber-listed criteria**

- Moderate (25-49%) decline in UK breeding population over last 25 years;
- Moderate (25-49%) contraction of UK breeding range over last 25 years;
- Moderate (25-49%) decline in UK non-breeding population over last 25 years;
- Species with unfavourable conservation status in Europe (SPEC – Species of European Conservation Concern);
- Five year mean of 1-300 breeding pairs in UK;
- $\geq 50\%$  of UK breeding population in 10 or fewer sites, but not rare breeders;
- $\geq 50\%$  of UK non-breeding population in 10 or fewer sites;
- $\geq 20\%$  of European breeding population in UK; and
- $\geq 20\%$  of NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non-breeding population in UK.

#### **Green-listed criteria**

No identified threat to the population's status.

### **2.3 Wintering Bird Survey**

Monthly surveys were undertaken from September 2014 through to March 2015 and focussed on three main sites:

- 1) Nissan Dock
- 2) The Neighbouring River Don Saltmarsh
- 3) Northumberland Dock & Wetland Area.

The Nissan Dock and the River Don Saltmarsh are located on the south side of the River Tyne. The Northumberland Dock & Wetland Area is located immediately to the north on the north bank of the River Tyne.

The Nissan Dock and the River Don Saltmarsh counts were conducted on the same day. The Northumberland Dock & Wetland Area counts were conducted the following day during each survey visit.

Diurnal “through the tide” counts were undertaken every half hour over a period of six hours (with the exception of the River Don Saltmarsh, where counts were undertaken 3 times per visit due to access reasons—during low, mid and high tides). This allowed for peak counts to be compared against the tidal cycle and to establish if a particular area is important for roosting or foraging. All counts were conducted from locations which afforded excellent views of the target sites. See Appendix A for these locations.

All waterfowl, wader, diver, rail, grebe and gull species were recorded.

Surveys were undertaken by Neil Robertson, a highly experienced ornithologist and surveyor.

### 2.3.1 Survey Conditions

Site conditions, forecast weather conditions and visibility were considered when timetabling the survey dates, and as a result all surveys were carried out in excellent weather conditions for surveying birds. A summary of the dates and weather conditions is found below in Table 1.

**Table 1: Survey Conditions during the Wintering Bird Survey September 2014 – March 2015**

Site	Date	Wind Direction	Wind Strength	Visibility	Cloud Cover (/8)	Precipitation
Nissan Dock and River Don Saltmarsh	09/09/14	E	1-2	Excellent	5-7	Nil
Northumberland Dock and Wetland Area	10/09/14	SE	1-3	Excellent	4	Nil
Nissan Dock and River Don Saltmarsh	23/10/14	SW	2-4	Excellent	5-7	Nil
Northumberland Dock and Wetland Area	24/10/14	SW	2-3	Excellent	5-7	Nil
Nissan Dock and River Don Saltmarsh	11/11/14	SE	2-4	Excellent	8	Nil
Northumberland Dock and Wetland Area	12/11/14	SE	3	Excellent	8	Showers
Nissan Dock and River Don Saltmarsh	09/12/14	SW	2-5	Excellent	7	Nil
Northumberland Dock and Wetland Area	10/12/14	W	5-7	Excellent	1-7	Showers
Nissan Dock and River Don Saltmarsh	06/01/15	W	2-4	Excellent	5-8	Nil
Northumberland Dock and Wetland Area	07/01/15	SW	3-5	Excellent	6-8	Nil
Nissan Dock and River Don Saltmarsh	24/02/15	W	4-5	Excellent	4-7	Late showers
Northumberland Dock and Wetland Area	25/02/15	SW	2-3	Excellent	2-8	Nil
Nissan Dock and River Don Saltmarsh	19/03/15	S	1	Excellent	0	Nil
Northumberland Dock and Wetland Area	20/03/15	W	3	Excellent	6	Nil



### 3 RESULTS

#### 3.1 Desk Study

The results of the desk study providing background information on nearby sites designated for their ornithological features is provided below in Table 2.

**Table 2: Desk Study Results**

Designated Sites	Site Name	Distance from Tyne Dock (Within 5km)	Qualifying Species
Ramsar/ Special Protection Area (SPA)	Northumbria Coast	4km NE	Breeding Little Tern ( <i>Sterna albifrons</i> ) and over-wintering Turnstone ( <i>Arenaria interpres</i> ) and Purple Sandpiper ( <i>Calidris maritima</i> )
Special Area of Conservation (SAC)/ Site of Special Scientific Interest (SSSI)	Durham Coast	4km NE	Breeding Little Tern and nationally important populations of over-wintering shorebirds
Site of Special Scientific Interest (SSSI)	Northumberland Shore	4km E	Breeding Little Tern and over-wintering wader species
	Tynemouth to Seaton Sluice	4km NE	Supports a significant proportion of the over-wintering Turnstone, Purple Sandpiper and Sanderling ( <i>Calidris alba</i> ) and locally important populations of Knot ( <i>Calidris canutus</i> ), Ringed Plover ( <i>Charadrius hiaticula</i> ) and Golden Plover ( <i>Pluvialis apricaria</i> )
Local Wildlife Sites (LWS)	Jarrow Slake	0.3km	Unknown
	River Don Salt Marsh	0.3 km SSW	Unknown

## 3.2 Wintering Bird Survey

### 3.2.1 Baseline Survey Results

A total of 30 target species were recorded during the surveys. The peak counts of each species for each of the three survey areas are displayed in Table 3 below.

**Table 3: Peak Counts of Species recorded**

Species	Nissan Dock		Northumberland Dock and Wetland Area		River Don	
	Max Count	Ave Monthly Max	Max Count	Ave Monthly Max	Max Count	Ave Monthly Max
Black-headed Gull	217	84	220	132	12	3
Black-tailed Godwit	0	0	3	1	0	0
Common Gull	1	0	0	0	0	0
Coot	0	0	2	1	0	0
Cormorant	7	3	3	1	1	0
Curlew	6	4	26	10	46	10
Dunlin	59	14	36	11	0	0
Eider	2	1	0	0	0	0
Gadwall	1	0	2	0	0	0
Golden Plover	0	0	0	0	0	0
Goldeneye	0	0	1	0	0	0
Great Black-backed Gull	4	1	2	1	3	0
Great Crested Grebe	0	0	0	0	0	0
Grey Heron	3	1	25	14	2	1
Herring Gull	126	44	8	4	1	0
Kittiwake	4	1	1	0	0	0
Knot	0	0	1	0	0	0
Lapwing	2	0	53	18	0	0
Little Grebe	0	0	0	0	2	0
Mallard	8	3	33	22	8	5
Moorhen	1	0	10	7	0	0
Mute Swan	4	2	4	2	2	1
Oystercatcher	4	1	0	0	0	0
Pochard	0	0	0	0	0	0
Purple Sandpiper	0	0	0	0	0	0
Red-breasted Merganser	0	0	0	0	0	0
Redshank	55	27	226	161	30	15
Red-throated Diver	1	0	0	0	0	0
Ringed Plover	23	15	0	0	0	0
Sanderling	0	0	0	0	0	0
Shelduck	20	5	27	11	2	1
Snipe	2	0	3	1	0	0
Teal	21	10	292	191	53	16
Tufted Duck	0	0	7	2	0	0
Turnstone	23	11	0	0	4	1
Wigeon	0	0	2	0	0	0

Note that there were no recorded counts of Purple Sandpiper and no recorded counts of Little Tern (a summer migrant species).

More detailed records of the monthly counts are presented in Appendix A.

Of the 30 species recorded during the wintering bird surveys, one is included within either Annex 1 of the Birds Directive or within Schedule 1 Part 1 of the Wildlife and Countryside Act 1981, and thus afforded maximum protection under either European or national legislation:

- Red throated Diver (*Gavia stellata*) – is a Schedule 1 species (breeding).

Four of the species recorded are included as Priority Species on the UKBAP:

- (Eurasian) Curlew (*Numenius arquata*)
- Herring Gull (*Larus argentatus*)
- (Northern) Lapwing (*Vanellus vanellus*)
- Black-tailed Godwit (*Limosa limosa*)

Four of the species are also included as Priority Species on the Durham LBAP:

- (Eurasian) Curlew;
- (Northern) Lapwing; and
- Redshank (*Tringa totanus*).
- Snipe (*Gallinago gallinago*)

Five of the species recorded have been placed on the Red List of the BoCC:

- Dunlin (*Calidris alpina*) has suffered a severe decline in their long-term UK non-breeding numbers (>50%). The UK also supports more than 20% of the European non-breeding population. As a result it is a Species of European Conservation Concern (SPEC);
- (Eurasian) Curlew has suffered moderate declines in their medium and longer-term UK breeding numbers. The UK also hosts 20% of the European non-breeding population and 20% of the European Curlew breeding population. As a result it is a SPEC;
- Herring Gull has suffered severe longer-term declines in its UK breeding numbers and moderate medium-term declines. In addition, it has suffered a severe medium-term decline in its UK non-breeding numbers, which amount to more than 20% of the European population;
- Lapwing has suffered a severe decline in the UK breeding population (>50%) over the last 25 years. The UK also hosts 20% of the European non-breeding population. Lapwing is a SPEC.
- Black-tailed Godwit has suffered a historical decline. Black-tailed Godwit is also a SPEC.

Twenty of the species recorded have been placed on the Amber List of the BoCC:

- Eider (*Somateria mollissima*), Great Black-backed Gull (*Larus maritima*), and Black-headed Gull have all suffered moderate medium-term declines in their non-breeding UK numbers, which for Black-headed Gull amounts to 20% of the entire European population;
- Mallard (*Anas platyrhynchos*) and Little Grebe (*Tachybaptus ruficollis*) have suffered a moderate medium and longer-term decline in its UK non-breeding numbers;

- Ringed Plover (*Charadrius hiaticula*) and Redshank have suffered a moderate medium-term decline in its UK breeding numbers and has at least 20% of the European population overwintering within the UK. Redshank is also a SPEC;
- Oystercatcher (*Haematopus ostralegus*) has at least 50% of its UK non-breeding population found at fewer than ten sites. The UK breeding and non-breeding population is at least 20% of the total European population;
- Knot (*Calidris canutus*). The UK hosts more than 20% of the European non-breeding population. Knot is also a SPEC.
- Gadwall (*Anas strepera*). The UK hosts more than 20% of the European non-breeding population. Gadwall is also a SPEC.
- Kittiwake (*Rissa tridactyla*) has suffered a moderate decline in breeding numbers. In addition the UK supports more than 30% of the European breeding population.
- Common gull (*Larus canus*) is a SPEC and the UK supports more than 20% of the European nonbreeding population.
- Turnstone (*Arenaria interpres*), Shelduck (*Tadorna tadorna*), Teal (*Anas crecca*) and Wigeon (*Anas penelope*) have at least 20% of their European population overwintering in the UK;
- Goldeneye is included on the Amber List as it is a rare breeder (<300 pairs); and
- Red-throated Diver, Snipe (*Gallinago gallinago*) and Tufted Duck (*Aythya fuligula*) all appear on the Amber List as they are SPEC.

### 3.2.2 WeBS Data

The five year winter peak counts for Tyne Estuary – Jarrow Slake and East Howdon are presented in Table 4 below.

**Table 4: Five year summary for Tyne Estuary – Jarrow Slake and East Howdon. Five year winter peak counts, and month in which this was recorded**

Species	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	Mean Peak
Mute Swan	3 (MAR)	4 (DEC)	8 (DEC)	3 (NOV)	4 (MAR)	4
Shelduck	20 (MAR)	11 (MAR)	27 (JAN)	17 (FEB)	9 (FEB)	17
Wigeon	0	0	3 (JAN)	0	0	1
Gadwall	0	0	5 (DEC)	1 (MAR)	0	1
Teal	41 (JAN)	111 (DEC)	263 (DEC)	174 (JAN)	145 (FEB)	147
Mallard	7 (NOV)	26 (NOV)	66 (DEC)	22 (JAN)	46 (JAN)	33
Pochard	0	2 (JAN)	0	0	0	0
Tufted Duck	0	26 (FEB)	112 (DEC)	0	4 (FEB)	28
Eider	0	3 (DEC)	3 (NOV)	0	1 (NOV)	1
Little Grebe	1 (NOV)	3 (FEB)	4 (JAN)	1 (DEC)	0	2
Cormorant	14 (MAR)	23 (NOV)	20 (NOV)	15 (JAN)	16 (NOV)	18
Grey Heron	12 (JAN)	13 (JAN)	12 (FEB)	9 (JAN)	2 (JAN)	10
Moorhen	2 (FEB)	4 (FEB)	3 (JAN)	3 (FEB)	5 (DEC)	3
Coot	0	0	2 (JAN)	0	2 (FEB)	1
Oystercatcher	1 (MAR)	0	2 (JAN)	0	0	1
Ringed Plover	1 (MAR)	0	0	0	0	0

Species	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	Mean Peak
Lapwing	308 (JAN)	202 (NOV)	8 (DEC)	0	5 (JAN)	105
Dunlin	70 (FEB)	1 (DEC)	132 (JAN)	27 (FEB)	4 (FEB)	47
Snipe	3 (DEC)	3 (DEC)	1 (DEC)	0	0	1
Woodcock	0	0	1 (DEC)	0	0	0
Curlew	7 (FEB)	8 (JAN)	6 (NOV)	9 (JAN)	6 (NOV)	7
Redshank	302 (NOV)	176 (DEC)	204 (FEB)	95 (NOV)	92 (FEB)	174
Turnstone	13 (MAR)	12 (JAN)	1 (NOV)	0	2 (NOV)	6
Kittiwake	26 (MAR)	1 (MAR)	4 (MAR)	36 (MAR)	48 (MAR)	23
Black-headed Gull	468 (FEB)	469 (JAN)	738 (JAN)	521 (FEB)	580 (DEC)	555
Mediterranean Gull	0	1 (JAN)	0	0	0	0
Common Gull	7 (JAN)	271 (DEC)	297 (DEC)	189 (JAN)	78 (DEC)	168
Lesser Black-backed Gull	1 (JAN)	0	0	2 (MAR)	0	1
Herring Gull	17 (MAR)	78 (MAR)	34 (DEC)	80 (DEC)	44 (DEC)	51
Great Black-backed Gull	2 (NOV)	6 (NOV)	4 (JAN)	13 (DEC)	5 (DEC)	6

## **4 SUMMARY AND CONCLUSIONS**

### **4.1 Use of the Survey Area by Birds**

#### **4.1.1 Nissan Dock**

The Nissan Dock area supports a range of species, with 23 out of the 30 species recorded being present at this site. The majority of the species were recorded in relatively low numbers, with a few notable exceptions. These include a peak count of 217 Black headed Gulls on 19/03/15, 126 Herring Gulls on 19/03/15 (at least 90% of which were sub-adult birds), 59 Dunlin feeding at low tide on 06/01/15 and 55 Redshank feeding at low tide on 23/10/14. No large scale discernible movement of birds were recorded between the Nissan Dock site and the Northumberland Dock site (or indeed the River Don area). However given the fact that it is such a small overall area this is undoubtedly happening.

Turnstone, a qualifying interest for the Northumbria Coast SPA, was recorded on all seven survey visits, with a peak count of 23 on 11/11/14. This represents 1.3% of the Northumbria SPA population (1739 individuals). All of the Turnstone records concern feeding birds with the exception of the final visit in March 2015 when four birds were roosting at high tide. However these four birds were roosting on one of the pontoons and not the sandflat area itself (no ships were berthed on this particular day and as a result the site was unusually free of disturbance). The majority (but not all) of Turnstone feeding activity was restricted to small areas of rocks covered with seaweed.

The species recorded, including eight species of wader, are predominately present during low and mid tides, either feeding (waders) or feeding/loafing (gulls, ducks). The surveys indicate that birds disperse from the area at high tide, with very few remaining at peak high tide. Although suitable roosting habitat is present at the site, minimal evidence of roosting was recorded, likely due to the disturbed nature of the site.

#### **4.1.2 River Don**

On the whole, only small numbers of birds were recorded along the area by the River Don. The site is a heavily disturbed site, frequented by dog walkers and evidence of fly-tipping was noted during the survey visits. However, the survey visit in January 2015 (06/01/15) recorded good numbers of roosting Curlew and Redshank (46 and 30 respectively) just prior to dawn. Turnstones were recorded on one occasion only with 4 birds roosting at high tide on 09/01/14. Again, no major discernible movements were noted between the River Don, the Nissan Dock or Northumberland Dock, but it is highly likely that commuting between the three sites occurs.

The only other species of note recorded at this site was a Kingfisher on 23/10/14. It is believed that this species is a resident breeder on the River Don.

#### **4.1.3 Northumberland Dock and Howdon Wetland**

As noted during previous surveys undertaken, the highest density of birds was present within Northumberland Dock. The site regularly supports high numbers of Black headed Gull (peak of 220), Redshank (peak of 226) and Teal (peak of 292). Other wader species were also recorded in reasonable numbers – Curlew (peak of 26), Dunlin (peak of 36) and Lapwing (peak of 53). A kingfisher was also recorded on site on 12/11/2014.

In contrast to Nissan Dock, the area at Northumberland Dock is used both for feeding and roosting, with wader species, and predominately Redshank, utilising roosts along the boulder shoreline and the north east corner of the site.

The habitat is freshwater and as a result the species assemblage is different to the other three sites and supports more species of waterfowl than the other three survey sites (Moorhen, Mute Swan, Goldeneye, Mallard, Shelduck, Teal, Tufted Duck and Wigeon). An Otter (*Lutra lutra*) was also recorded on 10/09/14.

The Howdon Wetland area is predominately used by birds for preening/bathing and for roosting. Detailed records were obtained via Northumbrian Water, from a local bird recorder which gave supporting evidence of the relatively high biodiversity value of this site.

Although 25 of the recorded species are afforded extra legal protection through their inclusion within Annex 1 or Schedule 1 or are species of conservation concern through their inclusion on the UKBAP or BoCC Red or Amber lists, none of the sightings constitutes unusual or unexpected records locally, with many of the species being common and widespread overwintering birds along the River Tyne. As a result, there is no local or regional concern over the status of their overwintering numbers within the survey area, or therefore over their conservation status.

## 4.2 WeBS Data

The 2014/15 survey results are comparable to the WeBS data obtained, with similar peak numbers recorded for a range of species (see tables 3 and 4 for comparisons).

