

YACHTHAVEN, HAYLING ISLAND)

ENVIRONMENTAL STATEMENT

DECEMBER 2011

APPENDIX 8.1

FASTNET BUILDERS LIMITED
YACHTHAVEN, OFF COPSE LANE, HAYLING ISLAND
Contamination Assessment

September 2002

FASTNET BUILDERS LIMITED**YACHTHAVEN, OFF COPSE LANE, HAYLING ISLAND****Contamination Assessment**

September 2002

1. CAUTION

This investigation relies largely on a superficial examination of the site plus a review of data from Havant Borough Council Planning and Environmental Health Departments, Hayling Library, the Environment Agency and on site investigation information provided by Fastnet Builders Ltd. Even where no potentially contaminating land use has been identified, it is possible that the site could be contaminated due to accidents; fly tipping or other unrecorded events. The age of a building may indicate probability but cannot be treated as proof of the absence or presence of asbestos. This report does not attempt to comment on the commercial value or viability of the site.

2. THE SITE

The site comprises of some 3.2 ha of land on the east side of Hayling Island on the foreshore of Chichester Harbour.

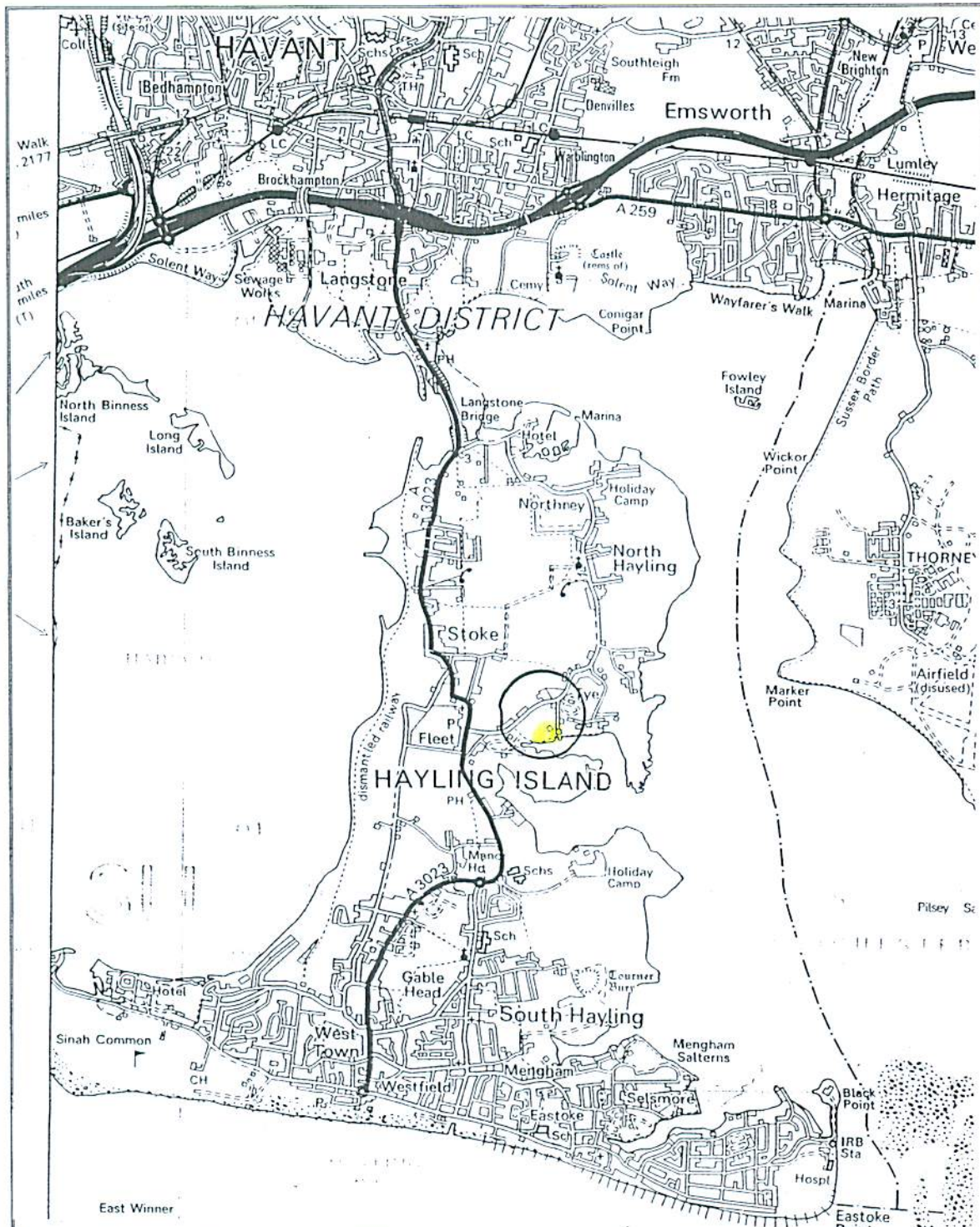
The Ordnance Survey (OS) map reference for the site is SU 728 018. The site elevation is approximately + 3 m OD. See Fig. 1 for site location plan.

3. GEOLOGY & HYDROGEOLOGICAL CONSIDERATIONS

According to the British Geological Survey (sheet No. 331 Portsmouth), most of the site lies on an outcrop of Palaeocene Reading Formation (inter-bedded sands and clays), which overlies Cretaceous Lower Chalk. The surrounding area is mainly on Quaternary Drift Deposits, including both Pleistocene River Terrace Gravels and Recent Marine Beach Deposits.

According to the NRA Groundwater Vulnerability Map (sheet No.45 West Sussex) the site is on a minor aquifer with a low soil vulnerability classification. The Environment Agency has confirmed that the site does not lie within a groundwater source protection zone.

The site is known to be partially filled with earth spoil and highway construction waste. It does not lie within 250m of any existing licenced landfill.



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YACHTHAVEN, OFF COPSE LANE, HAYLING ISLAND

Contamination Assessment

Fig. 1 SITE LOCATION PLAN

September 2002

Scale 1:50000

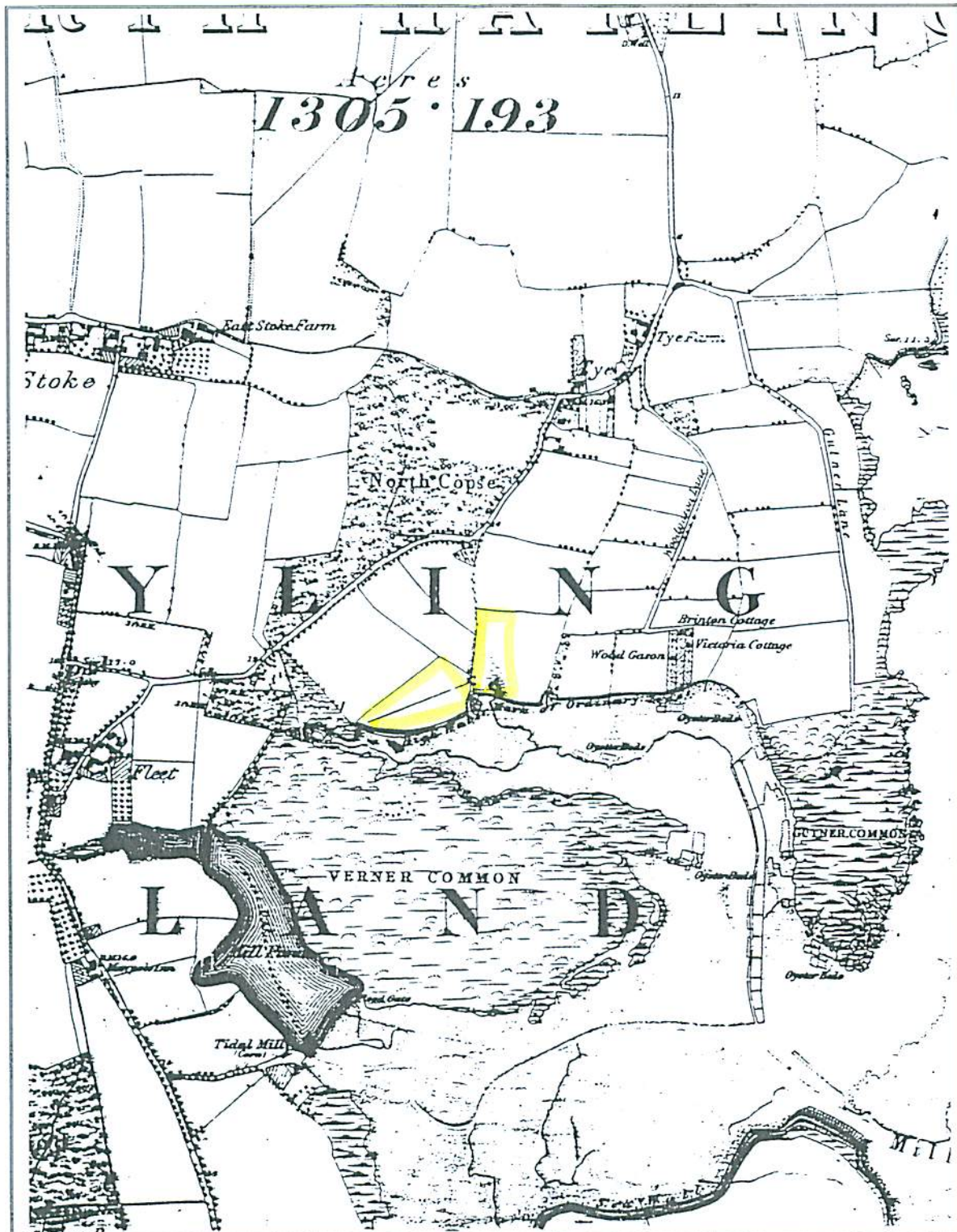
4. SITE DEVELOPMENT HISTORY

- 4.1 The OS Plan of 1870 shows the site as agricultural fields. The area of the site to the west is divided into two sections, the remainder of the site is part of one large field. There is a pond or area of wetland to the south of the site, close to the shoreline. The surrounding area is shown undeveloped apart from the occasional dwelling or farm building. There is a large area of woodland to the north of the site named North Copse. The nearest settlements are the tiny hamlets of Fleet and Stoke. Oyster beds are shown on the foreshore along the inlet to the south and east of the site. See Figure 2.
- 4.2 The OS Plan of 1917 shows a large building on the eastern section of the site and (what appears to be) a small quay or jetty on the foreshore directly south of the building. Some trees or shrubs are indicated covering the northern section of the site. The section of land to the west now appears a single field. Woodgaston Cottage has appeared to the east of the site on the corner of Woodgaston Lane. The surrounding area appears unchanged apart from the appearance of new houses and Gutner Farm buildings on Gutner Lane to the north-east and some reduction in the number of active oyster beds. See Fig. 3.
- 4.3 The 1938 OS Plan show four buildings on the eastern part of the site. One of these is the large building previously shown at the northern edge of the site; there are two smaller buildings to the south of this in line with the jetty. There is a smaller building to the north of the site close to the entrance. No development has occurred on the land to the west of the site. A previous investigation into development history indicated that the site had been used for the building, repair and maintenance of boats since 1933. Changes in the surrounding area include housing on the north side of Copse Lane, a house in the field immediately to the east of the site (South Winds?) and some expansion of housing at Fleet and Stoke, otherwise the vicinity has remained largely undeveloped. See Figure 4.
- 4.4 There was extensive activity in the vicinity during World War II. Numerous bomber attacks on nearby military installations at Thorney Island, Poling, Tangmere, Ford and Portsmouth showered the area with bombs and crashed aeroplanes. The build up to D-Day in 1944 crowded the vicinity with various kinds of military facilities and hardware. It is understood that the site was used by the military to test camouflage paints, reputedly for warships. No other specific war-time activities or incidents have been traced to the site.
- 4.5 The OS Plan of 1962 indicates the site as "Yachthaven". A slipway and a landing stage have appeared on the foreshore. Some form of large rack or gantry is shown in front of the main building. There is a new small building to the west of the site close to the fence-line. The surrounding area has remained largely undeveloped. The house now known as South Winds (to the east of the site) appears to have been called Sunny Bank at this time. Creek Cottage has appeared to the east of Sunny Bank. North Copse to the north of the site is now a much smaller area of woodland. There are several more houses within the hamlets of Fleet and Stoke. See Figure 5.

- 4.6 During 1978 planning permission was applied for and granted for a 62,000 ft² (6000 m²) building for the sale of yachts, boats, fittings and equipment. This application is understood to have been for the replacement of the original building, previously destroyed by fire.
- 4.7 An area of the site was filled during 1984; this work was intended to include the provision of moorings and reinstatement of the seawalls.
- 4.8 A number of enforcement notices have been issued by the local planning authority with regards to the site:
- In 1986 an enforcement notice required the cessation of tipping and filling of the site, with an order to return to a suitable surface (planning consent conditions had stipulated that filling should cease on 7 September 1985).
 - In 1991 an enforcement notice was issued to stop the use of the site as a scrap/breakers yard and to remove all associated waste and equipment. There does not appear to have been any planning consent for this land use.
 - In 1992 an enforcement notice was issued to stop the use of the site as a groundwork contractor's depot and requiring the removal of associated plant and equipment.
- 4.9 The OS Plan of 1996 shows the site with a number of small buildings to the north of the eastern section. There is one small building shown on the western side of the site close to the northern boundary. The slipway and landing stages appear to have been removed. Three more large detached houses (Yacht Haven, The House and North Corner) have been developed to the east of the site along the shoreline. The Lower Tye caravan and camping site lies to the north of the site. The pond or wetland area is still indicated close to the southern boundary of the site. See Figure 6.
- 4.10 The planning history for the site is summarised in Table 4.1 below:

TABLE 4.1
**A summary of the planning applications for Yachthaven, off Copse Lane,
Haying Island**

REF. Nos.	DESCRIPTION	DECISION
PRE 1988		
2395	Dwelling house	Permitted
16404/5	Redevelopment of boatyard as Yachthaven Marina with a new boatyard building	Refused
16404/7	House for the use of a member of the boatyards officers	Permitted
16404/10	Use of house for the manager of boat yard	Permitted
16404/12	Garage	Permitted
16404/16	Continuing occupancy of Yachthaven	Permitted
16404/18	Removal of restriction for continuing occupancy of house to persons connected with the adjoining boatyard	Refused
POST 1988		
1988 – 50888	Retention of temporary covered building	Refused
1993 – 50888/02	Outline approval for residential development	Permitted 7/3/96
1994 – 50888/03	Outline approval for erection of a mast and sail storage building	Permitted 7/3/96
2000 – 50888/04	Slipway and replacement quay for 2 containers of fuel tanks and boundary treatment	Withdrawn 5/7/00
2000 – 50888/05	Retention of existing replacement quay walls and erection of temporary timber hut	Permitted 7/11/00
2000 – 50888/06	Demolition of existing industrial buildings and construction of 8 detached 6 bedroom houses with garages on east side of the site accessed via private road from Copse Lane	Awaiting decision
2000 – 50888/07	Demolition of existing industrial buildings and construction of 8 detached 6 bedroom houses with garages on east side of the site accessed via private road from Copse Lane	Awaiting decision
2000 – 50888/08	Demolition of existing industrial buildings and construction of 6 flats with garages on east side of the site accessed via private road from Copse Lane	No decision
2000 – 50888/02	Renewal of planning application for outline approval for residential development	No decision
2000 – 50888/02	Renewal of planning application for outline approval for residential development	No decision



