

## **Report 1 Non-Technical Summary**

### **SSQ BESPOKE MATERIALS RECYCLING FACILITY, LLANWERN**

*Report Number 2473r1v2d1224*

*Commissioned by*  
Darlow Lloyd and Sons  
Corneldu Mawr Farm  
Heol-y-Cym  
Bridgend  
CF35 6HL

*Prepared by*  
Geotechnology Ltd  
Ty Coed  
Cefn-yr-Allt  
Aberdulais  
SA10 8HE



**December 2024**

---

## Table of Contents

---

<b>1 INTRODUCTION</b>	<b>1</b>
<b>2 PROPOSALS</b>	<b>2</b>
2.1 Facilitating Redevelopment	2
2.2 Material to be treated	3
2.3 Recovery Activities	4
2.4 Treatment Locations	4
<b>3 ENVIRONMENTAL SETTING</b>	<b>6</b>
3.1 Topography	6
3.2 Geology	6
3.3 Hydrogeology	6
3.4 Hydrology	6
3.5 Residential Properties	7
<b>4 POLLUTION CONTROLS</b>	<b>8</b>
4.1 Air Quality	8
4.2 Noise and Vibration	8
4.3 Pests and Scavengers	8
4.4 Controlled Water	9
4.5 Monitoring	9
<b>5 MANAGEMENT CONTROLS</b>	<b>10</b>
5.1 Responsibility	10
5.2 Waste Controls	10

## List of Tables

---

Table 1-1 Application Details	1
Table 2-1 List of Wastes to be Accepted	3

## List of Flowcharts

---

Flowchart 5-1 Method Statement of Production	10
--	----

---

## List of Figures

---

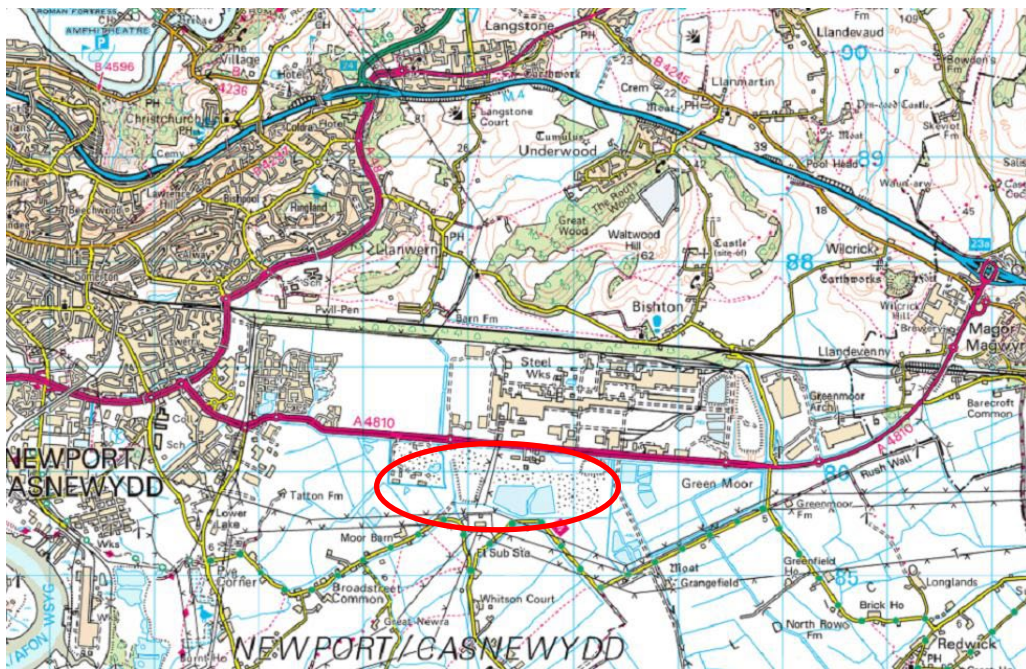
Figure 1-1	Position of SSQ east of Newport	1
Figure 2-1	Annotated Site Plan of SSQ	4
Figure 2-2	Permit boundaries	5

# 1 INTRODUCTION

Geotechnology has been commissioned by Darlow Lloyd and Sons Ltd (DLS) to prepare a bespoke Permit application for submission to Natural Resources Wales (NRW) for a proposed waste materials recycling facility located to the East of Newport at Llanwern. The area is referred to as South Side Queensway (SSQ) as it is to the south of the A4810 Queensway. The details of the application are summarised in Table 1-1 and the site positions is shown on Figure 1.

