

STRATA SURVEYS LIMITED

PRELIMINARY RISK ASSESSMENT

MAIN REPORT

REPORT NO. 14502

Plémont Bay Holiday Village,

Jersey

This File excludes Annexes -
refer to file *8B-Plémont Ground Contam
Report Annexes (GCR-A)* for Annexes

Issue : Final Report

Issue Date : 19th December 2008

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REPORT NO. 14502

Plémont Bay Holiday Village, Jersey

for

BDK Architects

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requested by

Geomarine Ltd

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Report Status	Desk Study	Issue Date	19th December 2008
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Plémont Holiday Village

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Plémont Holiday Village

1 DISCUSSION

This report is a Contaminated Land Phase 1 risk assessment report undertaken in accordance with the requirements detailed in Planning Advice Note No.2 (Supplementary Planning Guidance) – Development of Potentially Contaminated Land (October2005). The report references historical and environmental data and information gathered during the site walkover.

This report has been undertaken for BDK Architects requested by Geomarine for the environmental assessment of the site.

Normandie Analytical Services Ltd carried out an Asbestos Survey report on the site in October 2004. This report should be read in conjunction the Asbestos report. In brief, the report found asbestos in many of the buildings of the site.

An Archaeological Assessment of the site was carried out by the Museum of London Archaeology Service (MoLAS) in August 2006.

This report has been prepared to comply with requirements relating to establishing the potential for land contamination at Plémont Holiday Village and mitigating risk of any contamination. The requirements were detailed in the Scoping Opinion issued on the 10th November 2008 by the Environment Division of the States of Jersey Planning and Environment Department in relation to a forthcoming Planning Application for redeveloping the site to provide a 73 unit self catering tourism complex.

Notwithstanding this brief as the report addresses the existing site conditions it would also be relevant and apply to any alternative proposed development of this site.

2 SITE DESCRIPTION

The site National Grid reference is 556300, 5456500 and covers an area of approximately 4.4 hectares.



The disused Plémont Holiday Village is located on the island of Jersey along the north west coast.

The access to site is gained from the C105 (La Route de Plémont) that runs along the southern and western boundary of the site. A car park lies at the SW corner adjacent to the road with approximate capacity of 39 cars. The road continues along the western boundary to the NW corner of the site where the tarmac ends and there is a rough surfaced turning circle. Part way up the road there is the PSD Pumping Station Tanks, which are still in use. The road and Pumping Station lie approximately 2.0-3.0m lower than the rest of the site.



The above Photo is taken from the NW corner of the site, adjacent to a store building. A small well is located at the bottom of the steps.



The roughly vegetated open area was the site of the old Plémont Hotel, which burnt down in the 1940's. There is no evidence of the hotel or of the fire. The ground generally slopes from north to south.

To the south of the Hotel site, there is a circular and square concrete structure. The structure is mostly covered by thick vegetated. This could be a German Bunker.



To the east of this structure is a small rectangular building, which was the camp shop. Further to the south there is a tennis court and the Pumping Station lies to the SW.



To the south of the tennis court there is the water treatment tank. This consists of a large rectangular concrete structure, which extends approximately 1.2m above ground.



Adjacent to the water tank is a small building most likely used for storage. The building is in disrepair with the roof and walls showing damage.

To the east of the small building there are the remnants of the playground.



To the east of the tennis court and to the south of the main camp village there is a bungalow that was used by staff. The bungalow has a walled garden to the south. There is evidence of central heating however the surrounding area is highly vegetated and it wasn't possible to locate the fuel source.



Looking NW

The main Holiday village is located at the north and central areas of the site. There are eight brick built two storey apartment blocks generally all orientated to face the swimming pool etc. The apartments are in disrepair with broken windows and generally open to the elements. It appears that a boiler house is shared between two blocks, with the building located at the end of one of these. Therefore, in total there are four small boiler houses attached to the apartment blocks which are now unused.



Only one of these small boiler houses was accessible during the walkover. This was located at the southern end of the most western apartment block (north of the shop).



It appears that the central heating system was fuelled by oil. The site oil tank is located at the NW corner of the site. Therefore it is assumed that there is an underground oil distribution network to feed each boilers.



To the east of the swimming pool there is a large boiler house. This was presumably to heat the swimming pool.



The boilers are located at the south end of the building. These are then connected to the chlorine tank (in yellow) which will in turn pump into the pool.





To the SE of the swimming pool and boiler house there is the site electrical substation, which is still in use. It is understood that this still feeds the manager's bungalow to the east of the site. On the otherside of the sub-station is the Laundrette.





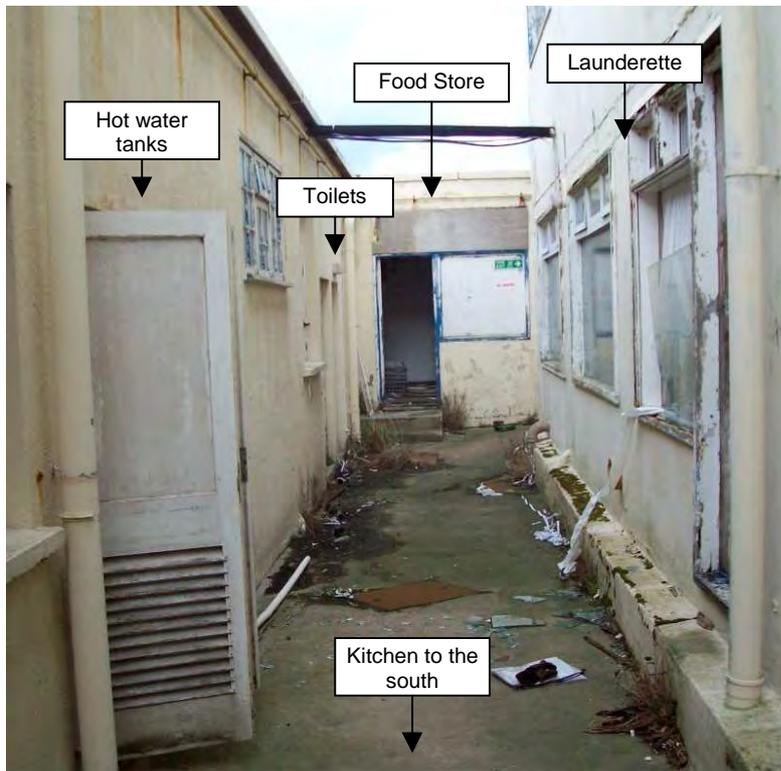
To the east of the sub-station there is wood(rotten) /felt covered service trench. The trench is breeze block lined. It was most likely covered by something more durable when the camp was still working. Permanent access to the pipework must have been needed within this area.



