Application SCR evaluation template

Name of activity, address and NGR	INEOS Compounds Aycliffe Limited Ineos Compounds Aycliffe Limited Swindon, Units 1-4 Newcombe Drive, Hawksworth Trading Estate, Swindon, Wiltshire, SN2 1DX National Grid Reference: SU 14320 85390. Environmental permit EPR/FP3339RX/S002.

Document reference of application SCR	Ineos, Swindon, Site Closure and Permit Surrender: Site Condition Report, dated July 2016, report number R5513/05, prepared by ESG. Original Application Site Report, dated 20th December 2004, report reference 64-C8329, prepared by ENVIRON UK Ltd.

Date and version of application SCR	The following documents were submitted on 9th August 2016 in support of the application to surrender the permit:
	
	• Appendix A – Plans:
	  ○ Site Location Plan, dated February 2006.
	  ○ Site Layout and Installation Boundary, dated December 2004.
	  ○ Plant Layout, dated December 2004.
	  ○ Schedule 5 of permit EPR/FP3339RX: Site Plan.
	  ○ Delineation Exploratory Hole Location Plan, drawing number 01/OC/1013.
	
	• Appendix B – Doeflex Vitapol, Hawksworth: Application for a Permit to Operate a Part A1 Installation under the Pollution, Prevention and Control (England and Wales) Regulations 2000, dated 20th December 2004, report reference ENVIRON 64-C8329, prepared by ENVIRON UK Ltd.
	
	• Appendix C – First Phase Reporting of SPMP with Reference Data, dated February 2006, report reference ENVIRON 64-C9531, prepared by ENVIRON UK Ltd.
	
	• Appendix D – Geoenvironmental Interpretative Report on Ground Investigation, dated March 2016, report number R5513/1, Issue 3, prepared by ESG.
	
	• Appendix E – Geoenvironmental Interpretative Report on Ground Investigation: Machine Pit Sampling, dated February 2016, report number R5513/2, prepared by ESG.
	
	• Appendix F – Removal of Hotspots: Machine Pit, dated April 2016, report number R5513/3, prepared by ESG.
	
	• Appendix G – Letter Report: Sampling, Laboratory Analysis and Waste Classification Assessment,

	dated 19th May 2016, report number R5513/004, prepared by ESG. • Appendix H – Letter Report: Report on Further Delineation Around Excavations A and B Within Unit 2, dated 26th April 2016, report number R6015/001, prepared by ESG. • Appendix I – Letter Report: Report on Further Delineation From Eastern Face of Excavation A Within Unit 2, dated 28th June 2016, report number LO/R5513/002/LD, revision 1, prepared by ESG. • Appendix J – Environment Agency Correspondence. • Appendix K – Environment Agency EPR CAR Forms. • Appendix L – ISO 14001 Audit Reports. • Appendix M – Incident Reports. • Appendix N – Drainage Survey.

1.0 Site details

Has the applicant provided the following information as required by the application SCR template?

Site plans showing site layout, drainage, surfacing, receptors, sources of emissions/releases and monitoring points

Provided in support of Environmental Permit application EPR/VP3439SB; accepted and determined on 09/09/2005.

2.0 Condition of the land at permit issue

(Receptor)

Has the applicant provided the following information as required by the application SCR template?

a) Environmental setting including geology, hydrogeology and surface waters
b) Pollution history including:
- pollution incidents that may have affected land
- historical land-uses and associated contaminants
- visual/olfactory evidence of existing contamination
- evidence of damage to existing pollution prevention measures

c) Evidence of historic contamination (i.e. historical site investigation, assessment, remediation and verification reports (where available)
d) Has the applicant chosen to collect baseline reference data?

The Application Site Report (ASR) contained details of:

a) the environmental setting: geology, hydrogeology and hydrology (made ground, overlying Kimmeridge Clay, and Upper and Lower Corllian; minor aquifer, shallow perched groundwater encountered);

b) Pollution history:

- *site history (the facility was operational from 1975, and historic uses of the area occupied by the installation include an engine shed and railway sidings operated by Great Western*

2.0 Condition of the land at permit issue
(Receptor)

Has the applicant provided the following information as required by the application SCR template?

