Energy from Waste, Combined Heat and Power Facility

North Yard, Devonport

Environmental Permit Application (Application EPR/WP3833FT/A001)

Site Condition Report

June 2011

Prepared for

MVV Environment Devonport Ltd

Revision Schedule

Site Condition Report
June 2011

Rev	Date	Details	Prepared by	Reviewed by	Approved by
01	Feb 2011	Initial Draft	**Caroline Culley** Consultant	**Angela Graham** Principal	**Mike Nutting** Associate
02	May 2011	Final Draft	**Caroline Culley** Consultant	**Angela Graham** Principal	**Mike Nutting** Associate
03	02 June 2011	Final	**Caroline Culley** Consultant	**Angela Graham** Principal	**Mike Nutting** Associate

URS/Scott Wilson
12 Regan Way
Chetwynd Business Park
Chilwell
Nottingham
NG9 6RZ

Tel 0115 9077000
Fax 0115 9077001

www.urs-scottwilson.com

Limitations

URS Scott Wilson Ltd ("URS Scott Wilson") has prepared this Report for the sole use of MVV Umwelt GmbH ("Client") in accordance with the Agreement under which our services were performed, signed and dated 28 May 2009. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by URS Scott Wilson.

The methodology adopted and the sources of information used by URS Scott Wilson in providing its services are outlined in this Report. The work described in this Report was undertaken between May 2009 and April 2011 and is based on the conditions encountered and the information available during the said period of time. The scope of this Report and the services are accordingly factually limited by these circumstances.

Where field investigations are carried out, these have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time and further confirmatory measurements might need to be made after any significant delay in issuing this Report.

Copyright

Table of Contents

1 Report Context

Scott Wilson Ltd has been commissioned by MVV Environment Devonport Ltd (MVV hereafter) to prepare an application for an environmental permit for an Energy from Waste, Combined Heat and Power Facility located at Devonport Dockyard, Plymouth (Devonport EfW/CHP hereafter).

Within the Site, as defined in planning terms, and the Installation, as defined in permitting terms, the proposed facility will comprise:

- Tipping Hall;
- Waste Bunker Hall with Waste Handling Cranes;
- Bale Store/Baling System;
- Turbine Hall with Steam Turbine Generator;
- Boiler House with Grate, Boiler and Ancillary Systems;
- Flue Gas Cleaning System and Chimney;
- Air Cooled Condensers;
- Water Treatment Plant;
- Bottom Ash Handling System.
- Administration Block; and
- Workshop and Stores

This report has been prepared to support an application for an environmental permit and details the condition of the site at the time of the application. The report should be read in conjunction with the other supporting application reports and risk assessments.

2 Summary

This document represents the Site Condition Report (SCR) for the Devonport EfW/CHP facility submitted as part of an application to the Environment Agency for a permit to operate an installation under the Environmental Permitting (England and Wales) Regulations 2010 (EPR 2010 hereafter).

Records of the site and surrounding areas have been reviewed in order to describe the condition of the site and, in particular, to identify any substance in, on or under the land that may constitute a pollution risk to the land. Pollution prevention measures have been identified where relevant.

3 Determine licensing requirements

3.1 Applicant

MVV Environmental Devonport Ltd., a subsidiary of MVV Umwelt.

3.2 Site Address

North Yard, Devonport Dockyard, Plymouth.

3.3 National Grid Reference

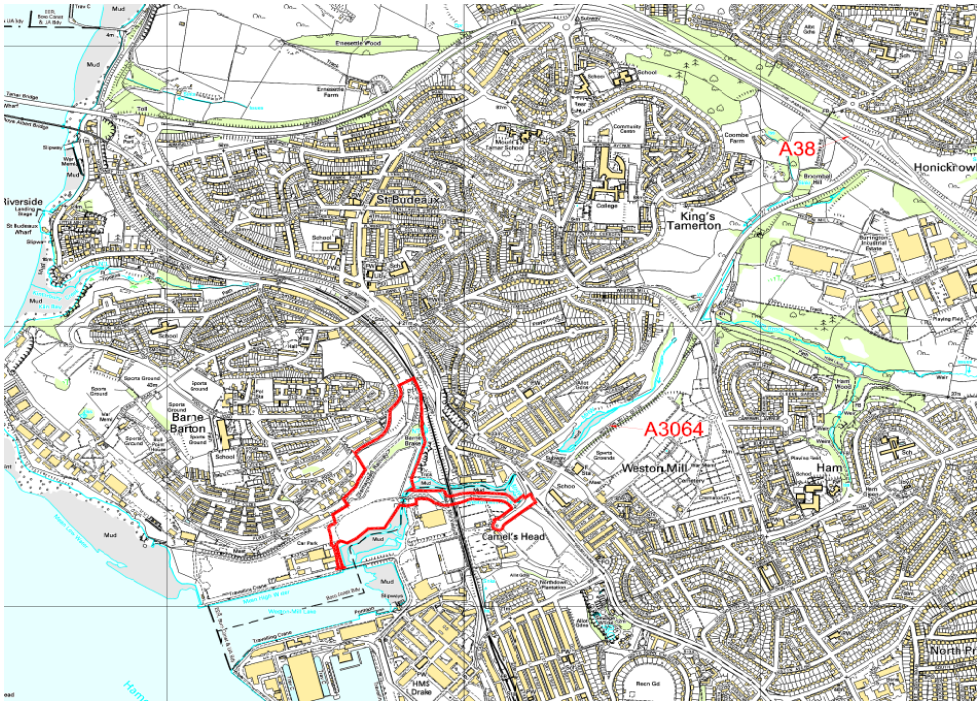
The National Grid reference of the centre of the site is SX 447 574.

3.4 Site Location

The site is located in the northern section of Her Majesty's Naval Base (HMNB), Devonport dockyard, Plymouth, and extends to approximately 7 hectares in area. The land is the ownership of the Ministry of Defence (MoD) and will be leased by the MoD to MVV.

The general location of the site is shown in Figure 1 below with the site boundary shown in red:

Figure 1: Site Location



The central part of the site on which the EfW CHP facility building will be constructed was until recently used by a firm called Ashcroft to process demolition rubble created from different construction projects throughout the naval base and dockyard. Some piles of rubble and skips remain on site and the MoD is in the process of disposing of these appropriately prior to making the site available for MVV.

The site also includes a large portion of Blackies Wood. This will not be the subject of built development but will be subject to landscape and ecological management.

At the south-western end of the site is a raised area of land which is known colloquially by the MoD as 'Table Top Mountain'. It is used by the MoD for storage of equipment, but will be used by MVV as the construction compound. There is a general shortage of external storage space within HMNB Devonport and this area is required long term by the MoD for storage purposes so at the end of the construction period it will be returned to MoD.