The remaining communal areas around the pool etc are overgrown with thick vegetation. A second tennis court lies at the NW corner of the site near the turning circle.

The Central Amenity block is located to the east of the apartment blocks. During the walkover, it was not possible to gain access in the Amenity block. It is understood that it contained the Dining Hall, Ballroom/bar and kitchen. The building is two storey in most part with a corrugated iron roof.

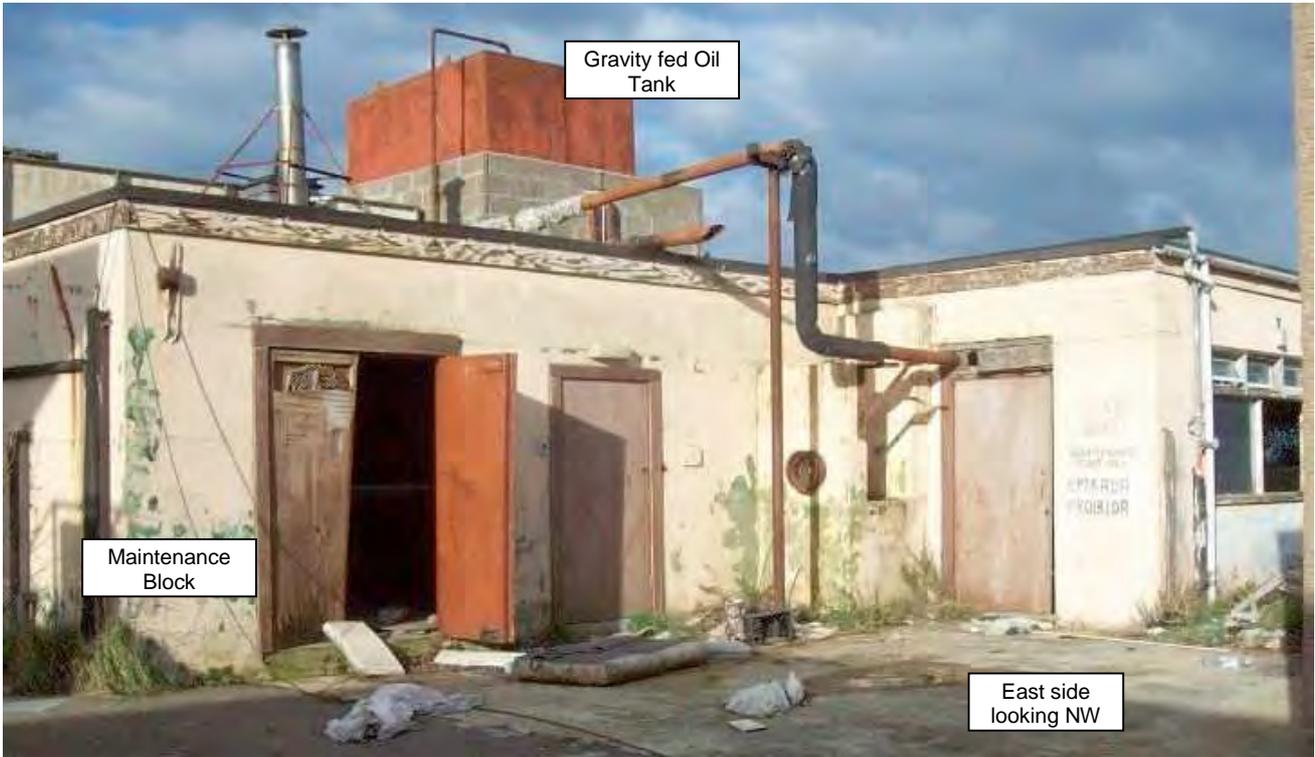




On the east side of the Amenity building there is a small passageway between what was the kitchen and food store/freezer.

The staff launderette was located to the east and toilets, electricity boxes and hot water tanks are located to the west.





To the NE of the Amenity Block is the Maintenance block. The maintenance block contains a large oil tank on the top of the roof. The tank appears to be surrounded with a brick wall bund.

The oil tanks are thought to supply all the central heating to the apartments and heat the swimming pool.



Adjacent to the Maintenance Block is a rectangular store building. We were not able to access this building during the walkover.



Adjacent to the store building is the remnants of a World War 2 bunker. A breezeblock structure has been built on top.



To the north of the bunker is a concrete base. No other evidence of the previous building exists. Historical maps label this as a tank.

To the south of the store and maintenance block there are two blocks of apartments previously used for the staff quarters. The blocks are two storeys high however do not contain a separate boiler house.

The campsite managers house is located to the SE of the Amenity block and to the south of the staff quarters. The house now resides the caretaker of the site. Access was restricted to a distance from the house during the walkover.



