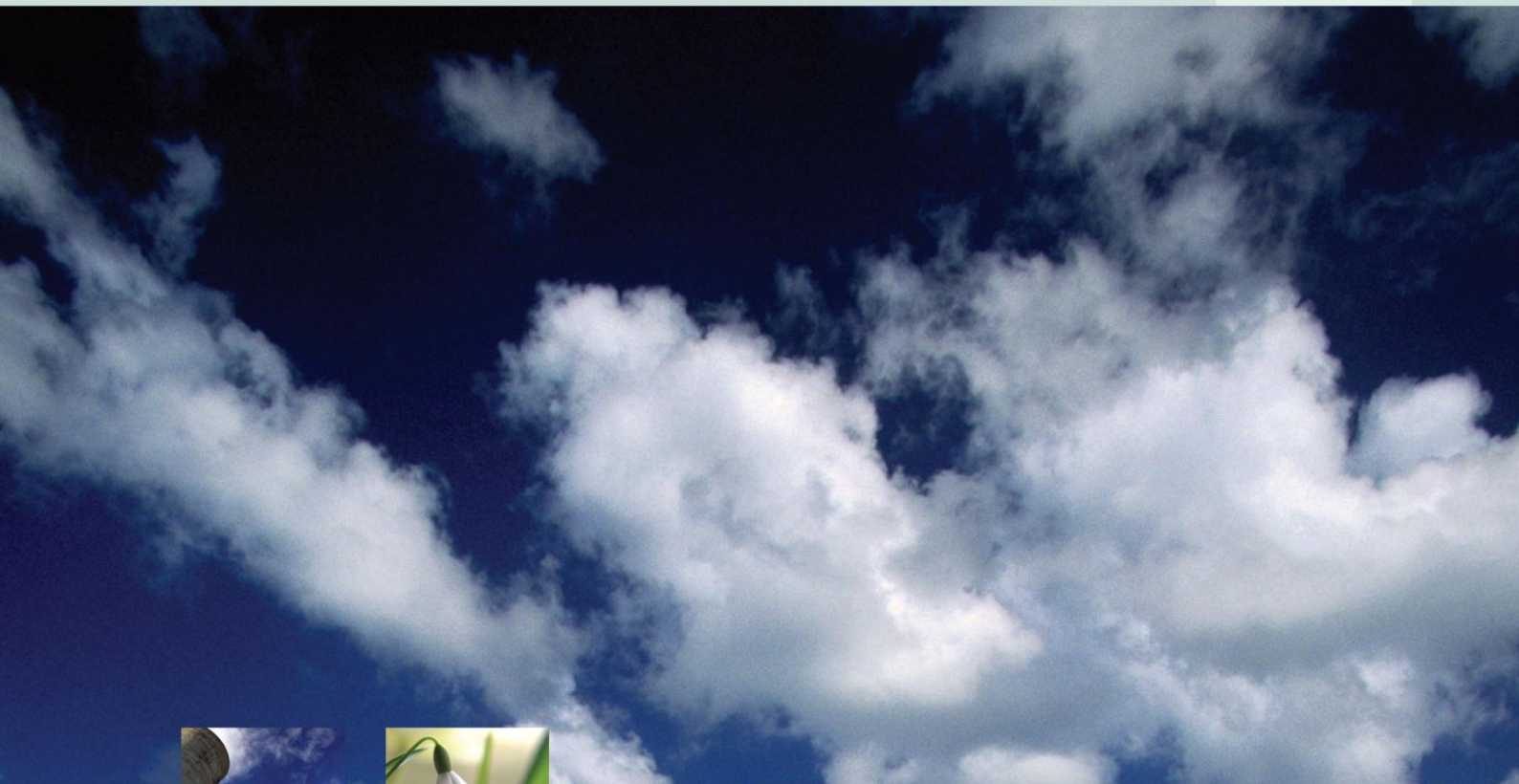




EPR PERMIT APPLICATION

**The Treatment Hub Ltd
Building 2 (Former Alcoa Buildings),
Westfield Industrial Estate,
Swansea**

Date:
March 2013

Project or Issue Number:
SOL0113ESP01

..

Contract/Proposal No:	SOL0113ESP01
Issue:	1
Author: (Reviewers Signature):	Sophie Perrin
	
Date:	March 2013

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1 INTRODUCTION

This document provides supporting evidence as required by Environmental Permit Application Forms Part B2 and B3. The application is made on the behalf of The Treatment Hub Ltd (*'The Company'* or *'The Applicant'*) by Sol Environment Ltd, and relates to a New Bespoke Installation Permit Application for the installation of a physical and chemical immobilisation facility at Alcoa Manufacturing (GB) Ltd existing site at Westfield Industrial Park, Waunarlwydd, Swansea, SA5 4SF.

It is the intention to use the facility as a regional specialist soils and materials treatment hub. The process will utilise proprietary clay formulations (referred to as 'Environmental-Clays' or 'Modified clays') in combination with cementitious material to treat the soils / materials for the purposes intended.

- The objective will be to either treat the soils /materials for
- reuse at either the source or another suitable location
- reuse as a raw material in product manufacture (in accordance with 'End-of-Waste' requirements)
- waste declassification to enable disposal at an inert / non-hazardous landfill (in accordance with landfill acceptance criteria)

The hub operation will be designed to operate in accordance with waste hierarchy principles as far as practically possible

The applicant has leased Building 2 from the site owners Alcoa Manufacturing (GB) who previously used the building for the operation of an aluminium hot rolling mill and associated ancillary production operations.

The activity is housed entirely within an existing industrial process building (the former hotmill building), which constitutes a single high bay, portal framed industrial building of approximately 7,641m². The building is provided with external access, parking and turning areas.

The proposed Installation will use the building for the operation of a proprietary hazardous and non-hazardous waste treatment (physical and chemical immobilization) process incorporating the use of modified clays and binding chemicals.

It is the intention to use the facility as a regional specialist soils and materials treatment hub. The process will utilise natural bentonite clay formulations (referred to as 'Environmental-Clays' or 'Modified clays') to recover the wastes for use as raw materials for the manufacture of brick/block products¹, landscaping, or safe disposal.

The treatment process will be permitted by the Environment Agency as a Waste Recovery Installation and be operated in accordance with the EPR 2010 Regulations. The proposed Installation meets the description of a Part A(1) process activity as defined by Section 5.4 'Recovery of Waste', Paragraph A(1)c(iii) namely;

¹ The use of the end product as raw material feedstock will be subject to an End of Waste determination application to Environment Agency Wales. This application will form a separate document to this permit application.

'Unless carried on as part of other Part A activity, recovering hazardous waste in a plant with a capacity of more than 10 tonnes per day by means of the following operation-

(iii) recycling/reclamation of inorganic materials other than metals and metal compounds (R5).

All activities associated with the proposed Installation will be carried out within the main building. There will be no storage or treatment activities carried out in any external areas. It is proposed to treat approximately 40,000 tonnes per annum.

A pre application meeting has been carried out with Paul Gibson, Environment Agency Wales in February 2013.

Further details of plant and equipment, emissions and impacts are detailed within the remaining sections of this document.

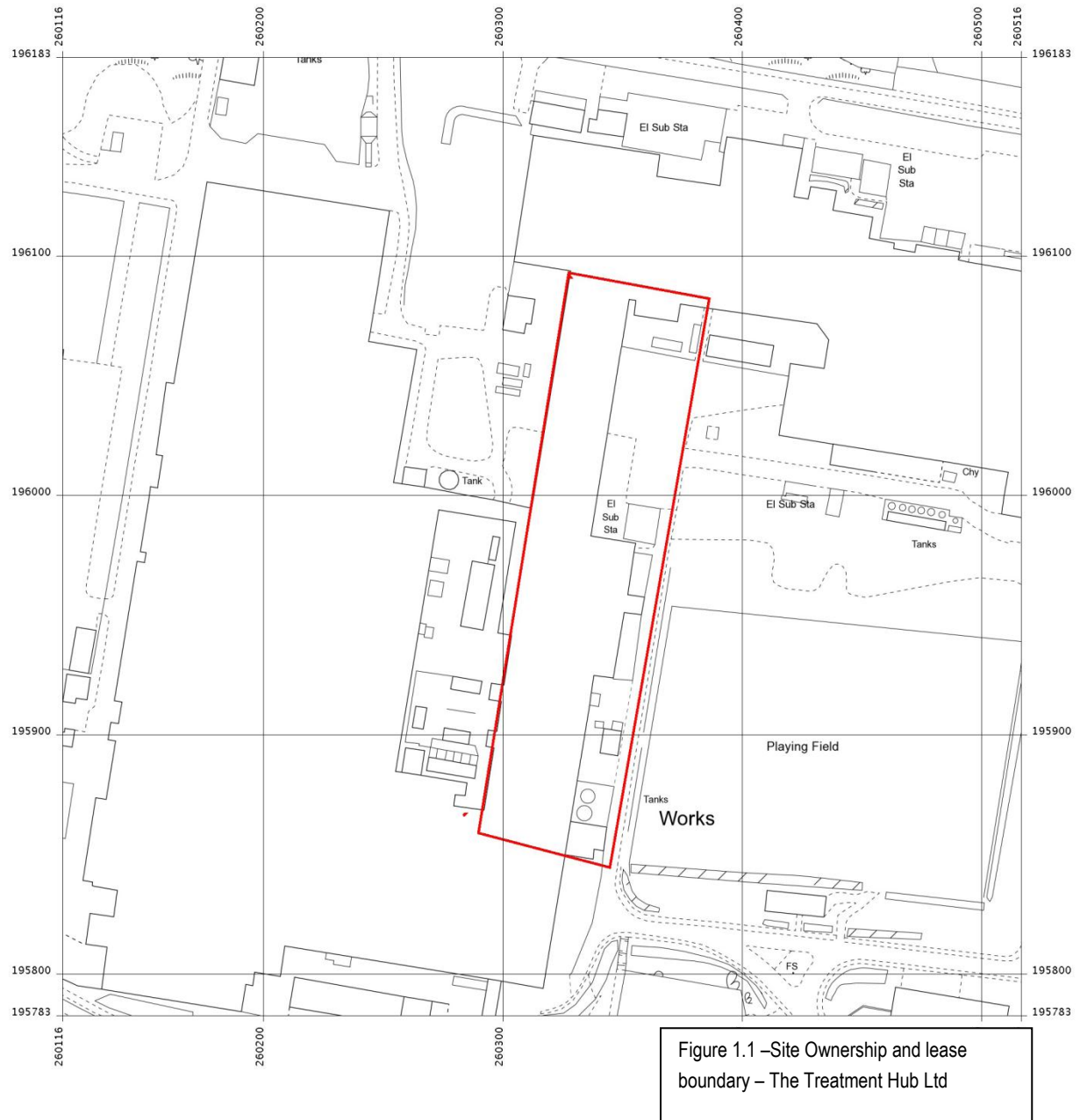
The document should be read in conjunction with the following Application Support Documents:

