



Whealdream Golf & Leisure

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Recovery Operation

Environmental Setting and Site Design

1<sup>st</sup> January 2026



## Notice

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## Contact Details:

L Loane  
mobile : 07970103196  
email: [ll@landandmineral.co.uk](mailto:ll@landandmineral.co.uk)



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# 1 INTRODUCTION

## Report Context

- 1.1 This Environmental Site Setting and Design (ESSD) report has been produced to support an application to the Environment Agency for a bespoke permit for a recovery activity at Whealdream near Helston Cornwall. The works will be undertaken A & J Land Management Ltd.
- 1.1 Whealdream is an established and successful family-run holiday destination complete with lodges and self-catering accommodation; a small golf course; a Football/Rugby Golf course; and a highly rated restaurant.
- 1.2 The recovery operation is for the use of approximately 102,000 m<sup>3</sup> of waste in groundworks needed to improve existing facilities. Cornwall Council have granted planning permission ref: PA24/03864, dated 29/11/2024, for *“Construction of a golf range and associated covered bays building with cafe, together with a new 18 hole footgolf / rugbygolf course, new maintenance shed and water storage lagoon and extensive native planting scheme. Ground modelling to be undertaken using imported inert materials”*.
- 1.2 The Site has an approved Waste Recovery Plan (v2.1 June 2025).

## Site Details

- 1.3 Whealdream is located 2.6km to the northeast of Helston, Cornwall, at Grid Reference SW 66601 29309. The site is bordered on three sides by farmland, a small number of residential dwellings and agricultural buildings, as well as a large area of woodland to the Southwest. The Site is accessed from the B3297, a minor road running parallel to the Eastern boundary of the site
- 1.4 The application area comprises a total of 6.94 ha of land (including the temporary haul route). The application site falls entirely within the confines of Whealdream Holiday & Leisure. The land on which the proposed ground modelling work will take place is mainly amenity grass associated with an existing par 3 course and Footgolf course. The existing topography slopes from the northeast corner of the Site and falls away to the west, from 117 AOD to 104AOD.

## Site Classification

- 1.3 The Site will be regulated by an Environmental Permit for waste recovery issued under the Environmental Permitting (England and Wales) Regulations 2016 (as amended).

## Specified Waste Management Activities



1.5 The “Deposit for Recovery” activities that will be undertaken at the site are defined under Annex II of the Waste Framework Directive are:

- R05: Recycling/reclamation of other inorganic materials
- R13 - Storage of wastes pending any of the operations R1 to R12.

### Application Boundary

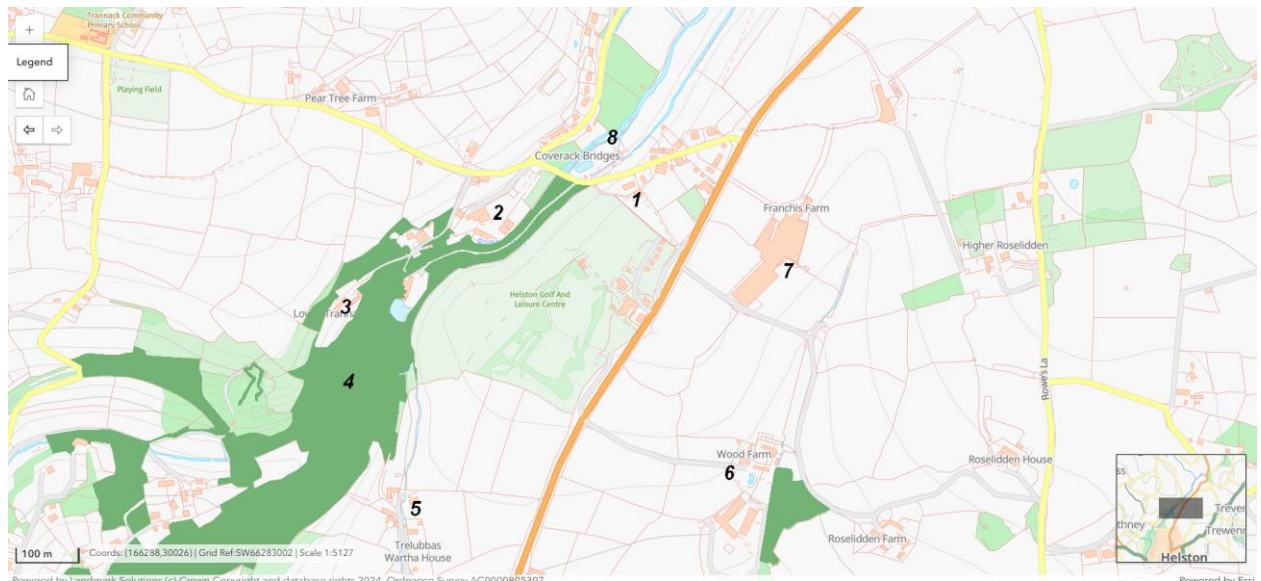
1.4 The application includes site plan ref: 901.86 which shows the boundary of the proposed recovery activity area in green.