Peak numbers for Turnstone (the only SPA qualifying species recorded during the surveys) over the five year period from 2008/09 – 2012/13 are as follows: 13, 12, 1, 0 and 2, with a mean five year peak of 6. This is less than the peak of 23, and mean peak of 11 recorded during 2014/15.

The results from the WeBS data indicate that the Jarrow Slake and East Howdon sector is not a significant site for Turnstone.

## 4.3 Northumbria Coast SPA

The Northumbria Coast SPA qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

### Breeding

Little Tern – 40 pairs, representing 1.7% of the GB breeding population (5 year peak mean 1992/93 – 1996/97)

This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

### Over-wintering

Turnstone – 1739 individuals, representing 2.6% of the East Atlantic Flyway population (5 year peak mean 1992/93 – 1996/97); and

Purple Sandpiper – 787 individuals, representing 2.6% of the East Atlantic Flyway population (5 year peak mean 1992/93 – 1996/97).

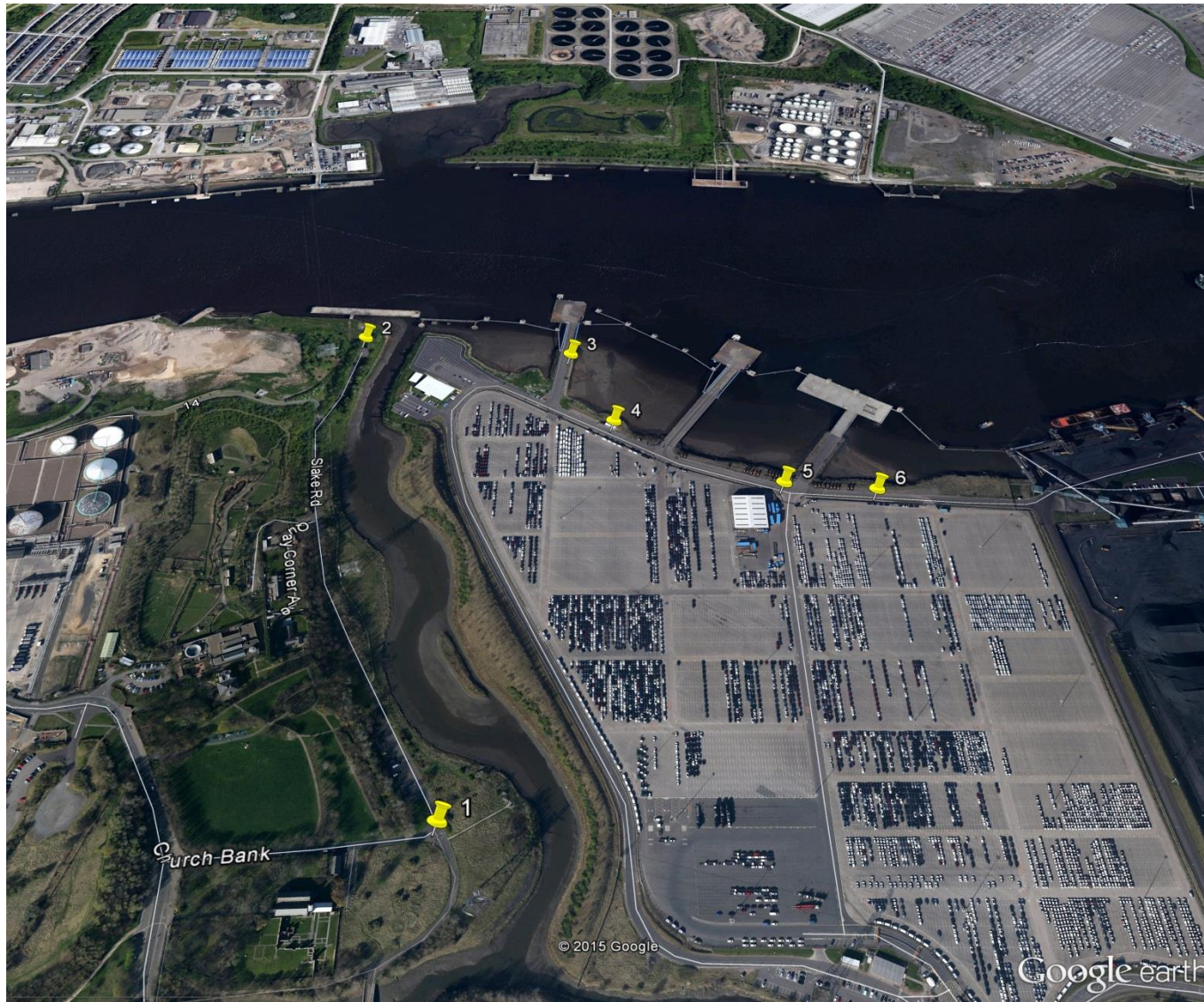
The surveys recorded small numbers of Turnstone present at the Nissan Dock site, with a peak of 23 on 11/11/14. This peak represents 1.3% of the SPA population, which indicates that the site does not support a significant population of this species. Birds recorded at this site mainly involved feeding birds, with little evidence of roosting occurring, likely due to the disturbed nature of the site. Although Turnstone were recorded feeding at the site (mainly amongst small rocky areas), the habitat (sandflat) is a sub-optimal foraging habitat for this species which prefers rocky coastlines. Purple Sandpiper was not recorded during any of the surveys.

The proposed development lies ca. 4km to the west of the Northumbria Coast SPA so is not directly linked to the SPA habitats that support this species. Given that only small numbers of Turnstone have been recorded during these surveys, and the results from the WeBS data, it is likely that the integrity of the SPA and the conservation objectives of the SPA will not be undermined.



# APPENDICES

## **A VANTAGE POINT LOCATIONS**



River Don was surveyed by walking from point 1 to point 2. Nissan Dock was surveyed by walking from point 3 through to point 6.



Northumberland Dock Wetland area was surveyed from the bird hide at "A". Mudflat area was surveyed from point "B" and at high tide also from point "C".



**Northumberland Dock and Wetland**

Species	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Max count
Black-headed Gull	188	90	9	160	220	150	107	220
Black-tailed Godwit	0	0	0	0	0	2	3	3
Common Gull	0	0	0	0	0	0	0	0
Coot	0	0	0	0	0	2	2	2
Cormorant	0	3	1	2	2	1	0	3
Curlew	1	2	2	18	26	5	14	26
Dunlin	0	0	0	35	36	1	2	36
Eider	0	0	0	0	0	0	0	0
Gadwall	0	0	0	0	0	0	2	2
Golden Plover	0	0	0	0	0	0	0	0
Goldeneye	0	0	1	0	0	0	0	1
Great Black-backed Gull	1	1	0	2	0	0	0	2
Great Crested Grebe	0	0	0	0	0	0	0	0
Grey Heron	25	17	14	19	9	7	5	25
Herring Gull	3	8	0	6	1	3	5	8
Kittiwake	0	0	0	0	0	0	1	1
Knot	0	0	0	0	0	0	1	1
Lapwing	4	5	18	53	46	1	1	53
Little Grebe	0	0	0	0	0	0	0	0
Mallard	12	22	33	27	26	16	15	33
Moorhen	9	9	5	6	6	7	10	10
Mute Swan	0	2	2	3	3	4	2	4
Oystercatcher	0	0	0	0	0	0	0	0
Pochard	0	0	0	0	0	0	0	0
Purple Sandpiper	0	0	0	0	0	0	0	0
Red-breasted Merganser	0	0	0	0	0	0	0	0
Redshank	60	137	179	154	145	226	225	226
Red-throated Diver	0	0	0	0	0	0	0	0
Ringed Plover	0	0	0	0	0	0	0	0
Sanderling	0	0	0	0	0	0	0	0
Shelduck	0	1	2	4	23	18	27	27
Snipe	1	2	1	0	3	1	2	3
Teal	34	155	173	283	292	238	160	292
Tufted Duck	0	2	1	7	6	1	0	7
Turnstone	0	0	0	0	0	0	0	0
Wigeon	0	0	0	0	2	0	0	2



**APPENDIX C      WEBS DATA**



## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

### Table 1: Total Counts - All Species Combined.

Peak monthly total = maximum of the sum of the counts of all species within each month.

Seasonal peaks = sum of the maximum counts of for each species within each Season.

Year	Peak Monthly Total	Autumn Peak	Winter Peak	Spring Peak
08/09	900 (FEB)	666	1326	262
09/10	975 (DEC)	770	1454	281
10/11	1356 (JAN)	711	1960	304
11/12	797 (JAN)	587	1217	266
12/13	903 (DEC)	640	1098	403
MEAN	986	675	1411	303

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

**Table 2: Five-year average monthly counts of each species.**

Figure in parentheses give number of complete and incomplete counts upon which the average is based. Incomplete counts are excluded from calculations where, if included, they would depress the mean.

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mute Swan	0(5,.)	1(4,.)	1(4,.)	2(5,.)	1(5,.)	4(5,.)	2(5,.)	3(5,.)	1(5,.)	1(5,.)	1(5,.)	1(5,.)
Shelduck	0(5,.)	0(5,.)	0(4,.)	0(5,.)	1(5,.)	5(5,.)	9(5,.)	8(5,.)	10(5,.)	5(5,.)	4(5,.)	3(5,.)
Wigeon	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	1(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Gadwall	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	1(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Teal	0(5,.)	1(5,.)	19(4,.)	11(5,.)	13(5,.)	98(5,.)	96(5,.)	110(5,.)	37(5,.)	3(5,.)	0(5,.)	0(5,.)
Mallard	0(5,.)	3(5,.)	11(4,.)	10(5,.)	12(5,.)	27(5,.)	19(5,.)	12(5,.)	8(5,.)	8(5,.)	6(5,.)	3(5,.)
Pochard	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Tufted Duck	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	25(5,.)	7(5,.)	10(5,.)	2(5,.)	0(5,.)	0(5,.)	0(5,.)
Eider	0(5,.)	0(5,.)	0(4,.)	1(5,.)	1(5,.)	1(5,.)	0(5,.)	0(5,.)	0(5,.)	1(5,.)	0(5,.)	0(5,.)
Little Grebe	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	1(5,.)	1(5,.)	1(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Cormorant	17(5,.)	26(5,.)	36(4,.)	22(5,.)	17(5,.)	11(5,.)	14(5,.)	10(5,.)	9(5,.)	4(5,.)	3(5,.)	8(5,.)
Grey Heron	4(5,.)	7(5,.)	4(4,.)	3(5,.)	4(5,.)	3(5,.)	9(5,.)	7(5,.)	1(5,.)	2(5,.)	1(5,.)	2(5,.)
Moorhen	0(5,.)	1(5,.)	0(4,.)	0(5,.)	1(5,.)	2(5,.)	1(5,.)	2(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Coot	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Oystercatcher	1(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	1(5,.)	1(5,.)	0(5,.)	1(5,.)
Ringed Plover	0(5,.)	0(5,.)	1(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Lapwing	0(5,.)	0(5,.)	1(4,.)	2(5,.)	43(5,.)	4(5,.)	63(5,.)	9(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Dunlin	0(5,.)	0(5,.)	1(4,.)	0(5,.)	2(5,.)	3(5,.)	26(5,.)	20(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Snipe	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	1(5,.)	1(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Woodcock	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Bar-tailed Godwit	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Whimbrel	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Curlew	3(5,.)	5(5,.)	6(4,.)	5(5,.)	5(5,.)	3(5,.)	5(5,.)	5(5,.)	4(5,.)	2(5,.)	0(5,.)	0(5,.)
Common Sandpiper	2(5,.)	1(5,.)	1(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Redshank	28(5,.)	35(5,.)	62(4,.)	112(5,.)	106(5,.)	119(5,.)	74(5,.)	126(5,.)	96(5,.)	15(5,.)	0(5,.)	0(5,.)
Turnstone	0(5,.)	0(5,.)	2(4,.)	2(5,.)	1(5,.)	0(5,.)	3(5,.)	0(5,.)	3(5,.)	9(5,.)	0(5,.)	0(5,.)
Kittiwake	2(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	23(5,.)	36(5,.)	4(5,.)	4(5,.)
Black-headed Gull	331(5,.)	284(5,.)	227(4,.)	228(5,.)	320(5,.)	338(5,.)	425(5,.)	402(5,.)	142(5,.)	50(5,.)	32(5,.)	74(5,.)
Mediterranean Gull	0(5,.)	0(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)
Common Gull	1(5,.)	0(5,.)	0(4,.)	0(5,.)	4(5,.)	130(5,.)	74(5,.)	17(5,.)	0(5,.)	1(5,.)	4(5,.)	0(5,.)
Lesser Black-backed Gull	3(5,.)	1(5,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	1(5,.)	4(5,.)	2(5,.)
Herring Gull	23(5,.)	23(5,.)	27(4,.)	9(5,.)	15(5,.)	37(5,.)	7(5,.)	4(5,.)	23(5,.)	63(5,.)	55(5,.)	67(5,.)
Great Black-backed Gull	0(5,.)	0(5,.)	2(4,.)	3(5,.)	2(5,.)	4(5,.)	1(5,.)	0(5,.)	1(5,.)	2(5,.)	0(5,.)	1(5,.)
Common Tern	3(5,.)	0(1,.)	0(1,.)	0(3,.)	0(4,.)	0(5,.)	0(5,.)	0(5,.)	0(4,.)	0(4,.)	2(5,.)	1(5,.)

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Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

**Table3: Five-year peak monthly counts of each species.**

The value reported represents the highest count obtained over the five-year period during the month in question and the species in question.

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mute Swan	0	2	4	8	3	8	8	5	4	2	4	2
Shelduck	0	0	0	0	2	7	27	17	20	9	6	8
Wigeon	0	1	0	0	0	1	3	0	0	0	0	0
Gadwall	0	0	0	0	0	5	1	0	1	0	0	0
Teal	0	3	69	39	20	263	178	166	54	10	0	0
Mallard	0	11	18	17	26	66	46	18	20	14	12	7
Pochard	0	0	0	0	0	0	2	0	0	0	0	0
Tufted Duck	0	0	1	0	0	112	20	26	11	0	0	0
Eider	0	2	1	3	3	3	0	1	0	4	1	0
Little Grebe	0	0	0	1	1	3	4	3	1	0	0	0
Cormorant	33	37	52	32	23	23	23	14	17	6	5	17
Grey Heron	9	13	9	10	11	10	13	12	5	8	3	5
Moorhen	0	3	1	1	4	5	3	4	1	1	1	1
Coot	0	0	0	0	0	0	2	2	0	0	0	0
Oystercatcher	3	0	0	0	0	0	2	0	2	3	1	3
Ringed Plover	2	0	2	1	0	0	0	0	1	0	1	0
Lapwing	1	2	5	10	202	14	308	32	0	1	0	0
Dunlin	0	0	2	0	12	8	132	70	0	0	0	0
Snipe	0	0	0	0	1	3	3	0	0	0	0	0
Woodcock	0	0	0	0	0	1	0	0	0	0	0	0
Bar-tailed Godwit	0	1	0	0	0	0	0	0	0	0	0	0
Whimbrel	1	0	0	0	0	0	0	0	0	0	0	0
Curlew	6	10	8	9	6	6	9	7	9	3	1	0
Common Sandpiper	5	1	2	0	0	0	0	0	0	1	0	0
Redshank	60	47	104	208	302	251	159	280	206	33	0	1
Turnstone	0	1	3	5	2	0	12	1	13	22	0	0
Kittiwake	4	1	0	0	0	0	0	0	48	98	20	6
Black-headed Gull	449	545	327	319	397	580	738	521	175	101	85	122
Mediterranean Gull	0	0	0	0	0	0	1	0	0	1	0	0
Common Gull	5	0	0	1	15	297	189	38	1	3	18	2
Lesser Black-backed Gull	6	2	0	0	0	0	1	0	2	2	6	6
Herring Gull	37	62	31	21	26	80	25	8	78	154	95	113
Great Black-backed Gull	0	1	4	6	6	13	4	0	2	5	0	2
Common Tern	5	0	0	0	0	0	0	0	0	0	4	2

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

### Table4a: Five-year autumn peak counts, and month in which this was recorded, of each species.

The value reported represents the highest count obtained between July and October for the year in question and the species in question

Where a count is enclosed by parentheses this indicates that it was considered incomplete

i.e. those parts of the site not visited typically holds at least 25% of the species in question.

Incomplete counts are excluded from calculation where, if included, they would depress the mean.

When all counts are considered to be incomplete the maximum replaces the mean.

Species	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	Mean of Peaks
Mute Swan	0	0	8 (OCT)	2 (AUG)	4 (SEP)	3
Wigeon	0	0	1 (AUG)	0	0	0
Teal	1 (OCT)	6 (SEP)	3 (AUG)	69 (SEP)	39 (OCT)	24
Mallard	7 (SEP)	10 (OCT)	11 (OCT)	18 (SEP)	17 (OCT)	13
Tufted Duck	0	0	0	1 (SEP)	0	0
Eider	3 (OCT)	0	1 (OCT)	0	0	1
Little Grebe	0	0	1 (OCT)	0	0	0
Cormorant	52 (SEP)	47 (SEP)	19 (OCT)	37 (AUG)	23 (AUG)	36
Grey Heron	2 (AUG)	10 (OCT)	13 (AUG)	9 (JUL)	8 (AUG)	8
Moorhen	1 (SEP)	3 (AUG)	0	1 (OCT)	0	1
Oystercatcher	0	0	0	3 (JUL)	1 (JUL)	1
Ringed Plover	0	2 (JUL)	0	0	2 (SEP)	1
Lapwing	5 (SEP)	10 (OCT)	0	0	0	3
Dunlin	0	2 (SEP)	0	0	0	0
Bar-tailed Godwit	0	0	0	0	1 (AUG)	0
Whimbrel	0	1 (JUL)	0	1 (JUL)	0	0
Curlew	4 (AUG)	9 (OCT)	5 (OCT)	10 (AUG)	8 (SEP)	7
Common Sandpiper	2 (SEP)	5 (JUL)	4 (JUL)	0	1 (AUG)	2
Redshank	208 (OCT)	62 (SEP)	120 (OCT)	96 (OCT)	102 (OCT)	118
Turnstone	3 (OCT)	2 (SEP)	5 (OCT)	1 (AUG)	3 (SEP)	3
Kittiwake	2 (JUL)	4 (JUL)	0	1 (JUL)	3 (JUL)	2
Black-headed Gull	335 (JUL)	545 (AUG)	449 (JUL)	306 (JUL)	381 (JUL)	403
Common Gull	1 (OCT)	0	0	0	5 (JUL)	1
Lesser Black-backed Gull	1 (AUG)	2 (AUG)	6 (JUL)	1 (JUL)	6 (JUL)	3
Herring Gull	34 (JUL)	40 (AUG)	62 (AUG)	23 (SEP)	31 (SEP)	38
Great Black-backed Gull	2 (SEP)	5 (OCT)	1 (OCT)	6 (OCT)	4 (SEP)	4
Common Tern	3 (JUL)	5 (JUL)	2 (JUL)	2 (JUL)	1 (JUL)	3

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For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

**Table 4b: Five-year winter peak counts, and month in which this was recorded, of each species.**

The value reported represents the highest count obtained between November and March for the winter in question and the species in question

Where a count is enclosed by parentheses this indicates that it was considered incomplete i.e. those parts of the site not visited typically holds at least 25% of the species in question.