- EA Application Forms A, B2, B3 and F
- Operator Risk Assessment (SOL0113ESP_OPRA)
- Application Site Condition Report (SOL0113ESP_ASCR)
- Accident Management Plan (SOL0113ESP_AMP)

The remainder of this application support document is structured accordingly:

- Section 2: Provides a detailed planning history of the site and associated activities;
- Section 3: Provides specific details associated with the New Bespoke Installation Permit Application;
- Section 4: Provides specific nature and detailed description of the emissions to air and water associated with the installation;
- Section 5: Provides details of all environmental monitoring associated with the Installation;
- Section 6: Provides an Environmental Impact and Assessment of the Installation.

The Installation boundary of the installation is provided Figure 3.1.



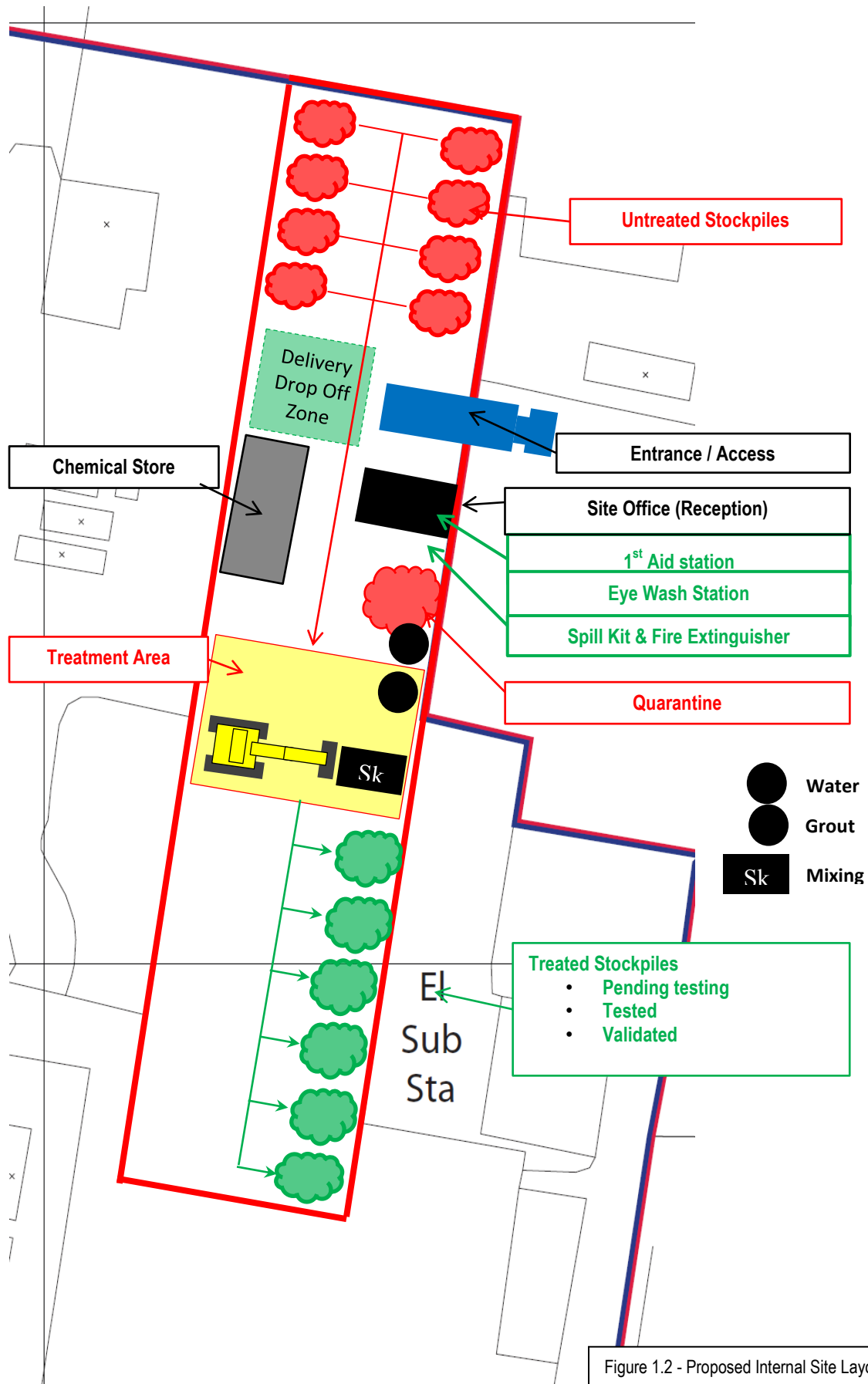


Figure 1.2 - Proposed Internal Site Layout

NON TECHNICAL SUMMARY

The Applicant ('The Treatment Hub Ltd') is making this application for a New Bespoke Installation Permit Application at Alcoa Manufacturing (GB) Ltd existing site at Westfield Industrial Park, Waunarlwydd, Swansea. The company wishes to introduce a new physical and chemical immobilisation operation.

This constitutes a New Bespoke Installation Permit Application under The Environmental Permitting (England and Wales) Regulations 2010.

The Treatment Hub seek to nominally process approximately 40,000 tonnes per annum of materials sourced from the local area for the production of clean raw materials and finished products (aggregate and insulation materials) for supply into the construction sector and other appropriate markets. The site will be designed to accept both hazardous and non-hazardous granular materials and soils in accordance with stringent site waste acceptance procedures.

The proposed facility has been initially specifically designed to process, recover and treat industrial filter cake but will also be used for the treatment of some similar hazardous materials in the same manner, in order to facilitate beneficial re-use and recovery.

It is the applicant's intention to provide this service to a number of local industrial businesses, predominantly within the steel and metals manufacturing sectors, as well as providing a regional (Swansea and South Wales) hub for the treatment of material arising from the contaminated land remediation sector.

The end product produced by The Treatment Hub's processes will both be transferred to an end user or used as a granular raw material feedstock for the manufacture of construction materials, or in the case of contaminated land derived materials is exported back to the original site for safe inert use or disposal.

For materials that are suitable as granular feedstock, The Treatment Hub considers their processed material to be 'fully recovered' and therefore 'ceasing to be waste'. The Treatment Hub will therefore be completing an 'End of Waste' determination application for consideration by Environment Agency Wales and are will be able to demonstrate that the material produced by their process can be regarded as a marketable product.

Technology Overview

Treatment Hub Ltd wishes to operate a waste recovery Installation for the treatment and processing of granular hazardous and non-hazardous materials. The wastes will comprise waste water effluent treatment filter cakes, contaminated soils and other similar materials.

The installation shall be located entirely within the existing site building and will generally comprise:

- **Materials Delivery Area:** Materials will be delivered by articulated lorries and stored for around one to two weeks within the building.
- **Materials Handling:** Material handling will be via 360 excavator and telehandlers.

- **Material Processing:** The process involves the introduction of water to activate/mix the Modified clay products, however this is absorbed into the soil matrix – it is in essence a non-liquid process. Physical plant includes the use of water tanks and Modified clay mixer pans and vessels.
- **Collection Areas:** Weekly/fortnightly treatment runs will be carried out and the output (non leachable) will be stored ready for collection by articulated lorries.

The proposed process is a proprietary treatment and recovery technology which utilises chemical and physical immobilisation techniques that incorporates the use of specially modified clays

The properties of this clay combined with their specialist formation can be applied for the effective remediation of soils and groundwater, enabling otherwise unusable materials to be brought back into effective use on a sound technical and commercial basis. The clays can be employed to treat both inorganic and organic materials.

Modified clays incorporate reactive reagents which chemically immobilise materials within the clay matrix. The clay formulations are designed on a specific project basis taking into account site specific requirements including the nature and concentrations of identified contaminants of concern and the preferred methodology.

By using a selected clay formulation (or in some cases a combination of clay formulations) the following group of pollutants/contaminants can be successfully treated:

- Aliphatic hydrocarbons;
- Aromatic hydrocarbons;
- Metals;
- Problematic species (e.g. hexavalent chromium, free and complex cyanides, ammonium etc.);
- Radionuclides; and
- Tributyltin (TBT).

Cementitious additives are often incorporated into the process, primarily to improve the physical and chemical properties of the treated material. The objective is to produce a chemically and physically stabilised treated material which can then be used as a product.²

In summary, The Treatment Hub Ltd wish to operate a chemical treatment process which stabilises and recovers contaminated soils, hazardous and non hazardous granular materials for use as an alternative to virgin mineral aggregates or to facilitate safe inert use or disposal.

Emissions to Air

There will be no point-source or fugitive emissions to air arising from the process.

Emissions to Water

Due to nature of process there will be no point source or fugitive emissions to water. All liquid waste emissions will be tankered off site for disposal.

² The use of the end product as raw material feedstock will be subject to an End of Waste determination application to Environment Agency Wales. This application will form a separate document to this permit application.

