Site Condition Report
Celsa Manufacturing (UK) Ltd, Cardiff Section Mill, Tremorfa Works, Seawall Road, Tremorfa, Cardiff, CF24 5TH

On behalf of:
Celsa Manufacturing (UK) Ltd

Project Reference:
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Abbreviations

ASR	Application Site Report
AST	Above Ground Storage Tank
BGS	British Geological Survey
CMSM	Cardiff Medium Section Mill
DAA	Directly Associated Activity
EA	Environment Agency
EAME	Earth & Marine Environmental Consultants Ltd
EPR	Environmental Permit
IPPC	Integrated Pollution Prevention and Control
LWS	Local Wildlife Site
MCP	Medium Combustion Plant
MCPD	Medium Combustion Plant Directive
NGR	National Grid Reference
NNR	National Nature Reserve
NRW	Natural Resources Wales
NVZ	Nitrate Vulnerable Zone
SAC	Special Areas of Conservation
SINC	Sites of Interest for Nature Conservation
SCR	Site Condition Report
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Sites of Special Scientific Interest

Bibliography

Enviros Aspinwall. (2002). *IPPC Permit Application for ASW CMSM - Combined Phase 1a/2 Initial Site Report - AS0400003C Volume 1 of 1*.

Natural Resources Wales. (2014). *Environmental Permitting Regulations Guidance for applicants H5 Site condition report – guidance and templates*. NRW. Retrieved from https://naturalresources.wales/media/1215/environmental-permitting-regulations-guidance-for-applicants-h5-site-condition-report-guidance-and-template.pdf

Quantum Geotechnical Ltd. (2008). *Site of Proposed New Furnance, Celsa Steelworks, Seawall Road, Tremorfa, Cardiff, CF24 5TH (Report no. X081206)*.

Terra Firma. (2024). *Geotechnical and Geoenvironmental Report, Proposed Reheat Furnace, CELSA, Rover Way, Cardiff, CELSA UK Limited, September 2024, Job No. 15704*.

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 bespoke permit variation application as required by the *Environmental Permitting (England and Wales) Regulations 2016* concerning current and proposed activities to be undertaken at the Celsa Manufacturing (UK) Ltd, Cardiff Section Mill, Tremorfa Works, Seawall Road, Tremorfa, Cardiff CF24 5TH (the "Site").

This document has been prepared in line with the current Natural Resources Wales (NRW) Guidance *i.e.* Environmental Permitting Regulations Guidance for applicants H5 Site condition report – guidance and templates (Natural Resources Wales, 2014) As this is considered an application Sections 1 to 3, as outlined in the Site Condition Report (SCR) Template, are provided below.

1.2 Current Permitted Activities

The activities subject to this Permit are a 65 tonne/hour 16" section hot-rolling mill and associated activities, namely the operation of a re-heat furnace, water cooling systems, water treatment, raw material handling and storage, and product handling and storage.

The installation involves the hot rolling of steel billet to produce various-sized steel sections. The hot billet passes through the mill's single heating stage and is then processed on rolling lines. The heating is supplied from a 44 MWth furnace, firing on gas with a backup fuel of light fuel oil. Combustion gases pass from the furnace through a two-stage heat exchanger which preheats the combustion air. These gases are released from a single 36-metre stack.

Scale forms on the billet surface that detaches within the furnace, with any remaining after the heating stage being removed by spraying water from high-pressure water jets, which also serve to cool the billet as it is being rolled. The hot billet is first passed through a primary rolling stage, before being directed to the Section Mill finishing line, where it undergoes further rolling to the desired product dimensions. To support these activities, there is an onsite effluent treatment plant and scale weathering process. Treated effluent is discharged directly to the sewer.

1.3 Proposed Variation Application

This permit variation application proposes the following changes to the current permitted installation:

- **Installation** of a new 140 MT/h reheat furnace with low NOx burners and future hydrogen-ready capacity. The unit will also include a new 60-metre-high stack, water treatment plant and electrical control building. The new furnace will maintain and utilise the existing pump house.
- **Removal** of the existing furnace and associated plant and equipment. The units will be decommissioned and removed once the new gas-fired furnace is commissioned.
- **Removal** of existing diesel fuel storage tank (within the permitted boundary).

