Extractive Waste Management Plan

Saint Gobain Construction Products (Ireland) Ltd.
Navan road, Kingscourt, Co Cavan

Saint Gobain Construction Products (Ireland) Ltd

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		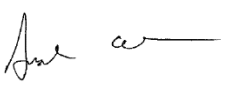	
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Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	27 June 2022	Draft for Client Review	Yes	Brendan McCarthy	Project Manger
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1. Introduction

Saint Gobain Construction Products (Ireland) Ltd. (SGCPIL) (the Client), contracted AECOM Ireland Ltd (AECOM) to prepare an updated Extractive Waste Management Plan (EWMP) for their site located at Drummond, Magheracloone, Co. Monaghan.

1.1 Background

SGCPIL holds an Industrial Emissions (IE) Licence (P0519-04) issued by the Environmental Protection Agency (EPA) for mineral extraction and waste recovery. Under the licence, SGCPIL operate two distinct facilities:

- The "Mine Site" (object of the proposed work): a gypsum mine, located in Knocknacran, Co. Monaghan, where extraction operations take place in an underground and open cast mine;
- The "Processing Site": where freshly mined and recycled gypsum are processed for the production of gypsum plasterboard and other construction products.

An EWMP is required under Condition 8.10 of the IE Licence

> *8.10 Extractive Waste Management Plan*
>
> *8.10.1 The licensee shall draw up a Waste Management Plan (to be known as an Extractive Waste Management Plan) for the minimisation, treatment, recovery and disposal of extractive waste. This plan shall, where appropriate, meet the requirements of Regulation 5 of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009. The Plan shall be submitted for agreement by the Agency within six months of the date of grant of this licence. The plan shall be reviewed at least once every 5 years and amended where there are substantial changes to operation of the waste facility or to the waste accumulated or deposited. Any amendments shall be notified to the Agency*
>
> *8.10.2 All extractive waste shall be managed in accordance with the Extractive Waste Management Plan. A report on the implementation of the Extractive Waste Management Plan shall be provided in the AER[1].*

This condition relates solely to the Mine site. An EWMP was prepared in 2016 by KD Environmental Limited (KDEL)[2] and accepted by the EPA[3]. Under the terms of the sites IE licence, this plan will need to be reviewed, and if required updated.