### Site Context

1.5 The closest sensitive receptors are illustrated on the extract of Magic maps provided below and in Table 1 details relative distance from the site boundary.

**Table 1 Identified Potentially Sensitive Receptors**

Ref No.	Receptor Description	Category	Distance from Recovery Boundary	Direction
1	Woodlands Boslan, Ashvean	Residential	25	North-
2	Mill Industrial Estate	Industrial Commercial	40 m	North, north -west
3	Lower Trannick Mill	Industrial Commercial	40 m	West
4	Priority woodland	Vegetation	10m	West
5	Trelubbas Wartha House	Residential	200m	South
6	Wood Farm	Agricultural including residential	300m	East
7	Franchis Farm	Agricultural including residential	195	North East
8	River Cober and leat	Surface Water	10m	West



- 1.11 A historical landfill known as Trannack Quarry (Trelubbas Quarry) (reference 2/35, WM2/1/14, MM2/1/KERR) was located approximately 70m north west, but no data on wate types or when the site was completed is held. No information regarding the operational dates or material deposited is available.



## 2 SOURCE

### Historic Development

1.12 Work already completed for planning purposes includes a review of the site history. Reference to historical maps provides information regarding the land use history of the site, however historical evidence may be incomplete for the period predating the first edition and between successive maps. The development history of the Site and surrounding area from the above sources is summarised below.

Date/Scale	Features On-site	Features Off-site
<b>1888</b> <b>1:10,560</b> <b>1:2500</b>	Open Fields with trees along western boundary  Footpath running through centre of site (north east to south west)  Far north of site comprising marsh land.	<b>North</b> – Methodist church immediately north <b>East</b> – Road running adjacent to eastern boundary <b>West</b> – Trelubbas Quarry noted immediately beyond south west of site.  River Cober and unnamed water body running along western boundary.
<b>1908-1909</b> <b>1:10,560</b>  <b>1:2500</b>	Footpath and marshland no longer shown	<b>East</b> – Development immediately north east likely associated with gold course.

<b>1938-39</b> <b>1:10,560</b> <b>1:2500</b>	No significant change	No significant change
<b>1958-63</b> <b>1:10,560</b> <b>1:2500</b>	No significant change	No significant change
<b>1972-1978</b> <b>1:10,560</b> <b>1:2500</b>	No significant change	<b>East</b> – Development to the east undergone slight expansion <b>West</b> – Quarry now 'disused' replaced by pond. Trannock quarry (granite) noted c.60m north west.
<b>1995</b> <b>1:10,560</b> <b>1:2500</b>	No significant change	No significant change
<b>2001</b> <b>1:10,560</b>	Site now shown as Golf Course with small building noted in central north of site.	No significant change
<b>2010</b> <b>1:10,560</b>	No significant change	<b>West</b> – Industrial properties noted c.50m west.
<b>2024</b> <b>1:10,000</b>	No significant change.	No significant change



1.13 To summarise, the site has remained largely undeveloped throughout history comprising open fields until the turn of the millennium where the site was formed as the golf course. The surrounding land has largely comprised agricultural fields with quarries noted to the west; the closest was no longer in operation from the 1970s.

