



**CELSA**  
GROUP



**EAME**  
Earth & Marine Environmental Consultants



# **Site Condition Report - Substantial Variation**

## **Celsa Manufacturing (UK) Ltd,**

### **Tremorfa New Melt Shop. Tremorfa Works,**

### **Seawall Road, Cardiff, CF24 5TH**

### **Permit Ref: EPR/TP3639BH**

On behalf of:  
Celsa Manufacturing (UK) Ltd

Project Reference:  
021-1892

Revision:  
REV01

Date:  
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**Annex A: Figures****Annex B: Geotechnical and Geoenvironmental Baseline Reports**

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## Abbreviations

ASR	Application Site Report
BGS	British Geological Survey
EA	Environment Agency
EAME	Earth & Marine Environmental Consultants Ltd
EPR	Environmental Permit
NGR	National Grid Reference
NRW	Natural Resources Wales
NVZ	Nitrate Vulnerable Zone
SCR	Site Condition Report
SPZ	Source Protection Zone
WFD	Water Framework Directive

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## 1 Introduction

### 1.1 Background

This document has been prepared by Celsa Manufacturing (UK) Ltd ("Celsa") and its environmental consultant Earth & Marine Environmental Consultants Ltd ("EAME") in support of a substantial permit variation as required under Regulation 20 (variation) of the *Environmental Permitting (England and Wales) Regulations 2016* in relation to current activities and proposed activities to be undertaken at Tremorfa New Melt Shop. Tremorfa Works, Seawall Road, Cardiff, CF24 5TH (Permit No. EPR/TP3639BH).

The status log (history) for the permit is outlined in *Table 1-1*.

**Table 1-1: New Melt Shop permit log (main events)**

Description	Date	Comments
Application TP3639BH.	Received 15/10/2004	-
Permit determined (TP3639BH).	03/05/2005	-
Variation and consolidation (EPR/TP3639BH/V002).	24/04/2012	Varied and consolidate permit issued in modern format. The following permits have been consolidated: EPR/TP3639BH, EPR/BU2098IP and EPR/WP3699FQ.
Regulation 6(1) notice of request for more information.	03/09/2013	-
Regulation 60(1) response received.	30/04/2014	Implementation of BAT conclusions under IED.
Natural Resources Wales Iron and Steel Sector Review 2014 permit EPR/3639BH. Variation issued EPR/TP3639BH/V003.	17/11/2015	Varied and consolidated permit issue in modern IED condition format.
Application PAN-000449. Variation determined EPR/TP3639BH/V004.	20/07/2016	Application to vary permit to add waste codes.
Application PAN-001189. Variation determined EPR/TP3639BH/V005.	24/01/2017	Application to increase millscale storage capacity.

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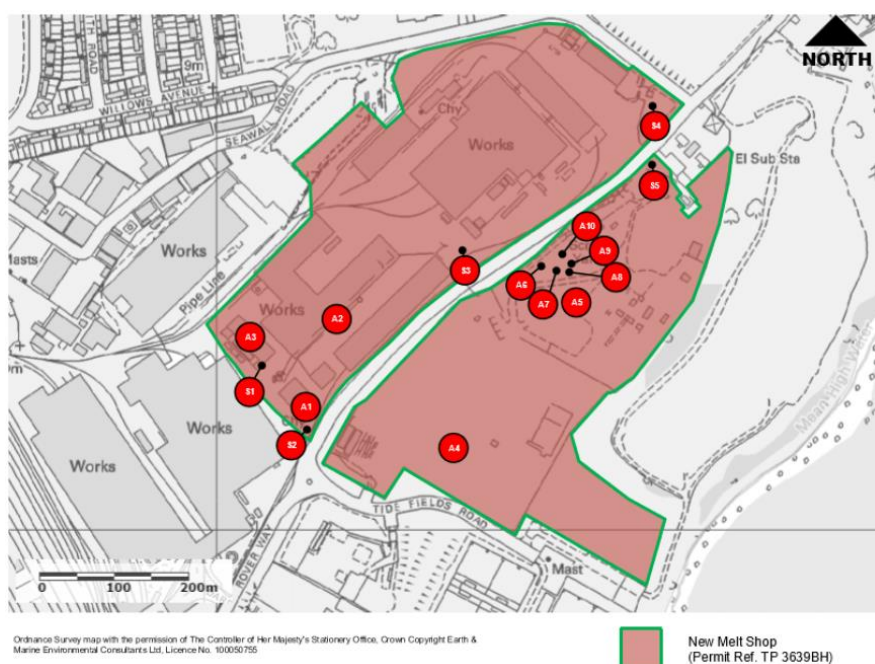
 Tremorfa New Melt Shop. Tremorfa Works,  
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Description	Date	Comments
Application for variation PAN-001610. Variation determined EPR/TP3639BH/V006.	20/06/2017	Application to add mechanical shearing to permitted activities as part of scrap metal pre-treatment.
Application for variation PAN-005161. Variation determined EPR/TP3639BH/V007.	08/07/2019	Application to increase the shearing scrap metal limit to 5000 tonnes per month.
Application for variation EPR/TP3639BH/V008 (PAN-005485). Schedule 5 notices. Variation determined EPR/TP3639BH/V008	07/02/2020	Application to consolidate waste permit EPR/DP3699FM, add integrated recycling centre, remove Carbon Monoxide limit and update/increase permit boundary.
Variation application EPR/TP3639BH/V009 (PAN-008611). Schedule 5 notices. Variation determined EPR/TP3639BH/V009.	05/05/2020	Application to add asphalt plant and slag processing