Railway, an electrical substation, liquid storage of unknown material/s within tanks);
- *site reconnaissance undertaken on 24th November 2004;*
- *substances used and stored on site together with a list of all waste streams arising at the site are listed in Appendix D1.*

c) *Information on historic contamination was provided in section 6.4 and Appendix C4 through the undertaking of a desk study and site reconnaissance – no previous site investigation or assessment reports had been carried out at the site.*

d) *No baseline data was collected at the time of the ASR, however, a site investigation of soil and groundwater was carried out in 2006.*

The SPMP divided the site into 6 zones:

- *Zone 1: External bunded diisoctyl-phthalate (DIOP) storage tanks (4 tanks) and non-bunded diesel above ground storage tanks (AST).*
- *Zone 2: External toluene flammables store, compressor house, bunded waste water AST and electricity substation.*
- *Zone 3: Internal raw and waste materials storage area.*
- *Zone 4: Unsurfaced yard and electricity substations.*
- *Zone 5: External waste storage area at the rear of unit 5.*
- *Zone 6: Non-target zone.*

Areas of potential contamination are described in sections 2.4.3 – 2.4.8:

- *Zone 1:*
  - *The diesel tank is neither fitted with secondary containment nor situated on an impermeable base.*
  - *Evidence of leakages around the base of the bund and cracks within the masonry of the DIOP tanks.*
  - *Black staining was also noted on areas of the un-made ground at the base of the bund indicating recent or ongoing leakages in the vicinity of the DIOP tanks and diesel tank.*
- *Zone 3 – This included the storage of a number of 205 litre drums within Unit 3, without secondary containment adjacent to an access door. Although the building structure would provide some containment in the event of a leak or spill, it is considered that this would be compromised by the adjacent access doorway.*
- *Zone 5 – The ground was heavily stained and puddles of oily liquid were observed within the vicinity of the compactor.*

The investigation in 2006 comprised of 4 boreholes and 12 window samples. The details of the locations are below:

- *Zone 1 – One borehole (BH1) and two window samples (WS1 and WS2).*
- *Zone 2 – One borehole (BH2) and two window samples (WS3 and WS4).*
- *Zone 3 – One window sample (WS5), and was installed with a groundwater monitoring well (although no groundwater was encountered).*
- *Zone 4 – Three window samples (WS6, WS7 and WS8).*
- *Zone 5 – Three window samples (WS9, WS10 and WS11).*
- *Zone 6 – Two boreholes (BH3 and BH4) and one window sample (WS12).*

Soil samples were taken from all of the zones and groundwater samples from zones 1, 2, 4 and 6.

A copy of the map from Appendix A2 of the SPMP showing the sample locations (Figure 1) is on page 5.

The soil analysis results indicated the following:

- *Zone 1:*
  - *Elevated levels of extractable petroleum hydrocarbon (EPH) found at 9,400mg/kg from*

2.0 Condition of the land at permit issue
(Receptor)

Has the applicant provided the following information as required by the application SCR template?

WS1 at 0.7m bgl and 870mg/kg from WS2 at 1.2m bgl.
    - *The pH range was considered to be elevated in relation to the rest of the site, where a pH of 10.9 was detected at WS2 at 0.8m bgl.*
- *Zone 2: were found at the following locations:*
    - *Elevated levels of EPH found at 6,700mg/kg from WS3 at 0.9m.*
    - *Elevated concentrations of DiButylTin (1,400mg/kg) and TriButylTin (8.3mg/kg) were detected in WS3 at 0.9m bgl in Zone 2.*
    - *VOCs – Elevated concentrations of toluene were detected in BH2 (25µg/kg at 1.5m bgl and 56 µg/kg at 7.0m bgl) and in WS3 (66µg/kg at 0.9m). in addition, elevated levels of dichloromethane (69µg/kg), n-propylbenzene (30µg/kg), 1,2,4 trimethylbenzene (210µg/kg), 1,3,5 trimethylbenzene (70µg/kg) and 4-isopropyltoluene (21µg/kg) were detected in WS3 at 0.9m bgl.*
- *Zone 3 – The concentration of nickel (59mg/kg) was considered to be elevated.*
- *Zone 4 – The concentration of chromium (55mg/kg in WS7 at 0.1m bgl) was considered to be elevated.*
- *Zone 5:*
    - *Elevated concentrations were detected of copper (730mg/kg in WS10 at 0.4 bgl and 560mg/kg in WS10 at 1.4m bgl) and chromium (55mg/kg in WS10 at 1.4m bgl).*
    - *Poly-aromatic hydrocarbons (PAH) was detected at 47.73mg/kg at 1.4 bgl in WS10 and was considered to be elevated.*
    - *Semi-volatile organic compounds (SVOCs) – elevated concentrations of benzene (33µg/kg)*
    - *A pH of 11 was detected at WS9 at 0.1m bgl and is considered to be elevated with regards to the site.*
- *Zone 6:*
    - *PAH was detected at 325mg/kg at 0.5m bgl in BH4 and was considered to be elevated.*
    - *SVOCs – elevated concentration of dichloromethane detected at 250µg/kg in BH4 at 0.5m bgl.*
    - *EPH was detected at 3,800mg/kg in BH4 at 0.5m bgl and was considered to be elevated in relation to both Zone 6 and the site.*
    - *Elevated concentrations were detected of arsenic (57mg/kg in BH4 at 0.5m bgl and 62mg/kg in WS12 at 0.4m bgl), copper (560mg/kg in WS12 at 0.4m bgl), lead (900mg/kg in BH4 at 0.5m bgl and 14,000mg/kg in WS12 at 0.4m bgl), selenium (7.1mg/kg in WS12 at 0.4m bgl) and zinc (610mg/kg in BH4 at 0.5m bgl).*
    - *Total cyanide was detected in BH4 at 42mg/kg at 0.5m bgl.*