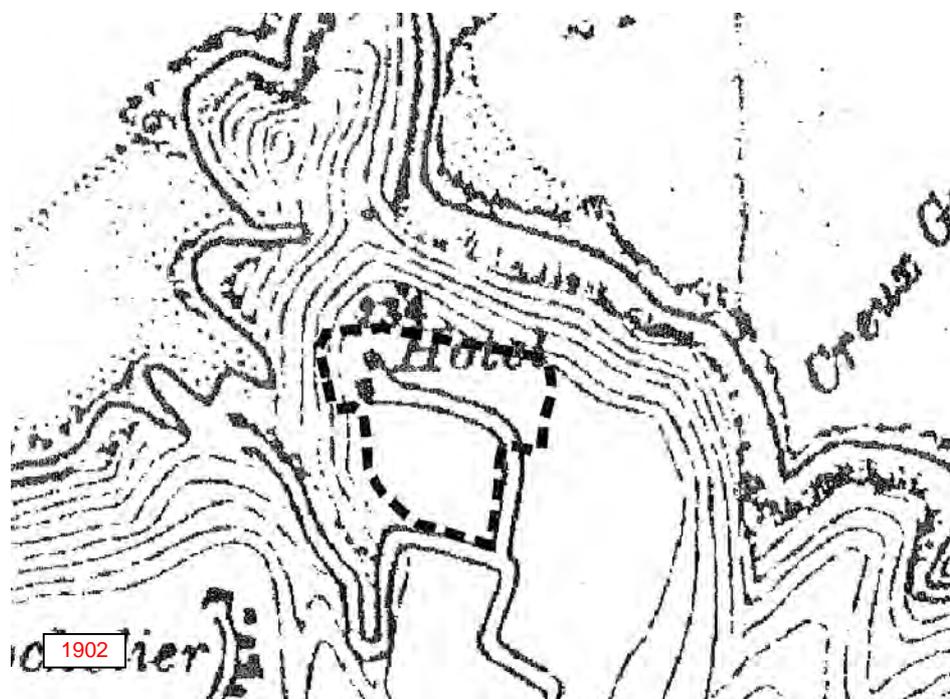
There is a small outhouse to the SW of the house. It appears that header water tank sits on top of one side of the outhouse.



3 HISTORICAL SETTING

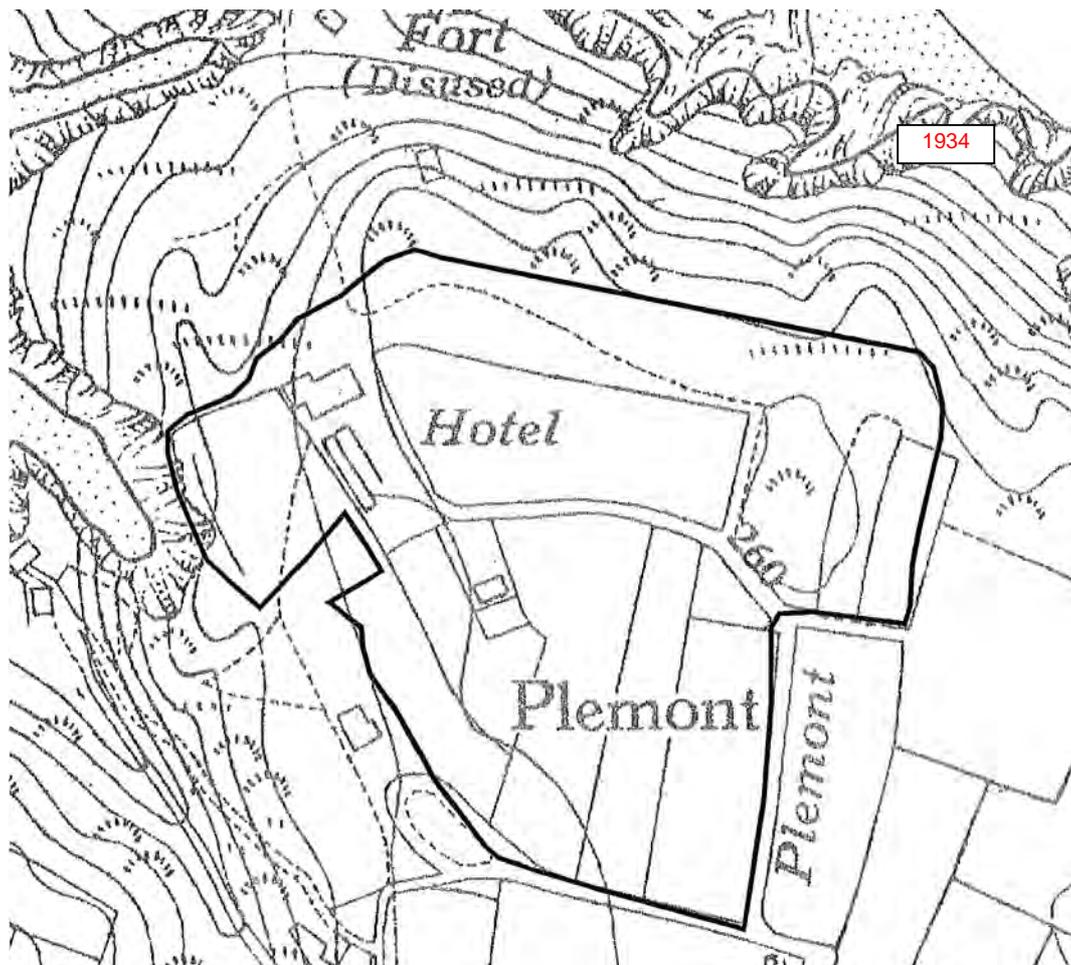
1849 (Godfray Map of the Island of Jersey) shows no buildings on the site. There is a small rectangular building approximately 50m to the NW and the Guardhouse to the north. The site and surrounding land was used for rough pasture and/or grazing.

Plémont Hotel is first mentioned in 1874 in the 'Kelly's Postal Directory'. The Hotel is located at the NW corner of the site.



1902 OS map shows two buildings on the site one of which is marked as 'Hotel'. The detail of the map is limited but the 'Hotel' is understood to be Hotel Plémont. Access roads are from the south and continue to Plémont Bay and appear to follow the line of the existing roads.

1934 OS 1: 50,000 – This map shows the earliest detailed location of the hotel and other buildings on the site. The Hotel is a large rectangular building with an extension on the NW corner. A long thin rectangular building/strip of land is located to the south of the Hotel. The use of this area is unknown. To the east of the Hotel is a flat open area possibly used as a garden or yard. Two rectangular buildings lie further to the south, close to the location of the existing 'staff bungalow'.



