Aberdeen Harbour Expansion Project

Construction Environmental Management Document

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DRAGADOS

Contents

Chapter 15
Pollution Prevention Plan

Revision Log

Minor updates to formatting have been made throughout the document. The main/significant changes are listed in the table below.

Revision Number	Date	Location of Revision	Revision Details
Rev 3	16/05/2018	Front of Document	Document updated to Rev 3 and date updated
		Section 15.2	Addition of Works completed section
		Section 15.4.1, Table 15.1	Table updated to remove individuals names. Minor text formatting in Environmental Manager and ECoW rows.
		Section 15.5.1 Table 15.2	Minor text addition in Pollutant Release Scenario column
		Section 15.5.1 Table 15.2	Text edits in Silt section
		Section 15.7	Text revisions throughout section
		Appendix A and C	Minor text formatting in Silt and Dust mitigation plans
		Appendix B	Update to Drawings
		Section 15.3	Inclusion of Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998
		Section 15.3	SEPA Guidance updated from PPGs
		Section 15.5.1 Table 15.2	Inclusion of additional guidance on actions to take in the case of a marine oil spill
Rev 4	05/09/2019	Front of document	Document updated to Rev 4 and date updated
		Section 15.2	Works completed section updated
		Section 15.5.1 Table 15.2	Minor update to text regarding water treatment system at South compound and current state of associated CAR license.

		Section 15.7.3	Minor text update, changed "responsible person" to "ECoW"
Rev 5	21/10/2019	Section 15.5.1	Changed the references from British Standard Emission Standard to British Emissions Standard/ UK Vehicle Emissions standard.

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15 Pollution Prevention Plan

15.1 Introduction

This Pollution Prevention Plan (PPP) has been developed for the construction phase of the Aberdeen Harbour Expansion Project (AHEP). It provides best practice guidance on pollution prevention measures, and provides an overview of the contingency measures to take in the event of a pollution incident.

The requirement to produce a PPP is listed under Schedule 3.2.4, section a, of both the Marine Construction Licence, Marine Dredging Licence, and Schedule 2 of the Harbour Revision Order. This Plan is considered to fulfil these requirements.

15.2 Works Completed

Pollution prevention measures have been put in place as outlined in Table 15.2, Appendix A and Appendix C. This includes, but is not limited too

- Stockpiled materials have been covered with seed matting;
- Wheel cleaning stations are located at site exits;
- Vehicle speeds have been limited on site and speeding on site is continually monitored;
- A road sweeper is used to clean mud and other debris from hard-standing roads and footpaths;
- Fuel, oil and chemical storage on site have been made secure, with COSHH storage facilities double bunded and placed on an area of hardstanding;
- Designated areas for refuelling have been established, with drip trays and spill kits available;
- Storage ponds have been created for the collection and treatment of silt laden water from the South Compound drainage system. This pond has a Siltbuster system which treats the high clay content of the waters. Clean water is then discharged to the north side of the South Breakwater;
- Spill kits have been positioned at various locations across site in easy to identify yellow bins. These bins are labelled and each contain a copy of the spill response procedure;
- A lined settlement pond has been created at the West Quay. Pile arisings and waste water are deposited here to allow the solid material to settle out of solution. Clean water is then pumped from the surface through a Siltbuster RCW unit for pH treatment before being discharged from site. Settled solids will be disposed of in line with appropriate waste management legislation and procedures;

- Dusty areas of the AHEP site are damped down during dry weather by regularly spraying with water from a bowser;

15.3 Legislation and Guidance

This PPP has been developed in line with the following legislation:

- Environmental Protection (Duty of Care) Regulations 1991;
- Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998;
- Pollution Prevention and Control (Scotland) Regulations SSI 2012/360
- Special Waste Regulations (as amended) 1996;
- Water Environment (Controlled Activities) (Scotland) Regulations SSI 2011/209;
- Water Environment (Oil Storage) (Scotland) Regulations SSI 2006/133;

All works will be undertaken in compliance with the best practice guidance from the Scottish Environment Protection Agency (SEPA), including:

- PPG 1: General guide to the prevention of water pollution[1];
- GPP 2: Above ground oil storage tanks[2];
- GPP 5: Works and maintenance in or near water[3];
- PPG 6: Working at construction and demolition sites[4];
- GPP 13 Vehicle washing and cleaning[5]; and
- GPP 21: Pollution incident response planning[6].

It has been noted that SEPA are in the process of revising a number of their best practice guides for pollution prevention, and this PPP will be reviewed and updated as and when new guidance is issued to ensure compliance.

The requirements applicable to pollution prevention at the AHEP site are discussed in more detail in Section 15.5.1, which describes pollution prevention scenarios.

[1] https://www.sepa.org.uk/media/60060/ppg-1-general-guide-to-the-prevention-of-pollution.pdf
[2] http://www.netregs.org.uk/media/1317/gpp-2-pdf-feb-2017.pdf
[3] http://www.netregs.org.uk/media/1304/gpp-5-works-and-maintenance-in-or-near-water.pdf
[4] https://www.sepa.org.uk/media/60125/ppg-6-working-at-construction-and-demolition-sites.pdf
[5] http://www.netregs.org.uk/media/1414/gpp-13-v2-plussepa-plusniea-plusnrw.pdf
[6] http://www.netregs.org.uk/media/1436/gpp-21-final.pdf

15.4 Roles, Responsibilities and Cross Referencing

15.4.1 Roles and Responsibilities

An organisational chart detailing roles and responsibilities for the environmental management of the AHEP, and the organisational hierarchy, is provided within Chapter 2 of this Construction Environmental Management Document (CEMD).

For the purposes of this document, the Management Team, refers to the Construction Manager, Environmental Manager, Environmental Clerk of Works (ECoW), Health and Safety Manager and the Vessel Manager(s) at the AHEP site.

The following individuals are responsible for ensuring that the requirements of this Pollution Prevention Plan are implemented at the AHEP site:

Table 15.1: PPP Responsibilities

Job Title	Responsibilities
Environmental Manager	The Environmental Manager will work in conjunction with ECoW, ensuring the requirements of the PPP are followed and implemented at the construction site, including ensuring all individuals with responsibility for the handling and storage of potential pollutants are provided training regarding their responsibilities. Delivery of toolbox talks as listed in the Environmental Plan. Pollution contingency planning and coordinating an emergency response as detailed in Sections 15.4 and 15.5. Coordinate with the Construction Manager and Health and Safety Manager on pollution prevention measures.
ECoW	The ECoW will work in conjunction with Environmental Manger ensuring the requirements of the PPP are followed and implemented at the construction site, including ensuring all individuals with responsibility for the handling and storage of potential pollutants are provided training regarding their responsibilities. Delivery of toolbox talks as listed in the Environmental Plan. Coordinate with the Construction Manager and Health and Safety Manager on pollution prevention measures.
Construction Manager	Provide incident response and spill kit training to staff and contractors with responsibility for the maintenance or use of construction vehicles. Overview refuelling and bulk deliveries. The Construction Manager will be responsible for ensuring that appropriate pollution response equipment is available in necessary locations as detailed in Table 15.2. Compiling and managing a list of pollutants with the Health and Safety Manager that will be used at the AHEP site, and their control conditions. Communicating information regarding pollutants used on site to all staff, including contractors and sub-contractors. Coordinate with the Environmental Manager and Health and Safety Manager on pollution prevention measures.
Health and Safety Manager	Compiling and managing a list of pollutants with the Construction Manager that will be used at the AHEP site, and their control conditions. Communicating information regarding pollutants used on site to all staff, including contractors and sub-contractors.

Job Title	Responsibilities
	Coordinate with the Environmental Manager and Construction Manager on pollution prevention measures. Collaborate with the Environmental Manager to review the inventory of potential pollutants prior to the commencement of new work phases.
Vessel Managers	Developing and maintaining their own vessel specific risk assessments and method statements for the prevention of pollution and pollution control, under the International Convention for the Prevention of Pollution from Ships (MARPOL). Ensuring that all vessel staff are appropriately trained in pollution prevention and response. Ensure, and confirm in writing, that all vessel staff are familiar with the requirements of the Aberdeen Harbour Board (AHB) Emergency Plan[7], Environmental Plan and Pollution Prevention Plan.
All Staff, Contractors and Sub-contractors	Ensure they understand the pollution prevention requirements of the site, and are aware of their responsibilities to ensure best practice, especially where they have responsibility for the management, use and storage of potential pollutants.

15.4.2 Cross Referencing

This plan is relevant to all activities at the AHEP site, and therefore should be considered alongside all other CEMPs. However, the following CEMPs are specifically referenced within this PPP and should be consulted on the following topics:

Environmental Plan

This document provides information regarding the Toolbox Talks to be delivered to staff at the AHEP site, it also provides details of legislative requirements relating to pollution.

Chapter 2: Roles and Responsibilities

Provides information regarding roles and responsibilities at the AHEP site.

Chapter 7: Dredging and Dredge Spoil Deposit Management and Monitoring Plan

Information regarding the methodology of dredging and dredge spoil deposit and mitigation for potential sedimentation is listed within this Plan.

Chapter 13: Noise and Vibration Management Plan

This Plan provides detailed information on the management of noise and vibration impacts and should be referred to for the implementation of mitigation measures.

Chapter 17: Vessel Management Plan

Full requirements of vessel responsibilities are detailed within the Vessel Management Plan, including the requirement to adhere to the Aberdeen Harbour Oil Spill Contingency Plan.

[7] Aberdeen Harbour Board (2015) Port Emergency Plan

Chapter 18: Waste Management Plan

This chapter should be referred to for guidance on waste legislation and best practice guidance for waste management.

15.5 Pollution Prevention and Management Requirements

Following a review of the AHEP Environmental Statement (ES) and the Dragados Construction Method Statement (CMS), a number of potential pollutant risks have been identified, these are explained in further detail in Section 15.5.1.