Incomplete counts are excluded from calculation where, if included, they would depress the mean.

When all counts are considered to be incomplete the maximum replaces the mean.

Species	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	Mean Peak
Mute Swan	3 (MAR)	4 (DEC)	8 (DEC)	3 (NOV)	4 (MAR)	4
Shelduck	20 (MAR)	11 (MAR)	27 (JAN)	17 (FEB)	9 (FEB)	17
Wigeon	0	0	3 (JAN)	0	0	1
Gadwall	0	0	5 (DEC)	1 (MAR)	0	1
Teal	41 (JAN)	111 (DEC)	263 (DEC)	174 (JAN)	145 (FEB)	147
Mallard	7 (NOV)	26 (NOV)	66 (DEC)	22 (JAN)	46 (JAN)	33
Pochard	0	2 (JAN)	0	0	0	0
Tufted Duck	0	26 (FEB)	112 (DEC)	0	4 (FEB)	28
Eider	0	3 (DEC)	3 (NOV)	0	1 (NOV)	1
Little Grebe	1 (NOV)	3 (FEB)	4 (JAN)	1 (DEC)	0	2
Cormorant	14 (MAR)	23 (NOV)	20 (NOV)	15 (JAN)	16 (NOV)	18
Grey Heron	12 (JAN)	13 (JAN)	12 (FEB)	9 (JAN)	2 (JAN)	10
Moorhen	2 (FEB)	4 (FEB)	3 (JAN)	3 (FEB)	5 (DEC)	3
Coot	0	0	2 (JAN)	0	2 (FEB)	1
Oystercatcher	1 (MAR)	0	2 (JAN)	0	0	1
Ringed Plover	1 (MAR)	0	0	0	0	0
Lapwing	308 (JAN)	202 (NOV)	8 (DEC)	0	5 (JAN)	105
Dunlin	70 (FEB)	1 (DEC)	132 (JAN)	27 (FEB)	4 (FEB)	47
Snipe	3 (DEC)	3 (DEC)	1 (DEC)	0	0	1
Woodcock	0	0	1 (DEC)	0	0	0
Curlew	7 (FEB)	8 (JAN)	6 (NOV)	9 (JAN)	6 (NOV)	7
Redshank	302 (NOV)	176 (DEC)	204 (FEB)	95 (NOV)	92 (FEB)	174
Turnstone	13 (MAR)	12 (JAN)	1 (NOV)	0	2 (NOV)	6
Kittiwake	26 (MAR)	1 (MAR)	4 (MAR)	36 (MAR)	48 (MAR)	23
Black-headed Gull	468 (FEB)	469 (JAN)	738 (JAN)	521 (FEB)	580 (DEC)	555
Mediterranean Gull	0	1 (JAN)	0	0	0	0
Common Gull	7 (JAN)	271 (DEC)	297 (DEC)	189 (JAN)	78 (DEC)	168
Lesser Black-backed Gull	1 (JAN)	0	0	2 (MAR)	0	1
Herring Gull	17 (MAR)	78 (MAR)	34 (DEC)	80 (DEC)	44 (DEC)	51
Great Black-backed Gull	2 (NOV)	6 (NOV)	4 (JAN)	13 (DEC)	5 (DEC)	6

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

**Table 4c: Five-year spring peak counts, and month in which this was recorded, of each species.**

The value reported represents the highest count obtained between April and June for the year in question and the species in question

Where a count is enclosed by parentheses this indicates that it was considered incomplete

i.e. those parts of the site not visited typically holds at least 25% of the species in question.

Incomplete counts are excluded from calculation where, if included, they would depress the mean.

When all counts are considered to be incomplete the maximum replaces the mean.

Species	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	Mean Peak
Mute Swan	2 (APR)	2 (MAY)	1 (APR)	2 (JUN)	4 (MAY)	2
Shelduck	9 (APR)	8 (JUN)	4 (APR)	5 (MAY)	8 (APR)	7
Teal	10 (APR)	0	0	7 (APR)	0	3
Mallard	7 (APR)	5 (MAY)	8 (APR)	14 (APR)	12 (MAY)	9
Eider	1 (APR)	4 (APR)	1 (MAY)	0	0	1
Cormorant	6 (APR)	17 (JUN)	12 (JUN)	6 (APR)	5 (MAY)	9
Grey Heron	2 (MAY)	3 (JUN)	8 (APR)	3 (MAY)	1 (JUN)	3
Moorhen	1 (APR)	1 (APR)	0	0	1 (MAY)	1
Oystercatcher	1 (APR)	3 (APR)	3 (JUN)	2 (APR)	1 (MAY)	2
Ringed Plover	1 (MAY)	0	0	0	0	0
Lapwing	1 (APR)	0	0	0	0	0
Curlew	3 (APR)	3 (APR)	0	1 (APR)	1 (APR)	2
Common Sandpiper	0	1 (APR)	0	0	0	0
Redshank	7 (APR)	33 (APR)	1 (APR)	22 (APR)	14 (APR)	15
Turnstone	22 (APR)	4 (APR)	2 (APR)	0	15 (APR)	9
Kittiwake	17 (APR)	9 (APR)	9 (APR)	46 (APR)	98 (APR)	36
Black-headed Gull	85 (MAY)	106 (JUN)	77 (JUN)	101 (APR)	122 (JUN)	98
Mediterranean Gull	0	1 (APR)	0	0	0	0
Common Gull	1 (APR)	1 (APR)	18 (MAY)	3 (APR)	2 (APR)	5
Lesser Black-backed Gull	1 (APR)	5 (MAY)	1 (MAY)	5 (MAY)	6 (MAY)	4
Herring Gull	78 (MAY)	70 (JUN)	154 (APR)	47 (APR)	113 (JUN)	92
Great Black-backed Gull	5 (APR)	1 (JUN)	3 (APR)	0	0	2
Common Tern	2 (MAY)	4 (MAY)	2 (JUN)	2 (MAY)	0	2

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

### Table 4d: Five-year annual peak counts, and month in which this was recorded, of each species.

The value reported represents the highest count obtained between July and June for the year in question and the species in question

Where a count is enclosed by parentheses this indicates that it was considered incomplete

i.e. those parts of the site not visited typically holds at least 25% of the species in question.

Incomplete counts are excluded from calculation where, if included, they would depress the mean.

When all counts are considered to be incomplete the maximum replaces the mean.

Species	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	Mean Peak
Mute Swan	3 (MAR)	4 (DEC)	8 (OCT)	3 (NOV)	4 (SEP)	4
Shelduck	20 (MAR)	11 (MAR)	27 (JAN)	17 (FEB)	9 (FEB)	17
Wigeon	0	0	3 (JAN)	0	0	1
Gadwall	0	0	5 (DEC)	1 (MAR)	0	1
Teal	41 (JAN)	111 (DEC)	263 (DEC)	174 (JAN)	145 (FEB)	147
Mallard	7 (SEP)	26 (NOV)	66 (DEC)	22 (JAN)	46 (JAN)	33
Pochard	0	2 (JAN)	0	0	0	0
Tufted Duck	0	26 (FEB)	112 (DEC)	1 (SEP)	4 (FEB)	29
Eider	3 (OCT)	4 (APR)	3 (NOV)	0	1 (NOV)	2
Little Grebe	1 (NOV)	3 (FEB)	4 (JAN)	1 (DEC)	0	2
Cormorant	52 (SEP)	47 (SEP)	20 (NOV)	37 (AUG)	23 (AUG)	36
Grey Heron	12 (JAN)	13 (JAN)	13 (AUG)	9 (JUL)	8 (AUG)	11
Moorhen	2 (FEB)	4 (FEB)	3 (JAN)	3 (FEB)	5 (DEC)	3
Coot	0	0	2 (JAN)	0	2 (FEB)	1
Oystercatcher	1 (APR)	3 (APR)	3 (JUN)	3 (JUL)	1 (JUL)	2
Ringed Plover	1 (MAY)	2 (JUL)	0	0	2 (SEP)	1
Lapwing	308 (JAN)	202 (NOV)	8 (DEC)	0	5 (JAN)	105
Dunlin	70 (FEB)	2 (SEP)	132 (JAN)	27 (FEB)	4 (FEB)	47
Snipe	3 (DEC)	3 (DEC)	1 (DEC)	0	0	1
Woodcock	0	0	1 (DEC)	0	0	0
Bar-tailed Godwit	0	0	0	0	1 (AUG)	0
Whimbrel	0	1 (JUL)	0	1 (JUL)	0	0
Curlew	7 (FEB)	9 (OCT)	6 (NOV)	10 (AUG)	8 (SEP)	8
Common Sandpiper	2 (SEP)	5 (JUL)	4 (JUL)	0	1 (AUG)	2
Redshank	302 (NOV)	176 (DEC)	204 (FEB)	96 (OCT)	102 (OCT)	176
Turnstone	22 (APR)	12 (JAN)	5 (OCT)	1 (AUG)	15 (APR)	11
Kittiwake	26 (MAR)	9 (APR)	9 (APR)	46 (APR)	98 (APR)	38
Black-headed Gull	468 (FEB)	545 (AUG)	738 (JAN)	521 (FEB)	580 (DEC)	570
Mediterranean Gull	0	1 (APR)	0	0	0	0
Common Gull	7 (JAN)	271 (DEC)	297 (DEC)	189 (JAN)	78 (DEC)	168
Lesser Black-backed Gull	1 (AUG)	5 (MAY)	6 (JUL)	5 (MAY)	6 (JUL)	5

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

Five year summary for Tyne Estuary - Jarrow Slake and East Howdon  
**Table4d: Five-year annual peak counts, and month in which this was recorded, of each species.**

*The value reported represents the highest count obtained between July and June for the year in question and the species in question*

*Where a count is enclosed by parentheses this indicates that it was considered incomplete*

*i.e. those parts of the site not visited typically holds at least 25% of the species in question.*

*Incomplete counts are excluded from calculation where, if included, they would depress the mean.*

*When all counts are considered to be incomplete the maximum replaces the mean.*

Species	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	Mean Peak
Herring Gull	78 (MAY)	78 (MAR)	154 (APR)	80 (DEC)	113 (JUN)	101
Great Black-backed Gull	5 (APR)	6 (NOV)	4 (JAN)	13 (DEC)	5 (DEC)	7
Common Tern	3 (JUL)	5 (JUL)	2 (JUL)	2 (JUL)	1 (JUL)	3

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.



## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

### Table 5: National and International importance of the site for each species.

Figures given indicate the percentage of the relevant threshold level in operation during 2012/2013 represented by the five-winter mean of peak counts for the species in question

e.g. 50% would indicate that the five-winter mean of peak counts is half the threshold level. It follows that values of 100% or higher indicate nationally or internationally important numbers of a given species occur on the site.

Where a count is enclosed by parentheses this indicates that it was considered incomplete (i.e. those parts of the site not visited typically hold at least 25% of the species in question).

(an asterisk indicates that a 50-bird minimum (typically used for designation) has been used rather than 1% of National population)

Species	Autumn peak cf National Threshold	Winter peak cf National Threshold	Spring peak cf National Threshold	Annual peak cf National Threshold	Autumn peak cf International Threshold	Winter peak cf International Threshold	Spring peak cf International Threshold	Annual peak cf International Threshold
Mute Swan	0%	1%	0%	1%	1%	1%	1%	1%
Shelduck	N/A	3%	1%	3%	N/A	1%	0%	1%
Wigeon	0%	0%	N/A	0%	0%	0%	N/A	0%
Gadwall	N/A	0%	N/A	0%	N/A	0%	N/A	0%
Teal	1%	7%	0%	7%	0%	3%	0%	3%
Mallard	0%	0%	0%	0%	0%	0%	0%	0%
Tufted Duck	0%	3%	N/A	3%	0%	0%	N/A	0%
Eider	0%	0%	0%	0%	0%	0%	0%	0%
Little Grebe	0%	1%	N/A	1%	0%	0%	N/A	0%
Cormorant	10%	5%	3%	10%	3%	2%	1%	3%
Grey Heron	1%	2%	0%	2%	0%	0%	0%	0%
Moorhen	0%	0%	0%	0%	0%	0%	0%	0%

Species	Autumn 5yr mean of peaks	Winter 5yr mean of peaks	Spring 5yr mean of peaks	Annual 5yr mean of peaks
Mute Swan	3	4	2	4
Shelduck		17	7	17
Wigeon	0	1		1
Gadwall		1		1
Teal	24	147	3	147
Mallard	13	33	9	33
Tufted Duck	0	28		29
Eider	1	1	1	2
Little Grebe	0	2		2
Cormorant	36	18	9	36
Grey Heron	8	10	3	11
Moorhen	1	3	1	3

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

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For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

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Figures given indicate the percentage of the relevant threshold level in operation during 2012/2013 represented by the five-winter mean of peak counts for the species in question

e.g. 50% would indicate that the five-winter mean of peak counts is half the threshold level. It follows that values of 100% or higher indicate nationally or internationally important numbers of a given species occur on the site.

Where a count is enclosed by parentheses this indicates that it was considered incomplete (i.e. those parts of the site not visited typically hold at least 25% of the species in question).

(an asterisk indicates that a 50-bird minimum (typically used for designation) has been used rather than 1% of National population)

Species	Autumn peak cf National Threshold	Winter peak cf National Threshold	Spring peak cf National Threshold	Annual peak cf National Threshold	Autumn peak cf International Threshold	Winter peak cf International Threshold	Spring peak cf International Threshold	Annual peak cf International Threshold
Coot	N/A	0%	N/A	0%	N/A	0%	N/A	0%
Oystercatcher	0%	0%	0%	0%	0%	0%	0%	0%
Ringed Plover	0%	0%	0%	0%	0%	0%	0%	0%
Lapwing	0%	2%	0%	2%	0%	1%	0%	1%
Dunlin	0%	1%	N/A	1%	0%	0%	N/A	0%
Snipe	N/A	0%	N/A	0%	N/A	0%	N/A	0%
Curlew	1%	1%	0%	1%	0%	0%	0%	0%
Common Sandpiper	*4%	N/A	*0%	*4%	0%	N/A	0%	0%
Redshank	10%	15%	1%	15%	5%	7%	1%	7%
Turnstone	1%	1%	2%	2%	0%	0%	1%	1%
Kittiwake	*4%	*46%	*72%	*76%	0%	0%	0%	0%
Black-headed Gull	2%	3%	0%	3%	2%	3%	0%	3%

Species	Autumn 5yr mean of peaks	Winter 5yr mean of peaks	Spring 5yr mean of peaks	Annual 5yr mean of peaks
Coot		1		1
Oystercatcher	1	1	2	2
Ringed Plover	1	0	0	1
Lapwing	3	105	0	105
Dunlin	0	47		47
Snipe		1		1
Curlew	7	7	2	8
Common Sandpiper	2		0	2
Redshank	118	174	15	176
Turnstone	3	6	9	11
Kittiwake	2	23	36	38
Black-headed Gull	403	555	98	570

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

## Five year summary for Tyne Estuary - Jarrow Slake and East Howdon

**Table 5: National and International importance of the site for each species.**

Figures given indicate the percentage of the relevant threshold level in operation during 2012/2013

represented by the five-winter mean of peak counts for the species in question

e.g. 50% would indicate that the five-winter mean of peak counts is half the threshold level. It follows that values of 100% or higher indicate nationally or internationally important numbers of a given species occur on the site.

Where a count is enclosed by parentheses this indicates that it was considered incomplete

(i.e. those parts of the site not visited typically hold at least 25% of the species in question).

(an asterisk indicates that a 50-bird minimum (typically used for designation) has been used rather than 1% of National population)

Species	Autumn peak cf National Threshold	Winter peak cf National Threshold	Spring peak cf National Threshold	Annual peak cf National Threshold	Autumn peak cf International Threshold	Winter peak cf International Threshold	Spring peak cf International Threshold	Annual peak cf International Threshold
Common Gull	0%	2%	0%	2%	0%	1%	0%	1%
Lesser Black-backed Gull	0%	0%	0%	0%	0%	0%	0%	0%
Herring Gull	1%	1%	1%	1%	0%	1%	1%	1%
Great Black-backed Gull	1%	1%	0%	1%	0%	0%	0%	0%
Common Tern	*6%	N/A	*4%	*6%	0%	N/A	0%	0%

Species	Autumn 5yr mean of peaks	Winter 5yr mean of peaks	Spring 5yr mean of peaks	Annual 5yr mean of peaks
Common Gull	1	168	5	168
Lesser Black-backed Gull	3	1	4	5
Herring Gull	38	51	92	101
Great Black-backed Gull	4	6	2	7
Common Tern	3		2	3

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.

These tabulations are based exclusively on data collected as part of the monthly Core Counts.

For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.

Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

**C      NATURAL ENGLAND: DISCRETIONARY ADVICE SERVICE REPORT**

Date: 06 May 2015  
Our ref: DAS/149554



Mr Stuart McLeod  
Port of Tyne  
Maritime House  
Tyne Dock  
South Shields  
Tyne and Wear NE34 9PT

Customer Services  
Hornbeam House  
Crewe Business Park  
Electra Way  
Crewe  
Cheshire  
CW1 6GJ

0300 060 3900

**BY EMAIL ONLY**

Dear Stuart

**Discretionary Advice Service (Charged Advice)**

**DAS/9274/149554**

**Development proposal and location:**

Thank you for your consultation on the above dated 30 March 2015, which was received on the same date.