The current permit boundary is outlined in Schedule 7 of the environmental permit (**Figure 1-1**).



**Figure 1-1: Current New Melt Shop permit boundary (Schedule 7 – Site Plan)**

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It is important to note that this application does not change or alter the current installation boundary. The provision of this SCR provides additional ground information in relation to the proposed variation (shredder installation area only). If, at some time in the future, Cardiff Council propose to implement the Rover Way improvement Scheme Celsa will apply for and amend the permit boundary. As no timescale for the Rover Way improvement scheme has been stated Celsa would propose to maintain the current permit boundary. This approach was discussed with NRW (09/02/23) and it was agreed as acceptable.

This document has been prepared in-line with the current NRW Guidance *i.e.* Environmental Permitting Regulations Guidance for applicants H5 Site condition report – guidance and templates Version 5 (October 2014) *i.e.* provision of Sections 1 to 3 as outlined in the Site Condition Report (SCR) Template.

The remainder of this document outlines the requirements requested by the NRW to progress the permit application.



## 1.2 Proposed Variation

This variation includes the following elements all located on the Rover Way site:

- **Installation** of a new scrap metal shredder on the Rover Way site.
- **Installation** of a new scrap metal shear (fixed installation) on the Rover Way site. It is important to note that the permit already includes the use of a mobile scrap metal shear. This is to be replaced with a fixed installation. Celsa is also requesting that the monthly processing limit is increased from a maximum of 5,000 tonnes to 7,000 tonnes.
- **Installation** of a new End of Life Vehicle (ELV) depollution station on the Rover Way site. The permit already allows Celsa to depollute vehicles, but the activity was never undertaken. A new (off the shelf) fully contained processing unit is proposed.

All proposed process changes are designed to produce materials suitable for the use with the electric arc furnace (EAF). Other changes include:

- **Movement** of existing slag processing equipment within the Rover Way site boundary. This is to allow the installation of the new scrap metal shear. No new equipment is proposed.
- **New** employee car park and staff amenity block near to the Rover Way site entrance.
- **Improvement** of internal roadways (hard surfacing) across the Rover Way site.

