

# ***DALGETY BAY REMEDICATION WORKS***

***Design & Access Statement  
February 2017***

***DIO Project No:  
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## TABLE OF CONTENTS

<b>List of Abbreviations</b> .....	<b>III</b>
<b>Executive Summary</b> .....	<b>IV</b>
<b>1. Introduction</b> .....	<b>1</b>
1.1 Introduction .....	1
1.2 Legislative Context .....	1
1.3 Supporting Information.....	1
1.4 Project Background .....	2
1.5 Overview of the Previous Studies .....	2
1.6 Layout of the DAS.....	2
<b>2. Design Statement</b> .....	<b>3</b>
2.1 Introduction .....	3
2.2 Background to Design Approach .....	3
2.3 Feasibility and Option Development.....	4
2.4 Environmental Impact Assessment .....	6
2.5 Overview of Consultation .....	6
2.6 Embedded Mitigation .....	7
2.7 Summary and Conclusions .....	10
<b>3. Access Statement</b> .....	<b>11</b>
3.1 Introduction .....	11
3.2 Materials Delivery Strategy .....	11
3.3 Material Delivery .....	12
3.4 Operational Access.....	15
3.5 Summary and Conclusions .....	15

## LIST OF ABBREVIATIONS

BPM	Best Practicable Means
CEMP	Construction Environmental Management Plan
CLR	Contaminated Land Report
COMARE	Committee on Medical Aspects of Radiation in the Environment
DAS	Design & Access Statement
DBSC	Dalgety Bay Sailing Club Ltd.
DDA	Disability Discrimination Act
DIO	Defence Infrastructure Organisation
EIA	Environment Impact Assessment
ES	Environmental Statement
HGV	Heavy Goods Vehicle
MHWS	Mean High Water Spring
MLWS	Mean Low Water Spring
MoD	Ministry of Defence
MSA	Management Strategy Area
PHE	Public Health England
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area
SNH	Scottish Natural Heritage
TMP	Traffic Management Plan
PAC	Pre-Application Consultation
PHE	Public Health England

## EXECUTIVE SUMMARY

*This Design & Access Statement (DAS) has been prepared in support of a planning application for the remediation of radium contamination located in the foreshore of Dalgety Bay in Fife. The physical works to which the application relates can be summarised as follows:*

- *Installation of geotextile membrane and replacement/reinforcement of rock armour;*
- *Removal of higher activity radium material from targeted foreshore areas;*
- *Re-profiling of foreshore and placement of geotextile membrane and rock armour cover system to isolate radium contamination;*
- *Removal of existing jetty and slipways to allow screening for radioactive particles and replacement with new slipway and jetty structure; and,*
- *Creation of compound and ancillary works.*

*Elements of the proposed works will also require a marine licence and this document is one of a number of reports submitted to Fife Council and Marine Scotland to inform their decision-making process to determine the acceptability of the development against the current legislative regimes for terrestrial land use planning and marine consenting in Scotland.*

*This DAS provides a summary of how the finalised design of the development has evolved from early optioneering stages through to identifying a sustainable and effective solution to meet the long term mitigation of risks from radium contamination within the foreshore area. IT also demonstrates how access arrangements during construction have been considered from the outset of the project with effective solutions implemented to reduce impacts on local receptors.*

*From the inception of developing a suitable remediation strategy for the Dalgety Bay foreshore, partnership working and stakeholder engagement has been given high priority in order to adequately address the health and environmental risks associated with the pollutant linkages which have been identified. The 'Design' section of this DAS reports on the steps that have been taken to ensure stakeholder involvement and demonstrates how the design has been directly influenced by this engagement. Furthermore, the DAS demonstrates that from feasibility stages through to environmental impact assessment, significant amendments to the design and delivery strategy have been implemented to ensure that potential environmental effects resulting from the Development have been mitigated through design where possible.*

*In terms of 'access' issues, a detailed environmental impact assessment covering traffic and transport effects has been carried out to inform the choice of route to the Site and also to consider the transport implications of the Development. Overall, it was considered that transporting all construction materials to the Site by heavy goods vehicle (HGV) would result in an unacceptable impact on the adjacent residential properties and as such the majority of materials will be delivered to the Site by barge.*

*Based on this approach, traffic and transport impacts are deemed to be negligible, however a Traffic Management Plan has been recommended to ensure temporary effects relating to an increase in general construction traffic are minimised. Pedestrian access to the Bay area will also not be affected by construction or operation.*

*Overall, the Development has been progressed with due consideration to design and access issues and as a result is considered to be in accordance with relevant land use and marine policy objectives.*

## 1. INTRODUCTION

### 1.1 Introduction

1.1.1 This Design & Access Statement (DAS) is one of a number of reports which have been submitted to Fife Council and Marine Scotland in relation to the requirement to address known radium contamination on the foreshore at Dalgety Bay in Fife. The following proposed works, herein referred to as '**the Development**', are required in order to implement the remediation strategy:

- Installation of geotextile membrane and replacement/reinforcing of rock armour;
- Removal of higher activity radium material from targeted foreshore areas;
- Re-profiling of foreshore and placement of geotextile membrane and rock armour cover system to isolate radium contamination;
- Removal of existing jetty and slipways to allow screening for radioactive particles and replacement with new slipway; and,
- Creation of compound and ancillary works.