15.5.1 Potential Pollutant Scenarios

A description of the potential pollutant scenarios and their corresponding preventative measures are presented in Table 15.2. These preventative measures have been developed in consultation with relevant consultees, using best practice guidance from SEPA as listed in Section 15.2, whilst also considering the specific conditions and constraints at the AHEP site.

Daily site walkovers will be carried out at the AHEP site to identify any potential or actual pollution risks.

Table 15.2: AHEP Pollution Scenarios and Preventative Measures

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
Concrete and Cement	Run off from batching plant and accropode fabrication yard. South Compound	The following actions will be taken to manage the risk of pollution arising from the batching plant and accropode fabrication yard: • The batching plant will be located on an area of bunded hard standing; • The batching plant will be located 10m from any watercourse or surface water drain, unless otherwise agreed with SEPA; • The hard standing area around the mixer will be concrete, with a pumped drainage system, which will transfer waste water to an onsite water treatment facility; • The water from this will go through a water treatment system for treatment consisting of settlement and pH control. The process will consist of the following stages: 1. Water to be treated will be transported to a treatment tank where a chemical injection will be used to accelerate settlement of particles, this will be agreed in advance with SEPA; 2. Water will settle in settling tanks over a 24 hour period to allow suspended sediment to settle; 3. The settled sediment will be stored in sludge management containers and disposed of in line

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
		with waste management legislation by a licensed waste contractor; 4. A grease separator will also be used to collect any hydrocarbons within the waste water which is being treated; and 5. The treated water will then be tested at a CO_2 injection station where the water pH will be tested prior to discharge. CO_2 will be injected into the sample until the pH of the water is acceptable for discharge. • A percentage of treated water will be re-used or recycled on site.
Concrete and Cement	Run off from batching plant and accropode fabrication yard. Altens Site	The following actions will be taken to manage the risk of pollution arising from the batching plant and accropode fabrication yard: • The batching plant will be located on an area of bunded hard standing; • The batching plant will be located 10m from any watercourse or surface water drain, unless otherwise agreed with SEPA; • The hard standing area around the mixer will be concrete, with a pumped drainage system, which will transfer waste water to an onsite water treatment facility; • The water from this currently goes through a Siltbuster System consisting of settlement and pH control. In detail; 1. Water is transported to a treatment tank where a chemical injection will be used to accelerate settlement of particles. 2. Water is settled out in settling tanks over a 24 hour period to allow suspended sediment to settle; 3. The settled sediment will be stored in sludge management containers and disposed of in line with waste management legislation by a licensed waste contractor; and 4. The treated water is then be tested at a CO_2 injection station where the water pH is tested prior to discharge. CO_2 is injected into the sample until the pH of the water is acceptable for discharge. 5. Discharge will be to the Combined Sewer as per the License held by Altens Lorry Park, who is the registered site owner. .

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
Concrete and Cement	Risk of concrete from construction activities entering the drainage system.	Surface drainage features such as channels and gullies will be covered until such a time as concrete works are completed. Concrete delivery wagons are allowed to washout their chutes only, Washout will be carried out in bunded areas and the waste water from this process will be treated via the onsite pH and settlement water treatment facility.
Concrete and Cement	Wheel wash areas and plant tyres	A wheel cleaning area will be located at any point where the external road meets an area where concrete plant is located. Water from the batching plant wheel wash will be captured and pumped to the onsite water treatment facility where it will be treated to remove suspended solids and normalise pH.
Concrete and Cement	Washout of concrete mixing plant	There will be a contained area for washing out and cleaning of concrete batching plant or ready mix lorries. The wash out area will be located on a bunded area of hard standing. Water from the washout area will be captured and pumped to the onsite water treatment facility where it will be treated to remove suspended solids and normalise pH. The treated water will then be discharged to a settlement pond, which will discharged to the marine environment at a point agreed by SEPA and stated in the authorised CAR license.
Concrete and cement	Construction of buildings – risk of concrete entering the drainage system	Surface drainage features (channels and gullies) will be covered until the concrete works are completed. Washing down of concrete lorries will be carried out in bunded areas and wash water will be treated using a settlement and pH control process before discharge to sewers.
Concrete and cement	Disposal of settled solids	Settled solids will be disposed of in line with appropriate waste management legislation and procedures. Solids to be disposed of will be collected by an appropriately licensed waste contractor, consignment notes will be retained and the waste will be disposed of at an appropriately licensed waste disposal facility.
Contaminated Land	Exposure of contaminated land during excavation	Excavated material to be removed off-site will be subject to waste classification sampling and analysis in accordance with the requirements of the Special Waste Regulations 1996 (as amended) and transported, treated and disposed of in accordance with the Environmental Protection (Duty of Care) Regulations. In the event that ground investigation reveals elevated concentrations of contaminants within material scheduled for excavation and disposal, such material may require on-site treatment to reduce contaminant concentrations prior to disposal to landfill or indeed, re-use within construction. In the event of a discovery of unexpected contaminants, works will be stopped. SEPA will then be contacted regarding appropriate actions to take.

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
		Authorisation from SEPA which is required for works associated with on-site treatment will be put in place prior to any on-site treatment taking place. Material containing leachable contaminants that must be stored on site for any reason will be suitably contained by bunding, unless otherwise advised by SEPA, to prevent the release of contaminated run-off and thus protect underlying soils, groundwater and surface water receptors. In all other cases contaminated material will be collected by a licensed waste contractor and disposed of at a licensed waste treatment facility.
Dust (Arising from concrete and cement, contaminated land and/or stockpiling of soils)	Release of dust into the air	The following measures will be put in place to reduce the risk of dust pollution arising from activities at the AHEP site: • Dry and/or dusty surfaces will be damped down during dry weather; • Chutes, skips and vehicles removing materials that could generate dust will be covered; • Stockpiled materials will be covered with seed matting which will prevent dust transport while waiting for plants to establish; • Drop heights onto lorries and other equipment will be restricted to minimise dust transport; • Wheel cleaning stations will be located at site exits to minimise sediment transport on external roads; • Vehicle speeds will be limited on site and vehicles will not be left to idle unnecessarily; and • A road sweeper will be used to clean mud and other debris from hard-standing roads and footpaths. A Dust Risk Assessment and Management Plan providing further information is included within Appendix C.
Emissions to air – arising from the general running of plant machinery	Release of emissions to air	All plant and vehicles will be maintained in a good state of repair and conform to the manufacturers' specification or legislative/ British Emissions Standard/ UK Vehicle Emissions standard. Plant maintenance and defect reports shall be held on site in a designated file. Wherever possible, plant will not be left running for long periods when not directly in use.
Noise and vibration	Noise and vibration	Noise and vibration must be managed in line with the Noise and Vibration Mitigation Plan, which can be found in Chapter 13 of this CEMD.
Oils and chemicals	Failure of fuel, oil and chemical storage facilities.	Oil storage on site will be compliant with the Water Environment (Oil Storage) (Scotland) Regulations 2006. These regulations apply to the storage of any volume of any kind of oil. The storage facilities on site will be developed in line with the guidance provided in SEPA GPP 5 as listed below: • Fuel, oil and chemical storage on site will be made secure;

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
		• Oils and chemicals will be double bunded and placed on an area of hardstanding; • The base and bund walls will be impermeable to the material stored and able to contain at least 110% of the volume stored; • The storage area will be sited above any flood water level and where possible away from high-risk locations (such as within 10 metres of a watercourse or 50 metres of a well, borehole or spring), to minimise the risk of a spill entering the water environment; • There will be dedicated Control of Substances Hazardous to Health (COSHH) storage facilities on site to contain smaller quantities of oils and chemicals; and • There will be COSHH containment facilities at each of the compounds of the AHEP site for oil storage. Detailed guidelines concerning above ground storage tanks are listed in SEPA GPP 2 and PPG 26.
Oil and chemicals	Theft and vandalism	Oils and chemicals will be stored in line with SEPA GPP 5 to mitigate the risk associated with theft and vandalism. Lockable valves and trigger guns will be fitted on pipework running from storage containers. Anti-siphon valves will be installed in pipework between containers and pumps. Tanks, drums and mobile bowsers will be stored in a locked container or compound when not in use. The site will have 24 hour security, fencing and secure, lockable holdings for all oil and chemicals.

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
Oil and chemicals	Leaks and spills from construction vehicles	The risk of spilling fuel is at its greatest during refuelling of plant. To minimise this risk the following actions will be taken: • A bunded bowser will used during refuelling of mobile plant and refuelling will take place at least 2 metres away from watercourses or drains; • All refuelling and bulk deliveries will be supervised by the Construction Manager or an individual designated by the Construction Manager; • Records of the quantities of fuel received and used in vehicles on the site will be kept for monitoring purposes; • The available capacity in the tanks will be checked before refuelling; • Delivery valves will not be jammed open; • Hoses and valves will be checked regularly for signs of wear; • Valves will be turned off after refuelling and locked when not in use; • Drip trays will be positioned under pumps to catch minor spills; • Each diesel bowser will have a spill kit located next to it which is appropriate to the size of the bowser; • Appropriately sized spill kits with sand, earth or commercial products for containment of spillages will be kept at refuelling sites and at all areas where plant will be used; • A drip tray will be available by every bowser; • A drip tray will be placed under any non-internally bunded plant; and • Incident response and spill kit training will be provided to staff and contractors with responsibility for the maintenance or use of construction vehicles by the Construction Manager.