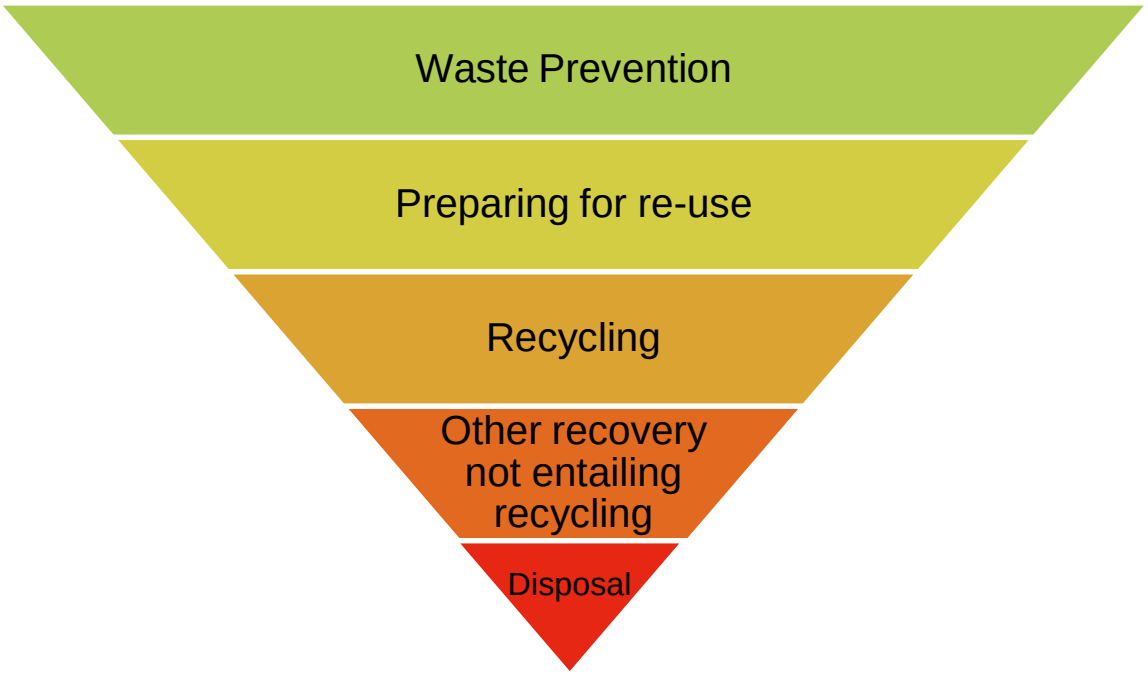
1.2 Extractive Industry and the EWMP

Regulation 5(1)(a) requires that:

> *The operator shall draw up a waste management plan (to be known as an Extractive Waste Management Plan) for the minimisation, treatment, recovery and disposal of extractive waste, taking account of the principle of sustainable development.*

The EWMP must be prepared regardless of whether waste is produced on site.
Under Section 21A of the Waste Management Act[4], the site must follow the waste management hierarchy:

[1] Annual Environmental Report
[2] KD Environmental Limited (2016) Extractive Waste Management Plan reference 2015/85/01 dated 29th January 2016