Access to the site is from the Camel's Head junction of Weston Mill Drive and Wolseley Road, through parts of HMNB Devonport. Weston Mill Drive is a Principal Road and provides the highway link between HMNB Devonport/Devonport dockyard and the trunk road network (A38). The A38 is situated approximately 1.5km to the northeast of the site. The first part of the access road will be around the edge of an existing car park to the north of the main Camel's Head access road. A tarmac access road crosses Weston Mill Stream at two points to access the central part of the site and a new bridge will be built to replace the existing bridges.

The site is outside the MoD's dockyard explosive safeguarding zone and so no additional measures are required for building design. A Warships in Harbour Risk Assessment, Nuclear Safety Case Risk Assessment and Helicopter Flight Path Risk Assessment have all been carried out by the MoD and no restrictions on the proposed EfW CHP facility have been identified.

The site is situated in an area that comprises a mix of residential, commercial and industrial properties. Receptors adjacent to the site boundaries include:

- To the north and north-west of the site lies the residential area of Barne Barton, which already has a generally industrial outlook;
- There are further residential properties to the east, north-east and south-east of the site, at Weston Mill, St. Budeaux, King's Tamerton, Camel's Head, North Prospect and Keyham, as well as further a field in Saltash to the north-west, Wilcove to the west and Torpoint to the south-west;
- The Weston Mill Viaduct is close to the eastern boundary of the site, and this forms a bridge carrying the railway line over the nearby entrance to HMNB Devonport and provides some screening from residential areas to the east; and
- To the west of the site is a car park, and to the south lies Weston Mill Lake, beyond which the majority of the dockyard facilities are located; to the south-east is the existing Devonport Distribution Facility (DDF) which stands approximately 8m high and is bordered to the north and south by large areas of tarmac used as loading bays and service yards.

4 Condition of Land at Permit Issue

4.1 Environmental Consents, Permits and Designations

The Landmark Information Group provided records of the following information within 1km of the Site boundary:

- Planning permissions;
- Waste management licences;
- Discharge consents;
- Groundwater vulnerability;
- Indicative fluvial floodplain;
- PPC permits;
- Trade effluent consents; and
- Records of any land pollution incidents associated with the Site.

The Landmark response (September 2009) included data-sheets and associated reports which are presented in Appendix A.

The Multi-Agency Geographic Information for the Countryside (MAGIC) website was searched to provide details of any:

- Local & National Nature Reserves & Parks;
- Special Protection Areas (SPAs);
- Special Areas of Conservation (SACs);
- RAMSAR sites (England);
- Environmentally Sensitive Areas and
- Sites of Special Scientific Interest (SSSIs).

The search was completed for 1km, 2km, 5km and a 10km radii on the centre of the site, and the results are presented in Appendix B. In summary the search identified that:

- The application site lies within the Special Protection Area of the Tamar Estuaries;
- The Tamar-Tavy Estuary is located approximately 1.8km to the south-west, and is part of a Site of Special Scientific Interest (SSSI) area. The site includes the notified Warleigh Point SSSI. Being part of the Tamar Estuary System, the area around the site also includes the Lynher Estuary SSSI and St. John's Lake SSSI. The Tamar Estuary System is a large marine inlet on the English Channel coast into which discharges a series of rivers with an extensive catchment within Devon and Cornwall; it acts as a wintering site for wildfowl and waders.
- A further five SSSI are present within 5km of the site as shown in Table 4.1 below.

Table 4.1: SSSIs Present within 5km of the site

Local Nature Reserve	Feature	Distance from Site (km)	Direction
Mount Wise	Mount wise shell bed, good fossiliferous locality	South	3.6
Richmond Walk	Geological formation	South	3.4
Western King	Geological formation	South	4.4
St. John's Lake	Mud Flats and salt marsh	South West	3.4
Lynher Estuary	Drowned river valley complex	West	3.4

- Plymouth Sound & Estuaries, considered a Special Area of Conservation, lies 855m north, south and west of the site; and
- In addition to the statutory designated sites, 5 Local Nature Reserves (LNR) have been identified within 5km to the north-east of the site, which include:

Table 4.2: Local Nature Reserves

Local Nature Reserve	Distance from Site (km)
Budshead Wood	2.4
Southway Valley	4.5
Woodland Wood Valley	2.7
Whitleigh Wood	3.7
Cann Woods.	3.8

4.2 Environmental Setting

4.2.1 Regional Geology

The British Geological Survey, 1:50,000 scale area map, Sheet 348 Plymouth, indicates that the site is underlain by bedrock of the Saltash Formation (slate & siltstone), with superficial materials over, consisting of tidal river or creek deposits (clay & silt).

The Landmark Group data sheets (September 2009, Appendix A) confirm that the site is not located in an area likely to be affected by coal mining activities, or similar, but may require radon protection measures as the it is in a radon affected area, where 5%-10% of homes are above the action level.

4.2.2 Site Geology

An intrusive Ground Investigation (GI) was carried out in July 2010 by GHA Livigunn Ltd and a summary of ground conditions that were found is presented in table 3.2.1 below.

Table 3.2.1 Summary of Ground Conditions From 2010 Ground Investigation

Strata	Depth Range (mBGL)	Depth Range (mAOD)	Generalised Description
Made Ground	GL – 13.10	13.68 to -3.80	Grey silty sandy gravel with occasional cobbles. Gravel and cobbles of brick, concrete, limestone, flint with rare metal, wood and plastic fragments.
Alluvium	6.60 – 22.30	0.32 to -14.57	Soft grey sandy, gravelly SILT/CLAY. Gravel of slate. Occasional wood and partially decomposed organic material and shells.
Saltash Formation	2.70 – 29.80	10.98 to -14.77	Extremely weak grey brown occasionally bluish SLATE. Occasionally interbedded with strong light grey tuff.

4.2.3 Hydrogeology

The Landmark Information in Appendix A includes copies of the 'Groundwater Vulnerability' map and the 'Source Protection Zone' map. This information confirms that the site is:

- Located on a minor aquifer, with a high vulnerability soil classification (U); this indicates that the overlying soils are of relatively high permeability with little ability to attenuate pollutants;
- Not located in a groundwater source protection zone; and
- Is located on previously reclaimed land, and therefore will be on the floodplain of the Tamar estuary and Weston Mill Lake.

There is one groundwater abstraction point located approx. 1,600 metres to the north-east, licensed to Coombe Farm, Plymouth for 'General Farming and Domestic' use.

4.2.4 Surface Waters

The Landmark Group information and MAGIC search (Appendices A and B of this report respectively) has identified that the closest surface water features are:

- The River Tamar (Hamoaze), which is also an SPA, 600m to the west of the site.
- The tidal Weston Mill Lake located adjacent to the site to the south. Three tributaries feed into Weston Mill Lake. Two are small watercourses (Camels Head Creek and Weston Mill Creek) that can be found adjacent to the southern site boundary. Both feed into Weston Mill Lake, which is connected to the dock and the Tamar Estuary via a box culvert. All of these water features are tidally influenced. The Barne Barton stream, which was re-routed during the land reclamation in the 1980's to run down the eastern side of the application site, also flows into Weston Mill Lake.
- The Tamar Estuary is located to the south-west of the site.