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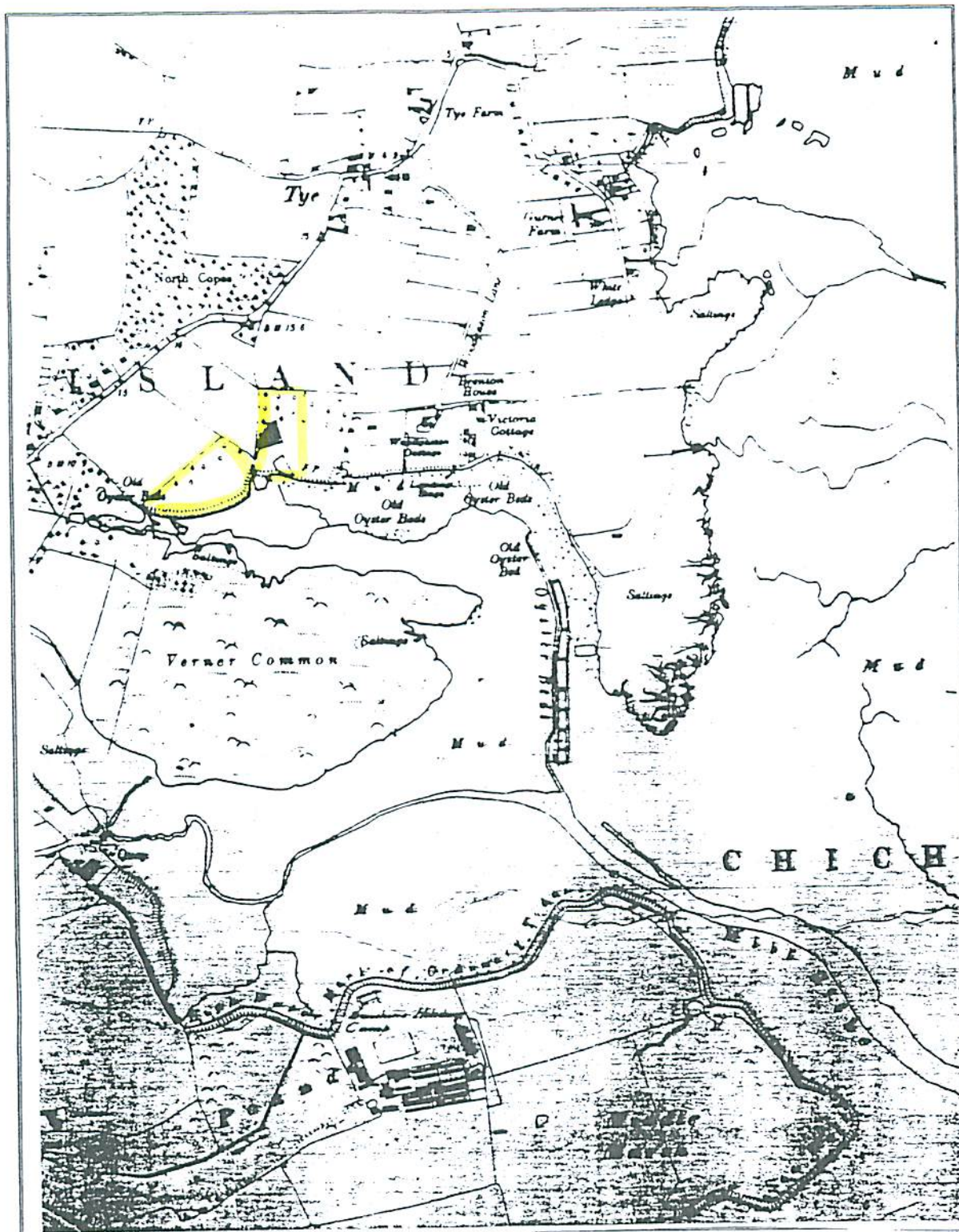
YACHTHAVEN, OFF COPSE LANE, HAYLING ISLAND

Contamination Assessment

Fig. 2 THE SITE AS SHOWN ON THE OS PLAN OF 1870

September 2002

Scale 1:10560



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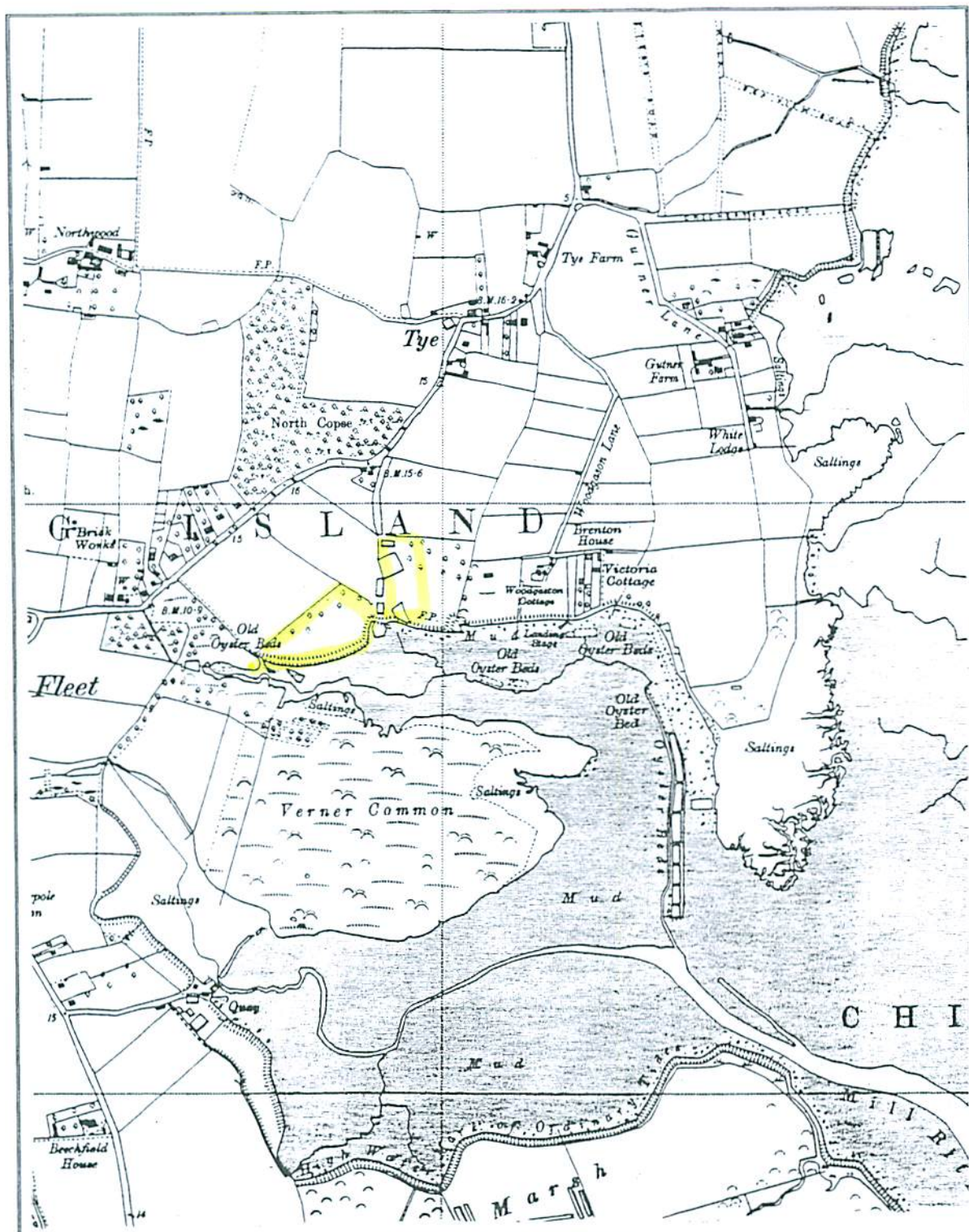
YACHTHAVEN, OFF COPSE LANE, HAYLING ISLAND

Contamination Assessment

Fig. 3 THE SITE AS SHOWN ON THE OS PLAN OF 1917

September 2002

Scale 1:10560



FASTNET BUILDERS LIMITED

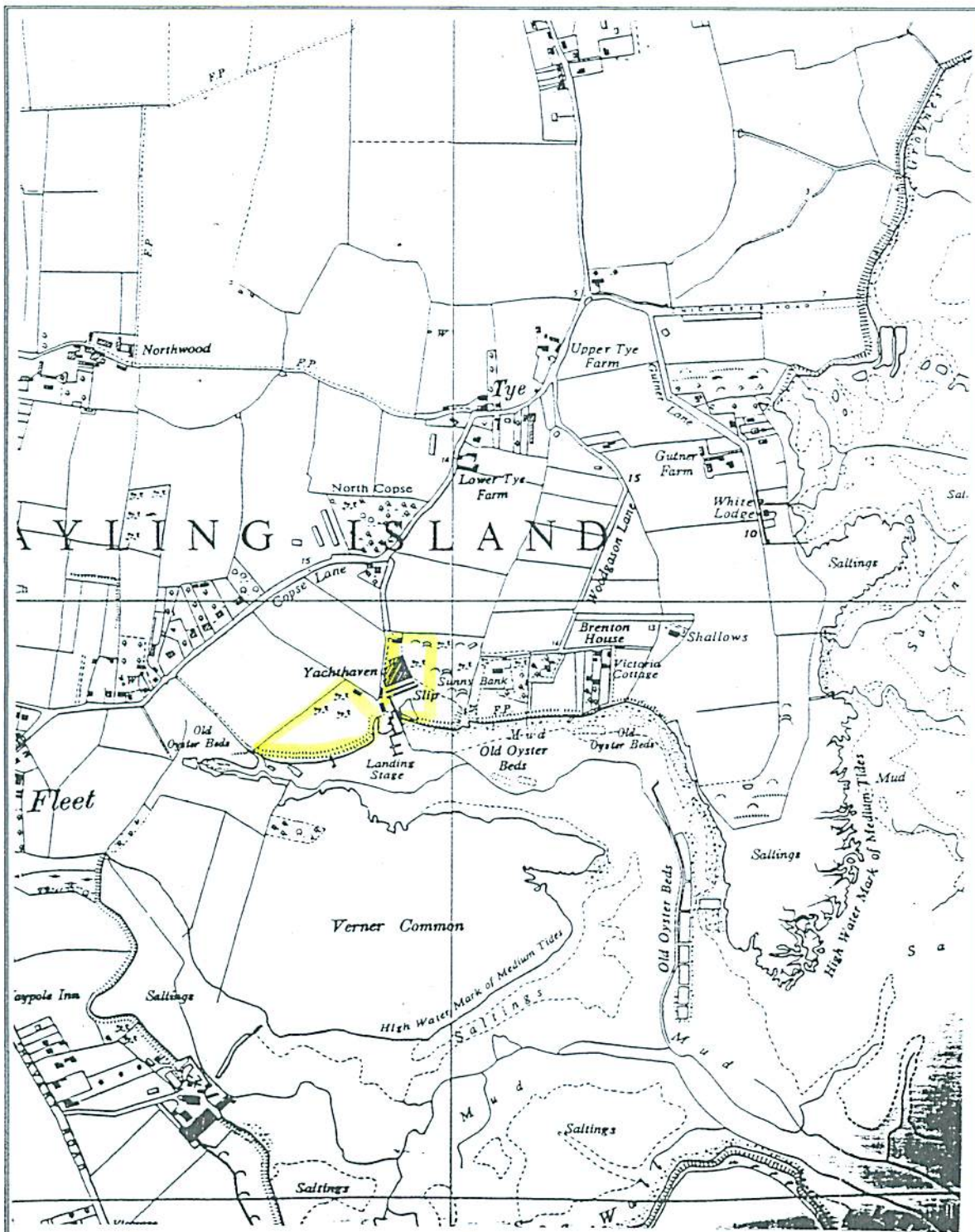
YACHTHAVEN, OFF COPSE LANE, HAYLING ISLAND

Contamination Assessment

Fig. 4 THE SITE AS SHOWN ON THE OS PLAN OF 1938

September 2002

Scale 1:10560



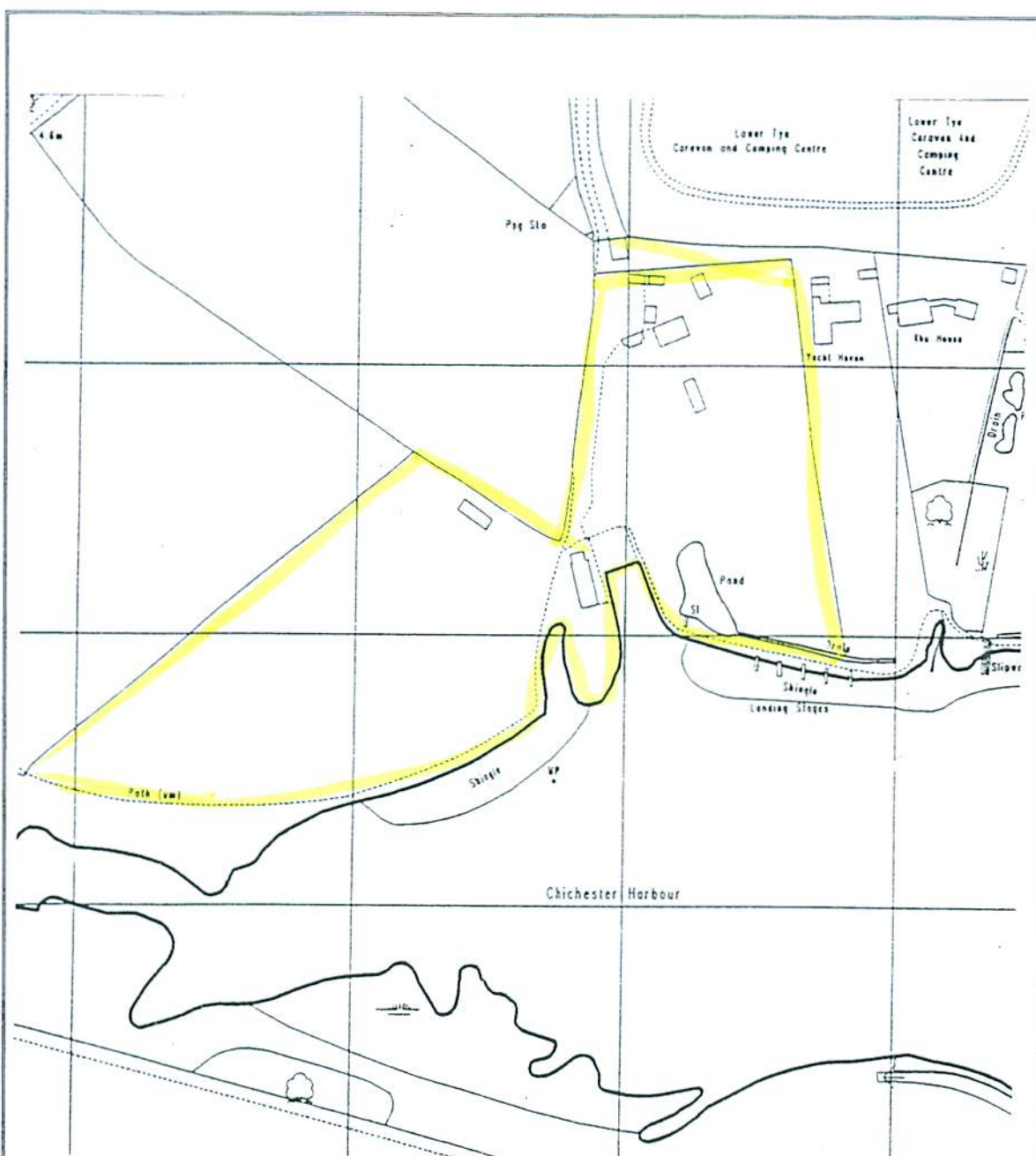
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YACHTHAVEN, OFF COPSE LANE, HAYLING ISLAND