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
Oils and chemicals	Leaks and spills from marine vessels	The requirements of the AHB Oil Spill Contingency Response Plan will be followed in the event of a marine oil spill. The following actions should be taken immediately on observing a spill: Observer of the incident calls VTS immediately on VHF 12. VIS will coordinate a spill response relative to the severity of the spill. Clarify with VTS whether they will contact Briggs Environmental Services or whether they need to be contacted directly on 0800 374 348. Inform the on-site duty manager of the incident who will have responsibility for informing the site management team. Where staff who are trained in spill response are present on site they should be mobilised to respond to the spill where it is safe to do so until additional response arrives. All vessels are responsible for developing and maintaining their own pollution prevention plans and pollution control plans which are consistent with the requirements of Marine Scotland, the MARPOL Convention and the requirements of the AHB Oil Spill Contingency Plan and this PPP to mitigate risks relating to pollution and provide an appropriate response to pollution incidents. The Environmental Manager will obtain copies of these plans, and communicate incident response requirements to all individuals responsible for incident management prior to the commencement of marine works. Further details of vessel requirements relating to Incident and Pollution Response are detailed within the Vessel Management Plan within this CEMD.
Oils and chemicals	Oil based drilling muds	Oil based drilling muds will not be used for this project. However, in accordance with Condition 3.1.7. Of the Marine Dredging Licence, if during the project oil based drilling muds are required for any reason they will be contained within a zero discharge system in line with Condition 3.1.7 of the Marine Dredging Licence.
Sediment	Sediment plume as a result of dredging activities	Full details of mitigation measures to be implemented to manage the risk of potential sediment plume from dredging activity is included within the Dredging and Dredge Spoil Deposit Management and Monitoring Plan in Chapter 7 of the CEMD.

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
Silt	Run off from exposed ground and stockpiles	Where there is a requirement to strip or stockpile material, the following action will be taken to reduce sediment run off: • Ground vegetation will not be removed any sooner than required for the stripping of topsoil to reduce run off from exposed ground; • Temporary cut off trenches will be established along the northern and eastern site boundary of the southern compound to capture run off; • Topsoil strip will be undertaken in phases to reduce the length of time soil is exposed; • Stockpiles will be seeded using seed matting to prevent silt transport while plants are establishing; • Stockpiles will be located in bunded areas; and • Run off from stockpiles will be directed into areas set aside as temporary stilling ponds to allow silt to settle before water is discharged to the sea. It has been noted that there is a risk of silt run-off at the South Compound area due to the high clay content within the parent soils and as such the silt does not settle within stilling ponds as expected. Treatment plants using Flocculent and pH Control to manage silt have been placed in the South Compound. A SEPA CAR License is in place, which allows a discharge of 100m^3/day of treated water. This must be discharged in a northwards direction to avoid any contamination to the marine area to the south where the Marine Scotland intake will be located. Further details are provided in the Silt Management Plan, Appendix A.
Silt	Plant and wheel washing	The following actions will be taken to minimise the risk of silt pollution from plant and wheel washing areas: • Wheel cleaning areas will be established at the site exit to ensure material is not taken from site onto local roads; • Wheel washing will be carried out in a designated area of hard standing at least 10 metres from any watercourse or surface water drain; and • Trucks and Lorries will have their wheels checked thoroughly by the staff member at the gate when leaving washing areas to ensure that these are clean and free of debris. • Rumble strips will be situated in the Central and South Compound areas. All vehicles are required to cross these to ensure any mud is removed and does not reach the Public Highway.

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
Silt	Bulk earthworks to formation levels	Earthworks will be carried out in phases. Temporary cut off drains will be installed around the perimeter of each earthworks section as it is commenced. Drainage will be directed towards temporary stilling ponds to allow silt to settle before water is discharged from site.
Silt	Installation of permanent drainage	Surface drainage features (channels and gullies) will be covered until such a time as stockpiles and earthworks are covered.
Silt	Heavy rainfall event	Sediment treatment plants have been set up in the South Compound at each of the SUDS areas. The environmental team will monitor these areas on a daily basis and the plant will be activated during and after rainfall events to ensure no dirty water is released from the site. A SEPA CAR authorisation has been authorised for the discharge from the final SUDS pond, which allows a maximum discharge of 100m/day. If, due to intense rainfall, it is found that this volume is insufficient, then a CAR Variation will be required from SEPA. Silt fences have been installed in the following locations as an initial precautionary measure to prevent sediment transfer from the AHEP site: • Southern Compound: East Fence Line; • Central Compound: South Fence Line; and • North Compound: South and West Fence Line. If the SUDS features at the AHEP site reach 80% capacity as measured by the ECoW, the following actions will be taken: 1. The ECoW will conduct an assessment of the weather conditions and risk of a pollution incident occurring at the AHEP site 2. In the first instance, pump and treat will be used to manage excess water, using the available plant at the AHEP site 3. The ECoW will undertake a risk assessment to establish whether this action will be sufficient to manage excess water on site 4. If pump and treat will not be sufficient for the weather conditions, water will be tankered off-site for treatment by an appropriately licensed contractor and disposed of at an appropriately permitted site in line with waste management requirements. The full heavy weather plan is provided within the Silt Mitigation Plan in Appendix A.
Silt	Red clay	A separate Silt Management Plan has been developed detailing steps to be taken in the event that red clay is uncovered at the AHEP site and either does not settle within attenuation ponds of within the wider water environment, and is included in Appendix A.

Potential Pollutant	Pollutant Release Scenario	Prevention Measures
Silt	Disposal of settled solids	Settled solids will be disposed of in line with appropriate waste management legislation and procedures. Solids to be disposed of will be collected by an appropriately licensed waste contractor, consignment notes will be retained and the waste will be disposed of at an appropriately licensed waste disposal facility.
Waste	Incorrect waste management	The legislative requirements and best practice guidelines detailed in the Waste Management Plan, included in Chapter 18 of the CEMD, will be followed at all times to ensure that all waste is recorded and managed by a licenced waste carrier, and consignment notes are retained. In line with Condition 3.1.4 of the Marine Dredging Licence, the licensing authority must be notified within 48 hours if any substance or object is deposited other than at the site described in the licence, or whenever is reasonably practicable, after 48 hours has elapsed.

15.6 Additional Mitigation Measures

Prior to construction works commencing, the Environmental Manager will complete the actions listed in Section 15.7 relating to emergency planning.

The Environmental Manager will coordinate with the Construction Manager and Health and Safety Managers where there is overlap between environmental protection and health and safety and/or COSHH guidance.

The Construction Manager will be responsible for ensuring that appropriate pollution response equipment is available in necessary locations as detailed in Table 15.2.

15.6.1 Staff Training

The Environmental Manager will prepare a site induction relating to environmental sensitivities and requirements under the licences and consents for the site. Toolbox talks covering environmental issues at the site will also be delivered, further details of these are included within the Environmental Plan which forms part of the CEMD.

The following information will also be provided to all staff, contractors and sub-contractors prior to and during the works:

- Prior to, and during the works, all staff, contractors and sub-contractors, will be required to be understand the environmental sensitivities at the AHEP site, and be made familiar with their responsibilities under the PPP;
- Prior to works commencing, the Construction Manager and Health and Safety Manager will compile a list of pollutants that will be used at the AHEP site, and their control conditions, and communicate this information to all staff, including contractors and sub-contractors;

- Prior to the commencement of the works, all personnel involved with the AHEP will be made aware of what constitutes a pollution incident, and the emergency number to contact, through a process of inductions, toolbox talks and health and safety briefings;
- All staff, contractors and sub-contractors will be required to sign to confirm they have received the relevant inductions, toolbox talks and site environmental and safety briefings before commencing work on site; and
- All staff, contractors and sub-contractors will be responsible for ensuring relevant personnel are trained in pollution prevention and response, including attending toolbox talks and health and safety briefings.

15.7 Emergency Planning

15.7.1 Emergency Contact Details

In the event of an emergency, the Environmental Manager should be informed immediately. In his absence, outwith normal Office hours, the Duty Responsible Person should be contacted.

When a pollution incident is logged, the Environmental Manager or Responsible Person will follow the Outline Contingency Plan listed in Section 15.7.3.

The Environmental Manager will provide training to the designated "Responsible Persons" on how to manage an environmental pollution incident at the AHEP site.

15.7.2 Emergency Plans

As part of the Dragados Environmental Management System a set of Emergency Plans have been developed detailing the actions to be taken in the event of a number of pollution incidents which include the following:

- Terrestrial spill response;
- Marine spill response, developed in line with the AHB oil contingency plan;
- Failure of containment facilities response;
- Terrestrial waste incident;
- Marine waste incident; and
- Extreme weather emergency response.

15.7.3 Outline Pollution Incident Response Plan

In the event of a terrestrial pollution incident at the AHEP site, the member of staff who identifies the incident will report this to the Environmental Manager or ECoW within 30 minutes of the incident occurring or when it is safe to do so.

Following instruction, and if it is safe to do so, the individual reporting the incident will take immediate steps to prevent environmental pollution.

In the event of an incident the following agencies will be notified, SEPA, Marine Scotland, the Aberdeen Harbour Board, the Emergency Services, and/or any other external agencies required as appropriate for the particular pollution scenario, within 30 minutes, or when it is safe to do so.

In the event of a marine pollution incident, or a terrestrial pollution incident likely to extend to the marine environment, the Aberdeen Harbour Oil Spill Contingency Plan[8] will be activated. Once activated reporting relating to marine pollution will be carried out in accordance with this plan. Further details are included within the Vessel Management Plan, Chapter 17.

The responsible person will ensure that significant or potentially significant incidents (including marine incidents) are immediately escalated through the business management chain, as detailed on the Incident Response Plan, within 30 minutes of their occurrence, or when it is safe to do so.

Operations should be suspended as appropriate until the incident is resolved.

In the event of any pollution incident, no matter how small, an internal meeting will be held following the closure of the incident to review lessons learned, with the PPP and associated procedures to be updated as required.

A log of pollution incidents and remedial actions taken will be maintained on site and held by the Environmental Manager.

15.8 Reviewing the PPP

During the works, the Environmental Manager will collaborate with the Health and Safety Manager to regularly review the inventory of potential pollutants as necessary, and update the PPP where required.

As a minimum, the PPP will be reviewed every three months by the Environmental Manager, or more frequently as required, to take into account any new information, or changes to procedures or legislation.

Hazard and risk identification site walkovers will be carried out on a weekly basis by the Management Team, to test the work programme for likelihood and severity of all identified risks and to identify control measures and amendments to the PPP where required.

Regular Environmental Review meetings will take place during the course of the works in order to highlight risks and ensure best practice is being followed, to review the effectiveness of the PPP, and to keep channels of communication open between the Management Team, contractors and sub-contractors.