**Table 1-1 Application Details**

<b>Name of the Applicant</b>	Darlow Lloyd and Sons Ltd (DLS)
<b>Activity Address</b>	Queensway, Newport. NP19 4QX
<b>National Grid Reference</b>	Area1_5: E336686 N186114 Area2_10:E336941 N186171 Area3_26: E337863 N185779



**Figure 1-1 Position of SSQ east of Newport**

The proposals would enable DLS to receive and process waste on three separate areas of hardstanding to enable recovery and recycling.

This non-technical summary is intended to inform the application process.

---

## 2 PROPOSALS

Whilst the heavy end of the Llanwern Steel Works was operating, SSQ served primarily as the waste processing and waste disposal facilities for the Works. With the closure of the heavy end of the Steel Works in 2001 and subsequent sale of the land to St Modwen in 2004, the requirement for waste processing and/or disposal on SSQ all ended. Since 2004, parts of the SSQ site have remained in active use mainly by partner companies providing support services to the Works or undertaking synergistic operations (using by-products etc.). Processing of stored slag by-products for example continued across the site until 2017 despite no new slag having been produced since 2001.

The majority of the land in the urban boundary at SSQ has been unused or under-utilised since 2001 and there remain several environmental issues that need to be dealt with, including closed landfills that need to be capped, areas of suspected ground contamination that need to be further investigated and remediated, and by-products and wastes that need to be recovered and reused or sold.

Tata Steel (UK) Limited (Tata) is in the process of executing a regeneration plan to address all of the historical liabilities on SSQ to be able to bring the land forward for redevelopment. This will create opportunities for new industrial/commercial uses in what is a sought-after location for such uses. The plan is expected to take 10 years to complete.

### 2.1 Facilitating Redevelopment

To enable site redevelopment, Tata has undertaken an assessment of remedial requirements. As part of these works, Tata has identified stockpiles of materials, some of which are non-wastes and available for immediate use or sale, and others which require treatment or processing to achieve end of waste before they can be used.

These stockpiles of various products, by-products and wastes from steelmaking have been in place at SSQ for many years. Although assessment and monitoring has proven that the materials pose low risk to both the environment and human health, Tata seeks to remove contaminants and unsuitable materials to reduce this risk further and facilitate recovery of the materials.

The contaminants identified to date include:

- Metals;
- a physically fine fraction (silts and sands) that occupies the matrix in predominantly granular waste. Tata has indicated that this fraction can be strongly alkaline and volumetrically expansive and therefore needs to be removed and separated;
- a wide range of anthropogenic materials co-mingled with the waste. These contraries typically account for <5% by mass and include timber, refractory bricks and plastic. Removal of this fraction will facilitate re-use and enhance product quality.

Such materials are typical of steelworks across the UK and Europe. Tata and one of its waste management contractors, DLS, are intimately familiar with dealing with such steelmaking wastes. The range and nature of the contaminants requiring removal are well understood and recovery can be achieved using conventional plant.

Currently, SSQ does not benefit from a materials recycling facility and the stockpiles that require processing are spread across a wide geographic area. Further, Tata plans to treat the

stockpiles in phases over several years, principally moving from west to east across SSQ. Consequently, a bespoke approach is considered to be required rather than a single fixed position processing facility. Such an approach would ideally facilitate the progressive lease of land, allowing income to be generated to fund further redevelopment.

