

**Sunderland City Council: North
Sunderland Sites**

Report to inform Habitat Regulations
Assessment

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1 Summary

- 1.1 Sunderland City Council is preparing a new Local Plan and this will set out the long-term vision for development in Sunderland over the period up to 2033. The Local Plan, which is currently being prepared, will consist of three parts:
- Part One – Core Strategy & Development Plan (CSDP)
 - Part Two – Allocations and Designations Plan
 - Part Three: International Advanced Manufacturing Park (IAMP) Area Action Plan (AAP) 2017-2037
- 1.2 Sunderland City Council is the 'competent authority', as defined under the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), and as such it is required to ensure that the Core Strategy and Development Plan (CSDP) complies with the requirements of the Habitats Regulations. This involves undertaking a Habitats Regulations Assessment (HRA), the purpose of which is to assess the possible effects of the CSDP on the nature conservation interests of sites designated under the Habitats and Wild Birds Directives.
- 1.3 The CSDP and the accompanying HRA have been published for consultation. In parallel with the preparation of the CSDP, the Council needs to consider a number of sites in North Sunderland that have been identified for potential residential development in the future. These sites, which are all in council ownership and are being brought forward by the council, are collectively referred to as the North Sunderland Sites. Given the proximity of these proposed housing sites to the nearest European sites, it is necessary to complete a Habitats Regulations Assessment.
- 1.4 The purpose of this report is to inform the HRA process, i.e. to identify whether the development of the proposed housing sites, alone or in combination with other plans and projects, is likely to have an adverse effect on the integrity of any designated sites of European importance, i.e. Special Areas of Conservation, Special Protection Areas and Ramsar sites.
- 1.5 There are three European sites that are located within the boundary of the Sunderland City Council administrative area. These sites cover sections of the coast that extend into neighbouring Authority areas. The sites are:
- Durham Coast SAC; and
 - Northumbria Coast SPA and Ramsar site.
- 1.6 Consideration has also been given to the effects of the proposed development on Castle Eden Dene SAC, which is located outside the Sunderland City Council administrative area but close enough that an impact could potentially occur.
- 1.7 Potential impact pathways that have been considered within this assessment are as follows:
- Recreation: Increased recreational pressure including disturbance from recreational activities.
 - Water quality and resources: Changes in surface and groundwater quality and availability.
 - Changes in air quality.
- 1.8 The evidence base and assessment has concluded that development within 6 km of the European sites that will result in an increase in the local population, has the potential to result in increased visitor pressure, which may in turn result in increased recreational disturbance of birds.
- 1.9 Consequently a Stage 1 screening assessment has concluded that, in the absence of mitigation, the development of these sites is likely to have a significant effect on a European site. For this reason the assessment has been carried forward to Stage 2 'appropriate assessment'.

- 1.10 It is proposed to mitigate impacts by adopting a suite of measures that can be broadly categorised as:
- Provision of Suitable Alternative Natural Greenspace (SANG¹);
 - Strategic Access Management and Monitoring (SAMM).
- 1.11 In general, the costs of implementation and maintenance of SANGs and SAMM will be split proportionately amongst the developments and financial contributions sought that will cover both elements. The costs of providing SANG are to be met by developers and this will include the on-going maintenance cost for the SANG once provided. It is proposed that a commuted sum will be paid to the Council by each developer to cover future SANG maintenance for a 20 year period, after which the Council will take on maintenance of the SANG in perpetuity. Funding for SAMMs and monitoring will be obtained by securing Section 106 contributions from developers of housing sites where appropriate.
- 1.12 When the proposed mitigation measures described within this report are adopted it is concluded that the development of the North Sunderland Sites will not have any adverse effect on the integrity of the Northumbria Coast SPA/Ramsar sites or Durham Coast SAC. There will be no residual effects on any European sites

¹ Throughout this report reference is made to the term SANG. Natural England has previously developed the term SANG as a mitigation measure for heathland sites in southern England. This approach has also been adopted in this instance to mitigate impacts on the coast.

2 Introduction

Purpose of Report

- 2.1 Sunderland City Council is preparing a new Local Plan and this will set out the long-term vision for development in Sunderland over the period up to 2033. The Local Plan, which is currently being prepared, will consist of three parts: Part One: Core Strategy & Development Plan (CSDP); Part Two: Allocations and Designations Plan; Part Three: International Advanced Manufacturing Park (IAMP) Area Action Plan (AAP) 2017-2037.
- 2.2 The Council needs to consider a number of sites in North Sunderland that have been identified for potential residential development in the future: these sites are collectively referred to as the North Sunderland Sites. Given the proximity of these proposed housing sites to the nearest European wildlife sites, it is necessary to complete a Habitats Regulation Assessment (HRA). The locations of the North Sunderland sites are shown on Figure 1 in Section 13.
- 2.3 The purpose of this report is to inform the HRA process, i.e. to determine whether the development of these sites, alone or in combination with other plans and projects, are likely to have an adverse effect on the integrity of any designated sites of European importance, i.e. Special Areas of Conservation, Special Protection Areas and Ramsar sites. The requirement to carry out this assessment is set out within the Conservation of Habitats and Species Regulations 2017, otherwise known as the Habitats Regulations.

Scope of the Assessment

- 2.4 There are a total of 13 council-owned North Sunderland sites and 1 privately owned site of which all are located in the Sunderland City Council administrative area to the north and west of the Wear Estuary. The sites being considered have been identified by Sunderland City Council's Property Services Team as being suitable for residential development, collectively delivering a total of c.869 dwellings. Summary details of the sites being considered are included in Table 1: site locations are shown on Figure 1 and Figure 3.

Table 1: Proposed development sites considered within the assessment

Site Ref.	Site Name	No. of units	Delivery time frame (yrs)
080A	Stadium Village Sheepfolds Central	50	11-15
080B	Stadium Village Sheepfolds East	70	6-10
080C	Stadium Village Sheepfolds Cliff Top	60	1-5
91	Former Southwick Primary	56	1-5
104	Carley Hill School	110	1-5, 6-10
175	Fulwell Quarry	90	6-10
243	Earlston Street	14	
254	Fulwell Reservoir	21	6-10
563	Hylton College & football field	110	1-5, 6-10
652	Old Mill Rd	38	6-10
675	Fulwell Quarry (near golf range)	65	TBD
467A	Fulwell Allotments/ Playing fields	60	1-5, 6-10
467B	Thornbeck College	15	1-5
416	Ferryboat lane, North Hylton	110	1-5
	Total	869	

- 2.5 The North Sunderland sites also includes two Housing Release Site (SHLAA site 675 and 416), which will be brought forward under Policy SA3 in the Sunderland City Council Core Strategy and Development Plan.

Reference Documents

- 2.6 This HRA report makes reference to previous HRA reports that have been completed by consultants on behalf of Sunderland City Council as part of the Local Plan process. In particular the following reports have been considered:
- URS (2013). City of Sunderland LDF Core Strategy - Draft Revised Options. Habitat Regulations Appraisal: Screening Report. Published July 2013.
 - URS (2015). South Sunderland Growth Area SPD: Appropriate Assessment. Published May 2015.
 - Sunderland City Council (2015). Habitats Regulations Assessment Screening Report. Draft Interim Student Accommodation Policy. Published March 2015.
 - Aecom (2016). Habitats Regulations Screening Assessment to Support Sunderland City Council's Core Strategy Growth Options 2016. Published March 2016.
 - BSG Ecology (2018). Habitats Regulations Assessment of the Sunderland City Council Core Strategy Development Plan. Published June 2018.
- 2.7 Consideration has also been given to the work undertaken by neighbouring authorities in support of their Local Plan preparation. This includes HRA that has been undertaken for key documents that have been prepared in support of each Local Plan; however, the Local Plans for Durham and South Tyneside are not as well progressed as the Sunderland City Council Local Plan.
- 2.8 Sunderland City Council (and other bodies) has also published an extensive range of documents to support the Local Plan process, and a number of these have been consulted to inform the HRA where relevant to do so. The following documents have been considered during the assessment:
- Core Strategy and Development Management Draft Plan Consultation Document (2017)
 - Sunderland Growth Options consultation documents (2016)
 - South Sunderland Growth Area draft SPD (2016)
 - Sunderland City Council Strategic Housing Land Availability Assessment (SHLAA) Draft for Consultation (2016)
 - Sunderland Employment Land Review. Final Report, 9 March 2016
 - Sunderland Greenspace Audit and Report (2012)
 - Green infrastructure strategy framework Report (2011)
 - Sunderland City Council Local Flood Risk Management Strategy, Final Report, March 2016
 - South Tyneside Local Development Framework SPD 3: Green Infrastructure Strategy, February 2013
 - Port of Sunderland Concept Plan (2006)

Report Structure

- 2.9 This report documents the process, findings and recommendations to inform the HRA for the proposed North Sunderland Sites. It identifies, analyses and quantifies (where possible) potential negative impacts on the relevant European sites, as well as identifying aspects of the proposed housing development where no impacts are likely. It presents measures to avoid or reduce these effects to the point at which they are no longer significant, either alone or in combination with other plans and projects.

- Chapter One: provides a summary of the outcomes of the Habitats Regulations Assessment.
- Chapter Two: sets out the purpose of the report;
- Chapter Three: describes the Habitats Regulations Assessment process;
- Chapter Four: identifies the European sites that are receptors of the likely significant effects of the proposed housing development, together with ecological information about these sites;
- Chapter Five: sets out the review of the screening stage of HRA and identifies those objectives, proposals and policies that have been taken through to the appropriate assessment;
- Chapter Six: identifies the underlying trends that have been considered when establishing the baseline that has been used for the assessment;
- Chapter Seven: sets out the results of the appropriate assessment focussing on those aspects of the proposed housing development that have the potential to impact on European sites;
- Chapter Eight: describes the measures that are proposed to mitigate any impacts on European sites;
- Chapter Nine: sets out how the proposed mitigation measures will be delivered, including the use of monitoring to identify any emerging issues.

3 Habitats Regulations Assessment

Legislation

- 3.1 The Conservation of Habitats and Species Regulations 2017, referred to as the 'Habitats Regulations,' transpose the requirements of the European Birds and Habitats Directives² into UK legislation. The Birds Directive aims to protect rare and vulnerable birds and the habitats that they depend upon and this is achieved in part through the classification of Special Protection Areas (SPAs).
- 3.2 The Habitats Directive aims to protect plants, habitats and animals other than birds, and this is achieved in part through the creation of Special Areas of Conservation (SACs). Article 6(1) and (2) of the Habitats Directive require that Member States establish management measures for these areas, to avoid deterioration of their ecological interest. SPAs and SACs include European Marine Sites, which are designated sites below Mean High Water.
- 3.3 The UK is also a contracting party to the Ramsar Convention³, which seeks to protect wetlands of international importance, especially those wetlands utilised as waterfowl habitat. It is UK Government policy (in England this is identified within the National Planning Policy Framework) that all competent authorities should treat Ramsar sites similarly as if they are fully designated European sites.
- 3.4 Collectively, all formally proposed and fully classified or designated SPAs and SACs form a pan-European Union network of protected areas known as Natura 2000. Within this report SPAs, SACs and Ramsar sites are collectively referred to as European sites⁴, and this term has been adopted throughout this report.

Habitats Regulations Assessment Process

- 3.5 The requirements of the Habitats Regulations with regard to the implications of plans or projects are set out within Part 6 'Assessment of Plans and Projects' and specifically Regulation 61. Chapter 8 of the Habitats Regulations sets out the requirements with regard to land use plans within Regulation 102 (which apply the provisions of Article 6(3) and (4) of the Habitats Directive – see Appendix 1). The step-based approach implicit within these two regulations is referred to as 'Habitats Regulations Assessment', which is the term that has been used throughout this report.
- 3.6 It is incumbent on any public body (referred to as a competent authority within the Habitats Regulations) to carry out a Habitats Regulations Assessment where they are proposing to carry out a project, implement a plan or authorise another party to carry out a plan or project. Competent authorities are required to record the process undertaken, ensuring that there will be no adverse effects on the integrity of a European site as a result of a plan or project.
- 3.7 The Habitats Regulations are applicable to the allocation of proposed housing sites by the provisions of Regulation 61. In order to ensure that the allocations of North Sunderland Sites are compliant with the requirements of the Habitats Regulations, Sunderland City Council appointed BSG Ecology to carry out analysis and reporting to inform the Habitats Regulations Assessment.

² Council Directive on the conservation of natural habitats and of wild fauna and flora of 21st May 1992 (92/43/EEC) and Council Directive on the conservation of wild birds of 2nd April 1979 (70/409/EEC) consolidated by the Birds Directive 2009 (2009/147/EC).

³ Convention on wetlands of international importance especially as waterfowl habitat, Ramsar, Iran, 2/2/71 as amended by the Paris protocol of 3/12/92 and the Regina amendments adopted at the extraordinary conference of contracting parties at Regina, Saskatchewan, Canada 28/5 – 3/6/87, most commonly referred to as the 'Ramsar Convention.'

⁴ Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, September 2013 2013 edition UK: DTA Publications Limited

- 3.8 Sunderland City Council is responsible for the North Sunderland Sites HRA because it is the plan making body and competent authority. Sunderland City Council will use this report to inform their formal consideration, conclusion and recording of the outcomes of the HRA process.

Assessment Stages

- 3.9 The European Commission has developed guidance in relation to Articles 6(3) and 6(4) of the Habitats Directive⁵, and this recommends a four stage approach to addressing the requirements of these Articles. Taking into account this guidance the assessment methodology has been adopted to meet the requirements of the Habitats Directive.
- 3.10 Table 2 summarises the detail and legislative context for the four HRA stages. In subsequent sections further detail is provided about the method that has been adopted when completing Stages 1 and 2.

Table 2: Stages in the Habitats Regulations Assessment process

Stage	Description	Legislative Context
Stage 1: Screening	Assessment of whether a plan or project, either alone or in combination with other plans or projects, is likely to have a significant effect on a Nature 2000 site.	Article 6(3) of the Habitats Directive Regulation 61(1) of the Habitats Regulations
	Stage 1A: The identification of any European site that is relevant to the assessment.	
	Stage 1B: The identification of underlying trends.	
	Stage 1C: The analysis of the proposed housing sites to determine whether their future development is likely to have a significant effect on the integrity of any European site.	
	Stage 1D: The identification of other plans and projects that, when considered in combination with the development proposals, are likely to result in significant effects.	
Stage 2: Appropriate Assessment	Consider the impacts of the development proposals on the integrity of a European site, alone or in combination with other plans or projects and with reference to the site's conservation objectives. Consider measures to mitigate the identified impacts. Prepare an Appropriate Assessment Report for consultation with key stakeholders including Natural England.	
Stage 3: Assessment of alternative solutions	Re-assessing alternatives if effective mitigation proves impossible and develop / select a different alternative that does not harm site integrity. If no such alternatives exist the process continues to Stage 4.	
Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain	At this stage, plans and projects which, after mitigation, still have an adverse effect on the site(s) integrity should be dropped. Assessing whether a plan or project can be justified by 'imperative reasons of overriding public interest' (IROPI) or permitted on the grounds of human health, public safety or primary beneficial consequences for the environment.	Article 6(4) of the Habitats Directive Regulation 62 of the Habitats Regulations

⁵ European Commission (2001). Assessment of plans and projects significantly effecting Natura 2000 site. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Published November 2001.

Stage 1 – Screening

- 3.11 This stage identifies the likely effects of the proposed housing sites on any European site, either alone or in combination with other plans or projects. Specifically this stage considers whether these effects are likely to be significant with regard to the integrity of the site. The development of the proposed housing sites will require 'appropriate assessment' if it is considered that any aspect of it will have a significant effect on any European site.
- 3.12 Stage 1 can be sub-divided as follows:
- Stage 1A: The identification of those European sites that are relevant to the assessment, which may include sites located within the plan area but may also include sites located in neighbouring authority areas. This process also includes the analysis of information relating to the European sites, in particular the reasons for their designation, factors affecting their integrity and trends affecting them.
 - Stage 1B: The identification of underlying trends, i.e. external influences such as climate change, which could affect the integrity of a European site.
 - Stage 1C: The analysis of the proposed housing sites to determine whether they are likely to have a significant effect on the integrity of any European site. This part of the process also includes the examination of options and alternatives that avoid or reduce the identified effects.
 - Stage 1D: The identification of other plans and projects that, when considered in combination with the proposed housing sites, are likely to result in significant effects.

Stage 2 – Appropriate Assessment

- 3.13 If it is considered that a plan or project is likely to have a significant effect on the integrity of a European site, the requirements of Stage 2 are triggered. This stage considers the impacts of the proposed housing sites on the integrity of a European site, alone or in combination with other plans or projects. The assessment should consider the implications for the European site in view of the site's conservation objectives. If adverse impacts are identified, this assessment should also consider measures to mitigate the identified impacts.
- 3.14 If necessary, modifications to those proposals or policies are identified to avoid any adverse effects on site integrity. If mitigation is not possible and adverse effects on a European site's integrity remain, the process must proceed to Stage 3.

Stage 3 – Assessment of alternative solutions

- 3.15 If adverse impacts are predicted and it is not possible to fully mitigate those impacts, this stage examines alternative ways of achieving the objectives of the plan or project that avoid adverse impacts on the integrity of a Natura 2000 site.

Stage 4 – Assessment where no alternative solutions exist and where adverse impacts remain

- 3.16 This stage assesses compensatory measures where it is deemed that the project or plan should proceed for Imperative Reasons of Overriding Public Interest (IROPI).
- 3.17 Within these various stages the Habitats Directive promotes the adoption of a hierarchy of avoidance followed by mitigation and ultimately compensation. Consequently the first step is to ensure that development of the proposed housing sites avoids negative impacts on European sites. If potential negative impacts are identified and avoidance is not feasible, then mitigation measures need to be applied such that no adverse effects on the integrity of European sites remain.

- 3.18 If impacts cannot be fully mitigated then the policy should be rejected or taken forward to the final stage, i.e. assessment of compensatory measures where it is deemed that the project or plan should proceed for Imperative Reasons of Overriding Public Interest (IROPI). Current guidance (Scott Wilson *et al*, 2006⁶) is that stages 3 and 4 should be avoided as there will almost always be an alternative and IROPI is extremely difficult to justify in the majority of cases.

Guidance on Procedure and Method

- 3.19 This report has referred to the following published guidance and good practice:
- Department for Environment, Food and Rural Affairs, 2012, The Habitats and Wild Birds Directives in England and its seas: Core guidance for developers, regulations & land/marine managers (draft for public consultation);
 - Office of the Deputy Prime Minister Circular 6/2005, (Defra Circular 1/2005), Biodiversity and Geological Conservation: Statutory obligations and their impact within the planning system (although note that this will shortly be replaced with National Planning Practice Guidance to support the NPPF);
 - RSPB, 2007, The Appropriate Assessment of Spatial Plans in England: A guide to why, when and how to do it.
 - Guidance on the Habitats Regulations Assessment of plans published by the Countryside Council for Wales⁷ and Scottish Natural Heritage in association with the Scottish Government⁸, (these methodologies are considered to be the most up-to-date and Natural England have not formally released equivalent guidance for English Planning Authorities).
- 3.20 This advice is complemented by guidance that is published and updated on a regular basis by David Tyldesley Associates (DTA⁹).
- 3.21 The guidance does not define the method for undertaking or recording Habitats Regulations Assessment but notes that the adopted method must be appropriate to its purpose under the Habitats Directive and Habitats Regulations, i.e. an 'appropriate assessment'.

Previous Consultation

- 3.22 An important part of the HRA process is ensuring that Natural England is consulted to ensure that the scope of the assessment is appropriate for the purposes of discharging the duties set out within the Conservation of Habitats and Species Regulations 2017 (as amended). HRA is an iterative process that aims to influence the development of a plan or project so as to ensure the ecological integrity of affected European sites is maintained.
- 3.23 At this stage no consultation has taken place with regard to the North Sunderland Sites; however, this report follows on from assessments that have previously been prepared for the Core Strategy Draft Revised Options (URS, 2013), South Sunderland Growth Strategy SPD (URS, 2015) and the Core Strategy Growth Options (Aecom, 2016). Some aspects of the consultation undertaken in support of these studies are relevant for this study and have therefore been considered.

⁶ Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants (2006). Appropriate assessment of plans. Published September 2006.

⁷ Guidance for Plan Making Authorities in Wales: The Appraisal of Plans under the Habitats Directive at <http://www.ccg.gov.uk/landscape--wildlife/managing-land-and-sea/environmental-assessment/habitats-regulations-assessmen.aspx>.

⁸ Habitats Regulations Appraisal of Plans: guide for plan making bodies in Scotland at http://www.snh.gov.uk/policy-and-guidance/guidance-documents/document/?category_code=Guidance&topic_id=1472

⁹ Tyldesley, D. and Chapman, C., (2013) The Habitats Regulations Assessment Handbook, 2013 edition UK: DTA Publications Limited. BSG Ecology is an active subscription holder for updates to the handbook and receipt of the quarterly journal.

- 3.24 On 22 July 2018 Natural England provided comments on the draft Core Strategy HRA, including the following points. Due to the unique nature of the coast Natural England considers that greenspace provision is not likely to provide an effective mitigation measure on its own. It is therefore likely that all development within the 6 km buffer area will also need to consider contributions towards access management measures. Natural England also requested clarification on which mitigation measures will be taken forward, when they will be implemented, how much they will cost and how they will be funded. Further details were also requested to demonstrate how the proposed measures will be effective. Whilst these comments were provided with regard to the Core Strategy HRA, they are also considered to be relevant for this assessment.