## Proposed Development

2.1 The recovery operation is for the use of approximately 102,000 m<sup>3</sup> of waste in groundworks needed to improve existing facilities.

## Waste Acceptance Procedures

2.2 The wastes permitted at the site are determined by the Hydrological Risk Assessment (HRA) and are further potentially refined by the application determination before being included in the Permit as the definitive list. The table below includes those wastes anticipated to be received at the time of drafting this ESSD.

EWG Code	Description
01 01 02	Wastes from non-metalliferous excavation
01 04 08	Waste gravel and crushed rocks other than those containing dangerous substances
01 04 09	Waste sand and clays
10 12 08	Waste ceramics bricks tiles and construction products (after thermal processing)
10 13 14	Waste concrete and concrete sludge
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics
17 05 04	Soil and stones
19 02 05	Glass – granular form only
19 02 06	Silt arising from washing of inert wastes to form recycled aggregates
19 12 09	Minerals (such as sand and stones) from the treatment of waste aggregates that are otherwise naturally occurring minerals – excluding fines from treatment of non-haz wastes and plasterboard



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19 12 12	Crushed bricks, tiles, concrete and ceramics, including mixture of materials excluding fines from treatment of non-haz wastes, metals and plasterboard
19 13 02	Solid wastes from soil remediation other than those containing dangerous substances
20 02 02	Soil and stones

2.3 Waste Acceptance Procedures accompany the permit application in the outline EMS. They provide for a staged approach to the acceptance of wastes, including provision for testing, and are designed to ensure only the correct waste types from uncontaminated sites suitable for use are accepted to site.

### **Site Development and Restoration**

1.14 The site works are estimated to last 18 months to 2 years depending on supply of material, with restoration to the approved recreational used show on drawing 901-17. Drawing 901-45 shows the phasing that will be followed with the importation for groundworks in Phases 2, 3 and 4.