[8] http://www.aberdeen-harbour.co.uk/operations/information-for-port-users/information-for-mariners/

Appendix A

Silt Mitigation Plan

ARUP

Subject	Silt Mitigation Plan		
Date	28 November 2017	Job No/Ref	AHEP-DRA-APP-0001 Rev 2

1 Introduction

This Silt Mitigation Plan (SMP) has been developed to provide a framework for the management of silt at the Aberdeen Harbour Expansion Project (AHEP) site. This SMP provides an outline of the additional measures that must be taken to manage the risk of water pollution from suspended sediment.

2 Background

A SMP is required to manage the potential risk posed by a problematic type of silt which has been found at other sites within Aberdeen and Aberdeenshire, which can remain suspended rather than settling as expected within settlement ponds or the wider water environment.

To appropriately assess and manage the potential risk of a pollution incident due to sediment transfer, a number of additional actions are required. These additional actions have been agreed in consultation with Scottish Environmental Protection Agency (SEPA) and must be adhered to at the AHEP site.

3 Mitigation Measures

3.1 Ground Investigations

Ground investigations have identified that the South Compound area is made up of problematic red clay soil, which has the potential to cause pollution issues due to its small particle size and its failure to settle out in Sustainable Drainage Stystems (SuDS) lagoons. In the event of high rainfall events, silt laiden waters have the potential to spill and enter the marine environment.

3.2 Heavy Weather Plan

Following discussions with SEPA, it is clear that there is a need to anticipate the potential impacts of extreme weather conditions at the AHEP site, and develop appropriate action plans to manage extreme weather events on site.

Measuring sticks will be placed within all SUDS features at the AHEP site, and these will be monitored by the Environmental Clerk of Works (ECoW). In the event of heavy rainfall, SuDS features will be checked multiple times throughout the day to monitor their capacity.

Prior to the commencement of works on site, the ECoW will find an appropriate contractor in the vicinity of the AHEP who is able to attend the site to provide pump and treat or off-site tankering solutions at short notice, to be contacted in the case of an emergency situation requiring treatment or transport of excess water from the AHEP site.

Silt fences will be installed in the following SuDS locations as an initial precautionary measure to prevent sediment transfer from the AHEP site:

1. Southern Compound: East Fence Line;
2. Central Compound: South Fence Line; and
3. North Compound: South and West Fence Line.

These locations are illustrated in the temporary SuDS layout drawing, which is included in Appendix B to the Pollution Prevention Plan.

Staff with responsibility for installation of silt fences will be trained in their installation by the ECoW, this will include information on when the use of silt fencing is and is not appropriate, and practicing the installation of fences in the locations proposed above.

Silt fencing may not be sufficient to mitigate the impacts relating to more extreme weather events, therefore, when the SuDS features at the AHEP site reach 80% capacity as measured by the ECoW, the following actions will be taken:

1. The ECoW will conduct an assessment of the weather conditions and risk of a pollution incident occurring at the AHEP site;
2. In the first instance, pump and treat will be used to manage excess water, using the available plant at the AHEP site;
3. The ECoW will undertake a risk assessment to establish whether this action will be sufficient to manage excess water on site; and
4. If pump and treat will not be sufficient for the weather conditions, water will be tankered off-site for treatment.

If the use of flocculant is required to manage suspended sediment at the AHEP site, this will be agreed in advance with SEPA prior to use of flocculant on site.

3.3 Inspections

Inspections of SuDs, settlement ponds and other drainage installations at the AHEP site will be undertaken daily, or more frequently during periods of adverse weather, as listed in Section 3.2 above, to assess the risk of these features overflowing and resulting in a pollution incident.

The Environmental Manager will brief staff at the AHEP site who have responsibility for topsoil stripping and investigations to identify the problematic soil type, and they will be instructed to stop works and report this if it is uncovered. If found on site, this must be reported to SEPA.

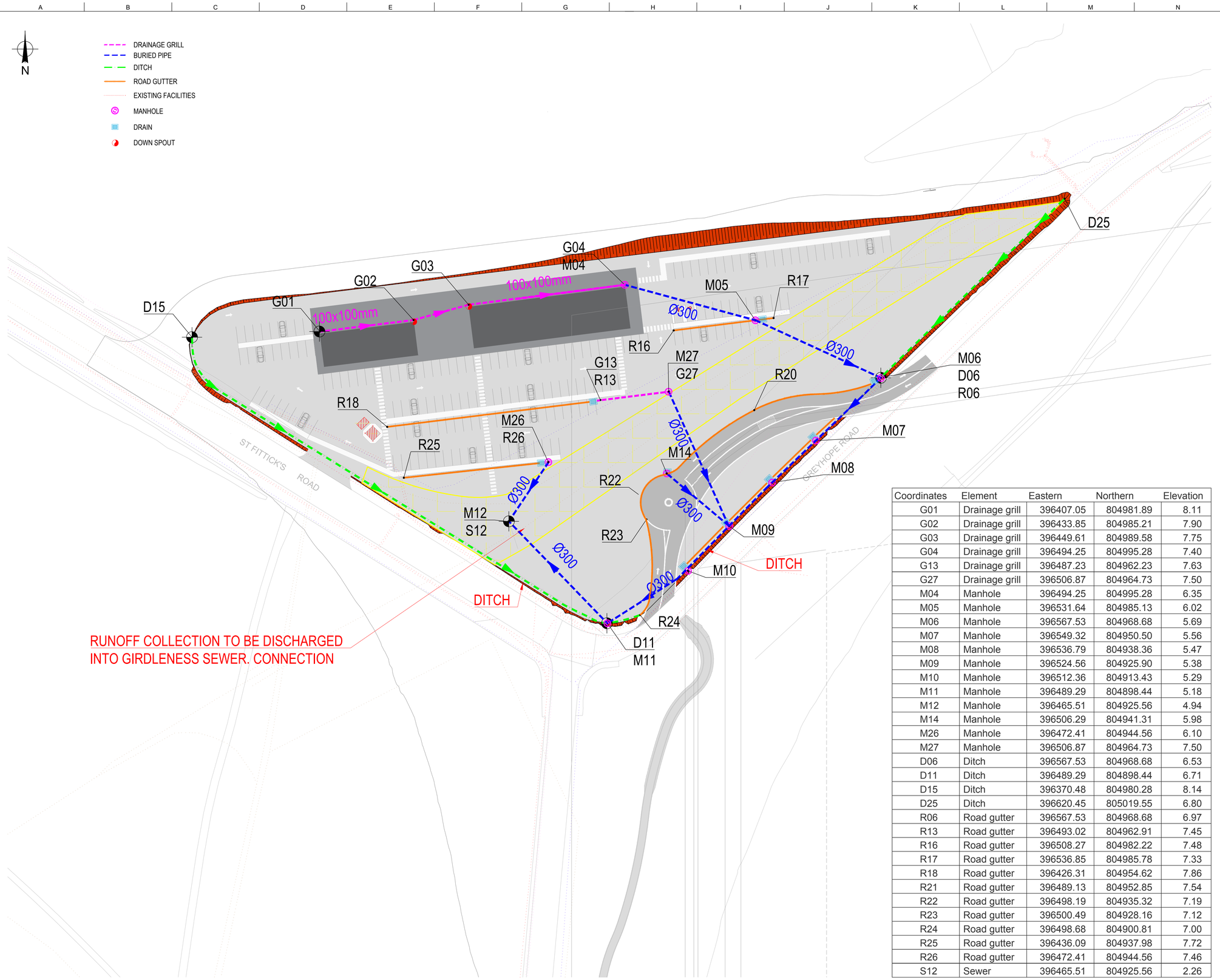
4 Incident Response

In the event that silt does not settle within SuDS or settlement ponds as expected, or in the event of a failure of the drainage and settlement features at the AHEP site, the following actions will be taken:

- If silt is not settling within settlement ponds or SuDS, SEPA will be contacted in the first instance to discuss actions to take depending on the severity of the problem. If flocculants are required the use of these must be agreed in advance with SEPA;
- In the event of a failure of any of the settlement or drainage features on site, resulting in an overflow and potential risk of sediment entering the marine environment, the immediate aim will be to block the pathway to the water environment if possible;
- If a failure of the settlement or drainage features on site occurs, a site walkover will be carried out by either the Environmental Manager or the ECoW, to visually inspect water features and identify if sediment is entering any bodies of water; and
- SEPA must be contacted as soon as reasonably possible in the event of a pollution incident.

Appendix B

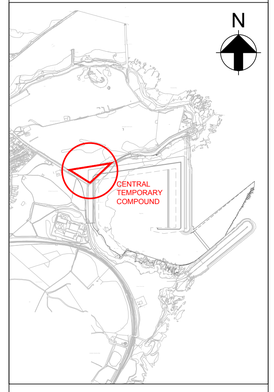
SUDS Drawings



Coordinates	Element	Eastern	Northern	Elevation
G01	Drainage grill	396407.05	804981.89	8.11
G02	Drainage grill	396433.85	804985.21	7.90
G03	Drainage grill	396449.61	804989.58	7.75
G04	Drainage grill	396494.25	804995.28	7.40
G13	Drainage grill	396487.23	804962.23	7.63
G27	Drainage grill	396506.87	804964.73	7.50
M04	Manhole	396494.25	804995.28	6.35
M05	Manhole	396531.64	804985.13	6.02
M06	Manhole	396567.53	804968.68	5.69
M07	Manhole	396549.32	804950.50	5.56
M08	Manhole	396536.79	804938.36	5.47
M09	Manhole	396524.56	804925.90	5.38
M10	Manhole	396512.36	804913.43	5.29
M11	Manhole	396489.29	804898.44	5.18
M12	Manhole	396465.51	804925.56	4.94
M14	Manhole	396506.29	804941.31	5.98
M26	Manhole	396472.41	804944.56	6.10
M27	Manhole	396506.87	804964.73	7.50
D06	Ditch	396567.53	804968.68	6.53
D11	Ditch	396489.29	804898.44	6.71
D15	Ditch	396370.48	804980.28	8.14
D25	Ditch	396620.45	805019.55	6.80
R06	Road gutter	396567.53	804968.68	6.97
R13	Road gutter	396493.02	804962.91	7.45
R16	Road gutter	396508.27	804982.22	7.48
R17	Road gutter	396536.85	804985.78	7.33
R18	Road gutter	396426.31	804954.62	7.86
R21	Road gutter	396489.13	804952.85	7.54
R22	Road gutter	396498.19	804935.32	7.19
R23	Road gutter	396500.49	804928.16	7.12
R24	Road gutter	396498.68	804900.81	7.00
R25	Road gutter	396436.09	804937.98	7.72
R26	Road gutter	396472.41	804944.56	7.46
S12	Sewer	396465.51	804925.56	2.26

Notes:

1. All dimensions are in meters unless noted otherwise.
2. Coordinates for all the points indicates the invert level of each drainage system (pipes, ditches, manholes, etc.).
3. All levels are referred to Chart Datum and have been designed in accordance with the earthworks design.
4. Soil conditions not known at design stage.
5. Existing utilities shall be located using site scan before any civil works starts.
6. Rainfall and runoff parameters have been calculated using the *Tools for the design and evaluation of sustainable drainage systems* (www.uksuds.com).
7. Drainage system (ditches/pond) has been designed considering Construction team requirements. For further details refer to the calculation report.