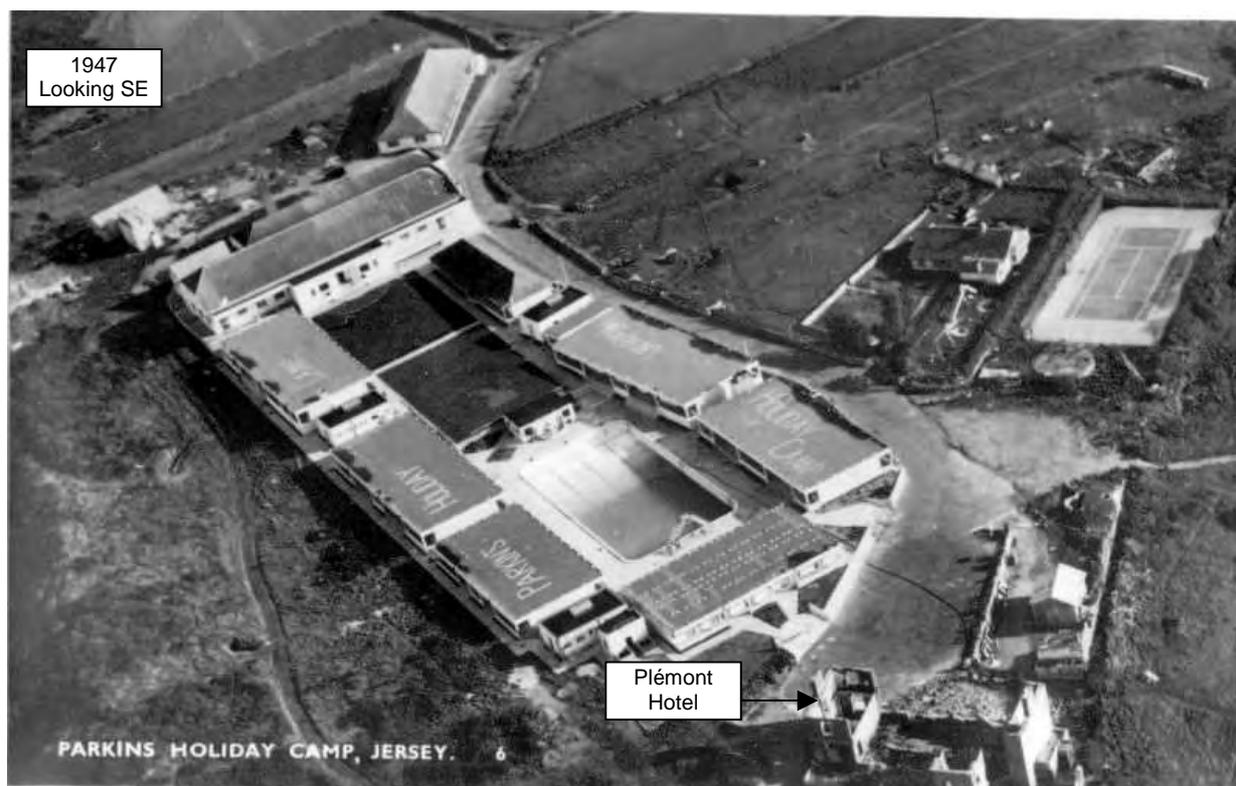
In 1935 the 'Jubilee Holiday Camp' was built in the northern third of the site, adjacent to the existing Plemont Hotel. A newspaper article dated 1936 describes the camp as having a stone built main building (with dining, dance hall, sports rooms, café and library) along with bungalows (wooded?) with verandas, holding accommodation for 250 guests. In July 1937, a fire destroyed 20 of the chalets and in September a second fire caused considerable damage to main building.

In June 1940, Jersey became occupied by the Germans Armed Forces during World War Two. By 1942, Plemont was a German defensive stronghold and included a number of gun and flamethrower positions, observation post, search light quarters and the apparent reuse of the C18th fortification and mortar positions. Precise locations of these defences are unknown, except for a mortar position at the NE location of the site. The position consists of mortar stand and bunker. At present it has a breezeblock construction built on top of it.

During the walkover, a circular and square concrete structure was encountered close to the 'camp site shop' under thick vegetation. The black and white photograph below is from an aerial photo from 1947. The photo shows what looks like the same structure found in the walkover. The time and location of this structure suggests it may have been an air raid shelter or bunker.



Immediately after the war, it is not known what condition the site was in. There is the possibility that some or all the wooden buildings were demolished by the Germans.

