5 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

5.1 Overview

IMS is seeking consent to develop a Circular Economy (CE) Campus and an integrated waste management facility at the Hollywood site which will service national waste management requirements and assist in providing a self-sufficient waste management solution for the State. The proposal will enhance and expand the established waste and recovery operations at the Hollywood site in line with circular economy principals and the waste hierarchy. The proposal consists of permission for a 25-year lifetime of operation at a rate of 500,000 tonnes per annum as per the existing operation. The proposed CE Campus includes a number of proposed changes as follows:

- Broader waste acceptance types to include non-biodegradable non-hazardous and inert wastes generated by a range of sectors (construction, commercial, industrial and waste processing);
- Expanded waste treatment activities including:
  - Development and re-profiling of the landfill void to accommodate specially engineered landfill cells for non-hazardous wastes in addition to the existing engineered inert cells;
  - Enhancement of the existing aggregate recovery processing on site including upgrading the aggregate recovery operations which produces low carbon, recovered sands and aggregates from various granular wastes by removing residues and other trace contaminants and separating the resulting aggregates into various size fractions;
  - Manufacture of secondary materials including enhanced soils and low-energy bound materials (e.g. concrete);
  - Additional waste recovery activities including soil/concrete batching and blending;
- Repurposing of an existing structure on site as a testing laboratory unit for the research, development and testing of recovered materials;
- A leachate management system including a leachate collection system and a storage tank prior to tankering off site for treatment at a suitably licensed WWTP with provision for a future on-site leachate treatment facility;
- Surface water management infrastructure for the landfill to capture, attenuate and treat storm water prior to discharge;
- A mobile enclosure for the maturation of Incinerator Bottom Ash (IBA);
- An internal un-paved road network serving the deposition areas from the reception area which will be modified throughout the development phasing;
- Relocation of the existing artificial Peregrine Falcon nesting box to a proposed elevated pole-mounted location to the south west of the site; and
- Restoration of the site to natural ground levels.

This EIAR has been prepared to support two applications for consent for the proposed development including:

- An application for planning permission to An Bord Pleanála (ABP) under the provisions of Section 37E of Planning and Development (Strategic Infrastructure) Act 2006 for a strategic infrastructure development (ABP Case Reference PL06F.304428); and
- The current operations are licenced by the EPA as Waste Licence (Register W0129-02) for infilling with construction and demolition wastes which meet the waste acceptance criteria as set out in the Waste Licence and the Landfill Directive. The proposed development will require a review of the existing licence to account for the revisions to the waste streams accepted and the new site infrastructure and an Industrial Emission (IE) Licence review application will be lodged to the EPA (Register W0129-04).

This EIAR has been prepared to support these twin applications for the planning consent application to ABP and environmental licensing application to the EPA.

5.2 Project Location

The site is located in Hollywood Great, Nag's Head, Naul, Co. Dublin (Irish Transverse Mercator Easting: 715736, Northing: 758036), approximately 3km west of Junction 5 (Balbriggan South) of the M1 motorway and approximately 14km north of Dublin Airport. The site location is shown in **Figure 5-1.**

The site was a former quarry which operated from circa 1940 until 2007 and is now a licensed engineered landfill site which commenced in 1988. IMS ownership of the site expands to 54.4 hectares (area within the red line boundary in **Figure 5-1**) with the current EPA Waste Licence covering an area of 39.8 hectares (dashed red line in **Figure 5-2**). The proposed development will require the review of the existing Waste Licence (W0129-02) to be replaced by a new Industrial Emission (IE) Licence (W0129-04). As part of this licence revision, it is proposed to align the land ownership and licence boundaries.

The site is accessed via the LP-1090 local road which bounds the west of the site and the LP-1080 local road (also known as Sallowood View and the Nevitt Road) which bounds the south of the site and links the R108 with the R132.

The land use in the vicinity of the site is typically agricultural with the surrounding fields employed for a mixture of pasture and tillage uses. In addition, a small number of commercial operations are also located within the area.

The human environment in the area consists mainly of low-density residential properties located along the local roads including the LP-1090 (west), LP-1080 (south), Tooman Road (east) and Rowans Road (north). The nearest residential property to the site is the bungalow located at the southern site boundary along the LP-1080 to the east of the junction with the LP-1090. In total, there are 16 residential properties and three commercial operations (excluding agriculture) located along the LP-1080 between the site and the M1 motorway to the east of the site. This LP-1080 local road is employed as the current haul route for the existing operation.

There is a primary school (Hedgestown National School) located circa 3km east of the site at the Five Roads but this is located circa 40 metres from the existing haul routed employed with additional buildings being constructed at the school as part of a recent planning permission (F19A/0216).

