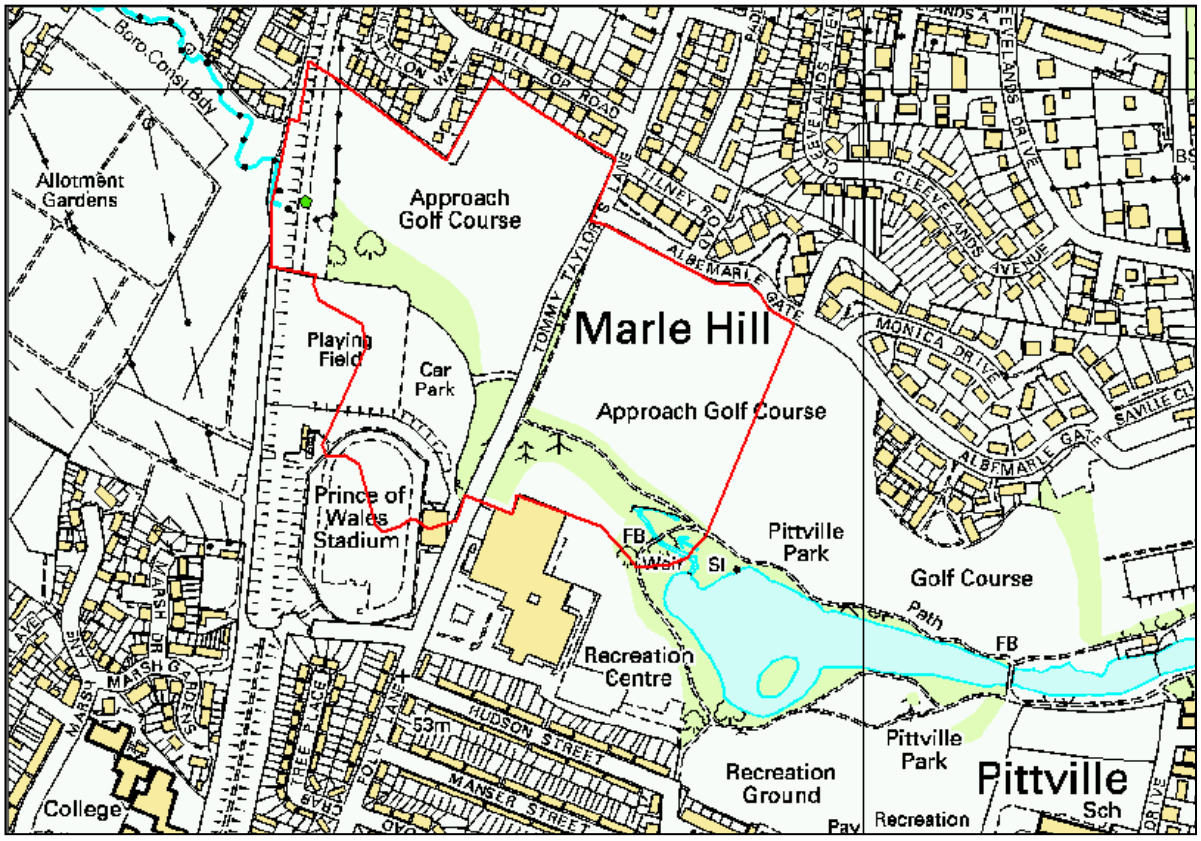
Schedule 1

Description of the land determined as contaminated and designated as a special site:

An area of land bounded by the Red line on the attached map, to include;

a) *Part of the Marle Hill Approach Golf Course, Pittville Park.*
b) *Part of the Prince of Wales Stadium and adjoining Playing Field.*
c) *The Prince of Wales Stadium Car Park.*



Approximate Area: 12 Hectares

Grid Reference: 394712 223786

Schedule 2

The Significant Pollutant Linkages: ***Table 1***

ID	Source	Pathway	Receptor
S1*	Ammonia (N as $^{+}NH_4$) dissolved within landfill leachate	Direct mixing of landfill leachate discharges into surface water. Leaching into groundwater, presence in baseflow.	Surface water – Wyman's Brook culvert
S2	Nitrite (N as $N0_2$) dissolved within landfill leachate	Direct mixing of landfill leachate discharges into surface water. Leaching into groundwater, presence in baseflow.	Surface water – Wyman's Brook culvert
S3	Nitrate (N as NO_3) dissolved within landfill leachate	Direct mixing of landfill leachate discharges into surface water. Leaching into groundwater, presence in baseflow.	Surface water – Wyman's Brook culvert
S4	Copper (Cu) dissolved within landfill leachate	Direct mixing of landfill leachate discharges into surface water. Leaching into groundwater, presence in baseflow.	Surface water – Wyman's Brook culvert
S5	Iron (Fe) dissolved within landfill leachate	Direct mixing of landfill leachate discharges into surface water. Leaching into groundwater, presence in baseflow.	Surface water – Wyman's Brook culvert
S6	Lead (Pb) dissolved within landfill leachate	Direct mixing of landfill leachate discharges into surface water. Leaching into groundwater, presence in baseflow.	Surface water – Wyman's Brook culvert
S7	Zinc (Zn) dissolved within landfill leachate	Direct mixing of landfill leachate discharges into surface water. Leaching into groundwater, presence in baseflow.	Surface water – Wyman's Brook culvert
ID	Source (in unsaturated zone)	Pathway	Receptor
G1	Chlorides (Cl-) dissolved within landfill leachate	Leaching into groundwater, presence in baseflow.	Groundwater contained within Lower Lias Clay
G2	Fluorides(F-) dissolved within landfill leachate	Leaching into groundwater, presence in baseflow.	Groundwater contained within Lower Lias Clay
G3	Sulphate (S as SO_4^{-}) dissolved within landfill leachate	Leaching into groundwater, presence in baseflow.	Groundwater contained within Lower Lias Clay
G4	Calcium(Ca) dissolved within landfill leachate	Leaching into groundwater, presence in baseflow.	Groundwater contained within Lower Lias Clay
G5	Chromium(Cr) dissolved within landfill leachate	Leaching into groundwater, presence in baseflow.	Groundwater contained within Lower Lias Clay
G6	Nickel (Ni) dissolved within landfill leachate	Leaching into groundwater, presence in baseflow.	Groundwater contained within Lower Lias Clay
G7	Sodium (Na) dissolved within landfill leachate	Leaching into groundwater, presence in baseflow.	Groundwater contained within Lower Lias Clay
ID	Source (in unsaturated zone)	Pathway	Receptor
H1	Carbon Dioxide (asphyxiant)	Migration through granular fill materials, inhalation in confined spaces	Offsite occupants, Residential Property
H2	Methane (flammable/explosive)	Migration through granular fill materials, accumulation in confined spaces	Offsite occupants Residential Property