1.1.2 This DAS provides an account of the design evolution of the project and details an overview of how construction access arrangements have been considered. The DAS has been carried out to support a major planning application to Fife Council (for all works above the Mean Low Water Spring (MLWS)), and a marine licence application to Marine Scotland (for licensable activities carried out from the Mean High Water Spring (MHWS) to 12 nautical miles).

1.1.3 Note that all figures referenced in this document are available within Volume 2 of the Environmental Statement (ES) that accompanies this planning application.

1.1.4 Figure 1.1 Location Plan and 1.2 Site Plan demonstrate the geographical context and extent of the area where the Development is proposed ('**the Site**'). Figure 1.6 provides an overview of the Development upon completion.

### 1.2 Legislative Context

1.2.1 Regulation 13 of The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008 stipulate that certain types of development require a mandatory design and access statement. This includes 'major' planning applications as defined under the Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009, to which this Development relates.

1.2.2 Planning Circular 3/2013 Development Management Procedures provides outline guidance on the preparation of Design & Access Statements as follows:

*"The main aim of the statement is to inform the planning decision-making process. Statements should ensure development proposals are based on a carefully considered design process and address the needs of people with disabilities in terms of access to the development and how such arrangements will be maintained. They should allow the applicant to explain and justify their proposals and help all those assessing the application (including elected members and communities) to understand the design rationale that underpins them"* (Paragraph 3.17).

### 1.3 Supporting Information

1.3.1 This DAS should be considered alongside the suite of additional documents which have been submitted in support of the planning and marine licence applications, namely the following:

- Environmental Statement (ES) (February 2017);
- Planning Statement (February 2017);
- Coastal Processes Report (February 2017); and,
- Pre-Application Consultation (PAC) Report (February 2017).

## 1.4 Project Background

- 1.4.1 Following the discovery of radioactive contamination on the beach at Dalgety Bay during a routine baseline monitoring campaign by Babcock Engineering Services for Rosyth Naval Base in June 1990, a limited survey was carried out which confirmed the presence of discrete sources of radium-226 on the foreshore at Dalgety Bay.
- 1.4.2 The Committee on Medical Aspects of Radiation in the Environment (COMARE) has been considering radioactive contamination in the Dalgety Bay area since 1991 and has been involved in advising Scottish authorities since then.
- 1.4.3 As outlined in COMARE's 15th Report on Radium contamination in the area around Dalgety Bay (2014) "*Radium-226 is a metallic radionuclide that emits alpha and gamma radiations and has a physical half-life of 1,600 years...Radium-226 occurs naturally as part of the radioactive decay chain of uranium-238, and it can be extracted from uranium-bearing ores and purified by chemical means*".
- 1.4.4 In the early 20th century, one of the major industrial uses of radium was in the production of luminescent paint, primarily for the use on the application of display dials and aircraft instruments to make them visible in night flying.
- 1.4.5 Potentially, the radium-226 identified in the Dalgety Bay foreshore results from military instruments containing luminescent paint which, in line with recognised practice at the time, were incinerated with the resulting material buried on site.

## 1.5 Overview of the Previous Studies

- 1.5.1 In order to identify and assess potential remediation options, an Outline Management Options Appraisal (**'the Options Appraisal'**) was prepared by AMEC on behalf of the Secretary of State for Defence (as represented by the Defence Infrastructure Organisation (DIO)) (**'the Applicant'**) and issued in January 2014. This identified four broad outline strategy options for managing the radium. The Dalgety Bay Management Strategy (**'the Management Strategy'**) was subsequently prepared by AMEC for DIO and issued in July 2014. The Management Strategy recommended a preferred option for remediation which has now been taken forward into detailed design by AECOM. The preferred option offers an effective long-term management strategy for the mitigation of risks from radium within the Dalgety Bay foreshore that is both practicable and sustainable.
- 1.5.2 For information, the Options Appraisal and Management Strategy are available to view online at the following locations:
- Options Appraisal: <https://www.sepa.org.uk/media/61708/dio-outline-management-options-appraisal-final-report.pdf>
  - Management Strategy: <https://www.gov.uk/government/publications/dalgety-bay-management-strategy-report>

## 1.6 Layout of the DAS

- 1.6.1 Section 2 of the DAS addresses the design development of the preferred option, identified through the Management Strategy, taking into account stakeholder feedback and the EIA process.
- 1.6.2 Section 3 discusses access arrangements and summarises the traffic and transport assessment carried out as part of the EIA process.
- 1.6.3 It is considered that the content is sufficient to demonstrate compliance with Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008 and associated guidance.

## 2. DESIGN STATEMENT

### 2.1 Introduction

2.1.1 Planning Advice Note (PAN) 68, 'Design Statements' states that "A design statement should explain and illustrate the design principles and design concept of the proposed layout; landscape; scale and mix; details and materials; and maintenance". This section of the DAS provides information on the design concept of the Development and how it has been developed through the environmental impact assessment (EIA) process and as a result of consultation with key stakeholders.