Key Plan

Issue	Date	By	Chkd	Appd
4	12/12/17	CW	ROL	ROL
	Layout Updated			
3	04/07/17	RPR	CPF	JMA
	New Lay-out to avoid Girdleness slab			
2	26/06/17	RPR	CPF	JMA
	Elevations updated			
1	20/06/17	ROL	MEG	MEG
	New exclusion are. New Lay-out			
0	26/05/17	RPR	CPF	JMA
	Issued for Internal Review			

DRAGADOS

Client: Aberdeen Harbour

Job Title: Aberdeen Harbour Expansion Project

CENTRAL COMPOUND
DRAINAGE
GENERAL LAYOUT PHASE 2

Scale at A1: 1:500

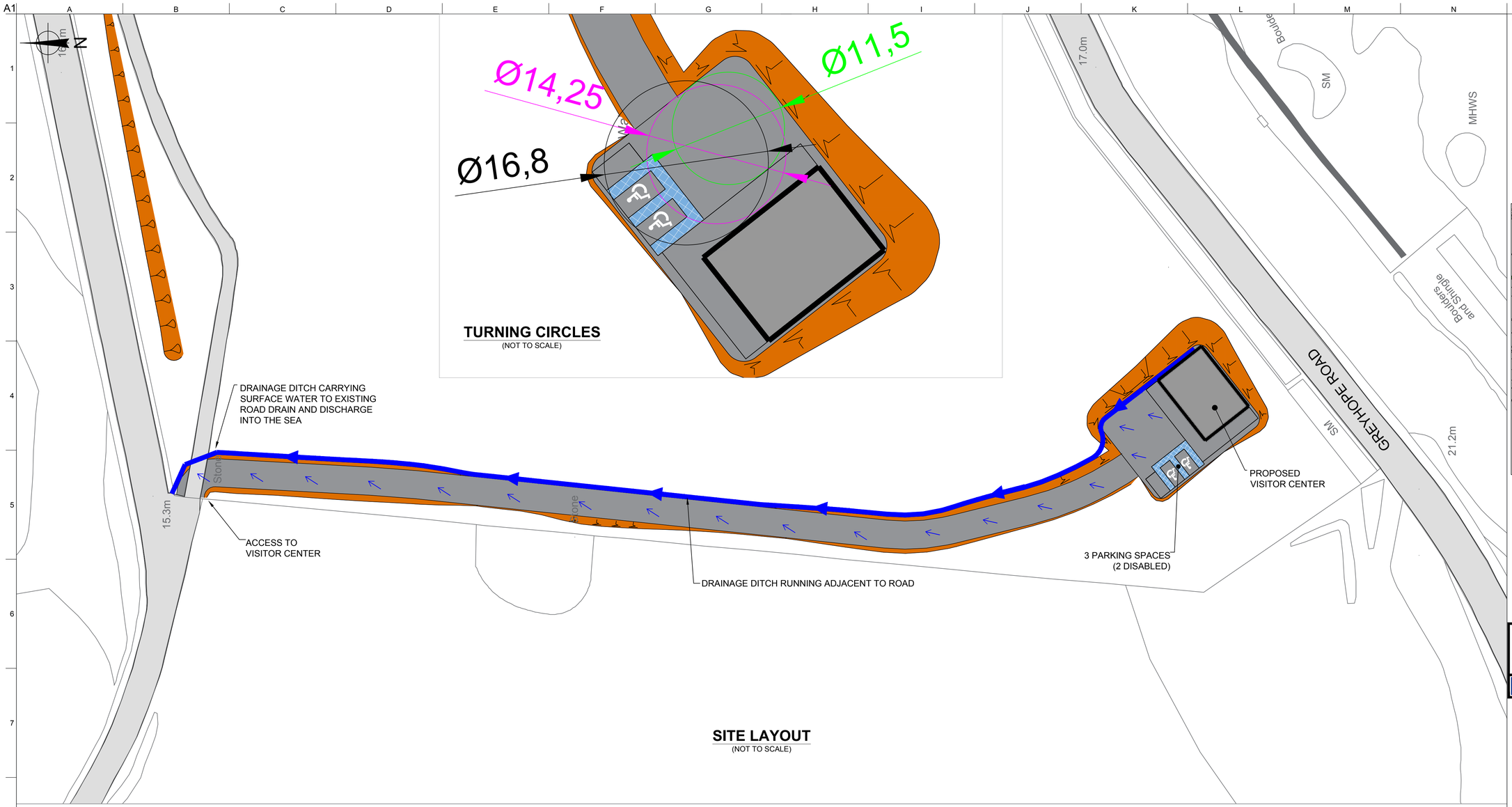
Discipline: Civil Engineering

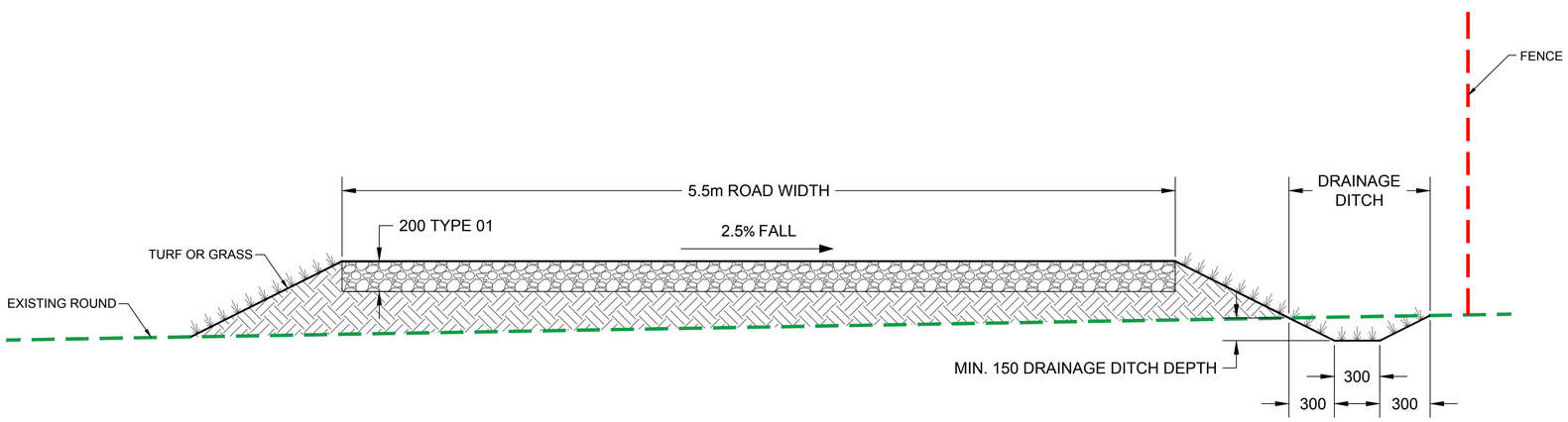
Drawing Status: **Internal Review**

Drawing No: **DRA-T-CEC-TW0007-DWG-050001-002**

Issue: **4**

Do not scale

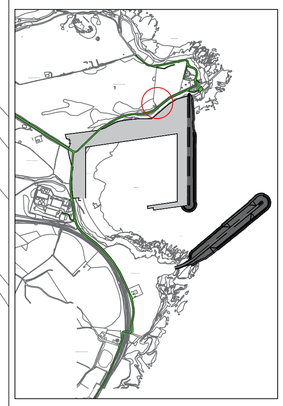




TYPICAL SECTION THROUGH ACCESS ROAD
(SCALE 1:20)

NOTES:

1. All dimensions are in milimeters unless noted otherwise.
2. Soil conditions not known at design stage.
3. Existing utilities shall be located using site scan before any civil works starts.
4. Rainfall and runoff parameters have been calculated using the *Tools for the design and evaluation of sustainable drainage systems* (www.uksuds.com).
5. Drainage system (ditches/pond) has been designed considering Construction team requirements. For further details refer to the calculation report.



