BORD NA MÓNA
Naturally Driven

11th June 2020

TA Request – Part I Schedule of Activities Licensed – Licensed Waste Recovery Activities

Introduction

The Drehid Integrated Waste Management Facility comprises a non-hazardous residual waste landfill and biological treatment plant and operates under an Industrial Emissions Directive Licence (Reg No. W201-03) granted by the Environmental Protection Agency.

The Drehid Waste Management Facility are seeking a Technical Amendment of its an Industrial Emissions Directive Licence (Reg No. W201-03) to include Class 4 – *Recycling or reclamation of other inorganic materials* under Part I Schedule of Activities Licensed - Licensed Waste Recovery Activities.

Scope

The Drehid Waste Management Facility proposes to process Incinerator Bottom Ash (IBA) within the landfill footprint (Phase 12) through the use of a mobile ash processing and metal recovery system. This system is capable of being adapted to specific applications based on properties of the ash stream to be processed. At full configuration, the system can separate the ash into multiple streams to allow for improved metal recovery and potential reuse of processed ash.

IBA is the non-hazardous, solid residue that remains after the incineration of municipal waste in a waste-to-energy plant. IBA consists mainly of aggregates such as sand, stone, glass, porcelain and ceramics, in addition to some ferrous and non-ferrous metals. The fact that it mainly consists of sand and gravel makes it useful as a construction and engineering material.

Incinerator bottom ash typically contains between 5% and 10% ferrous metals (e.g. steel, iron) and approximately 2% nonferrous metals (e.g. aluminium, copper, brass, zinc) which, if recovered from the IBA, can be recycled.

Currently, this IBA is exported for recovery of metals and aggregate. This Technical Amendment will facilitate determining the feasibility of undertaking such recovery operations within Ireland.

Overview

The configuration of the mobile ash processing and metal recovery system utilises three main assemblies, referred to as “Modules” which each contain screens which can differentiate the streams by size. The screen openings can be chosen specifically to target specifications for aggregate reuse.

DREHID FACILITY, KILLINAGH UPPER, CARBURY, CO. KILDARE
TELEPHONE: 1800 373 443 / FAX: 045 439 489
EMAIL: drehid@bnm.ie

Module 1 takes the inbound ash stream, segregating oversized rejects (large), and splitting the ash stream into 2 streams (medium) and (small). Each discharge from Module 1 is sent to Modules 2 and 3 where ferrous and non-ferrous metals are recovered.

Figure 1: Module 3 (Mobile Plant 1)

Siting in Drehid

Such IBA mobile processing equipment has been widely deployed in Europe and the US, and each landfill where it has previously operated at has had its own unique terms of layout, as the system has flexibilities in layout that allow it to operate in a manner optimized for its location. Generally, the minimum space required for siting the mobile recovery system is approximately 0.75 to 1 acre. This area does not include space for stockpiling ash, or for staging processed ash and recovered metals.

The operations area needs to be a level area, with consideration given for drainage and storm water runoff so as to prevent ponding on the operations area. Access roads should be able to allow commercial truck use for construction material in and out and the loading out of processed metals. The footprint for the processing equipment will have a clay base so as to facilitate surface water runoff away from the processing area. Any runoff will be diverted into the lined cell of this non-hazardous landfill. An aggregate base will also be placed on top of soil to form a firm engineering base for the equipment. All material used to form level base will be constructed by reusing suitable waste streams that are accepted at the site.

For these reasons, Phase 12 of the Drehid Facility has been chosen as the most suitable location. The figure below shows the dimension of the proposed operating area on Phase 12. Phase 12 is within the landfill footprint; therefore, all material would be contained within lined cells. Phase 12 is not accepting disposal waste at present and will not accept disposal waste while the plant is in operation. Phase 12 currently has an intermediate cover of soil.