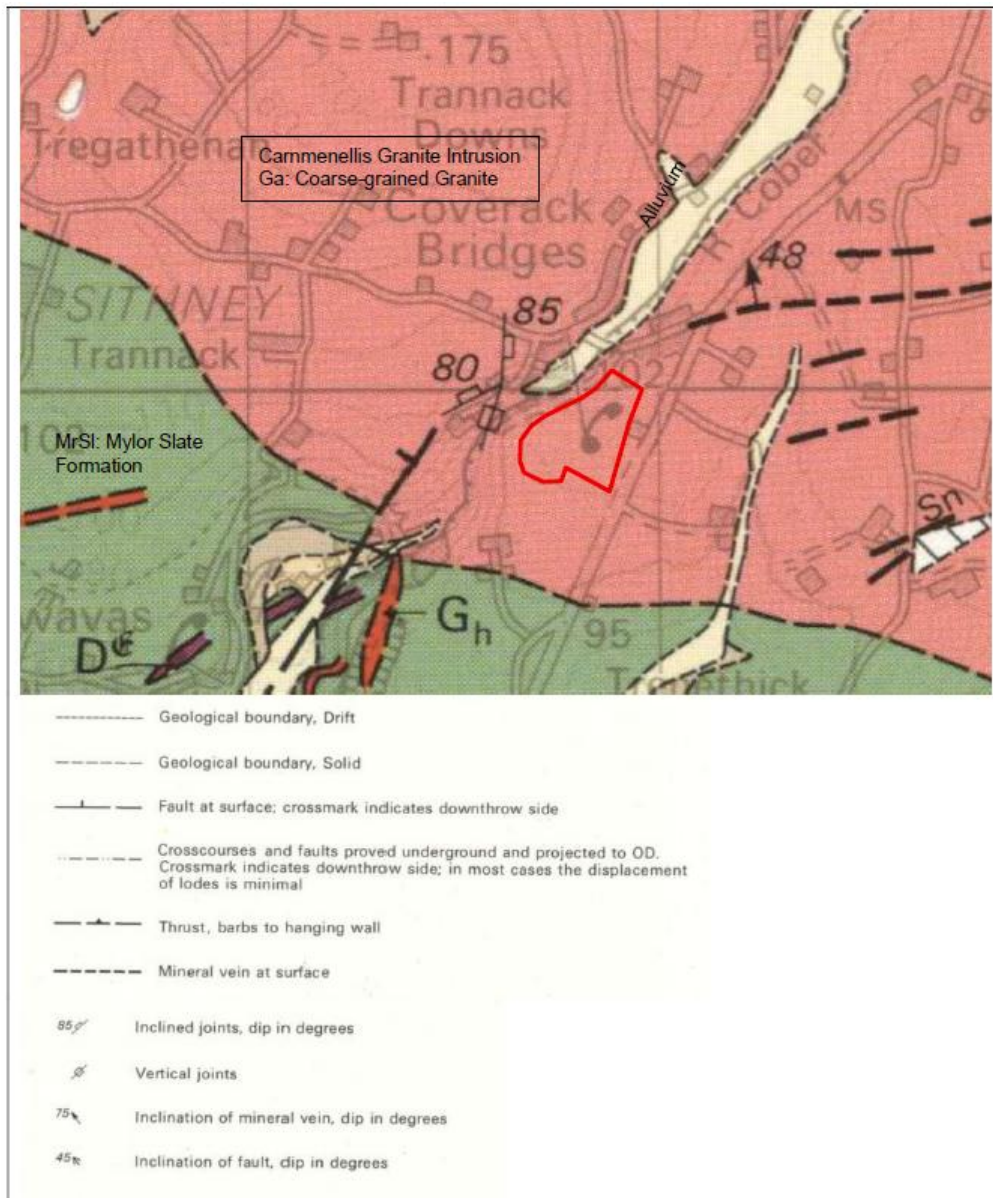


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## 3 PATHWAY AND RECEPTORS

### Geology

- 3.1 The site lies in the south-west of the Carnmenellis Granite intrusion, which formed in the Carboniferous period and intruded into Devonian strata. The site lies on an outcrop of coarse-grained granite, with near-vertical joints and mineral veins at surface in the local vicinity. The Devonian Mylor Slate Formation, which outcrops within 250m to the south-west of the site, lies within the metamorphic aureole of the granite intrusion.
- 3.2 The granite is overlain by Alluvium, associated with the River Cober, to the immediate northwest of the site. No superficial deposits are indicated within the site boundary.
- 3.3 The regional hydrogeological map describes the Carnmenellis Granite as highly fractured and having undergone a long history of alteration. Deep boreholes (>2.5km) and mines confirm the composition of the granite does not alter with depth. The Alluvium is described as fine-grained sand, silt and clay with occasional gravel lenses associated with valley bottoms and grades into Head in the upper parts of the valley.
- 3.4 Further detail and references are set out in the HRA and not duplicated here.



Published Geological Map (extract from British Geological Survey 1990 Sheet 352)

## Hydrogeology

- 3.5 The Cammenellis Granite intrusion is classified as a Secondary A Aquifer; these comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.
- 3.6 The superficial Alluvium associated with the River Cober to the north-west of the site is also classified as a Secondary A Aquifer.
- 3.7 Review of Cranfield University's Soilscape viewer confirms the soils are classified as Soilscape 9: freely draining, acid loamy soils over rock.