### 2.2 Background to Design Approach

2.2.1 As discussed in further detail in ES Volume 1 - Chapter 1, 'Introduction', the Development has been designed to implement the recommendations of the Management Strategy by securing landward radium contamination and as a result, mitigating future mechanisms for radium repopulation over the foreshore. The design of the Development and the related construction methodology has therefore been developed alongside the progression of the EIA ensuring that the consideration of environmental effects has directly informed the design process from the outset.

2.2.2 The overall objective of the Management Strategy was to "identify and develop a recommendation for an effective long-term management strategy for the mitigation of risks from radium within the foreshore that is both practicable and sustainable" (p.2).

2.2.3 In line with this, the primary objective of the Development is to address the health protection criteria established by Public Health England (PHE) in their response (see ES Volume 3 - Appendix 2.1) to the Management Strategy consultation, which is summarised below:

- Criterion 1: That all efforts should be made to ensure that objects that could give rise to a committed effective dose of 100 millisieverts (mSv) to an individual, regardless of objects size, or an external dose of 1 Gray (Gy) over time (h)<sup>-1</sup>, averaged over an area of 1 centimetre (cm)<sup>2</sup> skin at a depth of 70 microns, are either removed or isolated so that there is no credible current or future mechanism for exposure; and,
- Criterion 2: That radium contaminated objects remaining after application of Criterion 1 should be either removed or isolated so that the current or future probability of an individual receiving a 1mSv committed effective dose is less than 10<sup>-6</sup> per year. In addressing this criterion, optimisation should be carried out so that increasing weight is given to management options that remove or isolate objects of increasingly high activity.

2.2.4 The Management Strategy considered a number of options for achieving the level of protection outlined above and these are discussed further in Section 2.4 below.

2.2.5 It is concluded through the Management Strategy that the removal of higher activity materials to give the highest confidence for the removal of radium material greater than 40kBq (in line with Best Practicable Means (BPM)) will minimise the potential for contamination becoming accessible in the future. It is considered that this approach, in combination with the installation of a cover system consisting of a geotextile membrane and protective rock armour, to prevent inadvertent contact with the residual lower activity radium materials, will ensure that both Criteria 1 and 2 above are satisfied.

2.2.6 The proposed works, established as the preferred option through the Management Strategy and agreed with the Scottish Environment Protection Agency (SEPA) over the course of the design development, therefore represent the Development to which the DAS refers, as outlined in Section 1.1.1 above.

2.2.7 For the purposes of the DAS, the geotextile membrane and associated rock armouring will be termed the '**Cover System**'. It should be noted that the rock armour installation is purely to

protect and secure the geotextile membrane and ensure the Cover System is suitable to mitigate against the introduction of landward radium contamination.

2.2.8 The Development has been divided into five Management Strategy Areas (MSAs) (see Figure 1.3 'Management Strategy Areas'), namely; the Headland (Area H), the Slipway (Area S), Boat Park South (Area BS), Boat Park North (Area BN) and a landward sub area (Zone 1) of Boat Park North (Area BN-Z), each requiring different design approaches.

## 2.3 Feasibility and Option Development

2.3.1 The Options Appraisal discussed in Section 1.5 above identifies four broad outline strategy options for remediation, as detailed below:

- Exclusion of receptors;
- Cover system/encapsulation;
- Excavation and disposal; and,
- An optimised approach comprising a number of remedial techniques.

2.3.2 The Management Strategy, in accordance with guidance outlined in the Environment Agency document 'Contaminated Land Research Report 11 (CLR 11) – Model Procedures for the Management of Land Contamination' (2004) and in partnership with key stakeholders such as SEPA, sought to develop the Options Appraisal into a preferred solution for remediation. As part of this, the four techniques discussed above were assessed against a number of criteria, in a staged manner, following good practice guidance as laid out in the SAFEGROUNDS publication 'Guide to the Comparison of Contaminated Land Management Options' (CIRIA, 2009).

2.3.3 As part of the Management Strategy, numerous options which fell broadly into the management techniques listed in Section 2.3.1 above were identified for each of the 5 MSA's. These options were then filtered through a further screening assessment process outlined below:

- **Stage 1:** Defining possible management strategy options.
- **Stage 2:** Undertaking screening of the possible management strategy options identified against construction viability attributes (e.g. practicality, durability etc.) and removing those deemed to be unsatisfactory. ('Tier 1 Screening')
- **Stage 3:** Undertaking screening of remaining options against environmental and social attributes and removing those deemed to be unsatisfactory. (Tier 2 Screening').
- **Stage 4:** Screening of remaining management strategy options against capital and maintenance costs to derive a short-list for each area.
- **Stage 5:** Defining the optimum management strategy by weighing the short-listed options against each and utilising the overarching implementation criteria of functionality, confidence of achieving health protection criteria, costs and maintenance range.

2.3.4 An example of one of the most significant alternatives which was considered for Area H – Headland was the installation of a 'marine barrier' (groyne or off-shore solution) in combination with rock armour reinforcement to reduce the impact from waves onto the foreshore. However, this was discounted through the process due to a combination of uncertainty regarding functionality, construction and cost.

2.3.5 The Stage 3 (Tier 2) screening process was the most pertinent in the context of potential environmental considerations. Annex C of the Management Strategy 'Tier 2: Attribute Table 2 and Tier 2 Attribute Scoring Assessments' demonstrates the scoring assessment and comparative optioneering which was carried out to develop a preferred option.