Prior to the land reclamation in the 1980's, the site itself was part of Weston Mill Lake, and comprised mainly of mud flats associated with the lake.

There are 2 licensed water abstractions within 500m of the site, both licensed to Devonport Royal Dockyard for 'non-evaporative cooling', and a further 27 abstractions within 1km of the site.

There are a significant number (14 No. within 250m) of discharge consents within the vicinity of the site. The majority are licensed to South West Water for the discharge of treated sewage to the north of the site. There are also consents licensed to the dockyard to the southwest of the site, all discharging into surface water features including Weston Mill Lake and a tributary of the River Tamar (possibly Camel's Head Creek). It is possible that contaminants contained within the discharged waters may in the past have impacted the alluvium present beneath the site.

4.3 Pollution History

4.3.1 Pollution incidents that may have affected the land

In reviewing the Landmark Information, it has been identified that one minor pollution incident involving crude sewage occurred 125m north-east of the site, and one major (category 2) pollution incident that occurred 708m south of the site from chemicals involved in the chemical industry. It can be confirmed that no further major historical pollution incidents within the site boundary have occurred.

4.3.2 Historical land uses and possible associated contaminants

A review of the historical land use maps (Appendix A) for the site and surrounding area are summarised in Table 4.3 below.

Table 4.3: Historical Land Use

Map Period	Landuse
1867 - 1887	The site comprises the northern section of Weston Mill Lake, with a viaduct of the Great Weston Railway running north-south adjacent to the far east of the site. The site is bordered to the north by undeveloped fields and a small wooded area known as Barne Brake. An approximately 100m long quay (Barne Quay) is present in the centre of the site, running approximately north-south into the lake. Several quarries are shown, including Barn and Moor quarry lying approximately 100m to the north and an 'old' quarry lies approximately 100m to the west.
1907 - 1908	Royal Naval Barracks have been developed to the south of Weston Mill Lake.
1908 - 1919	A recreation ground has been developed on reclaimed land to the north of the Naval Barracks.
1933 - 1972	Aerial photographs provided by the MOD show the area to the west of the railway viaduct being progressively reclaimed in the decade after the end of World War 2, but the origin of the material used for the reclamation is not known. Land to the north of the site has been developed into the residential area of Barne Brake, and the large dockyard to the west of the naval barracks has been developed.
1972- 1981	Barn Quay became disused and much of the site consisted of mud flats associated with Weston Mill Lake.
1982 - 1985	The site has been landfilled along with the surrounding area as part of the land reclamation process.
1985 -1993	The site and the area to the west has been fully reclaimed and developed with travelling cranes, sports courts and various buildings. A track / road runs approximately east-west across the site.

In addition to the main historical uses of the site, it is known that several planning categories are associated with the site:

- 94/1304 - Temporary use for managed car crime project;
- 99/989 - Tipping and filling of land;
- 00/997 - Tipping and filling of land;
- 04/1704 – Temporary use for crushing and storing demolition materials;
- 04/1974 - Temporary use for crushing and storing demolition materials.

Envirocheck data indicates that there are two historic landfill sites registered on the site and a further one within 500m. The two located on site are known as HMS Drake Recreation Ground and Weston Mill Lake North. No further details of either landfill are given although from the

mapping it appears that the HMS Drake Recreation Ground landfill lies predominately to the south of the site. The Weston Mill Lake Playing Field landfill is situated approximately 450m east and received industrial and household waste. The Environment Agency have been contacted as to whether more information is known about the material used to reclaim the site although at time of writing no response had been received.

4.3.3 Site Walkover

A site walkover was undertaken on 4th September 2009 for the Scott Wilson 2009 report and the findings are presented in Table 4.3.3 below.

Table 4.3.3 Site Walkover Information

Site Name	Dockyard
Address	Weston Mill Lakes, Plymouth
National Grid Reference	SX 446 573.
Approximate Size (ha)	4
Site Setting	The site lies in the north of the dockyard area approximately 2km downstream of the Tamar bridge. The proposed development site is currently dissected in two by a road running approximately north-east to south-west. It is now understood that the proposed development is to take place in the northern section of the site only.
Occupiers	Ashcroft currently process demolition rubble in the northern section of the site1, created from different construction projects throughout the dockyard prior to removal of site. It was noted that the lease agreement with the MoD requires the site to be returned to its original state on completion. During the site visit the compound was closed and a full walkover of this section of the site was not undertaken. The southern section is currently used as a storage compound for a variety of containers and skips.
Current Owners	Ministry of Defence (MoD)
Areas of Fill	Underlying the concrete rubble layer is made ground of unknown thickness, comprising material derived from a variety of construction projects since the mid 1990's.
General Ground Slope	The northern section2 is relatively flat lying at an elevation of approximately 5m ODN (Ordnance Datum Newlyn). The southern section is a relatively flat lying area at an elevation of approximately 10m ODN (i.e. approximately 5m higher than the northern section).
Additional Comments	The raised area, southern section3, is surrounded on all sides by embankments. The embankment to the south and south east, which leads to Weston Mill Lake is approximately 8m high, with an estimated slope angle of 45^{o} covered by grass and shrubs. At the base of the slope are a series of gabion baskets. To the north and west, the embankments are between 2-4m high with an estimated slope angle of 45^{o}. To access the site, two bridges cross the small creek to the east and appear to be constructed from a series of gabion baskets. These baskets show signs of bulging which could indicate movement of the banks.
Land Use to North	Overgrown scrub land with residential properties along Savage Road and Poole Park Road

Land Use to South	Industrial 'southern section' including containers and parking and Weston Mill Lake.
Land Use to West	Overgrown scrub land and residential properties at Talbot Gardens.
Land Use to East	Overgrown scrub land, rail track and residential properties to north along Hamoaze Avenue and Wolesley Road and industrial land use to the south.

4.3.4 Other Potentially Contaminative Industries

Within 250m of the site the Envirocheck Report lists 4 No. potentially contaminative industries all of which are still active. There is a print works approximately 100m to the north east, a petrol station and used car sales garage approximately 180m east, and a repairs garage approximately 200m east. A further 12 No. are listed between 250m and 500m from the site. Provided these operate within Environment Agency Guidelines, the site should not be impacted.

4.3.5 Mining and Ground Conditions

According to the Envirocheck Report there have in the past have been two opencast quarries within the vicinity of the site, Barn Quarry (177m North) and Moor Quarry (200m North).

The ground risks determined from the Envirocheck data are:

- Low potential for shallow mining ground hazard.
- No hazard to moderate potential for compressible ground hazard.
- Very low to low potential for landslide ground hazard.
- Very low to moderate potential for running sand ground hazard.
- No hazard to low potential for shrinking or swelling clay ground hazard.