The groundwater analysis results indicated the following:

- *Zone 1 – The concentration of total cyanide (0.36mg/l) was considered to be elevated in relation to other samples taken from the site.*
- *Zone 2:*
    - *Boron was considered to be elevated at 0.53mg/l.*
    - *VOCs – only 1,3,5 trimethylbenzene (2 µg/l) was detected above laboratory detection limits.*
- *Zone 4 – The concentration of nickel (0.079mg/l) was considered to be elevated.*
- *Zone 6:*
    - *Chromium was considered to be elevated at 0.039mg/l).*
    - *PAH was detected at 135.8 µg/l and was considered to be elevated.*

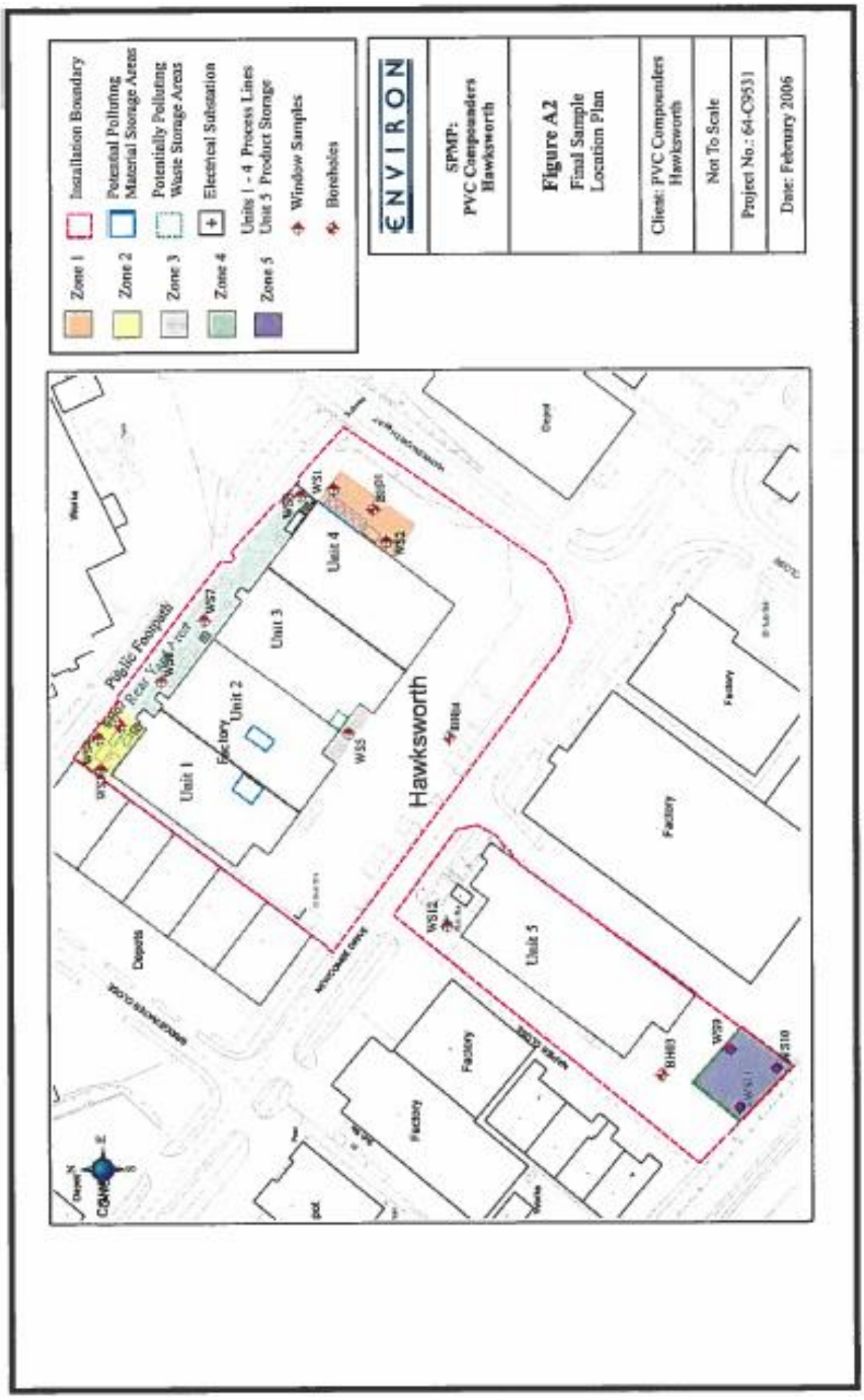

Figure 1: Map showing sample locations from 2006 site investigation.