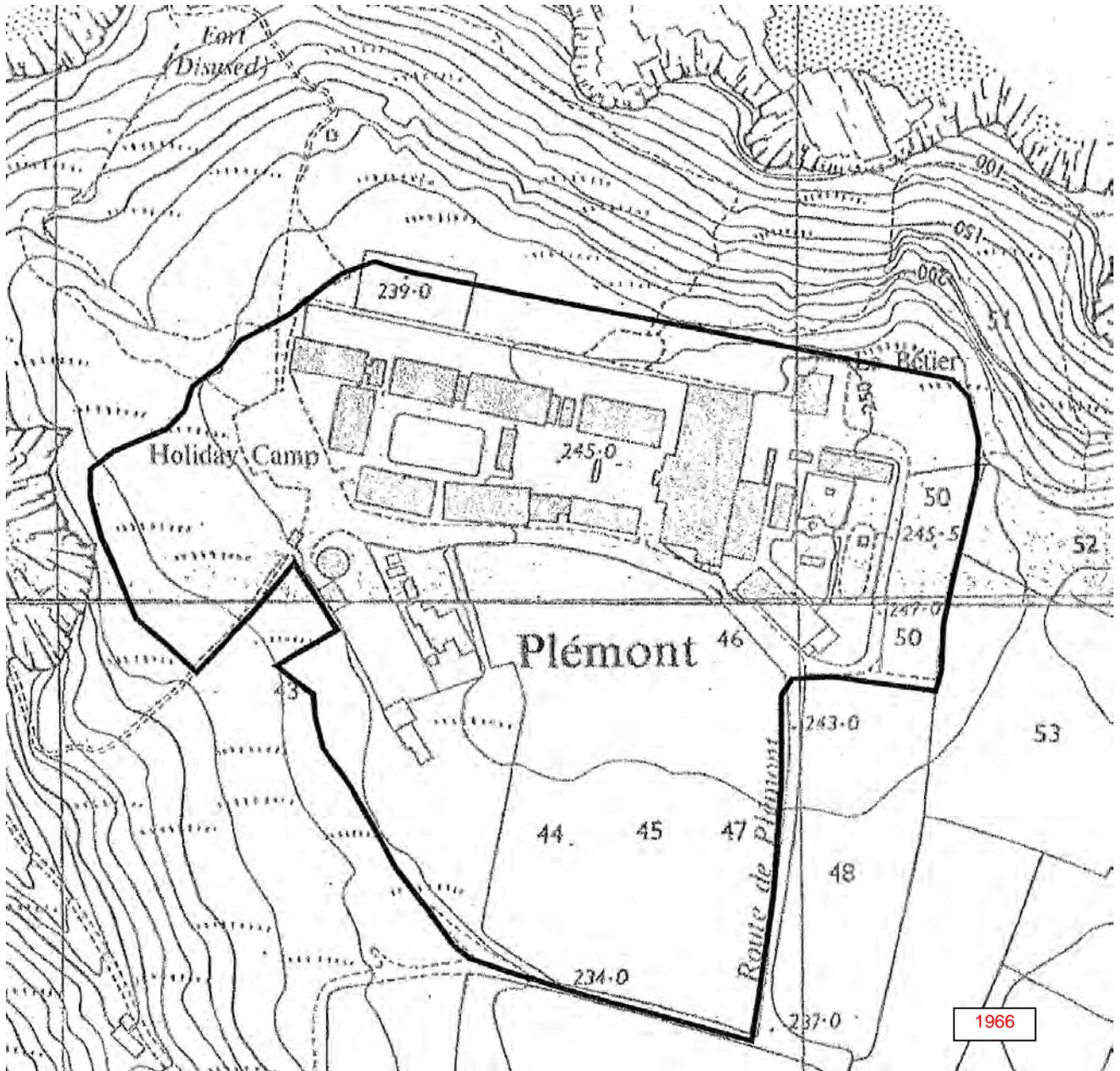


After the war, the site was owned by Stanley Parkin and was rebuilt on much larger scale. The camp reopened in 1946 and was able to hold 500 guests. The above photograph was taken in 1947. The campsite contained single storey apartment blocks all orientated around the swimming pool and with the main amenity block at the eastern end.

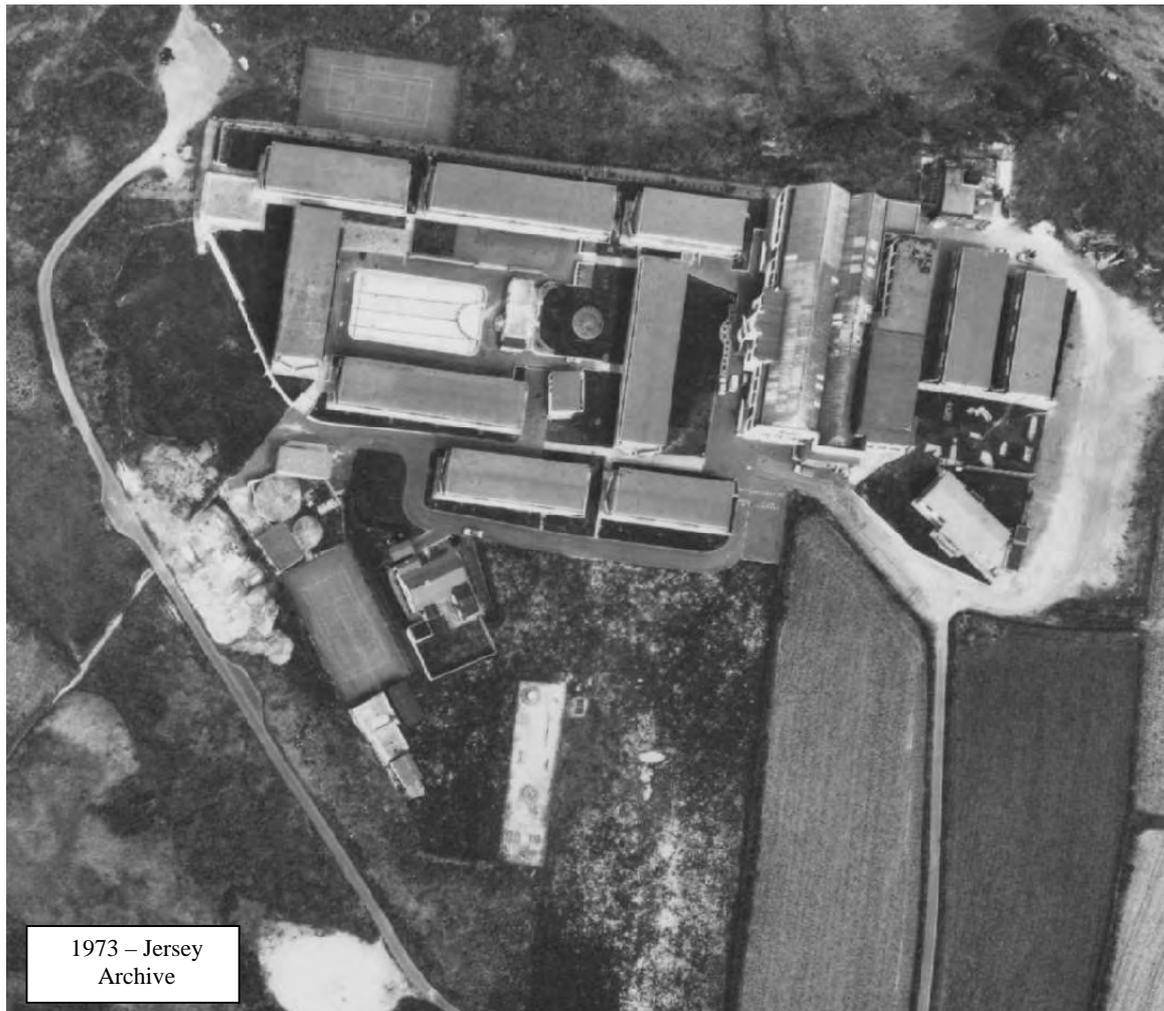
The remnants of the Plémont Hotel are shown at the bottom right corner of the photo. The Hotel was destroyed by fire however the exact date is not known. It is understood that the Hotel was not used as part of the accommodation but only as a store at the time of the fire.