This advice is being provided as part of Natural England's Discretionary Advice Service. Port of Tyne has asked Natural England to provide advice upon:

- Natural England's local knowledge of designated site ecology, process local policy, etc
- Potential impacts on designated or proposed designated sites
- The scope of proposed ecological mitigation or the draft ecological mitigation plan
- The information for a draft Habitats Regulations Assessment

This advice is provided in accordance with the Quotation and Agreement dated 02 April 2015.

The following advice is based upon the information within the DAS request form received from Stuart McLeod from Port of Tyne on 30 March 2015 and subsequent telephone conversation, the Port of Tyne Car Terminal Upgrade Scoping Report April 2015 received from Stuart McLeod from Port of Tyne on 16 April 2015 and the meeting between Natural England, Port of Tyne, EnviroCentre and Total Project Integration on 30 April 2015.

**Protected sites**

**On the basis of the information so far provided it is thought that the proposed development will have a harmful effect on a designated site**

Natural England is currently of the view that, based on the objective information provided on the proposed development, a likely significant effect on the Northumbria Coast Special Protection Area (SPA)/Ramsar cannot be excluded, either individually or in combination with other plans or projects. Natural England therefore suggests that Port of Tyne either considers what further mitigation measures might be included within the design of the proposed development in order to exclude this significant effect.

Furthermore, Natural England is concerned that the proposed operations are likely to damage the interest features of the Northumberland Shore SSSI. Natural England therefore requests Port of



Tyne to consider what further mitigation measures might be provided in order to minimise or avoid this damage to the SSSI.

1. Turnstone are a qualifying species of Northumbria Coast SPA/Ramsar site and a notified feature of Northumberland Shore SSSI and were recorded on the development site. The numbers of turnstone are currently being assessed against the population at classification, which are 1,739 individuals (5 year mean 1992/93 to 1996/97). However, the population has declined since then. The WeBS Alerts system assessed the population up to winter 2009/10, identifying a 29% decline since classification. This gives a more recent population estimate of 1,235 individuals. In this context the 23 birds recorded is approximately 1.85% of the SPA population.

The WeBS core count data provides a useful, complementary long-term dataset. It is worth noting however that core count surveys take place around 2 hours before high tide: this means that the intertidal habitats would be reduced in extent. In addition, it is unknown if the WeBS surveyor had full access to the site. These issues may account for the lower numbers reported during core counts.

Waterbird populations can be quite mobile, so it is plausible that turnstone move to and from the SPA/Ramsar site to the development site, e.g. when the coast is heavily disturbed. In the absence of further information from another winter clearly demonstrating that there is no interchange, it cannot be ruled out that there is a functional link to the SPA and therefore a conclusion of LSE would be reached.

At the meeting on 30 April 2015 it was agreed that the land owned by Port of Tyne on the north bank of the River Tyne to the east of Northumberland Dock would be investigated for its potential to create alternative feeding areas as part of a mitigation package for the turnstone. This would take the form of rocky habitat and would should attempt to replicate the feeding areas on the development site and Northumbria Coast SPA/Ramsar and Northumberland Shore SSSI as far as practicable (taking into account colour and shape of existing rock for example). The site has the potential to achieve this as there are clear sight lines and the area is mostly undisturbed which would both increase favourability for this species.

Redshank and ringed plover are notified features of the Northumberland Shore SSSI and were recorded on the development site. Redshank is a widely distributed wader that occupies most intertidal habitats in the Tyne Estuary. However it is possible that there may be some interchange with the SSSI. The 55 redshank recorded would equate to 2.4% of the SSSI population if they were linked. Ringed plover has rather more specialised requirements compared to redshank. Again it is possible that there may be some interchange with the SSSI. The 23 ringed plover recorded would equate to 4% of the SSSI population if they were linked. In the absence of further information from another winter clearly demonstrating that there is no interchange, it cannot be ruled out that there is a functional link to the SSSI and therefore an impact on the two notified species.

At the meeting on 30 April 2015 it was agreed that land owned by Port of Tyne/South Tyneside Council to the South-West corner of the Nissan Car terminal on the bank of the River Don would be investigated for its potential to create alternative feeding areas as part of a mitigation package for redshank and ringed plover. This would take the form of additional mudflat along the River Don and would attempt to replicate the feeding areas on the development site and Northumberland Shore SSSI as far as practicable. The clear sight lines and lack of disturbance to this site would each increase favourability for both species.

A combination of these two sites would have the potential to successfully mitigate for any

loss of feeding areas as a result of the proposed development. At the meeting on 30 April 2015 it was agreed that a third site at the confluence of the River Don and River Tyne would be investigated for its potential to create additional alternative feeding areas for turnstone through the addition of rocky habitat. This would have the potential to enhance mitigation as a result of the loss of feeding areas as a result of this proposed development.

2. In our email to Stuart McLeod from Port of Tyne on 24 April 2015, the Data Sufficiency section recommended a number of improvements to the data in The Port of Tyne Car Terminal Upgrade Scoping Report (April 2015). The email to Natural England from Stuart McLeod from Port of Tyne on 30 April provided further detail in relation to each of the points raised. This information should be incorporated into any subsequent Scoping Report produced, as well as the Environmental Impact Assessment (EIA).
3. More detail should be provided in the EIA to state why it is not possible to avoid or reduce intertidal habitat loss and this should be robustly tested. For example in The Port of Tyne Car Terminal Upgrade Scoping Report (April 2015) states that a multi-storey car-park and re-siting of access roads are not feasible options.
4. Natural England recommend an estuary management plan for the Port of Tyne is developed, including a strategic approach to habitat mitigation, creation and enhancement, so that there is a clearer way forward for future developments that may raise similar issues.

Due to the likely impacts of this development on designated sites, this proposal may require a statutory EIA under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011. Further advice and confirmation should be sought from South Tyneside Council.

#### **Other advice**

There are also other possible impacts resulting from this proposal that you should consider when developing your planning application. These issues, together with where you may find further guidance, are summarised below.

#### **Local wildlife sites**

Local wildlife or geological sites remain material considerations in the determination of planning applications. Further information in relation to Jarrow Slake Mud Flats and the River Don Salt Marsh Local Wildlife Sites may be available from: South Tyneside Council (0191 427 7000). A more comprehensive, but not exhaustive, list can be found at [Wildlife and Countryside link](#).

#### **Local landscape**

The impact of this proposal on a local landscape character (if any) will be a material consideration when the authority determines your planning application. Further information on any local landscape character assessment may be available from: South Tyneside Council (0191 427 7000).

For clarification of any points in this letter, please contact Alastair Welch on 0300 060 1148.

This letter concludes Natural England's Advice within the Quotation and Agreement dated 02 April 2015.

As the Discretionary Advice Service is a new service, we would appreciate your feedback to help shape this service. We have attached a feedback form to this letter and would welcome any comments you might have about our service.

The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours  
Alastair Welch  
Northumbria Area Team

Cc [commercialservices@naturalengland.org.uk](mailto:commercialservices@naturalengland.org.uk)



## Annex 1 European Protected Species

A licence is required in order to carry out any works that involve certain activities such as capturing the animals, disturbance, or damaging or destroying their resting or breeding places. Note that damage or destruction of a breeding site or resting place is an absolute offence and unless the offences can be avoided (e.g. by timing the works appropriately), it should be licensed. In the first instance it is for the developer to decide whether a species licence will be needed. The developer may need to engage specialist advice in making this decision. A licence may be needed to carry out mitigation work as well as for impacts directly connected with a development. Further information can be found in Natural England's ['How to get a licence'](#) publication.

If the application requires planning permission, it is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive, and if so, whether the application would be likely to receive a licence. This should be based on the advice Natural England provides at formal consultation on the likely impacts on favourable conservation status and Natural England's [guidance](#) on how the three tests (no alternative solutions, imperative reasons of overriding public interest and maintenance of favourable conservation status) are applied when considering licence applications.

Natural England's pre-submission Screening Service can screen application drafts prior to formal submission, whether or not the relevant planning permission is already in place. Screening will help applicants by making an assessment of whether the draft application is likely to meet licensing requirements, and, if necessary, provide specific guidance on how to address any shortfalls. The advice should help developers and ecological consultants to better manage the risks or costs they may face in having to wait until the formal submission stage after planning permission is secured, or in responding to requests for further information following an initial formal application.

The service will be available for new applications, resubmissions or modifications – depending on customer requirements. More information can be found on [Natural England's website](#).

## **D      SEDIMENT SAMPLE REPORT**

# Port of Tyne Car Terminal Upgrade Scoping Report Addendum -Sample Report



**January 2015**

# Port of Tyne Car Terminal Upgrade Scoping Report Addendum -Sample Report

Client: Port of Tyne

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Author: Graeme Duff  
Reviewer: Professor George Fleming

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EnviroCentre  
Craighall Business Park  
8 Eagle Street  
Glasgow  
G4 9XA

0141 341 5040  
[www.envirocentre.co.uk](http://www.envirocentre.co.uk)  
[info@envirocentre.co.uk](mailto:info@envirocentre.co.uk)

Offices:  
Glasgow  
Banchory

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# 1 INTRODUCTION

## 1.1 Background

Port of Tyne contracted EnviroCentre Ltd. to undertake the collection of 6 sediment samples (from three locations) at the proposed Car Terminal Upgrade site. The samples were collected to determine the physical make-up of the existing substrate, and to review chemical quality.

The purpose of these samples is to provide supporting information in relation to the Scoping Assessment (as detailed in EnviroCentre Report No 6204, April 2015), to allow for assessment of chemical sediment quality against CEFAS assessment criteria and to evaluate the physical properties of the sediment deposit with respect to habitat classification.

The following report details the sampling methodology, field and laboratory analysis and provides a summary of the sediment quality present and discussion on the physical make-up of the sediment deposit within the proposed development area at the site.

## 1.1 Mud Flat Definition

Geotechnical analysis was carried out to determine the physical make-up of the sediment deposit with respect to typical mudflat habitat.

The OSPAR definition for intertidal mudflats (detailed in Ospar Report No 2008-07 *Descriptions of habitats on the OSPAR list of threatened and/or declining species and habitats*) incorporates the following definition in relation to the physical consistency of a mud flat –

*“Sediments consist mainly of fine particles, mostly in the silt and clay fraction (particle size less than 0.063 mm in diameter), though sandy mud may contain up to 80% sand (mostly very fine and fine sand), often with a high organic content.”*

The UKBAP (UK Biodiversity Action Plan Priority Habitats Definition, 2011) definition of mudflats notes –

*Mudflats are sedimentary intertidal habitats created by deposition in low energy coastal environments particularly estuaries and other sheltered areas. Their sediment consists mostly of silts and clays with a high organic content.*

A review of the physical quality of the material is provided in Section 4.1.

## 1.2 Chemical Quality Action Levels – AL1 Vs AL2

An assessment of the chemical quality of the sediment in the development area was undertaken using the criteria relating to the disposal to sea if dredged (CEFAS Action Level 1 and 2).

Sediment with contaminants below Action Level 1 (AL1) is generally considered to be below background levels for contamination.

For samples between AL1 and AL2, additional risk assessment may be required including further sampling and testing to fully identify pockets of contamination or implementation of bioassays to assess the materials. This would need to be agreed and approved by CEFAS

Material above AL2 is generally considered to be contaminated by CEFAS assessment criteria.

## 2 SEDIMENT SAMPLING REQUIREMENTS

### 2.1 Sampling Locations

Figure 1 in Appendix A details the sample locations.

### 2.2 Field Information

The following information was obtained for each sample collected.

- A unique sample ID;
- Sample location;
- Sample co-ordinates in latitude and longitude in degrees, minutes and decimals of minutes;
- Sample type i.e. sediment chemistry or sediment biology;
- Date, time and depth of collection;
- Sampler's ID;
- Sediment description; and
- Details of any deviation from sampling protocol.

### 2.3 Sampling Requirements

The laboratory analysis undertaken as part of this investigation, included metal, organic and particle size analysis. Samples for metal and particle size analysis were sub-sampled using a plastic spoon and stored in polyethylene containers. Samples for organic analysis were collected using stainless steel spoons and stored in amber glass jars.

Sample containers were placed within cool boxes with packs of ice to cool as quickly as possible.





### 3 SAMPLING METHODOLOGY

Sampling was undertaken on the 1<sup>st</sup> September 2014. The following sections detail the sampling methodology used to retrieve sediment samples from the site.

#### 3.1 Sample Location

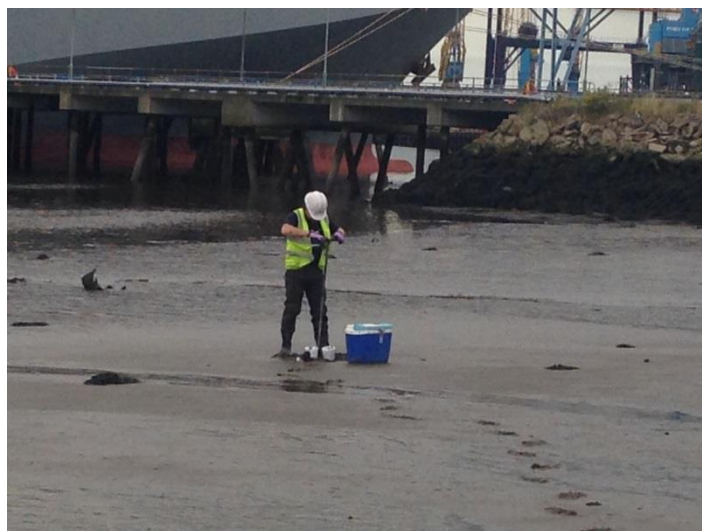
A total of three sample locations were selected for the sampling exercise. Sample locations were marked utilising Trimble Survey equipment. The following table details the sample locations:

Sample Name	Grid Location
Location 1	NZ 34103 65740
Location 2	NZ 34217 65681
Location 3	NZ 34355 65642

#### 3.2 Sample Retrieval

Core samples were collected using a hand auger. Two samples were collected per location, a shallow sample was collected to characterise material at 0-0.25m from the surface, with a second sample collected at depth from 0.25-0.5m. Logs detailing each sample location are provided in Appendix B.

Onsite observation indicated that all samples primarily consisted of sand, ranging from fine to medium grain size.



## 4 ANALYTICAL RESULTS

A summary table comparing the data to assessment criteria and the laboratory certificates are provided in Appendix C. It is noted that the results presented in the summary table have been altered to reflect dry weight concentrations as required for the assessment.

### 4.1 Physical Analysis

#### 4.1.1 Particle Size Distribution (PSD)

Particle Size Distribution data for each sample is included within Appendix C. Sediments sampled within the sample area are reported as being predominately sand with variable silt content. Field descriptions of the sediments and accompanying comment on sedimentology are included within Appendix B within the sample log.

The particle size distribution identified that the bulk of the sediment was formed of fine to medium sand (68%) with fine sand forming 57% and medium sand forming 11% on average of the sample weight. Silts and clays were found to form 32% of the sample weight on average.

On the basis of the PSD the material is noted to be principally sand. The Ospar definition of mud flats primarily states that the formation are formed of silts and clay, however sands up to 80% of the total mass can be present, often with high organic content.

On the basis of the PSD assessment the material is considered to be classed as muddy sand.

#### 4.1.2 Total Organic Carbon (TOC)

The average total organic carbon concentration of the samples was noted to be 1.8% on average. The highest recorded concentration was 2.74% (Location 1 – 0-0.25) with the lowest recorded being 1.02% (Location 3 0-0.25).

There is limited statutory information available to confirm typical organic carbon content in mud flats, with no detail within the Ospar definition or the 1994 UK Biodiversity Action Plan, with both utilising the terminology of “high” as a typical level for organic carbon.

On the basis of organic compound concentrations at an average value of 1.8%, and with no levels recorded above 3% it is considered that the sediment deposit has a low organic carbon content and as such falls into the classification of a sandflat.

Information obtained from the UK Marine SACs Project ([http://www.ukmarinesac.org.uk/communities/intersand-mud/ism2\\_4\\_3.htm](http://www.ukmarinesac.org.uk/communities/intersand-mud/ism2_4_3.htm)) provides the following classification detail with regards to sandflats.

*These have low levels of organic matter and are well oxygenated in the surface layers (Eagle, 1973)*

*Intertidal and subtidal sands are well-oxygenated though the tidal pumping of overlying water. Their mobile nature produces a deeper anaerobic layer (>15cm) and that any organic matter incorporated into the sediment is degraded rapidly. High energy areas have a low carbon to nitrogen ratio due to the low organic content and reduced productivity and the rapid degradation of labile organic material. Microbial activity is low in areas of*

*higher energy as there is limited organic detritus available for bacterial degradation coupled with the particles' comparatively low surface area to volume ratio providing a surface for microbial populations.*

## **4.2 Chemical Analysis**

### **4.2.1 Chemical Analysis Assessment Criteria**

All chemical analytical results were assessed against Revised Action levels criteria as adopted by CEFAS. The results are summarised in the following sections with respect to the CEFAS Revised Action levels.

### **4.2.2 Metals**

- Cadmium – 5 of 6 samples recorded cadmium levels above AL1. The maximum concentration recorded was 1.8 mg/kg.
- Lead – 6 of 6 samples recorded lead levels above AL1. One sample (S3 0.25-0.5) recorded concentrations above Action Level 2, with a concentration of 653 mg/kg.
- Zinc – 6 of 6 samples recorded zinc levels above AL1. The maximum concentration recorded was 765 mg/kg.

### **4.2.3 Tributyl Tin (TBT)**

All 6 of the samples recorded TBT levels below AL1. No samples recorded concentrations above the laboratory limit of detection (5 ug/kg).

### **4.2.4 Polychlorinated Biphenyls (PCBs) ICEs 7**

All 6 of the samples recorded PCB levels below laboratory detection limits (5ug/kg).

### **4.2.5 DDT and Dieldrin**

All 6 of the samples recorded DDT and Dieldrin concentrations below the laboratory detection limits. It is noted that the DDT limit of detection (3 ug/kg) is above the Action Level 1 criteria level (1ug/kg). Given that the detection level is only slightly over the AL1 value, and no concentrations were noted in excess of this, there is not considered to be significant risk associated with DDT concentrations in the sediment.