According to the Envirocheck Report, the site is in a radon affected area where 5 to 10% of homes are above the action level, therefore it is likely that basic radon protection measures will be required for new dwellings and extensions.

4.3.6 Evidence of damage to pollution prevention measures

There is no evidence of any pollution control measures and/or damage to pollution control measures that may have been put in place upon the site during previous years.

4.3.7 Baseline soil and groundwater reference data

Baseline soil and water reference data was collected as part of the ground investigation completed in August 2010, the results of which are presented in Appendix C. The results were analysed by Kier Construction's civil engineering designer GHA Livigunn and a summary of the findings is given in Table 4.3.7 below.

Table 4.3.7 Analysis of Contamination Results by GHA Livigunn

Soil	The critical receptor is considered to be end users of the EFW facility. Total soil concentrations have been directly assessed against Soil Guideline Values (SGVs) published by the Environment Agency for a commercial / industrial land use where available and in their absence, Generic Assessment Criteria (GAC) developed by ERM in line with the CLEA Framework of documents. None of the samples have recorded concentrations exceeding the SGVs / GACs for a commercial / industrial land use.

	A fragment of cemented bound asbestos was identified at a single location during the intrusive works. Based on the findings of the ground investigation works, there is limited evidence of any widespread impact from asbestos.
Leachate	Leachable soil samples have been compared against published marine environmental Quality Standards (EQS). A limited number of leachable soil samples identified only marginally elevated substances (1 sample for PAHs, 4 samples for Tin).
Groundwater	Groundwater samples have been compared against published marine Environmental Quality Standards (EQS), where available, and drinking water standards in their absence. ▪ Marginal and isolated exceedances of chromium and pH were detected at a single location. ▪ Exceedances of tin and sulphate have been detected extensively across the site. ▪ Concentrations of tin have been recorded above the marine EQS in 9 out of 12 groundwater samples from across the site. ▪ Elevated tin concentrations were also detected in leachable soil samples obtained from site, however, tributyltin concentrations were not detected within any of the groundwater or leachable samples. ▪ Elevated sulphate concentrations have been detected within 8 out 12 samples.

4.3.8 Ground Gas

The following ground gas risk assessment was completed by Scott Wilson. Thirteen of the boreholes were fitted with installations to allow ground gas monitoring which took place during four site visits. Table 10.14 below, presents the maximum hazardous gas concentration (either CO_2 or CH_4), the maximum flow rate recorded and the Gas Screening Value, calculated in accordance with guidance from CIRIA document 665 *Assessing Risks Posed by Hazardous Ground Gases to Buildings* (C665) for each monitored borehole.

Table 4.3.8 Gas Risk Assessment

Borehole	Maximum Hazardous Gas Concentration (%)	Maximum Flowrate (l/hr)	Gas Screening Value	Strata
BH1A (1)	1.1 (CH_4)	4.5	0.0495	Made ground
BH1A (2)	86 (CH_4)	4.5	3.87	Alluvium
BH2	1.6 (CO_2)	<0.1	0.0016	Made ground alluvium and slate
BH3	21 (CH_4)	-0.1	0.021	Made ground alluvium and slate
BH6B	1.2 (CO_2)	<0.1	0.0012	Made ground alluvium and slate
BH7	1.9 (CO_2)	<0.1	0.0019	Made ground alluvium and slate
BH8A	0.3 (CO_2)	<0.1	0.0003	Made ground alluvium and slate
BH12A	2.9 (CO_2)	<0.1	0.0029	Made ground alluvium and slate
BH15	1.9 (CO_2)	-0.1	0.0019	Made ground alluvium and slate
BH17	4.9 (CO_2)	<0.1	0.0049	Made ground alluvium and slate
BH18	0.6 (CO_2)	<0.1	0.0006	Made ground alluvium and slate

BH19	0.4 (CO_2)	-0.2	0.0008	Made ground alluvium and slate
BH21	0.2 (CH_4/CO_2)	<0.1	0.0002	Made ground alluvium and slate
BH22	1.1 (CH_4)	<0.1	0.0011	Made ground alluvium and slate

4.3.9 Overall Conclusions

The overall assessment of the site in respect of development for the future waste treatment facility concluded:

- Based on the soil testing undertaken, it is considered unlikely that site soils represent a source of contamination and are therefore considered suitable to be retained on site for use within the works.
- A Materials Management Plan will be produced in accordance with the CL:AIRE Waste Code of Practice to facilitate the re-use of excavation arising across the site.
- A Construction Environmental Management Plan will be produced to set out the framework and requirements for the management of environmental impacts associated with the construction phase of the works.
- Soils containing asbestos shall be reused, either at depth or beneath hardstanding.
- The presence of hardstanding across the majority of the site will limit direct contact pathways to underlying materials.
- Given the marginal and isolated nature of elevated chromium and pH, we do not consider the recorded groundwater concentrations of pH or chromium to represent a significant risk to the River Tamar, therefore remedial works are not considered necessary for pH or chromium.
- The potential for tin and sulphate to pollute surface waters is considered to be low, insofar as they would be subject to substantial dilution at the estuary, and are of relatively low toxicity, however, further sampling, including surface water sampling, and modelling may be required to fully demonstrate this.
- Whilst no extensive soil or groundwater impact has been identified from the intrusive investigations works, additional monitoring and sampling has been allowed for in the event unforeseen ground conditions.
- An allowance has been made for disposal of unexpected soils not suitable for re-use categorised as hazardous materials. Allowance has also been included for the production of assessment reports including a Detailed Phase 1 Desk Study, a Controlled Waters Risk Assessment and a Contamination Assessment.
- Pile arisings will require lime stabilisation to dry out and be suitable as engineering fill in the hard standing areas. We have made the assumption that the current stockpiles of crushed concrete from the Ashcroft crushing operation will no longer be on site during the start of the construction works. Retaining on-site materials will allow a cut and fill balance of +9m AOD.
- The groundwater has high sulphate levels and as such measures have been included to allow for mitigation regarding disposal to the estuary as follows; Dewatering discharge may require treatment to ensure that it does not have any adverse impacts to receiving water bodies. Treatment may include, but is not limited to, sediment filtration, settlement or neutralisation. Final proposals will be dependent on further sampling during construction.

5 Permitted Activities

5.1 Activities to be covered by an EPR Permit

The facility will include:

- A waste treatment facility, with reception and tipping halls, where waste delivered to the facility will be off-loaded and stored in a waste bunker;
- Thermal treatment using an Energy from Waste (EfW) technique, which uses the mixed waste fuel to generate steam;
- Energy generation plant, comprising a steam turbine generator and air cooled condensers;
- Pollution control equipment, including dry gas scrubbing, reagent storage and bag filter; and
- A bale store where received waste can be stored during periods of facility shutdown.