A tennis court is situated to the south of the campsite and is still there today. To the north of the tennis court there is a water tank and the staff bungalow is situated to the east.

In 1961, the camp was sold to Pontin's. The layout of the site generally appears to have remained the same. The 1966 map generally shows the same layout of apartment blocks as were built shortly after the war. A second tennis court was built at the NW corner of the site. Additional buildings are built to the east of the amenity block, possibly one long rectangular building used for staff quarters. The maintenance building is located to the NE of the amenity block.



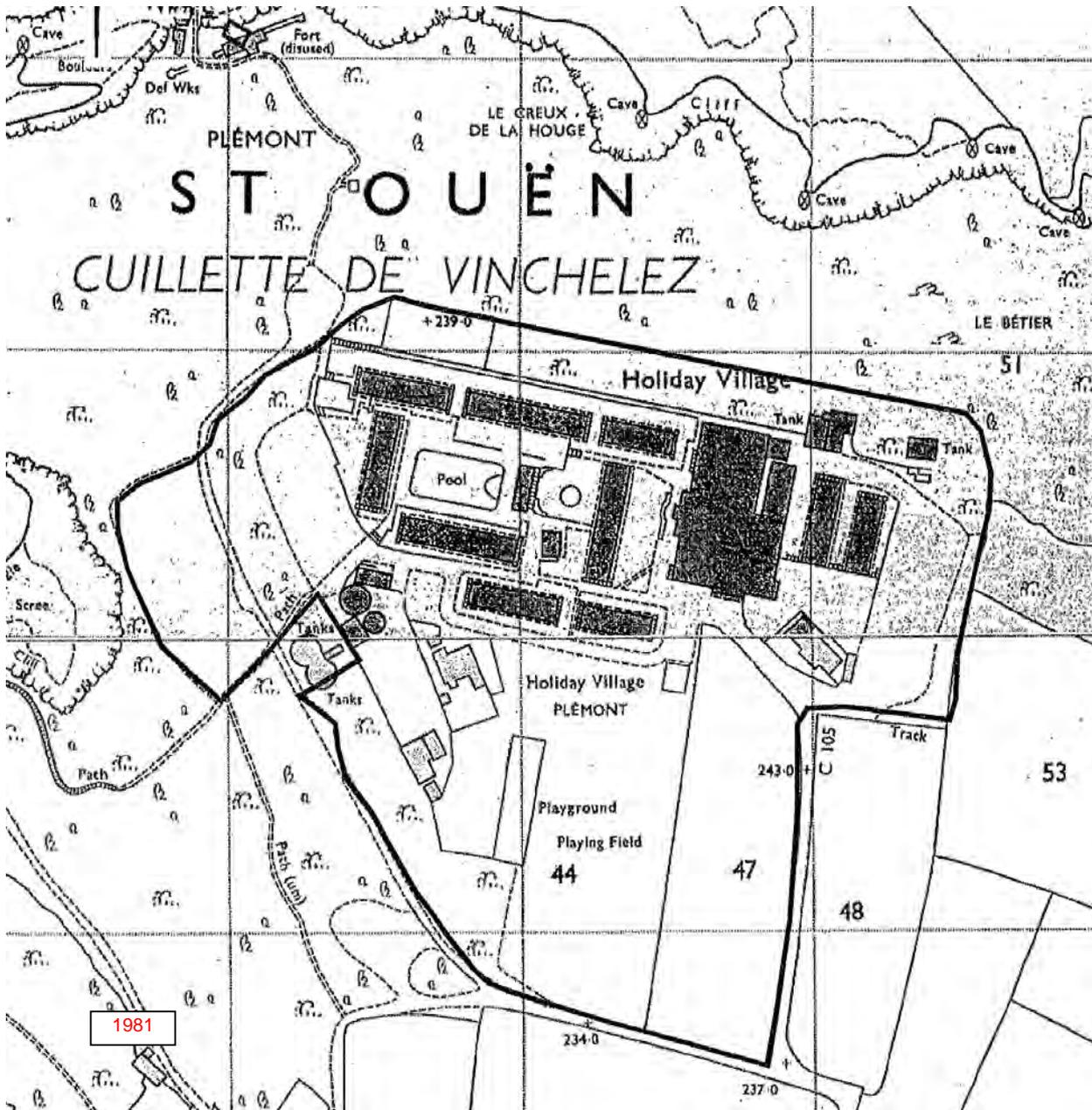
The 1974 aerial photo of the site shows that large parts of the campsite have been redeveloped to the positions that we see today. The apartment blocks in the centre and west parts of the site are generally located over the same footprints of the previous blocks. However, the blocks are now longer, larger, two storeys and cover more areas of the site. There are eight apartment blocks and they mostly surround the pool, plus two blocks that overlie the previous access road. The pool and the boiler house still remain in the centre of the complex, along with a square building, which from the walkover is the electrical sub-station and launderette.



The Amenity block had been extended to at the NE corner, which is known to become the staff launderette amongst other things. Two residential blocks were built to the east of the Amenity block for the staff quarters.