The proposed variation application does not require any additional land and/or change to the existing permit boundary (**Figure *1-1***).

Figure 1-1: *Installation location - New Furnace*

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

2 Site Details

The Site details are outlined in **Table 2-1**.

Table 2-1: Site details

Required Information	
Name of Applicant	Celsa Manufacturing (UK) Ltd
Activity Address	Cardiff Section Mill, Tremorfa Works, Seawall Road, Tremorfa, Cardiff CF24 5TH
National Grid Reference (NGR)	Grid reference: ST 21029 76007 Note: NGR is for the centre point of the new furnace building.
Document reference and dates for Site Condition Report at permit application and surrender	**Application** Enviros Aspinwall (2002). IPPC Permit Application for ASW CMSM Combined Phase 1a/2 Initial Site Report AS0400003C Volume 1 of 1 May 2002. **Variation** EAME (2024). 024-1973 Celsa Permit Variation Site Condition Report, Cardiff Section Mill, Tremorfa Works, Seawall Road, Tremorfa, Cardiff CF24 5TH (Permit Ref. BV0767IT), December 2024 (this document) **Surrender** N/A
Document references for site plans (including location and boundaries)	Annexe A: Site Plans Annexe B: Site Investigation Reports Annexe C: Tank Decommissioning and Removal

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.

This section should be read in conjunction with the original permit application site report (Enviros Aspinwall, 2002). Where required this section includes the original permit application information but updates have been applied where appropriate.

3.1.1 Location

The permitted installation (the Section Mill) is located approximately 2 km southeast of Cardiff City centre and is part of the much larger Celsa Manufacturing (UK) Ltd Tremorfa Steel Works site.

3.1.2 Geology

The site is shown on the geological map to be underlain by Made Ground. The Made Ground was shown in the site investigation to have a thickness of between 2.4 and 3.5 m and was underlain by clay (marine and estuarine alluvium). The full thickness of the drift deposits was not established in the site investigation, but previous investigations showed a maximum drift thickness of approximately 20 m.

The alluvium and Made Ground are underlain by the Mercia Mudstone. The Mercia Mudstone comprises a red structureless mudstone with occasional siltstones and is of a substantial thickness (estimated at 400 m from the geological map cross-section).

Borehole logs were obtained for three boreholes drilled across the steelworks site for geotechnical purposes in the early 1970s. These indicate that the Made Ground varies across the steelworks site with a maximum depth recorded of 7.5 m. The Mercia Mudstone is shown on the logs to be present at a depth of approximately 20 metres below ground level (mbgl).

3.1.3 Hydrogeology

The site is underlain by a Non-aquifer. In this area, this assessment arises from the presence of the Mercia Mudstone beneath the site. A Non-aquifer is a rock formation

which is regarded as containing insignificant quantities of groundwater. However, some Non-aquifers can yield water in sufficient quantities for domestic use and supply base flow to rivers. The site investigation has shown that there is perched groundwater present within the Made Ground, which is relatively permeable. Groundwater level data collected for the wider site indicates that groundwater flows in a southeasterly direction, towards the Severn Estuary.

The site is not located within a groundwater Source Protection Zone (SPZ).

3.1.4 Hydrology

The installation is located approximately 500 metres from the northern edge of the Bristol Channel. There are no surface water features present within the site, but historical maps show that a stream used to run along the northern site boundary. It is uncertain as to whether this stream was culverted or filled in on construction of the site. The 1:50,000 OS map does not show any streams in the vicinity of the site, with the nearest major surface water features being a stream approximately 2 km to the north of the site and the estuary of the Rhymney River approximately 1.5 km to the northeast.

3.1.5 Flood Risk

According to current 2024 NRW data, the flood risk for the installation is as follows:

- **Flood risk from Rivers** – None.
- **Flood risk from the sea** – None.
- **Flood risk from surface water** – Variable surface water flood risk (between Low and Medium risk) around the southern edge of the Section Mill (***Figure 3-1***). Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. Although surface water flood risk information is not suitable for identifying whether an individual property will flood it does indicate the broad areas likely to be affected.
- **Flood risk from reservoirs** – None.