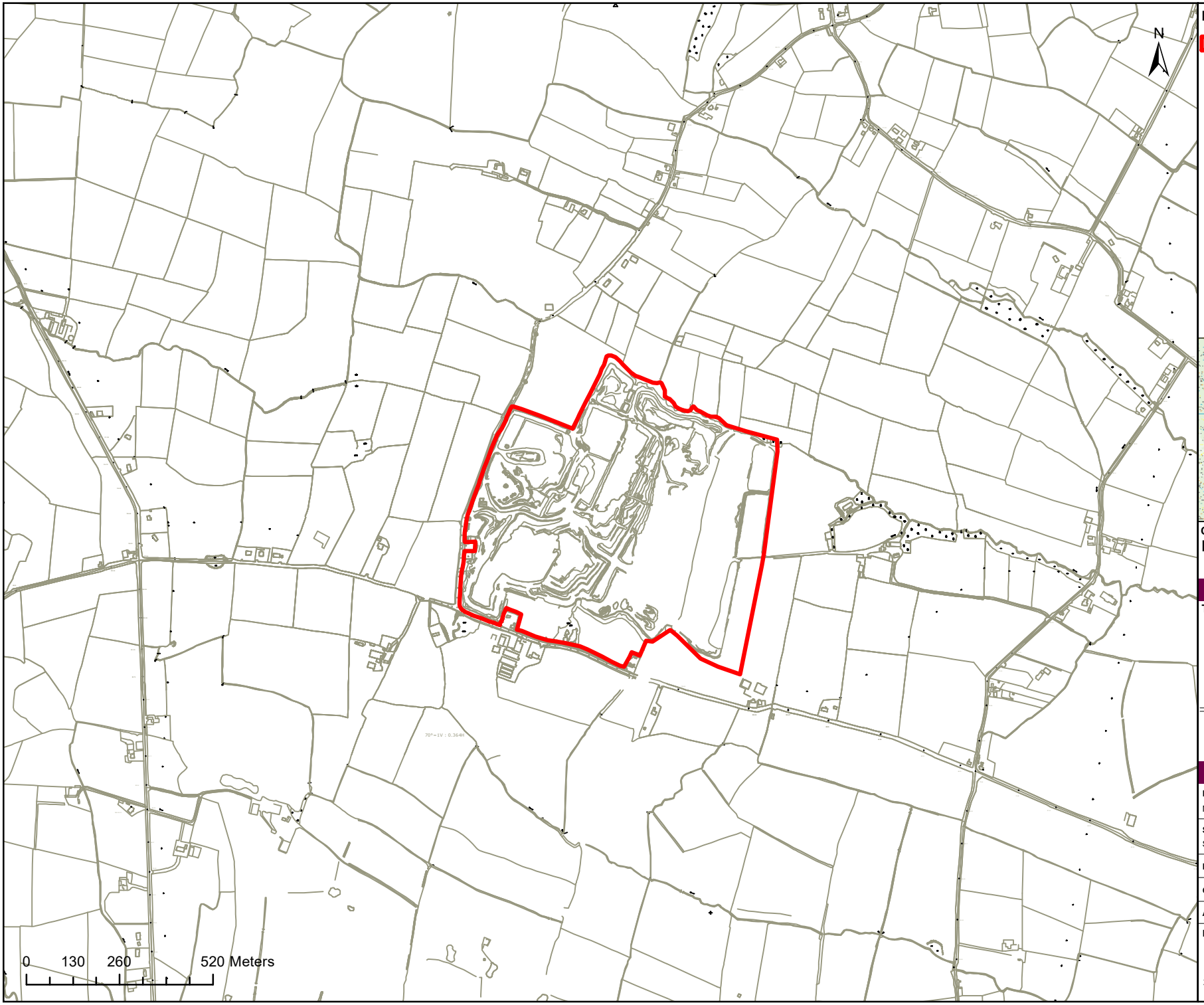
The north of the site is bounded by the Bedaragh/Walshestown Stream which flows from west to east to feed the Ballough Stream (also known as the Corduff River) to the southeast and ultimately the Ballyboghil River which discharges at the Rogerstown Estuary circa 7.5km east of the site. For consistency through this document, the water body from the site to the Ballyboghil River is referred to as the Ballough Stream.

The site is underlain by a complex geological and hydrogeological setting consisting of several geological formations and a series of faults. The Source Protection Area for the Bog of the Ring collection of groundwater wells to the northeast of the site lies approximately 1 km from the site with the actual wells used for drinking water circa 2.5 km northeast of the site. The Bog of the Ring wellfield is situated at an elevation of c. 30 to 40mOD.

The topography of the site is varied with a topographic high of 148mAOD in the west of the site at the existing site entrance. The areas of the site under the EPA Waste Licence boundary have large stepped and steep depressions that represent the land awaiting infill and restoration, the remainder of the site owned by IMS dips at a consistent rate in an easterly north easterly direction. The proposed restoration will restore the southwest of the site to the highest point at 148mAOD, the rest of the site will shallowly decline concentrically away from this point, predominantly towards the east tying in with the surrounding landscape. The lowest proposed level is 98mAOD in the northeast of the site approaching the stream.

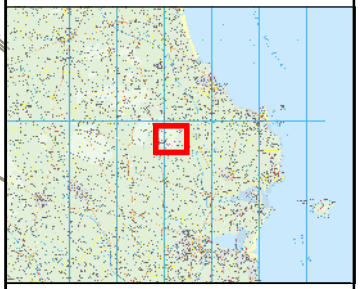
Under the Fingal Development Plan 2017-2023 (FDP and unchanged in the Draft Fingal Development Plan 2023-2029), the site and the area around the site is zoned as HA 'High Amenity' to protect and enhance high amenity areas. The current and draft FDP make provision for non-conforming uses and Objective Z05 seeks to: '*Generally, permit reasonable intensification of, extensions to and improvement of premises accommodating non-conforming uses, subject to normal planning criteria*.' As such, FCC have determined that the current use at the subject site is considered acceptable at this HA location as it will facilitate the restoration of a spent quarry to its original levels/appearance and is considered to accord with the 'HA' zoning objective and vision. As noted, intensification of the existing operation as proposed in this application is also supported by the FDP.

The entirety of the LP-1080 along the southern boundary of the site and a section of the LP-1090 along the western boundary are designated to preserve the view highlighting the sensitivity of the landscape in the area.



Legend

Site Boundary



Client

Integrated Materials Solutions (IMS) Limited Partnership

IMS Hollywood 2022 Update

Title

Figure 5-1: Site Location

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Issue Details

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5.3 Site History

The historic mapping (1837-1842) shows a small quarry present on the site at the northern verges of the LP-1080 on the southern boundary of the existing quarry. The feature is shown but not labelled in the subsequent 1888-1913 mapping. The former quarry was active from the 1940s up to 2007 extracting shale and limestone using a deep quarry pit. Planning permission for the infilling and restoration of the quarry with inert building material was first granted in 1988 and a detailed planning history is presented in **Section 3.3** of this EIAR. Further details on the void space and capacity of the landfill are presented in **Chapter 2** of this EIAR.

5.4 Current and Permitted Operations on Site

5.4.1 Site Layout

The site is currently being used to manage waste materials via disposal and recovery activities in line with the relevant planning permissions and EPA authorisations including the following:

- The recovery of concrete through processing into an aggregate that is no longer a waste and may be used in construction as a secondary raw material (EPA End of Waste Decision); and
- The infilling of the quarry with waste material for the purpose of restoring the quarry to natural ground levels (EPA Waste Licence for recovery and disposal activity).

The current site layout is shown in **Figure 5-2** which shows the existing layout of the site including the site entrance to the west of the site as well as the weighbridge, site office, wheel wash, car park, quarantine area and the associated internal road network. Also shown are the landfill cells filled to date (Cells 1 to 5) and the current active cell (Cell 6).