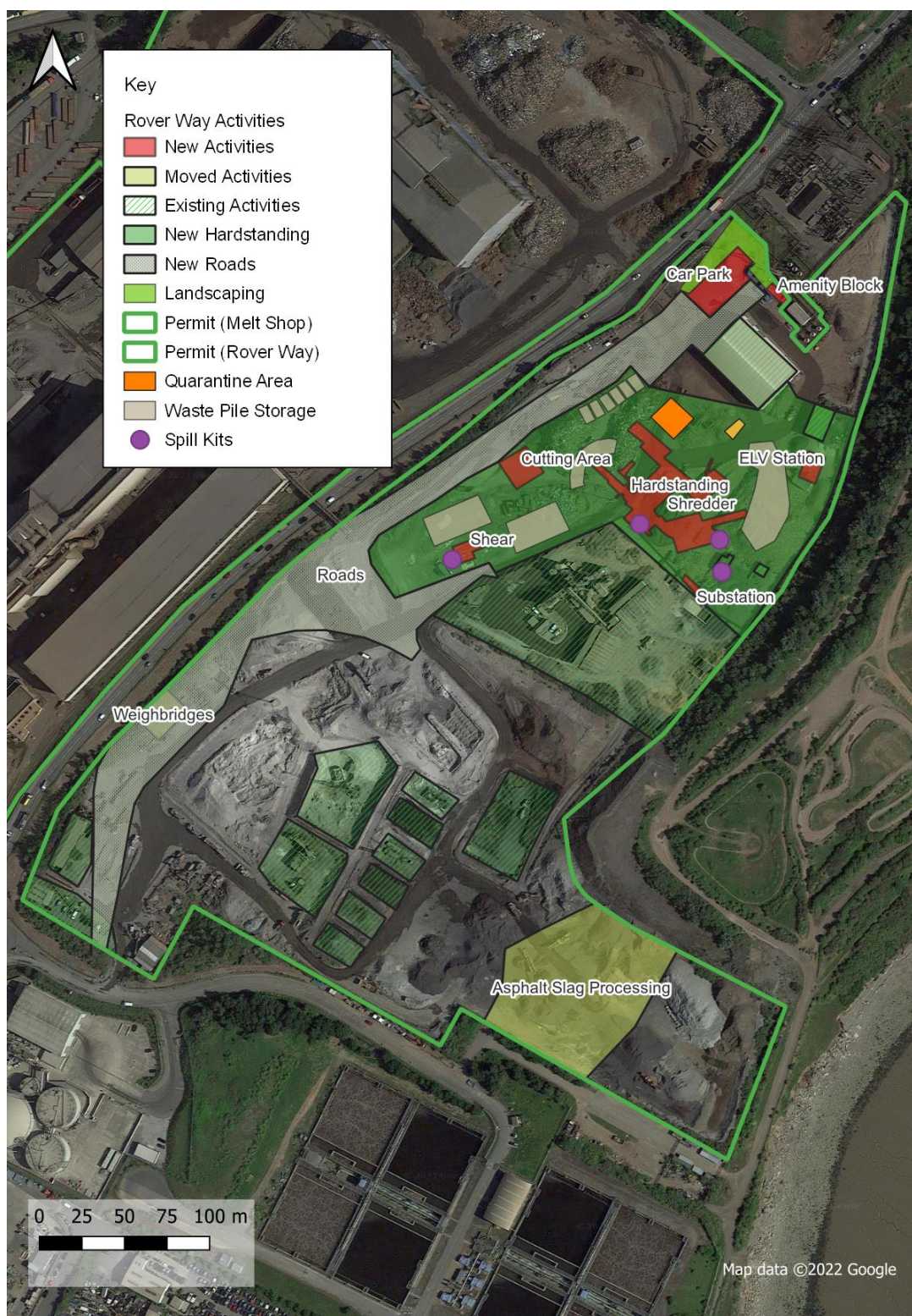
The proposed location and extent of these activities and changes are outlined within **Figure 1-2**.

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**Figure 1-2: Proposed permit changes**

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## 2 Site Details

 The site details are outlined within *Table 2-1*.

**Table 2-1: Site details**

Required Information	
<b>Name of Applicant</b>	Celsa Manufacturing (UK) Ltd
<b>Activity Address</b>	Tremorfa New Melt Shop. Tremorfa Works, Seawall Road, Cardiff, CF24 5TH
<b>National Grid Reference (NGR)</b>	Grid Reference (6 figure) – Site south of Rover Way (ST 21546 76326)
<b>Document reference and dates for Site Condition Report at permit application and surrender</b>	<p><b><u>Application</u></b></p> <p><b>New Melt Shop</b> – ENVIRON UK Limited (2004). Application Site Report (ASR), Application for a permit to operate a Part A1 Installation (Electric Arc Furnace Steel Making) under the Pollution Prevention and Control (England and Wales) Regulations 2000 (as amended), Ref. 63-C7960, July 2004, Version 1.</p> <p><b><u>Variation(s)</u></b></p> <p><b>Minerals Yard Extension</b> – EAME (2010). EAWML30093, Minerals Yard Extension, Site Condition Report (SCR), Application for Permit Variation for an Extension of Licensed Area under The Environmental Permitting (England and Wales) Regulations 2010, July 2010, Ref. R-010-0003 Celsa Minerals Extension Area SCR, Revision 00.</p> <p><b>Scrap Plant (Rover Way)</b> – EAME (2019). Site Condition Report (Normal Variation and Consolidation), Celsa Manufacturing (UK) Ltd, Tremorfa New Melt Shop. Tremorfa Works, Seawall Road, Cardiff, CF24 5TH, Permit Ref: EPR/TP3639BH, Ref. 019-1620, April 2019, REV00.</p> <p><b>Asphalt Plant</b> – EAME (2019). Site Condition Report, Normal Variation (Asphalt Plant), Celsa Manufacturing (UK) Ltd, Tremorfa New Melt Shop. Tremorfa Works, Seawall Road, Cardiff, CF24 5TH, Permit Ref: EPR/TP3639BH, Ref. 018-1666, December 2019, REV01.</p> <p><b>Shredder and Shear</b> (this application) – EAME (2023). Site Condition Report, Substantial Variation, Celsa Manufacturing (UK) Ltd, Tremorfa New Melt Shop. Tremorfa Works, Seawall Road, Cardiff, CF24 5TH, Permit Ref: EPR/TP3639BH, Ref. 021-1892, March 2023, REV01.</p> <p><b><u>Surrender</u></b></p> <p>Not applicable</p>