KEY

S1 * : Caused failure of relevant water quality standard

S2 – S7 : Pollutants found in Wyman's Brook

G1 – G7: Pollutants found in Groundwater

H1 & H2: Gases present in on and off-site boreholes

A Summary of the Evidence used for determination of the site

Site setting

The site was historically utilised for clay extraction and as a brickworks. From the 1950's, redundant clay extraction pits were utilised for the disposal of household and commercial waste. The investigation found up to 14.3m of waste and made ground below ground level.

Waste disposal stopped in 1967 and the site was capped with clay soils and re-instated to grass. Wyman's Brook was re-directed through an underground pipe at the base of the site. The area is now used as a recreational open space area and includes part of the Approach Golf Course, part of the Prince of Wales Stadium and the adjacent playing field and car park. The northern land use is residential development with a leisure centre to the south and a disused railway line to the west boundary.

In the 1990's water pollution of Wymans Brook was discovered and a leachate extraction system was installed to deal with this problem. In 2001, the Environment Agency required the Council to undertake further works and more extraction wells were installed.

Geology and Hydrogeology

The site is located on made ground and Lower Lias clay deposits with some Cheltenham Sands with made ground at shallower depths around the perimeter of the site.

The site does not fall within a water source protection zone and the underlying geology is considered to be a non-aquifer.

Intrusive Investigation

In 2003, in accordance with Part IIa of the Environmental Protection Act(1990), Cheltenham Borough Council formally asked the Environment Agency to undertake a detailed inspection of the site as it was considered to be a potential 'special site'. The Environment Agency contracted ATKINS consultants to undertake an intrusive investigation of the site. Soils and water samples were taken and results were evaluated against various UK standards and regulations in accordance with DEFRA and Environment Agency guidance. Risk assessments of all potential pollutant linkages were carried out by ATKINS to determine those which had the potential to cause significant harm to specific receptors. The results were reported to Cheltenham Borough Council in December 2005(phase 1) and September 2006 (phase 2).

Summary of the assessment of the evidence

The phase 1 report identified potentially significant pollutant linkages associated with landfill leachate entering Wyman's Brook. Elevated ammoniacal nitrogen levels were found (plus associated determinands as listed in Table 1) in soil, leachate and groundwater. It was concluded that this chemical impact was associated with the degradation of putrescible waste deposits. The measured increase in ammonia concentration along the length of the Wyman's Brook Culvert served to confirm the ingress of contaminated groundwater. These elevated levels of ammoniacal nitrogen were responsible for the breach of the relevant water quality standard at the Environment Agency's statutory monitoring point (Reference No.04832750) which is located 43m downstream of the site's western boundary. This pollutant linkage means the site meets the following special site criteria:

Regulation 3(b) of the Contaminated land (England) Regulations 2006 which states that controlled waters are being affected so that those waters do not meet, or are not likely to meet, relevant surface water criteria.

The other determinands listed in Table 1 were identified as significant pollutant linkages, based on their presence in surface water and groundwater at levels above the relevant Environmental Quality Standards.

A further investigation was carried out to refine the conceptual model for the site and to characterise the soil asbestos and gas regimes on site.

Ground borne gas levels were measured and then assessed using draft CIRIA guidance and the Wilson & Card methodology. The phase 2 report identified the presence of potentially significant levels of flammable gas and carbon dioxide in northern site perimeter boreholes and off-site boreholes located along Pentathlon Way. These levels of gas were considered to have the potential to cause significant harm to local residents and housing and further investigation is therefore deemed necessary.

The enclosed spaces monitoring for landfill gases at the Prince of Wales Stadium and the Recreation Centre did not indicate that any gases were present at levels considered likely to be a risk to site users.

No asbestos contamination of the soils on site was identified.

A summary of the way in which Cheltenham Borough Council considers that the requirements of the statutory guidance have been satisfied

Based on the information and assumptions detailed within the phase 1 and 2 reports, Cheltenham Borough Council are satisfied that the pollutant linkages listed in Table 1 of this schedule, exist on the site. Cheltenham Borough Council believe that the identified linkages have resulted in the pollution of controlled waters and migration of landfill gas off site and could result in a significant possibility of significant harm, as defined in the statutory guidance.

The requirements of the statutory guidance have therefore been satisfied and the area of land at Marle Hill (as identified on the attached map) has been determined as contaminated land and is designated as a special site.