Contamination Assessment

Fig. 5 THE SITE AS SHOWN ON THE OS PLAN OF 1962
September 2002

Scale 1:10560



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Fig. 6 THE SITE AS SHOWN ON THE OS PLAN OF 1996
September 2002

Scale 1:2500

5. THE EXISTING SITE

5.1 The site has been visited on several occasions since 12 October 2001.

5.2 The site appears largely derelict, there are several disused buildings in various states of disrepair. A large area of the site is overgrown vegetation, with areas of dumped rubbish. As described below, the site can be divided into three main sections, north-east, south-east and west. See Figure 7.

5.3 Section 1 North-east section

The site is accessed to the north west of this section from Copse Lane. The western boundary consists of a thick hedge with a hard standing unsealed track leading down to the water edge. There is approximately between 10 and 20 m of thick vegetation cover along the length of the eastern boundary.

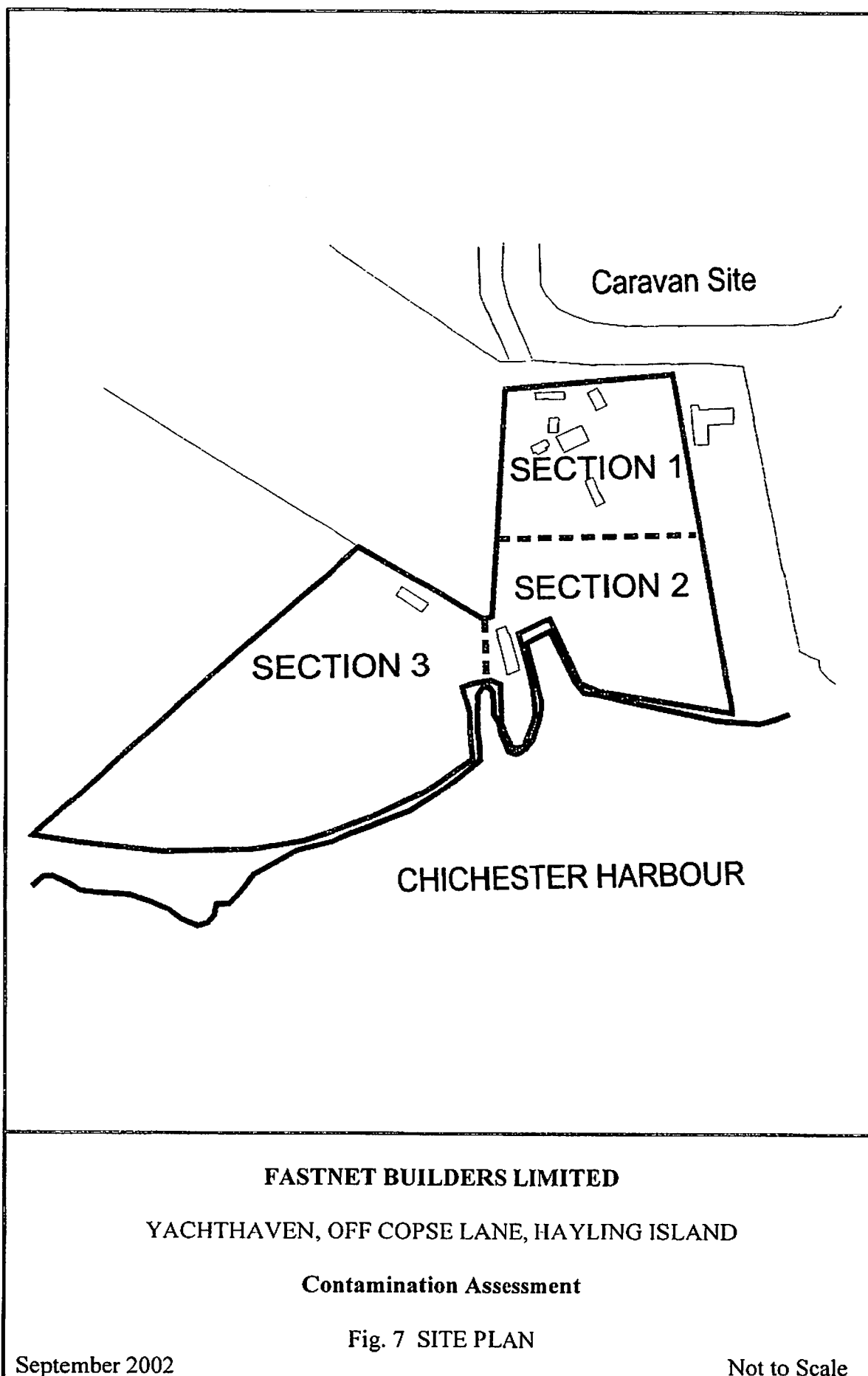
Within this section there are eight buildings, these are in various states of disrepair. The majority of the buildings have wooden frames with pitched roofs. The cladding varies from wooden slats to profiled steel and asbestos cement. One of the remaining buildings has been subject to fire (possibly in the early 1970's when the main building was destroyed by fire). There are three brick buildings, each single storey, two with flat concrete roofs, and one with a pitched corrugated asbestos cement roof.

The majority of the area is covered in an unsealed hard standing, this appears to be hardcore fill with a top coating of chippings. There are five concrete pad areas of varying sizes, these tend to be adjoining the existing buildings. The area to the east of the buildings is rough grassland with scrub and small bushes. This whole section appears to have been land-filled at some point with rubble and other construction waste. There does not appear to have been any topsoil placed over the fill on the site. As a result a mixture of rough vegetation is growing on the surface.

Much of the area within this section has been used as a dumping ground. A large variety of rubbish such as old tyres, oil drums, disused white goods, car parts, rubble, plastics, metal components etc have been deposited over a large area. Subsequent visits since October 2001 indicate that this dumping is continuing.

5.4 Section 2 South-east section

This whole section appears to have been land-filled with rough construction waste material. The majority of the area is covered with coarse grassy vegetation. Along the eastern boundary is an approximately 10 m wide margin of denser vegetation. The southern boundary of this section is an informal revetment on Chichester Harbour foreshore with inter-tidal mud flats and creek bed beyond. There is a small inlet into this section of the site. The sea defence revetment along the southern boundary of this section comprises large concrete blocks (apparently reinforced concrete piles).



There is one large building, wooden framed, with corrugated steel exterior. There are two concrete pads to the south and east of this building; the remaining area surrounding the building appears to be unsealed hard standing surface.

The area to the south west of the section comprises a jetty and shed within an enclosure. This is occupied by a Mr Rice and is not part of the site.

5.5 Section 3 Western section

This area of the site appears to be less developed, the majority being undisturbed land. The north and west boundary are thick hedges. The southern edge borders the harbour.

In the north east of the site there is a large concrete surfaced compound with a building to its north. The building is wooden framed with a pitched roof and clad in corrugated steel with an asbestos cement roof. The area to the south east of the concrete is a rubble hard standing leading to the access track.

There appears to be an area of landfill to the south-east of this section, covered in rough vegetation. Along the western boundary there is thick vegetation approximately 30 m in width. Between the landfill and the thicker vegetation is an area of natural grassland. The majority of the thicker vegetation is bush and scrub with very few mature trees.

The sea defence revetment along this section of the site consists of informal dumped rubble and waste (including tarmac) bund. The public footpath runs along the top of the revetment.

6. POTENTIAL SOURCES OF CONTAMINATION

6.1 The land use history at the site appears to comprise:

- Agricultural until 1930's
- Boat building, repair and maintenance 1933 – circa 1980
- Possible military camouflage paint testing depot 1939 - 1945
- Landfill, scrap yard and construction depot 1980 – 1996
- Industrial use for engineering and civil works 1996 – 2001
- Vacant pending the outcome of current planning application March 2001 – date

The significant contamination risks are attached to the use of the land since its development in 1933 and subsequent industrial uses up to 1996. The fly-tipping of waste on the site, which appears to have continued up to date, also poses some contamination risks.

- 6.2 The camouflage paint testing reputed to have been carried out at the site between 1939 and 1945 appears to have been for warship paint. It is possible that soil and groundwater may have become contaminated during this time due to the use, storage and disposal of paint potentially containing toxic metals and, possibly, marine anti-fouling chemicals. It is extremely unlikely that any luminous or otherwise radioactive paints were used in camouflaging.
- 6.3 The use of the site from the 1930's to 1980's as boat builders, repair and maintenance yard required the storage and use of lubricants and fuels. It is therefore possible that soil and groundwater may have been contaminated due to spills and leakage from oil tanks and drums. It is probable that marine anti-fouling coatings were stored and applied during boat building. Boat repair work may have involved scraping off old anti-fouling coatings. These anti-fouling coatings could have included organotins.
- 6.4 The nature of the scrap yard on the site is unclear and the period of operation is not known. There is a potential risk associated with this land use; heavy metals from battery breaking and component cutting may have ended up in the soil. Oil and fuel leakages or spillages may have occurred when engines and fuel tanks were removed. It is possible that electrical components (transformers) containing PCB's were broken up at the site.
- 6.5 The content of the fill used on the site is uncertain. There is a potential risk that the fill used on the site may well contain some form of contamination. The fly-tipped waste on the site includes potential contaminants.
- 6.6 Asbestos cement components are apparent in buildings on the site, some of the asbestos is damaged and may be releasing fibres.

7. SITE INVESTIGATION/ANALYSIS OF SOIL SAMPLES

- 7.1 The conclusions of the original PCA report, produced December 2001, advised an intrusive site investigation in accordance with contaminated land procedures. Further consultations with the Environment Agency confirmed the locations of subsequent trial pits and bore holes as suggested in the PCA.
- 7.2 The site investigation was carried out to assess the risk of residual soil contamination at the site from historic land uses, notably the operations involving vehicle dismantling and the MOD test site. Residual contamination could require remediation and/or represent a potential liability for the site owner in terms of contamination related damage to third parties. The site investigation was carried out by L R Pimenta on behalf of Fastnet Builders in two phases, the first in December 2001 – January 2002 and the second in July 2002 with ongoing monitoring of the gas valves on boreholes.

- 7.3 Seventy-three trial holes were explored, in the two sampling sessions on the site, and 105 soil samples were taken for testing (with groundwater samples where encountered). Four boreholes were put down to install gas valves. The trial holes were sunk at the locations deemed most likely to have been at risk of contamination from historic land use (within the constraints imposed by the existing site development and utility services/apparatus). For a plan of the site, giving locations of samples and boreholes, see appendix C.
- 7.4 One soil sample was generally taken from the fill below the site surfacing, as this is the most probable place where contamination would have accumulated. In locations where the thickness of the fill was substantial and variable more than one sample was taken, as well as where natural ground was encountered below the fill. At locations where the pits showed no imported fill material and were away from buildings, sampling was considered to be unnecessary but some samples of the natural soil were taken anyway as 'control' samples to enable comparison with areas where there was fill. Three samples of groundwater were taken during the investigation and ten surface soil samples were taken for possible asbestos identification.
- 7.5 All sample locations were logged to record strata encountered and identified during sinking. The condition of the soil was examined during the sinking of the trial holes for visual and odour evidence of contamination. The borehole logs are given in Appendix D.
- 7.6 The analysis was carried out by Environmental Analysis Laboratories (EAL) of Hastings, East Sussex. EAL has the appropriate UKAS accreditations for the type of analysis required.
- 7.7 The results of the analysis may be compared with the Soil Guideline Values given in DEFRA Contaminated Land Report Soil Guideline Values (SGVs) and, for substances where no SGVs have yet been ascribed, may be compared with the Trigger Concentrations given in ICRCL 59/83 and Kelly's Tables. No specific guidelines for total petroleum hydrocarbons (TPH) concentrations in soils has yet been published and the suggested standard has been derived from other sources.
- 7.8 The results of the analysis of the soil samples and all of the relevant analysis certificates, provided by Environmental Analysis Laboratories, are reproduced in Appendix E.
8. CONCLUSIONS
- 8.1 The site is underlain by a minor aquifer with soils of low vulnerability and is not within a source protection zone. The site is in one of the least hydrogeologically sensitive locations on Hayling Island.