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Required Information	
Document references for site plans (including location and boundaries)	Annex A: Site Plans Annex B: Site Condition Assessment (Shear and Shredder)



### 3 Condition of Land at Permit Issue

#### 3.1 Environmental Setting

Desk-based research of the local geology, hydrogeology, hydrology and ecology was carried out to establish the potential for migration of contamination onto or away from the site, and to assess the surface water and groundwater sensitivity of the surrounding area. Information was obtained from several sources, namely:

- examination of published geological maps produced by the British Geological Survey (BGS), inspection of the BGS GeoIndex and associated borehole logs;
- review of Envirocheck Landmark report (Ref. 50481054\_1\_1);
- an examination of the Natural Resources Wales (NRW) on-line aquifer classification;
- review of Natural Resources Wales (NRW) and Joint Nature Conservation Committee (JNCC) on-line environmental data; and
- a review of other online web and other publicly available information.

##### 3.1.1 Location

The site is located approximately 3-km east of Cardiff City centre at National Grid Reference (NGR) ST 21546 76326. The site is located south of the existing permitted installation that is located on the northern side of Rover Way. The following current activities have been identified surrounding the Site:

- **NORTH** – Rover Way beyond which is the main Celsa Manufacturing (UK) site and permitted installation. A Western Power 132 kV substation is located adjacent to the northern edge of the site. The closest residential receptors to the site are located approximately 470 metres north (Willow Avenue) across the main steel works site (that forms the main part of the permitted installation). Willows mixed High School is in the same area approximately 450 metres north of the site.
- **EAST** – A disused Motocross Centre MX and Minibike Track (Foreshore MXC track) beyond which is the Severn Estuary (200 metres).
- **SOUTH** – Tide Fields Road beyond which a Welsh Water wastewater treatment works, and other light industrial activities associated with Tremorfa Industrial Estate.
- **WEST** – Rover Way beyond which is the main Celsa Manufacturing (UK) Ltd site.

### 3.1.2 Geology

According to the BGS GeoIndex and the BGS 1:50,000 Cardiff solid and drift map (Sheet 263) the site is underlain by the following deposits:

- **Made Ground** – Made Ground (Undivided) - Artificial Deposit.
- **Superficial Deposits** – Tidal Flat Deposits - Clay, Silt and Sand.
- **Bedrock Deposits** – Mercia Mudstone Group – Mudstone.

A single borehole record is held for the site by the BGS (Reference: ST27NW294). The profile is outlined within *Table 3-1*.

**Table 3-1: Borehole log ST27NW294**

Depth (m bgl)	Description
0.00 – 3.00 m bgl	Made Ground (brick, stones, silt, clay <i>etc.</i> )
3.00 – 7.50 m bgl	Made Ground (ash, slag, clay <i>etc.</i> )
7.50 – 16.00 m bgl	Soft, firm in parts, grey slightly organic silty clay, weathering to brown colouration.
16.00 – 18.00 m bgl	Gravel with grey sand and nodules of grey silty clay.
18.00 – 19.00 m bgl	Stiff grey friable marl.
19.00 – 25.00 m bgl	Stiff red friable marl with lenses of grey marl and thin bands of hard marl
25.00 – 26.00 m bgl	Hard red marl
<b>Notes:</b> Name: ROVER WAY INDUSTRIAL SITE. NO.1, Length (m): 26.00m, Date: 1973, Easting: 321466, Northing: 176366. Water seepage at 7.00 m bgl, water strike (medium flow) at 16.00 m bgl. Rest water level at 14.00 m bgl. Ground level 9.43 m AOD.	