Emissions to Land

There will be no emissions to land arising from the installation, all materials processed at the site will either be fully recovered or rendered inert and will be transferred off site for safe inert reuse or disposal.

Waste Management

All materials processed at the site will either be fully recovered or rendered inert and will be transferred off site for safe inert reuse or disposal.

All materials are treated and stored internally within the confines of the existing site buildings.

2 PLANNING STATUS

The Treatment Hub Ltd (the Applicant) will be operating their process within the existing 'former Hotmill buildings' owned by Alcoa Manufacturing (GB) Ltd.

These building were constructed prior to the existence of the Town and Country Planning Act and therefore have existing extant permission for industrial uses.

The buildings have historically been used for the manufacture of rolled aluminium products and have as part of their ancillary uses, produced, treated and processed hazardous and non-hazardous filter cake materials. Alcoa decommissioned their hot rolling mill processes in 2006/7 and since then the building have remained dormant.

In bringing the buildings back into serviceable use the Applicant have consulted with The City and County of Swansea Planning and Development team and have subsequently made an application for 'Existing Lawful Use' of the buildings.

This permission was granted by The City and County of Swansea on the 7th January 2013.

Table 2.1: Planning History

Reference	Description	Status	Date Granted
2012/1587	Use of former industrial building (class B2) for the proposed use of a materials recovery plant (applications for Certificate of Proposed Lawful Use)	Final Decision	14/06/95

All documentation associated with the Planning Permission is provided within Annex 2.

3 PROPOSED NEW PERMIT

3.1 Type of Permit

Treatment Hub Ltd (the 'Operator' or 'Applicant') are making an application for a new Bespoke Installation Permit for the proposed installation of a Waste Recovery Process that uses physical and chemical immobilisation techniques.

The Treatment Hub seek to nominally process approximately 130 tonnes per week of granular hazardous and non-hazardous materials (industrial effluent treatment cake and contaminated soils) sourced from the local area for the production of clean raw materials and finished products (aggregate and insulation materials) for supply into the construction sector and other appropriate markets.

The site will be designed to accept both hazardous and non-hazardous granular materials and soils in accordance with stringent site waste acceptance procedures.

The anticipated throughput of the plant is not expected to exceed 40,000 tonnes per annum. The processes are all generally static, in situ treatment that requires plant/machinery use on a one day per week basis.

All aspects of the activity will be carried out internally. No processing or storage will be carried out externally.

The technical guidance note used in the preparation of this application document is '*EPR5.06 – The storage and treatment of hazardous and non hazardous wastes.*'

3.2 The Existing Site

3.2.1 Installation Boundary

All proposed new operations will be entirely contained within the existing buildings as shown in Figure A2, Annex A. The Installation boundary is shown in **GREEN**.

The Installation boundary does not extend beyond the building envelope and is shown in green below. All vehicular access roads and car parking areas are outside of the Installation Boundary.

It should be noted that the 'planning red line' against which permission was achieved extends to a far greater area than currently proposed for use, thus allowing for future expansion of the site when required.

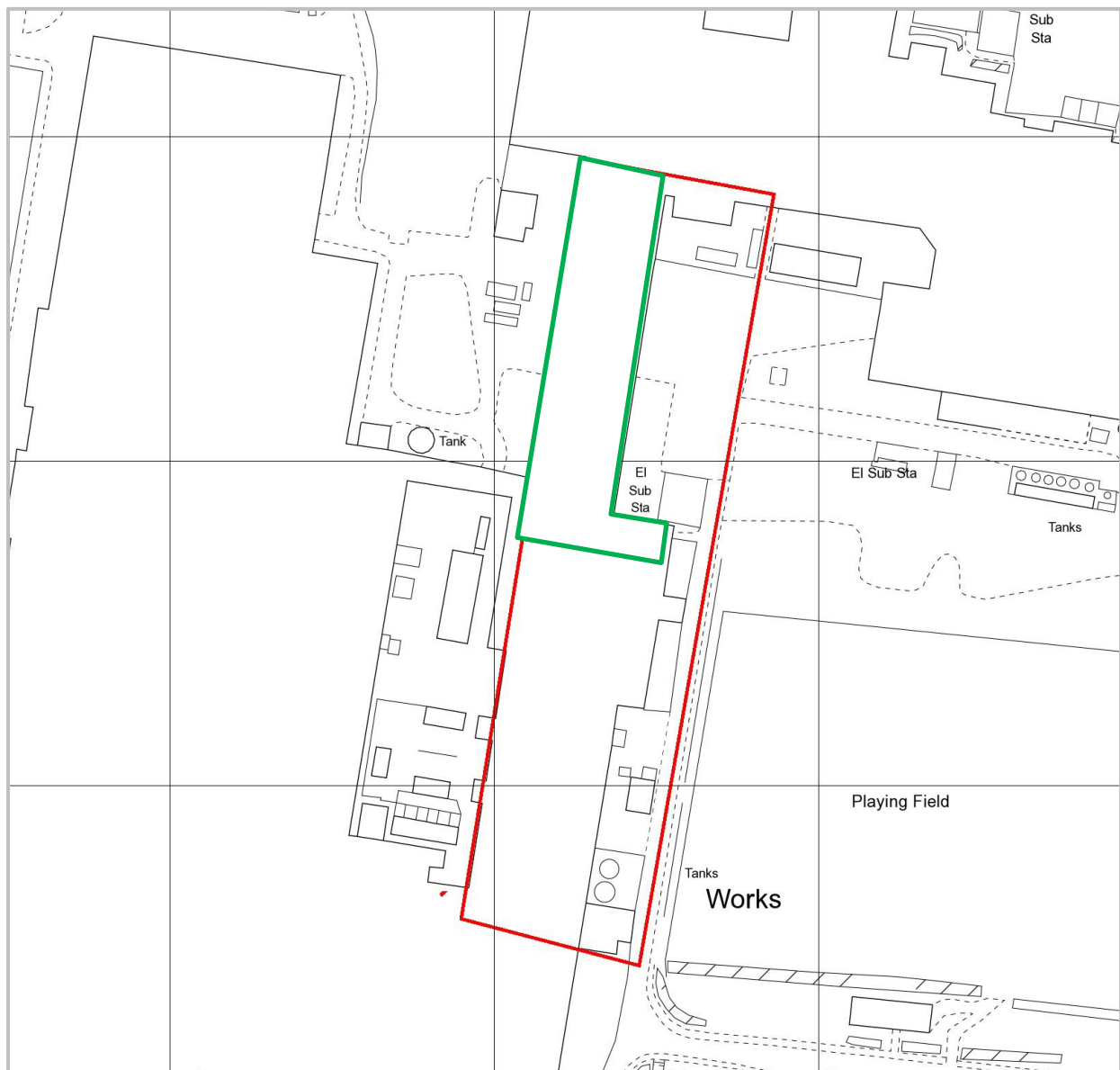


Figure 3.1 Installation Boundary

3.2.2 Infrastructure and design

There are no plans for the alterations or addition of new access, hardstanding of drainage facilities, providing no notable change to external site appearance or layout beyond the completion of minor fabric repairs if deemed necessary.

Existing Site Drainage Arrangements

The drainage arrangements on site will remain as existing, with no changes proposed as a result of this variation.

The existing drainage arrangements are as follows:

- All internal areas comprise impermeable concrete slabs with no internal drains;
- Tertiary containment is provided by the building floor slabs and building lower walls;
- There are no effluent emissions arising from the proposed process.
- All domestic effluent (toilets, sinks etc) discharge to a foul drainage system.

In the event of a fire, all fire water would be contained on site.

Hardstanding

All internal areas and comprise impermeable concrete slab construction with no internal drains being present.

The building is constructed with solid masonry walls which in turn provide a high degree of tertiary containment. Threshold protection across all access doorways will be provided to ensure that any liquids, hazardous or non-hazardous are retained within the main building.

The previous use of the buildings as rolling mill necessitated substantial reinforced concrete foundations and load bearing flooring to be installed throughout. The thickness of the flooring is known to exceed 300mm in all areas and be in excess of 10mm thickness in areas immediately adjacent to the former mill structures.

There are no external surface water drains on site, therefore all external surface water 'runs off' to the wider surface water drainage system provided by the industrial estate.

Tanks and Bunds

The process requires the use of proprietary admixtures and chemicals all of which are stored in small volume containers and tanks.

The entire chemical storage area is located on a dedicated secondary containment area located away from the vehicle access and delivery areas.

All static and mobile tanks present on site will be equipped with secondary containment round bund. All tanks are labeled to identify contents and will be compliant with the Oil Storage Regulations (OSR) requirements and pollution prevention Guidance Note PPG2 'Above Ground Storage Tanks'.

Chemicals will generally be stored in small volume containers and/or IBC's. There are no large volume process related storage tanks associated with the Installation.

3.2.3 Building design and layout

The Treatment Hub will be utilizing the existing buildings, as shown in Figure 2.1. There will be no changes to the existing buildings.

The building is a substantial high bay industrial building, with masonry lower walls and clad portal frame. Externally the building is finished with metal profile clad sheeting above a facing brick lower course. The roof structure is predominantly steel profile cladding on a pitched steel truss frame. A series of roof lights helps to give the building good interior lighting.

The internal process layout has been provided in Section 2.

3.3 Description of the Process

3.3.1 Description of the Process

The treatment/recovery process is a physico-chemical operation designed to stabilise any potential contamination issues associated with the hazardous and non-hazardous industrial filter cake or contaminated soils and other selected wastes in accordance to Table 3.3. The treatment process transforms the waste feedstocks into an inert granular material that can be used as a raw material for the construction industry or for safe inert uses such as landscaping or aggregates.

The process involves the treatment of filter cake waste or other selected waste streams, with a combination of cementitious materials, which will provide the requisite properties of the product, and a suitable Modified clay formulation to chemically immobilise potential pollutants of concern and to ensure that the product is non-polluting. The treatment process essentially involves encapsulation in which there are no material changes to the individual components.