The integrated waste management process will:

- Process up to a maximum of 265,000 tonnes of waste which would otherwise be landfilled each year;
- Generate some 181,688MWh of electricity per annum, which will be used to power the process and will facilitate export of the excess electricity for use in the adjacent dockyards and for export to the national grid;
- Export around 75,429MWh of heat annually in the form of steam which will for use in the adjacent dockyards; and
- Create both operational employment opportunities and local construction jobs at the time of building.

Further details of the technology processes are provided in the Operational Techniques Report (Application Volume 1, part 5).

The waste types to be accepted broadly fall into the following categories:

- Waste collected from dumping and fly-tipping incidents;
- Waste from litter bins;
- Waste from household collection rounds;
- Waste from household waste recycling sites;
- Commercial waste which Waste Collection Authorities (WCAs) have a duty to collect; and
- Industrial waste which WCAs are requested to collect.
- Commercial and Industrial Waste collected

A full waste list detailing the waste description and European Waste Code (EWC) is provided in Appendix A of the Operational Techniques Report (Application Volume 1, Part 5).

Plant throughput capacity is 265,000 tonnes per annum, with a maximum hourly throughput of 32.8 tph.

In accordance with Annex II of the Waste Framework Directive, as amended in 2010 (96/350/EC), the waste management operations to be undertaken at the site are shown in Table 5.1:

Table 5.1: Waste Management Operations

Waste Management Operations	
R1	Energy from Waste Incineration
R5	Recycling or recovery of other inorganic materials
R13	Storage of bulky recyclable waste prior to transfer to a recycling/recovery activity.
D15	Storage of waste prior to transfer to a disposal activity D1 – D14

5.2 Site Layout

The proposed site layout arrangements, elevations and location are shown on the following drawings:

- Drawing D123356/EP/001 Site Boundary
- Drawing D123356/EP/002 Site Location
- Drawing D123356/EP/003 Site Layout
- Drawing D123356/EP/004 Site Drainage Plan
- Drawing D123356/EP/005 Mass Balance
- Drawing D123356/EP/006 /007 /008 Process Flow Diagrams

Drawings are presented in Application Volume 1, Part 12.

5.3 Environmental Risk Assessment

Environmental risk assessments for the Devonport EfW CHP have been completed, and are presented in the Impact Assessment Report contained in Application Volume 2, part 2..

5.4 Non-permitted Activities at the Site

In respect of non-permitted activities planned for the site, these comprise a Community Area within the administration block. This will provide a focal point for communication with the local population. This administration block will be located on the side of the building closest to Barne Barton, linking with a roof terrace area on the tipping hall which will be available for users of the community area.

Appendix A Envirocheck Report

Appendix B Results of MAGIC Search

Site Check Report
Report generated on February 3 2011.

You clicked on the point:
Grid Ref: SX 447 574
Full Grid Ref: 244745 , 57412

The following features have been found within 1,000 metres of your search point:

Counties, Metropolitan Districts and Unitary Authorities (GB)

Name	Geographic Level
PLYMOUTH (CITY OF)	UNITARY AUTHORITY

NUTS1 - Government Office Regions (GB)

Name	Reference	Hotlink
SOUTH WEST	UKK	http://www.statistics.gov.uk/geography/nuts_sw.asp

Nitrate Vulnerable Zones (England)
There are no features within your search area.

Local Nature Reserves (England)
There are no features within your search area.

National Nature Reserves (England)
There are no features within your search area.

Ramsar Sites (England)
There are no features within your search area.

Special Protection Areas (England)
There are no features within your search area.

Special Areas of Conservation (England)

Reference	Name
UK0013111	PLYMOUTH SOUND & ESTUARIES

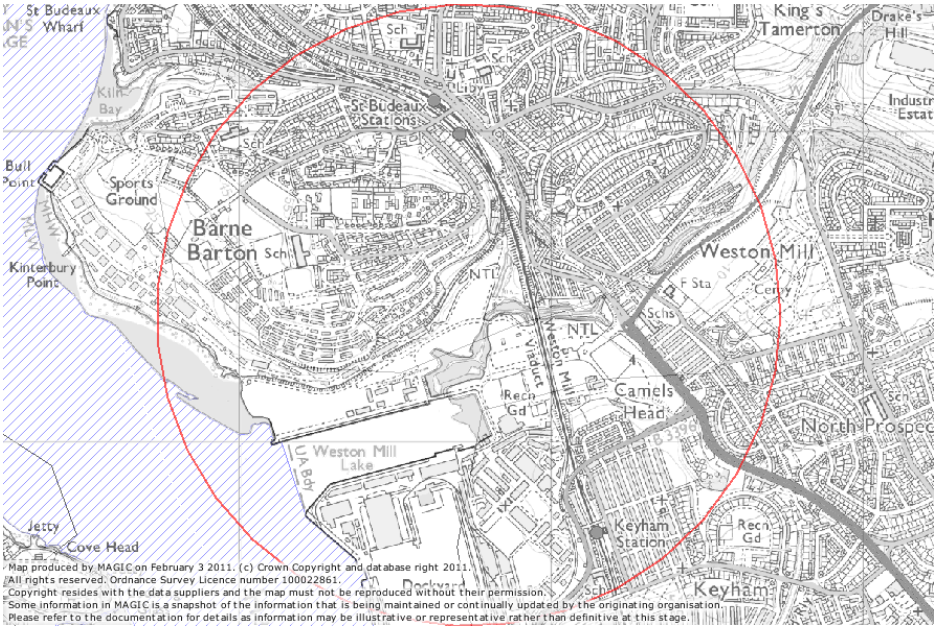
Sites of Special Scientific Interest Units (England)
There are no features within your search area.

Sites of Special Scientific Interest (England)
There are no features within your search area.

Nitrate Sensitive Areas (England)
There are no features within your search area.

Areas of Outstanding Natural Beauty (England)
There are no features within your search area.

National Parks (England)
There are no features within your search area.



Site Check Report

Report generated on February 3 2011.

You clicked on the point:

Grid Ref: SX 447 574
Full Grid Ref: 244753 , 57409

The following features have been found within 2,000 metres of your search point:

Counties, Metropolitan Districts and Unitary Authorities (GB)

Name	Geographic Level
PLYMOUTH (CITY OF)	UNITARY AUTHORITY
CORNWALL	COUNTY

NUTS1 - Government Office Regions (GB)

Name	Reference	Hotlink
SOUTH WEST	UKK	http://www.statistics.gov.uk/geography/nuts_sw.asp

Nitrate Vulnerable Zones (England)

There are no features within your search area.

Local Nature Reserves (England)

There are no features within your search area.

National Nature Reserves (England)

There are no features within your search area.

Ramsar Sites (England)

There are no features within your search area.