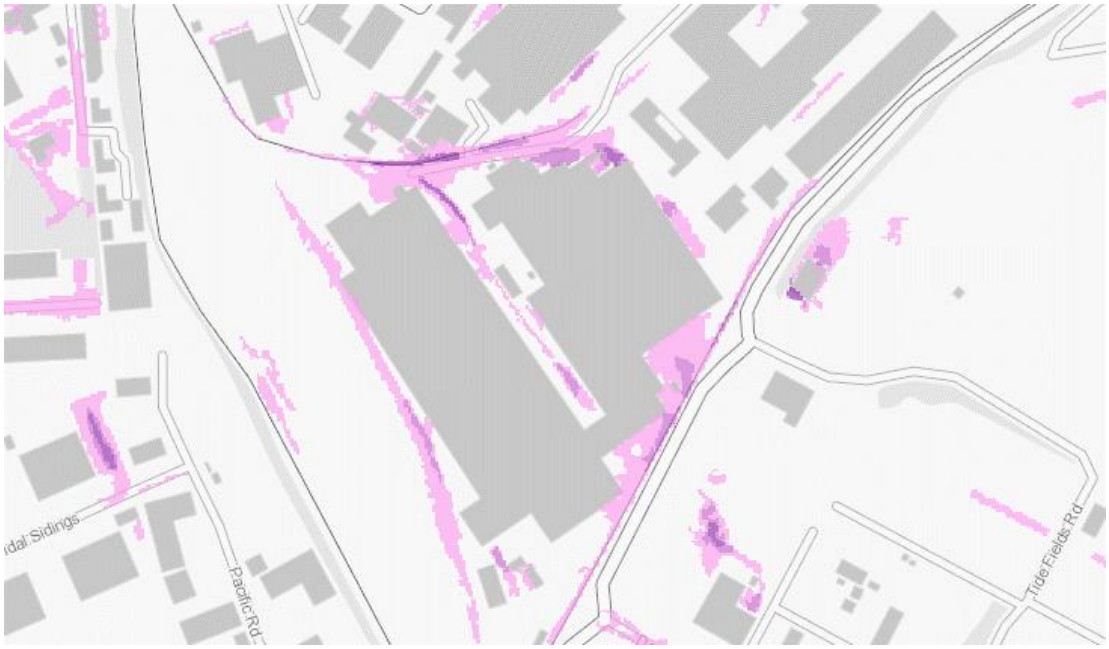

Figure 3-1: *Surface water flood risk*

3.1.6 Ecology

The NRW and Cardiff City Council websites were queried to locate Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Ramsar sites, National Nature Reserves (NNR), Ancient Woodland, Local Nature Reserves (LNR) and Local Wildlife Sites (LWS) also known as Sites of Interest for Nature Conservation (SINCs) within 1 km to 10 km (depending on the site designation) of the Site. The identified designated areas (within the screening distance) are outlined in **Table *3-1***.

Table 3-1: *Designated areas*

Designation	Screening Distance	Description and Status
Ramsar	10-km	540 metres east, Severn Estuary (Wales), UK11081
SPA	10-km	540 metres east, Severn Estuary (Wales), UK9015022
SAC	10-km	540 metres east, Severn Estuary (Wales), UK0013030
SSSI	2-km	540 metres east, Severn Estuary, 461
NNR	2-km	None
LNR	2-km	None

Designation	Screening Distance	Description and Status
Ancient Woodlands	2-km	None
LWS/SINCs	2-km	608 metres north, Pengham Moors SINC 195 metres south, Tidal Sidings SINC 490 metres south, Ocean Park South SINC 490 metres south, Cardiff Heliport Fields SINC 1.5 km south, Beach Sidings SINC 1.5 km north, River Rhymney SINC

3.1.7 Residential Receptors

The closest residential receptors to the site are located approximately 550 metres north (Willow Avenue) across the main steelworks site and adjacent light industrial estate. Willows High School is in the same area approximately 740 metres north of the site.