The layout also shows the location of the key permitted infrastructure on the site (under FA19A/0077) which is currently undergoing detailed design prior to construction including the following:

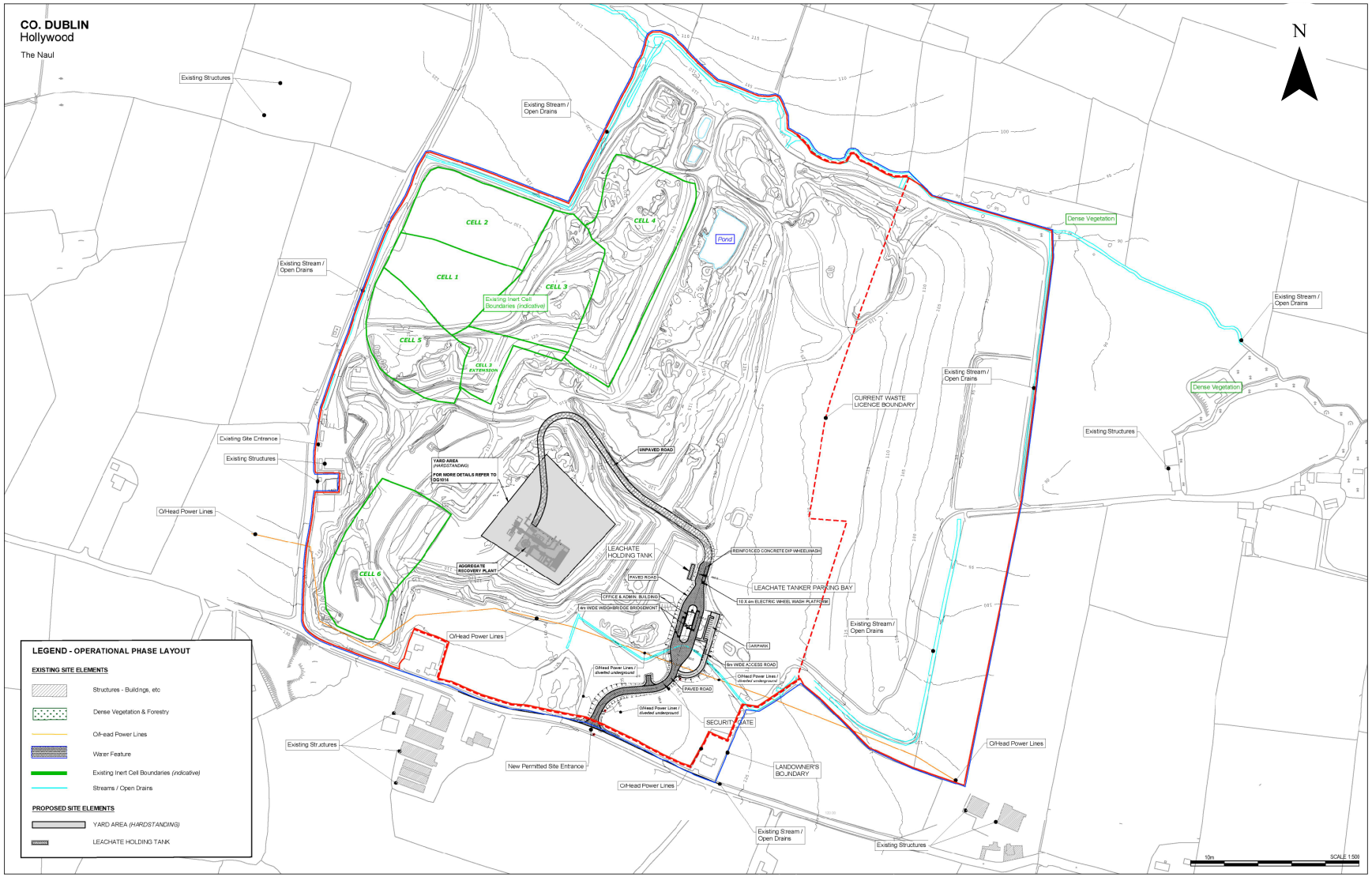
- A new facility entrance on the LP-1080 local road which bounds the south of the site. This is to replace the current entrance at the western boundary of the site which will be maintained as a secondary and emergency access;
- An eight-metre-wide internal access road from the entrance to the main site reception area including wheel wastes, weighbridges and car parking;
- An administration building adjacent to the access road;
- An internal un-paved road network serving the site from the reception area; and
- A designated hardstanding yard with associated drainage infrastructure located on the former quarry floor to the south of the site which is used to house the consented aggregate processing operation.

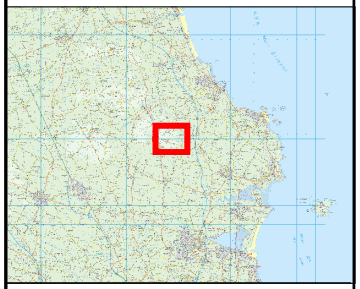
In addition to the above fixed infrastructure, there are a number of mobile and phased operations undertaken around the site including the processing of concrete (crushing, screening and cleaning as part of the End of Waste operation) and the phased infilling of cells around the site.

5.4.2 End of Waste Operations

IMS have consent from the EPA to recover concrete through processing into aggregates and this operation is currently undertaken at the Hollywood site. In June 2019, the EPA granted IMS an 'End of Waste' (EoW) decision on secondary aggregates under Article 28(3) of the European Communities (Waste Directive) Regulations 2011. Achieving EoW status for recovered waste materials can support the recycling of waste in line with the circular economy and the beneficial use of the waste without damaging human health and the environment.[5]

[5] End of Waste (Art. 28) | Environmental Protection Agency (epa.ie), EPA, 2021





Client

Integrated Materials Solutions (IMS) Limited Partnership

IMS Hollywood 2022 Update

Title

Figure 5-2: Current Site Layout

West Pier
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This decision means that the secondary aggregates produced at the site will cease to be waste if this material complies with the end-of-waste criteria set out in the EPA decision[6]. This material is known as 'secondary raw material' and is the cornerstone for the transition to the circular economy for the construction sector as it keeps material in use, prevents disposal and reduces the reliance on primary material and the associated impacts with material extraction and processing. IMS supply these products (tradename Greenstone) to several large infrastructure projects including national roads and Dublin Airport.

This process is heavily regulated by both the EPA through waste regulations and the NSAI through construction product regulations. From the EPA perspective, the waste inputs must not contain or be contaminated with dangerous substances described in Commission Decision 2000/532/EC. Incidental quantities of inert physical contaminants (such as soils, peat, clays, silts, wood, plastics, rubber, metal) may be present with the input material but must be removed during the processing of the waste to comply with the constituent requirements of aggregates in IS EN Standards and these criteria.

This operation is currently undertaken at the Hollywood site using mobile plant which can be moved around the site but is currently located on top of the engineered cap installed on Cell 4. This mobile plant consists of a number of crushing and screening units that break down the waste concrete. Screening and separation plant are used to remove any contaminants (e.g. clay, metal, timber) and to separate the aggregate into various size grades that may be exported for use on engineering works as granular fill, sub-base, etc. This processed concrete must meet the engineering requirements and Factory Production Control (quality) measures set out in IS EN 13242: *Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction* under the terms of the EPA end of waste decision.