Special Protection Areas (England)

Reference	Name
UK9010141	TAMAR ESTUARIES COMPLEX

Special Areas of Conservation (England)

Reference	Name
UK0013111	PLYMOUTH SOUND & ESTUARIES

Sites of Special Scientific Interest Units (England)

Reference	Name	Citation	Site Unit Condition
1467361	TAMAR-TAVY ESTUARY	1030558	FAVOURABLE

Sites of Special Scientific Interest (England)

Reference	Name	Citation
1000958	TAMAR-TAVY ESTUARY	1005917

Nitrate Sensitive Areas (England)

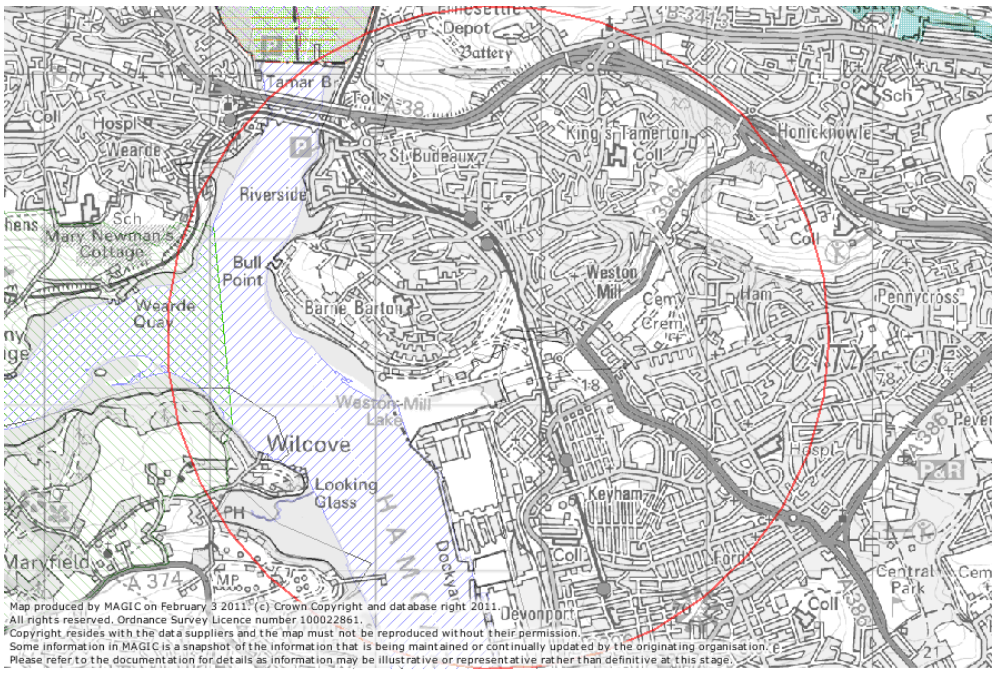
There are no features within your search area.

Areas of Outstanding Natural Beauty (England)

Reference	Name	Date Designated	Hotlink
36	TAMAR VALLEY	AUG-95	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/CONSERVATION/DESIGNATEDAREAS/AONB/TAMARVALLEY.ASPX

National Parks (England)

There are no features within your search area.



Site Check Report

Report generated on February 3 2011.

You clicked on the point:

Grid Ref: SX 447 574
Full Grid Ref: 244763 , 57409

The following features have been found within 5,000 metres of your search point:

Counties, Metropolitan Districts and Unitary Authorities (GB)

Name	Geographic Level
PLYMOUTH (CITY OF)	UNITARY AUTHORITY
CORNWALL	COUNTY
DEVON	COUNTY

NUTS1 - Government Office Regions (GB)

Name	Reference	Hotlink
SOUTH WEST	UKK	http://www.statistics.gov.uk/geography/nuts_sw.asp

Nitrate Vulnerable Zones (England)

There are no features within your search area.

Local Nature Reserves (England)

Reference	Name
1008816	BUDSHEAD WOOD
1009152	SOUTHWAY VALLEY
1457140	CANN WOODS
1009250	WOODLAND WOOD VALLEY
1460666	WHITLEIGH WOOD

National Nature Reserves (England)

There are no features within your search area.

Ramsar Sites (England)

There are no features within your search area.

Special Protection Areas (England)

Reference	Name
UK9010141	TAMAR ESTUARIES COMPLEX

Special Areas of Conservation (England)

Reference	Name
UK0013111	PLYMOUTH SOUND & ESTUARIES

Sites of Special Scientific Interest Units (England)

Reference	Name	Citation	Site Unit Condition
1467361	TAMAR-TAVY ESTUARY	1030558	FAVOURABLE
1467344	LYNHER ESTUARY	1030572	FAVOURABLE
1467343	LYNHER ESTUARY	1030571	FAVOURABLE
1467356	TAMAR-TAVY ESTUARY	1030553	UNFAVOURABLE RECOVERING
1467357	TAMAR-TAVY ESTUARY	1030554	FAVOURABLE
1467351	LYNHER ESTUARY	1030579	FAVOURABLE

1467358	TAMAR-TAVY ESTUARY	1030556	FAVOURABLE
1467359	TAMAR-TAVY ESTUARY	1030555	FAVOURABLE
1050436	ST JOHN'S LAKE	1003053	FAVOURABLE
1050437	ST JOHN'S LAKE	1021028	UNFAVOURABLE RECOVERING
1050435	ST JOHN'S LAKE	1003052	UNFAVOURABLE RECOVERING
1074947	MOUNT WISE	1003908	UNFAVOURABLE RECOVERING
1074944	WESTERN KING	1004162	UNFAVOURABLE RECOVERING
1074943	RICHMOND WALK	1003912	UNFAVOURABLE DECLINING

Sites of Special Scientific Interest (England)

Reference	Name	Citation
1001584	WESTERN KING	1002492
1001585	MOUNT WISE	1002516
1001583	RICHMOND WALK	1002485
1000958	TAMAR-TAVY ESTUARY	1005917
1001288	LYNHER ESTUARY	1004001
1001319	ST JOHN'S LAKE	1000512

Nitrate Sensitive Areas (England)

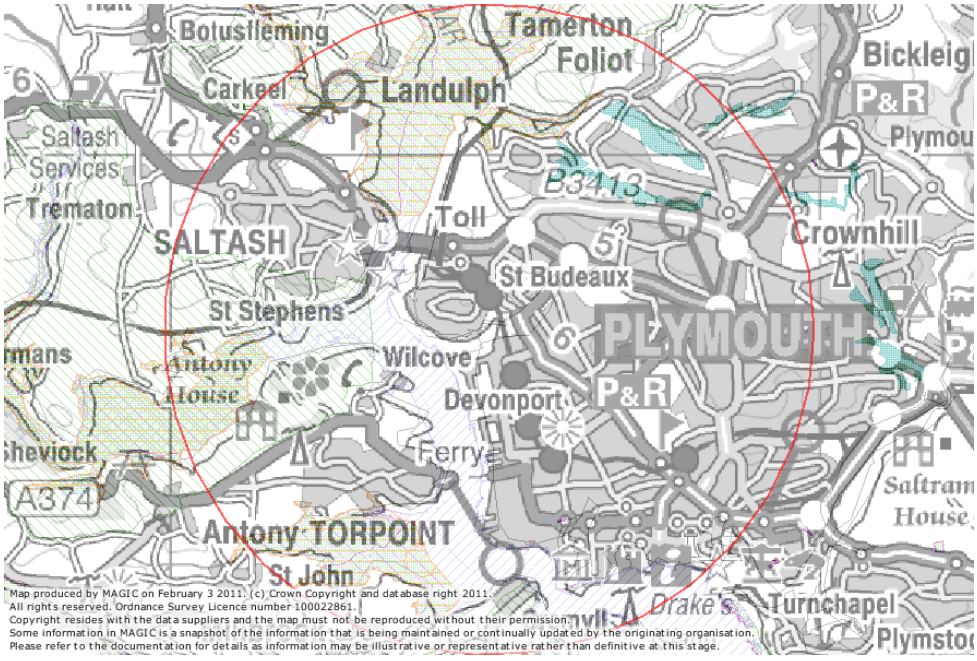
There are no features within your search area.