- 8.2 The majority of the site is on filled land, however, the fill appears to have been largely inert soil and construction waste. This type of waste is unlikely to be a significant source of landfill gas. The Environment Agency has confirmed that there is a former domestic waste landfill to the west of the site at SU 723 017, although this is not within 250m of the site. The distance and low permeability migration horizon suggests that there should not be any significant risk of landfill gas migration from the former landfill to the site.
- 8.3 The land use of the site as agricultural fields prior to its development in the 1930's is unlikely to have caused any contamination. However, there are significant contamination risks associated with the use of the site since its industrial development. These include the storage of oils and fuels and the use of the site as scrap yard and landfill.
- 8.4 Further investigation was required prior to consent for redevelopment of the land for residential housing. The further investigation included the analysis of soil and groundwater samples from boreholes and trial pits across the site. Samples were generally taken from the fill and upper natural ground. Samples were then analysed for substances listed in Tables 3 & 4 of ICRCL 59/83 plus total petroleum hydrocarbons, molybdenum, asbestos and PCB's in accordance with the recommended schedule of further investigation as approved by the Environment Agency.
- 8.5 The analysis of the soil samples revealed sporadic locations of significant contamination with a clearly defined north/south divide. The southern section of the site, incorporating mostly areas of fill, maintained significantly high levels of water soluble boron, down to depths of 1.5m, with two significant pockets of PAH. However, the northern section of the site had significant levels of contamination recorded throughout the site area. The main source of contamination in the northern section was heavy metals in the soil which were recorded at depths of up to 1m. In both sections the results exceeded the ICRCL and Soil Value Guideline thresholds for domestic gardens.
- 8.6 An asbestos content survey was carried out on ten surface soil samples at the site. There were no samples containing significant levels of asbestos dust recorded during this survey.
- 8.7 Three groundwater samples were obtained at the site, again these showed no significant contaminating results. These results imply that there is no significant contaminants leaching into or onto the neighbouring SSSI and Ramsar Sites.
- 8.8 There were four gas monitoring boreholes installed at the site during June 2002 and these were subsequently tested for soil gas composition on 16 July 2002, 24 July 2002, 2 August 2002 and 7 September 2002. Boreholes 1 & 2 have consistently shown results of no significant landfill gas concentrations, these being in the northern portion of the site where there was no significant fill over saltmarsh. Borehole 3 shows modest levels of gas concentrations typical of a good grassy soil horizon, whereas borehole 4 has consistently shown minor elevated levels of methane and carbon dioxide after its initial

peak value for methane just exceeding its Lower Explosive Limit (LEL) at the first recording. Subsequent readings indicate much reduced levels. Borehole 4 results have no significant landfill gas risk due the distance of the hole from the proposed property developments and the results obtained so far indicate that the borehole pierced an isolated pocket of marsh gas originating from the underlying salt marsh. This conclusion is supported by the high levels of oxygen found in all of the results, which indicates that there is no current methane gas production on this site. See Appendix F for all gas monitoring borehole data.

- 8.9 The results of the site investigations carried out at the Hayling Island Yacht Haven site suggested that the site is significantly contaminated in a way likely to constrain the proposed development or require remediation prior to redevelopment of the site for domestic housing. From the results of the site investigations, it is recommended that the less suitable upper soil be removed and replaced with clean topsoil in the proposed gardens to a depth of 0.6m. It is advised that the clean soil be placed on a geotextile membrane and capillary break sand layer.
- 8.10 Finally during site redevelopment extra care should be taken to ensure that no current site contaminants are displaced into the neighbouring SSSI and Ramsar sites. Guidelines should be in place prior to redevelopment commencing and adhered to throughout the construction phase of the site.
- 8.11 The overall environmental risk for the site is rated according to the risk assessment matrix in Table 8.1 below:

TABLE 8.1
RISK ASSESSMENT MATRIX

PROBABILITY OF IMPACT	CONTAMINATION POTENTIAL		
	SEVERE	MODERATE OR UNCERTAIN	MINIMAL
High	4	3	2
Medium	3	2	1
Low	2	1	1

- 8.12 In this case the rating would be 2, due to the significant contamination potential identified as being associated with the historic industrial land use of the site, reducing to category 1 once remediation measures and redevelopment are complete.
- 8.13 The site is not classified as a "special site" under the criteria given in the Contaminated Land (England) Regulations 2000. The site does not appear on Havant Borough Councils register of contaminated land.



APPENDIX A



ENVIRONMENT
AGENCY

EAS Ltd
London Road
Hickstead
Haywards Heath
West Sussex
RH17 5LZ

11/10/01

Your Reference : FNB/1/MDM/SFH

Our Reference : PNO1/2001/512

From : Paula Goodeve
Tel. No : 01962 713267
Fax No. : 01962 841573

Search Details

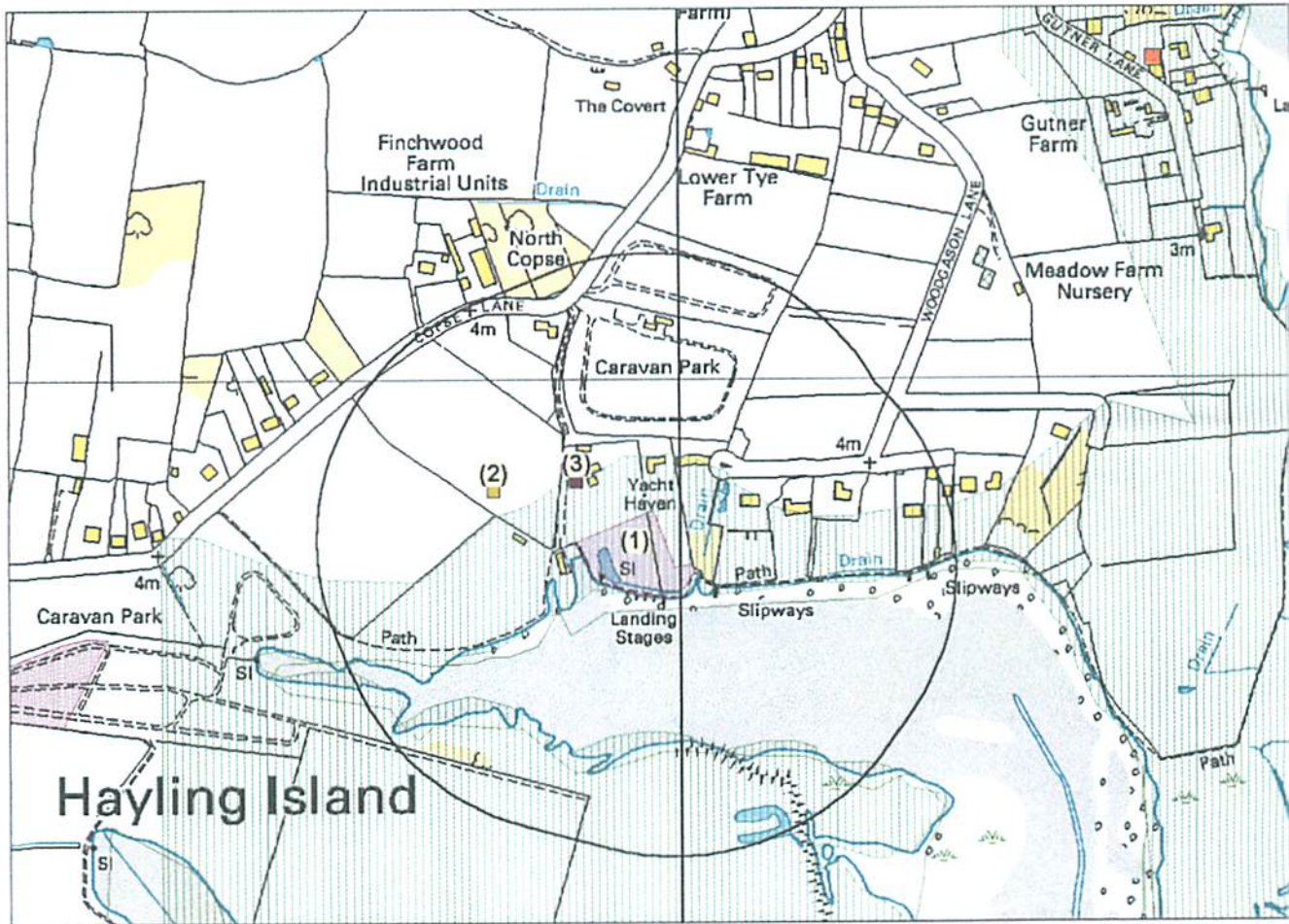
Environment search on Yacht Haven Off Copse Lane Hayling Island

Search Buffer : 250m
NGR : SU 72975 01915

Note: The content of this report comprises only the information that the Agency is able to make available for the search fee paid. Some questions posed may not have been answered fully. It is possible that the Agency has further information in its possession with respect to this site. Should you wish to enquire further, a subsequent fee may be payable, according to our Charging for Information Policy.



Map of Area of Interest



One Centimeter = 0.044 Miles
Miles 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4

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Layer	Key
Licence - Water Impoundment licences in Southern Region	○
Licence - Water Abstraction Licences in Southern Region	●

Licence - Protected Rights in Isle of Wight	■
Licence - Protected Rights in Hampshire	■
Licence - Waste management licences (current)	■



in Hants & IOW

Licence - Waste
Management

Licensing
Exemptions in
Hampshire &
IOW

Licence -
Currently
Licenced Landfill
sites in
Hants/IOW

Licence - Former
Landfills in
Hants/IOW

Licence - IPC
Sites in Southern
Region

Local Authority
Consented
Discharge to Air.
(APC)

Licence - RAS
types 2 & 3
permissions in
Southern Region

Licence - RAS
type 4 permissions
in Southern
Region

Licence -
Discharge
Consents
Hants/IOW

Licence -
Prohibition



Notices in Hants/IOW

Pollution
Incidents in
Hants/IOW from
01/99



Pollution
Incidents in
Hants/IOW 01/97
- 12/98



Pollution
Incidents
Hants/IOW



Source Protection
Zones (merged) at
1:50,000



FPI - Indicative
Flood Plain
Hampshire and the
Isle of Wight



River - Flood
Defence Main
River
Boundaries -
Water
Management Area



1

2

3

4

Coastal

Coastal and Fluvial

Fluvial

The following tables contain the results of the search :

Licence - Water
Impoundment
licences in
Southern Region

Impoundment Licences in Southern Region, live only,
Extract from the NALD Database

Feature	Detail
No Records Selected	



Licence - Water Abstraction Licences in Southern Region	
Water Abstraction Licences in Southern Region (Live only), Extract from the NALD Database	
Feature	Detail
No Records Selected	

Licence - Protected Rights in Hampshire	
Water Abstraction Protected Rights in Hampshire	
Feature	Detail
No Records Selected	

Licence - Waste management licences (current) in Hants & IOW	
Waste management licences (current) derived from REGIS in Hampshire and the Isle of Wight	
Feature	Detail
No Records Selected	

Licence - Waste Management Licensing Exemptions in Hampshire & IOW	
Waste Management Licensing Exemptions in Hampshire & IOW registered after 1st June 2000. Derived from REGIS.	
Feature	Detail
No Records Selected	

Licence - Currently Licenced Landfill sites in Hants/IOW	
The locations of all currently licenced landfill sites holding a waste management licence (derived from REGIS).	
Feature	Detail
No Records Selected	



Licence - Former Landfills in Hants/IOW **Known former landfill sites within the Hampshire & IOW Area including licenced and pre 1974 (non-licenced) sites. Completed landfill sites that have not yet surrendered their licence are NOT included in this dataset. .**

Feature	Detail
1	Lfill_id : 403 Licence_re : 13/15 Os_ref : 729018 Site_addre : YACHTHAVEN, COPSE LANE, HAYLING ISLAND Waste_type : EARTH SPOILS & HIGHWAY CONSTRUCTION WASTE Gas_risk : Gassing

Licence - IPC Sites in Southern Region **Industrial Process sites in Southern Region. These are part A sites regulated by the EA under the Environmental Protection Act 1990. This DOES NOT include part B sites which are smaller and regulated by the local authority.**

Feature	Detail
No Records Selected	

Local Authority Consented Discharge to Air. (APC) **Local Authority Consented Discharge to Air. (Environmental Protection Act 1990 (Part B))**

Feature	Detail
No Records Selected	

Licence - RAS types 2 & 3 permissions in Southern Region **Type 2 radioactive substance permissions (sites subject to licensing under section 1 of the Nuclear Installations Act 1965 (2 licences both at Dungeness Power Station). Also Type 3 radioactive substance permissions allowing the accumulation & disposal of radioactive material within the conditions of the authorisation.**

Feature	Detail
No Records Selected	



Licence - RAS type 4 permissions in Southern Region	Type 4 radioactive substance permissions allowing the ownership and use of radioactive material within the conditions of the authorisation.
Feature	Detail
No Records Selected	

Licence - Discharge Consents Hants/IOW	Discharge consents (All) in the Hampshire and IoW area. Includes revocations, variations etc. Data sourced from Charges for Discharges (CfD).
Feature	Detail
No Records Selected	

Licence - Prohibition Notices in Hants/IOW	Dataset of Prohibition Notices (No control, Conditional, Absolute) issued
Feature	Detail
No Records Selected	

Pollution Incidents in Hants/IOW from 01/99	Pollution Incidents logged in the Hampshire and IOW Area from 1/1/99
Feature	Detail
2	Ref_no : 5810 Easting : 472820 Northing : 101890 Location : YACHT HAVEN, ABOVE VERNER COMMON, HAYLING ISLAND Date : 2000-05-11 Pollutant : Industrial and Commercial waste Air : 4 Land : 4 Water : 4



Pollution Incidents in Hants/IOW 01/97 - 12/98	
Pollution Incidents logged in the Hampshire and IOW Area between 1/1/97 and 31/12/98	
Feature	Detail
No Records Selected	

Pollution Incidents Hants/IOW	
Pollution incidents in the Hampshire and IoW area. Includes categories 1 to 4. For the period Jan 1992 to Dec 1998.	
Feature	Detail
3	Incref : 169 Ngr : SU729019 Location : Yatch Haven, Copse Lane, Hayling Island Incdte : 26/06/92 Inctype : Miscellaneous Contwater : Surface water Catname : Unsubstantiated Polltype : Subtype : Premises : Other Industrial

The site identified lies within a tidal flood risk area, as identified on the Agency's most recent indicative floodplain maps.

The Agency's records therefore indicate that this site could be affected by tidal flooding if the defences are breached or overtopped. The estimated risk of flooding for the landward boundary line of a tidal floodplain is 0.5% annually, and estimated at reaching 3.7m above Ordinance Datum Newlyn for Eaststoke Point in the year 2060.

This level takes into account current corrections for global warming and land sinkage, but does not include variations in individual wave heights resulting from wind speed and direction or from variations in atmospheric pressure.

It is suggested that your client assess the levels of the property in question with respect to this level to more accurately estimate the risk of flooding from the sea.

Any property in the vicinity of a watercourse could be at risk to flooding in certain conditions. However, the Agency does not have any records of flooding with respect to this particular property, although not all such events are reported to the Agency.

As of 11/10/01, the Agency has no record of contaminated land associated with the site, or within 250m. However, the Agency would usually only become aware of the contamination of land, resulting from the previous uses of the site, through its other licencing and regulatory duties.



The above report does not include any information relating to the Agency's knowledge of Groundwater Quality, Agency Land Ownership or Enforcement Actions in relation to this search. This information can be supplied if requested.

The replies given are based on the information available to the officers of the Agency at the present time, and the Agency accepts no liability in respect thereof in the absence of negligence.

I hope this satisfies your request.