3.0 Permitted activities
(Source)

Has the applicant provided the following information as required by the application SCR template?	Response (Specify what information is needed from the applicant, if any)
a) Permitted activities b) Non-permitted activities undertaken at the site	

The site was regulated under the following activity:

- *Section 4.2 part A(1) (d) Unless falling within another Section of this Schedule, any manufacturing activity, other than the application of a glaze or vitreous enamel, involving the use of any compound of the following elements –*
  - *Antimony;*
  - *Arsenic;*
  - *Beryllium;*
  - *Indium;*
  - *Lead;*
  - *Palladium;*
  - *Platinum;*
  - *Selenium;*
  - *Tellurium;*
  - *Thallium.*

(The installation had nine manufacturing lines (Line 1, 2, 3, 4, 7, 8, 9, 10 and 12), each of which constitute a separate listed activity under the above definition.)

The facility also included the following directly associated activities:

- *Raw materials storage*
- *Waste storage and handling*
- *Cooling towers*

The activities comprised a single installation because the associated activities formed supporting processes to the listed activity at the installation.

The installation developed, manufactured and supplied polyvinyl chloride (PVC) compounds for the thermoplastic and thermoforming industries.

3.0(a) Environmental Risk Assessment
(Source)

The H1 environmental risk assessment should identify elements that could impact on land and waters, cross- referenced back to documents and plans provided as part of the wider permit application.

The Environment Agency reviewed the applicant's environmental risk assessment and assessment of the effectiveness of pollution prevention measures. The information submitted indicated that was a reasonable possibility' of future pollution of the land. Therefore it was determined that a Site Protection and Monitoring Plan (SPMP) would be required for assessment and approval, and reference conditions established for the site.

3.0(b) Will the pollution prevention measures protect land and groundwater?
(Conceptual model)

Are the activities likely to result in pollution of land?

As stated above, it was identified in the application supporting information that there was a reasonable possibility of land pollution. However, there were no direct or indirect discharges of wastewater or

chemicals to groundwater and interceptors were present to collect and contain accidental spills and leaks. The permit was issued with conditions requiring the production of a SPMP and improvement conditions. *Improvement Condition 3 requires the operator to produce a report summarising the results of an assessment of the surfacing and containment measures on site.* *This improvement condition was required because the application showed that there were shortfalls in measures to protect the land.* *The reviewing officer concluded that although adequate information to determine the application was submitted, there were certain data gaps and further information would need to be collected as part of the SPMP. Consequently they concluded that information regarding the following be collected:* • *The extent of historic pollution from current and previous uses of the land occupied by the installation.* • *The installation to be separated into site zones.* *They also required reference conditions to be established through the collection of reference data as part of the SPMP.* *A design SPMP was submitted to the Environment Agency in February 2006 and provided the results of the ground investigation.*	
For dangerous and/or hazardous substances only, are the pollution prevention measures for the relevant activities to a standard that is likely to prevent pollution of land?	*The submitted information did not provide adequate information in relation to the prevention measures in place at the site as discussed above.*

Application SCR decision summary	**Tick relevant decision**
Sufficient information has been supplied to describe the condition of the site at permit issue	Yes
Pollution of land and water is unlikely with the conditions set within the permit	No
Historical contamination may be present- advise operator that collection of background data may be appropriate	Yes
Date and name of reviewer: (signature of authorising officer on permit)	J R Murphy 9th September 2005

Operational phase SCR evaluation template

Sections 4.0 to 7.0 may be completed annually in line with normal record checks.