Aggregate production at the facility has been independently verified by the National Standards Authority Ireland (NSAI) and can be CE marked. CE marks signify that product sold in the European Economic Area (EEA) have been assessed to meet high safety, health, and environmental protection requirements.

It is important to note that all end of waste by-products generated on site from this operation are transported off site using the same trucks that deliver waste to the site in so far as possible. Waste laden trucks deliver waste to the facility and rather than leave empty, where end-of-waste material is ready for export, the required fraction of these trucks are filled with material for delivery to construction sites. This system has been designed to sustainably manage the movement and handling of materials on the local road network in addition to keeping the overall carbon footprint of the material low.

An independent Lifecycle Assessment has been conducted for the Greenstone Aggregates and as a result Greenstone are the first and currently only aggregate produced in Ireland that has a verified Environmental Product Deceleration (EPD). Environmental Product Declarations are used to calculate the carbon footprints of construction projects and EPD registered products are recognised as following best practice internationally.

5.4.3 EPA Waste Licence

Site operations are licenced by the EPA under Waste Licence (Register W0129-02) which was last reviewed in May 2008 and transferred to IMS in 2017. This license permits the infilling of the former quarry with construction and demolition wastes which meet the waste acceptance criteria as set out in the Waste Licence and the Landfill Directive at a rate of 500,000 tonnes per annum (tpa). The current licenced disposal and recovery activities are listed in **Table 5-1.**

Only waste which meets the criteria for inert landfill as set out in the Landfill Directive (Directive 1999/31/EC) may be accepted and is subject to strict Waste Acceptance Procedures approved by the EPA and contained in the site's Environmental Management System (EMS). In 2021 the EMS was independently audited and achieved accreditation to ISO 14001 standard which is the highest standard available for environmental performance and improvement.

Schedule A.4 of the Waste Licence sets out the leaching limit values for pollutant content for inert waste landfills that apply to the site and all waste accepted at the site must comply with these limits. On the 31st January 2019 the EPA consented to the modification of the waste acceptance limits for waste at the facility (referred to as Technical Amendment C to the Waste Licence Register No. W0129-02). This consent was

[6] Decision on End of Waste Criteria relating to Recycled Aggregates from Crushed Demolition Concrete for use by Integrated Materials Solutions Limited Partnership (IMS), EPA 2019

subject to Appropriate Assessment and the EPA made the determination based on the fact that the proposed amendment would not result in a material change to the nature of the discharges from the activity.

The restoration work is completed on a phased basis through the construction of suitably lined landfill cells. The design and construction of the landfill cells have been in accordance with the EPA's Manual on Landfill Site Design (2000) and the Waste Licence.

Table 5-1 Current EPA Licensed Waste Disposal and Waste Recovery Activities

Class	Activity
Licensed Waste Disposal Activities, in accordance with the Third Schedule of the Waste Management Acts 1996 to 2007	
Class 1	Deposit on, in or under land (including landfill)
Class 5	Specially engineered landfill, including placement into lined discrete cells, which are capped and isolated from one another and the environment.
Class 13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produce
Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Acts 1996 to 2007	
Class 3	Recycling or reclamation of metals and metal compounds.
Class 4	Recycling or reclamation of other inorganic materials
Class 13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.

The Waste Licence permits the facility to accept and manage waste on Monday to Friday (0700–1900) and Saturdays (0700–1700) but support operations can be undertaken outside of these times. Waste is only accepted at the facility between the hours of 0800–1800, Monday to Friday and between the hours of 0700–1600 on Saturdays. These hours of operation are in line with planning permission for the site (Planning Reference: F19A/0077).

The existing operation has consent to import up to 500,000 tonnes of waste material per annum (excluding materials imported for engineering, caping or landscaping purposes) and this application will retain that limit of annual input.

5.4.4 Waste Acceptance Procedure

Waste Acceptance Procedures are outlined as follows and are a requirement under Schedule A.3 of the Waste Licence. IMS operates a more rigorous waste acceptance regime to that specified in the licence to ensure maximum traceability and protection on the environment. The waste acceptance procedures are contained within the EMS follow Best Available Technique as set out in the EPA Landfill Manual.

- Level 1 Basic Characterisation Testing - Level 1 testing constitutes through determination of the short and long-term behavioural properties of the waste (laboratory testing);
- Level 2 '1 in 100' Compliance Testing - Level 2 testing constitutes periodical testing (every 1 in 100 loads) of a select set of parameters identified by Level 1 basic characterisation, to further verify the level 1 laboratory results; and
- Level 3 On-Site Verification Testing - Level 3 on-site verification may consist of visual and odour inspection at the site before and after unloading at the site.

All wastes accepted for disposal or recovery at the landfill shall undergo the Level 3: On-site verification at a minimum. The current site operation includes for a quarantine area where loads may be temporarily stored pending testing as part of the routine testing regime.

For the following waste streams, only Level 3 testing is required under Schedule A.2 of the Licence:

- 170101 Concrete;

- 170102 Bricks;
- 170103 Tiles and ceramics;
- 170107 Mixture of concrete, bricks, tiles and ceramics (other than those mentioned in EWC 170106);
- 170202 Glass; and
- 170504 Soil and stones other than those mentioned in 170503.

For other waste streams permitted at the site, a representative load from every excavation/demolition/waste removal/dredging works is also subjected to a comprehensive assessment which must satisfy Level 1 characterisation. The comprehensive assessment must at a minimum include the following:

- A chemical analysis of a representative sample. At least one sample per 1,500 tonnes or portion thereof must be taken for chemical analysis for each excavation or demolition works. However, if the comprehensive assessment is undertaken prior to the commencement of excavation or clearance activity, the licensee may reduce the number of samples for chemical analysis to one for each 7,500 tonnes or portion thereof. The sampling location must be identified on a sampling grid and enclosed in the comprehensive assessment;
- An evaluation of the acceptability of the disposal of the waste at the landfill including observance of limits for total pollutants contents in Schedule A.4: Limit Values for Pollutant Content for Inert Waste Landfills, of this licence;
- A statement of any pre-treatment requirement (if any); and
- Evidence that the waste displays no hazardous properties upon disposal.

If, as a result of examinations undertaken in the course of excavation or clearance activity, the suspicion of contamination should arise, the type and concentration of the contamination must be determined, and its extent established through additional sampling.