Adjacent to the southern tennis court there are now two water tanks and a square building, possibly a pumphouse. To the south of this tennis court there is a rectangular structure, which is known to be the waste water tank, adjacent to a small out building. The site playground is located to the east of the tank and to the SW of the staff bungalow.

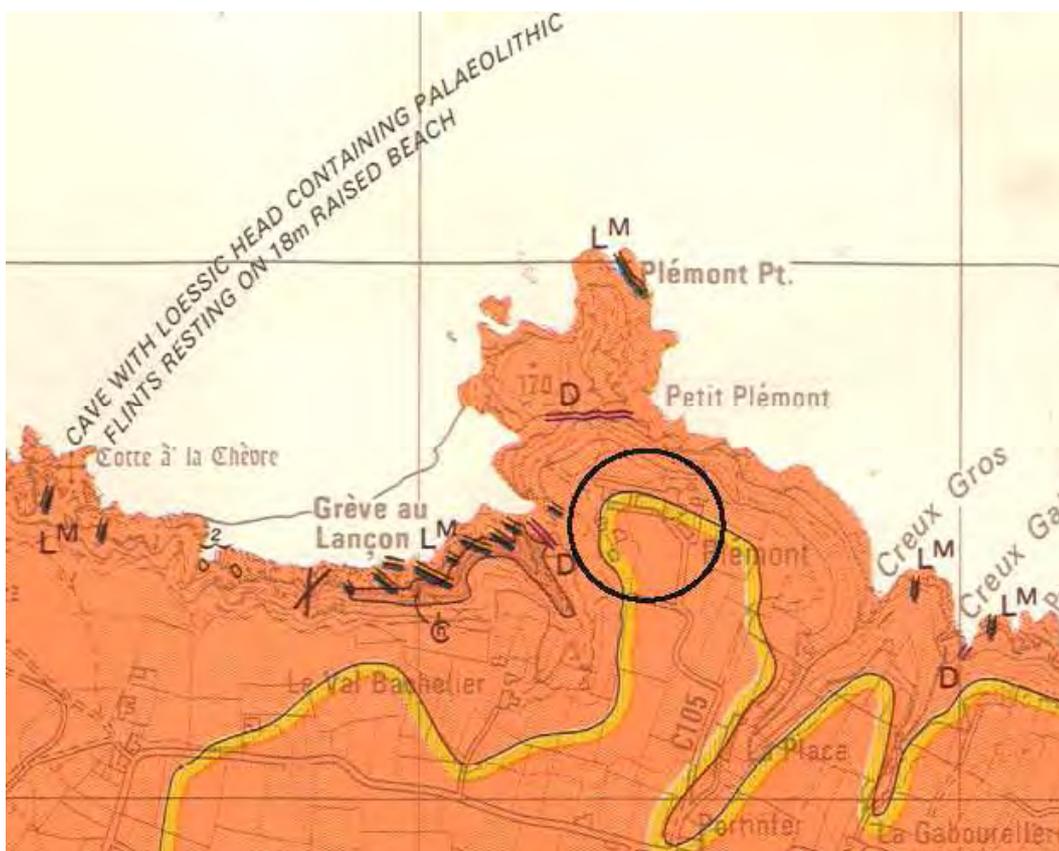
The 1981 map generally shows little change. The tank located on the maintenance building is identified. A second tank is identified to the east. During the walkover this position showed only a concrete base. Additional water tanks are now located to NW of the tennis court and adjacent to the access road.



Due to the decline in the holiday camp business, Pontin's pulled out of Jersey and the site was closed in October 2000. The site currently remains derelict except for the Managers bungalow at the east end of the site.

4 SITE GEOLOGY

The published Institute of Geological Sciences for Jersey (Channel Islands Sheet 2) 1:25,000 map shows the site is underlain partially by Loess drift deposits. The mapping indicates the drift deposits do not extend to edge of the cliff. Further west down the coast there is loess deposits overlying 18m of raised beach deposits.



The solid geology shows the site underlain by coarse grained St Mary's Granite a major intrusion from the Late Precambrian or Lower Palaeozoic.

5 SITE HYDROGEOLOGY

The site is underlain by St Mary's Granite. Granites are largely negligible permeability, however these can locally be highly fractured and show groundwater movement and could provide local supplies.

The nearest surface water source is the English Channel (North Atlantic Ocean).

6 ENVIRONMENTAL ISSUES

The proposed future use of the site is dependant upon planning permission being forthcoming for rebuilding to provide a 73 unit self catering tourism facility.

The major potential environmental issue on site is the oil distribution pipeline network. It is understood that the pipeline network is made of plastic. It is likely that small scale leakages will have occurred throughout the network. The oil can attack the glue at joints and therefore leaks can occur. It is understood that this system has approximately been in place since 1984. It is not known what had been in before but it is possible, the plastic pipes replaced corroded pipes from the previous system. These pipes may also have leaked in the past.

In August 1999, children were playing with a valve at a 'T' piece to the north of the Amenity Block and adjacent to the cliff edge. Although this was in a prohibited area, the fence was poorly maintained. The valve broke and up to 1800 gallons of heating oil was lost to the surrounding areas, some of which went down the cliff edge.



The Island's Environmental Department was contacted and environmental and ecological concerns were made. A pollution control report from the Environment Department carried out at the time is attached in the appendices. The report was a review of the findings and proposed remedial measures up to 26/10/99. The final entry (26th Oct) of the report says that the remedial works would involve excavation of soils and bio-remediation and would start that day. At the time of this report, we did not have information to confirm what works were completed.



During the site walkover there was no surface evidence of the spill and the area was heavily vegetated.

A full Asbestos report has been carried out by Scottish and Newcastle (04/B/2647 dated 10/06/2007) on the site. The results of the report should be read in conjunction with this report. The overview of the report indicates that most buildings on site contain asbestos contamination in varying forms. Therefore demolition of the existing buildings will have to be carried out with appropriate measures to prevent site workers and future users of the site to be affected by asbestos exposure.