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- 3.8 The site is not located within or in the vicinity of a Groundwater Source Protection Zone or Drinking Water Safeguard Zone for groundwater.
- 3.9 The Environment Agency's Groundwater Vulnerability Maps (accessed via
- 3.10 MAGIC) show the vulnerability of groundwater to a pollutant discharged at ground level, based on the hydrological, geological, hydrogeological and soil properties. The groundwater vulnerability beneath the site is classified as High, reducing to Medium-High immediately to the north-west, where Alluvium overlies the bedrock.
- 3.11 The granite has low primary permeability, with groundwater flow predominantly via fractures, joints and mine workings. However, primary permeability is often enhanced near surface due to weathering.
- 3.12 Further detail and references are set out in the HRA and not duplicated here.

## Hydrology

- 3.13 The Environment Agency's Catchment Data Explorer confirms that the site lies within the surface water catchment of the River Cober, which flows in a south-westerly direction, passing within 30m of the site's western boundary.
- 3.14 Locally, flow was diverted from the River Cober via weirs and sluices into leats used historically to power mills (agricultural corn mills and stamp mills for processing metalliferous ore).
- 3.15 The site-specific Flood Risk Assessment (FRA) for the proposed development confirms the Helston Leats are fed from an intake off the River Cober, near Wendron (approximately 1.25km-east north of the site) via a 3km supply channel which flows along the western site boundary.
- 3.16 The site-specific FRA confirms the site lies entirely within low probability Flood Zone 1, defined as land with less than 0.1% annual probability of flooding, and assessed as being at low or very low risk of flooding from all sources.
- 3.17 The central and north-western parts of the site lie within the catchment of the Upper River Cober WFD water body; the south-eastern part of the site lies within the catchment of the Lower River Cober WFD water body.
- 3.18 The Lower River Cober has an ecological status of moderate, described as a moderate change from natural conditions as a result of human activity, with some impact on wildlife and fisheries.



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- 3.19 The Upper River Cober has an ecological status of poor, described as a significant change from natural conditions as a result of human activity, with noticeable changes in the biological communities and the overall functioning of the ecosystem.
- 3.20 The Upper River Cober reported 'poor' biological quality elements for fish. Reasons for not achieving good status are listed as natural mineralisation (zinc), abandoned mines, surface water abstractions (hydrological regime). In addition, mercury and PBDE (polybrominated diphenyl ethers) are listed, with no identified sector responsible.
- 3.21 Reasons for not achieving good status for the Lower River Cober are: abandoned mines and natural mineralisation (copper), agriculture and rural land management (poor soil, nutrient and livestock management), physical modification (urban and transport, and flood protection structures), surface water abstractions (hydrological regime). In addition, mercury and PBDE are listed, with no identified sector responsible.
- 3.22 Further detail and references are set out in the HRA and not duplicated here.

### **Pathways**

- 3.23 The site overlies the Carnmenellis granite bedrock and the unsaturated pathway comprises a probable thin weathered horizon overlying low primary permeability, fractured granite. The inferred direction of groundwater flow is to the south-west, towards the adjacent River Cober. Rapid flow pathways are probable, via fractures and/or potential mine workings, although the hydraulic connectivity of such features is generally limited. The unsaturated zone and groundwater flow pathways offer potential for biodegradation and retardation of potential contaminants.

### **Receptors and compliance points**

#### **Groundwater**

- 3.24 The granite beneath the site is classified as a Secondary A aquifer and supports local private water supplies. Groundwater beneath the site is assumed to discharge to the River Cober which bounds the site to the west. The River Cober supports a number of licensed abstractions locally. The groundwater body and the River Cober are Water Framework Directive water bodies. No site-specific data are available, but the baseline groundwater and surface water quality is likely to be influenced by natural metal mineralisation, historic mining activity and local agricultural land use. The primary receptor is groundwater in the granite aquifer beneath the down-gradient site boundary; the River Cober is a secondary receptor.