Yours sincerely

PAULA GOODEVE
Authorisations Assistant



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APPENDIX B



Havant

BOROUGH COUNCIL

Civic Offices
HAVANT
Hampshire PO9 2AX

Director of Environmental Services
Frank Campbell BA(Hons) MRTPI

Tel (023) 9247 4174
Fax (023) 9244 6588
DX 50005 Havant
www.havant.gov.uk

Sandra Holland
Environmental Assessment Services Ltd
London Road
Hickstead
Haywards Heath
West Sussex
RH17 5LZ

Our Ref: DES/EH/AG
Your Ref:
Direct Line: (023) 9244 6657
Ask For: Mr Gibbs
E-mail: andrew.gibbs@havant.gov.uk

02 October 2001

Dear Ms Holland

Contaminated Land: Yacht Haven, Copse Lane, Hayling Island.

With reference to your letter, dated 1st October 2001, my colleagues and myself have investigated the situation from our available information.

At the moment our Contaminated Land strategy is still being initialised and so we are working from past records, this means that the latest information is not available as yet.

To answer your questions in order:

1. We do not know of any soil or groundwater contamination in this area.
2. Therefore we do not have any related concerns or potential health worries in this area.
3. The register of contaminated sites is not presently up to date. There are files on this area showing the location of a brickworks at OS reference 723 018.
- 3a. At Yacht Haven we have records of an old landfill site used for earthspoils and construction rubble. (0.575 hectares). Also at OS reference 723 017 there is another old landfill site (0.715 hectares) which is said to contain household waste, a caravan park is now on this site.
4. There are no registered authorised processes being carried on in the immediate vicinity.

We have received no complaints or investigated hazards to health, due to the landfill sites, in this area. Residential development on this area would be subject to conditions due to the previous use of this land.

I hope this information is of use to you. Please contact me on the direct number above if you wish to discuss any points raised in this letter.

Yours sincerely

Andrew Gibbs
Senior Environmental Health Officer



INVESTOR IN PEOPLE

APPENDIX C

APPENDIX D

**YACHTHAVEN, HAYLING ISLAND, HANTS
TRIAL HOLE LOGS FOR PRELIMINARY ASSESSMENT OF
CONTAMINATION**

TH D1

GL-0.5m Topsoil
0.5-0.7m Brown silty gravelly CLAY becoming orange brown gravelly CLAY
0.7-0.9m Dryish brown very silty very gravelly CLAY

TH D2

GL-0.1m Topsoil
0.1-0.6m Greenish brown silty becoming very gravelly CLAY
0.6-1.2m Firm orange/mottled red CLAY

TH D3

GL-0.1m MADE GROUND consisting of brick fragments in matrix of grey clay with roots
0.1-0.6m Brown silty gravelly CLAY becoming more gravelly with depth
0.6-1.0m Firm brown and orange CLAY

TH D7

GL-0.4m MADE GROUND consisting of fragments of brick and concrete with topsoil
0.4-0.5m Very gravelly CLAY
0.5-0.8m Firm to stiff brown/grey/orange CLAY

TH D8

GL-0.3m Topsoil and gravelly CLAY
0.3-0.7m Soft to firm orange brown CLAY

TH D9

GL-0.5m Topsoil
0.5-0.7m Soft grey CLAY
0.7-0.9m Firm orange/light grey CLAY

TH D13

GL-0.3m MADE GROUND consisting of fragments of brick with sand and gravel
0.3m-0.6m MADE GROUND consisting of gravelly brown CLAY
0.6-1.0m Orange brown clayey sandy gravel

TH D14

GL-0.5m MADE GROUND consisting of brick and concrete rubble
0.5m-0.8m Soft dark grey gravelly CLAY
0.8m-1.0m Soft to firm light brown CLAY

TH D15

GL-0.2m Topsoil with brick fragments
0.2-0.5m Orange red sandy gravelly CLAY
0.5m-1.0m Soft orange red CLAY

TH D19

GL-0.75m Dark brown topsoil and sandy gravel
0.75m-1.0m Firm grey brown silty CLAY
1.0m-1.1m Orange brown gravelly sandy CLAY
1.1-2.0m Firm to stiff light grey CLAY

TH D20

GL-0.75m MADE GROUND consisting of dark grey fine/medium/coarse gravel with occasional fragments of brick and bitumen
0.75-1.0m Soft grey brown CLAY

TH D21

GL-0.8m TOPSOIL
0.8-0.9m Soft grey gravelly CLAY
0.9-1.2m Soft to firm light brown /light grey CLAY

TH D22

GL-0.3m TOPSOIL
0.3-0.5m Soft grey brown silty CLAY
0.5-0.9m Orange brown gravelly CLAY

TH D25

GL-0.1m Reinforced concrete slab
0.1-0.6m TOPSOIL with roots
0.6-1.2m Soft to firm light grey/light brown CLAY

TH D28

GL-1.0m FILL consisting of moist grey sandy CLAY with fragments of brick and concrete
1.0-1.4m Light grey gravelly CLAY
1.4-1.7m Soft/soft to firm orange brown CLAY

TH D31 (on roadway)

GL-0.2m Clayey gravel on limestone chippings
0.2-0.6m Dark grey silty CLAY
0.6-1.0m Soft to firm grey brown CLAY

TH F7

GL-0.2m Natural topsoil
0.2-0.6m Soft yellow brown CLAY

TH F9

GL-0.2 Topsoil with chalk fragments
0.2-0.3m Soft grey CLAY
0.3-0.8m Soft yellow brown CLAY

TH F10

GL-0.5m

0.5-1.0m

FILL consisting of topsoil and concrete rubble

Firm grey brown CLAY

TH F15

GL-0.5m

0.5-1.4m

1.4-1.6m

FILL consisting of concrete and brick rubble

Soft dark grey CLAY

Firm orange/red mottled CLAY

TH F20

GL-0.6m

0.6-1.2m

1.2-1.6m

FILL consisting of concrete and brick rubble

Soft grey CLAY

Soft to firm/firm light grey/orange CLAY

TH F28

GL-1.1m

1.1-1.5m

1.5-1.7m

FILL consisting of topsoil with fragments of brick and chalk

Soft to firm dark grey CLAY

Soft to firm light grey CLAY

TH G1

GL-1.1m

1.1-2.0m

2.0-2.2m

FILL consisting of topsoil, red clay gravel and chalk

Dark brown very soft CLAY

Soft/soft to firm light grey CLAY

TH G3

GL-1.2m

1.2-2.4m

FILL consisting of flint gravel and brick fragments with brown clayey silt

Dark grey very silty CLAY

TH G11

GL-1.1m

1.1m

FILL consisting of gravel, brick rubble and brown silt

Obstruction-trial pit abandoned

YACHTHAVEN, COPSE LANE, HAYLING ISLAND, HANTS
CONTAMINATION ASSESSMENT DECEMBER DEC 2001-JULY 2002

TRIAL HOLE LOGS

TH D1

GL-0.5m Topsoil
0.5-0.7m Brown silty gravelly CLAY becoming orange brown gravelly CLAY
0.7-0.9m Dryish brown very silty very gravelly CLAY

TH D2

GL-0.1m Topsoil
0.1-0.6m Greenish brown silty becoming very gravelly CLAY
0.6-1.2m Firm orange/mottled red CLAY

TH D3

GL-0.1m MADE GROUND consisting of brick fragments in matrix of grey clay with roots
0.1-0.6m Brown silty gravelly CLAY becoming more gravelly with depth
0.6-1.0m Firm brown and orange CLAY

TH D7

GL-0.4m MADE GROUND consisting of fragments of brick and concrete with topsoil
0.4-0.5m Very gravelly CLAY
0.5-0.8m Firm to stiff brown/grey/orange CLAY

TH D8

GL-0.3m Topsoil and gravelly CLAY
0.3-0.7m Soft to firm orange brown CLAY

TH D9

GL-0.5m Topsoil
0.5-0.7m Soft grey CLAY
0.7-0.9m Firm orange/light grey CLAY

TH D10

GL-0.3m Soft wet dark brown very silty clay and topsoil
0.3-0.6m Soft to very soft grey CLAY

TH D11

No trial pit excavated. Location not on grid point
Sample taken from surface only for check on possible contamination from surrounding rubbish

TH D13

GL-0.3m MADE GROUND consisting of fragments of brick with sand and gravel
0.3m-0.6m MADE GROUND consisting of gravelly brown CLAY
0.6-1.0m Orange brown clayey sandy gravel

TH D14

GL-0.5m MADE GROUND consisting of brick and concrete rubble
0.5m-0.8m Soft dark grey gravelly CLAY
0.8m-1.0m Soft to firm light brown CLAY

TH D15

GL-0.2m Topsoil with brick fragments
0.2-0.5m Orange red sandy gravelly CLAY
0.5m-1.0m Soft orange red CLAY

TH D19

GL-0.75m Dark brown topsoil and sandy gravel
0.75m-1.0m Firm grey brown silty CLAY
1.0m-1.1m Orange brown gravelly sandy CLAY
1.1-2.0m Firm to stiff light grey CLAY

TH D20

GL-0.75m MADE GROUND consisting of dark grey fine/medium/coarse gravel
 with occasional fragments of brick and bitumen
0.75-1.0m Soft grey brown CLAY

TH D21

GL-0.8m TOPSOIL
0.8-0.9m Soft grey gravelly CLAY
0.9-1.2m Soft to firm light brown /light grey CLAY

TH D22

GL-0.3m TOPSOIL
0.3-0.5m Soft grey brown silty CLAY
0.5-0.9m Orange brown gravelly CLAY

TH D25

GL-0.1m Reinforced concrete slab
0.1-0.6m TOPSOIL with roots
0.6-1.2m Soft to firm light grey/light brown CLAY

TH D26

GL-0.7m Disturbed top soil/silty clay. Possible material excavated from ditch
0.7-1.0m Yellow brown silty sandy CLAY

TH D27

GL-0.3m Dark brown silty clay and topsoil
0.3-0.6m Yellow brown silty sandy CLAY

TH D28

GL-1.0m FILL consisting of moist grey sandy CLAY with fragments of
 brick and concrete
1.0-1.4m Light grey gravelly CLAY
1.4-1.7m Soft/soft to firm orange brown CLAY

TH D31 (on roadway)

GL-0.2m Clayey gravel on limestone chippings
0.2-0.6m Dark grey silty CLAY
0.6-1.0m Soft to firm grey brown CLAY

TH D32

GL-1.1m Fine/medium/coarse GRAVEL
1.1m Large concrete obstruction

TH D33

GL-0.8m FILL consisting of brown silt with brick, chalk
and large lumps of concrete and some steel and
timber.
Occasional coal fragments also found

TH D34

GL-0.3m Topsoil and brown silt with sandy GRAVEL
0.3- 1.0m Brown silty CLAY

TH D35

GL-0.3m Topsoil and brow silt with sandy GRAVEL
0.3-1.0m Brown silty CLAY

TH E24

GL-0.2m Topsoil
0.2-1.0m Soft brown and light grey CLAY

TH E25

GL-0.1 Topsoil
0.1-1.0m Soft brown.light grey mottled red CLAY

TH F3

GL-1.0m Dark brown and lighter brown CLAY with
Occasional fragments of brick, charcoal and flint
1.0-1.5m Soft orange brown and light grey CLAY

TH F7

GL-0.2m Natural topsoil
0.2-0.6m Soft yellow brown CLAY

TH F8

GL-0.3 Brown medium/coarse flint GRAVEL
0.3-1.0m Soft to firm yellow/orange CLAY

TH F9

GL-0.2 Topsoil with chalk fragments
0.2-0.3m Soft grey CLAY
0.3-0.8m Soft yellow brown CLAY

TH F10

GL-0.5m
0.5-1.0m

FILL consisting of topsoil and concrete rubble
Firm grey brown CLAY

TH F14

GL-1.2m

Dark grey fine/medium/coarse sandy GRAVEL
And slightly clayey medium/coarse SAND with
inclusions of glass and large fragments of brick and
concrete

1.2-1.5m

Soft grey/orange red CLAY

TH F15

GL-0.5m
0.5-1.4m
1.4-1.6m

FILL consisting of concrete and brick rubble
Soft dark grey CLAY
Firm orange/red mottled CLAY

TH F20

GL-0.6m
0.6-1.2m
1.2-1.6m

FILL consisting of concrete and brick rubble
Soft grey CLAY
Soft to firm/firm light grey/orange CLAY

TH F21

GL-0.2m
0.2-0.8m

Topsoil
Soft to firm grey/orange CLAY

TH F22

GL-0.6m
0.5-1.0m

Grass topsoil and grey silty CLAY
Soft to firm grey/orange CLAY

TH F24

GL-1.4m
1.4-1.6m

Made ground consisting of dark brown silty clay with
inclusions of brick and flints
Soft brown CLAY

TH F25

GL-1.0m
1.0-1.5

FILL consisting of dark grey topsoil, chalk, brick fragments
Soft brown CLAY

TH F28

GL-1.1m
1.1-1.5m
1.5-1.7m

FILL consisting of topsoil with fragments of brick and chalk
Soft to firm dark grey CLAY
Soft to firm light grey CLAY

TH G1

GL-1.1m
1.1-2.0m
2.0-2.2m

FILL consisting of topsoil, red clay gravel and chalk.
Dark brown very soft CLAY
Soft/soft to firm light grey CLAY

TH G2

GL-1.7m FILL consisting of rubble of brick and concrete with
Some dark brown silt
1.7-1.8m Orange brown CLAY

TH G3

GL-1.2m FILL consisting of flint gravel and brick fragments with
brown clayey silt.
1.2-2.4m Dark grey very silty CLAY

TH G4

GL-0.5 FILL consisting of concrete and brick rubble with
Chalk with brown silty sand

TH G5

GL-1.0m Topsoil with inclusions of concrete, and brick rubble and
Some asphalt
1.0-1.5m Brown CLAY

TH G11

GL-1.1m FILL consisting of gravel, brick rubble and brown silt
1.1m Obstruction-trial pit abandoned

(WS1, WS2, WS3 & WS4 see also drillers fieldnotes)

BH WS1

GL-0.3m Concrete rubble FILL
0.3-0.5m Firm orange brown CLAY
0.5-1.5m Brown and light grey CLAY with flints
1.5-4.8m Firm to stiff becoming very stiff to hard
red CLAY

BH WS2

GL-0.6m Loose sandy gravel FILL
0.6-0.8m Clayey fine/medium GRAVEL
0.8-1.4m Stiff orange/light grey CLAY
1.4-4.0m Stiff light grey CLAY becoming very stiff to hard red CLAY

BH WS3

GL-0.2m Turf and topsoil
0.2-0.6m Firm brown silty gravelly CLAY
0.6-3.0m Stiff light grey/mottled red CLAY
3.0-4.0m Very stiff to hard light grey CLAY