Areas of Outstanding Natural Beauty (England) Areas of Outstanding Natural Beauty (England)

Reference	Name	Date Designated	Hotlink
36	TAMAR VALLEY	AUG-95	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/CONSERVATION/DESIGNATEDAREAS/AONB/TAMARVALLEY.ASPX
6	CORNWALL	NOV-59	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/CONSERVATION/DESIGNATEDAREAS/AONB/CORNWALL.ASPX

National Parks (England)

There are no features within your search area.



Site Check Report

Report generated on February 3 2011.

You clicked on the point:

Grid Ref: SX 448 574
Full Grid Ref: 244822 , 57375

The following features have been found within 10,000 metres of your search point:

Counties, Metropolitan Districts and Unitary Authorities (GB)

Name	Geographic Level
PLYMOUTH (CITY OF)	UNITARY AUTHORITY
CORNWALL	COUNTY
DEVON	COUNTY

NUTS1 - Government Office Regions (GB)

Name	Reference	Hotlink
SOUTH WEST	UKK	http://www.statistics.gov.uk/geography/nuts_sw.asp

Nitrate Vulnerable Zones (England)

There are no features within your search area.

Local Nature Reserves (England)

Reference	Name
1008816	BUDSHEAD WOOD
1009152	SOUTHWAY VALLEY
1082890	LOPWELL DAM
1008906	FORDER VALLEY
1008783	BIRCHAM VALLEY
1008883	EFFORD MARSHES
1457140	CANN WOODS
1009250	WOODLAND WOOD VALLEY
1460666	WHITLEIGH WOOD

National Nature Reserves (England)

There are no features within your search area.

Ramsar Sites (England)

There are no features within your search area.

Special Protection Areas (England)

Reference	Name
UK9010141	TAMAR ESTUARIES COMPLEX

Special Areas of Conservation (England)

Reference	Name
UK0013111	PLYMOUTH SOUND & ESTUARIES

Sites of Special Scientific Interest Units (England)

Reference	Name	Citation	Site Unit Condition
1050246	EGLAROOZE CLIFF	1003562	FAVOURABLE
1050586	RAME HEAD & WHITSAND BAY	1021867	FAVOURABLE

1050584	RAME HEAD & WHITSAND BAY	1021865	FAVOURABLE
1050585	RAME HEAD & WHITSAND BAY	1021866	FAVOURABLE
1050583	RAME HEAD & WHITSAND BAY	1021864	FAVOURABLE
1050574	PLYMOUTH SOUND SHORES & CLIFFS	1018380	FAVOURABLE
1050572	PLYMOUTH SOUND SHORES & CLIFFS	1022311	FAVOURABLE
1050573	PLYMOUTH SOUND SHORES & CLIFFS	1018379	FAVOURABLE
1050570	PLYMOUTH SOUND SHORES & CLIFFS	1018377	FAVOURABLE
1050571	PLYMOUTH SOUND SHORES & CLIFFS	1018378	FAVOURABLE
1467367	TAMAR-TAVY ESTUARY	1030565	FAVOURABLE
1467364	TAMAR-TAVY ESTUARY	1030562	FAVOURABLE
1467362	TAMAR-TAVY ESTUARY	1030559	FAVOURABLE
1467363	TAMAR-TAVY ESTUARY	1030560	FAVOURABLE
1467360	TAMAR-TAVY ESTUARY	1030557	FAVOURABLE
1467361	TAMAR-TAVY ESTUARY	1030558	FAVOURABLE
1467368	TAMAR-TAVY ESTUARY	1030566	FAVOURABLE
1074206	PLYMBRIDGE LANE & ESTOVER ROAD	1004187	UNFAVOURABLE DECLINING
1074207	PLYMBRIDGE LANE & ESTOVER ROAD	1004188	UNFAVOURABLE DECLINING
1074112	BILLACOMBE	1004011	FAVOURABLE
1467346	LYNHER ESTUARY	1030574	UNFAVOURABLE RECOVERING
1467347	LYNHER ESTUARY	1030575	FAVOURABLE
1467344	LYNHER ESTUARY	1030572	FAVOURABLE
1467345	LYNHER ESTUARY	1030573	FAVOURABLE
1467343	LYNHER ESTUARY	1030571	FAVOURABLE
1467348	LYNHER ESTUARY	1030576	FAVOURABLE
1467349	LYNHER ESTUARY	1030577	FAVOURABLE
1467356	TAMAR-TAVY ESTUARY	1030553	UNFAVOURABLE RECOVERING
1467357	TAMAR-TAVY ESTUARY	1030554	FAVOURABLE
1467352	LYNHER ESTUARY	1030580	FAVOURABLE
1467350	LYNHER ESTUARY	1030578	FAVOURABLE
1467351	LYNHER ESTUARY	1030579	FAVOURABLE
1467358	TAMAR-TAVY ESTUARY	1030556	FAVOURABLE
1467359	TAMAR-TAVY ESTUARY	1030555	FAVOURABLE
1074747	WALLSEND INDUSTRIAL ESTATE	1005355	UNFAVOURABLE DECLINING
1074748	WALLSEND INDUSTRIAL ESTATE	1005357	UNFAVOURABLE DECLINING
1050436	ST JOHN'S LAKE	1003053	FAVOURABLE
1050437	ST JOHN'S LAKE	1021028	UNFAVOURABLE RECOVERING
1050435	ST JOHN'S LAKE	1003052	UNFAVOURABLE RECOVERING
1050316	KINGSAND TO SANDWAY POINT	1003605	FAVOURABLE
1050317	KINGSAND TO SANDWAY POINT	1020627	FAVOURABLE
1074916	WEMBURY POINT	1004243	FAVOURABLE
1074917	WEMBURY POINT	1004245	UNFAVOURABLE DECLINING
1074914	WEMBURY POINT	1004241	UNFAVOURABLE NO CHANGE
1074915	WEMBURY POINT	1004242	UNFAVOURABLE DECLINING
1074913	WEMBURY POINT	1021641	FAVOURABLE
1074910	WEMBURY POINT	1004240	UNFAVOURABLE NO CHANGE
1074918	WEMBURY POINT	1004247	FAVOURABLE
1074639	LOCKRIDGE MINE	1003856	FAVOURABLE
1074947	MOUNT WISE	1003908	UNFAVOURABLE RECOVERING
1074944	WESTERN KING	1004162	UNFAVOURABLE RECOVERING
1074942	FARADAY ROAD	1003890	UNFAVOURABLE DECLINING