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### Surface Water

- 3.25 The site lies in proximity to the leat and the River Cober as noted above. A Surface water management plan, including the construction phase which includes the placement of inert wastes has been approved at panning and it provides for a number of measures to protect these water courses.
- 3.26 These include but are not limited to:
- Vehicular traffic would be limited to designated routes through the site to avoid soil compaction and the associated increased likelihood of surface water runoff.
  - Divert clean surface water away from exposed soils
  - Diversion drains.
- 3.27 There has been no monitoring of the water quality and as the proposed fill will be inert waste it is not considered that it will be a source for any contamination. The placement of the fill will not impact upon the water quality no monitoring is proposed.

### Landfill Gas

- 3.28 Inert waste has a negligible risk of creating landfill gas. The waste acceptance procedures and site procedures are adopted to ensure that the waste used is inert. In-waste gas wells will not be installed and a programme of monitoring is not deemed necessary since the Waste Acceptance Procedures in place will prevent the acceptance of non-inert/degradable waste at the Site.
- 3.29 On an application for a Recovery Permit in early 2025, at Duly Making stage the EA raised the potential risk of landfill gas arising from the inert recovery activities.
- 3.30 Clarification was sought and the EA confirmed they : *"...require either a relevant gas risk assessment or a full justification for the absence of a gas risk assessment. Any additional information/assessment should reflect: a) potential rogue loads which if present adjacent to the boundary, could represent a source of gas, b) proximity of the sensitive receptors and geological setting .....*
- 3.31 Full details on the site setting, including the location of receptors and the proposals are already included across this application and they are not repeated here. Specifically document should be read in conjunction with earlier sections of this ESSD , the HRA and the SRA.



3.32 There will only be a risk to receptors if there is a sufficient source of landfill gas and that gas has a method to reach the receptor at a concentration that would give rise to unacceptable risk to the receptor.

3.33 It is noted that the Landfill Gas Risk Assessment Report template does not require the consideration of rogue loads, and other Permit applications (available to view on the public consultation website) for inert recovery sites, either do not include GRAs, or where they do, no consideration has been given to rogue loads. This matter has not been raised again by the EA in determination of the application noted above.

*Source*

3.34 The wastes that will be used for the recovery operation are inert. Inert waste within the meaning of the Landfill Directive (1999/31/EC) is waste that is not chemically or biologically reactive, and will not decompose or only very slowly:

- It will not dissolve, burn, or otherwise physically or chemically react
- It will not biodegrade or adversely affect other matter that it comes into contact with
- It will not endanger the quality of surface water or groundwater

3.35 The site is to be reprofiled with inert waste and the site will not be capped. There is a negligible risk of gas being created from the wastes that will be used, meaning that there is no likely source of the risk.

3.36 The EA note the potential for a “rogue load” that could create a gas risk to be accepted, however working in accordance with the Permit must be assumed and the Waste Acceptance Procedures (to be agreed as part of the Permit application, but mirror those already agreed for other recent Recovery Permits) will ensure that the likelihood of non permitted wastes not just being deposited, but also allowed to remain should they be detected post deposit, is also negligible.

3.37 If a load containing organic material were to be deposited, the most likely scenario is that it would contain biodegradable materials such as grass or other vegetation. This would be visible and therefore the load removed from the void. Whilst it is acknowledged that other organic materials that could give rise to landfill gas that would not be visible, could be contained, given the sources of the wastes to be used, this is not likely.

3.38 Furthermore, even if a rogue load that contained organic materials were to be deposited undetected, it is simply that, a single rogue load in a site that will accept several million tonnes



of inert waste over its life. It may be technically a source of landfill gas, but in terms of quantity, any gas that were to be produced would be a very small amount.