BH WS4

GL-0.5m Loose gravel and brick fill
0.5-1.0m Soft dark brown and lighter brown clay FILL with fragments of brick, charcoal and flints
1.0-1.5m Soft orange brown and light grey CLAY with flints
1.5-1.8m Dark brown silty CLAY with numerous roots~possibly original topsoil
1.8-2.0m Soft orange and light grey CLAY
2.0-3.0m Stiff light grey mottled red CLAY
3.0-4.0 m Soft light grey/red CLAY becoming very soft red/brown CLAY (possibly due to water ingress from unknown source)
4.0-5.9m Firm becoming very stiff to hard light grey/red CLAY

APPENDIX E

ENVIRONMENTAL ANALYSIS LABORATORIES

15 Burgess Road, Ivyhouse Lane Industrial Estate, Hastings, East Sussex TN35 4NR

Tel: 01424 444433 Fax: 01424 442299 info@environmentalanalysis.com

ANALYTICAL REPORT No. R59082

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants, PO10 7LT

Reporting Date: 09/01/02

Soils	TP/BH	D1	D1	D2	D2	D3	D7	D8	D8	D9	D9
	Depth (m)	0.50	0.70	0.30	1.00	0.20	0.30	0.30	0.70	0.30	0.50
	Our ref	122153	122154	122155	122156	122157	122158	122159	122160	122161	122162
Arsenic	(mg/kg) Y	14.5	24.3	15.0	7.2	18.8	11.9	11.8	9.3	108.1	14.5
Cadmium	(mg/kg) Y	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.0	<0.5
Chromium	(mg/kg) Y	33	44	40	38	51	35	36	51	69	31
Copper	(mg/kg) Y	51	20	51	35	331	30	28	70	946	44
Nickel	(mg/kg) Y	25	29	20	19	40	16	24	22	68	17
Lead	(mg/kg) Y	390	32	230	33	84	35	61	34	3096	112
Mercury	(mg/kg) N	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	216.9	2.8
Selenium	(mg/kg) N	0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.6	0.6	<0.5
Zinc	(mg/kg) Y	192	36	206	35	96	43	59	69	1591	86
Water Soluble Boron	(mg/kg) Y	1.2	0.5	1.1	0.6	0.9	0.9	1.1	0.6	<0.5	1.6
pH	(Value) N	8.1	7.7	7.7	8.1	8.3	7.8	7.8	8.1	7.8	7.9
Total Sulphate	(% as SO ₄) Y	0.01	0.03	0.01	0.01	0.01	0.02	0.01	0.03	0.06	0.03
Total Phenols	(mg/kg) N	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Cyanide	(mg/kg) N	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Free Cyanide	(mg/kg) N	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
Sulphide	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Elemental Sulphur	(mg/kg) Y	140	30	60	<20	30	110	20	<20	90	56
Total PAH	(mg/kg) Y	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	23.7	<0.5
Thiocyanate	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hexavalent Chromium	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

Descriptions of methods available on request (V8)

Y - UKAS accredited test

N - Non accredited test

n/t = not tested

zw

www.environmentalanalysis.com

ENVIRONMENTAL ANALYSIS LABORATORIES

15 Burgess Road, Ivyhouse Lane Industrial Estate, Hastings, East Sussex TN35 4NR
Tel: 01424 444433 Fax: 01424 442299 info@environmentalanalysis.com

ANALYTICAL REPORT No. R59082

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants. PO10 7LT

Reporting Date: 09/01/02

Soils	TP/BH	Depth (m)	Our ref	D13	D13	D19	D19	D20	D20	D21	D21	D22	D22
				0.20	0.60	0.40	0.80	0.50	1.00	0.50	0.70	0.30	0.60
				122163	122164	122165	122166	122167	122168	122169	122170	122171	122172
Arsenic	(mg/kg) Y			25.9	10.2	7.8	6.8	6.9	13.1	12.0	15.0	16.5	26.3
Cadmium	(mg/kg) Y			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.7	<0.5	<0.5
Chromium	(mg/kg) Y			34	27	14	31	11	47	23	41	34	32
Copper	(mg/kg) Y			43	8	82	12	82	37	113	100	37	12
Nicke.	(mg/kg) Y			27	16	16	12	9	22	16	21	15	16
Lead	(mg/kg) Y			92	14	145	25	90	67	267	428	63	24
Mercury	(mg/kg) N			1.6	<0.5	1.2	<0.5	0.7	1.1	10.5	6.3	0.8	<0.5
Selenium	(mg/kg) N			0.6	<0.5	<0.5	0.6	<0.5	1.0	<0.5	<0.5	<0.5	1.1
Zinc	(mg/kg) Y			114	24	212	44	114	80	254	663	130	46
Water Soluble Boron	(mg/kg) Y			0.8	<0.5	<0.5	<0.5	0.8	0.8	0.7	2.3	0.8	<0.5
pH	(Value) N			8.1	7.4	8.7	7.8	8.7	8.2	8.3	7.3	8.1	8.1
Total Sulphate	(% as SO ₄) Y			0.01	0.01	<0.01	0.03	0.02	0.01	0.02	0.02	0.01	0.05
Total Phenols	(mg/kg) N			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Cyanide	(mg/kg) N			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Free Cyanide	(mg/kg) N			n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
Sulphide	(mg/kg) Y			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Elemental Sulphur	(mg/kg) Y			40	155	1065	260	609	50	710	270	40	20
Total PAH	(mg/kg) Y			<0.5	<0.5	<0.5	<0.5	70.7	<0.5	38.3	<0.5	<0.5	<0.5
Thiocyanate	(mg/kg) Y			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hexavalent Chromium	(mg/kg) Y			<2	<2	n/t	<2	n/t	<2	n/t	<2	<2	<2

Descriptions of methods available on request (V8)

Y - UKAS accredited test

N - Non accredited test

n/t = not tested

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ANALYTICAL REPORT No. R59082

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants. PO10 7LT

Reporting Date: 09/01/02

Soils	TP/BH	D25	D25	D28	D28	D31	D31	F9	F10	F10	F15
	Depth (m)	0.40	0.60	0.50	1.60	0.30	0.60	0.20	0.20	0.50	0.30
	Our ref	122173	122174	122175	122176	122177	122178	122179	122180	122181	122182
Arsenic	(mg/kg) Y	34.0	9.5	14.5	6.5	9.7	8.2	6.0	14.2	13.6	8.8
Cadmium	(mg/kg) Y	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	0.5
Chromium	(mg/kg) Y	99	35	19	33	29	35	23	32	32	16
Copper	(mg/kg) Y	2402	80	29	16	15	13	25	91	14	17
Nickel	(mg/kg) Y	366	24	17	12	12	14	19	29	15	10
Lead	(mg/kg) Y	1315	64	83	27	41	39	105	156	20	43
Mercury	(mg/kg) N	7.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5
Selenium	(mg/kg) N	0.8	0.7	<0.5	0.6	<0.5	0.8	<0.5	<0.5	1.0	<0.5
Zinc	(mg/kg) Y	7881	249	121	30	42	84	109	434	39	73
Water Soluble Boron	(mg/kg) Y	1.2	<0.5	0.6	0.6	1.8	1.6	0.6	1.4	1.2	1.0
pH	(Value) N	8.3	8.3	8.6	8.3	7.3	7.6	10.2	8.3	7.8	8.3
Total Sulphate	(% as SO ₄) Y	0.01	0.02	0.01	0.03	0.02	0.04	0.03	0.01	0.02	0.02
Total Phenols	(mg/kg) N	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Cyanide	(mg/kg) N	<1	<1	12.7	<1	<1	<1	<1	<1	<1	<1
Free Cyanide	(mg/kg) N	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
Sulphide	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Elemental Sulphur	(mg/kg) Y	280	90	30	30	950	420	278	360	419	90
Total PAH	(mg/kg) Y	<0.5	<0.5	<0.5	<0.5	<0.5	116.7	<0.5	<0.5	<0.5	70.0
Thiocyanate	(mg/kg) Y	<2	<2	<2	<2	<2	<2	##	##	<2	##
Hexavalent Chromium	(mg/kg) Y	<2	<2	n/t	<2	<2	<2	n/t	##	<2	n/t

Analysis not possible due to matrix interference

Descriptions of methods available on request (V8)

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ANALYTICAL REPORT No. R59082

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants. PO10 7LT

Reporting Date: 09/01/02

Soils	TP/BH	F15	F20	F20	F28	G1	G1	G1	G3	G3	G11
	Depth (m)	0.60	0.30	0.60	0.50	0.50	1.00	1.50	0.50	1.50	0.50
	Our ref	122189	122184	122185	122186	122187	122188	122189	122190	122191	122192
Arsenic	(mg/kg) Y	7.9	11.5	9.8	8.2	10.1	14.5	12.1	10.0	15.0	13.8
Cadmium	(mg/kg) Y	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.7
Chromium	(mg/kg) Y	22	20	38	26	37	43	32	19	26	32
Copper	(mg/kg) Y	10	25	13	36	61	36	19	22	53	65
Nickel	(mg/kg) Y	9	19	15	17	37	19	17	17	20	27
Lead	(mg/kg) Y	37	66	33	176	71	256	52	51	183	146
Mercury	(mg/kg) N	<0.5	<0.5	<0.5	0.5	<0.5	1.2	<0.5	<0.5	1.5	<0.5
Selenium	(mg/kg) N	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	0.5	<0.5	<0.5	<0.5
Zinc	(mg/kg) Y	43	96	43	134	156	380	79	76	207	279
Water Soluble Boron	(mg/kg) Y	1.1	4.8	4.9	1.8	1.7	7.0	12.1	1.5	4.6	2.2
pH	(Value) N	8.0	8.5	7.5	8.7	8.8	7.8	8.1	8.3	8.0	8.2
Total Sulphate	(% as SO ₄) Y	0.04	0.03	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.04
Total Phenols	(mg/kg) N	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Cyanide	(mg/kg) N	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Free Cyanide	(mg/kg) N	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
Sulphide	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Elemental Sulphur	(mg/kg) Y	800	660	1010	70	513	340	1330	168	530	30
Total PAH	(mg/kg) Y	<0.5	205.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thiocyanate	(mg/kg) Y	<2	<2	##	<2	<2	<2	##	<2	<2	<2
Hexavalent Chromium	(mg/kg) Y	n/t	n/t	##	<2	<2	<2	##	n/t	<2	<2

Analysis not possible due to matrix interference

Descriptions of methods available on request (V8)

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ANALYTICAL REPORT No. R61619

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants, PO10 7LT

Reporting Date: 25/07/02

F.A.O: L R Pimenta

		TP/BH	D1	D1	D2	D2	D3	D3	D7	D7
		Depth (m)	0.50	0.70	0.30	1.00	0.20	0.40	0.30	0.50
		Our ref	138782	138783	138784	138785	138786	138787	138788	138789
Arsenic	(mg/kg) Y		10.2	11.4	19.7	16.7	12.7	23.5	5.6	14.0
Cadmium	(mg/kg) Y		<0.5	<0.5	1.5	0.5	1.9	5.0	0.9	<0.5
Chromium	(mg/kg) Y		22	29	34	30	30	61	14	31
Copper	(mg/kg) Y		38	19	195	45	1030	320	47	24
Nickel	(mg/kg) Y		13	11	32	15	46	38	10	8
Lead	(mg/kg) Y		105	21	366	125	13700	346	121	32
Mercury	(mg/kg) Y		<0.5	<0.5	1.7	1.1	0.7	1.6	<0.5	<0.5
Molybdenum	(mg/kg) Y		<5	<5	5	<5	7	13	<5	<5
Selenium	(mg/kg) Y		<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	(mg/kg) Y		106	29	631	312	478	474	207	41
Water Soluble Boron	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	1.3	n/t	<0.5
pH	(Value) Y		n/t	n/t	n/t	n/t	n/t	8.0	n/t	7.9
Total Sulphate	(% as SO ₄) Y		n/t	n/t	n/t	n/t	n/t	0.01	n/t	0.02
Total Phenols	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	<2	n/t	<2
Total Cyanide	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	<1	n/t	<1
Free Cyanide	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	<1	n/t	<1
Sulphide	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	<2	n/t	<4.8
Elemental Sulphur	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	120	n/t	20
Total PAH	(mg/kg) N		n/t	n/t	n/t	n/t	n/t	<0.5	n/t	<0.5
Thiocyanate	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	<2	n/t	<2
Hexavalent Chromium	(mg/kg) Y		n/t	n/t	n/t	n/t	n/t	<2	n/t	<2
PCB	(mg/kg) N		<0.1	<0.1	0.3	0.1	0.2	0.2	<0.1	0.1
Total Petroleum Hydrocarbons	(mg/kg) Y		<5	<5	<5	<5	8	8	<5	<5

Descriptions of methods available on request (V8)

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ANALYTICAL REPORT No. R61559

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants. PO10 7LT

Reporting Date: 25/07/02

F.A.O: L R Pimenta -

	TP/BH	D8	D8	D9	D9	D10	D10	D11	D13	D13	D14
Soils	Depth (m)	0.30	0.80	0.30	0.80	0.00	0.30	0.00	0.20	0.60	0.00
	Our ref	138381	138382	138383	138384	138386	138387	138389	138390	138391	138392
Arsenic (mg/kg)	Y	7.9	16.6	16.9	9.1	10.3	24.3	20.4	7.0	9.4	7.4
Cadmium (mg/kg)	Y	1.8	1.0	1.5	<0.5	1.4	2.5	0.8	<0.5	<0.5	<0.5
Chromium (mg/kg)	Y	64	26	24	32	30	44	57	15	31	12
Copper (mg/kg)	Y	242	126	125	65	184	135	1088	108	11	24
Nickel (mg/kg)	Y	18	14	20	15	44	25	191	18	11	7
Lead (mg/kg)	Y	329	493	265	75	415	2074	551	72	20	154
Mercury (mg/kg)	Y	n/t	n/t	n/t	n/t	2.4	n/t	0.8	n/t	n/t	<0.5
Selenium (mg/kg)	Y	n/t	n/t	n/t	n/t	<0.5	n/t	<0.5	n/t	n/t	<0.5
Zinc (mg/kg)	Y	1632	929	596	103	605	2524	2605	214	35	180
Water Soluble Boron (mg/kg)	Y	n/t	n/t	n/t	n/t	1.3	0.6	0.8	n/t	n/t	1.3
pH (Value)	Y	n/t	n/t	n/t	n/t	7.9	8.1	7.9	n/t	n/t	7.8
Total Sulphate (% as SO ₄)	Y	n/t	n/t	n/t	n/t	0.01	0.05	0.03	n/t	n/t	0.12
Total Phenols (mg/kg)	Y	n/t	n/t	n/t	n/t	<2	<2	<2	n/t	n/t	<2
Total Cyanide (mg/kg)	Y	n/t	n/t	n/t	n/t	<1	<1	<1	n/t	n/t	<1
Free Cyanide (mg/kg)	Y	n/t	n/t	n/t	n/t	<1	<1	<1	n/t	n/t	<1
Sulphide (mg/kg)	Y	n/t	n/t	n/t	n/t	<2	*	12.8	n/t	n/t	<2
Elemental Sulphur (mg/kg)	Y	n/t	n/t	n/t	n/t	400	30	310	n/t	n/t	210
Total PAH (mg/kg)	Y	n/t	n/t	n/t	n/t	21.9	3.0	37.5	n/t	n/t	1.5
Thiocyanate (mg/kg)	Y	n/t	n/t	n/t	n/t	<2	<2	<2	n/t	n/t	<2
Hexavalent Chromium (mg/kg)	Y	n/t	n/t	n/t	n/t	<2	<2	<2	n/t	n/t	<2
Total Petroleum Hydrocarbons (mg/kg)	Y	135	<5	<5	<5	<5	<5	<5	<5	<5	<5
PCB (mg/kg)	N	0.5	0.1	0.2	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.1
Molybdenum (mg/kg)	Y	11	<5	5	<5	<5	*	17	6	<5	<5