Due to the age of the underground water pipework on the site, there is the potential that these pipes may contain asbestos and inspection should be carried out.

The camp site contains a working electrical sub-station. There is the potential for the surrounding soil adjacent to the sub-station to contain Polychlorinated Biphenyl (PCB's).

The Plémont Hotel burnt down approximately at the end of the world war two. There is the potential that soils underlying the site of the Hotel may contain elevated levels of toxic metals and PAHs.

The site sewage tanks may have leaked over its lifetime. There is the potential for contamination to the surrounding soils and groundwater.

Chlorine used in the swimming pool may have leaked into the surrounding soils. The risk of chlorine to human health and the environment is limited.

There are no known landfills within an influencing distance to the site.

The site is underlain by Granite, therefore radon gases will pose a risk to proposed buildings. Appropriate Radon protection measures will be necessary.

The site is not located within an area at risk from flooding from rivers.

7 RISK ASSESSMENT

The State of Jersey introduced the 'Development of Potentially Contaminated Land' Planning Advice Note 2 - in October 2005. The document gives guidance for proposed developments of contaminated land.

The planning guidance requires that a staged approach to the assessment of the potential risk a development site may pose to the intended final use after development.

There are three phases to contaminated land investigation and management.

- 1) Phase 1 – Desk Study, walkover and risk assessment
- 2) Phase 2 – Intrusive investigation and risk assessment
- 3) Phase 3 – Remediation and/or risk assessment

To meet the definition of contaminated land, a pollution linkage must be established.

A linkage consists of three parts:

- 1) Source – contamination in, on or under ground
- 2) Pathway – via air, soil or controlled waters
- 3) Receptor – Human health / Eco-system / Property / Water

RISK ASSESSMENT FOR GAS HAZARD

Hydrocarbon leakage's from the oil distribution network may pose a risk from Volatile Organic Carbon (VOC) vapours and the decomposition to Carbon Dioxide (CO₂) and methane (CH₄).

The underlying geology of Granite poses the risk from Radon gases to proposed buildings.

There are no known landfill sites within an influencing distance to the site.

RISK ASSESSMENT FOR HUMAN HEALTH

The potential of hydrocarbon contamination from leakage of the oil distribution pipeline to fuel the sites central heating systems.

The buildings and possible underground pipework pose a risk to human health from asbestos contamination.

The electrical sub-station may pose a risk to contaminating soil from PCBs.

The site of the burnt down Plémont Hotel may contain soils that are elevated in toxic metals and PAHs.

Leakage of sewage tanks may show contamination to underlying soils and groundwater.

8 SOURCE CHARACTERISATION

Type of Risk Assessment	Source	Pathway	Receptor	Remarks
Water Resources	Impacted Soils	Migration of leachate	Fractured Granite Aquifer supplying local on site water supplies	There is low to moderate risk to groundwater and surface water.
	Impacted Groundwater	Migration of groundwater	English Channel	
Human Health	Soil gases	Inhalation of indoor air	Site Workers Site Residents Off Site Residents	Low risk to end users of the development
	Impacted Soils	Inhalation of		Moderate risk from potential oil leakage's from the oil distribution network. Moderate-high risk of Asbestos fibres from buildings and water pipes. Moderate to low risk from PCBs near sub-station and toxic metals/PAH under old Hotel.
		Direct Ingestion		
		Direct dermal contact		
		Vegetable Ingestion		
	Impacted Groundwater	Inhalation of indoor air		Low risk from oil leakage's and potential leaks from sewage treatment works.
		Direct Ingestion		
Direct dermal contact				
Building and services	Soil Gases	Migration through floor slab	Site Workers Site Residents Off site Residents	Low to moderate risk of VOC vapour from oil leaks. Mod-high risk from Radon gas from Granites

9 FURTHER INVESTIGATION

Before any re-development of the site commences it will be necessary to undertake a Phase II intrusive investigation to ascertain the presence of any residual site contamination and determine the extent of any site remediation that may be required.

The Phase II intrusive investigation would be recommended to be carried out in three phases.

Stage 1 – Investigate surface contamination from leaked oil tanks, oil distribution lines, surface contamination from Asbestos and the site of Plémont Hotel (burnt down).

Stage 2 – Remediate areas of identified contamination before demolition of existing buildings. This will limit any cross contamination.

Stage 3 – Post demolition. Carry out development specific investigation. This would involve shallow trial pits and deeper boreholes into the Granite (Provisionally 10.0m). The boreholes will be installed with gas and groundwater monitoring wells. The monitoring of VOC vapour can be used to verify hydrocarbon vapours are removed.

Analysis should include testing for the following contaminants by a laboratory with MCERTS accreditation:

- 1) Standard Soil and groundwater suite for toxic metal and Polycyclic aromatic Hydrocarbon (PAHs). This suite will be carried out on soils in all areas of the site and groundwater samples.

Standard Soil Suite	SOIL	WATER
	LOD	LOD
	mg/kg	mg/kg
Total Metals : As, Cd, Cr, Pb,Hg,Se,Cu,Ni,Zn	1	0.01
Water Soluble Boron (1)	1	0.01
Hexavalent Chromium	0.1	0.05
Total Cyanide	2.5	0.05
Free Cyanide	2.5	0.05
Thiocyanate	1	1
Total Sulphate ²	50	50
Sulphide	5	0.05
Total Sulphur	0.01%	10
pH	2dp	2dp
PAHs - 16 USEPA Priority Pollutants by GC	0.05	0.01
Phenols	0.01	0.01

- 2) Total Petroleum Hydrocarbons (TPH) Speciated and TPH screen. Carried out in the locations of the oil pipe network, Oil tank and any other areas showing impact from hydrocarbons.
- 3) Asbestos screen tests – carried out in soils possible impacted from asbestos in the existing buildings and pipes.
- 4) PCB testing – carried out on soils adjacent to sub-station and in areas where heavy oils were store or used.