The designated clay formulation will comprise of modified pillared clays designed to sorb and chemically immobilise the identified contaminants of concern.

The use of modified clays provides additional safeguards in this respect as the contaminants of concern will be chemically immobilised within the clay matrix structure. This immobilisation process will also significantly reduce the risks associated with potential leachability of the hydrocarbons contained within the treated medium, thereby addressing the requirement for the treated material to be non-polluting.

The cementitious additives will provide the necessary physical properties to enable the treated material to be used as a product.

The main processes of the operations are summarised below:

- **Reception:** Operator-owned vehicles or registered waste carriers will deliver appropriate waste to the site. All unsuitable waste will be returned or disposed of. Wastes accepted into the site will be unloaded and fed into the treatment operation.
- **Treatment Operation:** Designated wastes streams will be cut into smaller pieces and mixed with Modified clay and cementitious additives. The treated material will then be stockpiled.
- **Validation Process:** All material will be subject to visual assessment as well as physical and chemical analysis.
- **Final Storage:** All material is stored until distributed.

A simple process flow diagram is provided in Figure 3.2

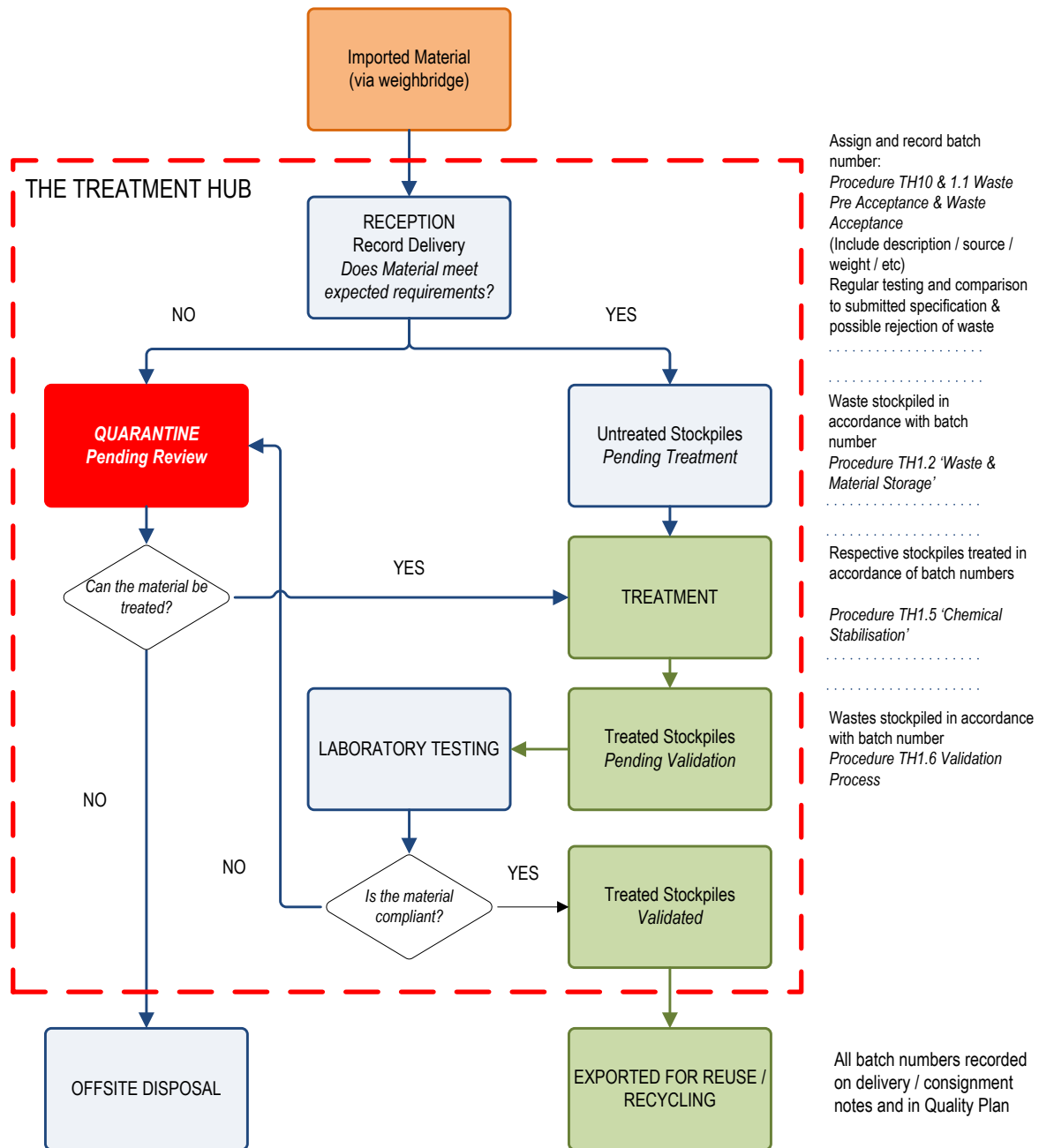


Figure 3.2. Simplified Process Schematic

3.3.2 Raw Materials

3.3.2.1. Waste Feedstock's

Table 3.1 shows the types of waste to be accepted on the site.

Table 3.1: Proposed Waste Quantities	
Waste general type	Applicable EWC Codes
11. Wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy	
Sludges and filter cake containing dangerous substances	11 01 09
Sludges and filter cakes other than those mentioned in 11 01 09	11 01 10
17. Construction and demolition wastes (excluding soil from contaminated sites)	
Soil and stones containing dangerous substances	17 05 03*
Soil and stones other than other mentioned in 17 05 03	17 05 04
19. Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use	
Filter cake from gas treatment	19 01 05
Bottom ash and slag containing dangerous substances	19 01 11
Bottom ash and slag other than those mentioned in 19 01 11	19 01 12
Fly ash containing dangerous substances	19 01 13
Fly ash other than those mentioned in 19 01 13	19 01 14
Sludges from physic/chemical treatment containing dangerous substances	19 02 05
Sludges from physic/chemical treatment other than those mentioned in 19 02 05	19 02 06
Waste marked as hazardous partly stabilised	19 03 04
Stabilised waste other than those mentioned in 19-03-04	19 03 05
Wastes marked as hazardous, solidified	19 03 06
Solidified wastes other than those mentioned in 19 03 06	19 03 07
Sold wastes from soil remediation containing dangerous substances	19 13 01
Solid wastes from soil remediation other than those mentioned in 19 13 01	19 13 02
Sludges from soil remediation containing dangerous substances	19 13 03
Sludges from soil remediation other than other mentioned in 19 13 03	19 13 04
Sludges from groundwater remediation containing dangerous substances	19 13 05
Sludges from groundwater remediation other than those mentioned in 19 13 05	19 13 06

3.3.2.1. Chemicals and consumable products

The installation will require the use of a number of natural raw materials and proprietary chemicals to enable the stabilisation and recovery of the waste feedstocks.

Table 3.2 below provides an outline summary of all raw materials, their key ingredients and the annual consumption quantity.

Table 3.2 Raw Material Use			
Raw Material	Chemical Nature	Use	Quantity per annum
Sodium Modified Calcium Bentonite	Smectite Mineral Clay (solid)	Base Material for Modified Clay Production	275 tonnes
Envirotrete 'A' (typically supplied in IBCs)	Quaternary Ammonium Salt (Liquid)	Chemical Reagent for Modified Clay Production	17 tonnes
Envirotrete 'B' (typically supplied in 205 litre drums)	Chlorohydrol Salt (Liquid)	Chemical Reagent for Modified Clay Production	18 tonnes
Envirotrete 'C' (typically supplied in 25kg carboys)	Iron Salt (Liquid)	Chemical Reagent for Modified Clay Production	0.7 tonnes
Cementitious Materials	Ordinary Portland Cement; Pulverised Fuel Ash; Other Pozzolan Materials (Solids)	Stabilisation medium	600 – 800 tonnes
Water		Production of Bentonite Slurry for Modified Clay Production	As Required

Please note that the formulations of the above chemicals are proprietary and have not been provided for the purposes of commercial confidentiality.

The envisaged storage requirements (at any one time) would be a maximum of 5 IBC's of Envirotrete 'A' (circa 5 tonnes); 5 pallets of Envirotrete 'B' i.e. 20 x 205 litre drums (circa 5.5 tonnes) and 8 carboys of Envirotrete 'C' (circa 0.2 tonnes).

Solid materials i.e. bentonite and cementitious materials will be delivered to site as required and not stored for any significant time period.

3.3.3 Reception

All materials received by at the site will be subject to inspection and Acceptance procedures. All wastes arriving at site will be subject to pre-agreed contractual arrangements and in accordance to Pre-Acceptance criteria (as defined by Working Plan Procedure FA-1.0).³

Upon arrival the material will be stockpiled within a dedicated bunded containment pad. The concrete pad has been designed to ensure that there is no potential subsurface contamination or any form of material to escape outside of the permit boundary.

³ Note that the site will not accept material with a VOC content greater than >1ppm (benzene).

Each stockpile will represent a single batch of material and subsequently be allocated a unique batch reference for the identification of the material throughout the entire treatment operation. The batch identity reference number will be retained throughout the treatment lifecycle and will be used as a means of unique identification with the end user.

The batch reference number enables the following information to be collated and is used to track the material as it progresses through the plant:

- Period of time when the waste feedstock was produced;
- Quantities of “as received” waste feedstock;
- Analytical data relating to the “as received” waste feedstock;
- Details of treatment operation (dates, personnel, treatment, etc);
- Analytical data relating to the treated material; and
- Date shipped offsite, associated quantities and customer.

All waste feedstock material accepted onto site will undergo chemical analysis to determine the “as received” composition.

This analysis will form the basis of the Facility Acceptance Specification into the recovery facility on site. In the unlikely event that the “as received” waste feedstock fails the required Facility Acceptance Specification the failing material will be quarantined.