*Insufficient sample

Descriptions of methods available on request (V8)

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ANALYTICAL REPORT No. R61559

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants, PO10 7LT

Reporting Date: 25/07/02

F.A.O: L R Pimenta

	TP/BH	D15	D15	D19	D20	D25	D31	D32	D32	D33	D33
Soils	Depth (m)	0.00	0.60	0.40	0.50	0.40	0.30	0.00	1.00	0.00	0.80
	Our ref	138394	138395	138395	138397	138398	138399	138400	138401	138402	138403
Arsenic	(mg/kg) Y	9.6	8.8	18.7	39.4	97.3	9.2	10.7	23.1	14.6	10.1
Cadmium	(mg/kg) Y	<0.5	0.5	<0.5	1.1	1.9	<0.5	0.5	0.6	0.7	<0.5
Chromium	(mg/kg) Y	16	16	32	28	147	27	25	37	33	34
Copper	(mg/kg) Y	32	44	11	524	2424	80	83	225	81	13
Nickel	(mg/kg) Y	22	10	12	19	142	16	22	22	26	14
Lead	(mg/kg) Y	242	555	16	1755	921	72	170	671	570	26
Mercury	(mg/kg) Y	<0.5	1.9	n/t	n/t	n/t	n/t	0.5	10.6	0.7	<0.5
Selenium	(mg/kg) Y	<0.5	<0.5	n/t	n/t	n/t	n/t	<0.5	<0.5	<0.5	<0.5
Zinc	(mg/kg) Y	207	535	30	1787	4042	91	184	698	200	52
Water Soluble Boron	(mg/kg) Y	<0.5	0.6	n/t	n/t	n/t	n/t	<0.5	1.6	<0.5	0.5
pH	(Value) Y	7.6	8.1	n/t	n/t	n/t	n/t	8.2	8.0	8.1	8.1
Total Sulphate	(% as SO ₄) Y	0.05	0.09	n/t	n/t	n/t	n/t	0.04	0.16	0.03	0.07
Total Phenols	(mg/kg) Y	<2	<2	n/t	n/t	n/t	n/t	<2	<2	<2	<2
Total Cyanide	(mg/kg) Y	<1	<1	n/t	n/t	n/t	n/t	<1	<1	<1	<1
Free Cyanide	(mg/kg) Y	<1	<1	n/t	n/t	n/t	n/t	<1	<1	<1	<1
Sulphide	(mg/kg) Y	<2	<2	n/t	n/t	n/t	n/t	<2	<2	<2	<2
Elemental Sulphur	(mg/kg) Y	120	150	n/t	n/t	n/t	n/t	1900	200	470	40
Total PAH	(mg/kg) Y	8.5	5.8	n/t	n/t	n/t	n/t	15.6	17.4	13.6	4.4
Thiocyanate	(mg/kg) Y	<2	<2	n/t	n/t	n/t	n/t	<2	<2	<2	<2
Hexavalent Chromium	(mg/kg) Y	<2	<2	n/t	n/t	n/t	n/t	<2	<2	<2	<2
Total Petroleum Hydrocarbons	(mg/kg) Y	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
PCB	(mg/kg) N	<0.1	<0.1	<0.1	0.6	1.6	<0.1	<0.1	0.4	<0.1	<0.1
Molybdenum	(mg/kg) Y	<5	<5	<5	6	84	6	6	<5	7	<5

Descriptions of methods available on request (V8)

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ANALYTICAL REPORT No. R61559

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants, PO10 7LT

Reporting Date: 25/07/02

F.A.O: L R Pimenta

Soils	TP/BH	D34	D34	D35	D35	F3	F8	F9	F9	F10	F10
	Depth (m)	0.00	0.30	0.00	0.50	0.00	0.25	0.20	0.45	0.20	0.50
	Our ref	138404	138405	138406	138407	138408	138409	138410	138411	138412	138413
Arsenic (mg/kg)	Y	9.5	11.3	9.1	7.3	6.1	10.0	<5	7.2	8.8	10.7
Cadmium (mg/kg)	Y	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5
Chromium (mg/kg)	Y	22	37	11	30	13	27	9	21	15	22
Copper (mg/kg)	Y	26	20	15	70	67	6	18	16	29	21
Nickel (mg/kg)	Y	15	16	8	18	13	10	5	8	11	9
Lead (mg/kg)	Y	61	40	91	70	117	19	40	35	78	63
Mercury (mg/kg)	Y	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	n/t	<0.5	n/t	n/t
Selenium (mg/kg)	Y	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	n/t	<0.5	n/t	n/t
Zinc (mg/kg)	Y	90	69	106	91	198	32	82	44	97	65
Water Soluble Boron (mg/kg)	Y	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	n/t	0.6	n/t	n/t
pH (Value)	Y	7.9	8.1	8.6	8.2	8.2	7.9	n/t	8.1	n/t	n/t
Total Sulphate (% as SO ₄)	Y	0.04	0.06	0.05	0.01	0.01	0.01	n/t	0.02	n/t	n/t
Total Phenols (mg/kg)	Y	<2	<2	<2	<2	<2	<2	n/t	<2	n/t	n/t
Total Cyanide (mg/kg)	Y	<1	11.0	<1	<1	<1	<1	n/t	<1	n/t	n/t
Free Cyanide (mg/kg)	Y	<1	<1	<1	<1	<1	<1	n/t	<1	n/t	n/t
Sulphide (mg/kg)	Y	<2	<2	<2	<2	<2	<2	n/t	<2	n/t	n/t
Elemental Sulphur (mg/kg)	Y	400	30	2790	160	200	30	n/t	170	n/t	n/t
Total PAH (mg/kg)	Y	7.6	<0.5	72.6	5.6	24.6	1.0	n/t	7.8	n/t	n/t
Thiocyanate (mg/kg)	Y	<2	<2	<2	<2	<2	<2	n/t	<2	n/t	n/t
Hexavalent Chromium (mg/kg)	Y	<2	<2	<2	<2	<2	<2	n/t	<2	n/t	n/t
Total Petroleum Hydrocarbons (mg/kg)	Y	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
PCB (mg/kg)	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (mg/kg)	Y	5	<5	5	<5	<5	<5	6	<5	<5	<5

Descriptions of methods available on request (V8)

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15 Burgess Road, Ivyhouse Lane Industrial Estate, Hastings, East Sussex TN35 4NR

Tel: 01424 444433 Fax: 01424 442299 info@environmentalanalysis.com

ANALYTICAL REPORT No. R61559

Location: Yachthaven, Hayling Island

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants, PO10 7LT

Reporting Date: 25/07/02

F.A.O: L R Pimenta

	TP/BH	F14	F14	F21	F21	F22	F22	F24	F24	F25	F25
Soils	Depth (m)	0.00	1.20	0.00	0.30	0.00	0.60	0.00	1.40	0.00	1.00
	Our ref	138414	138415	138416	138417	138418	138419	138420	138421	138422	138423
Arsenic	(mg/kg) Y	10.9	6.8	5.4	5.2	9.4	0.6	8.9	6.0	13.0	10.7
Cadmium	(mg/kg) Y	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5
Chromium	(mg/kg) Y	25	25	22	27	22	21	26	25	22	22
Copper	(mg/kg) Y	60	16	18	20	30	12	55	11	44	139
Nickel	(mg/kg) Y	22	9	9	9	14	7	12	8	16	15
Lead	(mg/kg) Y	112	25	50	37	133	29	252	31	223	1656
Mercury	(mg/kg) Y	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5
Selenium	(mg/kg) Y	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	(mg/kg) Y	220	51	37	45	116	26	386	30	166	232
Water Soluble Boron	(mg/kg) Y	<0.5	2.6	4.8	3.6	<0.5	1.2	0.5	3.0	1.0	1.8
pH	(Value) Y	7.9	7.7	6.0	6.8	7.8	7.0	7.8	7.8	7.7	8.7
Total Sulphate	(% as SO ₄) Y	0.26	0.02	0.03	0.03	0.06	0.02	0.01	0.04	0.01	0.51
Total Phenols	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Cyanide	(mg/kg) Y	<1	2.1	<1	<1	<1	<1	<1	<1	<1	<1
Free Cyanide	(mg/kg) Y	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphide	(mg/kg) Y	<2	2.6	<2	<2	<2	<2	<2	<2	<2	26.3
Elemental Sulphur	(mg/kg) Y	610	620	340	780	130	420	120	440	270	910
Total PAH	(mg/kg) Y	57.2	1.8	1.5	3.7	6.5	0.8	2.8	0.9	7.5	42.4
Thiocyanate	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hexavalent Chromium	(mg/kg) Y	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Total Petroleum Hydrocarbons	(mg/kg) Y	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
PCB	(mg/kg) N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Molybdenum	(mg/kg) Y	6	<5	<5	<5	<5	<5	<5	<5	<5	<5

Descriptions of methods available on request (V8)

Y - UKAS accredited test

N - Non accredited test

n/t = not tested

nc

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ANALYTICAL REPORT No. R61559

Location: Yachthaven, Hayling Island

Reporting Date: 25/07/02

CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants, PO10 7LT

F.A.O: L R Pimenta

	TP/BH	E25	G1	G1	G2	G2	G4	G5	G5	WS1	WS1
	Depth (m)	0.00	0.50	1.00	0.00	1.70	0.00	0.00	1.00	0.30	0.50
Soils	Our ref	138424	138425	138426	138427	138428	138429	138430	138431	138432	138433
Arsenic (mg/kg) Y		8.5	13.7	11.2	6.0	15.3	7.6	10.9	10.0	13.2	15.9
Cadmium (mg/kg) Y		<0.5	1.1	0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (mg/kg) Y		14	50	31	14	40	16	19	27	29	33
Copper (mg/kg) Y		29	119	36	26	24	18	27	13	39	27
Nickel (mg/kg) Y		9	48	17	11	19	11	15	13	15	14
Lead (mg/kg) Y		62	220	118	48	37	68	86	50	69	21
Mercury (mg/kg) Y		<0.5	n/t	n/t	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5
Selenium (mg/kg) Y		0.6	n/t	n/t	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	0.7
Zinc (mg/kg) Y		62	530	496	100	31	79	112	55	95	37
Water Soluble Boron (mg/kg) Y		14.7	n/t	n/t	<0.5	2.6	0.6	0.7	<0.5	1.7	<0.5
pH (Value) Y		6.4	n/t	n/t	8.3	8.6	8.2	7.8	8.0	7.6	8.1
Total Sulphate (% as SO ₄) Y		0.12	n/t	n/t	0.01	0.13	0.01	<0.01	0.02	0.01	0.01
Total Phenols (mg/kg) Y		<2	n/t	n/t	<2	<2	<2	<2	<2	<2	<2
Total Cyanide (mg/kg) Y		<1	n/t	n/t	<1	<1	<1	<1	<1	<1	<1
Free Cyanide (mg/kg) Y		<1	n/t	n/t	<1	<1	<1	<1	<1	<1	<1
Sulphide (mg/kg) Y		<2	n/t	n/t	<2	<2	<2	<2	<2	<2	<2
Elemental Sulphur (mg/kg) Y		60	n/t	n/t	2060	30	2160	140	40	20	30
Total PAH (mg/kg) Y		4.1	n/t	n/t	44.5	5.3	33.2	6.4	2.0	1.4	9.5
Thiocyanate (mg/kg) Y		<2	n/t	n/t	<2	<2	<2	<2	<2	<2	<2
Hexavalent Chromium (mg/kg) Y		<2	n/t	n/t	<2	<2	<2	<2	<2	<2	<2
Total Petroleum Hydrocarbons (mg/kg) Y		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
PCB (mg/kg) N		<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum (mg/kg) Y		<5	.	.	<5	<5	<5	<5	<5	<5	<5

*Insufficient sample

Descriptions of methods available on request (V8)

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CLIENT: L R Pimenta

26 Selangor Avenue,
Emsworth, Hants. PO10 7LT

Reporting Date: 25/07/02

F.A.O: L R Pimenta

Soils		TP/BH Depth (m) Our ref	WS2 0.30 138434	WS2 0.80 138435	WS4 0.00 138437
Arsenic	(mg/kg) Y		5.8	14.8	11.4
Cadmium	(mg/kg) Y		<0.5	<0.5	<0.5
Chromium	(mg/kg) Y		9	48	30
Copper	(mg/kg) Y		11	26	57
Nickel	(mg/kg) Y		6	13	26
Lead	(mg/kg) Y		291	24	140
Mercury	(mg/kg) Y		<0.5	<0.5	0.5
Selenium	(mg/kg) Y		<0.5	2.0	<0.5
Zinc	(mg/kg) Y		68	26	183
Water Soluble Boron	(mg/kg) Y		<0.5	<0.5	0.8
pH	(Value) Y		8.1	8.1	8.2
Total Sulphate	(% as SO ₄) Y		0.01	0.08	0.01
Total Phenols	(mg/kg) Y		<2	<2	<2
Total Cyanide	(mg/kg) Y		<1	<1	<1
Free Cyanide	(mg/kg) Y		<1	<1	<1
Sulphide	(mg/kg) Y		<2	<2	<2
Elemental Sulphur	(mg/kg) Y		20	30	980
Total PAH	(mg/kg) Y		3.5	0.5	10.2
Thiocyanate	(mg/kg) Y		<2	<2	<2
Hexavalent Chromium	(mg/kg) Y		<2	<2	<2
Total Petroleum Hydrocarbons	(mg/kg) Y		<5	<5	<5
PCB	(mg/kg) N		<0.1	<0.1	0.1
Molybdenum	(mg/kg) Y		<5	<5	7