[3] Licence Return LR020686
[4] European Communities (Waste Directive) Regulations 2011, SI 126 of 2011, Regulation 7



Where waste is prevented from being generated, it is still being managed and therefore an EWMP is still required.

2. Mining Process

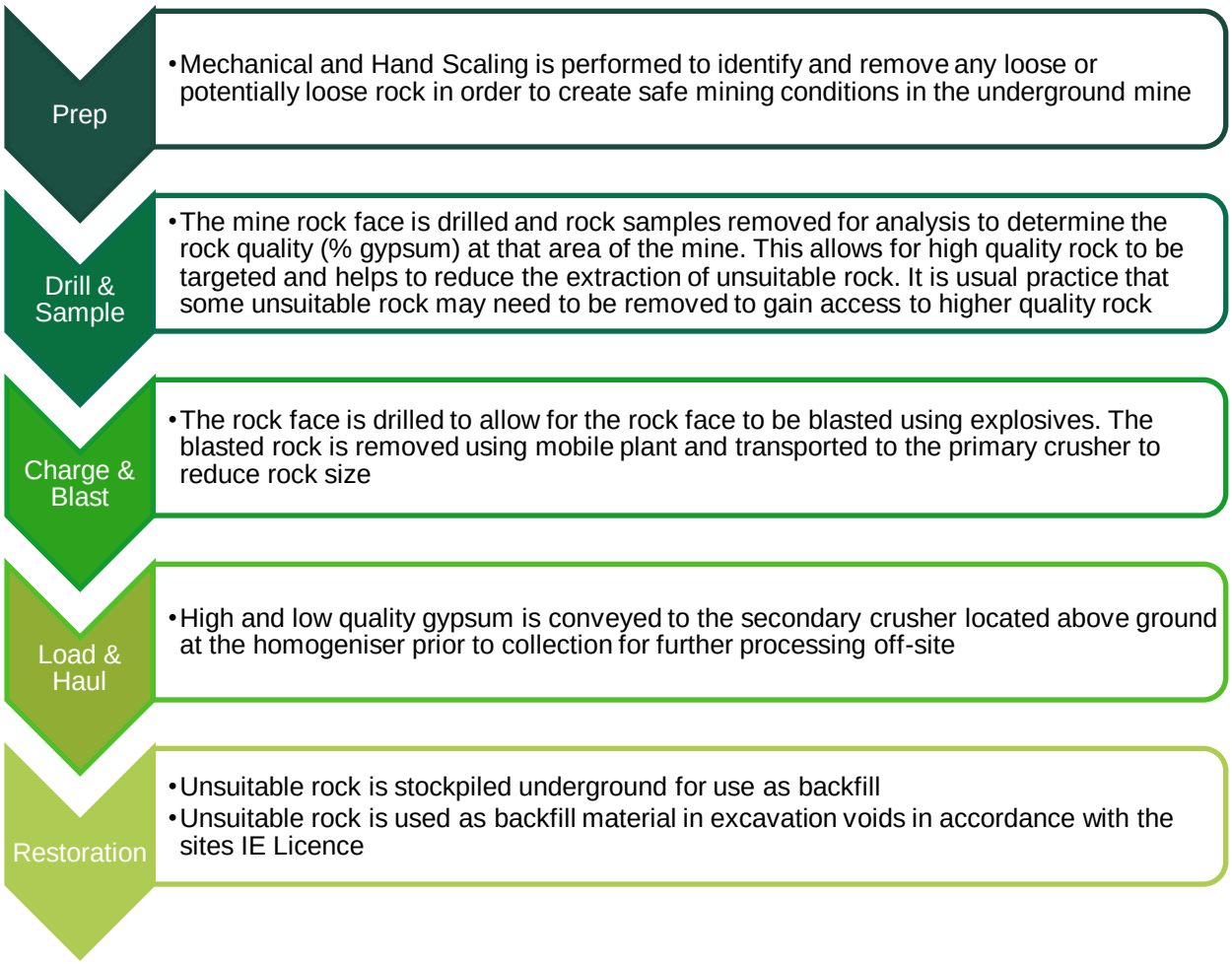
The Mine site consists of both an underground mine and an opencast mine along with ancillary facilities including crushing plant, loading facilities, workshops, offices and a water management system. Gypsum produced in both the underground mine and opencast pit are crushed and undergo homogenisation prior to transport off-site for further processing.