4 Identification of Relevant European Sites

Scope of the assessment

- 4.1 Stage 1 (see Table 2) of the HRA process requires the identification of European sites that could potentially be affected by the development of the proposed housing sites, either alone or in combination with other plans and projects. It also involves scoping out sites that do not require any further consideration together with a clear rationale for doing so. This section of the report also includes collation of relevant data on the qualifying features of the selected European sites, including reference to each site's Conservation Objectives.
- 4.2 For the purposes of this report European sites include:
- Special Areas of Conservation (SACs) and candidate Special Areas of Conservation (cSACs) [designated under the EC Habitats Directive];
 - Special Protection Areas (SPAs) and potential Special Protection Areas (pSPAs) [classified under the EC Birds Directive 1979, 79/409/EEC].
 - Ramsar sites (designated under the Convention on Wetlands of International Importance, UNESCO, 1971).
- 4.3 There are two European sites that are located within the boundary of the Sunderland City Council administrative area. Both of these sites cover sections of the coast that extend into neighbouring Authority areas. The sites are:
- Durham Coast SAC; and
 - Northumbria Coast SPA and Ramsar site.
- 4.4 The boundaries of the designated sites are shown on Figure 2 in Section 13. The Northumbria Coast SPA and Ramsar site share the same boundary and qualifying interest features (but the numbers of qualifying birds are different). Summary details of the European sites are provided below and their Conservation Objectives are presented in Appendix 2.
- 4.5 It is also possible that development of the proposed housing sites could result in impacts on European sites that fall outside the council's administrative boundary. In order to decide which European sites need to be considered within this assessment it is important to identify the mechanisms by which the proposed development could potentially impact on a European site.
- 4.6 A previous HRA of the Sunderland City Council Core Strategy Growth Options (Aecom, 2016) identified the following potential impact pathways, which are also considered to be relevant in the context of this assessment:
- Increased recreational pressure – including disturbance from recreational activities.
 - Changes in air quality.
- 4.7 Other identified impact mechanisms are not considered to be relevant for this assessment. The increased extent of urbanisation, including the introduction of invasive species and predation from domestic animals, is not relevant as the proposed housing sites are far enough away from the nearest European sites to buffer them from such effects. Exacerbation of coastal squeeze is not likely as existing development between the proposed housing sites and the coast is already influencing coastal protection policy. Changes in water quality are unlikely as the existing drainage infrastructure will intercept all foul water and surface water run-off.

- 4.8 The nearest European site located outside the Sunderland City Council boundary is Castle Eden Dene SAC, the nearest part of which is located 17.5 km to the south of the North Sunderland Sites. Taking into account potential impact pathways, it is considered highly unlikely that residential development in North Sunderland will have a significant effect on this European site.
- 4.9 The earlier HRA (Aecom, 2016) concluded that increased recreational pressure is not likely to be significant if the distance between development and a European site is more than 6 km. Analysis of visitor survey data collected in 2015 reached a similar conclusion (see Appendix 3 for an explanation of how the 6 km threshold has been calculated). On this basis it is concluded that significant recreational impacts are unlikely at Castle Eden Dene SAC as a result of development of the North Sunderland Sites.
- 4.10 Impacts on Castle Eden Dene SAC relating to traffic induced changes in air quality are not considered likely to be significant. Demographic data analysis (Edge Analytics, 2016¹⁰) shows that 7.7% of residents of Sunderland work in County Durham, and therefore may commute in the direction of Castle Eden Dene. The analysis also shows that 12.4% of people who work in Sunderland live in County Durham. This indicates that the current commuting level from the Sunderland City Council administrative area to Castle Eden Dene is low.
- 4.11 A key objective of the Sunderland City Council Core Strategy and Development Plan is to enhance employment opportunities within the administrative area, and to complement this with new housing provision. This in turn will result in a greater proportion of people living and working in Sunderland. Consequently it is unlikely that development of the North Sunderland Sites will result in a significant increase in traffic levels to the south of the administrative area, i.e. in the vicinity of Castle Eden Dene; commuting patterns within the administrative area are expected to be static, i.e. no significant change. This conclusion is supported by the results of traffic modelling data¹¹, which show that significant traffic increases are not predicted in the southern part of the area. More detailed analysis of modelling data will be carried out to inform the HRA for the Allocations and Designations Plan.
- 4.12 Table 3 provides a summary of the screening assessment.
- 4.13 No other European sites are considered to be vulnerable to impacts (direct and indirect) arising from the development of the North Sunderland Sites.

Table 3: Assessment of likely effects on European sites outside the Sunderland City Council boundary

Distance	Vulnerabilities	Rational for exclusion
Castle Eden Dene SAC (<i>Taxus baccata</i> woods of the British Isles)		
17.5 km to the south	Increased recreational pressure	The site is sufficiently distant that significant recreational impacts are unlikely.
	Changes in air quality	The site is sufficiently distant that significant air quality impacts are unlikely. Demographic data analysis show that increased traffic movements past the SAC are unlikely as a result of development in North Sunderland.

¹⁰ Edge Analytics (2016). Sunderland: Updating the Demographic Evidence. Published October 2016

¹¹ Capita (2017). Sunderland Local Plan: Initial Assessment of Transport Impacts. Published April 2017

Northumbria Coast SPA

Qualifying features

- 4.14 This site 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:
- 4.15 During the breeding season;
- Little Tern *Sternula albifrons*, 40 pairs representing at least 1.7% of the breeding population in Great Britain (5 year peak mean 1991/2 - 1995/6).
- 4.16 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:
- 4.17 Over winter;
- Purple Sandpiper *Calidris maritima*, 763 individuals representing at least 1.5% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6).
 - Turnstone *Arenaria interpres*, 1,456 individuals representing at least 2.1% of the wintering Western Palearctic - wintering population (5 year peak mean 1991/2 - 1995/6).
- 4.18 Since the Northumbria Coast SPA was classified in 2000, the colony of Arctic terns *Sterna paradisaea* at Newton Links/Long Nanny has undergone a sustained increase, and now meets qualification criteria on the basis of the latest 5-year mean, as the site supports 2.9% of the GB population of this Annex I species. In parallel with the designation of the Northumberland Marine SPA to protect important areas of sea for foraging terns from the Northumberland SPAs, breeding Arctic tern has been added as a new qualifying feature to the Northumbria Coast SPA. Arctic tern is not likely to be affected by the proposed developments as the nesting site is more than 60 km to the north.

Conservation objectives

- 4.19 The Northumbria Coast SPA / Ramsar site conservation objectives are, subject to natural change, as follows:
- Ensure that the integrity of the site is maintained or restored as appropriate, and
 - Ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:
 - The extent and distribution of the habitats of the qualifying features;
 - The structure and function of the habitats of the qualifying features;
 - The supporting processes on which the habitats of the qualifying features rely;
 - The populations of each of the qualifying features; and
 - The distribution of the qualifying features within the site.
- 4.20 Natural England has not yet produced Supplementary Advice to support these objectives.

Site condition

- 4.21 By reference to the condition of the underlying SSSI management units comprising the SPA (<https://designatedsites.naturalengland.org.uk>, accessed 21 November 2016, based on an assessment carried out by Natural England in 2009) it is apparent that:
- 61.92% of all SSSI units were in favourable condition (the whole SPA / Ramsar covers a large area of which the Sunderland City Council area is only a small part);

- 38.08% of all SSSI units were in unfavourable recovering condition;
- 100% of constituent SSSI units within the Sunderland City Council area were in favourable condition;
- The only reported negative factor concerning birds was observation of recreational disturbance (dog-walking and rock-pooling) in SSSI unit 16 (which is at Seaham, outside of the Sunderland City Council area).

4.22 It should be noted that the SSSI condition assessment was carried out by Natural England in July 2009 and so the results are likely to be of limited value in terms of assessing the condition of the SPA due to the age of the data. Natural England commissioned wintering bird surveys covering the winter period 2015/2016, and these involved high tide counts and low tide counts at 10 existing Wetlands Bird Surveys (WeBS) sectors along the Durham Coast between South Shields and Seaham. Natural England has advised that funding was only available for one season's monitoring, which is not enough to allow a robust condition assessment to be completed (Ruth Oatway, Natural England, email dated 17 November 2016).

4.23 Although the data from the winter period 2015/2016 are not considered to provide a robust basis for a condition assessment, they do allow a comparison to be made with the baseline and target figures for Durham Coast SSSI (Table 4). Total baseline populations of 26 purple sandpiper and 294 turnstone were recorded: when these are compared with Natural England's minimum target populations (which equate to 50% of the baseline population), turnstone exceeds the target (65% of baseline population) but purple sandpiper misses it (12% of baseline population). These results are broadly in line with the results of other surveys carried out during the winters of 2014/15 and 2015/16 (Arcus Consultancy Services, 2015; BSG Ecology, 2016).

Table 4: Results of wintering bird surveys 2015/2016 (Ruth Oatway, Natural England)

Species	Baseline population	Minimum target population	2015/16 population estimate
Purple sandpiper	218	above 50 % of the baseline = 109 birds	26 birds - fail
Turnstone	449	above 50 % of the baseline = 224 birds	294 birds - pass

Webs data

4.24 The BTO has previously been consulted regarding Wetland Bird Survey (WeBS) data for the section of coast extending from the Tyne Estuary south as far as Seaburn. This revealed that they held an incomplete data set for the most recent 5-year period and that this would not substantially add to other available data.

Cadwallender & Cadwallender bird data

4.25 Survey work has previously been carried out during the period December 2011 to March 2012 (Cadwallender & Cadwallender, 2012) and the period December 2012 to March 2013 (Cadwallender & Cadwallender, 2013) along the coast from Salterfen Rocks south as far as Hartlepool. The survey methodology was largely based on the BTO WeBS survey. A maximum of 22 turnstones was found at Salterfen Rocks in 2011/12. The maximum number of purple sandpiper was only 6 in 2011/12, and these were also recorded at Salterfen (which is located to the south of the Wear Estuary and Port of Sunderland c.3.8 km from the nearest of the North Sunderland Sites). No high tide roosting areas were found near the Sunderland City Council area.

TNEI bird data

4.26 A survey of foraging and roosting wintering birds was carried out from January to March 2013 and this covered the section of coast from Salterfen Rocks to Byron's Dene (north of Seaham). This

survey included diurnal high tide and low tide counts and nocturnal high tide counts. During each visit counts were made approximately hourly for two/three hours either side of high/low tide. A maximum of 13 turnstones at low tide and a peak of 6 at high tide were recorded. The maximum number of purple sandpiper was 9, recorded at high tide. High tide roosting areas were found at Ryhope Dene and Ryhope Nook outflow pipe, supporting turnstone and purple sandpiper. These sites are located to the south of the Wear Estuary and Port of Sunderland and so are distant from the North Sunderland Sites (c.6 km by road).

Other bird data

- 4.27 Data provided by Durham Bird Club (DBC) (see Aecom, 2016) for the period 2006-2009 included peak counts of 7 purple sandpiper and 30 turnstone at Salterfen. High tide roosts were found at Sunderland dock/marina with a peak count of 100 turnstones in 2006 on New South Pier.

Arcus bird data

- 4.28 Arcus completed non-breeding season bird surveys between October 2014 and March 2015, the survey area extending the Tyne Estuary south as far as Seaham. This survey included diurnal high tide and low tide counts that were carried out on a monthly basis.
- 4.29 Purple sandpipers were recorded feeding and roosting along the rocky shore north of Whitburn Steel. This species was also recorded feeding along the south-west breakwater at Port of Sunderland. During the same survey turnstone was recorded at the same locations but was also recorded at Parson's Rocks, on Roker Pier, North Pier and New South Pier, and along the shore at Grangetown to the north and south of Salterfen Rocks.
- 4.30 In Table 5 the total counts for turnstone and purple sandpiper recorded within the survey area are presented for each survey month and for high tide and low tide. When these data sets are compared with Natural England's minimum target populations (which equate to 50% of the baseline population), turnstone exceeds the target (target is 224) but purple sandpiper misses it (target is 109). The peak count of 367 therefore exceeds the target for turnstone by 64%; the peak count of 59 for purple sandpiper is 54% of the target.

Table 5: Total counts for turnstone and purple sandpiper recorded in 2014 / 2015 (Arcus Consultancy Services, 2015)

Month	Turnstone		Purple sandpiper	
	Low Tide	High Tide	Low Tide	High Tide
October	367	174	44	12
November	104	160	12	23
December	139	236	14	13
January	204	247	18	31
February	155	275	29	33
March	100	256	12	59

BSG Ecology

- 4.31 In 2015 / 2016 BSG Ecology repeated the survey work carried out by Arcus in 2014 / 2015. During these surveys purple sandpiper was recorded along the rocky shore north of Whitburn Steel but was not recorded to the south of Port of Sunderland. The highest peak count of 24 individuals was recorded at Whitburn Steel during the low tide survey in November 2015. Turnstone was recorded at the same locations but was also recorded at Parson's Rocks, on Roker Pier, North Pier and New

South Pier, and along the shore at Grangetown to the north and south of Salterfen Rocks. A peak count of 88 turnstones was present at Whitburn during both the low and high tide survey visits completed in December 2015.

- 4.32 In Table 6 the total counts for turnstone and purple sandpiper recorded within the survey area are presented for each survey month and for high tide and low tide. When these data sets are compared with Natural England's minimum target populations (which equate to 50% of the baseline population), turnstone exceeds the target (target is 224) but purple sandpiper misses it (target is 109). The peak count of 250 therefore exceeds the target for turnstone by 11%; the peak count of 34 for purple sandpiper is 31% of the target.

Table 6: Total counts for turnstone and purple sandpiper from 2015 / 2016 (BSG Ecology, 2016)

Month	Turnstone		Purple sandpiper	
	Low Tide	High Tide	Low Tide	High Tide
October	154	202	0	6
November	209	133	34	20
December	250	236	11	19
January	74	191	3	18
February	128	121	4	31
March	137	200	1	2

Bird Trends

- 4.33 BTO WeBS report online provides annual trend data for both purple sandpiper and turnstone for England for the period 1975/75 to 2014/15¹². In summary, this shows that purple sandpiper numbers peaked in 1988/89 but since then there has been a decline with numbers now at a level that was previously seen in the late 1970s. Turnstone numbers peaked in 1987/88 but have also declined since then. Current numbers are at their lowest since 1975/76.

- 4.34 The BTO WeBS report online also provides total counts for purple sandpiper and turnstone for the Durham Coast for the period 2010/11 to 2014/15. These counts are shown in Table 7.

Table 7: Annual counts of purple sandpiper and turnstone for Durham Coast (2010/11 to 2014/15)

Species	10/11	11/12	12/13	13/14	14/15	5 yr average
Purple sandpiper	51	68	29	65	59	54
Turnstone	121	147	110	105	88	117

- 4.35 The total counts obtained by BSG Ecology are broadly in line with the WeBS data (Table 7).

Vulnerabilities

- 4.36 The Conservation Objectives and Favourable Condition Tables for the Northumbria Coast SPA provide an indication of the site's vulnerabilities, as does the Standard Natura 2000 Data Form for the site. Further information is available from Natural England's Views About Management (VAM) which covers the component SSSIs.

¹² <http://app.bto.org/webs-reporting/>

- 4.37 As previously noted, Natural England has not yet produced Supplementary Advice for the SPA and so, in the absence of this document, reference has been made to Regulation 33(2) advice published by English Nature (English Nature, 2000¹³). The Regulation 33(2) advice states that the important bird populations require a naturally functional intertidal habitat for roosting, breeding and feeding. The most important factors related to this are considered to be:
- Current extent and distribution of suitable feeding and roosting habitat (e.g. rocky shores, sand beaches and artificial high tide roosts);
 - Current extent of suitable breeding habitat (sandy beaches);
 - Sufficient prey availability (e.g. small fish, crustaceans and worms);
 - Minimal levels of disturbance.
- 4.38 The following vulnerabilities have been reported for the SPA / Ramsar sites (source: Standard Natura 2000 Data Form, JNCC, Version 1.1, 05/05/06):
- 4.39 *'Little terns are vulnerable to disturbance by tourists in the summer causing reduced breeding success. The National Trust employs wardens each summer to protect the little tern colony at Beadnell Bay.'*
- 4.40 There are two little tern nesting sites within the Northumbria Coast SPA and these are located at Beadnell and Crimdon, both of which are beyond the 6 km visitor pressure catchment within which recreational impacts are being considered (Crimdon is the closer of the two locations and this is c.22 km from the Sunderland City Council area; Beadnell is more than 60 km to the north). Consequently nesting little terns are not considered further as it is considered highly unlikely that the development of any of the proposed housing sites will impact on either nesting site.
- 4.41 The Regulation 33(2) (Conservation (Natural Habitats, &c.) Regulations 1994) conservation advice identifies noise / visual disturbance and physical loss of habitat as the key vulnerabilities for wintering purple sandpiper and turnstone. Survey work carried out in 2014/15 (Arcus Consultancy Services) and 2015/16 (BSG Ecology, 2015) has confirmed that recreational disturbance is a key vulnerability, with both surveys reporting disturbance of purple sandpiper and turnstone. Habitat damage, toxic/non-toxic contamination and biological disturbance are also potential vulnerabilities.

Northumbria Coast Ramsar

Qualifying features

- 4.42 The Northumbria Coast qualifies as a Ramsar site under Ramsar criterion 6: species/populations occurring at levels of international importance. The Ramsar site boundary is contiguous with the SPA boundary and both sites are noted for the same qualifying species (although the number of species at the time of designation differs).
- 4.43 Species regularly supported during the breeding season:
- Little tern, *Sternula albifrons albifrons*, W Europe, 43 apparently occupied nests, representing an average of 2.2% of the GB population (Seabird 2000 Census)
- 4.44 Species with peak counts in winter:
- Purple sandpiper, *Calidris maritima maritima*, E Atlantic – wintering 291 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3).
 - Ruddy turnstone, *Arenaria interpres interpres*, NE Canada, Greenland/W Europe & NW Africa 978 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3).

¹³ English Nature (2000). Northumbria Coast European marine site: English Nature's advice given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994.

Conservation objectives

4.45 As reported above for Northumbria Coast SPA.

Site condition

4.46 As reported above for Northumbria Coast SPA.

Vulnerabilities

4.47 As reported above for Northumbria Coast SPA.

Functionally Linked Land

4.48 A development has the potential to impact on a European site either directly, for example as a result of land-take, or indirectly, for example as a result of recreation. The assessment presented in this report has considered impacts on 'functionally linked land'. Functionally linked land can be defined as follows (Chapman & Tyldesley, 2016):

4.49 *'the term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a European site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the European site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status.'*

Durham Coast SAC**Qualifying features**

4.50 The Annex I habitat that is a primary reason for the selection of this site is 'Vegetated sea cliffs of the Atlantic and Baltic Coasts'. The description of this habitat provided on the site citation is as follows:

4.51 *"The Durham Coast is the only example of vegetated sea cliffs on magnesian limestone exposures in the UK. These cliffs extend along the North Sea coast for over 20 km from South Shields southwards to Blackhall Rocks. Their vegetation is unique in the British Isles and consists of a complex mosaic of paramaritime, mesotrophic and calcicolous grasslands, tall-herb fen, seepage flushes and wind-pruned scrub. Within these habitats rare species of contrasting phytogeographic distributions often grow together forming unusual and species-rich communities of high scientific interest. The communities present on the sea cliffs are largely maintained by natural processes including exposure to sea spray, erosion and slippage of the soft magnesian limestone bedrock and overlying glacial drifts, as well as localised flushing by calcareous water".*

Conservation objectives

4.52 The Durham Coast SAC conservation objectives are, subject to natural change, as follows:

- Ensure that the integrity of the site is maintained or restored as appropriate, and
- Ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
 - The extent and distribution of qualifying natural habitats;
 - The structure and function (including typical species) of qualifying natural habitats;
 - The supporting processes on which the qualifying natural habitats rely.

4.53 Natural England published Supplementary Advice to support these objectives in March 2019.

4.54 The site condition assessment for the component units of Durham Coast SSSI provide useful background information about the vegetation that is a key reason for the designation of both the

SSSI and the SAC, although it is important to note that the assessment was completed in 2009 and so the results need to be treated with caution as they are 8 years old. The descriptions provided below relate to those units that are located within the Sunderland City Council area and within the 6 km visitor pressure catchment that has been applied to the SAC.

Site condition

- 4.55 By reference to the condition of the underlying SSSI management units comprising the SAC (obtained from the Natural England website in January 2015 and indicating that the latest assessment was mostly in 2009 except for two units on the south side of Seaham assessed in 2013) it is apparent that:
- 64% by area of constituent SSSI units (50% by number of constituent SSSI units) within 6 km of the SSGA was in favourable condition at the last assessment;
 - The remainder of the constituent SSSI units were in unfavourable recovering condition.
- 4.56 The various constituent SSSI management units that are present within the Sunderland City Council (North Sunderland) administrative area and within 6 km of the boundary of that area are mostly described as 'favourable' (Table 8 – more detail information is provided in Appendix 4) but are primarily of interest for the rocky shore and associated non-breeding birds (including turnstone and purple sandpiper).

Table 8: Condition assessment for the constituent SSSI units of the Durham Coast SAC (within the Sunderland City Council area).