4.0 Changes to the activities (Source)	
Have there been any changes to the following during the operation of the site?	**Response (Specify what information is needed from the applicant, if any)**
a) Activity boundaries b) Permitted activities c) "Dangerous substances" used or produced	
a) No amendments have been made to the installation boundary or layout of the site during the lifetime of the permit. *b) Since the issue of the permit, there have been no significant changes to the installation that have required the permit to be formally varied.* *c) Two "dangerous substances" not identified in the Application Site Condition Report were identified at the site after decommissioning. They included the following SVOCs;* • *bis(2-ethylhexyl)phthalate* • *di-n-octylphthalate* *All other dangerous substances used or stored at the site are detailed in the Appendix D1 of Application Site Report (dated December 2004) (see SCR Appendix B).*	

5.0 Measures taken to protect land (Pathway)
Has the applicant provided evidence from records collated during the lifetime of the permit, to show that the pollution prevention measures have worked?
The surrender application provides information on the site infrastructure and integrity of containment measures. Site above-ground infrastructure, including tanks, associated pipework and secondary containment, was checked regularly by an in-house inspection team, using a defined checklist. The frequency of the inspections was determined using risk assessments. *The ASR identified a number of deficiencies relating to secondary containment and hardstanding, which were the following:* • *Secondary containment – site reconnaissance indicated that not all of the bunding is impermeable to the substance stored within the tanks the bunding surrounds. Also, deficiencies were identified within the inspection and maintenance routines for the containment systems.* • *Hardstanding – not all of the site was covered by hardstanding, this included areas where some raw and waste materials are stored, significantly increasing the potential for accidental releases to enter the underlying ground.* *These issues were addressed through an improvement condition within the permit and later confirmed by the inspecting officer to have been completed.* *The report also states that the installation had an Environmental Management System that was approved against ISO 14001 since 1997.* *The report indicates that the pollution prevention measures in place at the site have worked.*

6.0 Pollution incidents that may have impacted on land and their remediation (Sources)

Has the applicant provided evidence to show that any pollution incidents which have taken place during the life of the permit and which may have impacted on land or water have been investigated and remediated (where necessary)?
The site maintained an incident register throughout the lifetime of the permit. During the operational phase of activity at the site, several pollution incidents were recorded. A copy of the incident reports including remedial actions are provided in Appendix M of the surrender application. *A summary of relevant recorded incidents is provided as follows;* • *24/01/13 – Oil spillage from oil station adjacent to D.I.O.P bund at Unit 4 Yard. Spillage cleaned from surface drains and interceptor and sealed in 45 gallon drums. All traces of oil spillage removed. No associated ground or groundwater contamination.* • *26/06/13 – Accidental discharge of 3000kg K66 PVC resin (powder) at Unit 4 Yard. Yard clean up carried out and spilled material removed. No associated ground or groundwater contamination.* • *10/02/11 – Oil spillage at Unit 4 D.I.O.P pump. Spillage limited to yard area and did not enter surface drains. Area cleaned up with oil absorbent materials. No associated ground or groundwater contamination.* *All incidents were fully recorded with the root causes being identified and appropriate follow-up actions taken if required.*

7.0 Soil gas and water quality monitoring (where relevant)
Where soil gas and/or water quality monitoring has been undertaken, does this demonstrate that there has been no change in the condition of the land? Has any change that has occurred been investigated and remediated?
N/A – no soil, gas and water quality monitoring was undertaken at the site during its operational phase.

Surrender SCR Evaluation Template

If you haven't already completed previous sections 4.0 to 7.0, do so now before assessing the surrender.

8.0 Decommissioning and removal of pollution risk

Has the applicant demonstrated that decommissioning works have been undertaken and that all pollution risks associated with the site have been removed? Has any contamination of land that has occurred during these activities been investigated and remediated?

The site was decommissioned in 2015/16 in accordance with the closure plan as detailed in Section 2.11 of the Permit Application Report (included as Appendix B in the surrender application). This involved the removal of all waste materials and plant, following full cleaning of the site. A summary of decommissioning is provided as follows:

- *Removal of storage tanks.*
- *Decontamination and removal of all distribution pipework and process lines.*
- *Removal of all IBC's and bulk storage tanks.*
- *Inspection and checking of all areas of the site for evidence of contamination.*
- *Investigation of suspected contamination and remediation.*

The inspecting officer has verified that the decommissioning is complete and all potential pollution risks have been removed from the site.

The operator carried out a site investigation to determine the condition of the site following the cessation of all permitted activities and decommissioning of the site. Further details of this are included in Section 9.0 Reference data and remediation.

9.0 Reference data and remediation (where relevant)

Has the applicant provided details of any surrender reference data that they have collected and any remediation that they have undertaken?

(Reference data for soils must meet the requirements of policy 307_03 Chemical test data on contaminated soils – quantification requirements). If the surrender reference data shows that the condition of the land has changed as a result of the permitted activities, the applicant will need to undertake remediation to return the condition of the land back to that at permit issue. You should not require remediation of historic contamination or contamination arising from non-permitted activities as part of the permit surrender.

<u>2015 site investigation:</u>
Following the decommissioning of the facility, a ground investigation was undertaken by ESG in November 2015. The scope of the investigation was designed to reproduce the sampling locations from the 2006 investigation to allow the comparison of results.