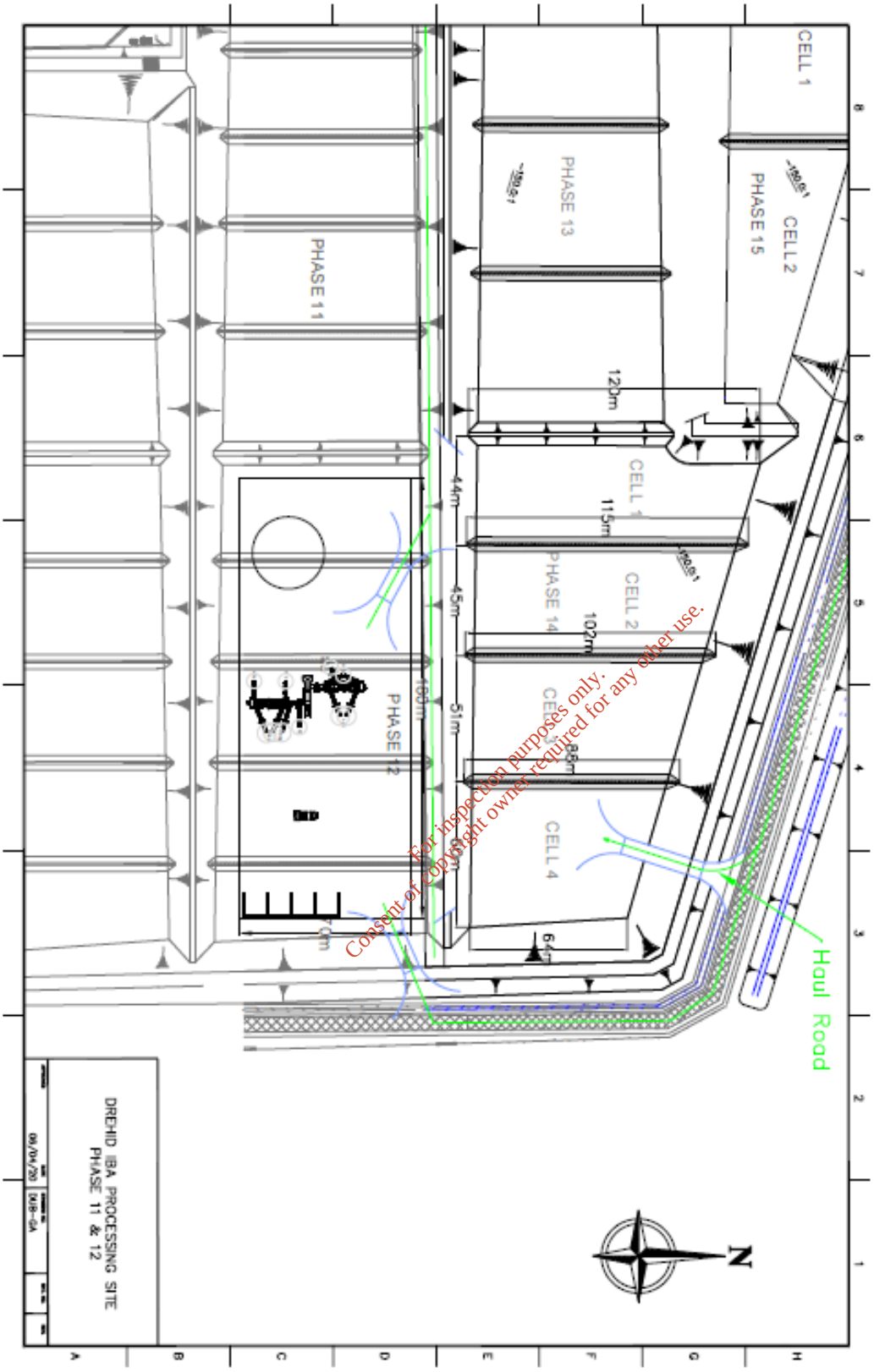

Figure 2: Proposed Plant Location on Phase 12

To prepare the site for operations, a working pad will be prepared to minimize equipment settlement and sloped in order to shed storm water away from the working area. The mobile metal unit will rest on this working pad.

Operations

The Mobile Metal Recovery System is designed to be operated in a landfill area without typical permanent utilities available. Module 1 runs using a diesel engine to operate hydraulic motors for operating the tracks and associated conveyors. Modules 2 & 3 run using a 320KW diesel generator. Ash is fed to the plant with a loading shovel and pre-feed system consisting of a feed hopper, conveyor, screen to remove larger items and a magnet to remove large ferrous materials.

The Mobile Metals Recovery system has an IBA throughput of approximately 75 tonnes/hour. This throughput rate will vary with IBA moisture. To support this, the IBA would be stockpiled approximately one to two weeks prior to processing.

The IBA would be brought adjacent to the system via wheel loader and fed to Module 1 with typically a loading shovel. Depending on the desired disposition of the aggregates, the material will be staged to be loaded and taken away. Temporary bunkers are built to store non-ferrous and ferrous metals until there is a sufficient quantity recovered for a full truckload shipment. These bunkers are located in a place convenient to a truck staging area, such that truck loading and material processing can be done concurrently.

The following ancillary equipment will be located at the site:

- Office trailer
- Spare parts / tools trailer
- Spare bins for capturing recovered materials
- A small floor scale for weighing the bins of recovered aggregate
- Bunker block – for building the storage bunkers
- Assorted frames and pieces used specifically for transporting the system
- Portable rest room and hand washing facility
- Diesel air compressor – for pneumatically operated tools

Potential Environmental Impacts

The Drehid Facility is sensitive to concerns about noise and/or fugitive dust from the operation. The noise level of the equipment is not discernable from noise of typical landfill activities – specifically operation of mobile heavy equipment. Predicted noise modelling is represented below. It should be noted that it is proposed that the processing equipment be surrounded by a rectangular 4-meter-high clay bund, this will further reduce any noise emissions which may be generated.