SSSI unit	Section	Description	Condition assessment
6	The Bents to Whitburn Rifle Ranges	Littoral rock (34.6 ha)	Favourable. No negative issues were identified for the coastal bird habitat
10	The Bents to Whitburn Rifle Ranges	Lowland grassland (13.4 ha)	neutral Favourable.
13	Parsons Rocks	Littoral rock (4.5 ha)	Favourable. The only negative factor on the unit was the amount of dog walking occurring on the accessible parts of the unit. The birds are forced to the seaward edge of the rocky shore so the amount of useable habitat during these times is reduced.
14	Promenade at Grangetown to Halliwell Banks	Littoral rock (13.5 ha)	Favourable. No negative features or actions were affecting the unit.
15	Halliwell Banks to south of Ryhope Dene	Littoral rock (15.8 ha)	Favourable. No negative features or actions were affecting the unit with the exception of some historic dumping areas seen on the cliff slopes.

Vulnerabilities

- 4.57 The following vulnerabilities have been reported for the SAC (source: Standard Natura 2000 Data Form, Natural England, 12/2015):
- Fertilisation;

- Human intrusions and disturbances;
- Invasive non-native species;
- Human induced changes in hydraulic conditions; and
- Abiotic (slow) natural processes.

- 4.58 A previous assessment (Aecom, 2016) identified the following likely vulnerabilities for the Durham Coast SAC, which expands upon the list provided by Natural England: erosion (natural or human through e.g. recreational activity), pollution (including nutrient input from agriculture and former landfill), interference with natural coastal processes and loss to coastal development.
- 4.59 The SAC vegetation has developed as a result of various factors including soil type, underlying geology, marine influence, drainage etc as well as the eroding nature of the rock faces on which the vegetation is located. As noted in a previous assessment (Aecom, 2016) the various natural processes that are taking place may help to prevent the dominance of more competitive grassland species that might otherwise reduce species diversity. However, the need to control coastal erosion and flooding to prevent damage to existing assets means that there is some disruption of natural processes or there is likely to be in the future.
- 4.60 Within the Sunderland City Council administrative area and the 6 km visitor pressure catchment, a 'hold the line' policy is being adopted for the majority of the coast (Royal Haskoning, 2007¹⁴).
- 4.61 Fly tipping, car burn-outs and forced access are considered to be issues that are experienced along the section of the coast to the south of Hendon (Niall Benson, Heritage Coast Officer, pers. comm.) There is no evidence that this is a significant issue on the section of coast between the Wear Estuary and South Bents.

¹⁴ Royal Haskoning (2007). Shoreline Management Plan 2: River Tyne to Flamborough Head. Prepared on behalf of North East Coastal Authorities Group. February 2007.

5 Screening for Likely Significant Effects

The 'Screening' process

- 5.1 The term 'screening' is routinely adopted to describe the initial stages of the Habitats Regulations Assessment. The purpose of screening is to:
- Identify all aspects of the proposed plan that are not likely to have a significant effect on a European site, either alone or in combination with other plans or projects. These can then be screened out from further assessment.
 - Identify those aspects of the proposed plan where it is likely to have a significant effect on a European site, either alone or in combination with other plans or projects. These aspects will require 'appropriate assessment' and mitigation measures may need to be introduced.

Likely significant effects

- 5.2 Current guidance defines a 'likely' effect as one that cannot be ruled out on the basis of objective information. In the Waddenzee case the European Court of Justice provides further clarity on this point, advising that a project (and a plan) should be subject to appropriate assessment 'if it cannot be excluded, on the basis of objective information, that it will have a significant effect on the site, either individually or in combination with other plans and projects'¹⁵. Therefore, 'likely' should be interpreted as a significant effect, objectively, cannot be ruled out.
- 5.3 An effect may be significant if it undermines the conservation objectives for the European site. The assessment of whether a potential effect is significant for the site's interest features must consider, amongst other things, the characteristics and specific environmental conditions of the site concerned. The Advocate General's Opinion for the Sweetman case¹⁶ provides further clarification, stating that consideration of the likelihood of a significant effect is simply a case of determining whether the plan or project is capable of having a significant effect.
- 5.4 A recent judgment released from the European Court (POW-Sweetman vs Coillte, 12 April 2018) has provided clarification as to when mitigation measures can be considered within the HRA process. The headline for the case is:
- 5.5 "...Article 6(3) of the Habitats Directive must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site".
- 5.6 This case means that it is not possible to rely on mitigation measures that allow a conclusion of 'no likely significant effect' to be reached: instead it is necessary to accept that there is a 'likely significant effect' in the absence of mitigation, and move to the next stage, i.e. appropriate assessment, at which point mitigation measures can be considered.
- 5.7 A second recent HRA judgment (Holohan & Ors. v An Bord Pleanála, 7 November 2018, C - 461/17) has also been considered within this assessment. In summary this judgement provides further clarification about the scope of an assessment, requiring that all habitats and species associated with a European site must be considered (irrespective of whether or not they are qualifying features) if impacts on those habitats and species are liable to affect the conservation objectives of the site.

¹⁵ See paragraph 45 of European Court of Justice case C-127/02 dated 7th September 2004, 'the Waddenzee ruling'.

¹⁶ Sweetman v. An Bord Pleanála, Case C-258/11, CJEU judgment 11 April 2013.

Refining the scope (screening out)

- 5.8 Potential impact pathways have previously been identified when looking at the growth options for the City (Aecom, 2016) and, whilst this relates to the Sunderland City Council Core Strategy, these impact pathways are considered to be relevant for the purposes of this assessment:
- Recreation: Increased recreational pressure including disturbance from recreational activities.
 - Changes in air quality.
- 5.9 It is possible that the proposed development may result in impacts on a European site via one or more of these pathways. Each pathway is considered briefly below.
- 5.10 In previous HRAs it is noted that plans or projects may result in increased urbanisation effects in close proximity to European sites. In particular, effects such as lighting, noise, litter, spread of invasive species and vandalism could increase with increased development in close proximity to a European site. In this case urbanisation effects have been scoped out as the nearest of the proposed housing sites is more than 1 km from the coast, with existing development occupying the area in-between.
- 5.11 Similarly the effects of coastal squeeze have also been scoped out. Increased development close to the coast could result in a requirement to change the coastal defence strategy, thereby resulting in interference with the natural processes that are responsible for the development of the internationally important coastal vegetation within the European sites. In this case existing development is already dictating coastal defence policy and the proposed future development is not likely to change this policy.
- 5.12 Water quality has been scoped out of this assessment as the urban locations of all proposed housing sites means that existing drainage infrastructure will be utilised. Consequently the likelihood of pollutants entering watercourses and being transported to any section of the coast that is designated as SPA or SAC is very low. The only watercourses in the vicinity of the North Sunderland Sites are the Cut Throat Dene, which flows to the north of the existing urban area, and the River Wear, which flows through the middle of the City.

Recreation

- 5.13 Further assessment is required to determine if the proposed new development (and associated increase in population) could have a significant effect on a European site. Work undertaken by Sunderland City Council and neighbouring authorities indicates that there is already a high level of recreational pressure on parts of the coast and this could increase.
- 5.14 A visitor survey undertaken by Bluegrass during the period November 2014 to April 2015 (Bluegrass, 2015) has found that people will travel many kilometres to participate in recreational activities along the coast, with 75% of those interviewed travelling up to 6 km. Dog walking is one of the most popular activities and survey work carried out in 2014/15 and 2015/16 (Arcus Consultancy Services, 2015; BSG Ecology, 2016) concluded that this type of activity is responsible for the disturbance of birds using coastal habitats, including the SPA species turnstone and purple sandpiper.
- 5.15 It is therefore likely that residents of new housing developments (North Sunderland Sites) will visit the coast, with or without dogs, and their activities may result in the disturbance of birds.

Air quality

- 5.16 It is possible that increased traffic levels arising from future population growth could result in changes in air quality. Aerial pollutants can impact on sensitive vegetation, potentially resulting in the loss of some plant species.

Summary of Stage 1 Assessment

- 5.17 As there are uncertainties at the initial screening stage regarding the likelihood of effects to occur, these elements of the Plan therefore require more detailed consideration and analysis. Consequently it is concluded, in the absence of mitigation, the development of the North Sunderland Sites is likely to have a significant effect on both European sites and therefore the requirement for a Stage 2 appropriate assessment is triggered.
- 5.18 The next stage of the Habitats Regulations Assessment is a more detailed analysis of the potential issues, having regard for any information available or reasonably obtainable (the appropriate assessment). To inform the 'appropriate assessment' it is firstly necessary to identify the underlying trends that are affecting the environment within the Plan area.

6 Identifying Underlying Trends

6.1 When assessing the effects of a plan on the integrity of a European site, it is important to establish a robust baseline against which any change can be measured. It is possible that certain underlying trends may have an effect on a European site beyond those that might arise as result of the development of the proposed housing sites. The following trends have been identified as being relevant to the Habitats Regulations Assessment process for the North Sunderland Sites:

- Air quality
- Tourism and recreation
- Climate change

6.2 The changes in the baseline that have arisen or might reasonably be expected to arise as a result of each of these factors is considered in more detail in the following sections.

Air Quality

6.3 The UK Government reports that between 1970 and 2014 there has been a long term decrease in the emissions of the following air pollutants: ammonia, nitrogen oxides, particulate matter (PM10, PM2.5) and sulphur dioxide¹⁷. These pollutants are considered in Table 9 below.

Table 9: Significant aerial pollutants in the UK

Pollutant	Source and trends	Impact mechanism	Other considerations
Sulphur Dioxide SO ₂	Processes that burn large quantities of fossil fuels, e.g. power stations. Emissions of sulphur dioxide have fallen by 95.1 per cent since 1970 to 0.31 million tonnes in 2014	Wet and dry deposition of SO ₂ causes acidification of soils and fresh waters. Can affect plants that are intolerant of more acid conditions.	Impact significance depends on deposition levels and the buffering capacity of the receiving environment. The basic soils of the Sunderland City Council administrative area are likely to have a higher buffering capacity.
Nitrogen Oxides NO _x (nitrate (NO ₂), nitrogen oxides (NO ₃) and nitric acid (HNO ₃))	Mainly produced by combustion, e.g. power stations, vehicle exhausts Emissions of nitrogen oxides have fallen by 69 per cent since 1970, to 0.95 million tonnes in 2014	Deposition of NO _x causes acidification of soils and fresh waters. Can affect plants that are intolerant of more acid conditions.	can also lead to the eutrophication of soils and waters, which can result in the competitive exclusion of sensitive species as more vigorous ones take advantage of the increased nutrient levels

¹⁷ Defra National Statistics Release: Emissions of air pollutants in the UK, 1970 to 2014 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486085/Emissions_of_air_pollutants_statistical_release_2015_-_Final__2_.pdf).

Pollutant	Source and trends	Impact mechanism	Other considerations
Ammonia (NH ₃)	<p>Decomposition of animal wastes, and adverse effects are caused by eutrophication</p> <p>Emissions of ammonia have fallen by 13.4 per cent since 1980, to 281 thousand tonnes in 2014</p>	Intensive livestock rearing is thought to contribute to the problem	Agri-environment schemes may lead to a reduction of outputs
Particulate matter	<p>Combustion processes including motor vehicles</p> <p>Emissions of PM₁₀ have fallen by 72.6 per cent since 1970, to 148.4 thousand tonnes in 2014.</p> <p>Emissions of PM_{2.5} have fallen by 76 per cent since 1970, to 105.1 thousand tonnes in 2014</p>	Particulate matter is linked to acidification effects and toxic effects of ozone. Can affect plants that are intolerant of more acid conditions.	Road vehicles are likely to be the main contributing source within the Sunderland City Council area.
Low Level Ozone O ₃	A secondary pollutant generated by photochemical reactions from NO _x and volatile organic compounds	Direct toxic effects	Concentrations of O ₃ exceeding 40 ppb are toxic to humans and wildlife, altering the species composition of semi-natural habitats

- 6.4 It is possible that vehicle use in Sunderland may increase in line with underlying trends in car ownership, increasing levels of economic activity and increasing levels of tourism, although population growth is not strong, which may result in an overall neutral effect. The Highways Agency Design Manual for Roads and Bridges (Highways Agency, 2009) includes an equation describing the characteristic decrease in pollutant concentrations with increasing distance from roads. Based on this and other research, it is considered that NO_x emissions generated within 200m of a European site which has interest features which are vulnerable to nitrogen deposition need to be considered in Habitats Regulations Assessments.
- 6.5 The Air Pollution Information System (APIS¹⁸) provides a searchable database and information on pollutants and their impacts on habitats and species. Data available for the Durham Coast SAC (Table 10) indicate that the site's qualifying interest (Vegetated sea cliffs of the Atlantic and Baltic Coasts) is potentially vulnerable to nitrogen deposition, nitrogen oxide (NO_x) and ammonia (NH₃). Critical loads are provided for NO_x (critical annual mean 30 µg/m³) and SO₂ (critical level annual mean 10-20 µg/m³).
- 6.6 The APIS database also includes concentration and deposition levels for the SAC, and the data show that the current average level of each of the pollutants is below the critical level for the habitat.

¹⁸ <http://www.apis.ac.uk/src1>

Table 10: APIS data for Durham Coast SAC (concentration and deposition levels)

	Nitrogen deposition	Acid deposition		Ammonia concentration	Nitrogen oxide concentration	Sulphur dioxide
	kgN/ha/yr	Nitrogen keq H+	Sulphur ha/yr	µg/m ³	µg/m ³	µg/m ³
Maximum	18.62	1.33	0.23	1.45	25.63	6.06
Average	14.63	1.05	0.20	1.01	10.60	4.25
Minimum	11.90	0.85	0.18	0.65	14.01	2.45

6.7 The APIS database also includes information on the susceptibility of the Northumbria Coast SPA and its interest features, i.e. little tern, Arctic tern, turnstone and purple sandpiper (Table 11). For the purposes of this assessment little tern and Arctic tern have been scoped out due to the locations of the nesting sites at Beadnell and Crimdon, which are more than 60 km and 22 km away respectively.

6.8 APIS states that for nitrogen, acidity, ammonia, NO_x and SO₂ there are no expected negative impacts on turnstone and the broad habitat that they use, i.e. littoral rock. It also notes that there may be a potential positive impact on the species from some pollutants by enhancing the species' food supply. No impacts on purple sandpiper's broad habitat are predicted.

Table 11: APIS data for Northumberland Coast SPA – turnstone and purple sandpiper (concentration and deposition levels)

	Nitrogen deposition	Acid deposition		Ammonia concentration	Nitrogen oxide concentration	Sulphur dioxide
	kgN/ha/yr	Nitrogen keq H+	Sulphur ha/yr	µg/m ³	µg/m ³	µg/m ³
Maximum	15.96	1.14	0.44	1.33	39.45	4.77
Average	11.60	0.83	0.27	0.69	6.1	1.86
Minimum	8.82	0.63	0.16	0.37	10.84	0.40

Tourism and Recreation

6.9 The coast is an important visitor attraction including the section that is closest to the North Sunderland Sites. Some sections tend to be favoured more than others, hotspots including the promenade and beaches at Roker, Seaburn and Grangetown (Arcus Consultancy Services, 2015; BSG Ecology, 2016). Furthermore, there are initiatives to promote coastal, such as at Seaburn and Roker (Policy HWS3 in the Sunderland City Council Core Strategy and Development Plan). Whilst the coast attracts people on vacation, there are also shorter duration visits, typically by local residents, who wish to participate in recreation at the coast.

6.10 Disturbance can arise from coastal recreation, and this has the potential to have an adverse impact on the SPA birds, i.e. nesting and feeding little tern, feeding and roosting migratory and wintering waders. There is also the potential for impacts on fragile coastal plant communities. Dogs, especially those that are off the lead, have been shown to increase the effect of disturbance of birds (Arcus Consultancy Services, 2015; BSG Ecology, 2016).

Climate Change

- 6.11 It is now widely accepted that the climate is changing as a result of man's influence, but the nature and magnitude of the resultant changes are difficult to predict. Nevertheless, there is increasing evidence that climate change in the UK will result in increasingly warm dry summers and mild, stormy winters along with rising sea levels. Climate change has the potential to result in a wide range of effects including coastal erosion, fluvial and coastal flooding, and changes in species distribution. These changes may, in turn, result in impacts on European sites.

Flooding resulting from climate change

- 6.12 In general, rivers and wetlands are expected to be increasingly affected by low flows in summer and floods in winter. There are few watercourses that discharge into the sea (and hence may impact on the European sites) along the North Sunderland City Council coast: the River Wear flows through the City itself before discharging into the sea at Roker. Consequently climate change effects on rivers and wetlands within the North Sunderland City Council area are not considered to be significant.
- 6.13 The River Wear is considered to present both fluvial and tidal flood risk in North Sunderland, however as the Flood Zones are constrained mainly to the channel banks, the flood risks are low and there are relatively few properties at risk¹⁹.
- 6.14 The risk of coastal flooding is low with both Flood Zones 3 and 2 mainly following the Mean High Water Spring Level due to high ground and cliff frontage. The coastline is protected by coastal defences for the majority of its coast. Whilst assets are generally in good condition overtopping often occurs, particularly when spring tides coincide with strong onshore wind and wave conditions, this leads to flooding of Marine Walk, Roker, the promenade at South Bents and Dykeland Road, Seaburn. There is a risk of increased overtopping during climate change events.

Changes in species distribution resulting from climate change

- 6.15 There may be changes in the distribution of certain species in response to climatic changes, which may, for example, result in species relocating to areas that have more suitable conditions. This may not directly impact on any of the species that are the cited interest of any European site in the Plan area; however, there could be indirect impacts, for example as a result of changes in prey availability.
- 6.16 Climate related changes could also result in increasing rates of colonisation by new species, including non-native species, pests and diseases. This in turn may impact on species within European sites, for example due to species competition, altered food sources and availability.
- 6.17 Predicting species responses to climate change is likely to be challenging, and consequently habitat manipulation to mitigate these changes is also likely to be challenging, not least due to uncertainty about its' effectiveness. Restoring existing habitats to good condition may help to mitigate the effects of climate change, and increasing ecological connectivity habitat networks may help species populations adapt to climate change. It is possible, however, that any benefits may only be effective in the short-term.

¹⁹ Sunderland City Council (2016). Local Flood Risk Management Strategy. March 2016.

7 Appropriate Assessment

- 7.1 In the 'screening' stage of the assessment the proposed housing sites have been examined to identify those that are likely to have a significant (adverse) effect on a European site. Where it is concluded that a proposed plan is likely to have a significant effect (in the absence of mitigation), it is necessary to progress to the next stage (Stage 2), which is the completion of an 'appropriate assessment'.
- 7.2 The appropriate assessment involves a re-evaluation of the plan against each European site's conservation objectives. Using the evidence available the likely effects have been quantified or refined further to establish whether there is a likely significant effect and, if so, to identify appropriate measures to mitigate the identified effects.
- 7.3 The following potential impact pathways have previously been identified (Aecom, 2016) and, whilst this originally applied to the Sunderland City Council Core Strategy, they are also considered to be relevant in the context of this assessment:

- Increased recreational pressure – including disturbance from recreational activities.
- Changes in air quality.

- 7.4 Each of these potential pathways is considered in the following sections:

Recreation – disturbance

Data Analysis

- 7.5 A visitor survey commissioned by Sunderland City Council and South Tyneside Council was completed between November 2014 and April 2015. This was complemented by a second visitor survey that took place during the period January to March 2016. The results of these surveys provide useful information about visitor behaviour during the winter period.
- 7.6 The seasonal scope of the visitor surveys is not considered to constrain the assessment of impacts of recreational activities upon the wintering bird features of the Northumbria Coast SPA / Ramsar. The reason for this is that the qualifying species, i.e. turnstone and purple sandpiper, are not present in significant numbers outside of the winter months. Whilst the visitor survey data may underestimate the impact of recreational pressure upon the cliff vegetation of the Durham Coast SAC, this is also not considered to be a significant constraint due to the limited accessibility of the qualifying habitat features of the coastal SAC (the vegetation is associated with the eroding cliffs).
- 7.7 The visitor survey covered the whole South Shields and Sunderland coast extending from the Tyne Estuary south as far as Seaham Harbour. Whilst the Sunderland City Council administrative area only covers part of the survey area, it is appropriate to consider the full set of survey results (as well as the Sunderland-specific data) as it is possible that residents within the Sunderland City Council area will travel outside it when participating in recreational activities (analysis of visitor survey data indicates that a significant proportion of visitors to the coast travel less than 6 km to get there – see paragraph 4.9 et seq).
- 7.8 The results of the visitor survey show that different locations are visited by different numbers of people. There are also differences in the numbers of people who visit sections of coast that form part of an SAC, SPA or Ramsar site compared to sections of coast that are not of European importance (Bluegrass, 2015 & 2016).
- 7.9 The non-breeding bird surveys carried out by Arcus Consultancy Services Ltd (2015) and BSG Ecology (2016) identified that qualifying wintering bird species (purple sandpiper and turnstone) were also located outside of the designated areas and consequently these areas are considered likely to be supporting habitat (or functionally linked land) to the SPA / Ramsar. Both species typically favoured littoral rocks and were rarely found using sandy habitats.