In the event that the “as received” waste feedstock fails the Facility Acceptance Specification, it would be necessary to implement one of the two possible scenarios described below:

1. Laboratory treatability trialing to determine whether the material can be retreated for compliance purposes and if successful, subsequent treatment as necessary; or
2. The material would be pre-treated to enable offsite disposal to an inert landfill. The untreated filter cake is currently disposed of as non-hazardous).

Figure 3.3 shows the waste acceptance process and rejection procedure schematically:

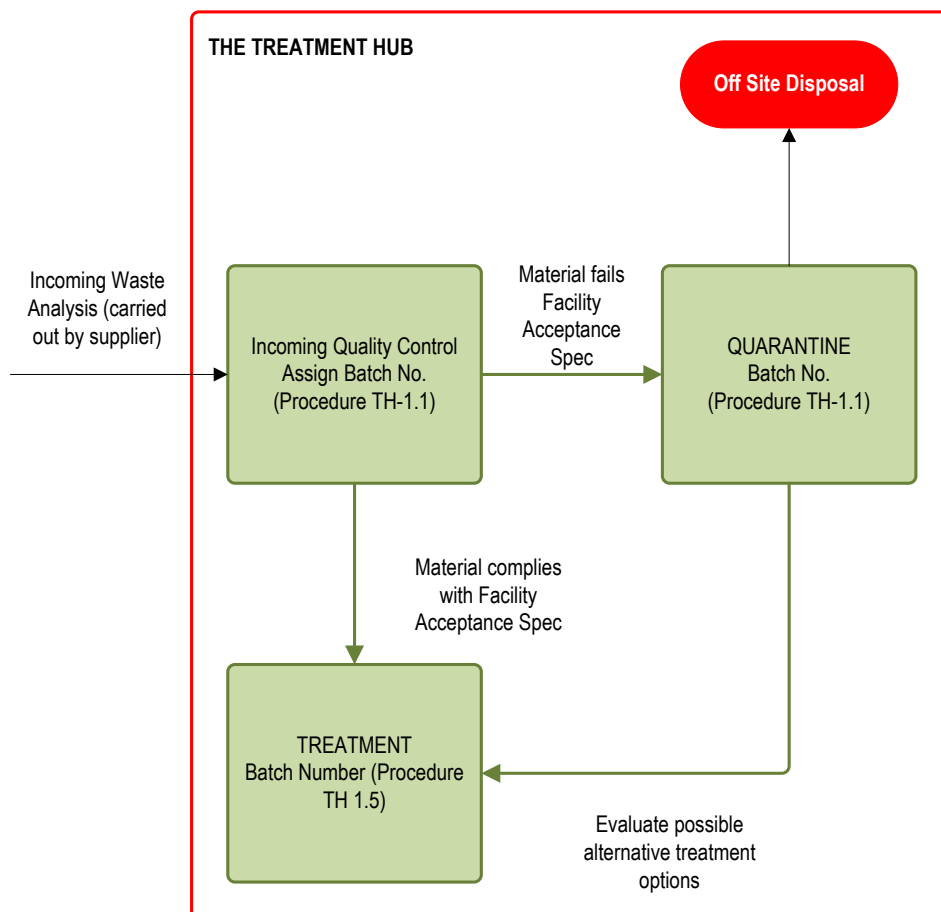


Figure 3.3 – Facility Waste Acceptance Process

3.3.4 Treatment Operation

Upon acceptance into the treatment facility the waste will be stockpiled in batches in readiness for the treatment operation.

The treatment operation will be carried out within an engineered containment cell (comprising a concrete bund) and has two key criteria:

1. Chemical stabilization/immobilisation of targeted chemical pollutants.
2. Physical improvement of waste material to enable recovery as a product for the purpose intended.

Treatment will be achieved in a single operation. The waste feedstock will be fed into a mobile screening and mixing plant (Extec 6000) which mechanically grades and mixes the material into a homogenous formation and allows (controls) the addition of modified clay and the additives required.



Photo 1: Extec mobile mixing and screen plant (similar to equipment proposed by Applicant)

The modified clays are added to the waste feedstocks in the form of a liquid slurry mixture. All other admixtures are added as a dry cementitious powder to act as a binding agent.

All clay and feedstock material are passed through a mobile screening plant (Extec 6000 or similar) which mechanically grades the material and additives to form a uniform mixture. The mixing and screening plant has a series of rotating “teeth” which break up and homogenise the waste feedstock, whilst mixing in the cementitious and modified clay additives. Once treated, the materials are conveyed to the main stockpile storage area.

The modified clays used by the process are derived from the modification of naturally-occurring Smectite Clays⁴ using selected chemical reagents. This modified clay produces a reactive treatment medium, which is capable of chemically absorbing and immobilising a range of pollutants present within soils and water.

The addition of Quaternary Ammonium Salts (QAS) to the clay structure produces an ‘inorgano-organo’ modified clay. This material has organophilic properties which are capable of absorbing organic compounds such as aliphatic hydrocarbons of varying chain length and polarity.

The reactivity of modified clays towards aromatic hydrocarbons and other substituted organic groups is enhanced by the introduction of transition metals to the clay structure, which has been proven to be more effective than other commercially available organoclays in treating pure hydrocarbons (i.e. benzene).

⁴ Smectite group- is a naturally occurring mineral group which includes montmorillonite, bentonite, nontronite, hectorite, saponite and sauconite; formed by the alteration of mafic igneous rocks rich in Ca and Mg; weak linkage by cations (e.g. Na⁺, Ca⁺⁺) results in high swelling/shrinking potential. This property is key in the use as a remediation technology.

Modified clays function using multiple chemical bonding reactions (i.e. Van Der Waals attraction forces / transition metal ligand bonding / dipole-dipole effects, ionic bonding to full covalent bonding and / or molecular alteration) enabling the treatment of mixed waste materials / contaminated soils.

Pillared modified clays are produced that have the ability to withstand excessive dehydration without loss of stability. Pillared modified clays contain molecular props creating basal separation within the clay structure. This creates interlamellar spacing sufficient to provide access for larger molecules such as polychlorinated biphenyls and polyaromatic hydrocarbons to be absorbed within the clay matrix.

The Treatment Hub along with their technology partner 'Enviro-treat' are able to design modified clays on a site specific basis to enable the treatment of a range of inorganic and organic pollutants, in most cases using one modified clay design applied in a single process.

The mixed and treated materials are then stockpiled into individual batches and covered with a membrane to prevent the release of any volatile contaminants present within the waste feedstock materials.

The treatment process creates a stable granular 'aggregate' like material that can be used for a number of safe 'inert' uses.

Figure 3.4 below shows the treatment operation schematically.

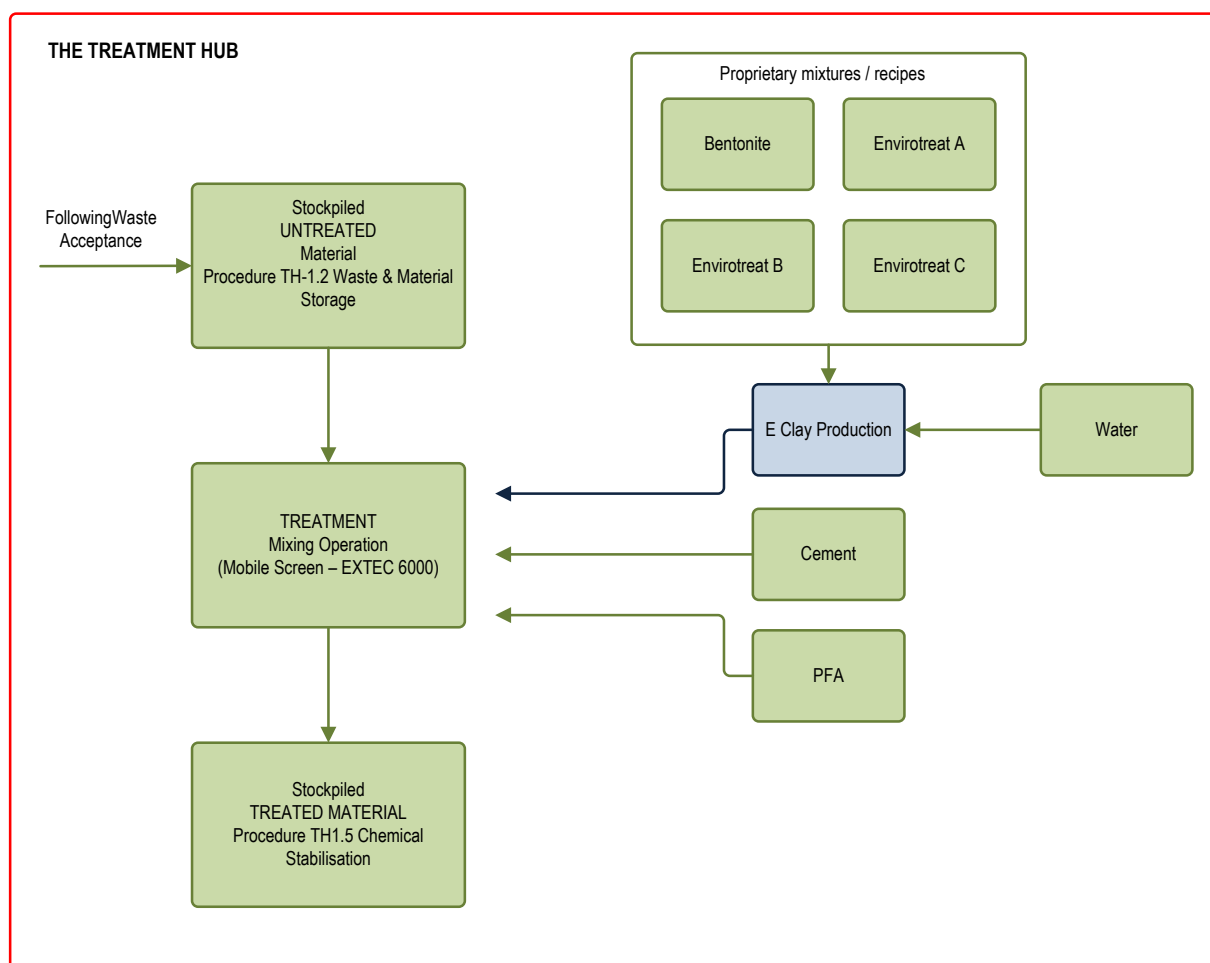


Figure 3.4 Treatment

Throughout the treatment process key environmental aspects, i.e. water quantity, chemical additions etc will be monitored in accordance to the Quality Control and Management Plan.