### 3.1.3 Hydrogeology

The aquifer classification system was last updated in April 2010 which provided new aquifer designations to replace the old system of aquifer classifications, such as Major, Minor and

Non-Aquifer. This new system is in line with the EA's Groundwater Protection Policy (GP3) and the Water Framework Directive (WFD) and is based on BGS mapping. From a review of the environmental database and the Defra Magic on-line maps, the underlying deposits are classified as:

- **Made Ground** – Not classified.
- **Superficial Deposits** – Secondary Aquifer - Undifferentiated. Secondary Undifferentiated has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
- **Bedrock Deposits** – Secondary B Aquifer. These are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

The NRW have defined Groundwater Source Protection Zones (SPZs) groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones are designated to protect the location from the risk of contamination from any activities that might cause pollution in the area, *i.e.* the closer the activity, the greater the risk. The SPZs show three main zones; an inner, an outer and the total catchment with a fourth zone of special interest, which the NRW occasionally apply, to a groundwater source. The Site is not within an SPZ.

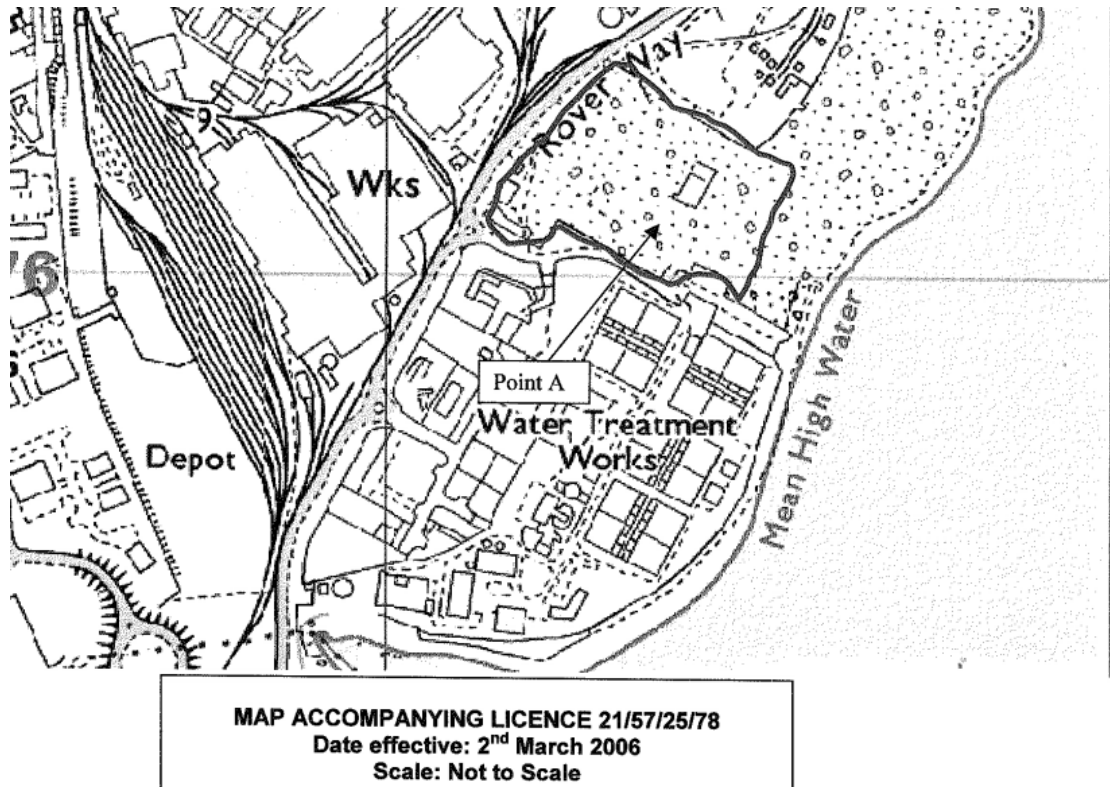
The closest existing abstraction licence (Ref. 21/57/25/78) is operated by Celsa Manufacturing (UK) Ltd with a borehole located at ST 21350 76100 (*Figure 3-1*). The water is used for process cooling and dust suppression as part of a steel works operation.