- 7.10 The results of the visitor survey provide a snapshot of visitor behaviour and preferences at the time of the interview. The survey has revealed that people visit the coast with varying frequency and therefore it is important that this is taken into account when analysing the data.
- 7.11 Durham County Council (Durham County Council, 2014²⁰) has previously undertaken a visitor survey of the Durham Heritage Coast and, following consultation with Natural England, the number of visits from each postcode location (grouped into distance bands) were annualised based on the reported frequency of visits over the winter and summer months. Natural England had recommended that a buffer should be adopted around a European site within which 75% of visitors originated²¹. This is based on an approach to data analysis developed by the Solent Mitigation and Disturbance Project²².
- 7.12 The survey data for the South Shields and Sunderland coast have also been annualised based on the reported frequency of visits over the winter and summer months (see Appendix 3). The total annualised visits (118,770) were used to derive the 75% significance figure (89,078). Postcode data were then used to estimate the distance travelled by visitors and using this information it was calculated that 75% of visitors travelled less than 6 km.
- 7.13 Of the 674 interviews that were conducted 318 respondents (47.2%) live within 1 km of the coast (based on postcode). Of these 247 respondents indicated that they visit the coast 2-3 times a week during the winter and 249 indicated that they visit the coast with the same regularity during the summer. This equates to about 37% of respondents are high risk in terms of the recreational pressure that they exert of the coast.
- 7.14 If the catchment is increased to 2 km from the coast a total of 375 respondents (55.6%) live within this area. Of these 283 visit the coast at least 2-3 times a week during the winter and 288 visit the coast with the same regularity during the summer (equating to about 42% of respondents).
- 7.15 The non-breeding bird and disturbance surveys carried out in 2014/15 (Arcus Consultancy Services, 2015) identified a total of 2527 disturbance events along the South Shields and Sunderland Coast. Of these 2084 (82.5%) did not affect birds, i.e. they were potential disturbance events based on the activity and the location. Birds were affected in 443 disturbance events and of these 81 involved no avoidance action by the birds – 362 did involve avoidance action. Both turnstone and purple sandpiper were observed to be disturbed by people and dogs using the coast.
- 7.16 The most frequently recorded form of disturbance, both actual and potential, involved dog walkers with dog(s) off the lead (1,138 out of 2,527 events – 45%). Walkers without dogs were the next most frequent form of disturbance (647 out of 2,527 events – 26%).
- 7.17 The non-breeding bird and disturbance surveys carried out in 2015/16 (BSG Ecology, 2016) identified a total of 4574 disturbance events along the South Shields and Sunderland Coast. Of these 4425 (96.7%) did not affect birds, i.e. they were potential disturbance events based on the activity and the location. Birds were affected in 149 disturbance events.
- 7.18 Once again the most frequently recorded form of disturbance, both actual and potential, involved dog walkers with dogs off the lead. Of the actual disturbance events that occurred 46.3% were attributed to dogs off the lead (48.0% of potential disturbance events were attributed to dogs off the lead): 20.1% were attributed to walkers without dogs (30.3% of potential disturbance events were attributed to walkers without dogs).
- 7.19 During these surveys both turnstone and purple sandpiper were observed to be disturbed by people, including those with dogs, using the coast.

²⁰ Durham County Council (2014). The County Durham Plan: Addendum to the Habitat Regulations Assessment of the County Durham Plan Pre-Submission, March 2014.

²¹ Durham County Council (2014). The County Durham Plan: Addendum to the Habitat Regulations Assessment of the County Durham Plan Pre-Submission. Published March 2014.

²² R,Clarke; H, Fearnley; D, Liley; R, Stillman; A, West (2012) The Solent Mitigation and Disturbance Project Footprint Ecology & Bournemouth University.

Conclusion

- 7.20 The results of bird surveys complemented by historical data indicate that turnstone and purple sandpiper both use the section of the coast within the Sunderland City Council administrative area and the 6 km visitor pressure catchment. The coast is an important recreational area and consequently is visited by large numbers of people undertaking a range of recreational activities. This inevitably results in the occasional disturbance of birds, including turnstone and purple sandpiper. The little tern nesting sites are sufficiently distant that additional visitor impacts are unlikely: the Crimdon nest site is c.16 km from the Sunderland City Council area and the Beadnell nest site is more than 60 km to the north.
- 7.21 Analysis of visitor survey data indicates that 75% of all visitors travel from locations within 6 km of the nearest European site. This buffer distance has been applied to this assessment, which is an approach that is in line with Durham County Council (who has also adopted a 6 km visitor pressure catchment that is based on the results of a visitor survey).
- 7.22 Application of a 6 km visitor pressure catchment to the European sites captures all potential housing sites within the North Sunderland area. Consequently residents of all of the proposed housing sites in North Sunderland are considered to have the potential to result in recreational impacts on European sites.

Recreation – damage to vegetation**Analysis**

- 7.23 Durham Coast SAC is noted for its 'Vegetated sea cliffs of the Atlantic and Baltic Coasts', which comprise a diverse range of plant species a proportion of which are vulnerable to damage through trampling / vehicle disturbance. Table 8 identifies those Durham Coast SSSI units (that are components of the Durham Coast SAC) that are present in the Sunderland City Council administrative area and the 6 km visitor pressure catchment, the most recent condition assessment (completed in 2009) indicating that the units are mostly in 'favourable' condition.
- 7.24 The vegetated sea cliffs of the Atlantic and Baltic coasts for which the SAC is designated are generally not considered to be vulnerable to trampling related impacts due to the steep nature of the cliff habitats. Access is typically clearly defined by well-used paths and warning signs advise visitors to stay away from the cliff edge.

Conclusion

- 7.25 The assessment has concluded that many parts of the Durham Coast SAC are inaccessible to walkers due to the presence of steep cliffs and a clearly defined network of paths. A coastal path runs along the top of the cliffs in many area and warning signs encourage visitors to keep back from the edge. Nevertheless, there are areas where there is the potential for walkers to have a significant effect on the sensitive vegetation, but these are distant from the Sunderland City Council administrative area, e.g. Seaham. Whilst visitor pressure could potentially result in the disturbance or loss of some plant species, as well as localised erosion of the soils and vegetation, the likelihood of this occurring is reduced by the distance that visitors would need to travel.
- 7.26 The visitor survey has demonstrated that people who live within 6 km of the coast may choose to walk there at some point. Consequently any development located within the 6 km visitor pressure catchment has the potential to result in trampling impacts; however, this is considered very unlikely due to the dangerous nature of the cliff environment and the presence of barriers and warning signs. Consequently the housing sites within the North Sunderland area are unlikely to have a significant impact on the Durham Coast SAC.

Recreation – nutrients

Analysis

- 7.27 SSSI units 10, 14 and 15 are all noted as having some vegetation interest associated with the cliff features; however, unit 10 is the only area where the vegetation is noted as being of reasonable botanical diversity. Influences such as encroaching arable land is noted as affecting units 14 and 15.
- 7.28 The most recent condition assessment for the component SSSI units of the SAC does not make any reference to issues related to nutrient enrichment as a result of dog fouling. Access to the coast for dog walkers is via a number of footpaths that link into the main coastal path, and via a limited number of car parks. Consequently dog walking activity is restricted to discrete areas that are away from the main cliff habitat.
- 7.29 Studies indicate that dogs generally defecate within 400m of a starting point²³. Along the coast it is unlikely that dog fouling will result in significant nutrient enrichment of sensitive habitats due to various factors including the availability of parking, clearly defined paths, the presence of amenity grassland areas, the presence of signage to keep people away from the sea cliffs. As these factors are unlikely to change in the foreseeable future it is concluded that there is unlikely to be significant nutrient enrichment from dog fouling.

Conclusion

- 7.30 The most recent SSSI condition assessment provides no evidence that dog fouling is contributing to nutrient enrichment to such an extent that vegetation composition is changing as a result. Many sections are characterised by cliffs that are inaccessible to dogs. Whilst some grassland areas may be susceptible to faecal enrichment, they are generally sufficiently distant from access points that such impacts are reduced.

Air quality

Analysis

- 7.31 The A183 coast road lies within 200 m of parts the Durham Coast SAC boundary, and therefore with an increase in housing provision there is the potential for an increase in traffic movements along the road such that changes in air quality may occur. This has the potential to result in increases in atmospheric nitrogen deposition.
- 7.32 The majority of the anticipated residential development sites are located within established urban areas away from the coast. It is expected that trips between work and home will utilise the existing inland road network, thereby not contributing to significant additional pressure on the A183 coast road.
- 7.33 A census in 2011 (Edge Analytics, 2016²⁴) recorded 121,511 workers living in Sunderland and 126,157 workers travelling to jobs in Sunderland. Demographic data analysis (Edge Analytics, 2016) shows that the majority of workers who live in Sunderland (85,301 or 70.2%) have jobs within Sunderland. Of the remaining resident workers 22,722 (18.7%) travel to jobs in the neighbouring districts of County Durham (9,356 or 7.7%), Gateshead (7,169 or 5.9%) and Newcastle upon Tyne (6,197 or 5.1%). The majority of jobs in Sunderland (165,938 or 67.7%) are taken by workers who live in Sunderland, with 6.9% of the jobs being taken by workers who live in the neighbouring district of South Tyneside (17,089).

²³ Taylor, K., Anderson, P., Liley, D. & Underhill-Day, J. C. (2006). Promoting Positive Access Management to Sites of Nature Conservation Value: A Guide to Good Practice. English Nature / Countryside Agency.

²⁴ Edge Analytics (2016). Sunderland: Updating the Demographic Evidence. Published October 2016

7.34 Consequently it is expected that traffic movement in the vicinity of the Durham Coast SAC will not experience a significant increase in traffic levels. Traffic modelling data²⁵ show that significant traffic increases are not predicted on the A183 at Roker or Seaburn.

Conclusion

7.35 The littoral rock and intertidal habitats (sandflats and mudflats) associated with the Northumbria Coast SPA and Ramsar are not considered to be susceptible to the effects of air pollution. The Air Pollution Information System (APIS) website²⁶ indicates that the designated feature of the Durham Coast SAC ('vegetated sea cliffs') is susceptible to the effects of nutrient nitrogen but not to acidity.

7.36 The APIS database does not list a critical load for nitrogen deposition for the Durham Coast SAC, but the annual nitrogen deposition rates are 10.08 – 16.94 kg N/ha/yr. The effects of nitrogen enrichment arising from air borne pollutants needs to be considered against naturally occurring sources, such as cliff nesting birds. Furthermore, the botanical interest of the Durham Coast SAC develops as a result of natural erosive processes, which means that vegetation can be ephemeral. Nevertheless, nutrient enrichment impacts are still possible.

Summary of potential effects

7.37 Table 12 summarises the potential impacts and effects that may arise through the development of the proposed housing sites.

Table 12: Outcome of data analysis of potential impact pathways on European sites

Qualifying features	Potential Source	Potential Impact	Impact Screening Pathway	Potential for Likely Significant Effects
Durham Coast SAC Vegetated sea cliffs of the Atlantic and Baltic Coasts	Damage or disturbance of sensitive vegetation	Localised damage of vegetation by trampling etc and ground compaction	Access is limited to the cliffs that support SAC habitat and barriers and warning signs are present. Off-road vehicle use is limited and some signage has been provided to advise the public.	No
	Nutrient enrichment from dog faeces	Dog fouling may result in localised nutrient enrichment and this may favour more competitive species	Negligible contribution to nutrient enrichment and no evidence of current enrichment. Fouling is likely to be restricted to area around parking sites.	No
	Air quality	Nitrogen deposition from increased traffic from residential areas may result in changes to vegetation assemblages	Potential for increased nitrogen deposition to affect species composition and abundance.	No
Northumbria Coast SPA / Ramsar Little tern	disturbance	No impact mechanism identified due to distance	No impact mechanism identified due to distance	No

²⁵ Capita (2017). Sunderland Local Plan: Initial Assessment of Transport Impacts. Published April 2017

²⁶ <http://www.apis.ac.uk/>

Qualifying features	Potential Source	Potential Impact	Impact Screening	Pathway	Potential for Likely Significant Effects
Northumbria Coast SPA / Ramsar Turnstone	disturbance	Disturbance to wintering birds resulting in impacts on winter survival rates and hence the numbers of turnstone using coastal wintering habitats.	Residents within 6 km of the site may result in recreational disturbance impacts on birds, particularly those residents who have dogs.		Yes
Northumbria Coast SPA / Ramsar Purple sandpiper	disturbance	Disturbance to wintering birds resulting in impacts on winter survival rates and hence the numbers of purple sandpiper using coastal wintering habitats.	Residents within 6 km of the site may result in recreational disturbance impacts on birds, particularly those residents who have dogs.		Yes

Predicted effects of housing sites

7.38 For the purposes of this HRA the proposed quantum of housing in the North Sunderland Sites is 869 dwellings (see Table 1).

Predicted increase in visitor pressure

7.39 The proposed housing sites would provide an estimated 869 dwellings within the 6 km visitor pressure catchment. The provision of this quantum of new development will result in an increase in the local population, and so in the following section the potential effects associated with this growth are considered.

7.40 The current population of Sunderland is 277,150²⁷. The demographic modelling work undertaken by Edge Analytics indicates a population growth of 16,516²⁸, and so the predicted future population of Sunderland is 293,666. The current housing stock for the Sunderland City Council administrative area is estimated to be 127,393²⁹ and the number of dwellings that are proposed is 12,337³⁰. Consequently the predicted future housing stock is 139,730.

7.41 Modelling by Edge Analytics predicts a 2.9% vacancy rate, which would mean that the future population of 293,666 will be accommodated in 135,678 dwellings. This equates to an average household size of 2.16 within the Sunderland City Council administrative area.

7.42 The HRA completed for the South Sunderland Growth Area (SSGA) included a simple estimate of predicted recreational disturbance arising from the proposed development. This involved comparing the predicted future population with the existing population and relating this to current levels of recreational activity. This approach has also been adopted in this assessment for illustrative purposes to estimate the minimum requirements to mitigate the impacts of the proposed development.

²⁷ ONS 2015 Mid-Year Population Estimate.

²⁸ Population estimate based on the Jobs-led Experian SENS A scenario.

²⁹ Arc4 (2016). Sunderland Objectively Assessed Need and Strategic Housing Market Assessment Update.

³⁰ Sunderland North 19 sites (1160 dwellings), Sunderland South 41 sites (4795 dwellings), Sunderland Central 16 sites (717 dwellings), Coalfield 45 sites (3235 dwellings), Washington 14 sites (884 dwellings), 15 Housing Release Sites (1546 dwellings).

7.43 The existing population within the 6 km visitor pressure catchment (that has been applied to those sections of the European sites that will potentially be affected by the Sunderland City Council Local Plan) is estimated to be 231,654. The population has been estimated by adding together the population estimates for those wards located within the 6 km visitor pressure catchment, which includes wards from South Tyneside as well as Sunderland (see Table 13). The population has been estimated for the 6 km visitor pressure catchment that extends 6 km to the north and south of the North Sunderland area.

Table 13: Population by ward within 6 km of the European sites located within the Sunderland City Council administrative area

Sunderland City Council wards		South Tyneside Council wards	
Ward	Population	Ward	Population
St Peters	10605	Whitburn & Marsden	7448
Fulwell	11604	Cleadon & East Boldon	8457
Southwick	10535	Boldon Colliery	9227
Redhill	11388	Cleadon Park	6890
Castle	10968	Whiteleas	8259
St Anne's	11067	Riddick & All Saints	8678
Pallion	10117	Harton	8409
Millfield	11958		
Hendon	12597		
St Michael's	10998		
Barnes	10987		
Sandhill	11128		
St Chad's	9449		
Silksworth	10531		
Ryhope	10484		
Doxford	9870		
SUB TOTAL	174286		57368
TOTAL	231654		

7.44 A proportion of the predicted population increase of 16,516 will be resident within the 6 km visitor pressure catchment: 869 dwellings will be delivered through the North Sunderland Sites, supporting an estimated population of c.1,877 (assuming an average household size of 2.16). This represents a 0.8% increase in the population within Sunderland to the north and south of the River Wear that may potentially contribute to recreational impacts at the coast³¹.

7.45 The above calculation takes into account the resident population to the south of the River Wear on the basis that cumulatively this population may be impacting on the sensitive parts of the coast in both North Sunderland and Sunderland South. The presence of the River Wear may (and probably does) limit the ease of movement across the river as there are relatively few bridge crossings (although a new bridge crossing has recently been opened).

7.46 If North Sunderland is considered in isolation, the existing population within the 6 km visitor pressure catchment is estimated to be 55,100 within North Sunderland and 57,368 within South Tyneside, giving a total of 112,468 (within the 6 km visitor pressure catchment to the north of the River Wear). The predicted population increase of 1,877 represents a 1.66% increase in the local population. This more precautionary estimate has been adopted in this assessment.

³¹ For the purposes of the figures provided within table 20 of this report, the number of houses considered totals 949. This figure comprises the 869 units considered as part of this report and an additional 80 units from HGA 8.

- 7.47 If it is assumed that the new residential population (of the North Sunderland Sites) is just as likely to participate in recreation at the coast as the existing population (to the north of the River Wear), the levels of disturbance may also increase by c.1.66%. This figure is considered to be precautionary and assumes that everybody within the 6 km visitor pressure catchment is equally likely to visit the coast. In reality this is unlikely to be the case as visitor behaviour will be influenced by a range of factors including age, health, travel distance, mode of transport, transport efficiency, site accessibility, reason for the visit, availability of alternatives etc.
- 7.48 The visitor survey data that have been collected for the coast (Bluegrass, 2015 & 2016) support the conclusion that visitor numbers will reduce with distance from the coast. The data show that dog walkers tend to travel shorter distances than other visitors, which is consistent with another finding of the visitor survey, that convenience is an important factor (46% of dog walkers use the coast because it is convenient – Bluegrass, 2016). Table 14 shows the percentage of visitors within the different distance bands used during the visitor surveys.

Table 14: Distances travelled by visitors to the coast (Bluegrass, 2015 & 2016)

Survey zones (miles)	Survey zones (km)	All visitors	Dog walkers
2014/15 visitor survey (Bluegrass, 2015)			
0.5 or less = 22%	0.8 km	14%	16%
0.5-1.0 mile = 14%	0.8-1.6 km	20%	26%
2-5 miles = 34%	3.2-8.0 km	32%	32%
>5 miles = 30%	>8.0 km	34%	27%
2015/16 visitor survey (Bluegrass, 2016)			
0.5 or less = 22%	0.8 km	22%	26%
0.5-1.0 mile = 14%	0.8-1.6 km	14%	19%
2-5 miles = 34%	3.2-8.0 km	34%	36%
>5 miles = 30%	>8.0 km	30%	18%

- 7.49 The results of visitor surveys carried out along the coast (Bluegrass, 2015 & 2016) indicate that many people visit this area to walk their dogs. The results of bird disturbance surveys carried along the coast (Arcus Consultancy Services, 2015; BSG Ecology, 2016) indicate that dog walking, particularly with dogs off the lead, is the most common reason why bird disturbance occurs. It is therefore reasonable to assume that predicted levels of dog ownership can be used as a simple metric to estimate the proportion of the new residential population that may visit the coast and impact on the qualifying species of the SPA/Ramsar (i.e. turnstone and purple sandpiper).
- 7.50 Statistics published by the Pet Food Manufacturers Association³² indicate that 33% of households in the North East own at least one dog. As the North Sunderland Sites will deliver 869 new dwellings, this could result in an additional c.287 dogs. These dogs will need to be walked, which may take place locally if suitable places are available, but this may also take place at the coast.
- 7.51 In paragraph 7.46 the existing population within the 6 km visitor pressure catchment is estimated to be 55,100 within North Sunderland and 57,368 within South Tyneside, giving a total of 112,468, which in turn equates to c.52,068 households and an estimated existing dog population of c.17,182. The results of disturbance surveys (Arcus Consultancy Services, 2015; BSG Ecology, 2016) indicate that the number of dogs currently being walked at the coast falls well below this total.

³² <http://www.pfma.org.uk/statistics>, accessed 8 December 2018.

- 7.52 Visitor surveys (Bluegrass, 2016) found that just under half the dog walkers (47%) interviewed indicated that they visited daily or almost every day, with 28% indicating that they visited the coast 2-3 times a week. This indicates that approximately 75% visit at least 2-3 times a week, i.e. the North Sunderland Sites may result in c.215 dogs being walked at the coast at least 2-3 times a week. This is a highly precautionary estimate as it is likely that people living further away from the coast will visit it less frequently than people living close to the coast (see Table 14 and 15).
- 7.53 The results of the visitor surveys (Bluegrass, 2015 & 2016) indicate that between 16% (Bluegrass, 2015) and 26% (Bluegrass, 2016) of visitors to the coast live within 0.8 km (0.5 miles), and between 42% (Bluegrass, 2015) and 45% (Bluegrass, 2016) of visitors to the coast live within 1.6 km (1.0 mile). It therefore follows that between 74% and 84% of visitors live more than 0.8 km of the coast, and 55% and 58% of visitors live more than 1.6 km from the coast.
- 7.54 Six of the North Sunderland Sites (080A, 080B, 080C, 254, 467A and 675) are located within 1.6 km of the coast and so, applying the findings of the Bluegrass visitor surveys, 84% (worst case) of the residents with dogs are likely to visit the coast. For the remaining North Sunderland Sites (91, 104, 175, 243, 467B, 563, 416 and 652), 58% (worst case) of the residents with dogs are likely to visit the coast (see Table 15).