## 2.2 Material to be treated

The waste to be treated comprises various non-hazardous iron and steelmaking wastes. An estimated 900,000 tonnes of this material is currently in stockpiles requiring treatment. The current list of waste is provided in Table 2-1.

**Table 2-1 List of Wastes to be Accepted**

EWC Code	Description of Wastes to be Accepted	EWC Entry Type
<b>EXCLUSIONS</b> Wastes having any of the following characteristics shall not be accepted: <ul style="list-style-type: none"> <li>• Consisting solely or mainly of dusts, powders or loose fibres</li> <li>• Hazardous wastes</li> <li>• Wastes in liquid form</li> </ul>		
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07 may include excavation from mineral workings	MN
01 04 09	Waste sand only	AN
10 11 03	Waste glass-based fibrous materials allowed only if: Wastes without organic binders	AN
15 01 07	Glass packaging	AN
17 01 01	Concrete (excluding concrete slurry)	MN
17 01 02	Bricks	MN
17 01 03	Tiles and ceramics	MN
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	MN
17 02 02	Glass (Must not include fibreglass or glass fibre)	MN
17 03 02	Bituminous mixtures	MN
17 05 04	Soil and stones other than those mentioned in 17 05 03 Must not contain any contaminated soil or stone from contaminated sites.	MN
17 05 06	Dredging spoil	MN
17 05 08	Track ballast other than those mentioned in 17 05 07	MN
17 09 04	Mixed construction and demolition waste comprising granular material	MN
19 12 05	Glass Does not include glass from cathode ray tubes.	AN
19 12 09	Minerals (for example sand, stones)	AN
20 01 02	Glass Must not include fibreglass.	AN
20 02 02	Garden and park wastes (including cemetery waste) – soil and stones Must not contain contaminated stones from garden and parks waste.	AN
16 11 04	Refractory	MN
10 02 01	Waste from the processing of blast furnace slag / steel slag	AN
10 02 02	Unprocessed blast furnace slag/steel slag	AN
10 02 99	Slab yard refuse	AN
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)	AN
10 13 14	Waste concrete only	

As redevelopment and regeneration at SSQ and other parts of the Tata steelworks requires large quantities of soil for landfill capping and localised landscaping, non-hazardous soil would also be imported for treatment. Naturally occurring soil would only be accepted if its chemistry met the landfill capping specification and treatment only involved screening and sorting. The total quantity of soil accepted would be limited to that required for the capping of the Tata landfill facilities and would be specified in the Permit documentation. Once treated, the soil



would be transferred to dedicated storage areas adjacent to the landfills where the soil would be placed as restoration soil.

## 2.3 Recovery Activities

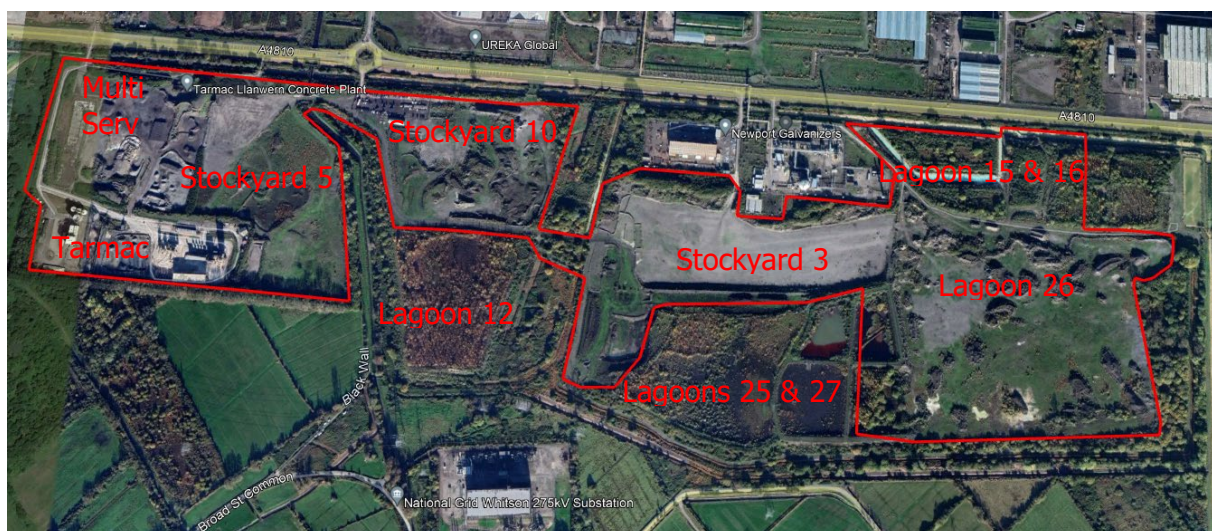
DLS considers that the following remedial technologies will prove successful and facilitate redevelopment:

- Separation – as the material contains contaminants in the fine fraction and light fraction contaminants, closed-loop washing will allow these contaminants to be separated and removed. During this process, the fine silts and sands will be density separated from the light fraction contaminants such as timber and plastic. Once separated, the fine-grained alkaline cementitious materials would be used in stabilisation and solidification remedial interventions elsewhere at Llanwern Steelworks. These latter interventions could be undertaken under Mobile Treatment License.
- Screening, crushing and blending – to enhance the success of soil washing and to remove metals and other anthropogenic contaminants.

Treatment would result in the separation of contaminants for either off-site recovery or disposal, generation of a fine fraction for re-use and recovery of waste, primarily as aggregate. All aggregate would be produced under Factory Production Control (FPC) to meet Quality Protocols and Specification.

## 2.4 Treatment Locations

The whole SSQ area is already largely underlain by a hardstanding development platform of granular slag aggregate that was previously placed over the soft natural ground to facilitate the use of the land in accordance with a planning permission. To assist with management of the land holding, the area was historically split into different sub-areas with each given a unique name, as shown in Figure 2-1.

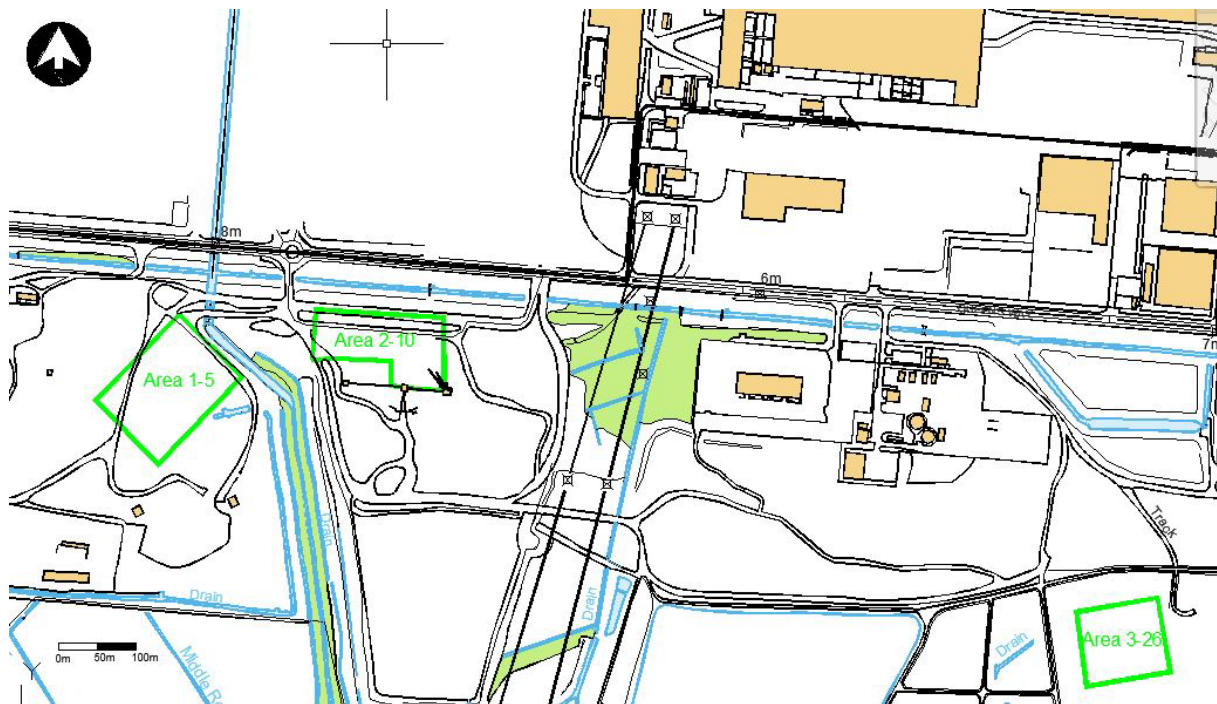


**Figure 2-1 Annotated Site Plan of SSQ**

Given the size of the landholding and the areal extent of the material to be processed, a phased approach is to be adopted. The current expectation is for works to progress from west to east

over a period of about 10 years, commencing in Stockyard 5 and then moving through to Stockyard 10 and then finally to Lagoon 26; incidentally, this latter area currently benefits from a Permit for its use as a non-hazardous landfill although the landfill has never been developed. The fact that it was permitted does, however, reflect the environmental setting of the area.