## **4.3 Sediment Summary**

On the basis of the laboratory testing the following summary is noted:

- Physical testing of the sediment indicates that the deposit is formed of muddy sand.
- Organic content in the sediment is low (< 3%). On this basis the deposit is not considered to represent a mudflat as defined by the Ospar and the UKBAP definition. The results would indicate the deposit is more appropriately classified as a sandflat.
- Contaminant concentrations were generally low with respect to CEFAS action levels. Only one sample recorded an exceedance of Action Level 2 for lead concentrations.

## **REFERENCES**

CEFAS Action Levels

# APPENDICES

**A      FIGURES**



**Legend**

- Sediment Sample Locations

Do not scale this map

Client  
Port of Tyne

Project  
Port of Tyne Car Terminal Upgrade

Title  
Sediment Sample Location Plan

Status  
Final

Drawing No. 465830j- 001	Revision
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Scale 1:15,000	<b>A3</b>	Date 30 Jan. 2015
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Drawn IMG	Checked MN	Approved GD
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Craighall Business Park, Eagle Street, Glasgow, G4 9XA  
Tel: 0141 341 5040  
Fax: 0141 341 5045

**B      SAMPLE LOGS**



**Port of Tyne**                      **Location 1**

Sample Date                      1.9.14

Position:                              NZ 34103 65740

Core Length:                      0.5 m

Remarks:                              Fine brown sand (0-0.05m), Medium dense fine to medium grey sand (0.05-0.5m)

Samples:                              0 – 0.25 m, 0.25 – 0.5 m

**Port of Tyne**                      **Location 2**

Sample Date                      1.9.14

Position:                              NZ 34217 65681

Core Length:                      0.5 m

Remarks:                              Fine brown sand (0-0.05m), Medium dense fine to medium dark grey sand (0.05-0.5m). No odour noted.

Samples:                              0 – 0.25 m, 0.25-0.5m

**Port of Tyne**                      **Location 3**

Sample Date                      :                      1.9.14

Position:                              NZ 34355 65642

Core Length:                      0.5m

Remarks:                              Fine to medium brown sand (0-0.05m), fine to medium grey sand (0.05-0.5m). No odour noted.

Samples:                              0-0.25m, 0.25-0.5m

**C DATA SUMMARY AND ANALYTICAL REPORT**

Port of Tyne

Data Summary Table

Client: EnviroCentre Ltd  
 Site: Port of Tyne  
 Report ID: S14\_3873

Dry Weight Converted		Arsenic (MS)		Cadmium (MS)		Chromium (MS)		Copper (MS)		Lead (MS)		Mercury (MS)		Nickel (MS)		Zinc (MS)	
		ICPMSS mg/kg		ICPMSS mg/kg		ICPMSS mg/kg		ICPMSS mg/kg		ICPMSS mg/kg		ICPMSS mg/kg		ICPMSS mg/kg		ICPMSS mg/kg	
		AL1	L2	AL1	AL2	AL1	AL2	AL1	AL2	AL1	AL2	AL1	AL2	AL1	AL2	AL1	AL2
Sample ID	Sample Desc	20	100	0.4	5	40	400	40	400	50	500	0.3	3	20	200	130	800
	S1 0-0.25	19.5		1.1		19		29.8		406.1		0.15		17.9		419.6	
	S1 0.25-0.5	11.6		0.7		11		9.7		304.3		<0.1		14.2		268.7	
	S2 0-0.25	10.7		0.3		16		13		310.3		<0.1		14.2		260	
	S2 0.25-0.5	10.3		0.71		10.1		8.3		356.7		<0.1		13		298.7	
	S3 0-0.25	8.9		0.4		12.6		14.2		165.4		<0.1		11.6		260.3	
	S3 0.25-0.5	17.2		1.8		16.8		17.2		653.2		0.12		16		765.7	

Port of Tyne

Data Summary Table

	Tot.Moist ure @ 105C	Total Organic Carbon	Naphthal ene	Acenaphthylen e	Acenapht hene	Fluorene	Phenanth rene	Anthrace ne	Fluoranth ene	Pyrene	Benzo[a]a ntracene	Chrysene	Benzo[b]f luoranthe ne	Benzo[k]fl uoranthe ne	Benzo[a]p yrene	Indeno[1, 2,3- cd]pyrene	Dibenzo[a ,h]antra cene	Benzo[g,h,i )perylene
	TMSS	WSLM59	PAH_MS-SI	PAH_MS-SIM_8	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI	PAH_MS-SI
	%	% M/M	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1	AL1
Sample Desc			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1
S1 0-0.25		2.74	0.0005	0.00006	0.0001	0.0002	0.00100	0.0002	0.00074	0.00086	0.00059	0.00073	0.00055	0.00042	0.0005	0.0003	0.00014	0.0004
S1 0.25-0.5		2.35	0.0005	0.00004	0.00009	0.0002	0.00150	0.00009	0.00029	0.00031	0.00032	0.00056	0.00026	0.00012	0.0002	0.0	0.0007	0.0003
S2 0-0.25		1.33	0.0002	0.00001	0.00003	0.00006	0.00030	0.00005	0.00014	0.00015	0.00011	0.00016	0.00014	0.00009	0.0001	0.00007	0.00003	0.0001
S2 0.25-0.5		1.66	0.00005	0.000004	0.00001	0.00002	0.00017	0.00001	0.00004	0.00004	0.00003	0.00007	0.00005	0.00003	0.00003	0.00001	0.00001	0.00004
S3 0-0.25		1.02	0.0001	0.00001	0.00003	0.00006	0.00035	0.00009	0.00039	0.00033	0.00027	0.00029	0.00029	0.00023	0.0003	0.0002	0.00008	0.0002
S3 0.25-0.5		1.73	0.0001	0.00002	0.00003	0.00008	0.00039	0.0001	0.00040	0.00041	0.00036	0.00036	0.00037	0.00026	0.0003	0.0002	0.00009	0.0002

Port of Tyne

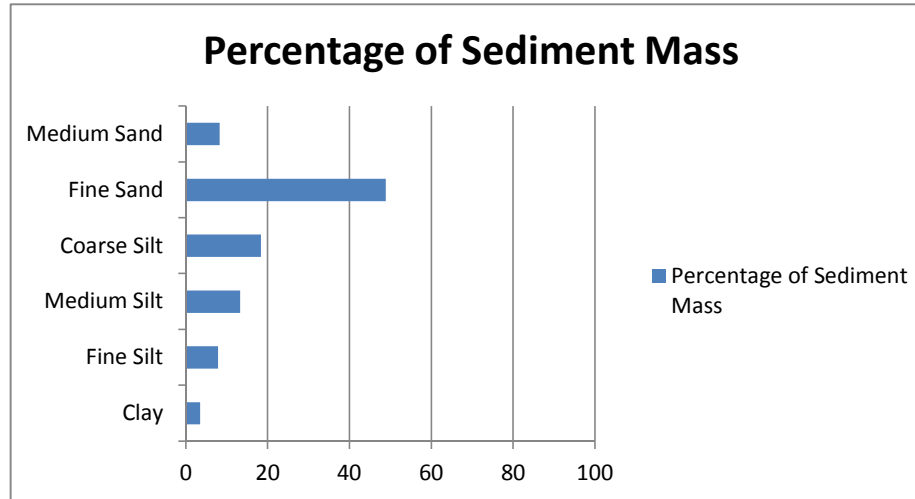
Data Summary Table

	PCB28	PCB52	PCB101	PCB118	PCB153	PCB138	PCB180	^Dibutyltin	^Tributyltin	^Triphenyltin	DDT	Dieldrin
1_80	PCB_CON	PCB_CON	PCB_CON	PCB_CON	PCB_CON	PCB_CON	PCB_CON	Sub005	Sub005	Sub005		
	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
	AL1		AL2		AL1		AL2				AL1	AL1
Sample Desc	20		200			100	1000				1	5
S1 0-0.25	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<20	<3	<5
S1 0.25-0.5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<20	<3	<5
S2 0-0.25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<3	<5
S2 0.25-0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<3	<5
S3 0-0.25	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<3	<5
S3 0.25-0.5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<20	<3	<5

**Particle Size Distribution Summary Charts - Sample Location 1 0-0.25**

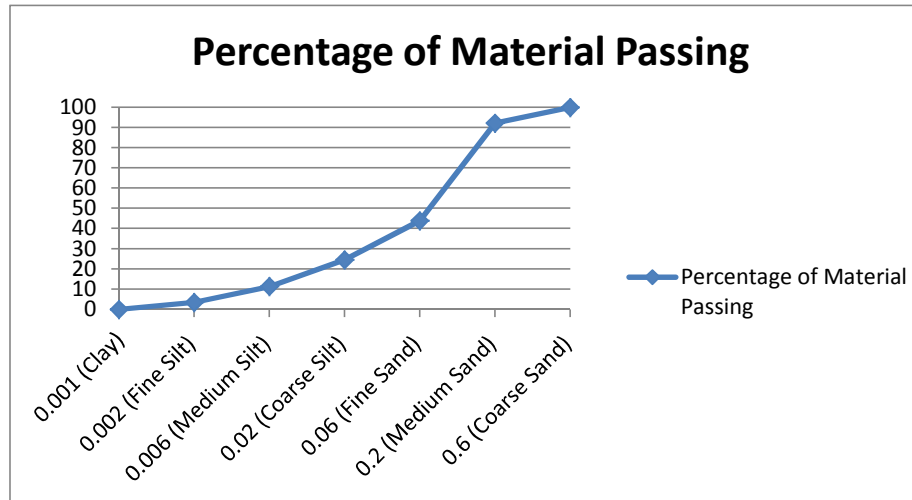
**Bar Chart Detailing Fraction Percentages in Each Size Fraction**

Particle Size	Percentage of Sediment Mass
Clay	3.44
Fine Silt	7.85
Medium Silt	13.23
Coarse Silt	18.31
Fine Sand	48.83
Medium Sand	8.26



**Line Graph Detailing Breakdown of Material Through Material Sizes**

Particle Size	Percentage of Material Passing
0.001 (Clay)	0
0.002 (Fine Silt)	3.44
0.006 (Medium Silt)	11.29
0.02 (Coarse Silt)	24.52
0.06 (Fine Sand)	43.83
0.2 (Medium Sand)	92.26
0.6 (Coarse Sand)	100



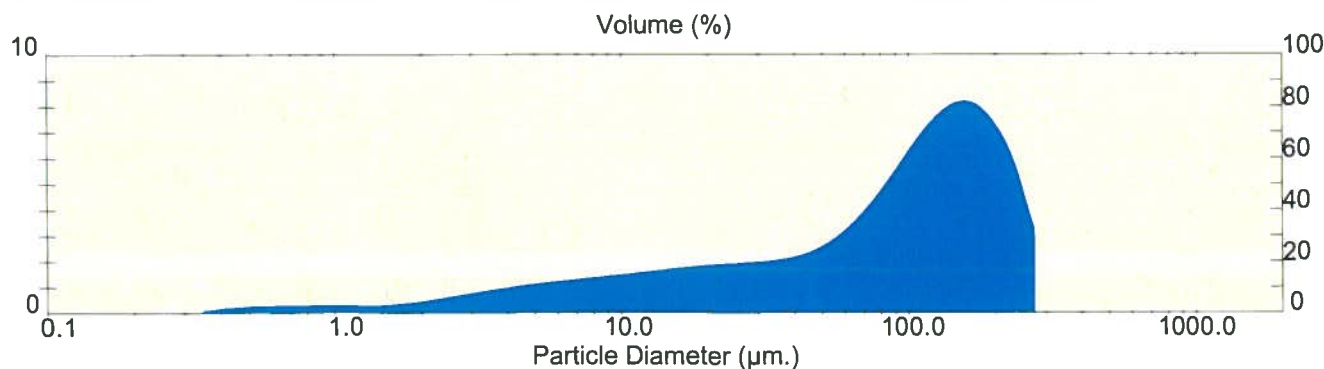
## Result: Analysis Report

Sample Details		
Sample ID: CL/1423849	Run Number: 2	Measured:
Sample File: (Result Not Saved)		Analysed: 15 Sep 2014 09:50PM
Sample Path: C:\SIZERMUI\DATA\		Result Source: Averaged
Sample Notes: ENVIROCENTRE LTD PORT OF TYNE LOC 1 0-0.25 JOB No 145494		

System Details		
Sampler:		Measured Beam Obscuration: 12.4 %
Presentation: 4OHD	[Particle R.I. = ( 1.5295, 0.1000); Dispersant R.I. = 1.3300]	Residual: 1.442 %
Analysis Model: Polydisperse		
Modifications: None		

Result Statistics			
Distribution Type: Volume	Concentration = 0.0269 %Vol	Density = 1.000 g / cub. cm	Specific S.A. = 0.4581 sq. m / g
Mean Diameters:	D (v, 0.1) = 6.58 um	D (v, 0.5) = 94.17 um	D (v, 0.9) = 213.47 um
D [4, 3] = 101.35 um	D [3, 2] = 13.10 um	Span = 2.197E+00	Uniformity = 6.974E-01

Size Low (um)	In %	Size High (um)	Under%	Size Low (um)	In %	Size High (um)	Under%
0.31	0.08	0.36	0.08	10.48	1.54	12.21	15.73
0.36	0.15	0.42	0.23	12.21	1.63	14.22	17.35
0.42	0.21	0.49	0.43	14.22	1.71	16.57	19.06
0.49	0.25	0.58	0.68	16.57	1.79	19.31	20.85
0.58	0.27	0.67	0.96	19.31	1.85	22.49	22.70
0.67	0.28	0.78	1.24	22.49	1.90	26.20	24.60
0.78	0.28	0.91	1.51	26.20	1.94	30.53	26.54
0.91	0.27	1.06	1.78	30.53	2.00	35.56	28.54
1.06	0.26	1.24	2.05	35.56	2.11	41.43	30.66
1.24	0.28	1.44	2.33	41.43	2.32	48.27	32.98
1.44	0.32	1.68	2.65	48.27	2.68	56.23	35.66
1.68	0.39	1.95	3.03	56.23	3.24	65.51	38.90
1.95	0.48	2.28	3.52	65.51	4.01	76.32	42.91
2.28	0.59	2.65	4.11	76.32	4.95	88.91	47.86
2.65	0.72	3.09	4.83	88.91	6.00	103.58	53.86
3.09	0.84	3.60	5.67	103.58	7.00	120.67	60.86
3.60	0.96	4.19	6.62	120.67	7.79	140.58	68.65
4.19	1.06	4.88	7.69	140.58	8.15	163.77	76.80
4.88	1.15	5.69	8.84	163.77	7.93	190.80	84.73
5.69	1.23	6.63	10.07	190.80	7.01	222.28	91.74
6.63	1.30	7.72	11.37	222.28	5.33	258.95	97.07
7.72	1.37	9.00	12.74	258.95	2.93	301.68	100.00
9.00	1.45	10.48	14.19				





# MASTERSIZER

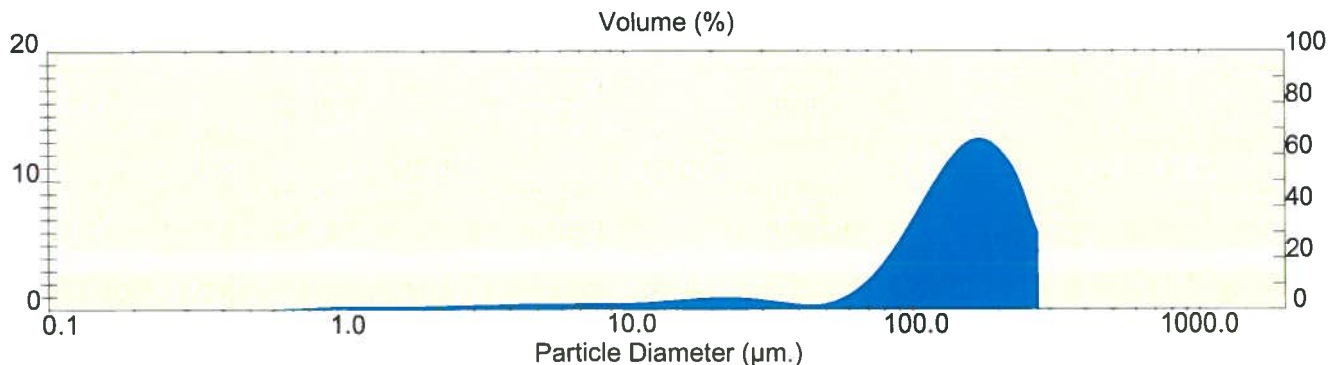
## Result: Analysis Report

Sample Details		
Sample ID: CL/1423850	Run Number: 3	Measured:
Sample File: (Result Not Saved)		Analysed: 15 Sep 2014 10:40PM
Sample Path: C:\SIZERMU\DATA\		Result Source: Averaged
Sample Notes: ENVIROCENTRE LTD PORT OF TYNE LOC 1 0.25-0.5 JOB No 145494		

System Details		
Sampler:		Measured Beam Obscuration: 11.8 %
Presentation: 4OHD	[Particle R.I. = ( 1.5295, 0.1000); Dispersant R.I. = 1.3300]	Residual: 2.329 %
Analysis Model: Polydisperse		
Modifications: None		

Result Statistics			
Distribution Type: Volume	Concentration = 0.0510 %Vol	Density = 1.000 g / cub. cm	Specific S.A. = 0.1999 sq. m / g
Mean Diameters:	D (v, 0.1) = 24.65 um	D (v, 0.5) = 145.38 um	D (v, 0.9) = 238.31 um
D [4, 3] = 143.47 um	D [3, 2] = 30.01 um	Span = 1.470E+00	Uniformity = 4.025E-01