3.1.8 Protected Buildings

The DataMapWales website was queried to locate Scheduled Monuments, World Heritage sites and Listed Buildings. There are no listed features within 500 metres of the Site.

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 since the original baseline assessment report which was submitted in 2002.

3.2.2 Historical land uses and associated contaminants

A full assessment of the historical land uses was included in the original baseline assessment report which was submitted in 2002.

An updated (current) planning history (compiled on 24th July 2024) is outlined in **Table 3-2**.

Table 3-2: *Planning History*

Application	Date	Description and Status
19/02844/MJR	28/10/2019	**Granted (16/01/2020)** Proposed Extension of Existing Building to House New Reheat Furnace, New 60m-high Furnace Stack, Water Treatment Plant, Electrical Control Building; Retention of Existing Pump House, And Demolition of Existing Diesel-Fuel Storage Tank.
Notes: Planning records presented above are as per the Cardiff Council website https://www.cardiff.gov.uk/		

Since the issue of the original permit in 2003, there has only been one planning application associated with the installation i.e. the installation of the new furnace.

3.2.3 Any visual/olfactory evidence of existing contamination

No areas of specific concern have been identified (i.e. the area remains clean, tidy and free from evidence of surface contamination e.g. leaks and spills).

3.2.4 Evidence of damage to pollution prevention measures

No areas of specific concern were identified (i.e. tertiary containment surfaces remain in good condition).

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

Site investigations have been undertaken on-site and are outlined in **Table *3-3***.

Table 3-3: *Site investigation history*

Year	Report	Available
2002	**IPPC Baseline Assessment** Enviros Aspinwall, IPPC Permit Application for ASW CMSM, Combined Phase 1a/2 Initial Site Report, AS0400003C Volume 1 of 1 May 2002.	Yes

Year	Report	Available
2008	**Furnace design assessment** Quantum Geotechnical Ltd, Site of Proposed New Furnace, Celsa Steelworks, Seawall Road, Tremorfa, Cardiff, CF24 5TH. Interpretative Report, September 2008 (Quantum Geotechnical Ltd, 2008)	Yes
2024	**Furnace design assessment (supplemental)** Geotechnical and Geoenvironmental Report, Proposed Reheat Furnace, CELSA, Rover Way, Cardiff, Prepared For: CELSA UK Limited, Issue Date: September 2024, Job No: 15704	Yes

Since the original baseline data was submitted in 2002 two further) investigations have been undertaken to help provide design input into the construction of the new furnace. Both additional reports are provided as attachments to this updated SCR (**Annexe B**).

Remediation

No soil and/or groundwater remediation has been undertaken since the permit was issued in 2003.

Removal of Equipment

The existing furnace is primarily fired using natural gas but could (when needed) be fired using light fuel oil stored within a secondarily contained externally located above-ground storage tank (AST) (***Photograph 3-1***). Given the lack of use of the AST, it was decided in April 2021 to decommission and remove the installation. The process involved:

- Selection of external contractor (Tema Engineering Ltd)
- Inspection of the tank and secondary containment
- Liquid removal from tank and/or secondary containment (if required)
- Removal of all lagging
- Dismantling of the diesel tank and associated access equipment
- Demolishment of the concrete secondary containment (to slab level)
- Removal of all materials off-site (recovery, recycling or disposal)

The project was completed and the area was reinstated (***Photograph 3-2***).

Photograph 3-1: *AST prior to removal*

Photograph 3-2: *Area of previous AST (post-removal)*

Celsa can confirm that the AST was empty before the works started and that no evidence of contamination was noted within the AST, within the secondary containment or on the tertiary containment post-removal of the AST and surrounding structures. On the basis of the observed infrastructure condition, no intrusive investigations were deemed necessary.

Additional photos from the process are outlined in **Annexe C**.

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 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.