To enable land to be progressively leased following processing and to minimise haul distances and disturbance, DLS considers that 3 'fixed positions' could be temporarily and sequentially used. The Permit boundary is shown in Figure 2-2. These 'treatment areas' are identified on Figure 2-1 as the green numbered rectangles with Stage 1 being in Stockyard 5, Stage 2 in Stockyard 10 and Stage 3 in Lagoon 26. Each area would be used for approximately 2-3 years before moving the mobile plant to the next area. In each area, waste would be processed within a defined area with strict pollution control measures in place as would be expected of any fixed position facility or mobile treatment plant.



**Figure 2-2 Permit boundaries**



---

## **3 ENVIRONMENTAL SETTING**

### **3.1 Topography**

The site is largely level but at slightly different elevations with many stockpiles. The intention is to treat and recover the waste stockpiles and leave the areas relatively level. Further work may be required by developers to bring the site into a final condition suitable for whatever end use they intend and this would likely need to be done under a planning consent.

### **3.2 Geology**

The solid geology beneath the site largely comprises a sequence of Triassic Mercia Mudstones unconformably overlying Brownstones of Lower Devonian age. There are no known faults that underlie the site. The Mercia Mudstone Group of rocks in this area dip at approximately 10 degrees to the south. The solid geology is overlain by recent tidal flat alluvium deposits comprising thick layers of marine alluvium, mainly mud and silt, interbedded with bands of Peat. These deposits are overlain by the slag development platform which was laid down across the site in accordance with a series of historical planning consents.

### **3.3 Hydrogeology**

There are no Source Protection Zones (SPZ) near the site, the nearest being the Great Spring which at its nearest point is more than 5km away from the site and is hydraulically isolated from the site by the intervening geology.

The strata below and near the site are considered by NRW as a Non-Aquifer. Both the Holocene sediments and the underlying Mercia Mudstone have been tested in-situ and found to be of low to extremely low permeability, which supports the classification of the area as a Non-Aquifer. There is no known licensed or unlicensed groundwater abstraction from strata underlying the Caldicot Levels.

The presence of the low permeability deposits is one of the reasons that Lagoon 26 was granted a Permit as it provides a natural geological barrier below the artificially established geological barriers incorporated into the landfill lining sequence.