2.3.6 As established in Table 4.8 (p.34) of the Management Strategy, each of the options were assessed against a number of environmental and social criteria. Table 2.1 below outlines these in more detail.

Table 2.1 – Management Strategy Environmental and Social Impact - Attribute Definition

Attribute	Definition
Works Impact	The likely impact to amenity receptors as a direct result of employing a single option or combination. Amenity receptors include local residents and users of the landward area of the site (walking, sailing, bird watching etc.)
Environmental Effects	The likely impact to biodiversity as a result of employing an option or combination.
Processes and Authorisations	The relative complexity of implementing an option, with respect to required processes and authorisations.
Stakeholder Support	The relative degree of scheme acceptance from stakeholders including local residents and local site users (landward and foreshore), land owners and other non-regulatory bodies.
Sustainability	The relative environmental, social and economic benefit (or otherwise) of undertaking a single option, or combination.

2.3.7 Table 2.2 below identifies the scoring of the preferred option taken forward in each of the MSA's against the above criteria, relative to the other options identified. The results reflect the fact that environmental and social considerations were considered from the outset and given significant weighting with respect to the optioneering process.

2.3.8 Further details with respect to the rationale behind the option rankings are available in the Management Strategy.

Table 2.2 – Overview of Management Strategy Assessment of Environmental and Social Impacts

MSA	Score Achieved (/20)	Ranking Compared to Other Options
Headland	17	1 <sup>st</sup> of 8.
Slipway	14	1 <sup>st</sup> of 7
Boat Park South	15	2 <sup>nd</sup> of 6
Boat Park North	15	2 <sup>nd</sup> of 5

MSA	Score Achieved (/20)	Ranking Compared to Other Options
Boat Park North (Zone 1)	14	2 <sup>nd</sup> of 5

2.3.9 In light of the above, it can be concluded that a rigorous assessment of alternatives which included consideration of environmental effects was carried out through the Options Appraisal and Management Strategy. As a result, the Management Strategy derived the most effective, practicable, and proportionate means of ensuring the health protection criteria recommended by PHE are met and the risk associated with radium within the foreshore at the Site is managed in the longer term.

## 2.4 Environmental Impact Assessment

2.4.1 As part of the EIA a number of specialist desk and site based surveys were undertaken. These studies helped to establish a baseline of existing conditions to inform the design process. By embedding the EIA within the design process, the likely significant adverse environmental impacts of the Development were identified as the design progressed and mitigation measures to avoid, reduce or offset adverse environmental effects or maximise environmental benefits have been incorporated into the Development's design.

2.4.2 In conjunction with the EIA, the MoD have carried out a project-wide Sustainability Appraisal, in accordance with the guidance outlined in the MoD Sustainability & Environmental Appraisal Tools Handbook (Section 2: Sustainability Appraisal, Version 7.1 May 2016). Sustainability Appraisal is a process that helps to ensure sustainability considerations and policy requirements are integrated into all plans, programmes and projects (P/P/Ps) that have the potential to affect the environment, society or the economy on, over or around areas owned, occupied or used by MOD, its agencies and partners. It helps to identify potential negative impacts, allowing alternative options to be sought or mitigation measures to be implemented, and to identify positive sustainability benefits and enhancement opportunities. This document will be passed to the Contractor upon project award and will be constantly updated and refreshed to ensure key sustainability objectives are met.

## 2.5 Overview of Consultation

2.5.1 The Pre-Application Consultation (PAC) Report (February 2017) submitted with this application provides a detailed overview of the consultation that was undertaken to ensure the development of a design solution to meet the requirements of the Management Strategy has been progressed in full consultation with key stakeholders. The specialised stakeholder groups, which have been formed to support the project progression, and the engagement action undertaken is summarised below:

- **The Dalgety Bay Forum Group:** Established as part of the Management Strategy process to provide a vehicle for communication between the various public agencies responsible for dealing with the radioactive contamination at Dalgety Bay and its potential health effects. Once the Management Strategy was approved and published (July 2014), this group was dissolved.
- **The Dalgety Bay Implementation Group:** Established as part of the Management Strategy process, the forum is chaired by SEPA.
- **The Dalgety Bay Permitting Group:** This group is chaired by SEPA and was established to ensure the efficient implementation of the Management Strategy in

terms of the complexities of the consenting process. This purpose of the group has been largely superseded by the inception of the formal planning and marine licence application process; however the forum can still be convened where required.