Wastes of unknown origin or with insufficient waste description must be subjected to a chemical analysis.

In addition to the assessment above, representative samples upon delivery of wastes must be taken for compliance testing purposes (Level 2). The tests focus on key variables and behaviour identified by the chemical analysis.

A representative sample is taken from one in every 100 loads of waste accepted at the facility. This sample is subjected to Level 2 testing. Part of this sample is retained at the facility for three months and is available for inspection/analysis by the EPA.

5.4.5 Cell Liner and Construction

Under the Landfill Directive (Council Directive 99/31/EC), inert waste is defined as: *waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater*.

Annex I of the Landfill Directive requires that for inert cells the landfill base and sides consist of a mineral layer which satisfies the following permeability and thickness requirements:

- $K \leq 1.0 \times 10^{-7}$m/s; and
- Thickness ≥ 1m.

These are required for the protection of soil, groundwater and surface water. Condition 3.5 of the Waste Licence requires the current inert cell liner to comply with the following specifications which are in line with the requirements of the Landfill Directive:

- *Base and side wall: A mineral layer of a minimum thickness of 1m with a hydraulic conductivity less than or equal to 1.0 x 10^{-7}m/s, or similar with equivalent protection to the foregoing.*
- *The formation level of the basal liner prior to emplacement of compacted clay shall be constructed at least one metre above the water table and in any event the formation level of the liner shall be no lower*

than 104.5 mAOD Malin. Any excavations deeper than the formation level shall only be backfilled with granular materials quarried from the facility.

The mineral clay employed on site as the liner is known as blue clay (which is sourced from glacial till on site) has a demonstrated permeability of less than 1.0 x 10^{-10}m/s which exceeds the requirements of the licence and is approved by the EPA. The development of the inert cells utilises the existing blue clay resources on site or suitable approved off site sources to form the requisite mineral layer permeability required under the Landfill Directive.

Once infilling is complete, the cells are capped and the EPA Landfill Site Design requires the capping system for an inert landfill to consist of topsoil and subsoil, thickness dependent on after use but to a minimum of 0.5m. This capping regime has been successfully implemented on Cells 1 to 5 on site. **Figure 5-3** shows a cross section of the requirements for the basal liner and capping for implementation on the inert cells.

The development of all cells on the site is subject to the standard licence requirement for Specified Engineering Works (SEW). Under these requirements the following protocol is applied:

- IMS, as licensee, is required to submit proposals for any SEW, to the EPA for its agreement at least two months in advance of the intended date of commencement of any such works. SEW consists of the detailed design characteristics of the cell (liner, capping, leachate management, etc.) coupled with details of the proposed construction and quality assurance regimes;
- Only on EPA approval may the proposed SEW be undertaken;
- All SEW must be supervised by an appropriately qualified person, and that person, or persons, shall be present at all times during which relevant works are being undertaken; and
- Following the completion of any SEW, IMS must complete a construction quality assurance (CQA) validation and the validation report shall be made available to the EPA as required.

This SEW protocol is required for all cell development and potentially other development on site (leachate management, surface water management, etc.) at the discretion of the EPA.

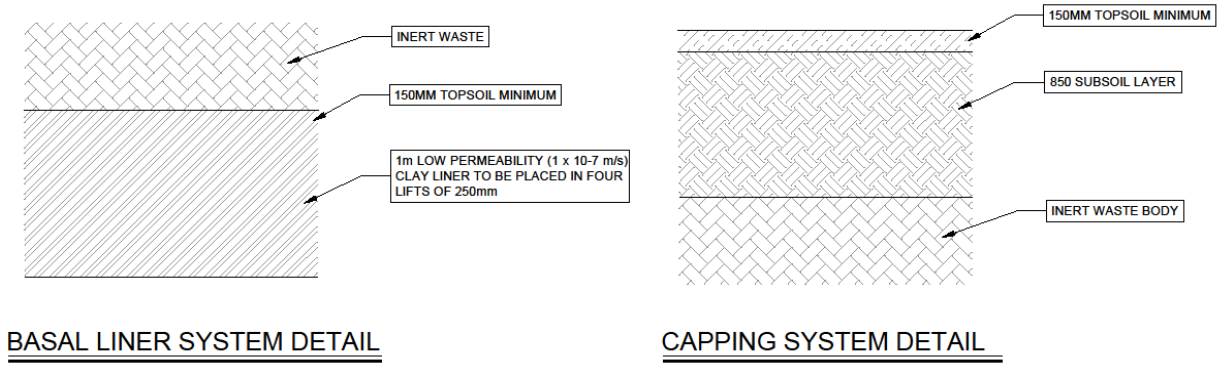


Figure 5-3 Basal Liner and Capping details for Inert Cells

Once SEW is approved by the EPA, waste cells are constructed as follows:

- Excavate and fill base to required formation level;
- Place and compact layers of Engineered Clay over base to a minimum 1m thickness;
- Place and compact Engineered Clay perimeter bund wall (in 2m lifts);
- Inspect, test and certify the Engineered Clay liner via a Construction Quality Assurance report which is completed by an independent chartered engineer and made available to the EPA;
- Placement of waste materials in a structured manner within the cell to allow for a management infilling programme; and
- Processing of large waste pieces (e.g. concrete) concrete waste by crushing to ensure that the void space is maximized or for use as an engineering material in site infrastructure;

Capping of all cells is carried out in accordance with the EPA's Manual on Landfill Site Design and consists of the following:

- A subsoil layer of minimum depth 850mm of subsoil (not screened) to complete the minimum 1m of soils above the waste; and
- A Topsoil layer of circa 150-300mm.

5.4.6 Waste Intake

The waste acceptance as per EPA licence W0129-02 is a maximum of 500,000 tonnes per annum of construction and demolition waste, dredging spoils and other approved wastes. Note that the site limit of 500,000 tonnes excludes the mineral extraction wastes arising from quarrying activities at the site and materials imported for engineering, capping or landscaping purposes (as directed by Schedule A of the licence).

As of 2019, the site limit excludes materials imported for recovery (as decided, in accordance with Article 28(3) of the European Communities (Waste Directive) Regulations 2011), where recycled aggregate from crushed demolition concrete ceases to be waste where it conforms with the requirements of Article 28(1)(a) & (b) of the Regulations.

Under the licence, only the wastes listed in **Table 5-2** and **Table 5-3** are acceptable for disposal and recovery, respectively, at the facility unless otherwise agreed with the EPA. Since granting of the licence, a number of additional waste codes have been authorised by the EPA for acceptance at the site.