#### Pathway

- 3.39 If gas were to arise that could be considered to be a risk to any of the residential properties that are in excess of 30m from the areas to be restored, for the pathway to those receptors to be effective, the rogue load creating that gas would have had to have been deposited in close proximity to that point on the boundary. As noted above, the likelihood of the rogue load arising is very low, the amount of gas it would create is also very small but for it then to also be deposited in close proximity of these three residential groups is less than negligible.
- 3.40 As noted above the site is not capped, therefore, it would be expected that any gas would vent passively to atmosphere rather than horizontally traverse the inert waste surrounding it. This indicates no likely viable pathway to receptors. Noting as above, the quantity of gas arising from a rogue load would be exceptionally limited.
- 3.41 Even if the very small quantity of gas were not to take the path of least resistance and move vertically, but instead it were to move horizontally, the inert nature of the waste would effectively retard its progress, reducing the likelihood of it moving beyond the site boundaries.
- 3.42 Noting the points above, and considering the quantities of gas that a rogue load would generate it is considered there is no effective path way to the receptors, therefore there is no significant or likely risk to the residential properties from landfill gas arising from this Recovery Permit proposal.

#### Human Health

- 3.43 With regard to the protection of human health the residents of in a group of houses to the north west, are the nearest and most sensitive land use receptors. As the proposal is only to import inert soils this material will not pose a risk to the occupiers of the properties as the fill will not contain any elevated levels of contamination.
- 3.44 Other considerations are nuisance caused by the lorry movements to and from the whilst importing the soils plus noise and dust during the placement of the fill material. The CEMP and the EMS both detail the measures to control these potential disamenities, backed up by planning enforcement and Permit conditions.



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## 4 POLLUTION CONTROL MEASURES

### Site Engineering

- 4.1 The Site is not a landfill but recovery operation and a geological barrier is not a requirement with the risk posed by the waste, noting the nature of waste with the associated WAP and specific site location such that no basal and side slope engineering or capping is required.
- 4.2 The works will be conducted with appropriate earthmoving equipment, primarily a bulldozer, and will be shaped into the appropriate profile as per the approved landform. The proposed scheme is small and straightforward which does not require complicated/technical structural works and a suitably experienced groundwork contractor will be sufficiently competent to undertake the works. A stability risk assessment has been included with the application as a requirement off the process, rather than because any issues were identified that indicated a risk.
- 4.3 The surface layer of topsoil will be managed as appropriate for the leisure related uses that are to be developed.

### Restoration and Surface Water management

- 4.4 A surface water maintenance and management plan for the restored land has been approved under planning and can be provided if necessary.

### Climate Change

- 4.5 The EA has requested consideration of climate change impact. The recovery operation is expected to take less than two years and therefore changes to climate that could give rise to pollution arising from these works are unlikely, but this has been addressed further in the EMS. The SRA has not been updated to consider if the stability of the landform will be impacted during that period as it is considered changes to climate in two years will be so negligible that the fall within normal fluctuations. The DMP & HRA have not been updated for the same reason. The ERA has been updated although none of the levels of risk assessed change as a result.

### Post Closure Site Management (Aftercare)

- 4.6 After completion of the operations and site restoration, the management of the land will be as necessary to develop and maintain the leisure uses.



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## 5 Monitoring

### Dust Monitoring

- 5.1 A Dust Management Plan (DMP) has been prepared for the site's operations which echoes the approved dust management measures in the CEMP. Dust monitoring will be undertaken in accordance with the provisions of the accompanying DMP.

### Weather

- 5.2 Other than the monitoring of weather as provided for in the DMP no formal monitoring of the weather is considered applicable to operations at the Site.

### Gas Monitoring

- 5.3 The Site is only to receive inert waste subject to strict acceptance criteria and procedure. Landfill gas is not anticipated to occur within the Site with associated monitoring therefore not being necessary in this case and no gas monitoring infrastructure is proposed.

### Water Monitoring

- 5.4 As noted in the previous paragraph, the Site is only to receive inert waste subject to strict acceptance criteria and procedures therefore the potential to produce a potentially harmful leachate will be negligible. There will be no point source discharges of trade effluent or sewage to groundwater or surface water associated with the activities at the Site.



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## 6 Site Condition report

- 6.1 The site history, current use and surround area is detailed in this document, including geology, hydrogeology and hydrology. A SCR template sections 1.3 has been completed and a Groundsure report included with the application.