1074943	RICHMOND WALK	1003912	UNFAVOURABLE DECLINING

Sites of Special Scientific Interest (England)

Reference	Name	Citation
1006541	PLYMOUTH SOUND SHORES & CLIFFS	2000130
1001584	WESTERN KING	1002492
1001585	MOUNT WISE	1002516
1001582	FARADAY ROAD	1002452
1001583	RICHMOND WALK	1002485
1001097	PLYMBRIDGE LANE & ESTOVER ROAD	1006122
1001274	EGLAROOZE CLIFF	1003125
1001032	BILLACOMBE	1005519
1001508	WALLSEND INDUSTRIAL ESTATE	1001813
1001488	LOCKRIDGE MINE	1000945
1000958	TAMAR-TAVY ESTUARY	1005917
1001553	WEMBURY POINT	1003903
1001287	KINGSAND TO SANDWAY POINT	1007124
1001288	LYNHER ESTUARY	1004001
1001319	ST JOHN'S LAKE	1000512
1006639	RAME HEAD & WHITSAND BAY	2000094

Nitrate Sensitive Areas (England)

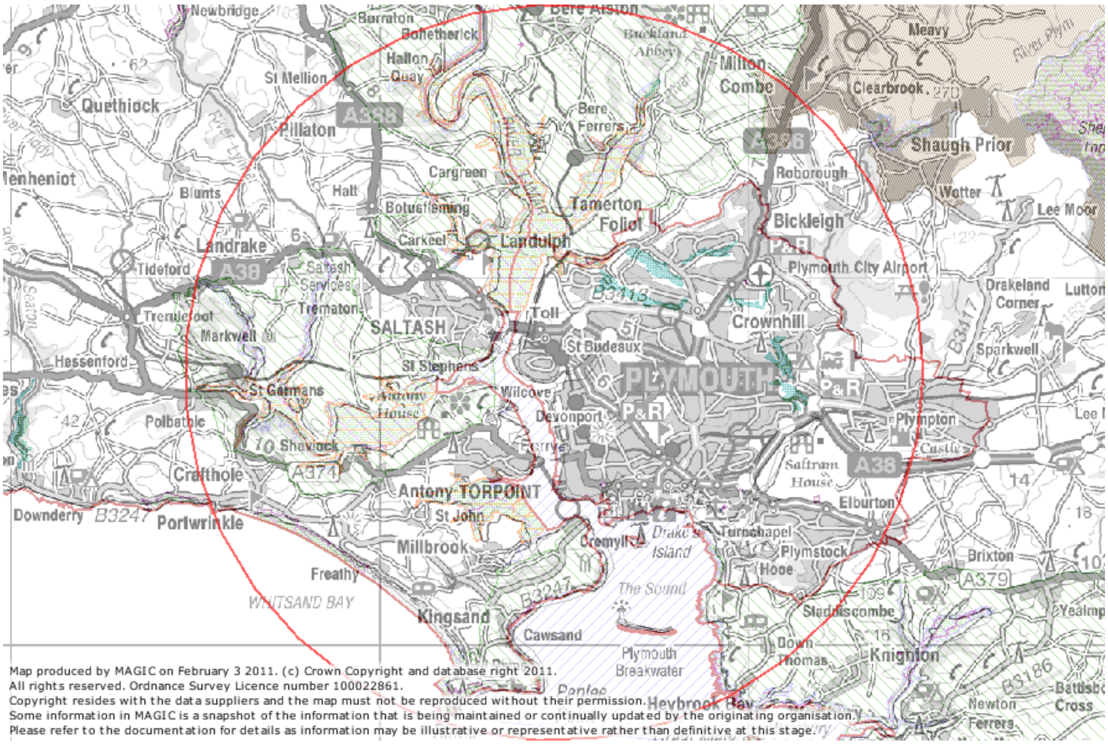
There are no features within your search area.

Areas of Outstanding Natural Beauty (England)

Reference	Name	Date Designated	Hotlink
31	SOUTH DEVON	AUG-60	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/CONSERVATION/DESIGNATEDAREAS/AONB/SOUTHDEVON.ASPX
36	TAMAR VALLEY	AUG-95	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/CONSERVATION/DESIGNATEDAREAS/AONB/TAMARVALLEY.ASPX
6	CORNWALL	NOV-59	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/CONSERVATION/DESIGNATEDAREAS/AONB/CORNWALL.ASPX

National Parks (England)

Reference	Name	Date of Confirmation Order	Hotlink
2	DARTMOOR	Fri, 1 Apr 1994 00:00:00 UTC	HTTP://WWW.NATURALENGLAND.ORG.UK/OURWORK/CONSERVATION/DESIGNATEDAREAS/NATIONALPARKS/DARTMOOR.ASPX


Newbridge
Burraton
Botetherick
Halton Quay
St Mellion
Quethiock
Pillaton
A388
Bere Ferrers
Milton Combe
Meavy
Clearbrook
Shaugh Prior
Roborough
Wotter
Lee Moor
Menheniot
Blunts
Hatt
Cargreen
Botusfleming
Tamerton Foliot
Bickleigh
Landrake
Carkeel
Landulph
Plymouth City Airport
Tideford
A38
Saltash Services
Trematon
SALTASH
Toll
B3413
Crownhill
Drakeland Corner
Trerulefoot
Markwell
St Budeaux
Sparkwell
Hessenford
St Stephens
PLYMOUTH
St Germans
Antony House
Wilcove
Devonport
P&R
Plympton
Polbathic
Sheviock
Ferry
Saltram House
Castle
Crafthole
A374
Antony
TORPOINT
Elburton
Downderry
B3247
Portwrinkle
St John
Cremyll
Drake's Island
Turnchapel
Plymstock
Millbrook
Hooe
Brixton
Freathy
WHITSAND BAY
The Sound
A379
Kingsand
Staddiscombe
Cawsand
Plymouth Breakwater
Down Thomas
Knighton
B3186
Newton Ferrers
Heybrook Bay
Map produced by MAGIC on February 3 2011. (c) Crown Copyright and database right 2011.
All rights reserved. Ordnance Survey Licence number 100022861.
Copyright resides with the data suppliers and the map must not be reproduced without their permission.
Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation.
Please refer to the documentation for details as information may be illustrative or representative rather than definitive at this stage.

Appendix C Ground Investigation Report

Appendix D Site Photographs