In addition, in 2018 the EPA approved the acceptance of soils contaminated with Japanese Knotweed rhizome for biosecure disposal within the suitably designed and designed landfill cells on the site.

Table 5-2 Acceptable Waste for Disposal

EWC Code	Description	Restrictions
	Waste Resulting from Quarrying and Physical Treatment of Minerals	
010102	Wastes from mineral non-metalliferous excavation	Limited to such waste derived from on-site quarrying activities
010412	Tailings and other wastes from washing and cleaning of minerals other than those mentioned in 010407 and 010411	Limited to such waste derived from on-site quarrying activities
010409	Waste sand and clays	-
010499	Wastes not otherwise specified	Subject to the prior agreement of the Agency and limited to such inert waste derived from on-site quarrying activities
	Construction and Demolition Wastes	
170101	Concrete	These wastes can be accepted without level 1 or level 2 testing
170102	Bricks	These wastes can be accepted without level 1 or level 2 testing
170103	Tiles and ceramics	These wastes can be accepted without level 1 or level 2 testing
170107	Mixture of concrete, bricks, tiles and ceramics	Other than those mentioned in EWC 170106: These wastes can be accepted without level 1 or level 2 testing
170202	Glass	These wastes can be accepted without level 1 or level 2 testing
170302	Bituminous mixtures	Other than those mentioned in EWC 170301
170504	Soil and stones	Other than those mentioned in EWC 170503: These wastes can be accepted without level 1 or level 2 testing; this applies to soil and stones other than topsoil and peat and soil or stones from contaminated sites
170506	Dredging spoil	Other than those mentioned in EWC 170505
170604	Insulation materials	Other than those mentioned in EWC 170601 and 170603

EWC Code	Description	Restrictions
170904	Mixed construction and demolition wastes	Other than those mentioned in EWC 170901, 170902 and 170903, and subject to the prior agreement of the Agency.
	Other Inert Waste	
101006	Casting cores and moulds which have not undergone pouring	Subject to the prior written agreement of the Agency
190902	Sludges from water clarification	Subject to the prior written agreement of the Agency
190904	Spent Activated Carbon	Subject to the prior written agreement of the Agency

Table 5-3 Acceptable Waste for Recovery

EWC Code	Description	Restrictions
	Waste Resulting from Quarrying and Physical Treatment of Minerals	
010102	Wastes from mineral non-metalliferous excavation	Limited to such waste derived from on-site quarrying activities
010412	Tailings and other wastes from washing and cleaning of minerals other than those mentioned in 010407 and 010411	Limited to such waste derived from on-site quarrying activities
010499	Waste not otherwise specified	Subject to the prior agreement of the Agency and limited to such waste derived from on-site quarrying activities
	Construction and Demolition Wastes	
170101	Concrete	For development works only
170102	Bricks	For development works only
170103	Tiles and ceramics	For development works only
170107	Mixture of concrete, bricks, tiles and ceramics	For development works only. Other than those mentioned in EWC 170106
170504	Soil and stones	Other than those mentioned in EWC 170503 and excluding peat

5.4.7 Aggregate Recovery

Under permission F19A/0077, IMS also undertakes an aggregate recovery operation on site which consists of a series of mobile screening, crushing and segregation units designed to reduce and separate the feed material in size to produce a range of sizes of the waste material. The crusher and screeners are fed coarse material by a front loader/excavator which then separate the materials. The output material is then fed onto a conveyor towards the sizing screener.

This operation is mobile but will typically located on the permitted hardstanding yard in the south of the site once constructed. This yard consists of a sealed concrete base with an enclosed drainage system that allows for the full capture of all stormwater from this area in a series of appropriately sized tanks. The drainage system consists of channels which drain to a set of storm tanks which are sized to cater for the rainfall levels in the area. These storm tanks are used as a water source for the dust suppression or emptied as required by mobile road tankers and the water sent for treatment, under agreement with Irish Water, to a suitably authorised wastewater treatment plant.

The processing area is deliberately located on the quarry floor at the south-central section of the site to provide natural mitigation for dust, noise and visual impact for adjoining properties through both physical distance and the natural attenuation afforded by the quarry walls. This plant is not visible from the adjoining properties and/or the local road network.

5.4.8 Employees

There are eight full time employees at the IMS site. A dedicated Facility Manager, an Assistant Facility Manager, machine operatives and an office team which has responsibility for operating the weighbridge, and additional office and data management duties including directing and controlling incoming vehicles to waste deposition areas. IMS staff include environmental scientists, geologists, quality and compliance technicians who have relevant qualifications and experience in managing EPA regulated sites. Regular training is conducted for all employees relevant to their positions. There are also a small number of part-time cleaning staff and subcontractors. HGV drivers who pass through the site, are not employed by IMS but are employed indirectly through the existing operation.

5.4.9 Utilities

Mains water is pumped onto the site for drinking water purposes. In 2020, a total of 45.9m^3 of water from public supply was used on site. There is an existing passive bath wheel wash facility at the site entrance but water usage for this bath is limited to periodic top ups.

Electricity is used on site for heating, lighting and electronic equipment. Electricity consumption in 2020 was 38 MWHrs.

Water is also used on site for controlling dust and mud nuisance at the site. This water is collected rainwater/runoff, used in the sprinkler system and water bowsers. The wheel wash is in operation and a road sweeper is used daily as required.

5.4.10 Environmental Management System (EMS)

As a requirement of the Waste Licence W0129-02, the facility has an Environmental Management System (EMS) at the site. The site EMS is independently accredited by NSAI to ISO 14001 Environmental Management and integrates environmental issues within the existing management and operating systems, thus enabling IMS to conduct activities while ensuring the associated environmental considerations are managed. Amongst other elements, the EMS contains guidance procedures on *Environmental Aspects* including:

- Environmental Regulations and other Regulations register;
- Environmental Register;
- Staff Responsibilities;
- Training Procedures;
- Emergency Spill Response;
- Environmental Compliance Monitoring;
- Regular Site Audits and Inspections; and
- EPA Correspondence.

ISO 14001 accreditation forms the benchmark for environmental management on site and this criterion is the international best practice standard for monitoring and improving on environmental impacts of a business.