The use of materials unsuitable for the production of gypsum based products (unsuitable rock) is used in the filling of underground voids, when generated in the underground mine or in the restoration of the opencast pit if generated above ground in accordance with the sites IE Licence, Decommissioning, Closure and Aftercare Management Plan (DCAMP)[5] and Monaghan County Council planning permission[6]

[5] KD Environmental (2021) Gypsum Mine Site and Gypsum Processing Facility Decommissioning, Closure and Aftercare Management Plan Dated 24th March 2021 Reference No 2020/52/02 – Most recent update
[6] Planning Permit 17217

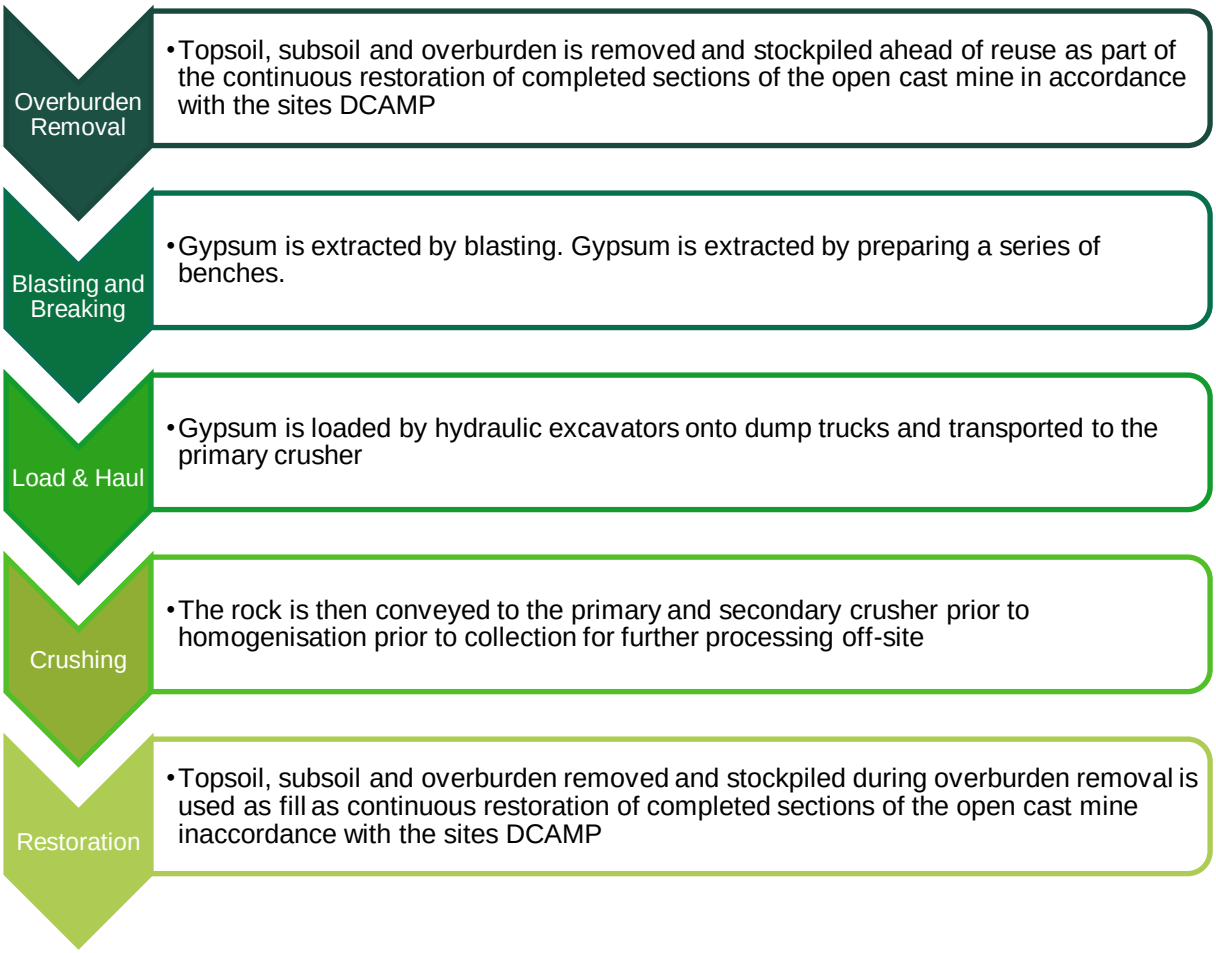
2.1 Underground Mine

The lifecycle of the underground mine is presented in the flow chart below:



2.2 Opencast Mine

The lifecycle of the opencast mine is presented in the flow chart below:



2.3 Other Extractive Materials

Groundwater entering the underground and open pit mine is pumped through the site's water management system. Water entering this system passes through a series of four settlement lagoons prior to discharge through discharge point MSE-1 to the River Bursk. Sediment settling in this lagoon system (pond sediment) consists of uncontaminated naturally occurring materials, primarily mudstone sediment collected during pumping from the opencast mine and underground mine. This material is regularly extracted from the settlement lagoons. These extracted materials are used as fill as part of the continuous restoration of the sites opencast mine excavation void.

2.4 Extractive Waste

Waste is defined under the Waste Management Act as *any substance or object which the holder discards or intends or is required to discard*[7].

In addition, *uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated*[8], such as the lagoon system sediment or unsuitable rock, is not considered to be a waste material provided that it's end-use is necessary and integral to the lifecycle of the site it is certain that the materials will be used on site.

The planning permit for the site references in Section 2 requires that the site undertake progressive restoration of the opencast pit in accordance with the sites DCAMP. The DCAMP states that:

[7] 1996 Waste Management Act, Part 1 4(1)(a)
[8] S.I. No. 126/2011 - European Communities (Waste Directive) Regulations 2011, Part 3 26(1)(c)

During the lifespan of the opencast mine at Knocknacran, Saint-Gobain Mining (Ireland) Ltd practiced grading, contouring and landform remodelling whilst extracting mineral gypsum.

All materials generated during extractive processes are used in full in the restoration of either the underground mine or the opencast pit, as these materials have a clearly defined planned use, it is not deemed waste and is therefore not extractive waste.

3. Classification of Mine Waste Facilities

3.1 Waste Facilities

A 'Waste Facility' is defined in Regulation 3(2) of the Extractive Waste Regulations as:

Any area designated for the accumulation or deposit of extractive waste, whether in a solid or liquid state or in solution or suspension, for the following time-periods:

- *no time-period for Category A waste facilities and facilities for waste characterised as hazardous in the waste management plan,*
- *a period of more than six months for facilities for hazardous waste generated unexpectedly,*
- *a period of more than one year for facilities for non-hazardous non-inert waste,*
- *a period of more than three years for facilities for unpolluted soil, non-hazardous prospecting waste, waste resulting from the extraction, treatment and storage of peat and inert waste.*

Such facilities are deemed to include any dam or other structure serving to contain, retain, confine or otherwise support such a facility, and also to include, but not be limited to, heaps and ponds, but excluding excavation voids into which waste is replaced, after extraction of the mineral, for rehabilitation and construction purposes.