Table 15: Predicted number of dogs walked at the beach taking into account visitor behaviour

Site No. on plan	Site Ref	Site Name	Potential Dwelling No.	Distance from the coast (km)	% likely to visit the coast	Predicted no. dogs	No likely to be walked at the coast
	080A	Stadium Village Sheepfolds Central	50	0.8 to 1.6	84	17	14
	080B	Stadium Village Sheepfolds East	70	0.8 to 1.6	84	23	19
	080C	Stadium Village Sheepfolds Cliff Top	60	0.8 to 1.6	84	20	17
5	91	Former Southwick Primary	56	more than 1.6	58	18	11
11	104	Carley Hill School	110	more than 1.6	58	36	21
10	175	Fulwell Quarry	90	more than 1.6	58	30	17
12	243	Earlston Street	14	more than 1.6	58	5	3
14	254	Fulwell Reservoir	21	0.8 to 1.6	84	7	6
4	563	Hylton College & football field	110	more than 1.6	58	36	21
8	652	Old Mill Rd	38	more than 1.6	58	13	7
15	675	Fulwell Quarry (near golf range)	65	0.8 to 1.6	84	21	18
16	467A	Fulwell Allotments/ Playing fields	60	0.8 to 1.6	84	20	17
18	467B	Thornbeck College	15	0.8 to 1.6	84	5	4
19	416	Ferryboat lane, North Hylton	110	More than 1.6	58	36	21
						287	196

- 7.55 The same survey also revealed that 47% of dog walkers spent less than half an hour on the shore. The 2014/15 visitor survey (Bluegrass, 2015) revealed that 85% of dog walkers visited the beach. Considering all of the findings together, it is apparent that the coast is used less frequently by dog walkers living further away, that dog walkers favour the beaches and typically avoid the rocky shore areas, and approximately half of the dog walkers remain at the coast for less than half an hour.

Predicted impacts on SPA / Ramsar wintering birds

- 7.56 Surveys carried out during the winters of 2014/15 and 2015/16 (Arcus Consultancy Services, 2015; BSG Ecology, 2016) revealed that purple sandpiper has a restricted distribution within the authority's area. The species was recorded regularly on the rocky shore to the north of South Bents, with the area around Whitburn being one of the more regularly used areas of shore. In Sunderland South this species was also recorded along the south-west breakwater in the Port of Sunderland, and at Salterfen Rocks: further afield purple sandpiper was recorded in the vicinity of the harbour at Seaham.
- 7.57 Recreational disturbance of purple sandpiper is possible in those areas where favoured habitat is close to areas that attract visitors. The sandy beach at Whitburn Bay has been shown to attract large numbers of visitors and, whilst many of these visitors will not venture north as far as the rocks at South Bents, some do walk this far. Walkers, particularly those with dogs off the lead, therefore have the potential to disturb birds that are using this part of the shore, although visitor survey data indicate that this is small proportion (see above).
- 7.58 Whilst some disturbance is possible, it is expected that the majority of visitors will avoid the littoral rock as it is uneven and can be very slippery making walking challenging. The presence of clearly defined footpaths and signage above the high tide mark means that recreation is likely to be focussed in these areas. This is supported by observations made during survey work (Arcus Consultancy Services, 2015; BSG Ecology, 2016) and the results of visitor surveys (Bluegrass, 2015 & 2016).
- 7.59 The Port of Sunderland, which is located on the southern side of the Wear Estuary, is not accessible to the public and so recreational access is unlikely. Whilst the port is a busy place where activities could potentially result in the disturbance of birds, the coastal boundary of the port is typically difficult to access and the topography of the shore is likely to provide screening in many places (to visual and noise disturbance for example, which may arise from current and future development). Consequently there has been little evidence of bird disturbance in this area. Furthermore, future disturbance by residents of the North Sunderland Sites is very unlikely as there is restricted access to the Port of Sunderland and associated shoreline.
- 7.60 Public access at Salterfen Rocks is limited by the nature of the rocky shore, which comprises large boulders that are the result of past cliff erosion. Safe access to the shore is difficult due to the terrain and the fact that the rocks can be very slippery. This is likely to limit the potential for birds to be disturbed by visitors.
- 7.61 Turnstone is more widespread having been recorded on most sections of the shore where littoral rock is present, as well as piers. Although this species is more widespread, in many locations the numbers of birds were low indicating that many areas are used on an occasional basis. Turnstone was rarely recorded using sandy habitats.
- 7.62 If residents of the North Sunderland Sites choose to walk their dogs at the coast it is likely that this will be in the most accessible areas where parking facilities are present. The sections of coast that are most likely to be used are: Roker (Roker Beach), Seaburn (Whitburn Bay) and possibly Whitburn Country Park to the north of the Wear Estuary, and Hendon (The Promenade) to the south of the Wear Estuary. Consequently there is the potential for disturbance to occur at those locations where SPA qualifying species have been recorded, i.e. South Bents, Parson's Rocks and the coast adjacent to The Promenade. As noted previously, the North Sunderland Sites may result in 196 dogs being walked at the coast at least 2-3 times a week.

8 Mitigation Measures

Mitigating Adverse Effects

- 8.1 Survey data (Arcus Consultancy Services, 2015; BSG Ecology, 2016) show that residential development within 6 km of the European sites has the potential to result in increased visitor pressure, particularly from dog walking, which may in turn result in increased recreational disturbance of birds. Applying PFMA statistics to the North Sunderland Housing Sites it is estimated that there may be approximately 147 dogs that will be walked at the coast at least 2-3 times a week (based on the worst case assumption that no alternative dog walking areas are available locally); however, c.75 dogs that may spend more than 10% of their time at the coast walking on the rocky shore (most dogs will be walked on the beach).
- 8.2 Previous studies (Arcus Consultancy Services, 2015; BSG Ecology, 2016) have shown that dog walking is the activity that is responsible for the majority of disturbance events and so this is the focus of this assessment. To mitigate the potential impact of dog walking it is proposed to divert recreational activity elsewhere and to put management measures in place to control visitor behaviour at the European sites. These measures are also likely to mitigate the impacts arising from other recreational activities, such as walking without dogs, cycling, fishing, kite flying and all the other activities that are undertaken at the coast.
- 8.3 It is proposed to mitigate impacts by adopting a suite of measures that can be broadly categorised as:
- Provision of Suitable Areas of Natural Greenspace (SANG);
 - Strategic Access Management and Monitoring (SAMM).
- 8.4 The purpose of SANG is to provide an attractive alternative recreational space that may be used preferentially by visitors, thereby reducing visitor pressure at the coast. If an area of SANG is going to achieve this purpose then it must be located appropriately and designed to meet the needs of a particular recreational activity. Natural England (Ellen Bekker, Lead Advisor, Natural England) has indicated that SANG alone is not likely to fully mitigate the impacts of dog walking at the coast due to the unique character of the coastal environment, which cannot easily be reproduced.
- 8.5 The purpose of SAMM is to control visitor behaviour at sensitive locations and to directly discourage undesired recreational activities at the European sites. SAMM necessarily involves management intervention and monitoring may be used to measure effectiveness and to trigger changes in the approach to management.

Likelihood of effectiveness

- 8.6 A visitor survey undertaken by Bluegrass during the period November 2014 to April 2015 (i.e. the winter period when purple sandpiper and turnstone are present) on behalf of Sunderland City Council and South Tyneside Council, found that 63% of visits (Sunderland data) were to walk dogs. Further survey work carried out during the period January to March 2016 found that 65% of walks (Sunderland data) were to walk dogs.
- 8.7 When asked if they would use suitable green space if it was closer to home 39% of respondents in 2014/15 (Sunderland data) indicated that they would probably use it some of the time and 45% indicated that they would probably use it most of the time. This indicates that the Suitable Alternative Natural Greenspace (SANG) could significantly reduce dog-walking at the coast by changing the behaviour of up to 84% of visitors (the reported figures are taken directly from the Bluegrass survey data and show the breakdown of interviewee responses to specific questions. The key questions are whether visitors would use suitable green space closer to home some of the time or whether they would use it most of the time. Interviewees were only able to select one option and so there is no double counting).

- 8.8 In the 2016 survey 46% of respondents walked their dog at the coast because it was convenient. In the Sunderland area 43% of dog walkers indicated that they would use suitable greenspace some or most of the time if available close to home.
- 8.9 Just under half of all the dog walkers interviewed (47%) in 2015/16 indicated that they visited daily or almost every day, with 28% indicating that they visited the coast 2-3 times a week. For the area extending from South Bents to North Pier (the closest section of the coast to the North Sunderland Sites, which is also likely to be the most attractive due to the presence of sandy beaches) 70% indicated that they visited daily or almost every day, with 14% indicating that they visited the coast 2-3 times a week. In 2014/15 24% of respondents indicated that they visited the site at least once a day and a further 24% stated that they visited the site about twice a week.
- 8.10 The design and effectiveness of additional natural greenspace has previously been reviewed as part of the HRA for the SSGA (URS, 2015). It was noted that guidance on alternative natural greenspace published by Hampshire County Council³³, in association with the Kennel Club, reported that dog owners travel on average 400-500m to reach greenspace for dog-walking. Guidance published by Natural England³⁴ for Suitable Alternative Natural Greenspace (SANG) for the Thames Basin Heaths Planning Zone recommended that SANG sites should be within 400m of the linked developments.
- 8.11 Data collected by the Pet Food Manufacturers Association³⁵ indicates that 24% of households in the UK own dogs but this increases to 33% in the North East. The proposed North Sunderland Sites would provide an estimated 859 dwellings within the 6 km visitor pressure buffer, equating to an additional 287 dogs that will need to be walked; however, it is estimated that 196 dogs will be walked at the coast at least 2-3 times a week. It is evident that there is potential for dog walking within and near the European sites to increase and therefore the provision of SANG is necessary (for some sites) to offset the predicted impacts.

Greenspace area requirements

- 8.12 The existing population of North Sunderland is currently utilising accessible greenspace along the Sunderland coast: this includes all accessible land extending down to the low tide mark, all coastal amenity land and rough grassland, promenades, public rights of way etc. (see Figure 4). The area of this habitat within the 6 km visitor pressure catchment is estimated to be 217 ha (this is the area that is potentially available to residents of North Sunderland). It is important to note, however, that this area has been calculated by mapping the areas of greenspace identified using aerial imagery and as shown in the Sunderland Greenspace Audit and Report (2012). It includes areas within South Tyneside and has not been surveyed to confirm what proportion is actually publicly accessible. This has been carried out for illustrative purposes only.
- 8.13 If it is assumed that all the proposed North Sunderland Sites will collectively result in a 1.6% increase in visitor pressure (see paragraph 7.46), a similar increase in greenspace will be required to absorb this pressure. This minimum requirement for greenspace amounts to c. 3.3 ha of land that is required to mitigate the impacts of development from all the sites identified in Table 1. However, this approach is based on the assumption that the existing greenspace has no capacity to absorb additional recreational activity, which is not considered to be the case within the Plan area.

³³ Hampshire County Council (2013). *Planning for Dog Ownership in New Developments: Reducing Conflict – Adding Value*. Hampshire County Council.

³⁴ Royal Borough of Windsor & Maidenhead (2010). Thames Basin Heaths Special Protection Area Supplementary Planning Document (Part 1). Royal Borough of Windsor & Maidenhead.

³⁵ <http://www.pfma.org.uk/statistics>

- 8.14 As noted previously, purple sandpiper has a limited distribution along the coast, and of the key locations that have been identified for this species, the area at South Bents is the only area where recreational disturbance could be a significant issue as a result of the development of the North Sunderland Sites. Whilst turnstone is more widespread, this species appears to be more adaptable in response to disturbance (based on observations made during surveys carried out in 2015/16: Steven Betts, BSG Ecology, pers. comm.).
- 8.15 It is considered that increased recreational use is not desirable at the following locations within the Sunderland City Council administrative area due to the presence of purple sandpiper and turnstone (and hence there is the potential to disturb these species at these locations):
- The area north of Parson's Rocks (including Parson's Rocks and South Bents).
 - Intertidal areas between Port of Sunderland and Salterfen Rocks (the terrestrial habitats in these areas are however, considered to be capable of accommodating more recreational use).
 - Grassland areas at Hendon where survey has found evidence of use by SPA species (Claire Dewson, Sunderland City Council pers. comm.).
- 8.16 In addition, surveys have also revealed that the coast at Whitburn is important for a range of wading bird species including purple sandpiper and turnstone. These areas are within the 6 km visitor pressure catchment for residents of the North Sunderland Sites.
- 8.17 To the south of Salterfen Rocks the eroding cliffs significantly restrict access to the intertidal habitat used by purple sandpiper and turnstone, and so a significant increase in the recreational use of these areas is not anticipated. Recreational use of the grassland adjacent to the sea cliffs is not likely to result in significant additional disturbance of purple sandpiper and turnstone using the intertidal habitats. Furthermore, this area is distant from the North Sunderland Sites and there are nearer alternative greenspace areas that are likely to be used preferentially as they provide a more convenient option for recreation.
- 8.18 To the west of the Port of Sunderland the England Coast Path skirts the boundary of the Port before reaching the coast at Hendon. From this point it runs through a grassed area parallel to the promenade, and beyond the promenade it runs alongside eroding sea cliffs, which limit access to the shore. Whilst these areas are not currently easy to access from North Sunderland, this may change with the completion of the Sunderland Strategic Transport Corridor. The purpose of this project is to improve access between the A19 and the Port and this may make it easier for residents of the North Sunderland Sites to travel as far as the Port.
- 8.19 Similarly the areas adjacent to the sea cliffs at the Leas and in the vicinity of Souter lighthouse, as well as Whitburn Coastal Park, which are all in South Tyneside, also have the potential to support additional recreational activity, as does Roker beach. These areas are relatively easy to access via the existing coast road A183.
- 8.20 Collectively these areas amount to c.178 ha in total that may have capacity to support additional recreational activity, i.e. there is c.39 ha of land where additional recreational pressure may not be desirable. However, as previously noted, these areas have not been surveyed to check which areas are publicly accessible and so this is presented for illustrative purposes only.
- 8.21 Whilst these areas have potential to support additional recreational activity, the likelihood of them being used will reduce with distance from the proposed development sites. Consequently, whilst the Leas provides an extensive area for dog walking, it is likely that visitors travelling from North Sunderland will do so by car. As the Whitburn Coastal Park is located closer to the North Sunderland area than the Leas, it is reasonable to assume that this site will be used preferentially (as it offers areas of open space and free car parking).

- 8.22 The HRA completed for the SSGA concludes that the area of habitat calculated using the above method may not be adequate for various reasons, a key reason being that a SANG will not be able to replicate the coastal habitat that attracts visitors, which may reduce its effectiveness (URS, 2015). This conclusion also applies in this situation and therefore the figures presented previously should not be used as the basis for calculating areas of greenspace that are required to mitigate recreational impacts. For this reason Natural England's SANG guidance was adopted to calculate an appropriate area of greenspace, and this recommends provision at the rate of 8 ha per 1000 population.
- 8.23 Previous HRAs have resulted in a requirement to provide greenspace as part of the proposed development, and this may have benefits that extend beyond the development limits, i.e. high quality greenspace provided in this area may also attract visitors who live elsewhere. If greenspace is effective in attracting visitors who would otherwise have visited the coast, this would have a positive effect on the European sites irrespective of where the visitors have come from.
- 8.24 As previously noted the section of the coast that is considered to be most susceptible to disturbance impacts is to the north of the Wear Estuary from Parson's Rocks northwards. There are 14 North Sunderland Sites which will collectively deliver 869 homes, resulting in a predicted increase in the population of 1,639 people. Applying Natural England's SANG guidance this equates to a requirement for 13.1 ha of greenspace to be made available for recreational purposes (SANG provision at a rate of 8 ha per 1000 population applied to a predicted population of 1,639).
- 8.25 There are currently areas of accessible greenspace within North Sunderland that are likely to attract visitors, particularly those people living at locations that are distant from the coast, e.g. land adjacent to Fulwell Quarry Local Nature Reserve (LNR) and land on the north bank of the River Wear where there is the River Wear trail. In some areas the habitats are designated as Local Nature Reserves, Local Wildlife Sites or SSSIs due to their ecological importance and so it is important that these are protected with non-designated areas becoming the focus of future recreational initiatives (recreation is not to be encouraged in designated wildlife sites).
- 8.26 Although there are significant areas of accessible greenspace to the south of the River Wear, accessibility (by road) may limit their use by residents of North Sunderland. A possible exception is the Promenade to the south of the Port of Sunderland, where parking is freely available. The Sunderland Strategic Transport Corridor will improve access from the A19 to the Port and this may in turn improve access to the Promenade for residents of North Sunderland (for example, The Promenade is c.3.0 km by road from the Stadium Village site 080A, 080B and 080C). Whilst the coast adjacent to the Promenade is accessible to the public, the section of the coast further to the south (which is accessible via the England Coast Path) is dominated by unstable sea cliffs, which will limit access to those intertidal areas that are used by waders.
- 8.27 Whilst a 6 km visitor pressure catchment has been defined, it is reasonable to assume that the frequency of visits to the coast is likely to decrease with distance travelled, i.e. people who live close to the coast are likely to visit it more frequently than people living further away (Bluegrass, 2015 & 2016). The presence of parks to the west of the A19, such as the James Steel Park, may present an alternative for some residents of North Sunderland, although this is likely to be limited to those living near the A19 and A1231 and is unlikely to involve regular visits. Whilst a park located to the west of the A19 is unlikely to provide effective mitigation on its own, and may only attract a small proportion of the residents on an occasional basis, it is likely that they will at the very least make a small contribution to the overall mitigation of effects. This is considered to be true of sites such as 416, which as the most westerly of the North Sunderland sites is a short car journey from these locations.
- 8.28 Taking this into account, together with the availability of existing and proposed accessible local greenspace (see below) and the requirement to incorporate greenspace into some development sites, it is concluded that the provision of greenspace outside development sites is adequate to mitigate the proposed quantum of development (see Figure 5).
- 8.29 If the existing and proposed greenspace is to function effectively it is possible that enhancement may be required to make these areas more attractive to visitors. It is also possible that additional

management will be required to ensure that the greenspace remains fit-for-purpose and that there is no long-term deterioration as a result of increased use.

Greenspace location and connectivity

- 8.30 Published guidance on alternative natural greenspace (e.g. Hampshire County Council³⁶) reports that dog owners have been found to travel on average 400-500m to reach greenspace to walk their dogs. A significant proportion of the new residential population would be within 400m of existing or proposed greenspace, which leads to the conclusion that there is a high likelihood that dog walkers will use these areas. Furthermore, the results of the visitor surveys (Bluegrass 2015 & 2016) indicate that dog walkers will travel further longer distances to reach areas of open space that meet their specific requirements.
- 8.31 Some published guidance³⁷ has also concluded that areas of greenspace could (if appropriately designed) potentially draw some users from up to 2 km away. Consequently enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick (see Figure 5) has the potential to attract visitors from all of the North Sunderland Sites.
- 8.32 A key objective of SANG is to attract dog-walkers, and for this reason it is important that areas of greenspace are large enough to allow visitors to undertake circular walks of sufficient distance. The Thames Basin Heaths SANG guidance recommends a walking distance of 2.3-2.5 km, which is based on the results of visitor surveys. Many of the available greenspace areas are capable of delivering walks of this duration, either within an individual site or where there is a short link to an adjacent area of greenspace.
- 8.33 In the following sections greenspace provision is described. This includes existing areas that have been identified for appropriate management and enhancement, existing commitments arising from past HRA, and additional requirements. Proposed greenspace arrangements are shown on Figure 5.

North Sunderland Sites

- 8.34 Each of the proposed North Sunderland
- 8.35 Sites has been assessed in terms of its potential to contribute to impacts on the European sites, and to determine how those impacts might be appropriately mitigated. For each site the future residential population has been estimated and greenspace requirements calculated by applying Natural England SANG guidance. Existing greenspace provision has been considered to predict how residents of each site might service their recreational needs. The results of this exercise are presented in Table 16 and discussed below.
- 8.36 It is concluded that the existing greenspace complemented by the enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick (see Figure 5) is sufficient to meet the recreational needs of residents of the new housing planned for the North Sunderland Sites. For these areas to function effectively as alternative recreational spaces (thereby attracting people away from the coast), there will be a need to implement complementary management and enhancement measures, such as improved signage, provision of and regular management of dog waste bins, landscaping management.
- 8.37 The council-owned land to the east of Fulwell Quarry and north of High Southwick (see Figure 5) has been identified as a key area to mitigate impacts arising from development of SHLAA sites 104 (which requires 1.9 ha SANG), 175 (1.6 ha SANG), 243 (0.2 ha SANG), 254 (0.4 ha SANG), 675 (1.1 ha SANG), 467A (1.0 ha SANG), 416 (1.9ha SANG) and 467B (0.3 ha SANG). Collectively this requires the provision of 6.5 ha of SANG, with the proposed SANG area extending to 8.35 ha: a further 1.4 ha SANG is required to mitigate impacts on site 675 (HGA8) (giving a total SANG

³⁶ Hampshire County Council (2013). *Planning for Dog Ownership in New Developments: Reducing Conflict – Adding Value*. Hampshire County Council.

³⁷ Royal Borough of Windsor & Maidenhead (2010). *Thames Basin Heaths Special Protection Area Supplementary Planning Document (Part 1)*. Royal Borough of Windsor & Maidenhead

requirement of 7.9 ha (site HGA8 is being brought forward by the Core Strategy; BSG Ecology, 2018).