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**Figure 3-1:** Groundwater abstraction point (Ref. 21/57/25/78)

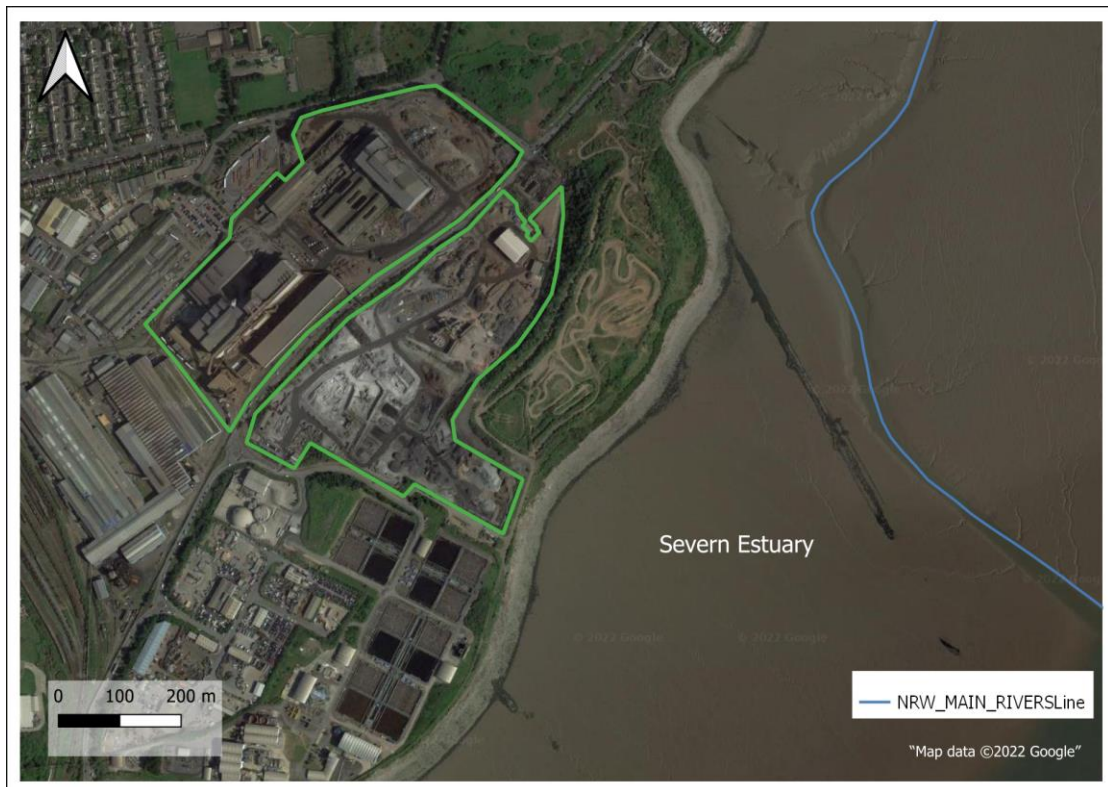
The licence states that water is abstracted from marine alluvium/Electric Arc Furnace (EAF) slag and that the abstraction borehole is 25 metres deep.

There are currently no other groundwater abstractions associated with the site or within a 500 metre radius.

## **3.1.4 Hydrology**

The site is located adjacent to the Cardiff Flats (edge of the Severn Estuary) (*Figure 3-2*).





**Figure 3-2: Surface water features**

*Google Earth Imaging with the permission of Google – Licensed to Earth & Marine Environmental Consultants Ltd.*

There are no surface water abstractions associated with the site or any other site within 1-km.

### 3.1.5 Flood Risk

According to the latest NRW information:

- **Flood map for planning** – The Rover Way site is not within either Zone 2 or 3.
- **Flood Development mapping** – The Rover Way site is in Zone B (Areas known to have flooded in the past). The map is based on Natural Resource Wales' extreme flood outlines (Zone C) and the British Geological Survey drift data (Zone B). Zone B data originally published 2004, updated in 2017, Zone C data revised quarterly.
- **Flood risk** – The majority of the Rover Way site is not considered at risk from either the sea or from surface water. Small areas (low lying) are at a low risk (surface water) whilst the eastern edge is at a low risk of flooding from the sea.

Output from NRW on-line systems is provided in **Annex A**.

### 3.1.6 Ecology

The site is adjacent (within 250 metres) of the Severn Estuary, which is designated a Ramsar Site, Special Area of Conservation (SAC), Special Protection Area (SPA) and a Site of Special Scientific Interest (SSSI) (*Figure 3-3*).



**Figure 3-3:** Ecology designations surrounding the site (*Geoindex Onshore*)

The Severn Estuary is important due to its immense tidal range which affects both the physical environment and the biological communities present in the estuary, for its unusual estuarine communities, reduced species diversity and high productivity. The high tidal range leads to strong tidal streams and high turbidity, producing community's characteristic of the extreme physical conditions of liquid mud and tide-swept sand and rock.