It should be noted that excavation voids, where extractive materials unsuitable for processing are placed are not considered to be waste facilities when the material is used for construction or rehabilitation purposes; where rehabilitation is defined as "*treatment of the land affected by a waste facility in such a way as to restore the land to a satisfactory state, with particular regard to soil quality, wild life, natural habitats, freshwater systems, landscape and appropriate beneficial uses*".

The Extractive Waste Regulations, S.I. No. 566 of 2009 - Waste Management (Management of Waste from the Extractive Industries), specify a series of criteria by which an extractive waste facility is to be determined to have Category A status. These are contained in Schedule 3, with the contents being supplemented by Commission Decision 2009/337[9]. These are outlined in sections 3.2 and 3.3 below.

3.2 S.I. No. 566 of 2009

According to the regulations (S.I. No. 566 of 2009), A waste facility shall be classified under Category A if:

a) a failure or incorrect operation, e.g. the collapse of a heap or the bursting of a dam, could give rise to a major accident, on the basis of a risk assessment taking into account factors such as the present or future size, the location and the environmental impact of the waste facility;

b) it contains waste classified as hazardous under Directive 91/689/EEC[10] above a certain threshold*

c) it contains substances or preparations classified as dangerous under Directives 67/548/EEC[11] or 1999/45/EC[12] above a certain threshold.

[9] 2009/337/EC: Commission Decision of 20 April 2009 on the definition of the criteria for the classification of waste facilities in accordance with Annex III of Directive 2006/21/EC of the European Parliament and of the Council concerning the management of waste from extractive industries (notified under document number C(2009) 2856)
[10] Council Directive 91/689/EEC of 12 December 1991 on hazardous waste
[11] Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances
[12] Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations

(* where the dry matter weight ratio of waste classified as hazardous under 91/689/EEC is less than 5% of total waste weight, the facility shall not be classed as Category A)

AECOM understands that a study conducted by KD Environmental in 2011 concluded that the Mine site is not classified as Category A under Schedule 3 of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009.

3.3 EC Decision 2009/337/EC

In addition, the EC Decision 2009/337/EC has a series of articles which specify certain criteria for a waste facility. In the 2011 study conducted by KD Environmental the following observations were made;

Article 1

According to Article 1 a waste facility is classified as Category A if the predicted consequences in the short or the long term of a failure due to loss of structural integrity, or due to incorrect operation of a waste facility could lead to:

a) non-negligible potential for loss of life;
b) serious danger to human health;
c) serious danger to the environment.

These criteria do not apply to the Mine site as there are no waste facilities on site.

Article 2 of 2009/337/EC is concerned with the structural integrity of waste facilities on site.

As no extractive waste is produced, there are no waste facilities on site for extractive waste. Surface water lagoons on site hold all surface water in contact with mined gypsum before discharge to the receiving waterbody. These lagoons are not supported by dams. In addition, sediment deposited in the lagoons are considered as “uncontaminated soil or other naturally occurring materials”. These materials are used in the restoration of the opencast pit.

Article 3 of 2009/337/EC refers to the incorrect operation of waste facilities posing a risk to the environment or human health.

As no extractive waste is produced, there are no waste facilities on site for extractive waste. This therefore does not apply to the site.

Article 4 of 2009/337/EC refers to loss of waste facility structural integrity posing a risk to the environment or human health.

There are no extractive waste facilities at the Mine site as no extractive waste is produced. This therefore does not apply to the site.

Article 5 of 2009/337/EC refers to loss of structural integrity of tailings dams posing a risk to the environment or human health.

This is not applicable to the Mine Site. There are no tailings dams.

Article 6 of 2009/337/EC refers to waste heap slides posing a risk to the environment or human health.

This is not applicable to the Mine Site, there are no waste heaps.

Article 9 of 2009/337/EC states that articles 7 and 8 shall not apply to waste facilities containing inert waste or unpolluted soil.