The baseline soil and groundwater conditions are outlined within the previously submitted 2002 report (Enviros Aspinwall, 2002). The 2008 Quantum Investigation (Quantum Geotechnical Ltd, 2008) and the 2024 Terra Firma Investigation (Terra Firma, 2024) represent operational (periodic) soil and groundwater data. Celsa would not propose to collect any additional groundwater or soil data unless the risk profile of the permitted area changes.

The locations associated with the 2002, 2008 and 2024 investigations are outlined in **Table *3-4***.

Table 3-4: *Site investigation locations*

Ref	Report	Date
TP13	Railway sidings, 10.73 m AOD, NGR (320910, 176120)	Baseline, 2002
TP14	Cooling ponds and storage of water treatment chemicals, 10.72 m AOD, NGR (321020, 175960)	Baseline, 2002
TP15	Oil storage tanks, 11.12 m AOD, NGR (320940, 175870)	Baseline, 2002
BH5	Site boundary (up-gradient), 10.83 m AOD, NGR (320880, 176210), installed for monitoring purposes.	Baseline, 2002

Ref	Report	Date
BH6	Site boundary (down-gradient), 10.92 m AOD, NGR (320910, 175890), installed for monitoring purposes.	Baseline, 2002
BH1	The proposed furnace site, NGR (1325.97 E, 375.33 N), Was not installed. Terminated at 1.35 m bgl.	Periodic, 2018
BH2	The proposed furnace site, NGR (1348.01 E, 375.70 N), Was not installed. Terminated at 4.1 m bgl.	Periodic, 2018
BH1R	The proposed furnace site, NGR (1325.97 E, 375.33 N), Installed.	Periodic, 2018
BH2R	The proposed furnace site, NGR (1348.01 E, 375.70 N), Installed.	Periodic, 2018
TP01/24	NGR (3210045.00 - 175942.00), 8.30 m AOD, Installed	Periodic, 2024
TP02/24	NGR (321021.00 - 175974.00), 8.82 m AOD, Installed	Periodic, 2024
BH01D	NGR (321006E - 175942N), 8.88 m AOD, Installed	Periodic, 2024
BH01S	NGR (321004E - 175944N), 8.90 m AOD, Installed	Periodic, 2024
BH02D	NGR (321020E - 175973N), 8.83 m AOD, Installed	Periodic, 2024
BH02S	NGR (321023E - 175975N), 8.83 m AOD, Installed	Periodic, 2024
BH03D	NGR (321056E - 176050N), 8.58 m AOD, Installed	Periodic, 2024
BH03S	NGR (321056E - 176051N), 8.60 m AOD, Installed	Periodic, 2024

Updated ground information (collected during permit operation) is presented in **Annexe B**.

4 Permitted Activities

4.1 Current and Proposed Activities

The permitted activities associated with the installation are outlined in **Table *4-1***.

Table 4-1: *Permitted activities (current permit)*

Sch 1 Ref	Description	Limits
S2.1 A(1)(c)	Processing ferrous metals and their alloys by using hot-rolling mills with a production capacity of more than 20 tonnes of crude steel per hour.	Receipt of crude steel billets from furnace to dispatch of final rolled product.
Directly Associated Activity (DAA)	Operation of a 44MWth natural gas/light fuel oil re-heat furnace	-
DAA	Descaling, roughing and cooling of rolled product	-
DAA	Raw material handling and storage	-
DAA	Effluent treatment	-
DAA	All handling and storage of wastes pending final removal from the installation	-
DAA	All handling and storage of product pending final removal from the installation	-
DAA	Operation of engineering workshops associated with the above specified and directly associated activities.	-

The currently permitted 44 MWth reheat furnace (listed as a DAA) will be replaced by a 140 MT/h natural gas/hydrogen fuel-ready reheat furnace.

4.2 Non-permitted activities undertaken

The site has various ancillary operations that are not directly connected to the stationary technical unit. Although these areas/activities are not considered part of the permitted

installation (direct technical connection) the area within which they are located has been included within the permit boundary.

4.3 Other requirements

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

Annexe A: Figures and Plans

Annexe B: Site Investigation Reports

Annexe C: Tank Decommissioning and Removal