3.3.5 Validation Process

Once treated, the recovered product will be validated for compliance with product and environmental criteria. This will involve a change of visual assessment as well as physical and chemical analysis.

If a batch of treated material fails any of the relevant validation criteria then the batch will be quarantined pending further action. In this event it would be necessary to consider and implement one of two possible scenarios:

1. Laboratory treatability trailing to determine whether the failed material could be retreated to produce a complaint material and if successful, subsequent retreatment as necessary; or
2. The material would be assessed to enable offsite disposal to an inert landfill or as a worst case scenario, for disposal to a non-hazardous landfill.

In the unlikely event that material used in the field is seemed not satisfactory then the material will be returned into a quarantined area where it will be evaluated,

In addition to this, environmental/chemical criteria will also be determined. Each batch treated will be evaluated on a project by project basis against these environmental criteria for suitability:

- Total Petroleum Hydrocarbon content;
- Leachable Petroleum Hydrocarbon content;
- Leachable Polyaromatic Hydrocarbon content;
- BTEX;
- Total Petroleum Hydrocarbons (TPH);
- Inorganics (Cyanides, Ammonia etc)
- Arsenic;
- Cadmium;
- Chromium;
- Copper;
- Nickel;
- Zinc;
- Lead;
- Mercury; and
- Selenium.

The specification / validation criteria will be based on specific customer requirements and the desired end use of the material. These criteria are based on Waste Acceptance Criteria (WAC) as defined by The waste acceptance procedures and criteria are set out in the Council Decision (2003/33/EC), and in Schedule 10 of the Environmental Permitting (England and Wales) Regulations 2010.

In specific cases, the stabilised material will be suitable for use as a raw material feedstock for third party products. In such cases the validation requirements will meet a pre-determined specification as defined the customer ad will be subject to an end of waste determination position where required.

Figure 3.5 below shows the validation process schematically.

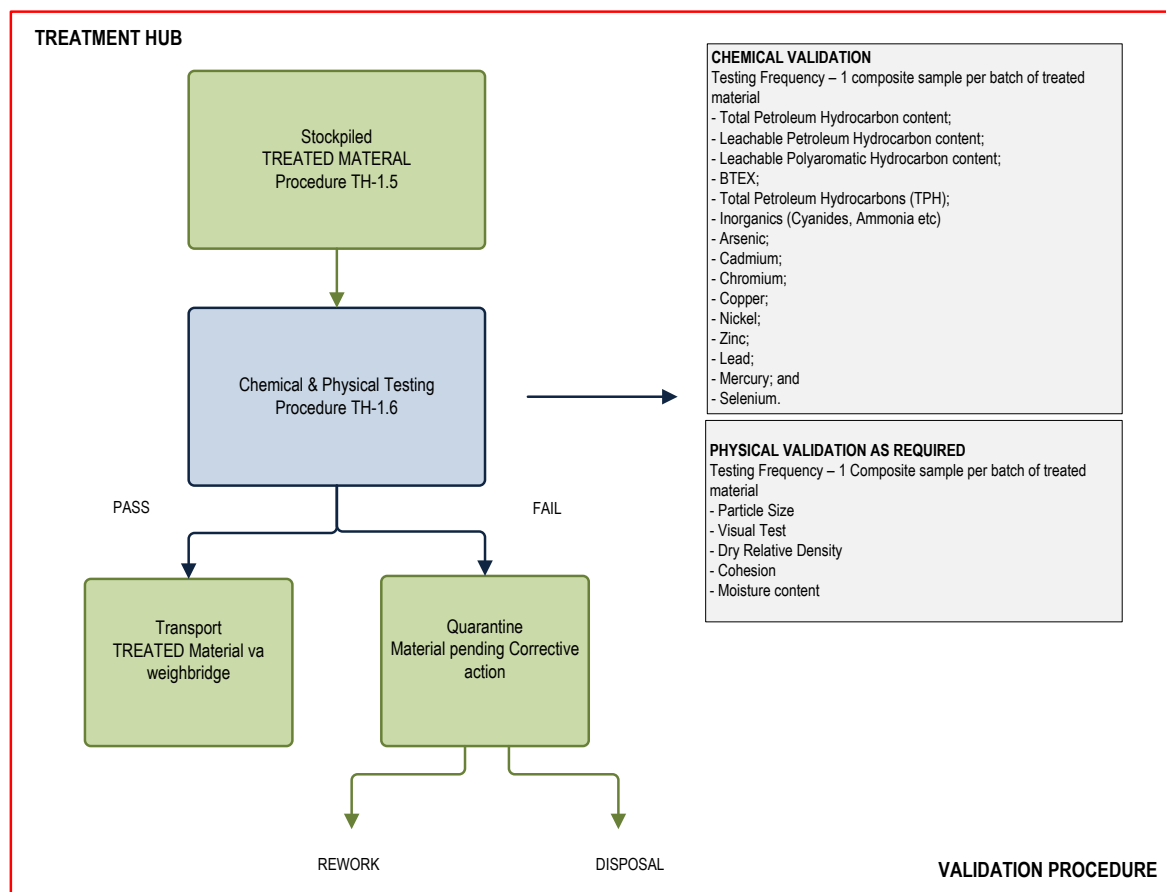


Figure 3.5: Validation

3.3.6 Final Storage

Once the materials have passed validation, they will be transported off site for reuse. No materials will be stored or transferred to any other part of the site on site once they have passed validation.

3.3.7 Environmental Management & Quality Plan

Earth Science Partnership Ltd (50% of the joint venture company) have an established Environmental and Quality Management System for their existing operations which is certified to ISO 9001:2000 – Quality Management; ISO OHSAS 18001 – Health and Safety Management Systems and ISO 14001:2004 – Environmental Management Systems.

Although it is recognised that the operation is a joint venture between ESP and Envirotreat and hence is outside of the scope of their current management system certifications, all of the sites activities will be managed using the same structure and working procedures currently employed in the other areas of the company.

All aspects of the operation will be managed in accordance within a formal Environmental Management and Quality Plan. The plan will define all activities throughout the lifecycle of the treatment process (i.e. pre-acceptance, acceptance, treatment, validation and final off-site transfer).

The Environmental and Quality Management system will be designed to meet the requirements of the Environmental Permitting Regulations and associated pollution prevention guidance.

The EMS has been designed to ensure:

- The identification of all foreseeable environmental impacts and risks that The Treatment Hub activities pose to the environment.
- Prevention or minimisation of any identified risks to practical minimum.
- Legal Compliance assurance.
- Activities at the site will be managed in accordance with the management system, which will be subject to continuous review, audit and improvement. Specific detailed management system reviews will take place if there is a significant change to the activities, following an accident or if a non compliance is found.
- Furthermore, the whole management system will be subject to annual external audit by competent third parties.
- The key aspects of the EMS for the site will include:
 - Preventative maintenance;
 - Operator requirements;
 - Training and competence;
 - Emergency response and incident management; and
 - Monitoring, measurement and reporting.

The environmental and quality management system and procedures will be written to ensure that the environmental risks and impact of the normal running of the site activities are documented and minimised.

The system will be fully developed, implemented and operation at the time of commissioning and permit issue.

Table 3.3 shows the structure of the proposed working plan.

Table 3.3 Working Plan		
Ref No:	Title	Purpose
TH- 1.0	Waste Pre-Acceptance	This procedure defines the screening, checking and pre-acceptance of all incoming waste prior to its arrival on site.
TH-1.1	Waste Acceptance	This procedure outlines the onsite controls and considerations that need to be applied when waste material arrives on site for processing. Acceptance of non-conforming wastes will be a direct breach of the permitted conditions of the sites Environmental Permit.
TH-1.2	Waste and Material Storage	This procedure outlines the waste storage requirements for all wastes that are processed on site.
TH-1.3	Document and Data Control	This procedure defines the necessary documentation such as the Batch Reference Note that is required to ensure compliance.
TH-1.4	Purchasing	Purchasing controls are designed to ensure that all material processed is within

		defined parameters so as to ensure that the products and services provided by the Company conform to customer requirements.
TH-1.5	Chemical stabilization/immobilisation	To outline the control activities for the safe and managed chemical stabilization and immobilisation of the filter cake.
TH-1.6	Validation Process	This procedure is to ensure that the product is validated for compliance with product and environmental criteria
TH-1.7	Control of Records	This procedure describes the way in which the company maintains records in a manner that prevents loss or damage. Records retained to provide objective evidence that the Documented Management System is being operated within the company and that customer and permit requirements are being complied with. The system used to retain records will ensure that all traceability requirements are met.
TH-1.8	Training	To ensure that all training needs are identified for all relevant personnel. In addition, educational and training qualifications and records are maintained.
TH-1.9	Security	To ensure that all site and driver security controls are implemented and maintained to minimise security risks at The Treatment Hub.
TH-1.10	Emergency Procedures	To ensure the safe evacuation of the site and protection of the environment in the event of a site emergency.

3.3.7.1. Site Maintenance

All maintenance activities on site will be carried out in accordance to the manufacturers' recommendations and will be integrated within the company's environmental management system.