3.4 Summary

The study concluded that the Mine site is not classified as a Category A site. As outlined in in Section 2.4, as all materials (unsuitable rock and pond sediment) are not classed as extractive waste that there is no current area of the site classed as a waste facility as defined by the Regulations and as such the site is not classified as Category A. In the event that limited, unexpected quantities of extractive waste are generated, the temporary storage of these materials will not exceed the timeframes specified in Extractive Waste Regulation 3(2) and no area of the site would need to be classified as a waste facility.

4. Extractive Waste Management Regulation 5

Condition 8.10.1 of Industrial Emissions Licence (IED) P0519-04 issued by the EPA to SGCPIL requires that:

> *The licensee shall draw up a Waste Management Plan (to be known as an Extractive Waste Management Plan) for the minimisation, treatment, recovery and disposal of extractive waste. This Plan shall, where appropriate, meet the requirements of Regulation 5 of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009. The Plan shall be submitted for agreement by the Agency within six months of the date of grant of this licence. The Plan shall be reviewed at least once every five years thereafter in a manner agreeable to the Agency and amended where there are substantial changes to the operation of the waste facility or to the waste accumulated or deposited. Any amendments shall be notified to the Agency.*

The following table assesses site activities against the requirements of Regulation 5.

Condition number	Conditions	Site Activity / Compliance Activities
1	(a) The operator shall draw up a waste management plan (to be known as an Extractive Waste Management Plan) for the minimisation, treatment, recovery and disposal of extractive waste, taking account of the principle of sustainable development.	Initially prepared in 2016 and updated in 2022 (this document)
	(b) The competent authority shall ensure that the provisions of paragraph 1(a) are met by the operator.	As an IE Licenced Facility, the EPA are considered to be the competent authority and have defined the requirement within the site permit.
2	The objectives of the extractive waste management plan shall be to: (a) prevent or reduce waste production and its harmfulness, in particular by considering:	<u>Opencast Mine</u> All overburden, topsoil and subsoil are stockpiled on site for use during restoration in accordance with the site's DCAMP and planning permission. Therefore no extractive waste is generated
	(i) waste management in the design phase and in the choice of the method used for mineral extraction and treatment,	<u>Underground Mine</u> The underground rock face selected for mining is firstly drilled and tested to determine the likely rock quality (% Gypsum). This prevents unproductive areas of the mine from being blasted unless access to other areas of the mine requires the removal of unsuitable rock. Notwithstanding, any materials removed in this process that are not suitable for processing are used within the restoration in accordance with the site's standard operating procedure. <u>Pond Sediment</u> All extracted pond settlement is stockpiled on site for use during restoration in accordance with the site's DCAMP and planning permission. Therefore no extractive waste is generated SGCPIL utilise as much extracted rock as practicable by blending lower quality gypsum rock with high quality gypsum rock and thus reducing the quantity of rock that is filled back into extraction voids. As any unsuitable rock generated is used to fill the underground extraction voids, no extractive waste is generated.
	(ii) the changes that the extractive waste may undergo in relation to an increase in surface area and exposure to conditions above ground,	<u>Opencast Mine, Underground Mine and Pond Sediment</u> This does not apply as confirmed in section 2.4 no extractive waste is produced
	(iii) placing extractive waste back into the excavation void after extraction of the mineral, as far as is technically and economically feasible and environmentally sound in accordance with existing environmental standards at Community level and with the requirements of Directive 2006/21/EC 1[13] where relevant,	<u>Opencast Mine and Pond Sediment</u> Overburden, topsoil, subsoil and pond sediment, which are not considered to be extractive waste is temporarily stored on stie prior to reuse in restoring the opencast mine in accordance with the DCAMP. <u>Underground Mine</u> Extracted rock that is determined to be unsuitable for processing which is not considered to be an extractive waste is routinely used to fill underground extraction voids as recommended by Directive 2006/21/EC