- **South West Fife Area Committee and Community Council:** The South West Fife Area Committee is one of seven area committees covering the full extent of Fife, established to “reinforce the Council’s commitment to localised decision making in addressing the differing needs of our communities”. ([www.fifedirect.org.uk](http://www.fifedirect.org.uk)). The Applicant (through DIO) has attended the South West Area Committee monthly meetings on a bi-monthly basis since April 2016 in order to update the Committee with the progress of the implementation of the remediation strategy. This has been in partnership with representatives from SEPA. In addition, a representative from DIO has attended the local Community Council (Dalgety Bay and Hillend) monthly meetings on a bi-monthly basis since March 2016 to ensure the wider community has been kept informed of the project progression.
- **Pre-Application Public Exhibitions:** Two Pre-Application Public Exhibitions took place at Dalgety Bay Parish Church on the 21<sup>st</sup> and 23<sup>rd</sup> November between 15:00 and 21:00. The events were timed at a specific point in the project development whereby the design of the Development was sufficient enough to give a robust impression of the construction and operational effects, but opportunities for design amendments were still open, ensuring that real value was placed on the feedback. The exhibitions were staffed by members of DIO, the AECOM design team and SEPA who were available to discuss the Development with members of the community throughout each day.
- **EIA Scoping:** Given that this ES has been completed to cover the requirements of both terrestrial and marine development, it was considered essential to carry out a robust scoping process to ensure the ES is focused on the key environmental issues. A draft Scoping Report was distributed to the following regulatory authorities on the 31<sup>st</sup> May 2016 in order to gain informal feedback on the proposed approach and methodology prior to assessment:
  - SEPA;
  - SNH;
  - Marine Scotland; and,
  - The Planning Authority (Fife Council).

On the 7<sup>th</sup> June 2016, a Scoping Workshop was held with the above stakeholders to discuss the draft Scoping Report and to ensure that the scope and approach to the ES was sufficient. At this stage, there was general agreement with the scope and approach to the ES, with the exception of the ‘Water Environment’ topic, which having previously been excluded, was scoped in to the project at SEPA’s request.

## 2.6 Embedded Mitigation

- 2.6.1 The following Section provides examples of how the design progression has been directly informed by feedback received during pre-application engagement and through the EIA process.

### Phasing of Works

- 2.6.2 It is envisaged that the works will be carried out over two consecutive six-month summer periods (approximately April to September), primarily to mitigate potential impacts on wintering birds in the adjacent Special Protection Area (SPA).

- 2.6.3 The intention at this stage is that the Slipway will be constructed during the first summer period, with the Headland and Boat Park Cover System construction following in the second period, although this will ultimately be defined by the Contractor. During the works, consultation will be undertaken with DBSC Ltd. with respect to detailed construction programming, in order to ensure that the recreational use of the facility is maintained as far as possible throughout the works.

#### Materials Delivery

- 2.6.4 As part of the EIA process, the worst case scenario of all material being supplied to the Site by heavy goods vehicle (HGV) was initially assessed, resulting in approximately 2,650 two-way vehicle movements over the construction period. However, the associated impacts on the local road network and residential properties have necessitated the requirement to implement mitigation to reduce the number of HGV movements.
- 2.6.5 As such, it is envisaged that the bulk of the materials will be delivered to the Site by sea, in a suitable vessel such as the 'Forth Guardsman', a barge of approximately 48m long by 14m wide.
- 2.6.6 It is estimated that the transport by sea of stone material quantities would require the barge to make approximately 19 (1,500t) deliveries of primary and secondary rock armour, plus 7 deliveries to transport the bedding material and an additional 5 to transport the concrete. Therefore a total of approximately 31 barge loads would be required to carry these materials over the two, six month construction periods. This would reduce the number of HGV movements to approximately 30 over the same period of time.
- 2.6.7 For information only, ES Volume 3 – Appendix 10.1 presents the original assessment of all materials being brought to the Site by HGV movements. This is with a view to providing a demonstration of the iterative design approach employed through the EIA and justification for the strategy of delivering the majority of materials by sea.

#### Slipway Design

- 2.6.8 The AECOM Design Team met with representatives from DBSC Ltd. on 13<sup>th</sup> September 2016 to discuss the design and implementation of the proposed Slipway. Outline design drawings, derived from a sketch arrangement previously provided to AECOM by DBSC Ltd. were presented and the proposed design approach was discussed with the Sailing Club representatives. A brief site walkover was also carried out and suitable options for the proposed construction compound were identified and assessed. Following the meeting, DBSC Ltd. provided further sketches showing the end of the Slipway amended to slope steeply down to meet the existing seabed. This arrangement was subsequently adopted and design drawings were refined for the purposes of submitting the planning and marine licence consents. At this stage, it is therefore considered that DBSC Ltd.'s operational requirements for the Slipway have been met. However, further design meetings will be required with the DBSC Ltd. representatives at the construction design stage.

#### Construction Compound

- 2.6.9 The finalised location and extent of the construction compound will be a matter for the Contractor to confirm, however the site is constrained in terms of suitable points of access and space. With this in mind and after extensive discussions with DBSC Ltd. an indicative compound has been located in an existing area of open space on DBSC Ltd. land to the south of the Ross Plantation (see Figure 1.6). The space is occasionally used for storing boats and associated trailers. It was considered by the Applicant that this area was the only viable location for the compound with reference to access and safety.