5.4.11 Environmental Monitoring

Under the terms of the Waste Licence, IMS is required to carry out a series of environmental monitoring regimes under Schedule C which are subject to the limits expressed in Schedule B of the Licence as follows:

- Ambient dust monitoring is conducted at every six months at four monitoring locations across the site;
- There are seven licensed surface water discharge points: SWD1 to SWD7 which are monitored for a range of parameters at varying frequencies. SWD2 to SWD7 were previously surface water discharge points from surface water pumping associated with quarrying operations. The water pumping activities have been suspended, therefore, any water/flow now observed at these locations is sourced from

surface water run-off from non-landfill areas. The norm is that these locations are dry however, this is verified during each surface water sampling event;

- There are also two ambient surface water monitoring locations SW1 and SW2, upstream and downstream respectively of the stream to the north of the site. As above these are monitored for a range of parameters at varying frequencies;
- Groundwater is monitored on a quarterly basis (some parameters annually) from nine on-site boreholes and a quarterly report submitted to the EPA;
- Leachate monitoring is required under the licence at a series of three boreholes (LC1, LC2 and LC3) for a wide range of parameters at varying frequencies for comparison with the standard EPA limits. IMS also carries out monitoring at a further four leachate wells (LC4, LC5, LC6 and LC7) as part of the routine monitoring regime at the site; and
- Noise monitoring is required annually at a series of five noise sensitive locations in the area.

There are no licensed emissions to sewer from the facility.

The results of this ongoing monitoring of the existing operation have been employed in the impact assessments presented in this EIAR. It is also noted that the above monitoring regime will continue for the proposed operation under the terms of the revised licence.

5.5 Do-Nothing Scenario

The 'Do-Nothing' option refers to a scenario whereby the facility would continue the existing permitted operation up to the expiration of the existing planning permission (F19A/0077). At that point all infilling, restoration and related works at the site would cease and the site would be secured and vacated by the staff.

The current EPA Waste Licence would be subsequently surrendered on agreement with the EPA and the site left in a satisfactory state and free from any residual risk from fuels, chemicals, etc.

The EIA Regulations require a description of the relevant aspects of the current state of the environment (baseline scenario) as well as and an outline of the likely evolution thereof without the development. In this EIAR this scenario is referred to as the 'Do-Nothing' Scenario and the evolution of the baseline in the absence of the proposed development is addressed in each of the relevant environmental disciplines presented in this EIAR.

5.6 Proposed Development

IMS is seeking consent to develop a number of enhancements at the Hollywood site to provide additional sustainable waste solutions in line with CE principals and the waste hierarchy and to continue the operation of the existing facility as outlined in **Section 5.4**.

The proposed development includes for an enhanced aggregate recovery operation at the site to meet the demand for secondary aggregates in line with European and National Circular Economy policy. The primary focus of the site will move from disposal to recovery with any suitable materials undergoing processing to extract any recoverable materials (e.g. aggregates and sand) prior to disposal. The recovery process can treat a range of suitable non-hazardous wastes including construction and demolition materials, waste processing fines, glass processing fines, street sweeping residues and dredging spoil. Waste already deposited on site could also be processed and aggregates and sand recovered leaving the silt to be landfilled on site.

In addition, the enhancements include accepting a more diverse mix of waste streams to meet the demands of a number of business sectors including construction, industrial, commercial and waste processing. The proposed development will assist in providing a self-sufficiency waste management solution for the State. The proposal is to retain the existing inert waste operation at the site and supplement this with a broader mix of wastes including non-biodegradable non-hazardous wastes. The mix of wastes has been selected based two key factors; the national capacity requirements for specific materials (e.g. non-hazardous non-inert waste landfill capacity) and the Hollywood site's environmental setting.

The proposed non-hazardous waste streams will require development of engineered cells that differ from the existing inert engineered cells and meet the requirements of the Landfill Directive (Directive 1999/31/EC). This includes mandatory performance requirements for base liners, capping, leachate management, etc. that

must be developed in line with the EPA landfill design requirements. The proposed non-hazardous waste streams include contaminated soil and stone from construction, other construction wastes, incinerator bottom ash (IBA), stabilised fines and further details are provided in **Section 5.6.1**.

One of the non-hazardous waste streams proposed for landfilling (incinerator bottom ash or IBA) will require a level of treatment prior to the infilling of this material into the proposed cells. Bottom ash is generated when the non-combustible fraction of municipal solid waste charged to the furnace in waste to energy plants forms a residue (ash). Prior to landfilling, IBA must be matured to make the material suitable for infilling and this process is proposed in line with best practice.

The only new waste activities proposed at the site are the maturation of incinerator bottom ash and the enhancement of the existing aggregate recovery unit to allow for the further removal of residues and other trace contaminants from processed waste aggregates.