- 8.38 An area of council-owned land extending to 8.35 ha³⁸ located to the east of Fulwell Quarry and north of High Southwick, will provide walking routes of up to 1.0 km with the opportunity to extend this using footpaths in the wider area, in particular land adjacent to Fulwell Quarry. Fulwell Quarry is currently used for recreation and this area is likely to attract new visitors. Recreational use of the area designated as SSSI and LWS will not be promoted and will need to be carefully controlled and managed to ensure that there is no degradation of the botanical interest of the designated sites (Sunderland City Council has commissioned a study that has considered recreational impacts on Fulwell Quarry SSSI (BSG Ecology, 2018. North Sunderland Extended Phase 1 Habitat Survey Report – draft). This report will set out measures that are required to mitigate impacts on Fulwell Quarry SSSI that will arise from increased recreational pressure associated with new housing developments and will be secured through the Development Management process as section 106).
- 8.39 The use of council-owned land with limited enhancement to provide a dog walking area is considered to be appropriate for the following reasons. The 2016 Bluegrass survey data indicate that, whilst the coast is favoured by some visitors because of its uniqueness, there are a range of factors that also influence behaviour. For example, the data for Sunderland collected in 2016 indicate that 35% of dog walkers visit the coast because they enjoy the beach and the sea. The same survey also revealed, however, that 46% of dog walkers use the coast because it is convenient / close to home, 26% like it because it is good for dog walking with plenty of space, 10% like the tranquillity, 4% like it because it feels safe and 4% like it because their dogs do not get muddy. These are factors that can be replicated elsewhere without the need for extensive landscaping.
- 8.40 During the same survey, when visitors were asked what might persuade them to use a site other than the coast, 70% of respondents said that they might be persuaded citing reasons such as the available space, dog safety and somewhere closer to home. The council-owned land is considered to provide these requirements or can be enhanced to achieve this.
- 8.41 The adjacent areas designated as Local Nature Reserve are likely to be able to accommodate additional visitors without having an adverse effect on the ecological interest of the site. For example, the existing site could be enhanced through the creation of a clearly marked network of paths that are intended for use by dog walkers. This would be complemented by the provision of dog waste bins at appropriate locations. This enhancement is required to accommodate visitors walking from site 652 (which requires 0.7 ha SANG).
- 8.42 The north bank of the Wear Estuary to the west of Wearmouth Bridge upstream as far as Low Southwick is characterised by grassland and scrub extending to c.7 ha. This area is crossed by a series of formal and informal paths creating an area that is likely to be exploited by residents of the Stadium Village developments (SHLAA sites 080A, 080B and 080C). The Stadium Village will deliver a total of 180 units, accommodating a population of c.389. If Natural England SANG guidance is applied to this population this equates to a SANG requirement of 3.1 ha, and so the available greenspace far exceeds this. Public rights of way provide extended walking routes of more than 1 km to the west and the same to the east.
- 8.43 The sites located at Stadium Village are close enough to the coast that it is likely that residents of the developed sites will occasionally use the coast for recreation irrespective of whether alternative greenspace is available locally. It is therefore concluded that SANG contributions will be required for these sites in line with Natural England advice (see paragraph 3.24).
- 8.44 As previously noted (paragraphs 7.16 et seq) dog walking is the main cause of disturbance of birds using the coast. In Table 16 the number of dogs that may potentially be walked at the coast

³⁸ The area of land that is being brought forward to provide SANG is greater than the area needed. The reason for this is that the SANG will be provided in a large grassland field where it would not be beneficial to partition it. The current landscaping of this area means that the SANG objectives can be met with minimal landscaping requirements as the area provides a large, safe dog walking environment. It is expected that this area can be enhanced in the future through landscaping to accommodate more dog walkers.

resulting in the disturbance of birds, has been estimated. This has been done with reference to the results of visitor surveys (Bluegrass, 2015 & 2016), which indicate that:

- North Sunderland Sites 080A, 080B, 080C, 254, 467A and 675 are located within 1.6 km of the coast and so 84% (worst case) of the residents with dogs are likely to visit the coast.
- North Sunderland Sites 91, 104, 175, 243, 416, 467B, 563 and 652 are located more than 1.6 km from the coast and so 58% (worst case) of the residents with dogs are likely to visit the coast.

8.45 The results of the visitor surveys also indicate how frequently dog walkers use the coast, and which parts of the coast are favoured:

- Approximately 75% of visitors with dogs visit at least 2-3 times a week.
- Approximately 51% of dog walkers (or their dogs) spend less than 10% of their time at the coast walking on the rocky shore, i.e. they favour beaches.

8.46 In Table 17 the areas of SANG required for each North Sunderland Site is calculated and the proposed mitigation approach is summarised. In the mitigation summary the potential to provide SANG is either confirmed or discounted.

Table 16: Estimated number of dogs that may be walked at the coast in areas where SPA / Ramsar birds may be disturbed

Site No. SHLAA	Site Name	Potential Dwelling No.	Distance from the coast	% households likely to visit the coast	Predicted no. dogs ¹	No likely to be walked at the coast ²	No likely to be walked more than once a week ³	No likely to be walked on the rocks more than 10% of the time
080A	Stadium Village Sheepfolds Central	50	0.8 to 1.6	84	17	14	10	5
080B	Stadium Village Sheepfolds East	70	0.8 to 1.6	84	23	19	15	7
080C	Stadium Village Sheepfolds Cliff Top	60	0.8 to 1.6	84	20	17	12	6
91	Former Southwick Primary	56	more than 1.6	58	18	11	8	4
104	Carley Hill School	110	more than 1.6	58	36	21	16	8
175	Fulwell Quarry	90	more than 1.6	58	30	17	13	6
243	Earlston Street	14	more than 1.6	58	5	3	2	1
254	Fulwell Reservoir	21	0.8 to 1.6	84	7	6	4	2
563	Hylton College & football field	110	more than 1.6	58	36	21	16	8
652	Old Mill Rd	38	more than 1.6	58	13	7	5	3
675	Fulwell Quarry (near golf range)	65	0.8 to 1.6	84	21	18	14	7
467A	Fulwell Allotments/ Playing fields	60	0.8 to 1.6	84	20	17	12	6
467B	Thornbeck College	15	0.8 to 1.6	84	5	4	3	2
416	Ferry Boat Lane, North Hylton	110	more than 1.6	58	36	21	16	8
					287	196	147	72

¹ PFMA statistics indicate that 33% of households in the North East own a dog.

² Number of dogs adjusted to take into account the distance from the coast.

³ Approximately 75% of visitors with dogs visit more than once a week.

Table 17: Mitigation options for proposed North Sunderland Sites

Site Ref	Map Ref	Site Name	Total units	Predicted population ¹	SANG requirement ²	Distance from European site	Impact mitigation
080A		Stadium Village Sheepfolds Central	50	108	0.9	2.2 km	Improvement to greenspace on the north bank of the Wear Estuary extending west as far as Low Southwick. SANG provision is not adequate on its own and a SAMM contribution will be required.
080B		Stadium Village Sheepfolds East	70	151	1.2	2.2 km	Improvement to greenspace on the north bank of the Wear Estuary extending west as far as Low Southwick. SANG provision is not adequate on its own and a SAMM contribution will be required.
080C		Stadium Village Sheepfolds Cliff Top	60	130	1.0	2.2 km	Improvement to greenspace on the north bank of the Wear Estuary extending west as far as Low Southwick. SANG provision is not adequate on its own and a SAMM contribution will be required.
91	5	Former Southwick Primary	56	121	1.0	2.7 km	No greenspace nearby. The nearest greenspace is at adjacent to Fulwell Quarry (travel would necessarily be by car). SANG provision is not adequate and a SAMM contribution will be required.
104	11	Carley Hill School	110	238	1.9	1.9 km	Enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick: the available area exceeds the SANG requirement. SANG provision is not adequate on its own and a SAMM contribution will be required.
175	10	Fulwell Quarry	90	194	1.6	2.4 km	Fulwell Quarry is present immediately to the north; enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick: the available area exceeds the SANG requirement.. These will be within walking distance. The available area exceeds the SANG requirement. SANG provision is not adequate on its own and a SAMM contribution will be required.

Site Ref	Map Ref	Site Name	Total units	Predicted population ¹	SANG requirement ²	Distance from European site	Impact mitigation
243	12	Earlston Street	14	30	0.2	2.2 km	Fulwell Quarry is present immediately to the north; enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick: the available area exceeds the SANG requirement. These will be within walking distance. The available area exceeds the SANG requirement. SANG provision is not adequate on its own and a SAMM contribution will be required.
254	14	Fulwell Reservoir	21	45	0.4	1.9 km	Fulwell Quarry is present immediately to the north; enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick: the available area exceeds the SANG requirement. These will be within walking distance. The available area exceeds the SANG requirement. SANG provision is not adequate on its own and a SAMM contribution will be required.
563	4	Hylton College & football field	110	238	1.9	3.1 km	The nearest greenspace is at Fulwell Quarry, which is potentially accessible by foot. However, the distance may deter residents from using this option and so SAMM contributions are required.
652	8	Old Mill Rd	38	82	0.7	2.8 km	The nearest greenspace is at Fulwell Quarry, which is potentially accessible by foot. This will require footpath access through site 175. The available greenspace at Fulwell Quarry exceeds the SANG requirement. SANG provision is not adequate on its own and a SAMM contribution will be required.
675	15	Fulwell Quarry (near golf range)	65	141	1.1	1.6 km	Enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick: the available area exceeds the SANG requirement. Access to this area will be possible via an existing bridleway. SANG provision is not adequate on its own and a SAMM contribution will be required.
467A	16	Fulwell Allotments/ Playing fields	60	130	1.0	1.7 km	Enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick: the available area exceeds the SANG requirement. Access to this area will be possible via an existing bridleway. SANG provision is not adequate on its own and a SAMM contribution will be required.

Site Ref	Map Ref	Site Name	Total units	Predicted population ¹	SANG requirement ²	Distance from European site	Impact mitigation
467B	18	Thornbeck College	15	32	0.3	2.0 km	Enhancement of 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick: the available area exceeds the SANG requirement. Access to this area will be possible via an existing bridleway. SANG provision is not adequate on its own and a SAMM contribution will be required.
416	19	Ferryboat Lane, North Hylton	110	238	1.9	5.9 km	The nearest greenspace is at Fulwell Quarry or Herrington Country Park which is potentially accessible by foot. However, the distance may deter residents from using this option and so SAMM contributions are required.
Total			869	1640	13.2		

¹ Based on an average household size of 2.16.

² Based on Natural England SANG guidance of 8 ha per 1000 people.

8.47 Table 18 provides a summary of the proposed mitigation requirements for the North Sunderland Sites.

Table 18: Mitigation requirements for the North Sunderland Sites

Mitigation measure	Sites relying on the stated mitigation measure	Total SANG / SAMP requirement	How will it be achieved
Enhancement of land adjacent to Fulwell Quarry	652	0.7 ha SANG required, which is achievable on land west of Fulwell Quarry using existing greenspace that is enhanced to allow it to function effectively as SANG.	A dog walking route will waymarked and dog bins will be installed. Interpretation will be provided. The dog walking route will avoid the SSSI / LWS and will link to the council-owned land to the east (new SANG area).
New SANG area	104, 175, 243, 254, 675, 467A, 467B	Total SANG requirement is 6.5 ha, with the proposed SANG area extending to 8.35 ha.	Council-owned land will be enhanced for dog walking by mowing regularly to keep the sward short, providing waymarking and dog bins. The area will link to walking routes adjacent to Fulwell Quarry to provide extended walk options.
SAMP (including the North bank of the Wear Estuary)	91, 416, 563, 080A, 080B, 080C	Sites 91, 416 and 563 are unable to rely on SANG so mitigation will be achieved through SAMP alone. 3.1 ha SANG required and SAMP contributions for sites 080A, 080B, 080C. A SAMP contribution is also required for all remaining sites.	A series of measures are proposed that are designed to mitigate impacts arising from people visiting the coast. All sites will contribute pro rata to these measures, which will be implemented by SCC. A dog walking route will waymarked and dog bins will be installed along the north bank of the River Wear.

Greenspace within development sites

8.48 If greenspace is to achieve the key objective of attracting dog walkers, thereby reducing visitor pressure on the coast, there is a minimum size requirement that will need to be met; however, there is no guidance currently available that sets out what this is. As previously noted, the Thames Basin Heaths SANG guidance recommends a walking distance of 2.3-2.5 km, which could, for example, be achieved using a large area of greenspace or several small areas that are linked by footpaths.

8.49 All of the proposed North Sunderland Sites are too small to accommodate areas of greenspace that are likely to be large enough to achieve the key objective of attracting visitors in preference to visiting the coast. Nevertheless, it is important that housing sites incorporate greenspace where feasible, and that this is designed to provide an attractive space for residents and visitors. Whilst these areas are unlikely to fully mitigate the recreational impacts that might arise as a result of an increase in the local residential population, partial mitigation is possible. The cumulative benefits of this partial mitigation could be significant.

Greenspace standards

8.50 The effectiveness of greenspace depends on it being suitable as well as accessible. Natural England has published guidance for the design of Suitable Areas of Natural Greenspace (SANG)³⁹, which recognises the need to provide a space that is likely to attract visitors in preference to using the coast. The guidance includes the following standards:

- Parking should be provided for visitors within 400m of the recreational area (if a purpose of the SANG is to attract visitors from outside a site). There should be a clear link between the parking area and the SANG, with a safe access route provided between the two locations.
- Landscaping within the SANG should allow easy access into the recreational area, creating key nodal access points, allowing new resident and existing users to directly access the greenspace provision. Landscaping should therefore be a key consideration.
- The SANG should be linked, if necessary, to provide an additional circular route of up to 2.5 km (this can incorporate existing as well as newly created routes). The route should offer a number of opportunities to both extend the walk and undertake shorter routes to suit the needs of the user.
- The paths should not be formally surfaced, but should benefit from regular maintenance to ensure they remain accessible during the summer growing season.
- The walking route should retain a natural feel and should not be incorporated into the main development area.
- Signposting and way-marking should be provided at key nodal points to make potential users aware of the provision. This should include some interpretation, explaining why the recreational area is being provided.
- Funding should be provided to allow the local authority to advertise the provision of the new recreational area on their website, and also provide a leaflet explaining conservation reasons why the route has been created.

8.51 It is important that users of greenspace feel safe and so consideration will need to be given to the location of car parks and paths away from roads, the use of fencing to prevent dogs from accessing dangerous areas, avoiding car parking charges (which may deter visitors), providing dog waste bins etc.

Strategic Access Management & Monitoring (SAMM)

8.52 The principles of Strategic Access Management and Monitoring (SAMM) have previously been established within the SSGA HRA and have been recognised within Sunderland's Core Strategy. This comprises various measures that will be implemented at the European sites as well as within proposed development sites and areas of green infrastructure. SAMM measures are to be continued in perpetuity.

SAMM mitigation at the European sites

8.53 A range of measures are proposed that are designed to control visitor activities and behaviour, either as a result of education or through policing of byelaws and other enforceable control measures. The proposed measures are:

- The use of Public Space Protection Orders / By-laws to implement dog-leash restrictions in sensitive locations, such as the Northumbria Coast SPA (within the 6 km visitor pressure catchment) during the period September to April.
- The use of appropriately trained personnel to monitor adherence to Public Space Protection Orders / By-laws, and to issue fines where necessary. If monitoring shows that dog-leash restrictions are not sufficient then dog bans will be introduced instead.

³⁹ <http://www.bracknell-forest.gov.uk/sangs-guidelines-and-checklist-12-06-08.pdf>

- Suitably qualified and experienced people will be used to undertake a range of additional activities including (but not limited to): monitoring the European sites; managing the design and publication of educational information; promoting walking routes; educating the local community; organising volunteers; and coordinating educational / promotional events.
- Suitably qualified and experienced people will be used to promote the use of alternative coastal locations, particularly cliff-tops rather than intertidal habitat, by encouraging access to the England Coast Path rather than the shore.
- Suitably qualified and experienced people will contribute to the recruitment of volunteers, who will be trained to lead walks, promote best practice for dog walking and police irresponsible behaviour. This will include the implementation and promotion of the Council initiatives 'Beach Watch' and 'Friends of the Coast'.

Monitoring and follow-on mitigation

- 8.54 Monitoring (including visitor surveys) is required to alert the Council (competent authority) before there may be adverse effects on the integrity of a European site. This will trigger a review of the current measures and their effectiveness and, if they are found to be inadequate, may prompt the implementation of additional measures⁴⁰.
- 8.55 Monitoring will be undertaken within the 6 km visitor pressure catchment, and this will focus on the qualifying features of the European sites and pressures on them, specifically:
- surveys of SPA wintering birds to map species distribution and abundance;
 - visitor surveys / surveys of residents to evaluate their behaviour; and
 - surveys of recreational disturbance of SPA wintering birds.
- 8.56 Surveys will also be undertaken of SANG usage, to assess whether improvements are necessary or if, for example, improved publicity is required to advertise their dog-friendly nature. If required, questionnaire-based surveys will be used to identify what modifications are required to enhance the site for users.
- 8.57 If monitoring identifies a requirement for the implementation of further mitigation measures, these will be discussed and agreed with Natural England as necessary. Further mitigation measures might include redefining the role of appropriately trained personnel, who will have a role to play in delivering certain mitigation measures (see Table 19).

⁴⁰ Tyldesley, D. & Chapman, C. (2013). The Habitats Regulations Assessment Handbook. June 2014 edition. DTA Publications Limited.

9 Mitigation Delivery

Funding

- 9.1 In general, the costs of implementation and maintenance of SANG and SAMM will be split proportionately amongst the developments that have been identified as requiring these measures. Financial contributions will be sought that will cover both elements.
- 9.2 The costs of providing SANG are to be met by developers. This will need to include the on-going maintenance cost for the SANG once provided. It is proposed that a commuted sum will be paid to the Council by each developer to cover future SANG maintenance for a 20 year period, after which the Council will take on maintenance of the SANG in perpetuity. Funding for SAMM will be obtained by securing Section 106 contributions from developers of housing sites.
- 9.3 Table 19 provides details of the estimated costs, timings and implementation of the proposed mitigation.

Table 19: Summary of mitigation delivery*

Proposal	Activity	Frequency	Time Frame	Estimated costs	Partners	Implementation
Existing initiatives						
Contribute to the promotion of and support for coastal conservation initiatives such as 'Beach Watch' and 'Friends of the Coast'.	Volunteers will be trained to promote responsible walking / dog control and to police irresponsible behaviour that may impact on European sites and Fulwell Quarry.	N/A	To be implemented in 2018 / 2019	Covered by the use of appropriately trained personnel– see below	SCC / DCC / STC	SCC
Strategic Access Management and Monitoring & Suitable Areas of Natural Greenspace (North Sunderland Coastal Ranger)						

Proposal	Activity	Frequency	Time Frame	Estimated costs	Partners	Implementation
Use appropriately trained personnel to raise awareness and provide support with the implementation of management measures in the local and wider community (n.b this post is collectively referred to as the North Sunderland Coastal Ranger).	A range of activities will be implemented including: organise events; prepare publications; define/manage walking routes; manage the design and deployment of information panels; organise volunteer services; educate visitors about best practice; check SANG to ensure that they remain fit for purpose; enforce Public Space Protection Order / Byelaws.	Part-time requirement (to complement existing mitigation secured through development at Seaburn)	As soon as funding has been secured.	Costs for the provision of a full 'coastal ranger type post' will be as follows: - £26,548 ⁴¹ per annum (including on ⁴² costs at current rates) + budget for officer £20,000 per annum + office rental £5,000 per annum = £51,548 per annum (presumption of 20 years after which time the volunteer groups should be in place) = £1,030,960. The provision of the Coastal Ranger post can then be broken down into the following funding mechanisms: 5 days per week will be funded through the Seaburn Development Additional 2 days required to provide 7 days per week The £1,030,960 5 day post equates to the equivalent over 20 years of £206,192.00 per day. If this figure is then multiplied by the additional 2 days to be provided to as part of the mitigate package for the North Sunderland sites (£206,192 x 2 days), then the total cost will be: Total Cost = £412,384.00	SCC funding developers, local schools and community groups, NE and STC	SCC

⁴¹ Costs provided by Sunderland City Council in accordance with their existing pay structure (April 2019).

⁴² The term 'on-cost' in this instance is used to describe any overhead cost in addition to base salary associated with the post, This includes items such as National Insurance and employer pension contributions.