- 2.6.10 The compound is located to the rear of three properties which are located on The Wynd, an adjacent residential street. The compound is partially screened from these properties as a result of fencing and informal planting.
- 2.6.11 The location of the compound and the resulting impacts on adjacent properties has been considered through the environmental impact assessment and reported in the ES which accompanies the planning and marine licence applications.
- 2.6.12 The compound will be temporary in nature, restricted to the proposed two, six-month summer construction periods. **It is envisaged that facilities will include a primary administrative compound containing cabins, welfare facilities and storage space for plant, machinery and construction materials.** While any potential impacts will be temporary in nature, the inconvenience on adjacent properties is recognised, and as such the following mitigation measures have been proposed:
- Health and Safety: Ensure that the compound is secured adequately during operation, such that members of the public will not be able to access the facility. Any higher activity radium material encountered during the construction process will be removed off site at the end of each working day to achieve the overall aims of the Management Strategy. The compound should be removed in the interim winter period between the two summer construction phases.
  - Noise: Should a generator be required, this should be sited at a distant sufficient to ensure no significant impacts on adjacent residential properties, as per the recommendations in Volume 1 - Chapter 11 of the Environmental Statement (ES) submitted in support of this application.
  - Visual impacts: Any proposed cabins will be restricted to single storey in height and the compound shall be appropriately screened on the western and southern boundaries to ensure impacts on views of the Bay from the adjacent residential receptors are minimised. Existing planting should be retained. TBC upon finalisation of landscape chapter.
  - Transport: A locally focused Traffic Management Plan (TMP) which will seek to promote the safe and efficient transportation of components and materials, will be produced and agreed with all relevant stakeholders prior to the commencement of works, as per the recommendations in Volume 1 - Chapter 10 of the ES submitted in support of this application.
  - **General nuisance: Good working practices will be established through the design and implementation of a robust Construction Environmental Management Plan (CEMP). The principles of the CEMP are established in ES Volume 1 - Chapter 14 of the ES and can be summarised as follows:**
    - **Information on construction practices and in particular, how the use of raw materials will be minimised and the use of secondary aggregates and recycled or renewable materials maximised;**
    - **Details of how the works will be programmed to avoid any adverse impact on sensitive receptors;**
    - **How surface water run-off will be managed during construction;**
    - **Proposals for dust management including dust sprays, if required during construction;**
    - **Environmental impacts resulting from concrete batching plant operations, if proposed;**
    - **Environmental impacts resulting from spillages, refuelling and burst cables. Contingency plans for large oil spills that cannot be dealt with at a local level,**

details of designated banded fuel stores and mobile banded stores, if applicable;

- Details of waste water drainage from temporary and permanent facilities for workers on site should be provided;
- Details on restoration proposals; and,
- Environmental management, including details of the designated environmental manager and any ecological clerk of works (ECoW).
- Any successful Contractor will be required to voluntarily register with the Considerate Constructor Scheme and will agree to abide by the Code of Considerate Practice, designed to encourage best practice beyond statutory requirements. The Scheme is concerned about any area of construction activity that may have a direct or indirect impact on the image of the industry as a whole. The main areas of concern fall into three categories: the general public, the workforce and the environment. For more information on the Code, please see the Considerate Constructor website (<https://www.ccscheme.org.uk/>).

2.6.13 The Ministry of Defence (MoD), as a part of HM Government is also fully committed to the principles of Sustainable Procurement (SP) and to using its purchasing power to promote good SP practice. Industry understands the importance for companies to become more sustainable in order to remain competitive in the market, bringing benefit to its shareholders, employees and customers. Whilst delivery of operational capability must always be the primary goal, MoD wishes to work actively, and in partnership, with its Suppliers and their Trade Associations to capitalise on industry's enterprise and innovation to develop and embed SP principles into acquisition and through life management practices.

## 2.7 Summary and Conclusions

2.7.1 From the inception of developing a suitable remediation strategy for the Dalgety Bay foreshore, partnership working and stakeholder engagement has been given high priority in order to adequately address the health and environmental risks associated with the pollutant linkages which have been identified. The Design Statement reports on the steps that have been taken to ensure stakeholder involvement and demonstrates how the design has been directly influenced by this engagement.

2.7.2 Furthermore, the DAS demonstrates that from feasibility stages through to environmental impact assessment, significant amendments to the design and delivery strategy have been implemented to ensure that potential environmental effects resulting from the Development have been mitigated through design where possible.

2.7.3 Overall, ensuring the mitigation has been embedded into the design of the finalised Development has directly reduced potential environmental effects and ensured compliance with the terrestrial planning and marine policy which governs development in this area.

## 3. ACCESS STATEMENT

### 3.1 Introduction

3.1.1 This part of the DAS addresses the following:

- Materials delivery strategy;
- Movement of construction vehicles / personnel to Site; and,
- Operational access.

3.1.2 The DAS focuses on the movement of vehicular traffic to/from the Site. There are no rights of way, core paths, formal trails or cycle routes within the Site; therefore these features and the implications for addressing Disability Discrimination Act (DDA) 1995 requirements are not considered further within the DAS.

3.1.3 **The informal footpath located at the north-west extent of the Application Site, which is occasionally used for dog walking and recreational use, will be appropriately diverted to facilitate temporary construction works. Access to the foreshore for existing users will not be comprised by the Development during the construction stage or upon completion of the works.**

3.1.4 A detailed assessment of traffic and transport was undertaken by AECOM to inform access routes to the Site and assess the transport implications of the Development. This is reported in ES Volume 1 -Chapter 10 and should be read in conjunction with the DAS.