Size Low (um)	In %	Size High (um)	Under%	Size Low (um)	In %	Size High (um)	Under%
0.31	0.00	0.36	0.00	10.48	0.51	12.21	6.35
0.36	0.00	0.42	0.00	12.21	0.61	14.22	6.96
0.42	0.00	0.49	0.00	14.22	0.73	16.57	7.69
0.49	0.02	0.58	0.02	16.57	0.84	19.31	8.53
0.58	0.06	0.67	0.08	19.31	0.92	22.49	9.45
0.67	0.11	0.78	0.19	22.49	0.91	26.20	10.36
0.78	0.16	0.91	0.35	26.20	0.80	30.53	11.16
0.91	0.21	1.06	0.56	30.53	0.62	35.56	11.78
1.06	0.24	1.24	0.80	35.56	0.44	41.43	12.22
1.24	0.25	1.44	1.05	41.43	0.32	48.27	12.54
1.44	0.25	1.68	1.30	48.27	0.56	56.23	13.11
1.68	0.26	1.95	1.55	56.23	1.22	65.51	14.32
1.95	0.28	2.28	1.83	65.51	2.40	76.32	16.73
2.28	0.30	2.65	2.13	76.32	4.15	88.91	20.88
2.65	0.34	3.09	2.47	88.91	6.38	103.58	27.26
3.09	0.37	3.60	2.84	103.58	8.86	120.67	36.12
3.60	0.41	4.19	3.25	120.67	11.17	140.58	47.29
4.19	0.43	4.88	3.67	140.58	12.76	163.77	60.05
4.88	0.44	5.69	4.11	163.77	13.13	190.80	73.19
5.69	0.43	6.63	4.54	190.80	12.05	222.28	85.23
6.63	0.42	7.72	4.97	222.28	9.42	258.95	94.66
7.72	0.42	9.00	5.39	258.95	5.34	301.68	100.00
9.00	0.45	10.48	5.84				







# MASTERSIZER

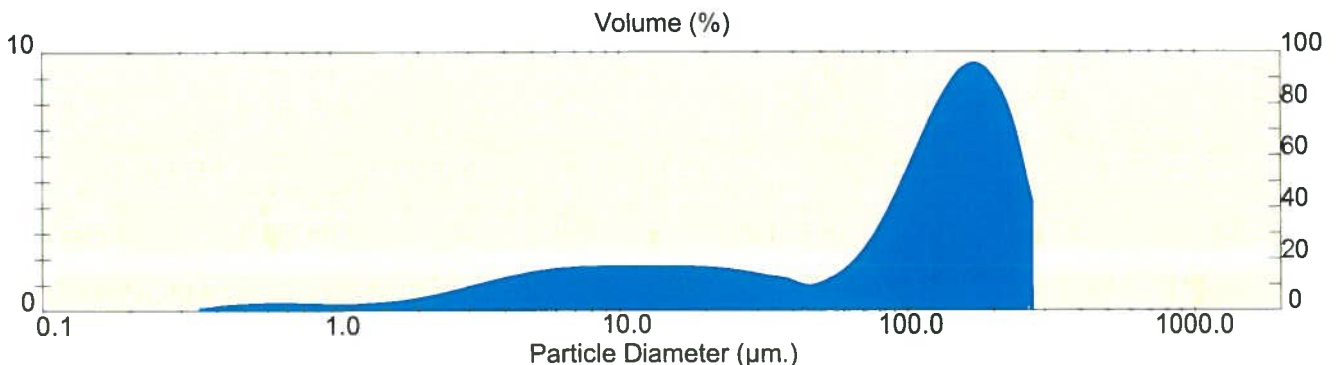
## Result: Analysis Report

Sample Details		
Sample ID: CL/1423851	Run Number: 4	Measured:
Sample File: (Result Not Saved)		Analysed: 15 Sep 2014 10:45PM
Sample Path: C:\SIZERMU\DATA\		Result Source: Averaged
Sample Notes: ENVIROCENTRE LTD PORT OF TYNE LOC 2 0-0.25 JOB No 145494		

System Details		
Sampler:		Measured Beam Obscuration: 11.7 %
Presentation: 4OHD	[Particle R.I. = ( 1.5295, 0.1000); Dispersant R.I. = 1.3300]	Residual: 1.381 %
Analysis Model: Polydisperse		
Modifications: None		

Result Statistics			
Distribution Type: Volume	Concentration = 0.0229 %Vol	Density = 1.000 g / cub. cm	Specific S.A. = 0.5086 sq. m / g
Mean Diameters:	D (v, 0.1) = 5.31 um	D (v, 0.5) = 112.01 um	D (v, 0.9) = 225.30 um
D [4, 3] = 110.07 um	D [3, 2] = 11.80 um	Span = 1.964E+00	Uniformity = 6.384E-01

Size Low (um)	In %	Size High (um)	Under%	Size Low (um)	In %	Size High (um)	Under%
0.31	0.10	0.36	0.10	10.48	1.72	12.21	19.20
0.36	0.18	0.42	0.27	12.21	1.72	14.22	20.92
0.42	0.24	0.49	0.52	14.22	1.72	16.57	22.64
0.49	0.28	0.58	0.80	16.57	1.71	19.31	24.35
0.58	0.30	0.67	1.10	19.31	1.67	22.49	26.02
0.67	0.30	0.78	1.40	22.49	1.60	26.20	27.62
0.78	0.28	0.91	1.68	26.20	1.49	30.53	29.10
0.91	0.26	1.06	1.95	30.53	1.35	35.56	30.45
1.06	0.25	1.24	2.19	35.56	1.23	41.43	31.68
1.24	0.29	1.44	2.48	41.43	0.99	48.27	32.67
1.44	0.34	1.68	2.82	48.27	1.19	56.23	33.86
1.68	0.42	1.95	3.24	56.23	1.65	65.51	35.51
1.95	0.55	2.28	3.79	65.51	2.46	76.32	37.96
2.28	0.71	2.65	4.50	76.32	3.64	88.91	41.60
2.65	0.89	3.09	5.40	88.91	5.13	103.58	46.73
3.09	1.08	3.60	6.47	103.58	6.76	120.67	53.50
3.60	1.26	4.19	7.74	120.67	8.26	140.58	61.75
4.19	1.42	4.88	9.16	140.58	9.28	163.77	71.04
4.88	1.55	5.69	10.71	163.77	9.52	190.80	80.55
5.69	1.64	6.63	12.34	190.80	8.75	222.28	89.30
6.63	1.69	7.72	14.04	222.28	6.85	258.95	96.15
7.72	1.72	9.00	15.75	258.95	3.85	301.68	100.00
9.00	1.72	10.48	17.47				





# MASTERSIZER

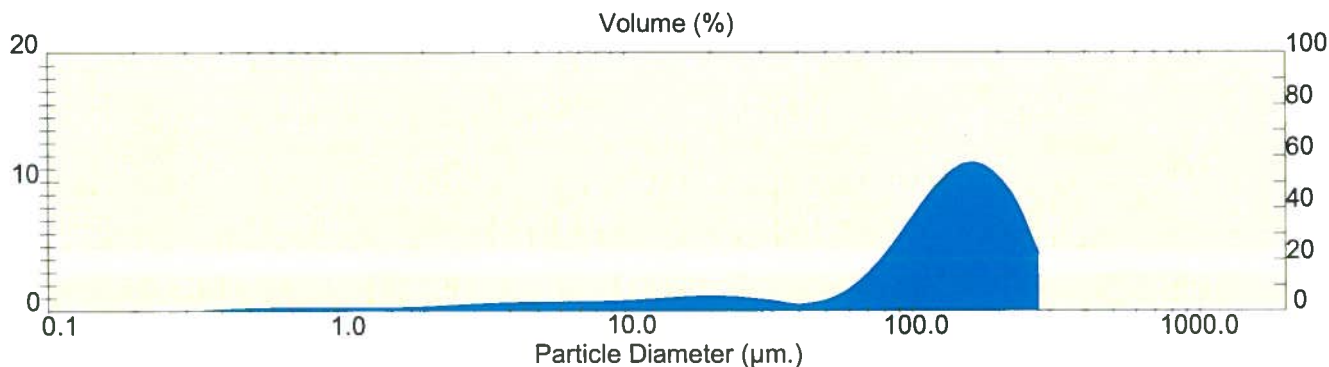
## Result: Analysis Report

Sample Details		
Sample ID: CL/1423852	Run Number: 5	Measured:
Sample File: (Result Not Saved)		Analysed: 15 Sep 2014 10:59PM
Sample Path: C:\SIZERMU\DATA\		Result Source: Averaged
Sample Notes: ENVIROCENTRE LTD PORT OF TYNE LOC 2 0.25-0.5 JOB No 145494		

System Details		
Sampler:		Measured Beam Obscuration: 12.7 %
Presentation: 4OHD	[Particle R.I. = ( 1.5295, 0.1000); Dispersant R.I. = 1.3300]	Residual: 1.794 %
Analysis Model: Polydisperse		
Modifications: None		

Result Statistics			
Distribution Type: Volume	Concentration = 0.0357 %Vol	Density = 1.000 g / cub. cm	Specific S.A. = 0.3680 sq. m / g
Mean Diameters:	D (v, 0.1) = 11.16 um	D (v, 0.5) = 129.69 um	D (v, 0.9) = 229.20 um
D [4, 3] = 127.80 um	D [3, 2] = 16.30 um	Span = 1.681E+00	Uniformity = 4.781E-01

Size Low (um)	In %	Size High (um)	Under%	Size Low (um)	In %	Size High (um)	Under%
0.31	0.07	0.36	0.07	10.48	0.86	12.21	10.52
0.36	0.14	0.42	0.21	12.21	0.96	14.22	11.48
0.42	0.19	0.49	0.39	14.22	1.07	16.57	12.54
0.49	0.23	0.58	0.62	16.57	1.14	19.31	13.69
0.58	0.25	0.67	0.88	19.31	1.16	22.49	14.84
0.67	0.26	0.78	1.14	22.49	1.09	26.20	15.94
0.78	0.26	0.91	1.41	26.20	0.95	30.53	16.89
0.91	0.25	1.06	1.66	30.53	0.79	35.56	17.68
1.06	0.25	1.24	1.91	35.56	0.55	41.43	18.23
1.24	0.25	1.44	2.16	41.43	0.64	48.27	18.87
1.44	0.27	1.68	2.44	48.27	1.02	56.23	19.89
1.68	0.31	1.95	2.75	56.23	1.82	65.51	21.71
1.95	0.37	2.28	3.12	65.51	3.09	76.32	24.79
2.28	0.44	2.65	3.56	76.32	4.80	88.91	29.59
2.65	0.52	3.09	4.08	88.91	6.80	103.58	36.40
3.09	0.59	3.60	4.66	103.58	8.82	120.67	45.22
3.60	0.64	4.19	5.31	120.67	10.47	140.58	55.69
4.19	0.68	4.88	5.99	140.58	11.37	163.77	67.06
4.88	0.70	5.69	6.69	163.77	11.23	190.80	78.28
5.69	0.71	6.63	7.41	190.80	9.95	222.28	88.24
6.63	0.72	7.72	8.13	222.28	7.57	258.95	95.81
7.72	0.74	9.00	8.87	258.95	4.19	301.68	100.00
9.00	0.79	10.48	9.66				





# MASTERSIZER

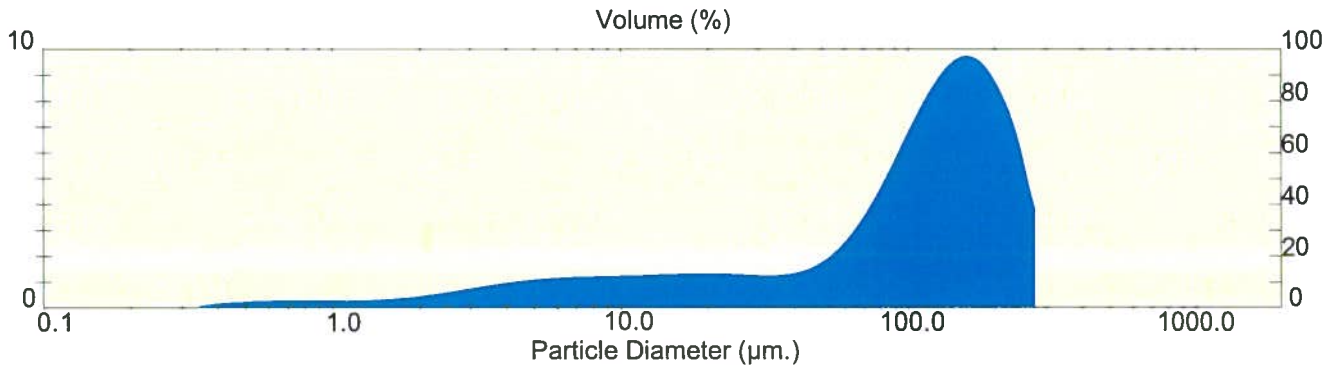
## Result: Analysis Report

Sample Details		
Sample ID: CL/1423853	Run Number: 6	Measured:
Sample File: (Result Not Saved)		Analysed: 15 Sep 2014 11:05PM
Sample Path: C:\SIZERMUDATA\		Result Source: Averaged
Sample Notes: ENVIROCENTRE LTD PORT OF TYNE LOC 3 0-0.25 JOB No 145494		

System Details		
Sampler:		Measured Beam Obscuration: 12.3 %
Presentation: 4OHD	[Particle R.I. = ( 1.5295, 0.1000); Dispersant R.I. = 1.3300]	Residual: 1.595 %
Analysis Model: Polydisperse		
Modifications: None		

Result Statistics			
Distribution Type: Volume	Concentration = 0.0288 %Vol	Density = 1.000 g / cub. cm	Specific S.A. = 0.4266 sq. m / g
Mean Diameters:	D (v, 0.1) = 6.93 um	D (v, 0.5) = 112.91 um	D (v, 0.9) = 221.64 um
D [4, 3] = 113.54 um	D [3, 2] = 14.07 um	Span = 1.902E+00	Uniformity = 5.800E-01

Size Low (um)	In %	Size High (um)	Under%	Size Low (um)	In %	Size High (um)	Under%
0.31	0.07	0.36	0.07	10.48	1.23	12.21	14.47
0.36	0.14	0.42	0.21	12.21	1.26	14.22	15.72
0.42	0.20	0.49	0.41	14.22	1.29	16.57	17.01
0.49	0.24	0.58	0.64	16.57	1.31	19.31	18.32
0.58	0.26	0.67	0.90	19.31	1.31	22.49	19.62
0.67	0.27	0.78	1.17	22.49	1.28	26.20	20.90
0.78	0.27	0.91	1.44	26.20	1.25	30.53	22.15
0.91	0.26	1.06	1.70	30.53	1.23	35.56	23.38
1.06	0.26	1.24	1.96	35.56	1.28	41.43	24.66
1.24	0.28	1.44	2.24	41.43	1.48	48.27	26.14
1.44	0.31	1.68	2.55	48.27	1.90	56.23	28.04
1.68	0.38	1.95	2.93	56.23	2.62	65.51	30.66
1.95	0.47	2.28	3.39	65.51	3.65	76.32	34.31
2.28	0.57	2.65	3.97	76.32	4.96	88.91	39.27
2.65	0.69	3.09	4.66	88.91	6.44	103.58	45.70
3.09	0.81	3.60	5.47	103.58	7.89	120.67	53.59
3.60	0.93	4.19	6.40	120.67	9.05	140.58	62.64
4.19	1.02	4.88	7.42	140.58	9.65	163.77	72.29
4.88	1.09	5.69	8.51	163.77	9.47	190.80	81.76
5.69	1.14	6.63	9.66	190.80	8.38	222.28	90.15
6.63	1.17	7.72	10.83	222.28	6.37	258.95	96.51
7.72	1.19	9.00	12.02	258.95	3.49	301.68	100.00
9.00	1.21	10.48	13.23				





# MASTERSIZER

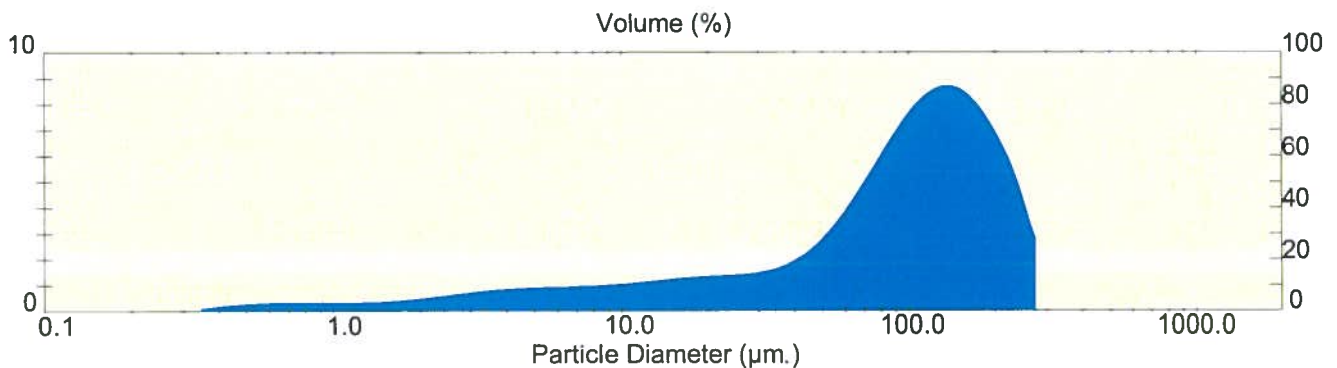
## Result: Analysis Report

Sample Details		
Sample ID: CL/1423854	Run Number: 7	Measured:
Sample File: (Result Not Saved)		Analysed: 15 Sep 2014 11:11PM
Sample Path: C:\SIZERMU\DATA\		Result Source: Averaged
Sample Notes: ENVIROCENTRE LTD PORT OF TYNE LOC 3 0.25-0.5 JOB No 145494		

System Details		
Sampler:		Measured Beam Obscuration: 12.6 %
Presentation: 4OHD	[Particle R.I. = ( 1.5295, 0.1000); Dispersant R.I. = 1.3300]	Residual: 1.360 %
Analysis Model: Polydisperse		
Modifications: None		

Result Statistics			
Distribution Type: Volume	Concentration = 0.0278 %Vol	Density = 1.000 g / cub. cm	Specific S.A. = 0.4628 sq. m / g
Mean Diameters:	D (v, 0.1) = 7.15 um	D (v, 0.5) = 97.77 um	D (v, 0.9) = 208.06 um
D [4, 3] = 103.68 um	D [3, 2] = 12.96 um	Span = 2.055E+00	Uniformity = 6.196E-01