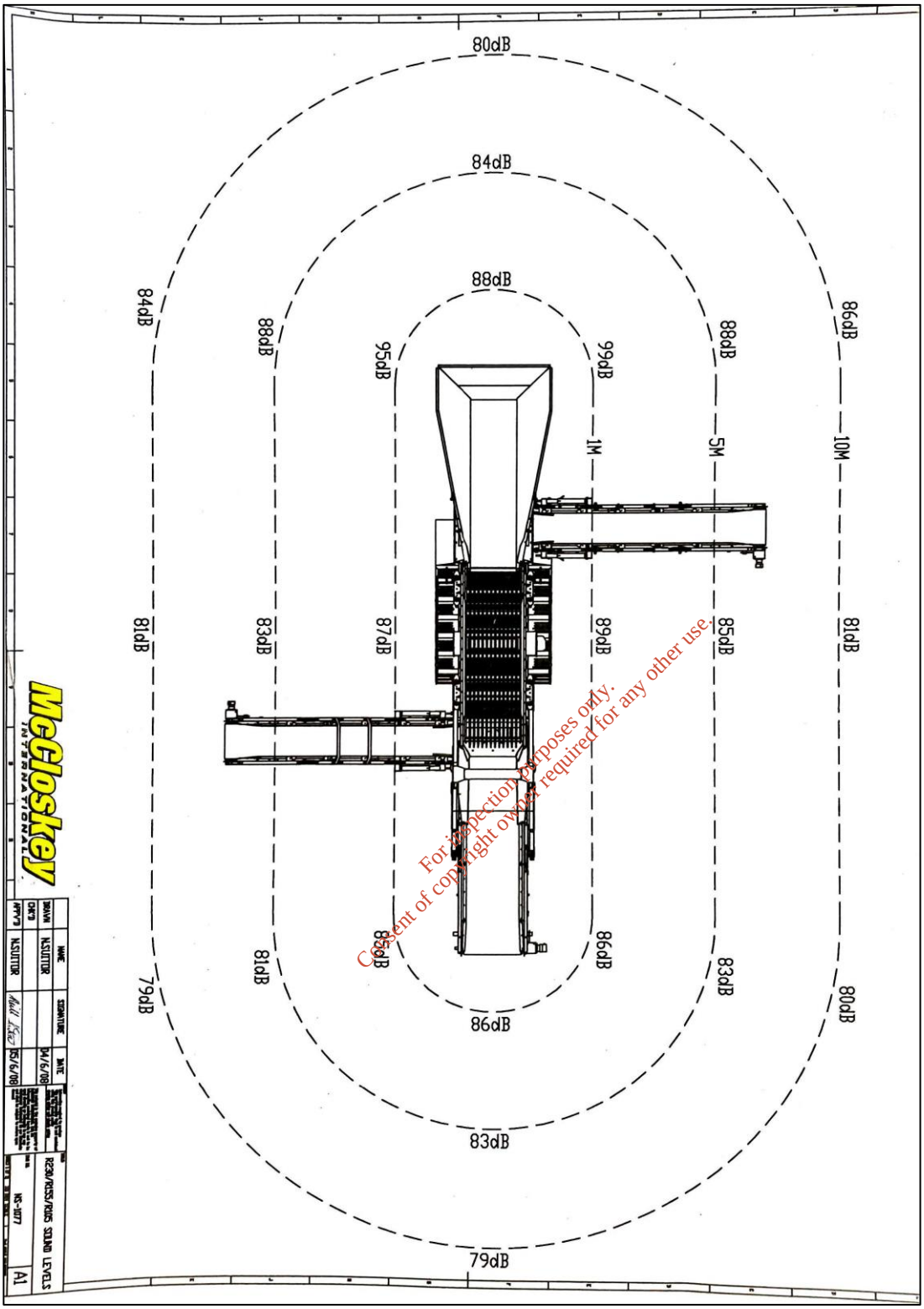

Figure 3: Noise Modelling

Fugitive dust has historically not been problematic, as the ash's inherent moisture sufficiently prevents dusting. However, best management practices would be used to control fugitive dust should the issue arise.

Dust emissions are monitored on a continuous basis at the Drehid Facility. There will be a dedicated water bowser at hand to manage any dust that might arise due to sustained dry conditions.

The processing of the IBA would occur during the landfill's permitted hours.

Based on the information provided above, we would ask for the Agency's approval to carry out this class of activity at the Drehid Waste Management Facility

We trust that this is to the satisfaction of the Agency.

Regards,

Phoebe Dillane - Environmental Compliance Officer (045-439464)

DREHID FACILITY, KILLINAGH UPPER, CARBURY, CO. KILDARE
TELEPHONE: 1800 373 443 / FAX: 045 439 489
EMAIL: drehid@bnm.ie