Proposal	Activity	Frequency	Time Frame	Estimated costs	Partners	Implementation
<p>Provide SANG on council-owned land to the east of Fulwell Quarry and north of High Southwick</p>	<p>SANG is to be provided on 8.35 ha of council-owned land to the east of Fulwell Quarry and north of High Southwick in accordance with Natural England SANG guidance. SANG is to remain in perpetuity.</p>	<p>N/A</p>	<p>In advance of residential development being inhabited.</p>	<p>Supply and install 10 galvanised metal finger-posts = £200 each x 10 = £2,000</p> <p>Supply and install 10 replacement galvanised finger-posts (vandalism during the 20 year management period) = £2,000</p> <p>Supply and install 2 x interpretation panels (steel legs with fire retardant, shatter-proof cover) = £1,000 each x 2 = £2,000</p> <p>Supply and install 2 x replacement interpretation panels (vandalism during the 20 year management period) = £1,000 each x 2 = £2,000</p> <p>Supply and install 3 dog waste bins = £362 each x 3 = £1086</p> <p>Supply and install 3 replacement dog waste bins (vandalism during the 20 year management period) = £362 each x 3 = £1086</p> <p>Maintain dog waste bins for 20 year period including regular emptying and servicing as required: £8216 per bin x 3 = £24,648</p> <p>Grass cutting 4 times a year x 20 years = £438.20 per visit</p> <p>Total = £35,056</p>	<p>SCC</p>	<p>SCC</p>

Proposal	Activity	Frequency	Time Frame	Estimated costs	Partners	Implementation
<p>Improved recreational provision at Fulwell Quarry to attract walkers but without having an adverse effect on the integrity of areas designated for their wildlife interest</p>	<p>Provision of a signposted dog walking route</p>	<p>N/A</p>	<p>The dog walking route will be operational in advance of residential development being inhabited at site 652.</p>	<p>Supply and install 3 galvanised metal finger-posts = £200 each x 3 = £600</p> <p>Supply and install 3 replacement galvanised finger-posts (vandalism during the 20 year management period) = £600</p> <p>Supply and install 1 x interpretation panel (steel legs with fire retardant, shatter-proof cover) = £1,000 each x 1 = £1,000</p> <p>Supply and install 1 x replacement interpretation panels (vandalism during the 20 year management period) = £1,000 each x 1 = £1,000</p> <p>Supply and install 1 dog waste bin = £362 each x 1 = £362</p> <p>Supply and install 1 replacement dog waste bins (vandalism during the 20 year management period) = £362 each x 1 = £362</p> <p>Maintain dog waste bins for 20 year period including regular emptying and servicing as required: £8216 per bin</p> <p>Grass cutting 4 times a year x 20 years = £438.20 per visit</p> <p>Total = £35,056</p>	<p>N/A</p>	<p>SCC</p>

Proposal	Activity	Frequency	Time Frame	Estimated costs	Partners	Implementation
Provision of a dog walking route along the north bank of the River Wear	Provision of a signposted dog walking route	N/A	The dog walking route will be operational in advance of residential development being inhabited at sites 080A, 080B and 080C.	<p>Supply and install 6 galvanised metal finger-posts = £200 each x 6 = £1,200</p> <p>Supply and install 6 replacement galvanised finger-posts (vandalism during the 20 year management period) = £1,200</p> <p>Supply and install 2 x interpretation panels (steel legs with fire retardant, shatter-proof cover) = £1,000 each x 2 = £2,000</p> <p>Supply and install 2 x replacement interpretation panels (vandalism during the 20 year management period) = £1,000 each x 2 = £2,000</p> <p>Supply and install 6 dog waste bins = £362 each x 4 = £1448</p> <p>Supply and install 4 replacement dog waste bins (vandalism during the 20 year management period) = £362 each x 4 = £1448</p> <p>Maintain dog waste bins for 20 year period including regular emptying and servicing as required: £8216 per bin x 4 = £32,864</p> <p>Grass cutting 4 times a year x 20 years = £438.20 per visit</p> <p>Total = £35,056</p>		
Monitoring and follow-on mitigation						

Proposal	Activity	Frequency	Time Frame	Estimated costs	Partners	Implementation
Further develop understanding of visitor behaviour through bird and visitor surveys	Survey SANG and coastal sites to assess bird use and visitor behaviour; use results to identify how to improve publicity and make alterations if necessary.	Survey once every 5 years for the following 20 years (4 surveys).	Surveys to start when SANG is operational.	Covered by appropriately trained personnel	N/A	SCC
North Sunderland Sites Administration						
NE and SCC (as the competent authority) to review the success of mitigation measures	The success of mitigation measures to be reviewed and presented in a report that is made available to SCC and NE. Report to be prepared every 5 years.	To align with the monitoring time frames.	N/A	Covered by appropriately trained personnel	SCC, NE	SCC
Provide resources for SCC to administer / implement the required mitigation measures	Fund SCC officer support time, to administer / implement / oversee / monitor and manage.	On-going	N/A	10% of the above total costs	N/A	SCC

* Costs are estimated 2018/19 costs. Future costs will be adjusted as necessary including allowance for Construction Price Index uplift.

** NE = Natural England; SCC = Sunderland City Council.

Funding for SAMM and SANG

- 9.4 Natural England has advised that SANG alone is not likely to fully mitigate all recreational impacts on European sites and so a SAMM contribution will be required. Funding for the required mitigation measures will be obtained by securing Section 106 contributions from developers.
- 9.5 The costs of providing SANG and associated green links are to be met by developers. This will need to include the on-going maintenance cost for the SANG once provided. It is proposed that a commuted sum will be paid to the Council by each developer to cover future SANG maintenance for a 20 year period, after which the Council will take on maintenance of the SANG in perpetuity.
- 9.6 A breakdown of the financial contributions required for each site is presented in Table 20.

Table 20: Contribution requirements for proposed development of the North Sunderland Sites

SHLAA Ref	Site Name	Total units	Financial contribution (per unit)	Total contribution
080A	Stadium Village Sheepfolds Central	50	£703.00	£35,160
080B	Stadium Village Sheepfolds East	70	£703.00	£49,224
080C	Stadium Village Sheepfolds Cliff Top	60	£703.00	£42,192
91	Former Southwick Primary	56	£703.00	£39,379
104	Carley Hill School	110	£703.00	£77,352
175	Fulwell Quarry	90	£703.00	£63,288
243	Earlston Street	14	£703.00	£9,845
254	Fulwell Reservoir	21	£703.00	£14,767
563	Hylton Colleg & football field	110	£703.00	£77,352
652	Old Mill Rd	38	£703.00	£26,722
675	Fulwell Quarry (near golf range)	65	£703.00	£45,708
467A	Fulwell Allotments/ Playing fields	60	£703.00	£42,192
467B	Thornbeck College	15	£703.00	£10,548
416	Ferryboat Lane, North Hylton	110	£703.00	£77,352
		869**		£667,339.00*

*Figures include HGA8 which will also need to contribute towards the overall mitigation package. When HGA8 is added this gives a total of 949** units. See Sunderland Core Strategy HRA report (BSG Ecology 2019). Costs provided with agreement from Sunderland City Council (April 2019).

Development timing & certainty

- 9.7 The timing of housing development is not known, however, it will be necessary for the proposed range of mitigation measures to be delivered at a time that ensures that an appropriate mix of both SANG and SAMM is implemented in advance of any impacts occurring.
- 9.8 The proposed approach to the delivery of mitigation measures as development sites are brought forward is in accordance with those measures that have been proposed and adopted for the South

Sunderland Growth Area. Based on the information set out in Table 21, an appropriate level of mitigation should be in place to facilitate the timings of sites coming forward.

Table 21: Evaluation of development timing and certainty

Site No. SHLAA	Site Name	Potential dwelling No.	Comments regarding certainty
080A	Stadium Village Sheepfolds Central	50	Site forms part of the councils capital release programme. Due to be released in years 6-10.
080B	Stadium Village Sheepfolds East	70	Site forms part of the councils capital release programme. To be released following sale of Site 080C.
080C	Stadium Village Sheepfolds Cliff Top	60	Site out to market.
91	Former Southwick Primary	56	Pre-app stage 2 pending.
104	Carley Hill School	110	Due to receive Homes England LAAC Grant- must be spent on remediation by 2021 and the site released once remediation complete. To be released years 1-5.
175	Fulwell Quarry	90	Due to receive Homes England LAAC Grant- must be spent on remediation by 2021 and the site released once remediation complete. To be released years 1-5.
243	Earlston Street	14	Private Site.
254	Fulwell Reservoir	21	Private Site.
563	Hylton College & football field	110	Full application due Spring 2019.
652	Old Mill Rd	38	Site forms part of the councils capital release programme. Due to be released in years 6-10.
675	Fulwell Quarry (near golf range)	65	Green Belt, depending on the outcome of the Local Plan.
467A	Fulwell Allotments/ Playing fields	60	Due to receive Homes England LAAC Grant - must be spent on remediation by 2021 and the site released once remediation complete. To be released years 1-5.
467B	Thornbeck College	15	Private Site.
416	Ferryboat Lane, North Hylton	110	Green Belt, depending on the outcome of the Local Plan.

In-combination assessment of residual effects

- 9.9 The initial screening stage of the assessment concluded that, in the absence of mitigation, the proposed development, when considered alone, is likely to have a significant effect on a European site. Consequently the need for an appropriate assessment was triggered without the requirement for an assessment of the proposals in combination with other plans and projects. The appropriate assessment has concluded that the wide range of measures that are proposed will fully mitigate impacts on European sites. Collectively it is considered that these measures will ensure that there will be no adverse effects on the integrity of any European site as a result of the proposed housing development in the North Sunderland area. There will be no residual effects on any European sites.

10 Conclusions

- 10.1 The HRA has identified likely significant effects that may arise as a result of the development of the North Sunderland Sites. The main effect is likely to be disturbance of birds caused by higher numbers of visitors to the coast for recreational activities including dog walking.
- 10.2 Measures are therefore described to mitigate all potential impacts on European sites. It is considered that a combination of the existing (north bank of the River Wear and land adjacent to Fulwell Quarry) and proposed greenspace (council owned land to the east of Fulwell Quarry and north of High Southwick) is sufficient in terms of area, distance from housing sites and proposed enhancement. If the greenspace design principles set out within the HRA are adhered to, the proposed combined measures are considered to be sufficient, when considered alongside the proposed site access management measures (see below) to mitigate impacts arising from recreational activity, including dog walking, from residents of the new housing sites described within this HRA report (i.e. the 14 North Sunderland Sites and HGA 8).
- 10.3 The use of greenspace to divert recreational activity from the European sites will be actively promoted and complemented by strategic access management measures. The use of measures such as public education, will collectively counteract recreational activity that has the potential to have an adverse effect on European sites.
- 10.4 Proposed monitoring surveys with additional follow-on mitigation measures (such as adapting the role of appropriately trained personnel) provide assurance that, in the unlikely event that early signs of mitigation failure are observed, then alternative measures are available to ensure that adverse effects on European sites are not likely to occur.
- 10.5 The HRA includes information on the delivery of the proposed mitigation measures. This includes:
- a) detailed costing of the measures and breakdown of developer contributions;
 - b) obligations enforced by Sunderland City Council to ensure that developers proposals include appropriate mitigation measures; and
 - c) the Council implementing the strategic access management and monitoring measures, and maintenance of mitigation measures funded by contributions/commuted sums secured via Section 106 agreement.
- 10.6 The proposed mitigation measures are shown on Figure 5. The cost of delivering the proposed SANG and SAMM measures is **£703.00** per dwelling, which will be applied to each North Sunderland Site and scaled up according to the proposed number of units per site. The proportion of SANG and SAMM required to mitigate impacts has been assessed in table 18. In most cases a combination of the two methods is considered necessary, however in the case of other sites such as Ferryboat Lane, North Hylton SAMM alone is considered to be sufficient.
- 10.7 It was concluded that the proposed development alone is likely to have a significant effect on a European site in the absence of mitigation measures and so an appropriate assessment has been completed. When the proposed mitigation measures described within this report are adopted it is concluded that the development of the North Sunderland Sites will not have any adverse effect on the integrity of the Northumbria Coast SPA/Ramsar sites or Durham Coast SAC. There will be no residual effects on any European sites.

11 Glossary

BTO: British Trust for Ornithology

DBC: Durham Bird Club

HRA: Habitat Regulations Assessment

JNCC: Joint Nature Conservation Committee

LWS: Local Wildlife Site

RSPB: Royal Society for the Protection of Birds

SAC: Special Area of Conservation

SAMM: Strategic Access Management and Monitoring

SANG: Suitable Alternative Natural Greenspace

SPA: Special Protection Area

SSSI: Site of Special Scientific Interest

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13 Figures

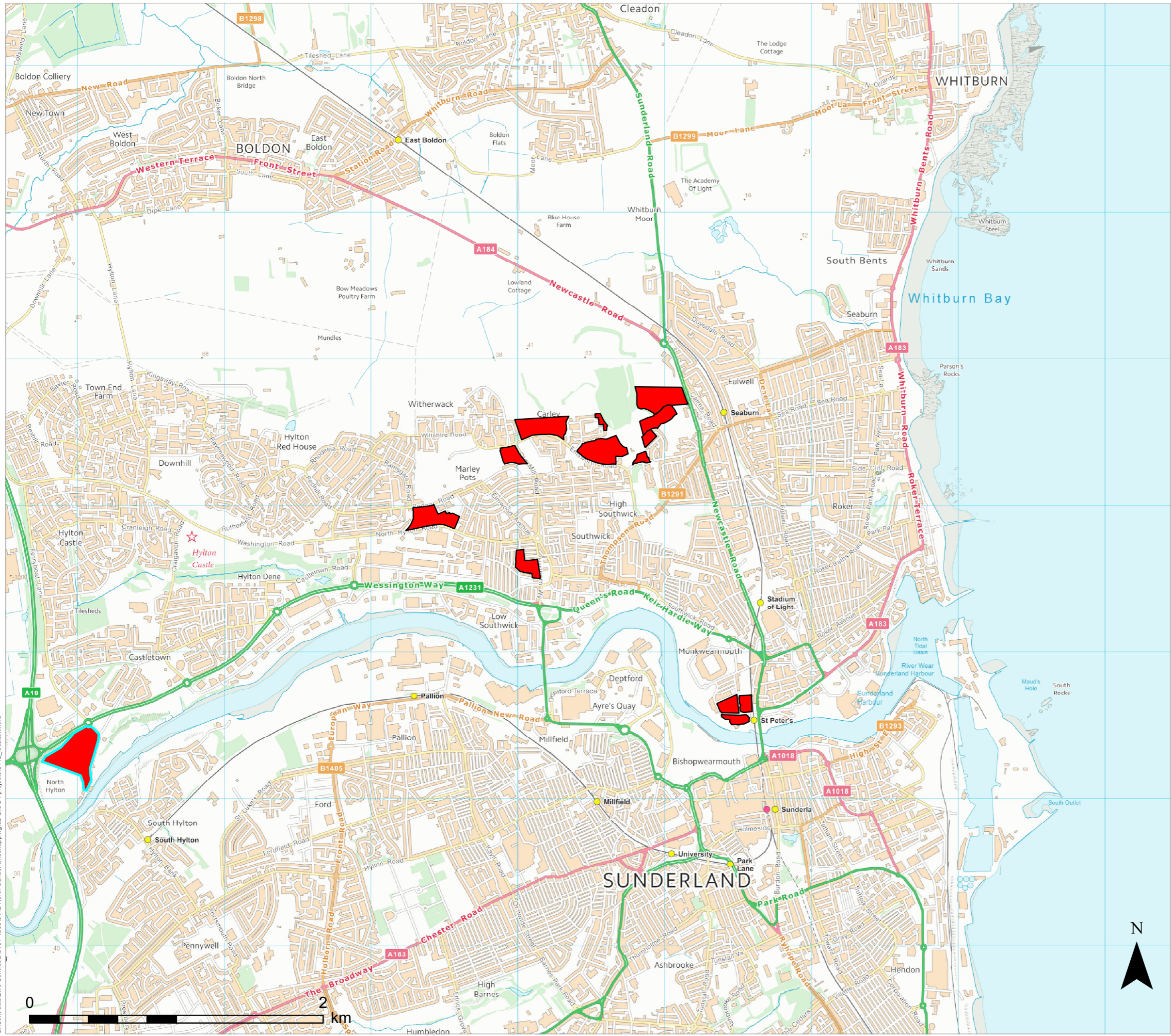
Figure 1: Location map.


Figure 2: Designated sites.

Figure 3: Development sites.

Figure 4: Existing semi-natural coastal greenspace.

Figure 5: Proposed mitigation arrangements.



LEGEND
 North Sunderland Regeneration Sites

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PROJECT TITLE
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DRAWING TITLE
 Figure 1: Location map

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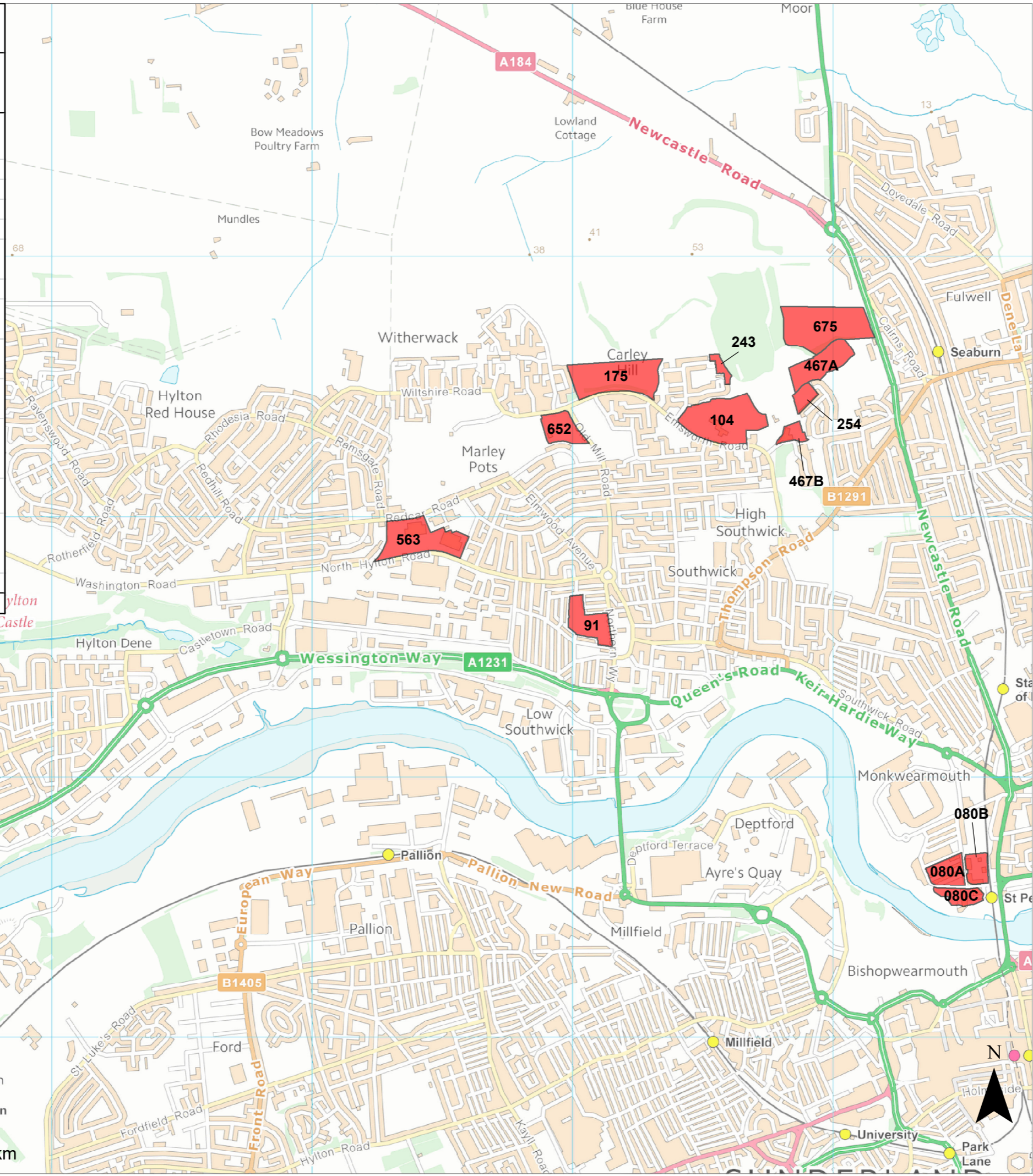
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Figure 2: Designated sites

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LEGEND

- North Sunderland Regeneration Sites
- 6 km radius from Development site
- Durham Coast Special Area of Conservation (SAC)
- Northumbria Coast Special Protection Area (SPA) / Ramsar sites
- 6 km radius from SPA / Ramsar sites / SAC

Proposed development sites considered within the assessment		
Site No.	Site Name	Potential Dwelling No.
91	Former Southwick Primary	56
104	Carley Hill School	110
175	Fulwell Quarry	90
243	Earlston Street	14
254	Fulwell Reservoir	21
563	Hylton College & football field	110
652	Old Mill Rd	38
675	Fulwell Quarry (near golf range)	65
080A	Stadium Village Sheepfolds Central	50
080B	Stadium Village Sheepfolds East	70
080C	Stadium Village Sheepfolds Cliff Top	60
416	Ferryboat Lane, North Hylton	110
467A	Fulwell Allotments/ Playing fields	60
467B	Thornbeck College	15
Total		869



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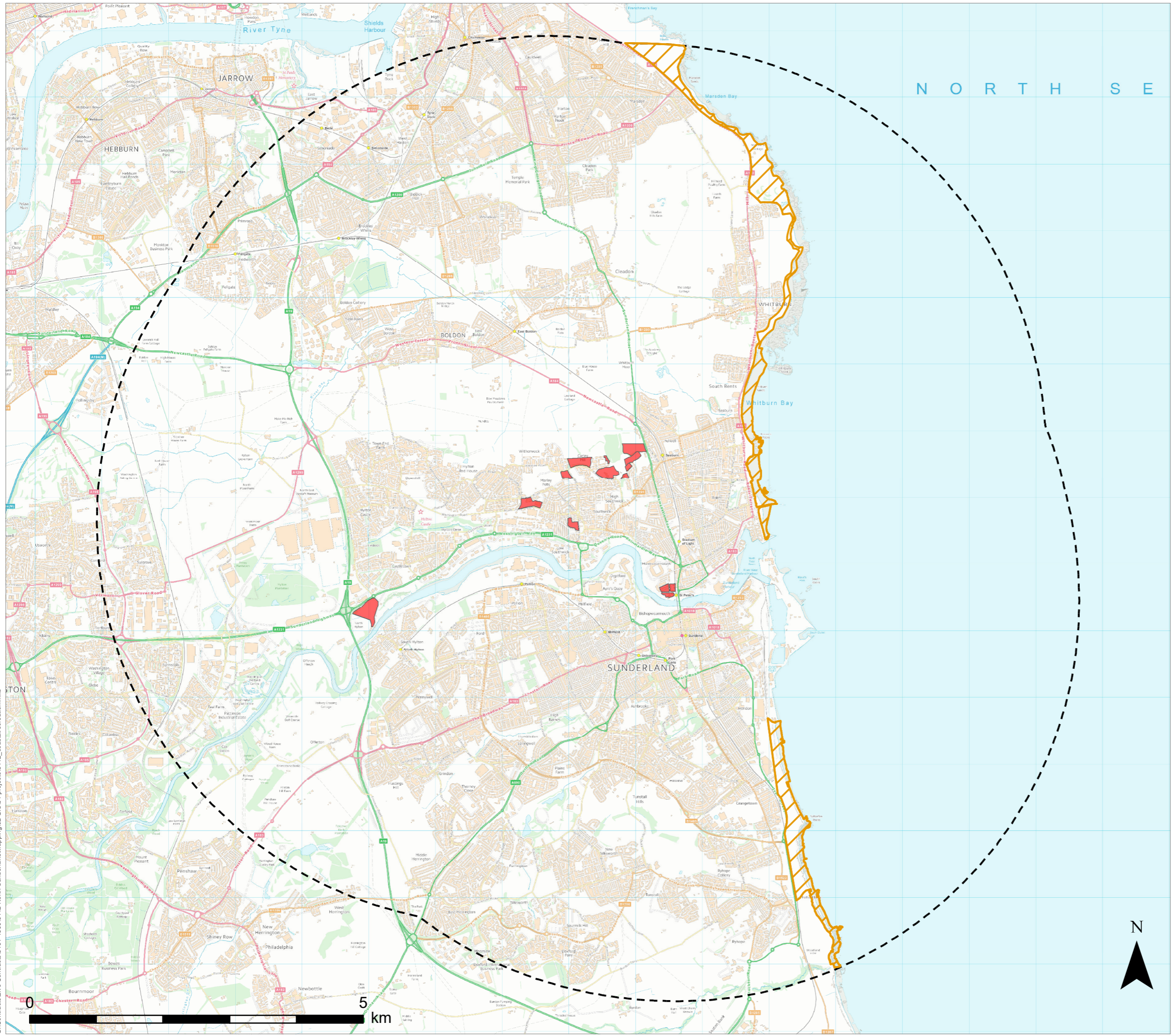
PROJECT TITLE
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DRAWING TITLE
Figure 3: Development sites (detail)