Size Low (um)	In %	Size High (um)	Under%	Size Low (um)	In %	Size High (um)	Under%
0.31	0.09	0.36	0.09	10.48	1.08	12.21	13.55
0.36	0.17	0.42	0.25	12.21	1.16	14.22	14.71
0.42	0.23	0.49	0.49	14.22	1.23	16.57	15.94
0.49	0.28	0.58	0.77	16.57	1.29	19.31	17.23
0.58	0.31	0.67	1.09	19.31	1.33	22.49	18.56
0.67	0.33	0.78	1.41	22.49	1.37	26.20	19.93
0.78	0.33	0.91	1.74	26.20	1.43	30.53	21.36
0.91	0.32	1.06	2.06	30.53	1.57	35.56	22.93
1.06	0.32	1.24	2.37	35.56	1.85	41.43	24.77
1.24	0.33	1.44	2.70	41.43	2.32	48.27	27.09
1.44	0.36	1.68	3.07	48.27	3.03	56.23	30.13
1.68	0.42	1.95	3.49	56.23	3.98	65.51	34.10
1.95	0.50	2.28	3.99	65.51	5.10	76.32	39.21
2.28	0.59	2.65	4.58	76.32	6.30	88.91	45.50
2.65	0.68	3.09	5.26	88.91	7.41	103.58	52.91
3.09	0.76	3.60	6.02	103.58	8.25	120.67	61.16
3.60	0.82	4.19	6.84	120.67	8.65	140.58	69.81
4.19	0.87	4.88	7.71	140.58	8.51	163.77	78.32
4.88	0.90	5.69	8.62	163.77	7.80	190.80	86.12
5.69	0.92	6.63	9.54	190.80	6.54	222.28	92.66
6.63	0.94	7.72	10.48	222.28	4.78	258.95	97.43
7.72	0.97	9.00	11.45	258.95	2.57	301.68	100.00
9.00	1.02	10.48	12.47				



# Sample Analysis

# ESG Environmental Chemistry - Requested Analysis

S145494

Customer EnviroCentre Ltd  
 Site Port of Tyne  
 Report No S145494

Consignment No S43407  
 Date Logged 05-Sep-2014

Report Due 15-Sep-2014

ID Number	Description	MethodID	GuidServ	ICPMSS										Malv	OCP	PAHSED	PCBSED/AN	Sub005	TPHSED	W/S/MS9
				REPORT A	Report B	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Mercury (MS)	Nickel (MS)	Selenium (MS)							
UKAS Accredited				No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
CL/1423849	Loc 1 0-0.25	01/09/14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CL/1423850	Loc 1 0.25-0.5	01/09/14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CL/1423851	Loc 2 0-0.25	01/09/14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CL/1423852	Loc 2 0.25-0.5	01/09/14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CL/1423853	Loc 3 0-0.25	01/09/14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
CL/1423854	Loc 3 0.25-0.5	01/09/14	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

KEY:  
 R Required  
 DO Dependent Option  
 C Completed  
 ^ Subcontracted  
 30/01/2015 14:10

	<b>Method Codes</b>	ICPMSS	ICPMSS	ICPMSS	ICPMSS
	<b>Detection Limit</b>	0.3	0.1	0.5	0.5
	<b>Units</b>	mg/kg	mg/kg	mg/kg	mg/kg
<b>ID Number</b>	<b>Description</b>	<b>Arsenic (MS)</b>	<b>Cadmium (MS)</b>	<b>Chromium (MS)</b>	<b>Copper (MS)</b>
S1423849	Loc 1 0-0.25	19.5	1.12	18.7	29.8
S1423850	Loc 1 0.25-0.5	11.6	0.67	10.6	9.7
S1423851	Loc 2 0-0.25	10.7	0.27	15.6	13
S1423852	Loc 2 0.25-0.5	10.3	0.71	10.1	8.3
S1423853	Loc 3 0-0.25	8.9	0.42	12.6	14.2
S1423854	Loc 3 0.25-0.5	17.2	1.82	16.8	17.2

ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	WSLM59
0.5	0.1	0.5	0.5	3	0.02
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% M/M
<b>Lead (MS)</b>	<b>Mercury (MS)</b>	<b>Nickel (MS)</b>	<b>Selenium (MS)</b>	<b>Zinc (MS)</b>	<b>Total Organic Carbon</b>
406	0.15	17.9	<0.5	420	2.74
304	<0.1	14.2	<0.5	269	2.35
310	<0.1	14.2	<0.5	260	1.33
357	<0.1	13	<0.5	299	1.66
165	<0.1	11.6	<0.5	260	1.02
653	0.12	16	<0.5	766	1.73





TPHSED
10
µg/kg
<b>TPH GCFID (Si)+Sats</b>
Req
Req
Req
Req
Req
Req

<b>Sample ID</b>	<b>Client ID</b>	<b>Moisture (%)</b>
CL/1423849	Loc 1 0-0.25	28.6
CL/1423850	Loc 1 0.25-0.5	22.8
CL/1423851	Loc 2 0-0.25	26.4
CL/1423852	Loc 2 0.25-0.5	23
CL/1423853	Loc 3 0-0.25	22.2
CL/1423854	Loc 3 0.25-0.5	23.9

**Polyaromatic Hydrocarbon Concentrations (ng/g dry weight basis)**

		<b>Sample ID :</b>	CL1423849	CL1423850	CL1423851	CL1423852
		<b>Station :</b>	Loc 1 0-0.25	Loc 1 0.25-0.5	Loc 2 0-0.25	Loc 2 0.25-0.5
<b>PAH Fraction</b>	<b># PAH</b>	<b>Mass</b>				
Naphthalene	1	128	578.7	544.3	194.0	57.9
C1 Naphthalenes		142	1300.9	1588.5	390.7	132.1
C2 Naphthalenes		156	1941.9	2681.5	561.6	217.7
C3 Naphthalenes		170	2061.2	2762.8	498.1	227.8
C4 Naphthalenes		184	1079.4	1682.6	302.0	121.6
Sum Naphthalenes			6962	9260	1946	757
Phenanthrene / Anthracene	2	178	1345.9	1648.0	354.9	193.3
C1 178		192	1675	2342	442	258
C2 178		206	1746	2186	405	245
C3 178		220	967	1351	309	219
Sum 178			5734	7527	1511	916
Dibenzthiophene		184	154	174	42	20
C1 Dibenzthiophenes		198	296	346	76	36
C2 Dibenzthiophenes		212	347	322	76	47
C3 Dibenzthiophenes		226	166	134	38	18
Sum Dibenzthiophenes			963	976	231	122
Fluoranthene / pyrene	2	202	1604	613	291	95
C1 202		216	1160	1024	263	117
C2 202		230	1250	1422	295	150
C3 202		244	1038	1018	234	97
Sum 202			5052	4077	1082	459
Benzanthracene / chrysene	2	228	1330	869	280	111
C1 228		242	1130	1064	259	123
C2 228		256	1282	1368	334	124
Sum 228			3743	3301	874	358
Benzfluoranthenes / benzopyrenes	3	252	2108	1064	493	174
C1 252		266	1431	1340	348	166
C2 252		280	1392	1394	343	143
Sum 252			4932	3798	1184	483
Aranthanthrenes / indenopyrene / benzperylene	3	276	929	482	224	73
C1 276		290	558	536	146	61
C2 276		304	428	500	107	57
Sum 276			1914	1518	477	191
Sum of all fractions			29299	30457	7306	3286
Sum of NPD fraction			13658	17763	3689	1795
NPD / 4-6 ring PAH ratio			0.87	1.40	1.02	1.20

**Polyaromatic Hydrocarbon Concentrations (ng/g dry weight basis)**

**EPA 16 PAHs**

	<b>Sample ID :</b>	CL1423849	CL1423850	CL1423851	CL1423852	CL1423853	CL1423854
	<b>Station :</b>	Loc 1 0-0.25	Loc 1 0.25-0.5	Loc 2 0-0.25	Loc 2 0.25-0.5	Loc 3 0-0.25	Loc 3 0.25-0.5
<b>PAH</b>	<b>Mass</b>						
Naphthalene	128	578.7	544.3	194.0	57.9	157.7	132.0
Acenaphthylene	152	66.8	44.7	16.0	4.5	17.5	25.7
Acenaphthene	154	117.3	98.9	30.3	11.6	35.6	33.6
Fluorene	166	256.2	227.1	68.1	28.5	67.1	86.4
Phenanthrene	178	1117.3	1556.1	303.6	179.7	356.6	398.7
Dibenzothiophene	184	154.2	174.2	41.6	20.3	39.2	47.3
Anthracene	178	228.6	91.9	51.3	13.6	95.7	116.9
Fluoranthene	202	740.1	297.7	139.2	47.9	396.2	403.3
Pyrene	202	863.6	315.6	151.6	47.0	330.2	412.1
Benzo[a]anthracene	228	598.9	305.1	115.0	37.0	268.5	364.4
Chrysene	228	731.3	563.6	165.3	73.8	291.4	361.7
Benzo[b]fluoranthene	252	553.8	266.9	138.3	53.6	298.3	372.6
Benzo[k]fluoranthene	252	425.0	129.1	93.7	26.4	233.5	264.1
Benzo[a]pyrene	252	537.2	221.2	110.9	31.0	281.5	315.0
Indeno[123,cd]pyrene	276	332.6	97.0	76.5	16.7	235.9	185.8
Dibenzo[a,h]anthracene	278	146.3	76.0	28.3	10.5	85.4	91.3
Benzo[ghi]perylene	276	450.2	309.1	119.3	45.6	239.3	201.6

## AREA RECOVERIES

### n-alkanes (ng/g)

	<b>Sample ID :</b>					
	CL1423849	CL1423850	CL1423851	CL1423852	CL1423853	CL1423854
	<b>Station :</b>					
	Loc 1 0-0.25	Loc 1 0.25-0.5	Loc 2 0-0.25	Loc 2 0.25-0.5	Loc 3 0-0.25	Loc 3 0.25-0.5
<i>Alkane</i>						
nC10	17.6	55.8	18.2	7.7	9.0	5.5
nC11	102.5	219.5	19.0	44.7	32.7	75.0
nC12	514.6	745.3	152.7	107.0	111.2	111.9
nC13	482.5	788.8	61.7	69.1	121.7	119.2
nC14	671.4	1,031.9	131.5	95.4	122.3	174.4
nC15	870.1	1,384.3	173.7	136.2	145.2	242.9
nC16	735.1	1,030.8	157.4	105.1	119.4	189.9
nC17	522.5	818.1	149.7	85.9	136.5	155.6
pristane	2,530.5	3,237.5	577.2	287.6	589.6	601.1
nC18	458.7	821.8	134.9	86.6	96.5	150.9
phytane	285.4	476.3	84.2	38.6	62.0	71.5
nC19	581.9	1,047.8	166.2	100.7	94.5	195.1
nC20	1,732.3	1,161.8	203.2	306.3	145.7	473.8
nC21	1,469.5	1,190.6	351.9	205.5	528.0	596.3
nC22	1,303.8	955.1	252.4	240.6	165.7	393.7
nC23	1,073.4	1,240.6	229.0	197.6	260.9	270.9
nC24	569.3	1,187.7	212.5	126.4	265.0	210.5
nC25	1,511.6	1,056.4	312.6	235.4	365.4	546.8
nC26	574.6	873.7	204.9	127.1	125.1	166.9
nC27	2,274.3	1,497.8	524.5	394.1	249.7	562.4
nC28	616.7	583.4	181.0	120.4	138.8	184.9
nC29	2,763.7	1,290.8	584.3	554.6	316.4	718.5
nC30	541.1	411.1	151.6	114.0	112.7	169.4
nC31	7,419.6	2,987.0	1,298.8	1,459.9	617.4	1,854.4
nC32	492.2	374.9	149.8	111.1	133.0	86.6
nC33	5,083.2	1,931.7	944.8	1,058.3	327.3	1,270.8
nC34	1,379.3	63.0	61.6	18.3	30.7	78.7
nC35	223.7	114.2	56.8	20.6	27.7	46.1
nC36	1,332.0	83.7	62.4	14.0	11.1	111.4
nC37	53.9	84.8	45.5	8.5	15.7	41.3
Total Oil (ug/kg)	410,598.0	270,785.0	110,523.1	44,705.5	104,872.8	101,144.5
Total n alkanes (ng/g)	35,371	25,032	6,993	6,151	4,825	9,204
Carbon Preference Index	2.23	1.67	2.37	2.89	2.04	2.67
Pristane	2530	3238	577	288	590	601
Phytane	285	476	84	39	62	71
Pristane / phytane ratio	8.9	6.8	6.9	7.5	9.5	8.4

Note: sample data are NOT blank corrected



# Organochlorine Pesticides by GCMS (SIM)

<b>Customer and Site Details:</b>	EnviroCentre Ltd: Port of Tyne		
<b>Sample Details:</b>	Loc 1 0-0.25	<b>Job Number:</b>	S14_5494
<b>LIMS ID Number:</b>	CL1423849	<b>Date Booked in:</b>	05-Sep-14
<b>QC Batch Number:</b>	140024	<b>Date Extracted:</b>	11-Sep-14
<b>Quantitation File:</b>	0911OCPCCC1.D	<b>Date Analysed:</b>	11-Sep-14
<b>Directory:</b>	114PEST.MS9\	<b>Matrix:</b>	Soil
<b>Dilution:</b>	1	<b>Ext Method:</b>	Soxhlet

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit
1,3,5-Trichlorobenzene	108-70-3	-	< 1.0	-
1,2,3-Trichlorobenzene	87-61-6	-	< 1.0	-
2,6-Dichlorobenzonitrile	1194-65-6	-	< 1.0	-
1,2,3,4-Tetrachlorobenzene	634-66-2	-	< 1.0	-
Pentachlorobenzene	608-93-5	-	< 1.0	-
Tecnazene	117-18-0	-	< 3.0	-
Trifluralin	1582-09-8 D	-	< 10.0	-
Alpha-HCH	319-84-6 D	-	< 2.0	-
Hexachlorobenzene	118-74-1 D	-	< 2.0	-
Beta-HCH	319-85-7	-	< 2.0	-
Gamma-HCH	58-89-9 D	-	< 1.0	-
Propyzamide	23950-58-5	-	< 2.0	-
Chlorthalonil	1897-45-6	-	< 2.0	-
Triallate	2303-17-5	-	< 2.0	-
Lindane	319-86-8 D	-	< 2.0	-
Heptachlor	76-44-8 D	-	< 3.0	-
Aldrin	309-00-2 D	-	< 2.0	-
Triadimefon	43121-43-3	-	< 2.0	-
Pendimethalin	40487-42-1	-	< 10.0	-
Heptachlorepoxyde	1024-57-3	-	< 2.0	-
Trans-Chlordane	5103-74-2	-	< 2.0	-
Isodrin	465-73-6	-	< 2.0	-
O,P'-DDE	3424-82-6	-	< 2.0	-
Cis-Chlordane	5103-71-9	-	< 2.0	-
Endosulfan I	959-98-8 D	-	< 1.0	-
P,P'-DDE	72-55-9 D	-	< 5.0	-
Dieldrin	60-57-1 D	-	< 5.0	-
O,P'-DDD	53-19-0	-	< 5.0	-
Endrin	72-20-8 D	-	< 3.0	-
Endosulfan II	33213-65-9 D	-	< 10.0	-
P,P'-DDD	72-54-8 D	-	< 5.0	-
O,P'-DDT	789-02-6 D	-	< 3.0	-
Endosulfan Sulfate	1031-07-8	-	< 5.0	-
P,P'-DDT	50-29-3 D	-	< 5.0	-
Endrin Ketone	53494-70-5 D	-	< 30.0	-
Methoxychlor	72-43-5	-	< 5.0	-
Cis-Permethrin	52645-53-1	-	< 3.0	-
Trans-Permethrin	51877-74-8	-	< 3.0	-

Internal Standards	% Area
Naphthalene-d8	59
Phenanthrene-d10	60
Perylene-d12	60

Surrogates	% Rec
Gamma-HCH-d6	D
P,P'-DDT-d8	75

# Organochlorine Pesticides by GCMS (SIM)

<b>Customer and Site Details:</b>	EnviroCentre Ltd: Port of Tyne		
<b>Sample Details:</b>	Loc 1 0.25-0.5	<b>Job Number:</b>	S14_5494
<b>LIMS ID Number:</b>	CL1423850	<b>Date Booked in:</b>	05-Sep-14
<b>QC Batch Number:</b>	140024	<b>Date Extracted:</b>	11-Sep-14
<b>Quantitation File:</b>	0911OCPCCC1.D	<b>Date Analysed:</b>	11-Sep-14
<b>Directory:</b>	114PEST.MS9\	<b>Matrix:</b>	Soil
<b>Dilution:</b>	1	<b>Ext Method:</b>	Soxhlet

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit
1,3,5-Trichlorobenzene	108-70-3	-	< 1.0	-
1,2,3-Trichlorobenzene	87-61-6	-	< 1.0	-
2,6-Dichlorobenzonitrile	1194-65-6	-	< 1.0	-
1,2,3,4-Tetrachlorobenzene	634-66-2	-	< 1.0	-
Pentachlorobenzene	608-93-5	-	< 1.0	-
Tecnazene	117-18-0	-	< 3.0	-
Trifluralin	1582-09-8 D	-	< 10.0	-
Alpha-HCH	319-84-6 D	-	< 2.0	-
Hexachlorobenzene	118-74-1 D	-	< 2.0	-
Beta-HCH	319-85-7	-	< 2.0	-
Gamma-HCH	58-89-9 D	-	< 1.0	-
Propyzamide	23950-58-5	-	< 2.0	-
Chlorthalonil	1897-45-6	-	< 2.0	-
Triallate	2303-17-5	-	< 2.0	-
Lindane	319-86-8 D	-	< 2.0	-
Heptachlor	76-44-8 D	-	< 3.0	-
Aldrin	309-00-2 D	-	< 2.0	-
Triadimefon	43121-43-3	-	< 2.0	-
Pendimethalin	40487-42-1	-	< 10.0	-
Heptachlorepoxyde	1024-57-3	-	< 2.0	-
Trans-Chlordane	5103-74-2	-	< 2.0	-
Isodrin	465-73-6	-	< 2.0	-
O,P'-DDE	3424-82-6	-	< 2.0	-
Cis-Chlordane	5103-71-9	-	< 2.0	-
Endosulfan I	959-98-8 D	-	< 1.0	-
P,P'-DDE	72-55-9 D	-	< 5.0	-
Dieldrin	60-57-1 D	-	< 5.0	-
O,P'-DDD	53-19-0	-	< 5.0	-
Endrin	72-20-8 D	-	< 3.0	-
Endosulfan II	33213-65-9 D	-	< 10.0	-
P,P'-DDD	72-54-8 D	-	< 5.0	-
O,P'-DDT	789-02-6 D	-	< 3.0	-
Endosulfan Sulfate	1031-07-8	-	< 5.0	-
P,P'-DDT	50-29-3 D	-	< 5.0	-
Endrin Ketone	53494-70-5 D	-	< 30.0	-
Methoxychlor	72-43-5	-	< 5.0	-
Cis-Permethrin	52645-53-1	-	< 3.0	-
Trans-Permethrin	51877-74-8	-	< 3.0	-