	(iv) putting topsoil back in place after the closure of the waste facility or, if this is not practically feasible, reusing topsoil elsewhere,	Opencast Mine There is no extraction waste facility as no extraction waste is held or treated on site. Unsuitable rock is used to fill underground extraction voids. Landscaping and surface level rehabilitation including the depositing of topsoil will be performed as per DCAMP submitted to the EPA for the mining operation. Underground Mine and Pond Sediment This is non-applicable.
	(v) using less dangerous substances for the treatment of mineral resources,	Opencast, Underground Mine and Pond Sediment No chemical processing of extracted material is performed. Extraction is performing using mechanical means only and no treatment of waste rock is performed other than blending rock from different mine faces to ensure that the required % purity of gypsum in rock matches is achieved. There are no chemicals or dangerous substances used in the extraction process.
	(b) encourage the recovery of extractive waste by means of recycling, reusing or reclaiming such waste, where this is environmentally sound in accordance with existing environmental standards at Community level and with the requirements of Directive 2006/21/EC 1 where relevant,	Opencast and Underground Mine and Pond Sediment Extracted rock that is determined to be unsuitable for processing along with pond sediment, overburden, soil and sub-soil material is routinely used to fill extraction voids and facilitate site restoration as recommended by Directive 2006/21/EC
	(c) ensure short and long-term safe disposal of the extractive waste, in particular by considering, during the design phase, management during the operation and after-closure of a waste facility and by choosing a design which:	Opencast and Underground Mine and Pond Sediment There is no extractive waste removal or disposal and therefore no extractive waste facility on site. Dams, heaps and tailings ponds are not applicable to site activities
	(i) requires minimal and, if possible, ultimately no monitoring, control and management of the closed waste facility,	
	(ii) prevents or at least minimises any long-term negative effects, for example attributable to migration of airborne or aquatic pollutants from the waste facility, and	
	(iii) ensures the long-term geotechnical stability of any dams or heaps rising above the pre-existing ground surface.	

[13] Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC - Statement by the European Parliament, the Council and the Commission

5. Extractive Waste Management Regulations 10 & 13

Condition 8.11.2 of Industrial Emissions Licence (IED) P0519-04 issued by the EPA to SGCPIL requires that site activities are complaint with Regulations 10 and 13(5) of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009.

When placing extractive waste into excavation voids for rehabilitation and construction purposes, the licensee shall, in accordance with Regulations 10 and 13(5) of the Waste Management (Management of Waste from the Extractive Industries) Regulations, 2009, and the Extractive Waste Management Plan:

(i) Secure the stability of waste

Waste Facilities

There are no tailings ponds or waste piles on site.

Opencast Mine

Topsoil, subsoil and overburden which are not considered extractive waste may be temporarily stored prior to use in the restoration of the opencast mine. These temporary piles are visually inspected on a regular basis before being used.

Underground Mine

Unsuitable rock which is not considered extractive waste may temporarily be plied in an inactive area of the underground mine awaiting backfilling of excavation voids. These temporary piles are visually inspected on a regular basis before being used.

(ii) Put in place measures to prevent pollution of soil, surface water and groundwater

Opencast and Underground Mine

The extracted rock, overburden, soils or sub-soil materials are not chemically processed or treated in any way and there are no materials likely to cause pollution of soil, surface water or groundwater used in the mining process.

(iii) Carry out monitoring of the extractive waste and excavation void

Opencast and Underground Mine

Extraction voids and stockpiles of unused rock, overburden, soil or sub-soil materials (waiting to be filled into extraction voids) are inspected by the mine manager or the mine shift bosses as part of routine daily mine inspections. Any issues with stockpile or extraction void stability are recorded in the daily mine logs. As per operating procedures, the mine manager and shift bosses monitor the volume and % purity of gypsum rock stockpiled in the underground mine. This is recorded in mine shift logs.

6. Extractive Waste Management Plan

As per condition 8.10.2 of IED licence P0519-04, the licensee shall manage all extractive waste in accordance with the Extractive Management Plan. The generation of extractive waste has been prevented in accordance with the hierarchy of waste. The SGCPIL plan to prevent the generation of waste is provided below. A summary of the SGCPIL mining processes is presented in Section 2. AECOM understands that the plan has been drafted into a site SOP. A summary report on extractive waste management shall also be included in the AER for the facility.

6.1 Underground Mine

Rock is mined in accordance with the process flow diagram in Section 2.1.

Rock is segregated based on the purity of gypsum. Suitable rock is crushed and taken above ground for further processing while stockpiles of unsuitable rock remains below ground.

Mine shift bosses inspect the stockpiles of rock underground daily for Health and Safety purposes and to record the volume of rock and the purity of the rock in underground piles.

Unsuitable rock is used as backfill in excavation voids in accordance with the site's IE Licence. All unsuitable rock is used in backfill operations and is not removed from site.