### 3.2 Materials Delivery Strategy

3.2.1 As part of the EIA process, the worst case scenario of all material being supplied to the Site by heavy goods vehicle (HGV) was initially assessed, resulting in an estimated 2,650 two-way vehicle movements (22 per day, assuming a 5 day week) over the construction period. However, the associated impacts on the local road network and residential properties have necessitated the requirement to implement mitigation to reduce the number of HGV movements.

3.2.2 As such, it is envisaged that the bulk of the materials will be delivered to the Site by sea, in a suitable vessel such as the 'Forth Guardsman', a barge of approximately 48m long by 14m wide.

3.2.3 It is estimated that the transport by sea of stone material quantities would require the barge to make approximately 19 (1,500t) deliveries of primary and secondary rock armour, plus 7 deliveries to transport the bedding material and an additional 5 to transport the concrete. Therefore a total of approximately 31 barge loads would be required to carry these materials over the two, six month construction periods. This would reduce the number of HGV movements to approximately 30 over the same period of time leading to negligible effects.



*Image 2-1: Site Access on to The Wynd*

3.2.4 **It is envisaged that the barge would be towed by tug to the Site and timed to arrive at high tide to allow positioning adjacent to designated stockpile areas. The barge will be held in position**

until the tide level drops so that it is beached on the foreshore. Excavators working on the deck of the barge and on the shore would unload the rock into stockpiles. Excavators and dumper trucks will then distribute the materials to the various work areas as required. No materials will be offloaded directly into the water.

- 3.2.5 Concrete, where possible, will be precast off site and brought to the site by barge in batches to suit phasing of the Slipway construction.
- 3.2.6 The delivery of these materials will be ongoing throughout the construction and the composition of each delivery will depend on the construction sequence.
- 3.2.7 It is not known at this stage where the material will be transported from, as this will be a matter for the successful Contractor to determine. As a result, no assessment of traffic movements to/from a suitable harbour to load the barge has been carried out. It is also assumed that these facilities will have their own licencing thresholds which will determine vehicle movements. As such, the Contractor will be required to demonstrate to both the Local Authority and SEPA that their approach to transporting materials to the Site will not result in more significant environmental effects than have been considered within this ES.
- 3.2.8 Road access to the Site would be via the existing DBSC entrance located at the eastern end of The Wynd, an adjacent residential street which is primarily fronted by residential properties with driveway accesses. A destination in itself, the Wynd also serves as access to a number of other surrounding residential streets such as The Spinneys and Glamis Place. It is subject to a 20mph speed limit. ES Volume 2 – Figure 10.4 demonstrates the proposed vehicle access routes based on the assumption that materials will be sourced locally.
- 3.2.9 For information only, ES Volume 3 – Appendix 10.1 presents the original assessment of all materials being brought to the Site by HGV movements. This is with a view to providing a demonstration of the iterative design approach employed through the EIA and justification for the strategy of delivering the majority of materials by sea.

### Management of Waste

- 3.2.10 Higher activity radium contaminated material identified as a result of scanning during excavation will be characterised, segregated and removed off site at the end of each working day.
- 3.2.11 Overall, radium contaminated material being removed off-site each day is expected to be minimal, necessitating no more than one vehicle movement. Non-contaminated arisings will be re-used on site minimising the material required to be removed off site.
- 3.2.12 A final disposal route for radioactive waste (radium) will be established in consultation with SEPA prior to the main works commencing and material movement will be controlled under an existing SEPA authorisation held by the Ministry of Defence (MoD) which reflects the requirements of the Radioactive Substances Act 1993 (as amended).

### 3.3 Material Delivery

- 3.3.1 It will ultimately be up to the Contractor, once appointed, to source the materials required for construction and develop a preferred route to the Site for any materials not brought to site by barge. However, for the purposes of environmental assessment, it is assumed vehicles and personnel would access the site via the A921, with Western Access Road, Regents Way and The Wynd used for local access to the Site.
- 3.3.2 ES Volume 2 – Figure 10.4 shows the preferred route to the Site from the Goathill and Cruicks quarries as an example of the potential approach. A potential batching plant, in Crossgates, for ready mixed concrete has also been identified and is shown.
- 3.3.3 ES Volume 2 – Figures 10.5 to 10.8 demonstrate potential route options and associated distances, trucking time and receptors encountered. These routes have been estimated using ArcGIS online; where truck driving time has been the parameter selected to optimise each.