The key aspects of the maintenance management programme will include:

- Infrastructure inspection: A programme of inspection of all bunded areas and concrete storage pads;
- A programme of Planned Preventative Maintenance (PPM) on key plant and equipment (i.e. Extec screening plant) to ensure that the screen consistently produces homogenous grade material. This programme also will ensure critical components such as belts and motors are replaced early rather than waiting for equipment to fail.
- The inspection and maintenance schedules that the manufacturer recommends are adhered to, including any period of recommended shut-down.
- Maintenance and calibration of all company laboratory and testing equipment to ensure compliance with Quality Control / UKAS requirements.

The sites maintenance programme will ensure that all equipment or infrastructure that is deemed essential in the prevention of pollution to the environment (e.g. hard-standing, bunds etc.) or the prevention of local nuisance impacts is maintained and kept in good operating condition.

It is proposed that all maintenance activities will be carried out under contract by a suitably qualified and competent third party organisation.

3.3.7.2. Operator Competence

There will be 2 or 3 operatives required to operate the facility. These operatives will work on a day shift basis. All site operatives will be assessed as competent and appropriately trained in accordance with the site Environmental Permit.

The Treatment Hub will operate the site using qualified and competent personnel. The company has a number of WAMITAB qualified personnel under contract who will be available as required. The necessary WAMITAB qualifications considered suitable for Ex-Situ treatment of contaminated land and materials is 4MTNHR6⁵.

All staff working for and on the behalf of the site will be suitably trained and competent. (e.g. professional maintenance engineers, electricians, equipment operators etc).

Certificates of Competence for key operational personnel are provided in Annex 4.

3.3.7.3. Operation

The site will be operated on a continuous 24/7 basis with deliveries, loading and unloading operations being carried out in accordance to the schedule below:

- Monday – Friday 7.00 – 18.00;
- Saturday 7.00 – 18.00;
- Sunday No deliveries or collections (except under specific circumstances);
- Bank Holidays No deliveries or collections (except under specific circumstances).

Additional activities will include general site housekeeping and administration activities. The site will maintain written operation instructions all for the plant and monitoring equipment present on site.

All personnel working at the facility will be trained in the necessary sections of the Working Plan and associated Procedures.

3.3.7.4. Site security

The Alcoa site (Westfield Industrial Site) is a secure site and is provided with 24 hour security personnel who man the main gatehouse on a 24/7 basis.

As such, all personnel and vehicles entering the site are strictly controlled and managed; no vehicles or personnel will be allowed access to the facility without prior authorization.

The Treatment Hub facility will generally only be manned on daytime only basis. At all times when the facility is not manned or occupied, it will securely locked and protected.

The entire Westfield Industrial Estate is equipped with CCTV monitoring of all external areas.

⁵ This qualification carries the Ofqual Code: 600/0331/5

3.3.7.5. Accidents and Emergencies

The site has developed an Accident Management Plan based around the specific risks associated with the site operations.

The key aspects of the Sites Accident Management Plan are:

- Reviewed by Site Management annually and as soon as practicable after an accident.
- Considers hazards presented by emergency shut-down procedures;
 - actions in case of fire/explosion;
 - contaminated firewater;
 - failure of any equipment;
 - spillages and uncontrolled releases;
 - plant or equipment failure
 - vandalism;
 - flooding;
- Identify events or failures that could damage the environment.
- Assesses the likelihood and the potential environmental consequences from accidents at the site.
- Proposes action to minimise the potential causes and consequences of accidents.

The Accident Management Plan has been included in Annex B. Specific emergency response procedures will be developed by the operator in conjunction with the plant manufacturer, local fire offices and the company's Site Manager.

These procedures will be complete and fully developed and implemented prior to operations commencing at the site.

The Accident Management Plan is provided in Annex 5.

3.3.7.6. Incident Reporting

The reporting of Incidents and non-conformities will form a key component of the companies Working Plan / Management System. Identified non-conformities under the system include, but are not limited to the following:

- Uncontrolled leaks and spillages of any materials with the potential to cause pollution to the environment (chemicals, hydraulic fluid, oils);
- Non compliance to any permitted condition or consent limit (missing of reporting deadlines, breach of any permitted consent limits;
- Internal Audit findings (legal non compliances, EMS procedural breaches, system non compliances);
- External and Internal Complaints; and
- Whenever a plant malfunction, breakdown or failure, or any near miss occurs.

The company's EMS will undergo periodic external audit and review to ensure that both compliance and continuous improvement is achieved. The EMS requires that all identified incidents and non conformities will be investigated and closed out.

Furthermore, the site management system will have documented procedures and registers to:

- Ensure that any members of the public/residents are alerted and informed if a significant plant issue arises (fire, explosion etc);
- Record, report and investigate any internal or external complaints to ensure that any necessary measures are taken to prevent, or where that is not possible to minimise, the causes; and
- Inform any members of the public about the nature of the site, key contacts and sources of further information.

4 EMISSIONS & THEIR ABATEMENT

4.1 Emissions to air

The proposed installation will not have any emissions to air.

4.2 Emissions to water

The proposed Installation will not have any emissions or effluents that will be discharged to controlled waters.

4.3 Emissions to Sewer

The proposed Installation will not have any emissions or effluents that will be discharged to sewer.

4.4 Emissions to Land

There will be no direct emissions to land arising from the installation.

4.5 Odour

The nature of the materials processed at the site will not be malodorous or likely to have the potential for offsite odour impact. The proposed operation is not considered to have a potential for offsite odour impact.

4.6 Noise Impacts

The proposed Installation will not give rise to any adverse noise impacts.

With the exception of the fixed and mobile plant, the process is largely static and unable to give rise to noise impacts.

All fixed and mobile plant will be operated internally and restricted to daytime use only.

The site does not have any external discharge points or external / roof mounted plant and equipment that has the potential to give rise to offsite noise impacts.

The physical plant mixing and processing is only likely to take place on a one day a week basis, corresponding with the batch processing time.

Furthermore, the location of the plant in the approximate centre of the site ensures that any noise created by the 'delivery and collections will be fully screened by the retained 'former; ingot plant buildings which lie on the southern boundary of the site. The screening is considered sufficient to avoid the potential for any noise nuisance along the sensitive southern boundary.

4.7 Fugitive emissions

There are no new fugitive emissions arising from the proposed new plant. The site has strict acceptance criteria that prohibit materials with concentrations of VOC (Benzene) greater than 1ppm. All materials transported to site will have previously been tested and certified to meet Facility Acceptance Specification prior to delivery.

No malodorous materials will be accepted onto site.

4.8 Waste Generation and Management

4.8.1 Types and Amounts of Waste

The sole purpose of the facility is to act as a regional specialist soils and materials treatment hub. The process will therefore receive waste materials that would otherwise be destined for disposal, but can otherwise be treated, stabilised and re-used.

The very nature of the site means that all materials received will be imported wastes, which will be subsequently mixed with proprietary clay formulations (referred to as 'Environmental-Clays' or 'E-Clays') in combination with cementitious material to form a stabilised material that is validated and suitable for the intended end use.

All materials treated by the site will be suitable for:

- reuse at either the source or another suitable location
- reuse as a raw material in product manufacture (in accordance with 'End-of-Waste' requirements)
- waste declassification to enable disposal at an inert / non-hazardous landfill (in accordance with landfill acceptance criteria)

The hub operation will be designed to operate in accordance with waste hierarchy principles as far as practically possible.

Table 4.1 below shows a tabular summary of site wastes.

Table 4.1: Waste Import and Export summary

Waste	EWC Code	Approx Quant (tonnes)	Source	R / D Code	Fate
Imported Treated Inert wastes	As per Table 3.1	40,000	Contaminated land remediation projects Industrial wastes And other similar products	-	Treatment stabilisation
Exported stabilised materials	19-03-056	42,000	Treated stabilised material (non-hazardous or inert)	R5	Construction Materials Landscaping

4.8.2 Throughput of Waste

The facility principally produces a product which can then be used by brick and block manufacturing companies as an additive in brick/block formation. The plant will typically process approximately 130 tonnes per week of hazardous and non hazardous waste.

⁶ In the case that the an end of waste position is achieved by the company this quantity will reduce proportionally

Typically the treatment process will increase the total mass of the material by between 3-5%.

The site will be designed to accept and treat approximately 40,000 tonnes per annum.

Under IIB of the Waste Framework Directive the Installation activities fall under the generic description R5.

4.8.3 Waste Storage

All waste materials are stored internally in stockpiles in accordance with the batch code and treatment programme. The materials are all located internally on dedicated concrete pads and are covered for protection.

No more than 5,250 tonnes⁷ of material will be stored internally at any time.

4.8.4 Resource Efficiency and Climate Change

The energy use of the proposed operation is very low so there is no need for improvements involving energy efficiency.

⁷ Equivalent to 15% of total annual tonnage

5 ENVIRONMENTAL MONITORING

5.1 Emissions to air

There are no point source emissions to air. Therefore no monitoring is required.

5.2 Emissions to water

There are no point source emissions to water from within the process. Therefore no monitoring is required.

5.3 Emissions to Sewer

There are no point source emissions to sewer arising from the process. Therefore no monitoring is required.

5.4 Emission to Land

There are no point source emissions to land arising from the process. Therefore no monitoring is required.

5.5 Incoming Waste Monitoring

All waste materials accepted onto site will be monitored for the following:

- Origin;
- Weight;
- Visual Inspection;
- Physical properties;
- Chemical properties;

5.6 Monitoring frequency

Due to the nature of the process no formal environmental monitoring is proposed.

6 IMPACT TO THE ENVIRONMENT

6.1 Impacts to Air

There will be no impacts to the air relating to the proposed installation.

6.2 Impacts to Controlled Waters

There will be no process effluents discharged to controlled waters from the Installation.

6.3 Impacts to sewer

All discharges to sewer relate to the domestic sewage arisings. There are no process emissions which will arise from the plant.

6.4 Impacts to Land

There are no impacts to land relating to the proposed installation.