LOCATION PLAN
(NOT TO SCALE)

KEY:
DRAINAGE DITCH

Drawing Status: **FOR CONSTRUCTION**

DRAGADOS — Miguel Eguiagaray Garcia
Date: 11.09.2017

Issue	Date	By	Chkd	Appd
1	11/09/17	ROL	MM	MM
Updated as per DL request				
1	05/09/17	ROL	MM	MM
Change Discharges Direction				
0	05/07/17	ROL	MEG	MEG
Issued for Construction				

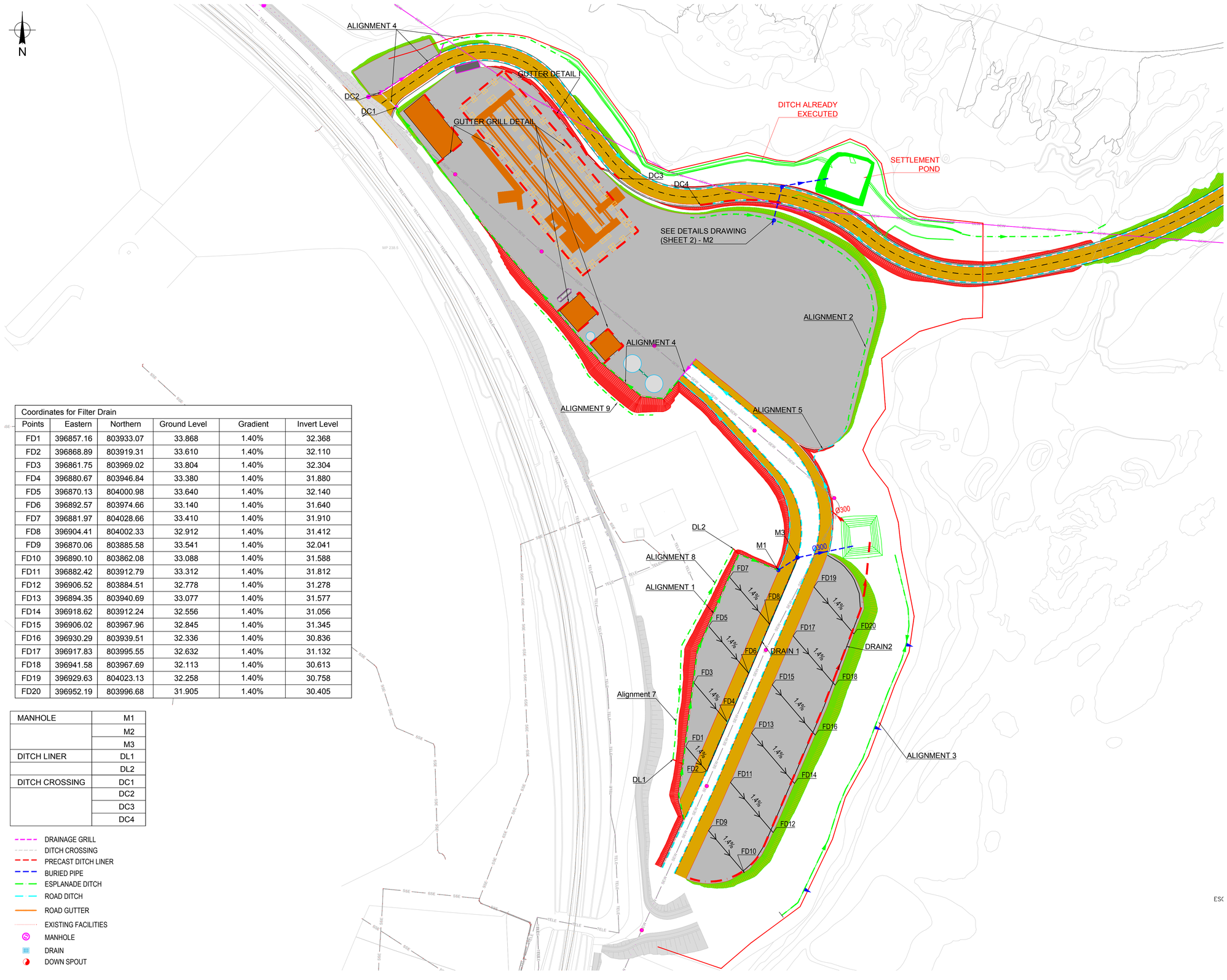
Client: Aberdeen Harbour

Job Title: Aberdeen Harbour Expansion Project

VISITOR CENTER
DRAINAGE
GENERAL LAY OUT
TYPICAL SECTION

Scale at A1: As Shown
Discipline: Civil Engineering
Drawing Status: **Issued for Construction**
Drawing No: **DRA-T-OHB-TW0004-DWG-050001-001**
Issue: **2**

Do not scale



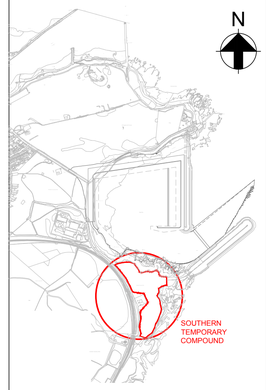
Coordinates for Filter Drain					
Points	Eastern	Northern	Ground Level	Gradient	Invert Level
FD1	396857.16	803933.07	33.868	1.40%	32.368
FD2	396868.89	803919.31	33.610	1.40%	32.110
FD3	396861.75	803969.02	33.804	1.40%	32.304
FD4	396880.67	803946.84	33.380	1.40%	31.880
FD5	396870.13	804000.98	33.640	1.40%	32.140
FD6	396892.57	803974.66	33.140	1.40%	31.640
FD7	396881.97	804028.66	33.410	1.40%	31.910
FD8	396904.41	804002.33	32.912	1.40%	31.412
FD9	396870.06	803885.58	33.541	1.40%	32.041
FD10	396890.10	803862.08	33.088	1.40%	31.588
FD11	396882.42	803912.79	33.312	1.40%	31.812
FD12	396906.52	803884.51	32.778	1.40%	31.278
FD13	396894.35	803940.69	33.077	1.40%	31.577
FD14	396918.62	803912.24	32.556	1.40%	31.056
FD15	396906.02	803967.96	32.845	1.40%	31.345
FD16	396930.29	803939.51	32.336	1.40%	30.836
FD17	396917.83	803995.55	32.632	1.40%	31.132
FD18	396941.58	803967.69	32.113	1.40%	30.613
FD19	396929.63	804023.13	32.258	1.40%	30.758
FD20	396952.19	803996.68	31.905	1.40%	30.405

MANHOLE	M1
	M2
	M3
DITCH LINER	DL1
	DL2
DITCH CROSSING	DC1
	DC2
	DC3
	DC4

- DRAINAGE GRILL
- DITCH CROSSING
- PRECAST DITCH LINER
- BURIED PIPE
- ESPLANADE DITCH
- ROAD DITCH
- ROAD GUTTER
- EXISTING FACILITIES
- MANHOLE
- DRAIN
- DOWN SPOUT

NOTES

1. All dimensions are in milimeters unless noted otherwise.
2. Road ditches geometry are defined in the DRA-T-SOC-TW0007 package drawings.
3. Water shall be treated with flocking agents before discharging to the sea.
4. Minimum storage volume of the ponds
   Northern: 560 m^3
   Southern: 204 m^3
5. All levels are referred to Chart Datum and have been designed in accordance with the soil levels defined for the earthworks phase.
6. Existing utilities shall be located using site scan before any civil works starts.
7. Rainfall and runoff parameters have been calculated using the *Tools for the design and evaluation of sustainable drainage systems* (www.uksuds.com).
8. Dot lines indicate the theoretical position of the existing utilities/ducts.



Key Plan

FOR CONSTRUCTION

DRAGADOS — Miguel Eguiagaray Garcia
Date: 15.11.2017

Issue	Date	By	Chkd	Appd
1	09/11/17	CPF	JMA	ROL
	Add French Drain, M3 and DC4			
0	07/09/17	RPR	JMA	ROL
	Issued For Construction			

DRAGADOS
Citrus House
Greenbank Road
East Tullos Industrial Estate
Aberdeen
AB12 3BG
Tel: +44 (0) 1224 439980

Client

Aberdeen Harbour

Job Title

Aberdeen Harbour
Expansion Project

SOUTHERN COMPOUND
DRAINAGE
GA PHASE 2

Scale at A1 1:1000

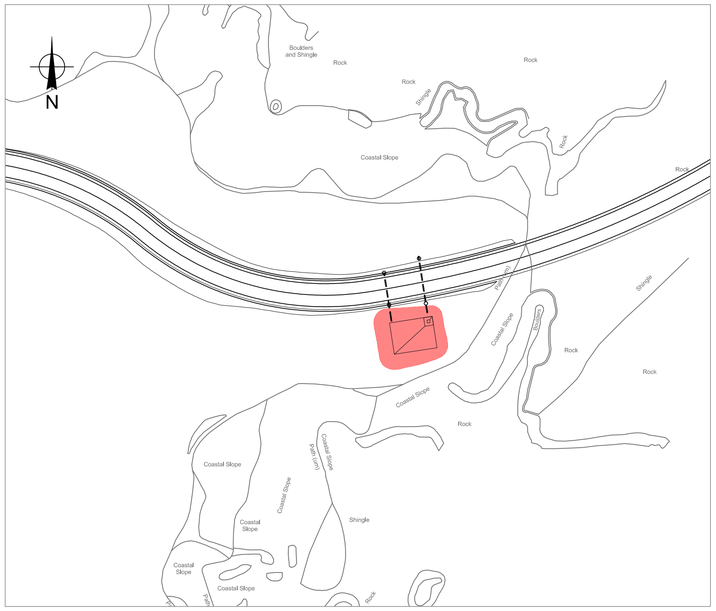
Discipline Civil Engineering

Drawing Status **Issued for Construction**

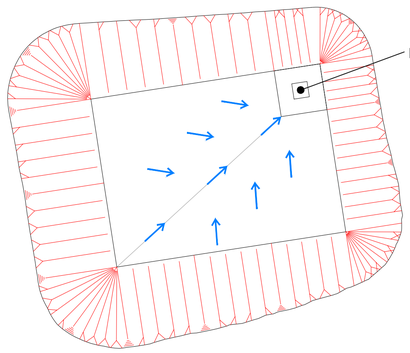
Drawing No **DRA-T-SOC-TW0010-DWG-050001-002**