### **3.4 Hydrology**

The natural strata below and near the site are considered by Natural Resources Wales (NRW) to be a non-aquifer due to their extremely low permeability. Almost all the annual recharge falling on the site, therefore, leaves via surface runoff. Infiltration falling on the slag development hardstanding may percolate through to the upper surface of the low permeability upper clay. Such seepage will eventually migrate to one of the surface water ditches excavated into the low permeability clay that entirely surround SSQ. These ditches are designed to capture and divert such drainage to the steelworks Waste Treatment System, preventing escape to the wider environment. Following treatment, the water is discharged to the sea via a pumped pipeline that operates under Tata's environmental permit. The whole working area, therefore, benefits from a drainage system that captures surface run-off for treatment.

This critical drainage infrastructure has been in place for many decades and has served to protect the adjacent Caldicot Levels which are part of the larger Gwent Levels SSSI. The drainage system has been shown to be effective for many decades. During this time, stockpiles

---

have been created and processed by various third parties assisting the steelworks and NRW granted permission for a non-hazardous landfill granted in Lagoon 26. In this context, the current proposals are not new and pose no new risks to the environment but rather the opportunity for further scrutiny and recovery of waste.

### **3.5 Residential Properties**

There are very few residential properties within 1km of the site, as can be seen on Figures 1-1 and 2-1. The nearest residential dwelling is over 650m from the proposed treatment areas.

---

## **4 POLLUTION CONTROLS**

All activities would be overseen by a TCM with strict waste acceptance procedures implemented integrated into a document EMS. No new risks would be introduced and the following measures would be adopted in each treatment area.

The EMS and supporting Environmental Risk Assessment set out the pollution control measures to be implemented in each treatment area but an overview is provided below. As each of the positions are within the landholding of SSQ and the environmental risk profile very similar at each position, the control measures set out below would be implemented at each location.

### **4.1 Air Quality**

Each item of plant fitted with dust suppression and additional misters and bowsers are deployed as required to any part of the operation, including transport routes.

### **4.2 Noise and Vibration**

The waste accepted will primarily arise from the steel making wastes stored at SSQ with only a small contribution, as opportunities arise, coming from external off-site sources. On this basis, the scale of the development proposal is limited and will not generate a significant number of additional traffic movements off-site.

The position of the site is at least 650m from any residential dwelling and screened by vegetation which will act to substantially abate noise generated by plant.

All of the vehicles and plant handling materials will comprise modern plant designed to meet current legislative controls relating to noise and vibration emissions. All plant and vehicles will also be subject to a preventative maintenance programme.

An auditory inspection shall be carried out by the site manager at least twice daily. Noise levels which are considered higher than usual shall be investigated and recorded in the site diary.

The following measures will be taken to minimise the risk of noise and vibration:

- Access roads will be kept in a reasonable condition such that potential noise from vehicles is minimised
- All plant machinery will be subject to regular inspection and preventative maintenance
- Equipment shall be switched off when not in use
- Treatment operations shall be arranged in such a way as to minimise noise production as far as possible

### **4.3 Pests and Scavengers**

No specific controls are considered necessary for controlling pests or scavengers. Good housekeeping will be maintained throughout the operation.

---

#### **4.4 Controlled Water**

Water will be used for washing the materials at SSQ in a closed loop system. This small quantity of water will be abstracted from the on-site Tata surface water drainage system and directed into the plant. Each week, the wash water will be collected by tanker for off-site disposal by GD Environmental. This will ensure that all water is retained within the plant until no longer needed and then collected by an appropriate waste carrier to a local liquid disposal facility, most likely Tradebe.

#### **4.5 Monitoring**

To ensure the pollution control measures are effective, a monitoring programme will be in place. This will comprise:

- Visual observations – dust, noise, visual impact

Assessment of fugitive emissions suggests that these are not likely to be a problem.

---

## 5 MANAGEMENT CONTROLS

### 5.1 Responsibility

In accordance with RGN1, DLS will be the legal organisation with control over the operation at SSQ. DLS will hold the Permit and operate in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints.

### 5.2 Waste Controls

An overview of the whole waste management process is provided in Flowchart 5-1. Documented management systems will be in place for all stages of the process, from waste acceptance to product manufacture.

**Flowchart 5-1 Method Statement of Production**