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CLIENT: L R Pimenta

26 Selangor Avenue,
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Reporting Date: 25/07/02

F.A.O: L R Pimenta

<u>Waters</u>	Sample ref Our ref	D9 138385	D10 138388	D14 138393
Arsenic	(µg/l) Y	<10	<10	<10
Cadmium	(µg/l) Y	<1	<1	<1
Chromium	(µg/l) Y	<20	<20	<20
Copper	(µg/l) Y	32	24	29
Nickel	(µg/l) Y	<20	<20	<20
Lead	(µg/l) Y	<20	<20	<20
Mercury	(µg/l) N	<0.1	<0.1	<0.1
Selenium	(µg/l) Y	<10	<10	<10
Zinc	(µg/l) Y	70	59	<50
Boron	(µg/l) Y	375	190	187
pH	(Value) Y	.	.	.
Sulphate	(mg/l) N	41	17	18
Total Phenols	(µg/l) N	<5	<5	<5
Total Cyanide	(µg/l) Y	<5	<5	<5
Sulphide	(mg/l) Y	<0.1	<0.1	<0.1
Total PAH	(mg/l) Y	.	.	.
Thiocyanate	(mg/l) Y	<0.1	<0.1	<0.1
Hexavalent Chromium	(µg/l) Y	<20	<20	<20
Elemental Sulphur	(mg/l) N	<0.1	<0.1	<0.1
Free Cyanide	(µg/l) Y	<5	<5	<5
Total Petroleum Hydrocarbons	(mg/l) Y	<0.1	<0.1	<0.1
PCB	(µg/l) N	<0.05	<0.05	<0.05

*Insufficient sample

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F.A.O: L R Pimenta

Reporting Date: 25/07/02

Asbestos Identification

Sample ref:	D10
Depth (m):	0.00
Our ref:	138386
Description of Sample Matrix:	Soil
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Sample ref:	D11
Depth (m):	0.00
Our ref:	138389
Description of Sample Matrix:	Soil
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Sample ref:	D13
Depth (m):	0.20
Our ref:	138390
Description of Sample Matrix:	Sand/stones
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Sample ref:	D14
Depth (m):	0.00
Our ref:	138392
Description of Sample Matrix:	Sand (shingle)
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Descriptions of methods available on request (V8)
Asbestos identification = UKAS accredited method
Quantification of asbestos and tentative identification
of non asbestos materials is not covered by
UKAS accreditation
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F.A.O: L R Pimenta

Reporting Date: 25/07/02

Asbestos Identification

Sample ref:	D15
Depth (m):	0.00
Our ref:	138394
Description of Sample Matrix:	Sand (small shingle)
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Sample ref:	D25
Depth (m):	0.40
Our ref:	138398
Description of Sample Matrix:	Heavy soil
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Sample ref:	D31
Depth (m):	0.30
Our ref:	138399
Description of Sample Matrix:	Sand (small shingle)
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Sample ref:	D32
Depth (m):	0.00
Our ref:	138400
Description of Sample Matrix:	Soil
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Descriptions of methods available on request (V8)
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Quantification of asbestos and tentative identification
of non asbestos materials is not covered by
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F.A.O: L R Pimenta

Reporting Date: 25/07/02

Asbestos Identification

Sample ref:	F21
Depth (m):	0.00
Our ref:	138416
Description of Sample Matrix:	Soil
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Sample ref:	F22
Depth (m):	0.00
Our ref:	138418
Description of Sample Matrix:	Soil
Overall Percentage of Asbestos Identified:	<0.001 %
Comments:	
No asbestos identified	

Descriptions of methods available on request (V8)
Asbestos identification = UKAS accredited method
Quantification of asbestos and tentative identification
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UKAS accreditation.

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APPENDIX F

HAYLING ISLAND YACHT HAVEN SITE – SOIL GAS TEST RESULTS

Four soil gas monitoring boreholes designated WS-1, WS-2, WS-3, and WS-4, installed during a comprehensive Site Investigation in June 2002, were tested for soil gas composition on the 16 July and again on 24 July, 2002

A Geotechnical Instruments Infra-Red Soil Gas Analyser was used to determine methane, carbon dioxide and oxygen gas concentrations and the prevailing atmospheric pressure.

The weather was warm but overcast on both days with a moderately high but falling atmospheric pressure from highs above 1025 mbars over the preceeding weekends to 1016 and 1017 mbars on 16 and 24 July respectively.

RESULTS

16 July, 2002 – 5-00pm

	WS-1	WS-2	WS-3	WS-4
Methane	0.0	0.0	0.1, 0.1, 0.1, 0.1	5.5, 4.8, 4.1, 3.3
Carbon Dioxide	0.1	0.1	1.2, 1.1, 1.0, 0.9	2.5, 2.2, 1.8, 1.3
Oxygen	20.5	20.5	19.4, 19.8, 20.0, 20.2	16.0, 16.5, 17.3, 18.1

All results are given as % gas (v/v)

Boreholes WS-1 and WS-2 gave stable results throughout 4 mins monitoring

Boreholes WS-3 and WS-4 gave declining results as shown after 1, 2, 3 & 4 mins

24 July, 2002 – 12-00am

	WS-1	WS-2	WS-3	WS-4
Methane	0.0	0.0	0.1, 0.1, 0.1, 0.1	0.2, 0.1, 0.1, 0.1
Carbon Dioxide	0.1	0.1	1.1, 1.0, 1.0, 0.9	0.5, 0.2, 0.2, 0.1
Oxygen	19.8	19.7	19.2, 19.4, 19.6, 19.7	19.3, 19.7, 19.9, 20.0

DISCUSSION OF RESULTS

The boreholes WS-1 and WS-2 to the north side of the site, show consistent results of virtually zero soil gases - which are typical of fill/poor-soil conditions.

Borehole WS-3 consistently shows a typical good grassy-soil gas concentration, whilst WS-4 initially showed significantly elevated gas concentrations with the peak value for methane just exceeding its Lower Explosive Limit (LEL) on 16 July, but with much lower readings, similar to the other sites, recorded on the second visit just one week later. Both visits were made at similar high tide conditions and at similar atmospheric conditions and pressures.

RECOMMENDATIONS

Additional monitoring at approximately 2-weekly intervals for at least two months and at varying atmospheric and tidal levels is required to discover any trends in these results, whilst trying to discover the source of the elevated soil gas concentrations initially found in the

vicinity of WS-4. Initial indications could connect the gases either with outflow from a nearby small sewage treatment tank, or from burial of the natural shoreline salt marsh under the fill. However, the second visit - just one week later - which recorded just background levels of soil gases at this site, suggests that the initially high gas results might have been associated with disturbance of the underlying shoreline salt marsh during drilling, and that once dissipated, and the borehole consolidates, such elevated gas levels may not re-appear. Further tests are required to elucidate this situation.

CONTINUATION SOIL GAS MONITORING AT HAYLING ISLAND - YACHT HAVEN SITE

The third monitoring of the four gas monitoring wells at this site took place on Friday 2nd August at mid-day, whilst the tide was out, and there was no water visible in the nearby creek. Atmospheric pressure had been dropping from earlier highs of 1020 mbars, a few days previously, and was recorded at 1009 mbars at the mid-day time of monitoring.

Results are given in the table below.

	WS-1	WS-2	WS-3	WS-4
Methane	0.0	0.1	0.1, 0.1, 0.1, 0.1	0.2, 0.2, 0.2, 0.2
Carbon Dioxide	0.1	0.1	0.8, 0.7, 0.6, 0.5	1.6, 1.5, 0.9, 0.8
Oxygen	20.4	20.3	19.8, 19.9, 20.0, 20.2	17.7, 18.6, 19.0, 19.2

All results are given as % gas (v/v)

Boreholes WS-1 and WS-2 gave stable results through 4- mins. monitoring

Boreholes WS-3 and WS-4 gave declining results as shown after 1, 2, 3 & 4 mins.

Discussion

Similar results to previous week. WS-1 and 2 showing no soil gases due to poor soil /rubbly fill ground.

WS-3 shows modest levels of carbon dioxide due to good grassy soil horizon.

WS-4 shows minor methane and modest carbon dioxide levels, a little higher than last week, possibly due to the lower atmospheric pressure.

Recommendation

Another 1 or 2 soil gas monitorings to take place – perhaps into the Autumn season to capture a significantly low atmospheric pressure (< 990 mbars)

CONTINUATION SOIL GAS MONITORING AT HAYLING ISLAND - YACHT HAVEN SITE

The fourth monitoring of the four gas monitoring wells at this site took place on Saturday 7 September at 18-00 hrs, whilst the tide was fully out, and there was no water visible in the nearby creek. Atmospheric pressure had been dropping from earlier levels of 1010 mbars, a few days previously, and was recorded at 1005 mbars at the time of monitoring.

Results are given in the table below.

	WS-1	WS-2	WS-3	WS-4
Methane	0.0	0.1, 0.1, 0.1, 0.0	0.1, 0.0, 0.1, 0.0	0.1, 0.0, 0.1, 0.1
Carbon Dioxide	0.1	1.2, 0.9, 0.4, 0.2	0.1, 0.1, 0.1, 0.1	0.3, 1.0, 0.8, 0.6
Oxygen	20.5	17.8, 18.5, 19.5, 20.0	19.8, 19.9, 20.0, 20.2	19.7, 19.6, 19.8, 20.1

All results are given as % gas (v/v)

Boreholes WS-1 gave stable results through 4- mins. monitoring

Boreholes WS-2, WS-3 & WS-4 gave declining results as shown after 1, 2, 3 & 4 mins.

Discussion

A slightly different pattern of results observed to previously. Only WS-1 continues to show no gas at all, whilst WS-2 shows a small amount of soil gas had accumulated in the borehole during the 5-weeks since the previous measurement, but after 4-minutes pumping, this had cleared back to almost zero.

WS-3 shows significantly lower levels of carbon dioxide than previously.

WS-4 shows slightly lower results to previously

Recommendation

Another 1 or 2 soil gas monitorings to take place – into the Autumn season to capture a significantly low atmospheric pressure (< 990 mbars).

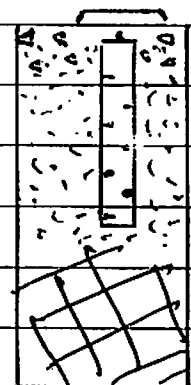
Also, a final measurement to be taken after a time interval of at least 6-weeks from any previous measurements, to determine if there is any significant rate of build-up of gases over time in any of the boreholes.

VEST WIGHT DRILLING

SITE INVESTIGATION SERVICES

DAILY REPORT

SITE <u>HATUNE Island.</u>	DRILLER <u>O. Johnson.</u>	BOREHOLE No. <u>2</u>
CONTRACT NO.	GROUND LEVEL	BOREHOLE DIA mm.
DATE <u>Wednesday 26/6/02</u>		METHOD <u>Window Sampling</u>

DEPTH & TYPE OF SING	SAMPLES			S.P.T.					U4		STRATA DEPTH	DESCRIPTION	CHISEL M
	DEPTH		TYPE & No.	75 mm	75 mm	75 mm	75 mm	75 mm	LENGTH	BLOWS			
	0.30		D1								GL	Loose Sandy Gravel Fill	
	0.30	0.80	B2								0.60	Firm orange brown clay	
	0.80	1.0	D3									Silty Clay	
	1.0	1.40	B4										
	1.40	2.40	W5										
	2.40	3.10	W6										
	3.10	4.0	W7										
	4.0		D8	4	5	6	8	10	12		0.30		
											2.0	Reinforced with Arising	
											4.50	50mm Scotted Pipe with Gas Tap Installed At 2.0m.	

REMARKS

WATER LEVELS

TIME OF DAY
DEPTH TO WATER
DEPTH CASED
DEPTH OF HOLE

FOREMAN'S SIGNATURE

CLIENT'S SIGNATURE

WEST WIGHT DRILLING

ITE INVESTIGATION SERVICES

DAILY REPORT

ITE <u>HAWLING ISLAND</u>	DRILLER <u>D. Jensen</u>	BOREHOLE No. <u>3</u>
CONTRACT NO.	GROUND LEVEL	BOREHOLE DIA mm.
DATE <u>WEDNESDAY 26/6/02</u>		METHOD <u>Window Sampling</u>

SIZE & DEPTH OF SING	SAMPLES			S.P.T.					U4		STRATA DEPTH	DESCRIPTION	CHIS M
	DEPTH		TYPE & No.	75 mm	75 mm	75 mm	75 mm	75 mm	LENGTH	BLO- WS			
	9L	1.0	B1								9L	Turf + TOPSOIL	
	1.0	1.50	B2								0.20	firm brown Silty Clay +	
	1.50	2.0	B3									OCCASIONAL GRAVEL	
	2.0	3.0	W4								0.60	firm orange brown Silty Clay	
	3.80		OS	3	4	8	5	8			2.70	firm stiff Red Grey brown Silty Clay.	
												FOR 4.30m.	
											0.30	Protective Green Concrete On.	
											2.0	Per Gravel Filter	
											4.30	Backfilled with Aggreg Some Sorted Pipe with Gas Trap Installed At 2.0m	

REMARKS	WATER LEVELS	TIME OF DAY			
		DEPTH TO WATER			
		DEPTH CASED			
		DEPTH OF HOLE			

[Signature]
FOREMAN'S SIGNATURE

CLIENT'S SIGNATURE

VEST WIGHT DRILLING

SITE INVESTIGATION SERVICES

DAILY REPORT

DATE <u>HAWAII ISLAND</u>	DRILLER <u>D. JENSEN</u>	BOREHOLE No. <u>4</u>
CONTRACT NO.	GROUND LEVEL	BOREHOLE DIA mm. <u>1</u>
DATE <u>WEDNESDAY 26/6/02</u>		METHOD <u>Window Sampling</u>

ZE & DEPTH OF SING	SAMPLES			S.P.T.					U4		STRATA DEPTH	DESCRIPTION	CHISI M
	DEPTH		TYPE & No.	75 mm	75 mm	75 mm	75 mm	75 mm	LENGTH	BLO- WS			
	0.30	0.60	D1								GL	Loose Gravel + Brown Fill	
	0.60	1.0	D2								0.50	Fine Brown Clay Fill	
	1.0	1.50	B3								1.90	Fine Orange Brown Silty Clay	
	1.50	1.80	B4								2.50	Fine Stiff Red Grey Brown Silty Clay.	
	1.80	2.0	D5										
	2.0	3.0	D6										
	3.0		D7										
	3.0	3.60	D8										
	4.0		D9								0.30		
	4.80		D10	2	2	2	2	3					
	5.30		D11	4	4	5	6	6			2.0		
											5.90		

REMARKS	WATER LEVELS	TIME OF DAY				
		DEPTH TO WATER				
		DEPTH CASED				
		DEPTH OF HOLE				

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