A generic human health risk assessment was undertaken by comparing the results with Generic Assessment Criteria (GAC) and comparison with the 2005 results, and it was concluded that the concentrations of metal and TPH are either comparable or have decreased in general. Whilst there had been an increase in the maximum concentrations for PAH's, SVOC's and VOC's between the two investigations, they were still below the relevant GAC's.

A controlled waters risk assessment was also undertaken and whilst a number of contaminants (including metals, PAH's and total TPH) indicated that there could be a potential risk from the perched groundwater, it was concluded that due to the distance to sensitive receptors and the underlying aquifer being protected by clay it was unlikely that any contamination could pose a significant risk to controlled waters. Furthermore the number of perched groundwater exceedances was found to have decreased between the 2005 and 2015 investigations, with the exception of selenium. It was concluded that due to the distance to sensitive receptors and that the site was underlain by substantial thickness of Kimmeridge Clay (Unproductive Strata), which would protect underling aquifers at depth, it was unlikely that any contamination could pose a significant risk to controlled waters.

Overall it was concluded that there had not been a significant degree of contamination between 2005 and 2015, and although there was some localised increases in some substances (which could be due improvements in accuracy of testing), it was not considered that the site would pose a significant risk to human health or to controlled waters at the time of decommissioning.

Further assessment of Bis(2-ethylhexyl)phthalate in ESGWS01 and ESGWS09:
An additional risk assessment was undertaken with respect to bis(2-ehtylhexyl)phthalate (found in ESGWS01 and ESGW09) at the request of the Environment Agency following the submission of the generic human health risk assessment. This risk assessment was to be carried out using residential or other more sensitive land use GAC's as elevated concentrations had been detected during the site investigation.

The results of additional risk assessment found that the concentrations of bis(2-ehtylhexyl)phthalate exceeded the relevant GAC for the residential with plant uptake and allotments end uses, but were below the GAC's for residential without plant uptake, public open space and commercial/industrial scenarios. It was therefore concluded that the site should undergo a further more detailed risk assessment or delineated and remediated, if it were to be redeveloped for a residential with gardens or allotments end use.

Machine pit sampling:
A series of soakaways were found during the decommissioning of the facility at the bottom of pits over which some of the machinery was located. Following some drainage testing it was found that they do not lead to any known site drainage and it was therefore concluded that the soakaways discharged straight to adjacent ground. It was requested by the Environment Agency, after a site inspection, that the material underneath the machine pits be sampled and analysed. This investigation work was undertaken by ESG in January 2016.

The scope of the fieldwork comprised a total of seven machine pits, approximately 0.5-0.6m deep within Units 2 and 3 on the site. Soil and groundwater samples were taken and a human health and controlled waters risk assessment was undertaken. It was also noted that visual and olfactory contamination was observed at majority of the locations during the fieldwork.

The generic human health risk assessment concluded that the only exceedance of the relevant commercial/industrial GAC's was TPH. However, elevated concentrations of bis(2-ethylhexyl)phthalate were recorded in two samples, as well as di-n-octylphthalate being recorded in a number of samples. It was concluded that the elevated concentrations were likely to have been associated with the machines located over the pits during operation, as a result of spillages and chemical usage, as both of the substances are used in the plastics industry.

Removal of hotspots – machine pits:
Following the machine pit sampling, it was recommended by the Environment Agency that the hotspots identified around ESGMPWS04 and ESGMPWS05 be removed due to the elevated concentrations of bis(2-ethylhexyl)phthalate recorded. Initial excavations undertaken in March 2016 indicated that the hotspots extended beyond the machine pit walls in most directions, and so additional delineation was carried out in April and May 2016. The contaminated soil was excavated from the ground for removal from the site, and the works were completed in June 2016 following subsequent sampling to confirm validation.

The site remediation work was accepted by the Environment Agency on 20th June 2016.

Site maps (figures 2 and 3) showing the sampling locations are included on pages 13 and 14.

10.0a Statement of site condition

Has the applicant provided a statement, backed up with evidence, confirming that the permitted activities have ceased, decommissioning works are complete and that pollution risk has been removed and that the land and waters at the site are in a satisfactory state?

The applicant is not solely relying on records obtained during the operational phase of the activity, having undertaken soil and groundwater investigations. The site has been decommissioned and demolished down to ground level, and all sources of potential pollution risk have been removed. The Environment Agency confirms that the permitted Ineos Compounds Aycliffe Limited Swindon installation has been returned to a satisfactory state.