Internal Standards	% Area
Naphthalene-d8	60
Phenanthrene-d10	61
Perylene-d12	54

Surrogates	% Rec
Gamma-HCH-d6	D
P,P'-DDT-d8	77



# Organochlorine Pesticides by GCMS (SIM)

<b>Customer and Site Details:</b>	EnviroCentre Ltd: Port of Tyne		
<b>Sample Details:</b>	Loc 2 0-0.25	<b>Job Number:</b>	S14_5494
<b>LIMS ID Number:</b>	CL1423851	<b>Date Booked in:</b>	05-Sep-14
<b>QC Batch Number:</b>	140024	<b>Date Extracted:</b>	11-Sep-14
<b>Quantitation File:</b>	0911OCPCCC1.D	<b>Date Analysed:</b>	11-Sep-14
<b>Directory:</b>	114PEST.MS9\	<b>Matrix:</b>	Soil
<b>Dilution:</b>	1	<b>Ext Method:</b>	Soxhlet

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit
1,3,5-Trichlorobenzene	108-70-3	-	< 1.0	-
1,2,3-Trichlorobenzene	87-61-6	-	< 1.0	-
2,6-Dichlorobenzonitrile	1194-65-6	-	< 1.0	-
1,2,3,4-Tetrachlorobenzene	634-66-2	-	< 1.0	-
Pentachlorobenzene	608-93-5	-	< 1.0	-
Tecnazene	117-18-0	-	< 3.0	-
Trifluralin	1582-09-8 D	-	< 10.0	-
Alpha-HCH	319-84-6 D	-	< 2.0	-
Hexachlorobenzene	118-74-1 D	-	< 2.0	-
Beta-HCH	319-85-7	-	< 2.0	-
Gamma-HCH	58-89-9 D	-	< 1.0	-
Propyzamide	23950-58-5	-	< 2.0	-
Chlorthalonil	1897-45-6	-	< 2.0	-
Triallate	2303-17-5	-	< 2.0	-
Lindane	319-86-8 D	-	< 2.0	-
Heptachlor	76-44-8 D	-	< 3.0	-
Aldrin	309-00-2 D	-	< 2.0	-
Triadimefon	43121-43-3	-	< 2.0	-
Pendimethalin	40487-42-1	-	< 10.0	-
Heptachlorepoxyde	1024-57-3	-	< 2.0	-
Trans-Chlordane	5103-74-2	-	< 2.0	-
Isodrin	465-73-6	-	< 2.0	-
O,P'-DDE	3424-82-6	-	< 2.0	-
Cis-Chlordane	5103-71-9	-	< 2.0	-
Endosulfan I	959-98-8 D	-	< 1.0	-
P,P'-DDE	72-55-9 D	-	< 5.0	-
Dieldrin	60-57-1 D	-	< 5.0	-
O,P'-DDD	53-19-0	-	< 5.0	-
Endrin	72-20-8 D	-	< 3.0	-
Endosulfan II	33213-65-9 D	-	< 10.0	-
P,P'-DDD	72-54-8 D	-	< 5.0	-
O,P'-DDT	789-02-6 D	-	< 3.0	-
Endosulfan Sulfate	1031-07-8	-	< 5.0	-
P,P'-DDT	50-29-3 D	-	< 5.0	-
Endrin Ketone	53494-70-5 D	-	< 30.0	-
Methoxychlor	72-43-5	-	< 5.0	-
Cis-Permethrin	52645-53-1	-	< 3.0	-
Trans-Permethrin	51877-74-8	-	< 3.0	-

Internal Standards	% Area
Naphthalene-d8	61
Phenanthrene-d10	61
Perylene-d12	57

Surrogates	% Rec
Gamma-HCH-d6	D
P,P'-DDT-d8	78

# Organochlorine Pesticides by GCMS (SIM)

<b>Customer and Site Details:</b>	EnviroCentre Ltd: Port of Tyne		
<b>Sample Details:</b>	Loc 2 0.25-0.5	<b>Job Number:</b>	S14_5494
<b>LIMS ID Number:</b>	CL1423852	<b>Date Booked in:</b>	05-Sep-14
<b>QC Batch Number:</b>	140024	<b>Date Extracted:</b>	11-Sep-14
<b>Quantitation File:</b>	0911OCPCCC1.D	<b>Date Analysed:</b>	11-Sep-14
<b>Directory:</b>	114PEST.MS9\	<b>Matrix:</b>	Soil
<b>Dilution:</b>	1	<b>Ext Method:</b>	Soxhlet

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit
1,3,5-Trichlorobenzene	108-70-3	-	< 1.0	-
1,2,3-Trichlorobenzene	87-61-6	-	< 1.0	-
2,6-Dichlorobenzonitrile	1194-65-6	-	< 1.0	-
1,2,3,4-Tetrachlorobenzene	634-66-2	-	< 1.0	-
Pentachlorobenzene	608-93-5	-	< 1.0	-
Tecnazene	117-18-0	-	< 3.0	-
Trifluralin	1582-09-8 D	-	< 10.0	-
Alpha-HCH	319-84-6 D	-	< 2.0	-
Hexachlorobenzene	118-74-1 D	-	< 2.0	-
Beta-HCH	319-85-7	-	< 2.0	-
Gamma-HCH	58-89-9 D	-	< 1.0	-
Propyzamide	23950-58-5	-	< 2.0	-
Chlorthalonil	1897-45-6	-	< 2.0	-
Triallate	2303-17-5	-	< 2.0	-
Lindane	319-86-8 D	-	< 2.0	-
Heptachlor	76-44-8 D	-	< 3.0	-
Aldrin	309-00-2 D	-	< 2.0	-
Triadimefon	43121-43-3	-	< 2.0	-
Pendimethalin	40487-42-1	-	< 10.0	-
Heptachlorepoxyde	1024-57-3	-	< 2.0	-
Trans-Chlordane	5103-74-2	-	< 2.0	-
Isodrin	465-73-6	-	< 2.0	-
O,P'-DDE	3424-82-6	-	< 2.0	-
Cis-Chlordane	5103-71-9	-	< 2.0	-
Endosulfan I	959-98-8 D	-	< 1.0	-
P,P'-DDE	72-55-9 D	-	< 5.0	-
Dieldrin	60-57-1 D	-	< 5.0	-
O,P'-DDD	53-19-0	-	< 5.0	-
Endrin	72-20-8 D	-	< 3.0	-
Endosulfan II	33213-65-9 D	-	< 10.0	-
P,P'-DDD	72-54-8 D	-	< 5.0	-
O,P'-DDT	789-02-6 D	-	< 3.0	-
Endosulfan Sulfate	1031-07-8	-	< 5.0	-
P,P'-DDT	50-29-3 D	-	< 5.0	-
Endrin Ketone	53494-70-5 D	-	< 30.0	-
Methoxychlor	72-43-5	-	< 5.0	-
Cis-Permethrin	52645-53-1	-	< 3.0	-
Trans-Permethrin	51877-74-8	-	< 3.0	-

Internal Standards	% Area
Naphthalene-d8	61
Phenanthrene-d10	63
Perylene-d12	46

Surrogates	% Rec
Gamma-HCH-d6	D
P,P'-DDT-d8	95

# Organochlorine Pesticides by GCMS (SIM)

<b>Customer and Site Details:</b>	EnviroCentre Ltd: Port of Tyne		
<b>Sample Details:</b>	Loc 3 0-0.25	<b>Job Number:</b>	S14_5494
<b>LIMS ID Number:</b>	CL1423853	<b>Date Booked in:</b>	05-Sep-14
<b>QC Batch Number:</b>	140024	<b>Date Extracted:</b>	11-Sep-14
<b>Quantitation File:</b>	0911OCPCCC1.D	<b>Date Analysed:</b>	11-Sep-14
<b>Directory:</b>	114PEST.MS9\	<b>Matrix:</b>	Soil
<b>Dilution:</b>	1	<b>Ext Method:</b>	Soxhlet

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit
1,3,5-Trichlorobenzene	108-70-3	-	< 1.0	-
1,2,3-Trichlorobenzene	87-61-6	-	< 1.0	-
2,6-Dichlorobenzonitrile	1194-65-6	-	< 1.0	-
1,2,3,4-Tetrachlorobenzene	634-66-2	-	< 1.0	-
Pentachlorobenzene	608-93-5	-	< 1.0	-
Tecnazene	117-18-0	-	< 3.0	-
Trifluralin	1582-09-8 D	-	< 10.0	-
Alpha-HCH	319-84-6 D	-	< 2.0	-
Hexachlorobenzene	118-74-1 D	-	< 2.0	-
Beta-HCH	319-85-7	-	< 2.0	-
Gamma-HCH	58-89-9 D	-	< 1.0	-
Propyzamide	23950-58-5	-	< 2.0	-
Chlorthalonil	1897-45-6	-	< 2.0	-
Triallate	2303-17-5	-	< 2.0	-
Lindane	319-86-8 D	-	< 2.0	-
Heptachlor	76-44-8 D	-	< 3.0	-
Aldrin	309-00-2 D	-	< 2.0	-
Triadimefon	43121-43-3	-	< 2.0	-
Pendimethalin	40487-42-1	-	< 10.0	-
Heptachlorepoxyde	1024-57-3	-	< 2.0	-
Trans-Chlordane	5103-74-2	-	< 2.0	-
Isodrin	465-73-6	-	< 2.0	-
O,P'-DDE	3424-82-6	-	< 2.0	-
Cis-Chlordane	5103-71-9	-	< 2.0	-
Endosulfan I	959-98-8 D	-	< 1.0	-
P,P'-DDE	72-55-9 D	-	< 5.0	-
Dieldrin	60-57-1 D	-	< 5.0	-
O,P'-DDD	53-19-0	-	< 5.0	-
Endrin	72-20-8 D	-	< 3.0	-
Endosulfan II	33213-65-9 D	-	< 10.0	-
P,P'-DDD	72-54-8 D	-	< 5.0	-
O,P'-DDT	789-02-6 D	-	< 3.0	-
Endosulfan Sulfate	1031-07-8	-	< 5.0	-
P,P'-DDT	50-29-3 D	-	< 5.0	-
Endrin Ketone	53494-70-5 D	-	< 30.0	-
Methoxychlor	72-43-5	-	< 5.0	-
Cis-Permethrin	52645-53-1	-	< 3.0	-
Trans-Permethrin	51877-74-8	-	< 3.0	-

Internal Standards	% Area
Naphthalene-d8	61
Phenanthrene-d10	63
Perylene-d12	61

Surrogates	% Rec
Gamma-HCH-d6	D
P,P'-DDT-d8	69

# Organochlorine Pesticides by GCMS (SIM)

<b>Customer and Site Details:</b>	EnviroCentre Ltd: Port of Tyne		
<b>Sample Details:</b>	Loc 3 0.25-0.5	<b>Job Number:</b>	S14_5494
<b>LIMS ID Number:</b>	CL1423854	<b>Date Booked in:</b>	05-Sep-14
<b>QC Batch Number:</b>	140024	<b>Date Extracted:</b>	11-Sep-14
<b>Quantitation File:</b>	0911OCPCCC1.D	<b>Date Analysed:</b>	11-Sep-14
<b>Directory:</b>	114PEST.MS9\	<b>Matrix:</b>	Soil
<b>Dilution:</b>	1	<b>Ext Method:</b>	Soxhlet

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit
1,3,5-Trichlorobenzene	108-70-3	-	< 1.0	-
1,2,3-Trichlorobenzene	87-61-6	-	< 1.0	-
2,6-Dichlorobenzonitrile	1194-65-6	-	< 1.0	-
1,2,3,4-Tetrachlorobenzene	634-66-2	-	< 1.0	-
Pentachlorobenzene	608-93-5	-	< 1.0	-
Tecnazene	117-18-0	-	< 3.0	-
Trifluralin	1582-09-8 D	-	< 10.0	-
Alpha-HCH	319-84-6 D	-	< 2.0	-
Hexachlorobenzene	118-74-1 D	-	< 2.0	-
Beta-HCH	319-85-7	-	< 2.0	-
Gamma-HCH	58-89-9 D	-	< 1.0	-
Propyzamide	23950-58-5	-	< 2.0	-
Chlorthalonil	1897-45-6	-	< 2.0	-
Triallate	2303-17-5	-	< 2.0	-
Lindane	319-86-8 D	-	< 2.0	-
Heptachlor	76-44-8 D	-	< 3.0	-
Aldrin	309-00-2 D	-	< 2.0	-
Triadimefon	43121-43-3	-	< 2.0	-
Pendimethalin	40487-42-1	-	< 10.0	-
Heptachlorepoxyde	1024-57-3	-	< 2.0	-
Trans-Chlordane	5103-74-2	-	< 2.0	-
Isodrin	465-73-6	-	< 2.0	-
O,P'-DDE	3424-82-6	-	< 2.0	-
Cis-Chlordane	5103-71-9	-	< 2.0	-
Endosulfan I	959-98-8 D	-	< 1.0	-
P,P'-DDE	72-55-9 D	-	< 5.0	-
Dieldrin	60-57-1 D	-	< 5.0	-
O,P'-DDD	53-19-0	-	< 5.0	-
Endrin	72-20-8 D	-	< 3.0	-
Endosulfan II	33213-65-9 D	-	< 10.0	-
P,P'-DDD	72-54-8 D	-	< 5.0	-
O,P'-DDT	789-02-6 D	-	< 3.0	-
Endosulfan Sulfate	1031-07-8	-	< 5.0	-
P,P'-DDT	50-29-3 D	-	< 5.0	-
Endrin Ketone	53494-70-5 D	-	< 30.0	-
Methoxychlor	72-43-5	-	< 5.0	-
Cis-Permethrin	52645-53-1	-	< 3.0	-
Trans-Permethrin	51877-74-8	-	< 3.0	-

Internal Standards	% Area
Naphthalene-d8	62
Phenanthrene-d10	63
Perylene-d12	67

Surrogates	% Rec
Gamma-HCH-d6	D
P,P'-DDT-d8	61



<b>Customer Sample No</b>	<b>S1423849</b>	<b>S1423850</b>	<b>S1423851</b>	<b>S1423852</b>	<b>S1423853</b>
Customer Sample ID	Loc 1	Loc 1	Loc 2	Loc 2	Loc 3
<b>Sample Type</b>	<b>SEDIMENT</b>	<b>SEDIMENT</b>	<b>SEDIMENT</b>	<b>SEDIMENT</b>	<b>SEDIMENT</b>
Sample Depth (m)	0-0.25	0.25-0.5	0-0.25	0.25-0.5	0-0.25
Sampling Date	01/09/2014	01/09/2014	01/09/2014	01/09/2014	01/09/2014

Determinand	CAS No	Codes	SOP	Units	RL					
dry solids (at 105°C)			208	%		74.3	74.0	78.2	76.8	80.2
2,2',4,4',6-pentabromodiphenyl ether (BDE-100)	189084-64-8		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,2',3,4,4',5'-hexabromodiphenyl ether (BDE-138)	182677-30-1		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153)	68631-49-2		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,2',4,4',5,6'-hexabromodiphenyl ether (BDE-154)	207122-15-4		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,4,4'-tribromodiphenyl ether (BDE-28)	41318-75-6		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,2',4,4'-tetrabromodiphenyl ether (BDE-47)	5436-43-1		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,3',4,4'-tetrabromodiphenyl ether (BDE-66)	187084-61-5		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,2',3,4,4'-pentabromodiphenyl ether (BDE-85)	182346-21-0		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2,2',4,4',5-pentabromodiphenyl ether (BDE-99)	60348-60-9		in house	mg/kg DW	0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
dibutyltin (DBT)	1002-53-5		in house	ug/kg as cation DW	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tributyltin (TBT)	56573-85-4		in house	ug/kg as cation DW	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
triphenyltin (TPT)	668-34-8		in house	ug/kg as cation DW	20	< 20.0	< 20.0	< 20.0	< 20.0	< 20.0

<b>Customer Sample No</b>	<b>S1423854</b>
Customer Sample ID	Loc 3
<b>Sample Type</b>	<b>SEDIMENT</b>
Sample Depth (m)	0.25-0.5
Sampling Date	01/09/2014

Determinand	CAS No	Codes	SOP	Units	RL	
dry solids (at 105°C)			208	%		79.8
2,2',4,4',6-pentabromodiphenyl ether (BDE-100)	189084-64-8		in house	mg/kg DW	0.1	< 0.10
2,2',3,4,4',5'-hexabromodiphenyl ether (BDE-138)	182677-30-1		in house	mg/kg DW	0.1	< 0.10
2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153)	68631-49-2		in house	mg/kg DW	0.1	< 0.10
2,2',4,4',5,6'-hexabromodiphenyl ether (BDE-154)	207122-15-4		in house	mg/kg DW	0.1	< 0.10
2,4,4'-tribromodiphenyl ether (BDE-28)	41318-75-6		in house	mg/kg DW	0.1	< 0.10
2,2',4,4'-tetrabromodiphenyl ether (BDE-47)	5436-43-1		in house	mg/kg DW	0.1	< 0.10
2,3',4,4'-tetrabromodiphenyl ether (BDE-66)	187084-61-5		in house	mg/kg DW	0.1	< 0.10
2,2',3,4,4'-pentabromodiphenyl ether (BDE-85)	182346-21-0		in house	mg/kg DW	0.1	< 0.10
2,2',4,4',5-pentabromodiphenyl ether (BDE-99)	60348-60-9		in house	mg/kg DW	0.1	< 0.10
dibutyltin (DBT)	1002-53-5		in house	ug/kg as cation DW	5	< 5.0
tributyltin (TBT)	56573-85-4		in house	ug/kg as cation DW	5	< 5.0
triphenyltin (TPT)	668-34-8		in house	ug/kg as cation DW	20	< 20.0