Issue **1**

Do not scale



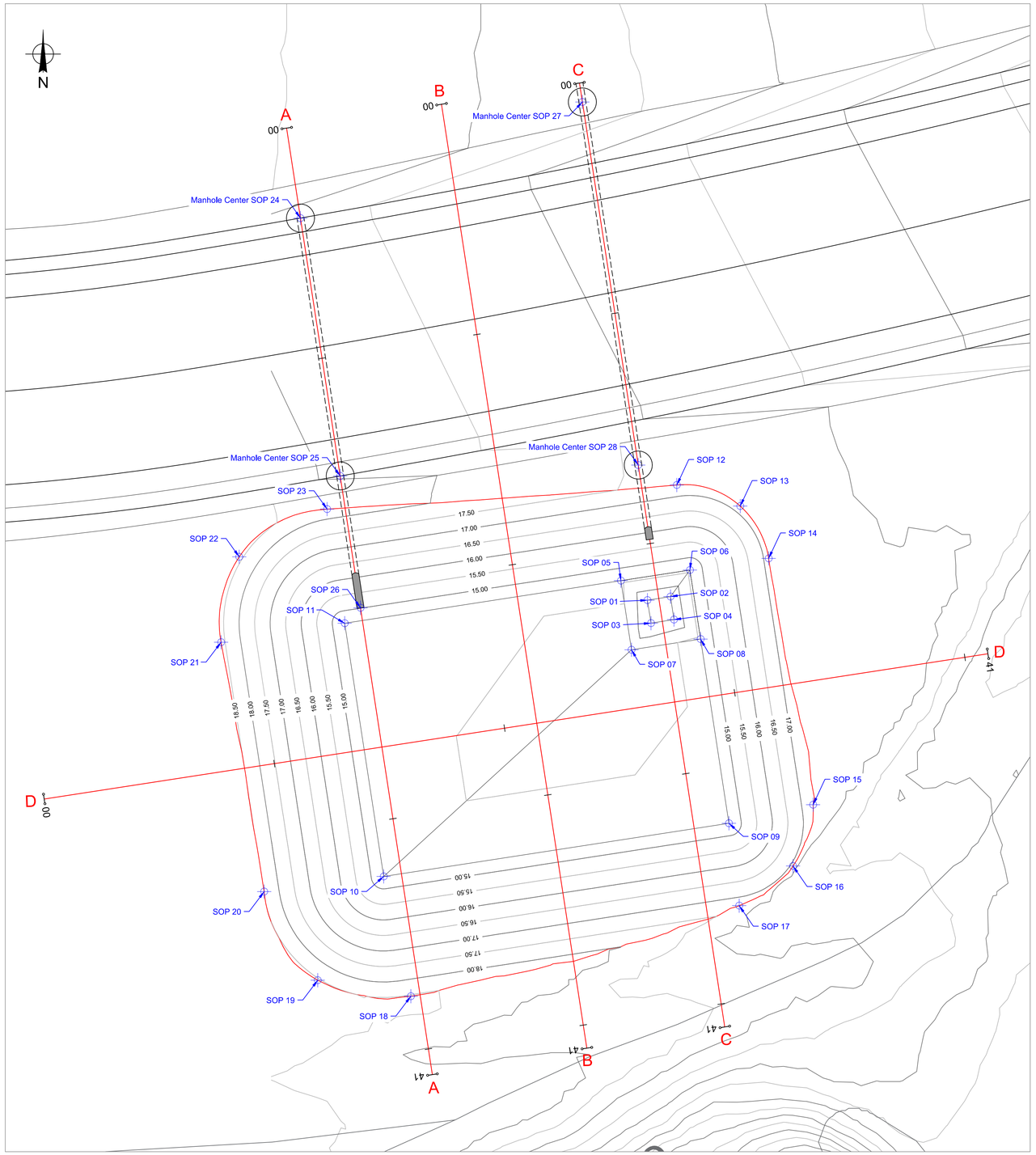
Location Plan
(Scale 1:1000)



Pond Drainage Plan
(Not To Scale)

Setting Out Information

S.O.P	Easting	Northing	Level (m)
S.O.P 01	397056.657	804191.013	13.600
S.O.P 02	397057.645	804191.165	13.600
S.O.P 03	397056.809	804190.025	13.600
S.O.P 04	397057.798	804190.177	13.600
S.O.P 05	397055.517	804191.849	14.600
S.O.P 06	397058.482	804192.306	14.600
S.O.P 07	397055.973	804188.884	14.300
S.O.P 08	397058.938	804189.341	14.600
S.O.P 09	397060.156	804181.434	14.600
S.O.P 10	397045.331	804179.151	14.600
S.O.P 11	397043.657	804190.023	14.600
S.O.P 12	397057.919	804195.956	17.370
S.O.P 13	397060.642	804195.051	17.221
S.O.P 14	397061.862	804192.805	17.163
S.O.P 15	397063.770	804182.230	17.370
S.O.P 16	397062.908	804179.599	17.084
S.O.P 17	397060.597	804177.896	17.273
S.O.P 18	397046.500	804174.010	18.545
S.O.P 19	397042.500	804174.697	18.558
S.O.P 20	397040.199	804178.500	18.478
S.O.P 21	397038.349	804189.205	18.628
S.O.P 22	397039.127	804192.873	18.614
S.O.P 23	397042.902	804194.922	18.318
S.O.P 24	397041.759	804207.119	I.L: 16.428
S.O.P 25	397043.464	804196.345	I.L: 16.204
S.O.P 26	397044.335	804190.684	I.L: 16.100
S.O.P 27	397053.862	804212.400	I.L: 15.292
S.O.P 28	397056.263	804196.814	I.L: 15.626



Plan View
(Scale 1:100)

Notes:

1. All dimensions are in meters unless stated otherwise
2. All levels are in meters to chart datum

Drawing Status: **FOR CONSTRUCTION**

DRAGADOS — Miguel Eguiagaray Garcia
Date: 22.01.18

Issue	Date	By	Chkd	Appd
2	22/01/18	TWC	ROL	ROL
Manhole SOP 24 & 25 Position Updated				
1	19/12/17	TWC	ROL	ROL
Pump Hose Road Crossing Details Added				
0	14/12/17	TWC	ROL	ROL
Issued For Construction				