10.0b Statement of site condition
Has the applicant provided a statement, backed up with evidence, confirming that the permitted activities have ceased, decommissioning works are complete and that pollution risk has been removed and that the land and waters at the site are in a satisfactory state?
Yes. *As per Section 9, following decommissioning of the site in 2015, ground investigations where undertaken. While a number of elevated contaminants where encountered, these where atypical given the general industrial heritage of the site pre permitted activities. It was noted they were comparable to levels encountered at around the time the permitted actives started. Levels of most contaminants, though elevated did not represent gross contamination.* *The one exception was bis(2-ehtylhexyl)phthalate which was significantly elevated in a number of locations. This was stored on site and was used as part of site operations. There was also pathways identified between areas of storage and use and the area of contamination identified. As such remedial works were required to remediate all identified hotspots.* *This comprised of soil removal and validation to an acceptable standard.* *The Environment Agency would agree that the operator has appeared to have satisfactorily chased out all of the known bis(2-Ethylhexyl)phthalate grossly impacted area and have carried out sufficient verification sampling and testing to demonstrate this. However, should the site be developed in the future then further investigations and remediation may be required.* *While some low levels of residual contamination which could be associated with the permitted activity may remain, the risk that these pose are so small it would be disproportionate to pursue further work. The Environment Agency confirms that they do not believe that there would be any ongoing risk to the receptors identified at the site.*

Surrender SCR decision summary	Tick relevant decision
Sufficient information has been supplied to show that pollution risk has been removed and that the site is in a satisfactory state – accept the application to surrender the permit; or	✓
Date and name of reviewers: Kirsty Hobbs (Permitting Officer – NPS) – 18/11/2016 Tom Wickens (Technical Officer – GW&CL) – 06/12/16	