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LEGEND

- North Sunderland Regeneration Sites
- 6 km radius from Development site
- Semi-natural accessible coastal recreation area

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DRAWING TITLE
Figure 4: Existing semi-natural accessible coastal recreation area within 6 km

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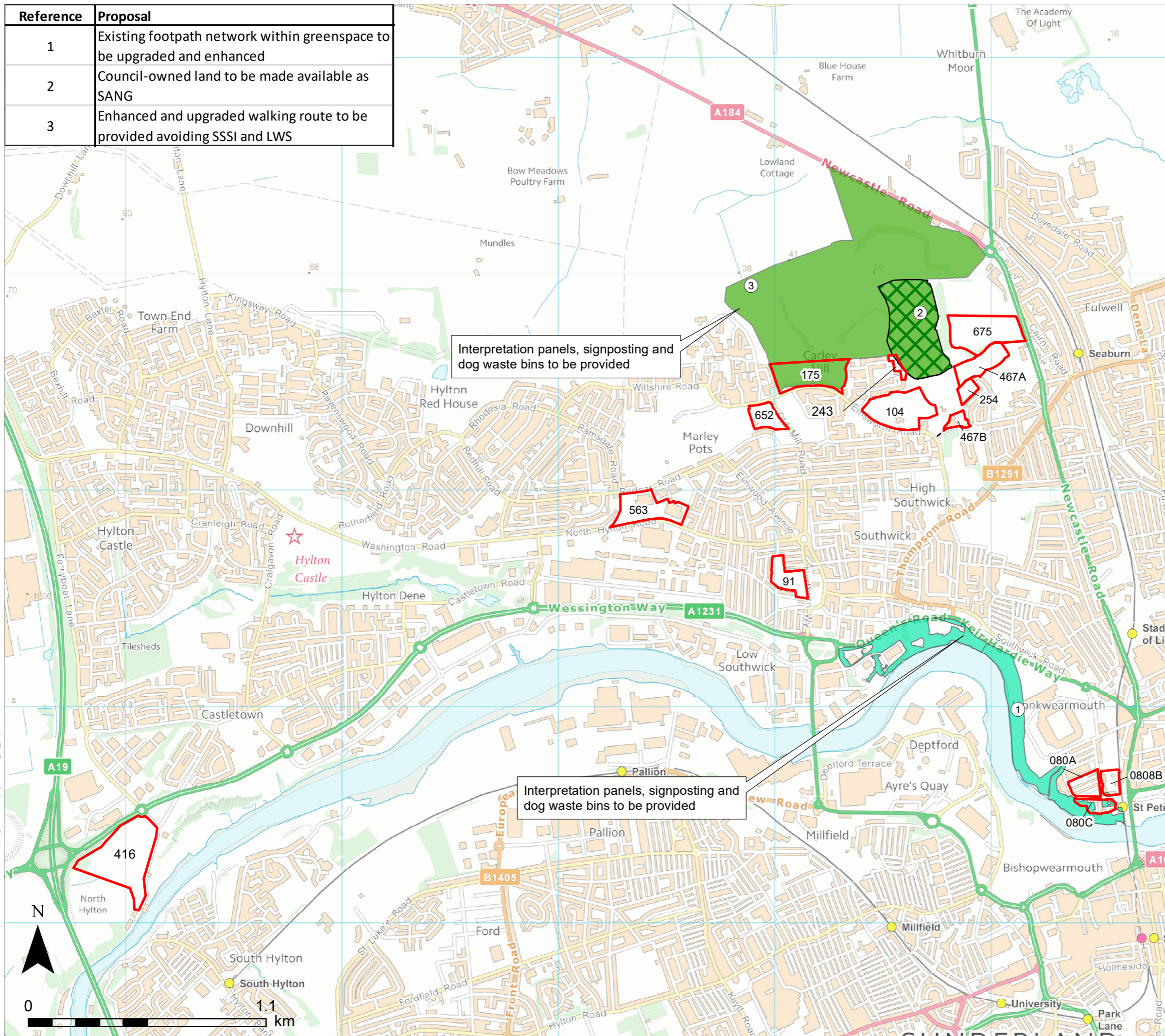
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Reference	Proposal
1	Existing footpath network within greenspace to be upgraded and enhanced
2	Council-owned land to be made available as SANG
3	Enhanced and upgraded walking route to be provided avoiding SSSI and LWS



LEGEND

- 104 North Sunderland Regeneration Sites
- ① Proposed mitigation
- Area to be used for dog walking route (avoiding SSSI and LWS)
- Area to be enhanced for dog walking
- Proposed SANG

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PROJECT TITLE
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DRAWING TITLE
Figure 5: Proposed greenspace arrangements

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14 Appendix 1: Habitats Directive

Statutory Requirements

- 14.1 In October 2005 (Case C-6/04), the European Court of Justice ruled that Articles 6(3) and 6(4) of Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (known as the 'Habitats Directive') applied to land use plans in England. This ruling was made with specific reference to the definition of the term 'plans or projects' as referenced within Article 6(3) of the Directive).
- 14.2 Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:
- 14.3 "Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."
- 14.4 Article 6(4) goes on to discuss alternative solutions, the test of "imperative reasons of overriding public interest" (IROPI) and compensatory measures:
- 14.5 "If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted."
- 14.6 In its ruling the European Court of Justice concluded that land use plans must also be subject to an 'appropriate assessment', as required under Article 6(3) of the Habitats Directive. The purpose of the 'appropriate assessment' is the same for all plans or projects, i.e. to demonstrate that their implementation would not adversely affect the integrity of a Natura 2000 site.
- 14.7 Amendments to the Conservation (Natural Habitats &c) Regulations 1994 (the statutory instrument that first transposed the requirements of the Habitats Directive into UK law) to implement the ruling were published for England and Wales in July 2007. These amendments and the previous regulations were subsequently consolidated and replaced by the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations).
- 14.8 Chapter 8 of the Habitats Regulations covers the assessment of plans and projects and it sets out the requirement that an authority preparing a land-use plan must assess the potential effects of the plan upon European sites prior to the plan being published. Under regulation 102 of the Habitats Regulations, the assessment must determine whether or not a plan will adversely affect the integrity of any European site(s) that might be affected by the implementation of that plan. Where negative effects are identified, the process should consider alternatives to the proposed actions and explore mitigation opportunities, whilst adhering to the precautionary principle.
- 14.9 Decision-makers then have to determine what action to take and this requirement is summarised succinctly as follows (URS, 2015). 'They [decision makers] should take account of the potential consequences of taking no action, the uncertainties inherent in the scientific evaluation, and they should consult interested parties on the possible ways of managing the risk. Measures should be proportionate to the level of risk, and to the desired level of protection. They should be provisional in nature pending the availability of more reliable scientific data. Action is then undertaken to obtain further information enabling a more objective assessment of the risk.'

- 14.10 The measures taken to manage the risk should be maintained so long as the scientific information remains inconclusive and the risk unacceptable. The hierarchy of intervention is important: where effects on ecological integrity are identified, plan makers must first consider alternative ways of achieving the plan's objectives that avoid significant effects entirely. Where it is not possible to meet objectives through other means, mitigation measures that allow the plan to proceed by removing or reducing significant effects may be considered. If it is impossible to avoid or mitigate the adverse effect, the plan-makers must demonstrate, under the conditions of regulation 103 of the Habitats Regulations, that there are Imperative Reasons of Overriding Public Interest (IROPI) to continue with the proposal. This is widely perceived as an undesirable position and should be avoided if at all possible.'

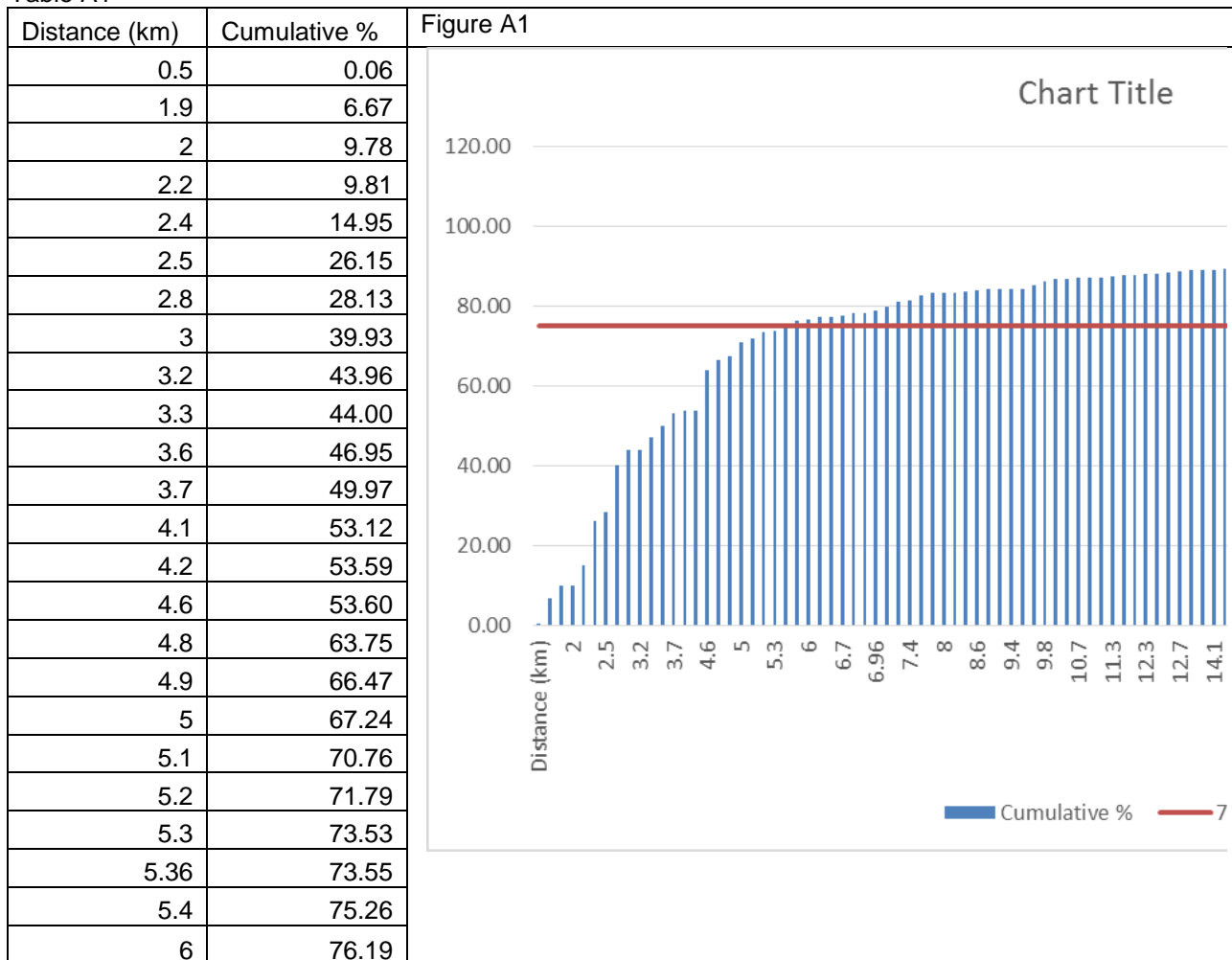
15 Appendix 3: European Site Visitor Pressure Catchment

Annualising visitor survey data

- 15.1 Bluegrass has carried out a visitor survey that collected data from six locations in South Shields and Sunderland during the period November 2014 to April 2015. A total of 674 interviews were conducted, comprising 330 the South Tyneside area and 334 in the Sunderland area.
- 15.2 Each interview represents a sample of a single visit to the coast and so analysis of the resultant data without any correction is unlikely to provide a realistic picture of actual visitor behaviour over the course of a year. For example, visitors exhibit different visitor behaviour with some visiting the coast daily whilst others may visit the coast less than once a month. Consequently there is a need to consider the frequency of visits when interpreting the data.
- 15.3 Durham County Council has previously commissioned visitor survey data of the Durham Heritage Coast and the resultant data were annualised to provide an overall picture of visitor activity per year. In broad terms the process involves converting visit frequency into a number of visits per year and then linking this to travel distance.
- 15.4 The approach that has been adopted in this study is as follows. Calculate the number of visits per year for each interviewee. During interviews each respondent was asked to estimate the frequency with which they visit the coast using the following bands:
- Every day
 - 2-3 times a week
 - About once a week
 - Once or twice a month
 - Less than once a month
- 15.5 These bands have been converted into visits per year as follows:
- Every day – 182 visits in the winter and 183 visits in the summer, which gives a total of 365 visits a year
 - 2-3 times a week – 26 weeks x 3 visits = 78 visits in the winter / summer
 - About once a week – 26 weeks x 1 visit = 26 visits in the winter / summer
 - Once or twice a month – 6 months x 2 visits = 12 visits in the winter / summer
 - Less than once a month - 6 months x 1 visits = 6 visits in the winter / summer
- 15.6 Calculate the travel distance for each interviewee. The travel distance has been calculated for each respondent using the postcode sector that has been provided. As a postcode sector represents a zone rather than a point, the minimum travel distance has been calculated (from the eastern edge of the postcode sector to the nearest designated site) and the maximum travel distance has been calculated (from the western edge of the postcode sector).
- 15.7 Aggregate the results. The results have then been aggregated into travel bands to provide a total number of visits per travel band. For example, two people may have travelled from postcode sector NE33 4, which is 1.2 km from the nearest designated site (minimum distance). One person may have indicated that they visit daily (365 visits a year) and the second person may have indicated that they visit once or twice a month (24 visits a year). The total annualised visits for this travel band is therefore 389.

15.8 Calculate a cumulative total. The results are then plotted as a list of aggregated visits for each travel band starting with the shortest travel distance and working up to the furthest. The aggregated visits are added to the previous total to provide a cumulative total (see Table A1). The cumulative total is then converted into a percentage with the last entry being 100%. The data are then plotted graphically (Figure A1) and a 75% intercept is used to calculate the travel distance within which 75% of the visitors conducted their journeys to the coast.

Table A1



Excluded data

15.9 The above approach has excluded visits that are over 50 km as these were all reported to be infrequent by respondents and are considered to be people on holiday rather than local residents. In addition some of the postcodes are not recognised as legitimate postcode sectors and so they have been excluded unless there appears to have been an obvious transcription error.

16 Appendix 3: Durham Coast SAC – constituent SSSI Condition Assessment

16.1 Table A2: Condition assessment for the constituent SSSI units of the Durham Coast SAC (within the Sunderland City Council area).

SSSI unit	Section	Description	Condition assessment
6	The Bents to Whitburn Rifle Ranges	Littoral rock (34.6 ha)	Favourable This unit consisted of rocky shore which has very good feeding habitat for non-breeding birds. A large extent of the intertidal rocks is covered in a mix of seaweed. The mix is dominated by: Fucus species, ulva (sea lettuce), washed up brown seaweeds including Laminaria and red seaweeds including Ceramium rubrum. No negative issues were identified for the coastal bird habitat
10	The Bents to Whitburn Rifle Ranges	Lowland neutral grassland (13.4 ha)	Favourable This unit is in favourable condition. The range of vegetation zones and transitions has been maintained with areas of bare ground, pioneer habitat, maritime grassland on the cliff slopes and exposed headlands, and a mosaic of MG5/CG2 species rich grassland in a thin band at the top of the cliff interspersed with non-interest feature MG1 grassland. Scrub is well within acceptable limits at around 5%. Small patches of non-native 'garden escape' species are occasional, but do not affect overall condition. At Whitburn, the borders of amenity grassland adjacent to the SSSI have been sown with an arable wildflower mix, but this does not seem to be spreading into the SSSI so is not considered a threat. There were no negative factors affecting the geological interest and natural processes were unconstrained. At the northern end of the unit there was quite a lot of material from natural land slips at the base of the cliff, but this will be removed by wave action so is not considered to be a threat to condition. Strandline vegetation is still present at the southern end of the unit where Whitburn Bay begins.
13	Parsons Rocks	Littoral rock (4.5 ha)	Favourable The majority of the rocks adjacent to the promenade were covered by a rich diversity of seaweed providing good feeding habitat for birds. Fucus spiralis, entromorpha and washed up Laminaria were the main species present. The only negative factor on the unit was the amount of dog walking occurring on the accessible parts of the unit. The birds are forced to the seaward edge of the rocky shore so the amount of useable habitat during these times is reduced.

SSSI unit	Section	Description	Condition assessment
14	Promenade at Grangetown to Halliwell Banks	Littoral rock (13.5 ha)	Favourable This unit only has rocky shore interest used by non-breeding birds. The majority of the rocky shore was covered by a rich diversity of seaweed providing good feeding habitat for birds. <i>Fucus spiralis</i> , <i>entromorpha</i> and washed up <i>Laminaria</i> were the main species present. A large <i>Laminaria</i> forest could be seen further off shore. Sand and rock pools also provides good habitat for birds and invertebrates. The cliff tops consisted of poor grassland with little species diversity. The one area where there was better species diversity was the strip between units 14 and 15. Here the sward composition consisted of <i>Lotus corniculatus</i> , <i>Centaurea nigra</i> , <i>Plantago media</i> , <i>Festuca rubra</i> , <i>Geranium sanguineum</i> , <i>Succisa pratensis</i> and <i>Galium verum</i> . There were also negative species along the stream including Himalayan balsam, ragwort and various garden escapes. No negative features or actions were affecting the unit with the exception of some historic dumping areas seen on the cliff slopes.
15	Halliwell Banks to south of Ryhope Dene	Littoral rock (15.8 ha)	Favourable This unit only has rocky shore interest used by non-breeding birds. The majority of the rocky shore was covered by a rich diversity of seaweed providing good feeding habitat for birds. <i>Fucus spiralis</i> , <i>entromorpha</i> and washed up <i>Laminaria</i> were the main species present. The very South of the unit before Seaham Beach (Pincushion rocks) provided an excellent expanse of feeding habitat. Sand and rock pools also provides good habitat for birds and invertebrates. The cliff tops consisted of poor grassland with little species diversity. Arable land comes in close proximity to the cliff slopes and so will affect species diversity. The one area where there was better species diversity was the strip between units 14 and 15. Here the sward composition consisted of <i>Lotus corniculatus</i> , <i>Centaurea nigra</i> , <i>Plantago media</i> , <i>Festuca rubra</i> , <i>Geranium sanguineum</i> , <i>Succisa pratensis</i> and <i>Galium verum</i> . No negative features or actions were affecting the unit with the exception of some historic dumping areas seen on the cliff slopes.

SSSI unit	Section	Description	Condition assessment
20	Nose's Point to Shot Rock	Calcareous grassland (16.4 Ha)	Unfavourable recovering The unit passed all variables except frequency of pioneer community species because legacy mine waste is constraining coastal erosion, therefore exposing less bare ground for pioneer communities. The mine waste is being naturally eroded over time so the site can be considered to be Unfavourable Recovering. Biological features – The good grassland is in small patches interspersed with scrub and rank vegetation, but where it occurs the species diversity is high with a complex mosaic of neutral and calcareous communities reflecting the underlying geology of magnesian limestone with glacial boulder clay deposits. The biological interest features don't require management intervention as long as scrub remains below 20% overall (assessed as 7% on average). Vegetation succession will be moderated by natural processes so that the exact location and extent of the different interest features varies over time but the range of vegetation zones is maintained. However the best and most extensive area of grassland is the large meadow at Beacon Point which best fits the CG6 NVC but also contains abundant saw-wort and other neutral species. This area is managed as a hay meadow and scrub levels have been kept low here. Geological features – though the very base of the cliff is obscured by the mining deposits in places, the rest of the sequence is well exposed and the geological features are considered to be in favourable condition overall. The Easington Raised Beach deposits in the cliffs of Shippersea Bay were observed to be intact with no obstructions to them evolving naturally.
23	Nose's Point to Shot Rock	Littoral sediment (45.2 Ha)	Unfavourable recovering See unit 20