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Tel: +44 (0) 1224 439980

Client: Aberdeen Harbour

Job Title: Aberdeen Harbour Expansion Project

South Compound
Pond 3
General Arrangement

Scale at A1: As Shown

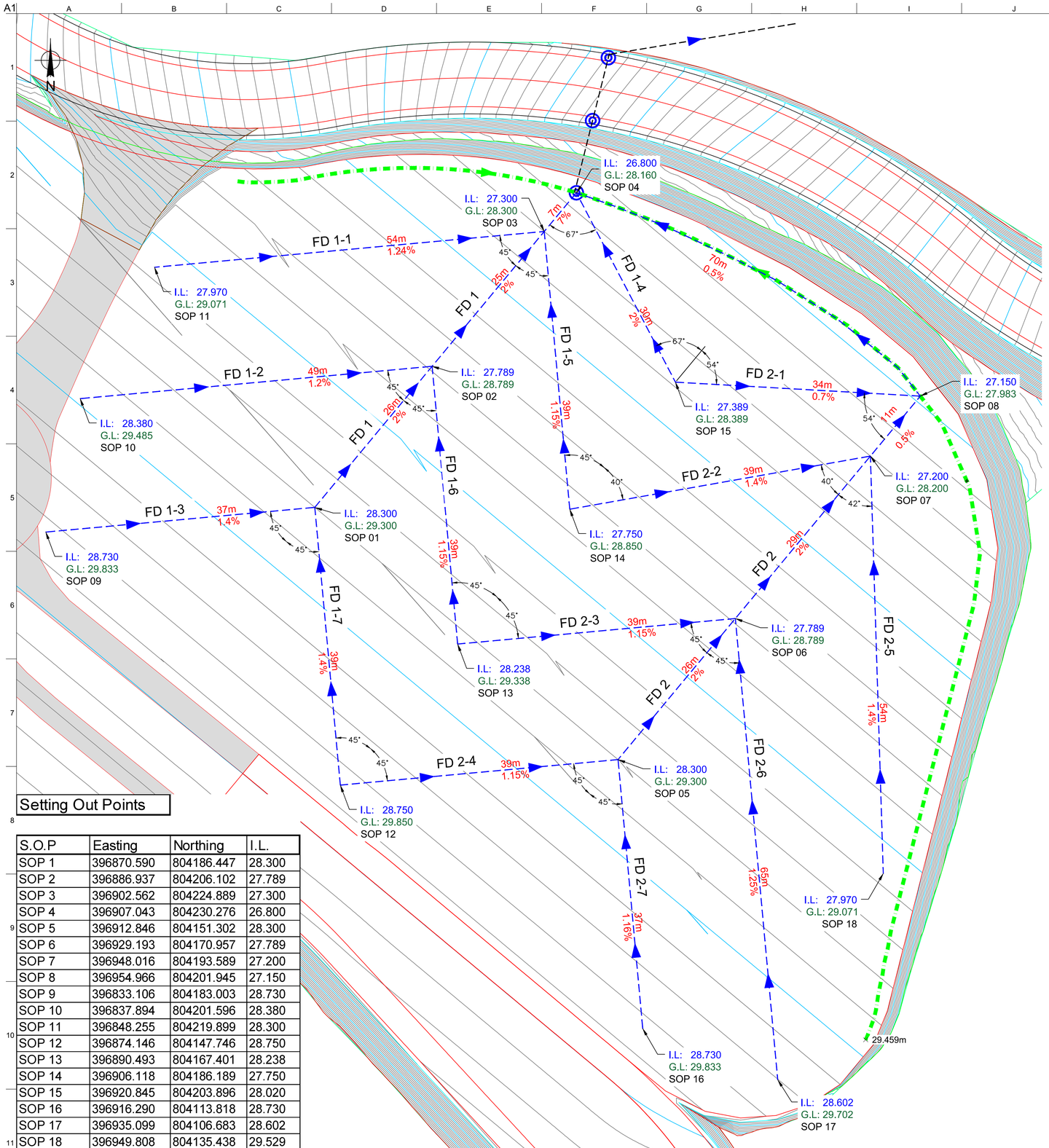
Discipline: Civil Engineering

Drawing Status: **Issued For Construction**

Drawing No: **DRA-T-SOC-TW0010-05005-004**

Issue: **2**

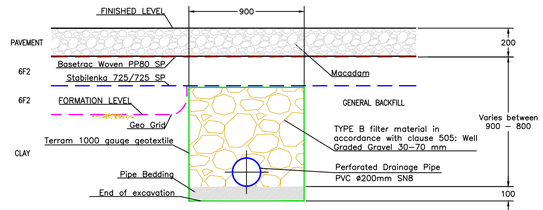
Do not scale



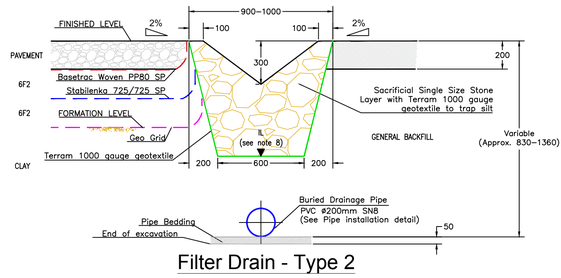
Setting Out Points

S.O.P	Easting	Northing	I.L.
SOP 1	396870.590	804186.447	28.300
SOP 2	396886.937	804206.102	27.789
SOP 3	396902.562	804224.889	27.300
SOP 4	396907.043	804230.276	26.800
SOP 5	396912.846	804151.302	28.300
SOP 6	396929.193	804170.957	27.789
SOP 7	396948.016	804193.589	27.200
SOP 8	396954.966	804201.945	27.150
SOP 9	396833.106	804183.003	28.730
SOP 10	396837.894	804201.596	28.380
SOP 11	396848.255	804219.899	28.300
SOP 12	396874.146	804147.746	28.750
SOP 13	396890.493	804167.401	28.238
SOP 14	396906.118	804186.189	27.750
SOP 15	396920.845	804203.896	28.020
SOP 16	396916.290	804113.818	28.730
SOP 17	396935.099	804106.683	28.602
SOP 18	396949.808	804135.438	29.529

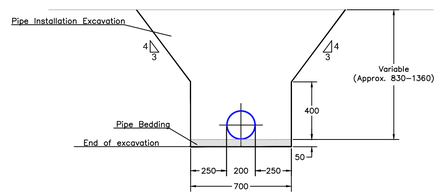
Plan View
(Not to Scale)



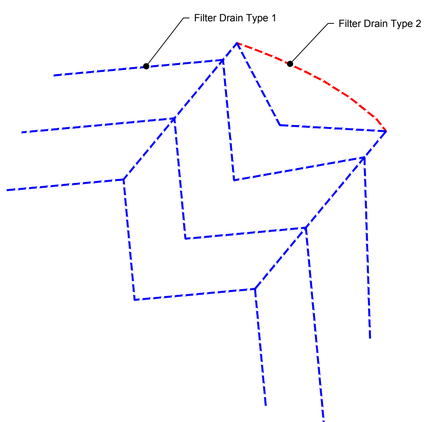
Filter Drain - Type 1



Filter Drain - Type 2



Buried Pipe Excavation Detail



Filter Drain Layout
(Not to Scale)

NOTES
1. All dimensions are in milimeters unless noted otherwise.
2. Road ditches geometry are defined in the DRA-T-SOC-TW0007 package drawings.
3. Water shall be treated with flocking agents before discharging to the sea.
4. All levels are referred to Chart Datum and have been designed in accordance with the soil levels defined for the earthworks phase.
5. Pipes to comply with clause 501, table 5/1.
6. Filter material to comply with table 5/5 clause 505 of MCDHW.
7. Drainage to comply with series 500 of MCDHW Volume 1.
8. For Filter Drain Type 2 IL info see drawing: DRA-T-SOC-TW0010-DWG-050004-002
9. Ditch width depends on the bucket size present on site, but can not be less than 900 mm.

QUANTITIES

Drainage pipe:	70m
Perforated Pipe:	728m
Gravel:	575m³
Geotextile:	2680m²

Drawing Status: **FOR CONSTRUCTION**

DRAGADOS — Michael McIlhatton
Date: 11.04.2018

C3	11/04/18	TWC	ROL	JPO
Extend Stabilenka, reduced depth of stoen				
C2	20/03/18	TWC	ROL	JPO
Increased Filter Drain Type 2 Width to 1000mm				
C1	19/03/18	TWC	ROL	MEG
Issued For Construction				
Issue	Date	By	Chkd	Appd

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Client: Aberdeen Harbour

Job Title: Aberdeen Harbour Expansion Project

SOUTH COMPOUND
DRAINAGE
FRENCH DRAIN PLATFORM 1
LAYOUT AND DETAILS

Scale at A1: As Shown

Discipline: Civil Engineering

Drawing Status: **Issued For Construction**

Drawing No: **DRA-T-SOC-TW0010-DWG-050007-001**

Issue: **C3**

Do not scale

Appendix C

Dust Risk Assessment and Management Plan

1 Dust Mitigation Plan

1.1 Risk Assessment

A risk assessment of the construction activities at the AHEP site and their potential to generate dust has been carried out, and a number of high risk activities requiring mitigation have been identified.

The risk assessment was conducted using a matrix to consider the frequency of construction activities against the severity of their consequences as illustrated in Table 1.1 below.

Table 1.1: Risk assessment matrix

Frequency of Scenario	**Severity of Consequences**		
	Low Severity	**Medium Severity**	**High Severity**
High Frequency	Medium	High	High
Medium Frequency	Low	Medium	High
Low Frequency	Low	Low	Medium

Table 1.2 below provides a summary of the key activities and their assessed level of risk.

Table 1.2: Summary of the key activities taking place at the AHEP site.

Location	**Activity**	**Frequency**	**Severity**	**Risk**
Access Roads	Transport of quarry materials by HGV	High	Medium	High
North Compound	Stockpiling of soil	High	Medium	High
Central Compound	Stockpiling of soil	High	Medium	High
	Operational office buildings	Low	Low	Low
South Compound	Stockpiling of soil	High	Medium	High
	Concrete batching	Medium	High	Low
	Accropode construction	Medium	Low	Low
Breakwater and Quay Construction	Rock placement along breakwater	High	Medium	High
	Movement of plant machinery	High	Medium	High
	Concrete works and screeding	Medium	Low	Low
	Caisson Placement	Low	Low	Low

The activities associated with the concrete batching plant and the accropode construction areas have been listed as low risk due to the mitigation measures that will be implemented in these areas, which are discussed in Section 1.2.

1.2 Mitigation Measures

A summary of the high risk activities is provided in Table 1.3 below.

Table 1.3: High risk activities for dust at the AHEP site.

High Risk Activities	Mitigation Measures
Transport of material by HGV and movement of plant machinery	Wheel washing stations will be installed at the site exit to minimise sediment transport on external roads.
	Chutes, skips and vehicles removing materials that could generate dust will be covered
	Vehicle speeds will be limited on site and vehicles will not be left idle unnecessarily
	A road sweeper will be used to clean mud and other debris from hard standing roads and footpaths.
Stockpiling of soil	Stockpiled materials will be covered with seed matting which will prevent dust transport while waiting for plants to establish.
Rock placement along breakwater	Drop heights onto lorries or from lorries to breakwater will be restricted to minimise dust transport

Prior to the start of each new task or phase of works, the Environmental Clerk of Works (ECoW) will undertake a review of the planned activities and re-assess the risk posed by dust transport to ensure that the appropriate mitigation measures are put in place. However, as a minimum, the actions listed in Sections 1.2.1 to 1.2.6 will be undertaken.

1.2.1 Observation

The ECoW will observe weather conditions and forecasts for dry and windy weather which could result in an increased risk of dust transport at the AHEP site. Site activities and mitigation measures will be reviewed when dust generation occurs.

All staff will receive an overview of key environmental risks at the AHEP site. This will include reporting risks associated with the creation and transport of dust, and how to assess and report. The aim of this briefing is to empower staff to report potential risks and prevent pollution incidents.

1.2.2 Topsoil Stripping

Ground vegetation will not be removed any sooner than required for the stripping of topsoil to minimise the length of time bare ground is left exposed. Topsoil strip will be undertaken in phases to minimise the risk of sediment transfer in run off or soil being blown by wind in dry conditions.

1.2.3 Damping Down

Dry and or dusty surfaces across all three compounds and access roads will be damped down during periods of dry weather to reduce the risk of dust transport.

1.2.4 Transport of Material by Plant and HGV

The following actions will be taken on site to minimise dust transport as a result of plant and HGV operations and transit:

- Chutes, skips and vehicles removing materials that could generate dust will be covered;
- Drop heights onto lorries and other vehicles will be restricted to minimise dust transport;
- Wheel washing stations will be located at site exits to minimise sediment transport offsite onto external roads;
- Vehicle Rumble strips will be put in place at the Central and South Compound areas;
- Vehicle speeds will be limited on site and vehicles will not be left to idle on site unnecessarily; and
- A road sweeper will be used to clean mud and other debris from hard standing, roads and footpaths.

1.2.5 Seeding of Stockpiles

All stockpiles of topsoil to be stored on site will be covered with seed matting. The purpose of the matting is to provide an extra layer of protection and prevent soil being blown by the wind while seeds become established.

2 Monitoring

The ECoW will monitor weather forecasts for the AHEP site to identify high risk periods for dust pollution such as particularly dry and/or windy weather. Signage identifying the risk of dust pollution will placed at prominent position in the site compound and updated daily be the ECoW. This will be to help ensure site workers are aware of potential pollution risk.

If high risk weather conditions are forecast, the ECoW will undertake a risk assessment of the activities being carried out at the AHEP site at this time, and evaluate whether additional mitigation measures are required. When needed this mitigation will be actioned by the ECoW in collaboration with the site manager.

Daily site walkovers will be undertaken by the ECOW in order to identify potential pollution risks at the AHEP site. These will be supported by more in depth weekly site hazard identification site walkovers which will be carried out by the Environmental Manager and Health and Safety Manager.