6.2 Opencast Mine

Topsoil, subsoil and overburden are removed and stockpiled for use in the continuous restoration of the open cast pit.

Rock is mined in accordance with the process flow diagram in Section 2.2.

Mine shift bosses inspect the stockpiles daily for Health and Safety purposes and to record the volume of stored materials.

These materials are used as part of the continuous restoration of depleted sections of the opencast pit in accordance with the site's planning permission, DCAMP and the Environmental Impact Statement (EIS) submitted as part of the 2007 planning application[14].

6.3 Water Management System Sediment

Sediment, consisting of mudstone chippings will be deposited in the water management system settlement lagoons. This sediment is removed at regular intervals to ensure that the lagoons provide suitable capacity and residency time.

This extracted material, as noted in Section 2.3 is considered *uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated* and therefore is not considered waste provided it is reused for a specific purpose on site. In this case it is used as backfill material in depleted areas of the opencast mine.

The sediment primarily consists of mudstone chippings which is naturally occurring and does not cause a human health or pollution risk.

In the event that contamination, such as hydrocarbons enter the lagoon system as a result of an incident, extracted materials will need to be laboratory tested as part of the incident response to ensure it is suitable for use on site. If the extracted material is contaminated it may be temporarily stored on site pending removal and appropriate disposal in accordance with the timescales listed in Section 3.1 without the creation of a dedicated extractive waste facility. Waste shall not be stored on site beyond these relevant timescales.

7. Other IED License Requirements

Condition 8.11.1: Unless otherwise agreed by the Agency, only extractive waste shall be placed in excavation voids:

As per section 2.4 no extractive waste is produced on site. Only extracted rock from the underground mine or overburden, soils or sub-soil materials from the opencast mine or settlement lagoons is placed in excavation voids.

Condition 8.12: Extractive Waste Facilities

- ***i. No new waste facility may be developed or an existing waste facility modified unless agreed by the Agency***
- ***ii. The licensee shall ensure that all existing waste facilities are managed and maintained to ensure their physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater.***

[14] Brady Shipman Martin (2007) Environmental Impact Statement

iii. The licensee shall ensure that all new waste facilities are constructed, managed and maintained to ensure their physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater

iv. Operational measures shall be continuously employed to prevent damage to waste facilities from personnel, plant or equipment.

v. The licensee shall establish and maintain a system for regular monitoring and inspection of the waste facilities.

vi. All records of monitoring and inspection of waste facilities, as required under the licence, shall be maintained on-site in order to ensure the appropriate handover of information in the event of a change of operator or relevant personnel.

This is not applicable to site activities as no extractive waste is generated. In the event that extractive waste is generated which necessitates a waste facility this would be agreed with the Agency as per 8.12 (i) and this EWMP would be updated accordingly.

8. Summary

SGCPIL are required to prepare an EWMP in accordance with the sites IE Licence.

On review of site activities, the following can be noted:

- The Mine site is not classified as a Category A waste site.
- Extracted gypsum is used in the production of gypsum based products.
- Unsuitable rocks, overburden, soil and sub-soil materials are used in the restoration of the site in accordance with the site's IE Licence, DCAMP, EIS and/or planning permission.
  - All unsuitable materials in the underground mine is used as backfill in underground voids created during mining. This step is considered part of the mining life cycle.
  - Topsoil, subsoil and overburden from the open cast mine is stockpiled for use as part of the site's continuous restoration of depleted areas of the opencast mine as a condition of the sites planning permission.
  - Sediment in the water management system settlement lagoons is used as fill in the restoration of the open cast mine as an excavated uncontaminated naturally occurring material

As all extracted materials are used on site, for a specific clearly defined purpose for which they are suitable in a defined timeframe following extraction and SGCPIL have not, do not intent to and are not required to, discard the extracted materials, the extracted material is not defined as 'waste' under the Waste Management Directive, therefore the site does not produce or store extractive waste.

In the event that extractive waste in unexpectantly generated it may be temporarily stored on site pending disposal in accordance with the timescales outlined in Section 3.1.

This plan will need to be reviewed again in 2027 or following any significant changes to the Mine site operations or following the deposition of waste on site.

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