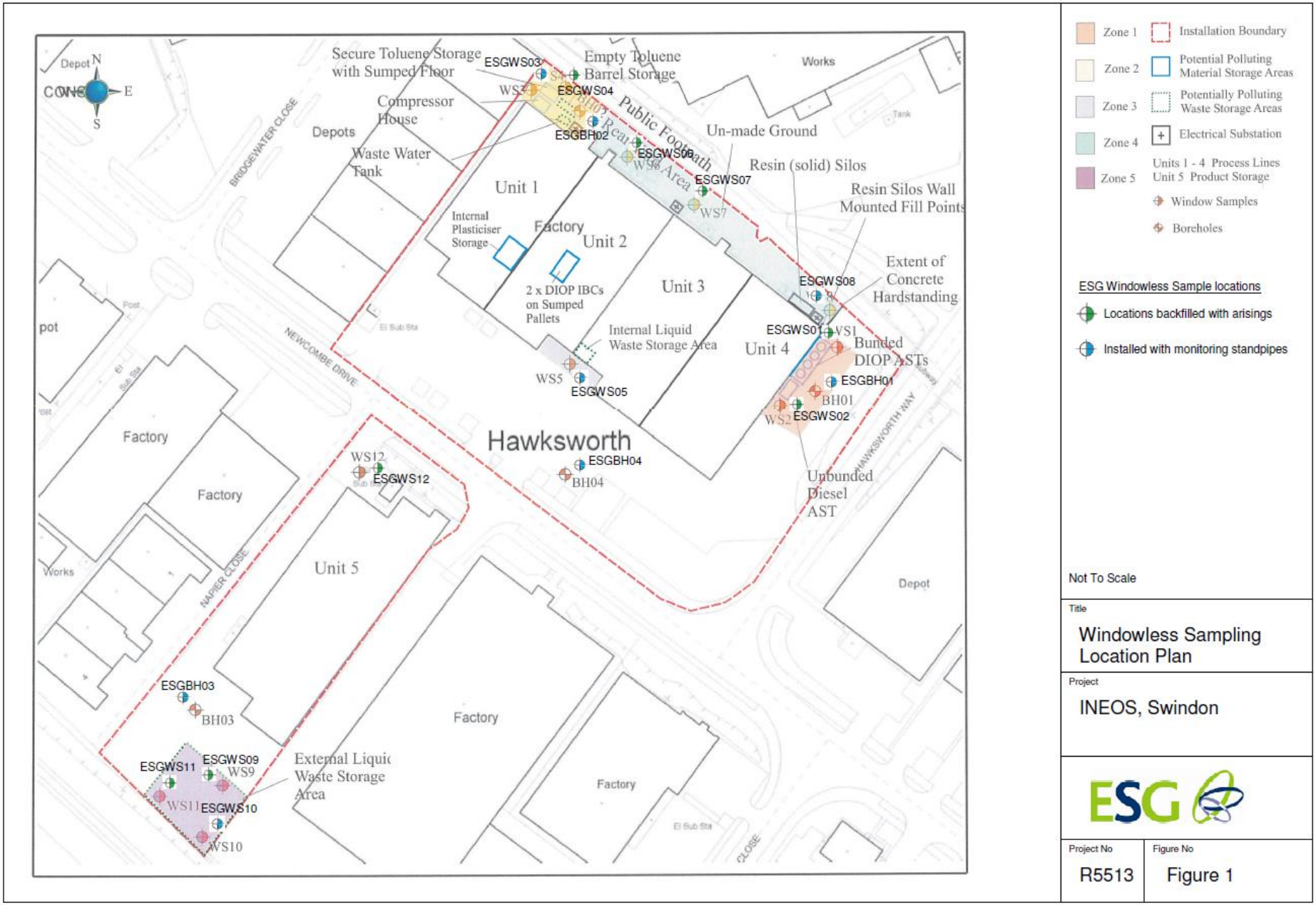

Figure 2: Map showing sample locations from 2015 site investigation.

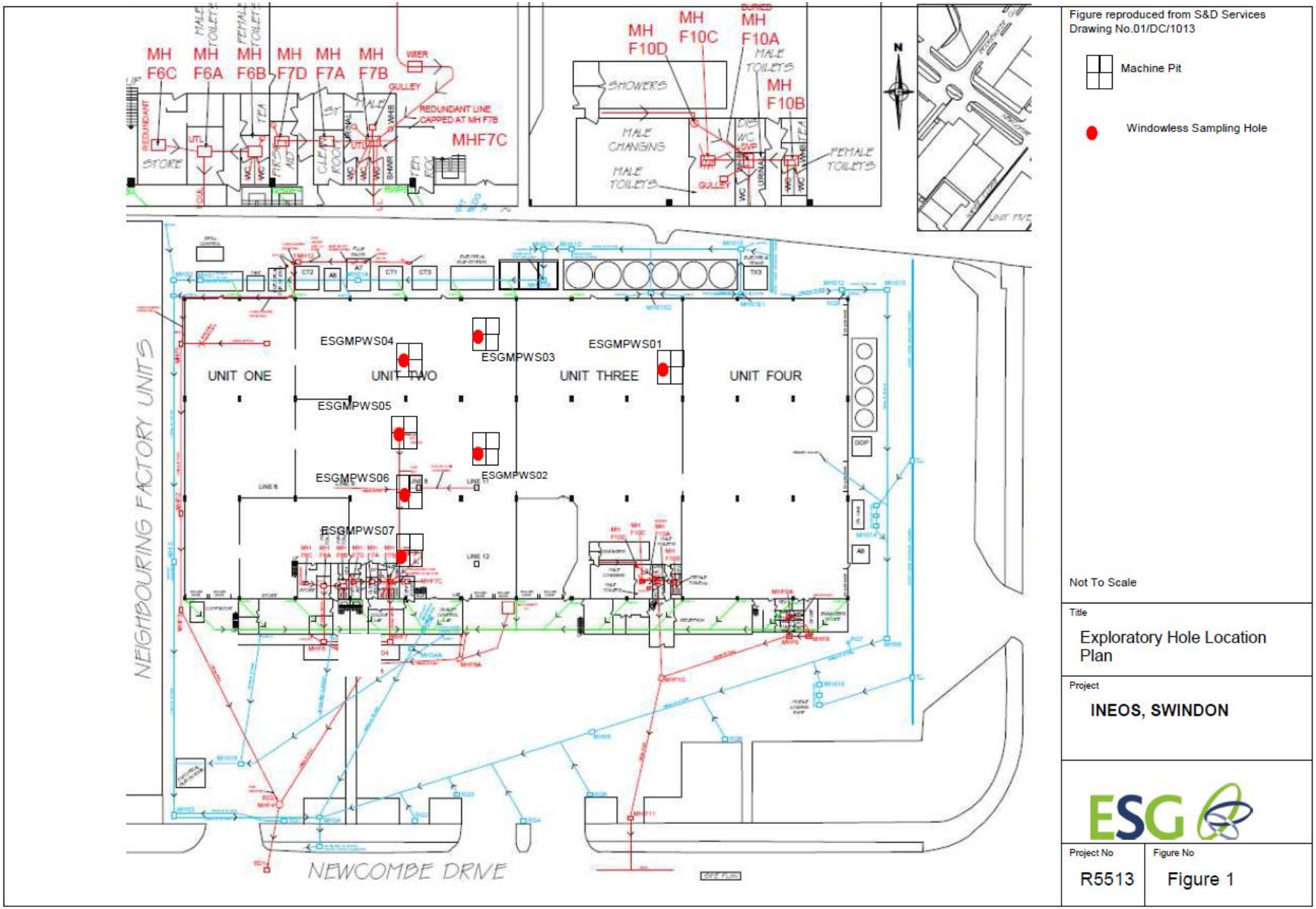

Figure 3: Map showing the sample locations from the January 2016 machine pit investigation.