The estuary is particularly important for the run of migratory fish between the sea and rivers via the estuary. Species using the estuary include salmon (*Salmo solar*), sea trout (*S. trutta*), sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*), allis shad (*A losa alosa*), twaite shad (*A. fallax*) and eel (*Anguilla Anguilla*). The population of the sea lamprey and twaite shad are larger than in any other UK estuary. The rare and endangered allis shad is now only an occasional visitor although formerly a substantial spawning population was present.

The estuary is particularly important for migratory birds during passage periods in spring and autumn. These large bird populations are supported by the rich food resources available in

the tidal flats and nearby freshwater wetlands, and regularly supports in winter over 20,000 waterfowl. The estuary regularly supports, during the same period, internationally important populations of five species of waterfowl, as well as notable nationally important wintering populations of bird species.

The estuary as a SAC designated for its estuary environment, Atlantic salt meadows, intertidal mudflats and sandflats covered by seawater at low tide, for the presence of Sea lamprey and reefs, and for its Sandbanks which are slightly covered by sea water all the time.

Additionally, the Gwent Levels (Rumney and Peterstone) are classified as a SSSI.

### **3.1.7 Residential Receptors**

The closest residential receptors to the site are located approximately 420 metres north northeast of the site (travellers' site), 470 metres north (Willow Avenue) across the main steel works site (that forms the main part of the permitted installation). Willows High School is in the same area approximately 450 metres north of the site.

### **3.1.8 Protected Buildings**

According to Historic Wales there are no National Monuments, Cadw Listed buildings or scheduled ancient monuments on-site or within 500 metres.

## **3.2 Pollution History**

### **3.2.1 Pollution incidents that may have affected land**

Reportedly there have been no significant pollution incidents at the site whilst the site has been in Celsa's ownership.

From historical maps and information provided by Celsa representatives it is known that the site was reclaimed from the Severn Estuary in the 1960s. Reclamation materials comprised slag and other steel manufacturing waste materials from local steel manufacturing facilities, hence historic pollution due to the nature of the fill materials is likely to be present.

According to the environmental database there are no recorded pollution incidents to controlled waters or substantiated pollution Incidents associated with the Site.

The site, and all surrounding land south of Rover Way, is identified as historic landfill (of differing phases and time periods) (*Figure 3-4*).

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**Figure 3-4: Historic landfills**

Google Earth Imaging with the permission of Google – Licensed to Earth &amp; Marine Environmental Consultants Ltd.

The details of the main landfilling activities, both on-site and off-site are outlined within *Table 3-2*.

**Table 3-2: Main landfilling activities on-site and adjacent to the site**

Operator	Location	Date	Material
(1) British Steel Corp (Ref. EAHLD31199)	On-site	1940 - Unknown	Inert and industrial waste
(2) GKN Fragmentiser (Ref. EAHLD15211)	Off-site (east)	1977 - 1981	Industrial and household waste
(3) Birds Fragmentiser Tip (Ref. EAHLD15267)	Off-site (east)	1981 - 1991	Industrial, household and special (hazardous) waste
(4) Slag Reduction Limited (Ref. EAHLD15269)	Off-site (south)	1977 - 1990	Insert and industrial waste

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Operator	Location	Date	Material
(5) Allied Steel and Wire (Ref. EAHLD15241)	Off-site (south)	1991 - 1994	Industrial waste (flue dust)
(6) Allied Steel and Wire (Ref. EAHLD15270)	Off-site (south)	1988 - 1991	Industrial and special waste (flue dust)

In addition to the landfill activities various waste treatment and recycling activities have been undertaken on the site (*Table 3-3*).

**Table 3-3: Waste treatment activities**

Operator	Location	Date	Material
Slag Reduction Company (Cardiff) Ltd (Ref. 93/2)	On-site	1993	Transfer station
Sims Metal UK Ltd (Cardiff Mill scale Services) (Ref. 30093)	On-site	1993	Mixed metal recycling site
Allied Metals Ltd (Ref. 94/04)	On-site	1994	Scrapyard
Sims Metal UK Ltd (Ref. 30124)	On-site	1996	Mixed metal recycling site
Phillip Metals (Europe) Ltd (Ref. 93/2)	On-site	1998	Transfer station with treatment

### 3.2.2 Historical land-uses and associated contaminants

Information on site history was provided by reference to published historical ordnance survey maps. Several historical maps were examined as part of the environmental review.