6.5 Noise Impacts

All activities will take place internally and on a daytime basis only. The physical plant mixing and processing is only likely to take place on a one day a week basis, corresponding with the batch processing time. This plant is considered very unlikely to be able to give rise to noise nuisance.

Given the relatively inert nature of the process, no noise nuisance impacts are considered to be likely to arise.

ANNEX 1: Figures and Maps

Figure A1: Site Location

Figure A2: Site Buildings

Figure A3: Site Lease and Installation Boundary

Figure A4: Wider Site Use

ANNEX 2: Planning Permission (Certificate of Lawful Use)



CITY AND COUNTY OF SWANSEA

TOWN AND COUNTRY PLANNING ACT 1990: SECTION 192
(as amended by Section 10. of the Planning and Compensation Act 1991)

TOWN AND COUNTRY PLANNING (GENERAL DEVELOPMENT PROCEDURE) ORDER 1995:
ARTICLE 24

GRANT OF CERTIFICATE OF PROPOSED LAWFUL USE OR DEVELOPMENT

TO:
MR STEVEN BUTLER
SOL ENVIRONMENT LTD
23 CHRISTCHURCH ROAD
GREAT MALVERN
WORCESTERSHIRE
WR14 3BH

APPLICATION NO: 2012/1587

APPLICANT: Mr Matthew Eynon

The **City & County of Swansea** hereby certify that on **20/12/2012**, the proposed use/operations described in the First Schedule hereto in respect of the land specified in the Second Schedule hereto and edged **red** on the plan attached to this certificate, **Is Lawful** within the meaning of Section 192 of the Town and Country Planning Act 1990 (as amended), for the following reason(s):

- 1 The use of the former industrial building (Class B2) for the stabilising and recovery of contaminated soils, hazardous and non hazardous materials for use in the construction industry would fall within use Class B2 (General Industrial) of the Town and Country Planning (Use Classes) Order 1987. The use proposed would not, therefore, constitute a material change of use.

Signed:

PHIL HOLMES
HEAD OF ECONOMIC REGENERATION & PLANNING

On behalf of **City & County of Swansea**

DATED: 07 January 2013



1 First Schedule

Use of former industrial building (Class B2) for the stabilising and recovery of contaminated soils, hazardous and non hazardous materials for use in the construction industry as described in Sol Environment's Earth Science Partnership Former Hotmill Buildings - Alcoa Waunarlwydd and as described on Plan No. Location plan dated 23rd November 2012.

2 Second Schedule

Indicated on O.S. Plan LPA1 attached to the Certificate

Former Alcoa building, Waunarlwydd, Swansea which is shown edged red on the plan.

Notes

- 1 This certificate is issued solely for the purposes of Section 192 of the Town and Country Planning Act 1990 (as amended).
- 2 It certifies that the proposed use/operations specified in the First Schedule taking place on the land described in the Second Schedule is lawful, on the specified date and, thus, would not have been liable to enforcement action under Section 172 of the 1990 Act on that date.
- 3 This certificate applies only to the extents of the proposed use/operations described in the First Schedule and to the land specified in the Second Schedule and identified on the attached plan. Any proposed use/operation which is materially different from that described or which relates to other land may render the owner or occupier liable to enforcement action.
- 4 The effect of the certificate is also qualified by the proviso in Section 192(4) of the 1990 Act, as amended, which states that the lawfulness of a described use or operation is only conclusively presumed where there has been no material change, before the use is instituted or the operations begun, in any of the matters relevant to determining such lawfulness.
- 5 The developer is advised that the Town and Country Planning (General Permitted Development) Order 1995 is due to be revoked and re-enacted shortly. This certificate relates to the lawfulness of the development at date of issue. A change in legislation may render the proposed development unlawful in the future and the developer is advised to contact the Local Planning Authority prior to commencing work to confirm whether the above mentioned order has been superseded.



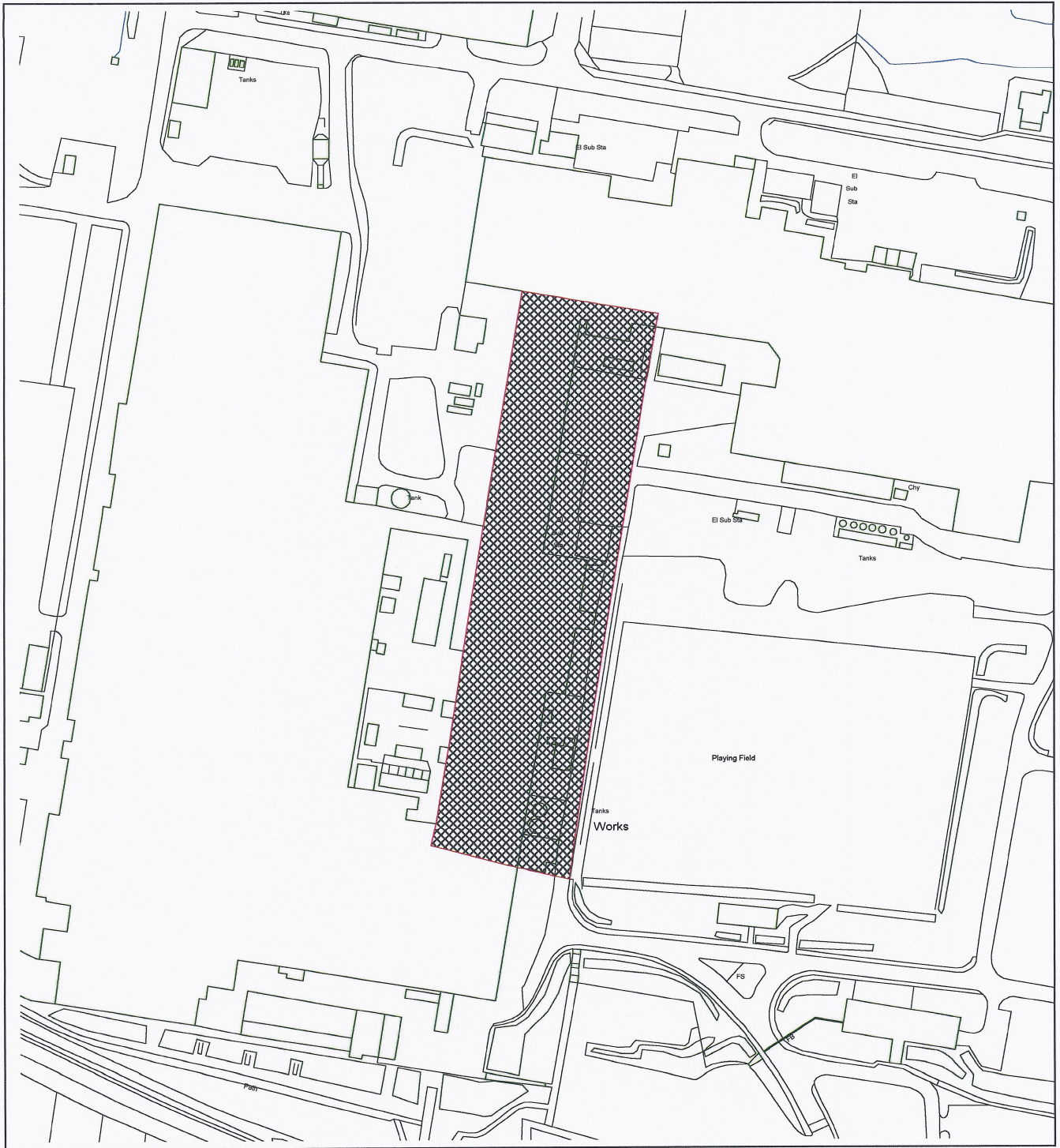
THE APPLICANT'S ATTENTION IS DRAWN TO THE NOTES BELOW

1. If the applicant is aggrieved by the decision of the Local Planning Authority to refuse permission or approval of the proposed development, or to refuse to grant a Certificate of Lawful Use or Lawful Proposed Use, or to grant permission or approval subject to conditions, he may appeal to the National Assembly for Wales in accordance with the Sections 78(1) and Section 195/196 of the Town and Country Planning Act 1990, as amended by the Planning and Compensation Act 1991.

Within six months of the date of this notice (Appeals must be made on a form which is obtainable from the Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ – Tel 02920 825155. The National Assembly has power to allow a longer period for the giving of notice of appeal but he will not normally be prepared to exercise this power unless there are special circumstances which excuse the delay in giving notice of appeal. The National Assembly is not required to entertain an appeal if it appears to him that permission for the proposed development could not have been granted by the Local Planning Authority or could not have been so granted otherwise than subject to the conditions imposed by them, having regard to the statutory requirements to the provisions of the development order, and to any directions given under the order. He does not in practice refuse to entertain appeals solely because the decision of the Local Planning Authority was based on a direction given by him.

2. If permission to develop land is refused or granted subject to conditions, whether by the Local Planning Authority or by the National Assembly for Wales, and the owner of the land claims that the land has become incapable or reasonably beneficial use in its existing state and cannot be rendered capable of reasonably beneficial use by the carrying out of any development which has been or would be permitted, he may serve on the Common Council, or on the Council of the County Borough Council, London Borough or County District in which the land is situated, as the case may be, a purchase notice requiring that Council purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990.
3. In certain circumstances, a claim may be made against the Local Planning Authority for compensation, where permission is refused or granted subject to conditions by the National Assembly on appeal or on a reference of the application to him. The circumstances in which such compensation is payable are out in Section 114 of the Town and Country Planning Act 1990.
4. Further correspondence regarding this application should bear the reference number quoted on the top of the form.
5. Additional details and information on making an appeal to the National Assembly for Wales is available from the Planning Inspectorate at the above address. The relevant documents are entitled "making your planning appeal", and "planning appeals Public Local Inquiries".

2012/1587 O.S Plan LPA1



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ANNEX 3: WAMITAB Certificates of Technical Competence

ANNEX 4: Accident Management Plan