3.3.4 These roads identified within the Study Area are described further below.

- **The Wynd** is a residential core road approximately 6m in width and provides access to residential properties with driveway accesses. A destination in itself it also serves as access to the former stable block to Donibristle House (now converted for residential use), DBSC and a number of other residential streets e.g. The Spinneys and Glamis Place. It is subject to a 20mph speed limit.
- **Regents Way** is a traffic distributor road approximately 9.5m in width with verges, and segregated foot and cycleways adjacent. It serves as one of the key routes in/out of Dalgety Bay and provides access to The Wynd, Moray Way and Moray Way South via a large roundabout junction. It has no frontage access to properties along its length but there are residential properties which back onto the road at Inchview Gardens, public parkland, a small retail park which forms Dalgety Bay Town Centre, and medical centre adjacent. There are traffic signal controlled pedestrian crossing points on approach to roundabout junctions with Moray Way North and Moray Way South. A further two uncontrolled pedestrian crossing points with refuge islands are located to either side of the junction of Regents Way. Bus stops are provided at several locations; two northbound and two southbound. It is subject to a 30mph speed limit.
- **Western Access Road** forms a continuation of Regents Way from its junction with Moray Way North northwards towards the A921 Kirkcaldy Road. It is of equal stature and nature to Regent's Way, with some residential properties backing onto it at its southern end, but it is predominantly bounded by industrial and retail properties. There is a traffic signal controlled pedestrian crossing located on the southern approach to the Ridge Way roundabout. Bus stops are provided at several locations; two northbound and one southbound. A speed limit of 40mph applies between its roundabout junction with the A921 Kirkcaldy Road and further roundabout junction with Ridge Way, which provides access to Hillend/Donibristle Industrial Park, reverting to 30mph south of this point.
- **Moray Way South** is a traffic distributor road approximately 8m in width. Pedestrian footpaths exist along both sides of the road. Bus stops are provided at several locations; three westbound, two eastbound. The nature of the land uses along Moray Way South is mainly residential. There is no frontage access however there are several road accesses to the residential developments along the road. A speed limit of 30mph applies.
- **Eastern Access Road** forms a continuation of Moray Way South from its junction with Moray Way North towards its junction with the A921. Its width is approximately 6.5m. Pedestrian footpaths exist to the western side of the road. There are only few residential properties located to the west of the road with no frontage access and the land to the east is arable in nature. Bus stops are provided at several locations; two northbound and three southbound. This road is subject to 30mph speed limit.

3.3.5 The Traffic and Transport Assessment carried out as part of the EIA considered all environmental factors associated with the Development including:

- Severance;
- Pedestrian delay, loss of amenity;
- Road accidents and safety;
- Increased journey times for non-construction traffic; and,
- Dust and dirt.

3.3.6 Noise and vibration was also considered as part of the EIA and the assessment concluded that no significant effects are predicted.

3.3.7 The significance of these potential impacts was concluded to be negligible and therefore it is considered that no mitigation measures are required for the delivery of materials and personnel to Site. Despite this, a Construction Traffic Management Plan is recommended and potential “heads of terms” to this are discussed further below.

3.3.8 It is envisaged that approximately 10 construction staff will be working on site at any one time resulting in minimal vehicle movements throughout the construction programme.

### Traffic Management Plan

3.3.9 Temporary effects relating to an increase in general construction traffic will also be minimised through the implementation of an appropriate locally focused Traffic Management Plan (TMP) which will seek to promote the safe and efficient transportation of components and materials in order to minimise congestion and disruption. This will be produced during the post planning stage and approved in consultation with Fife Council, SEPA, Police Scotland and Transport Scotland.

3.3.10 The TMP will apply to all sections of the public road network but should be enhanced with locally specific measures as appropriate. It will include:

- The proposed route for construction traffic including abnormal loads;
- The necessary agreements and timing restrictions for construction traffic;
- Details of proposed Condition Survey on access routes;
- Proposals for abnormal maintenance of these routes during (and attributable to) construction;
- Proposals for monitoring and agreeing (abnormal maintenance) costs attributable to construction of the Development;
- Construction movements will be agreed in advance with DBSC Ltd.;
- Escort arrangements for abnormal loads;
- Route signing;
- Details of advanced notification to the general public, warning of HGV transport movements;
- Details of informative road signage warning other users of construction traffic movements;
- Arrangements for regular road maintenance and cleaning, e.g. road sweeping in the vicinity of the site access point as necessary, wheel cleaning / dirt control arrangements;
- Details of loads that may produce excessive dust during transport will be covered;
- Specific timing of deliveries outside peak traffic hours;
- The briefing of drivers on pulling over to the side of the road at suitably safe locations to allow other road users to overtake safely;
- Contractor speed limits; and,
- Community and emergency services liaison details.

3.3.11 The hours which construction can take place, and therefore the hours which construction traffic will be travelling to/ from the site will be agreed with the Planning Authority and all other relevant stakeholders prior to construction commencing; the Applicant proposes weekday working hours from 8am until 6pm.

## 3.4 Operational Access

- 3.4.1 Access to the Site will continue to be taken from the existing DBSC entrance located at the eastern extent of The Wynd. It is not envisaged that once complete, the Development will increase the amount of vehicular traffic generated in the area.

## 3.5 Summary and Conclusions

- 3.5.1 A detailed environmental impact assessment of traffic and transport issues has been carried out to inform the choice of route to the Site and also to consider the transport implications of the Development. Overall, it was considered that transporting all construction materials to the Site by HGV would result in an unacceptable impact on the adjacent residential properties and as such the majority of materials will be delivered to the Site by barge.
- 3.5.2 Based on this approach, traffic and transport impacts are deemed to be negligible, however a Traffic Management Plan has been recommended to ensure temporary effects relating to an increase in general construction traffic are minimised.
- 3.5.3 Construction access to the Site for residual vehicle deliveries will be via the existing DBSC entrance located at the eastern end of The Wynd, an adjacent residential street, which is primarily fronted by residential properties with driveway accesses. This access will also be used for maintenance and monitoring purposes, however this requirement is expected to be minimal.

## ***ABOUT AECOM***

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