From the earliest map of 1880 the site comprised of mud flats. By the mid to late 1960s the site had been reclaimed with waste materials (which from anecdotal information the reclamation materials are known to have comprised slag and other steel manufacturing waste materials from the surrounding steel manufacturing works and comprised mainly blast furnace slag); the site, and immediate surrounding area, which had also been reclaimed, is annotated on historical maps as being a 'disused tip'. The site since it was reclaimed has remained undeveloped to the present day.



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**Figure 3-5: Ordnance survey 1:10,000 (1975)**

Landmark Order No. 50481054\_1\_1

The material used for reclamation was blast furnace slag and associated steel making wastes from the primary steel making process (*i.e.* manufacture of raw steel from iron ore, coke, lime, etc). The slags and residues from this process are quite different from those associated with EAF manufacture which is the electrical melting of sorted and quality-controlled scrap metal.

The blast furnace slag and primary steel making wastes are typically high in concentrations of heavy metals, sulphates and other impurities from the inefficient primary steel making processes. The principal environmental concern with this material is the leaching of heavy metals into water and the generation of inhalable dust containing these heavy metals.

### 3.2.3 Any visual/olfactory evidence of existing contamination

No visual and/or olfactory evidence of significant contamination has been identified. The area is characterised by a layer of EAF slag over the surface.

### 3.2.4 Evidence of damage to pollution prevention measures

The site is used solely for the temporary storage and processing of waste materials (*e.g.* scrap metal) as detailed within the existing environmental permit (Ref. EPR/DP3699FM). The current pollution control measures are identified within the current permit.

Celsa operates an ISO14001 certified Environmental Management System (EMS) within which there are procedures to ensure the control of potentially polluting activities. Additionally, Celsa personnel undergo training in pollution prevention techniques.

### **3.2.5 Evidence of historic contamination, for example historical site investigation, assessment, remediation and verification reports (where available)**

Previous ground investigations have been undertaken on the Rover Way site; they include:

- July 2010 – Mill Services Site during the Application for Permit Variation for an Extension of Licensed Area (R-010-0003);
- January 2019 – Geotechnical & Geo-Environmental Report, Celsa, Rover Way, Cardiff, Prepared for: Celsa Manufacturing UK Limited, January 2019, Job No: 14958. This was undertaken in relation to the scrap metal processing centre
- April 2019 – Geotechnical & Geo-Environmental Report, Aggregate Production Area, Celsa, Rover Way, Cardiff, Prepared for: HARSCO Metals and Minerals, April 2019, Job No: 15264. This was undertaken in relation to the asphalt plant.

### **3.2.6 Baseline soil and groundwater reference data**

The collection of representative baseline soil and groundwater data is important as it allows an operator to demonstrate soil and groundwater conditions at permit issue and at surrender. In addition, since the introduction of the Industrial Emissions Directive (IED), all permits have been reviewed to include a standard requirement:

*Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.*

This report updates and extends the area covered by the previous Site Condition Report baseline data. The baseline data, for this variation application is provided in **Annex B**.

No new groundwater monitoring boreholes are to be provided during this assessment process. Existing groundwater monitoring boreholes are available and are already part of the installation.

## 4 Permitted Activities

### 4.1 Proposed Activity

The proposed activities covered are outlined within the current environmental permit Schedule 1 of EPR/TP3639BH/V009. The proposed amended/additional activities are outlined within *Section 1.2*. The new stationary technical units or direct technical connections include:

- a new fixed scrap metal shredder;
- a new fixed scrap metal shear; and
- a new ELV processing station

Movement of existing permitted equipment (within the current permit boundary) includes the existing slag processing equipment associated with the asphalt plant.

### 4.2 Non-permitted activities undertaken

The site has minor maintenance activities, welfare facilities, office facilities and staff car parking. A new amenity block and car parking spaces are to be provided. These areas are not considered part of the permitted installation.

### 4.3 Other requirements

Plans showing activity location and layout are provided in **Annex A**. The environmental risk assessment is outlined within the main technical document.



**Site Condition Report (Substantial Variation)**

Tremorfa New Melt Shop. Tremorfa Works,  
Seawall Road, Cardiff, CF24 5TH

Permit Ref: EPR/TP3639BH

Celsa Manufacturing (UK) Ltd

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## Annex A: Figures

**Site Condition Report (Substantial Variation)**

Tremorfa New Melt Shop. Tremorfa Works,  
Seawall Road, Cardiff, CF24 5TH

Permit Ref: EPR/TP3639BH

Celsa Manufacturing (UK) Ltd

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## **Annex B: Geotechnical and Geoenvironmental Baseline Reports**