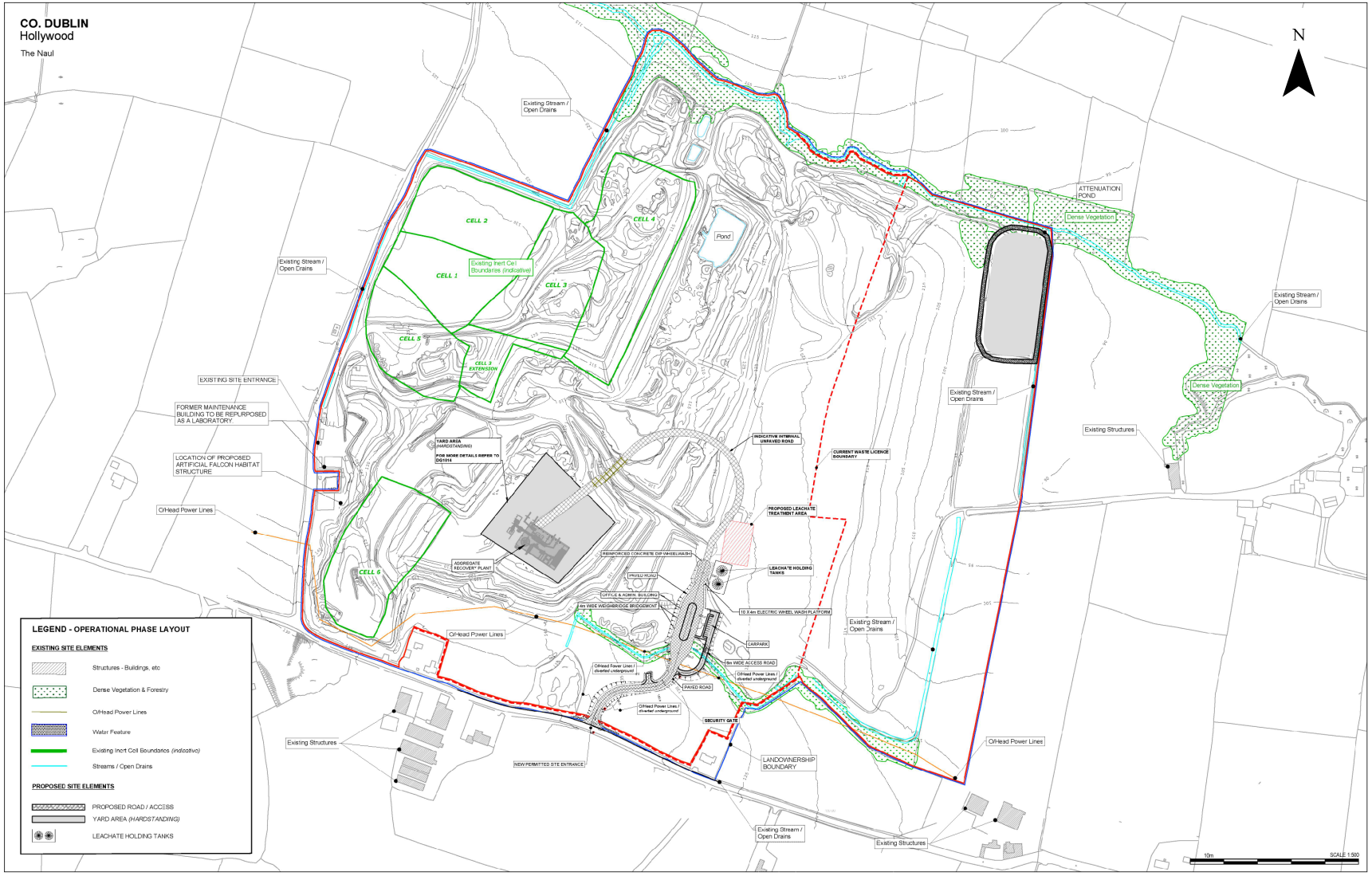
The proposal consists of a 10-year permission for a 25-year lifetime of operation to develop engineered landfill cells on the site to landfill this mixture of non-hazardous and inert wastes at a rate of 500,000 tonnes per annum as per the existing operation.

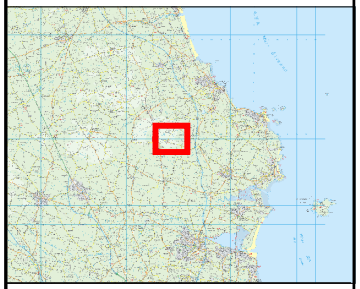
The site operating hours, location, environmental monitoring and the general operation as described in **Section 5.4** will remain unchanged under the proposed development. The proposed development will operate subject to requirements under any Industrial Emission (IE) Licence (Reference W0129-04), if granted by the EPA, to replace the existing Waste Licence, which governs all associated enforcement and regulation from when operations commence.

The proposed development sought under this application comprises the following:

- Broader waste acceptance types to include non-biodegradable non-hazardous and inert wastes generated by a range of sectors (construction, commercial, industrial and waste processing);
- Expanded waste treatment activities including:
  - Development and re-profiling of the landfill void to accommodate specially engineered landfill cells for non-hazardous wastes in addition to the existing engineered inert cells;
  - Enhancement of the existing aggregate recovery processing on site including upgrading the aggregate recovery operations which produces low carbon, recovered sands and aggregates from various granular wastes by removing residues and other trace contaminants and separating the resulting aggregates into various size fractions;
  - Manufacture of secondary materials including enhanced soils and low-energy bound materials (e.g. concrete);
  - Additional waste recovery activities including soil/concrete batching and blending;
- Repurposing of an existing structure on site as a testing laboratory unit for the research, development and testing of recovered materials;
- A leachate management system including a leachate collection system and a storage tank prior to tankering off site for treatment at a suitably licensed WWTP with provision for a future on-site leachate treatment facility;
- Surface water management infrastructure for the landfill to capture, attenuate and treat storm water prior to discharge;
- A mobile enclosure for the maturation of Incinerator Bottom Ash (IBA);
- An internal un-paved road network serving the deposition areas from the reception area which will be modified throughout the development phasing;
- Relocation of the existing artificial Peregrine Falcon nesting box to a proposed elevated pole-mounted location to the south west of the site; and
- Restoration of the site to natural ground levels.

Each of the above elements is presented in **Figure 5-4**. In addition to the site infrastructure changes, IMS is seeking to regularise the licence boundary with the landownership boundary and hence, the development boundary presented in **Figure 5-4** reflects the extent of IMS land ownership in the area (denoted with a blue line) with the exception of two dwelling houses along the southern boundary which are also in the ownership of IMS.





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IMS Hollywood 2022 Update

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Figure 5-3: Operational Site Layout

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Issue Details

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As the range of processes to be carried out, types of waste to be accepted and site waste management infrastructure will be materially altered, a Licence Review is required by the EPA. Under the revised First Schedule to the EPA Act 1992, as amended, the classes of activity listed in **Table 5-4** are relevant to the proposed development.

Table 5-4 Classes of Activity sought under the Industrial Emission Licence

Class	Description
Class 11.1	The recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required.
Class 11.4	(b) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. 254 of 2001) apply): (ii) physico-chemical treatment; (iv) treatment of slags and ashes; (b) Recovery, or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities, (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) apply): (iii) treatment of slags and ashes;
Class 11.5	Landfills, within the meaning of section 5 (amended by Regulation 11(1) of the Waste Management (Certification of Historic Unlicenced Waste Disposal and Recovery Activity) Regulations 2008 (S.I. No. 524 of 2008)) of the Act of 1996, receiving more than 10 tonnes of waste per day or with a total capacity exceeding 25,000 tonnes, other than landfills of inert waste.

5.6.1 Waste Streams

The proposed wastes to be accepted at the site are listed in **Table 5-5** showing the range of construction, household, commercial and industrial wastes including residual fines to be accepted. As with Schedule A of the existing waste licence, IMS will seek to retain the capacity to manage inert mineral extraction wastes arising from quarrying activities at the facility and material imported for engineering or landscaping purposes without any annual cap on this material.

Table 5-5 Proposed Waste Streams to be accepted at the Site

Description	Typical Source	EWC	EWC Description
Bottom ash, boiler ash and other ash/dust deemed to be non-hazardous	Power stations and combustion plants	10 01 01	Bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
		10 01 02	Coal fly ash
		10 01 03	Fly ash from peat and untreated wood
	EfW facilities	19 01 12	Bottom ash and slag other than those mentioned in 19 01 11
		19 01 14	Fly ash other than those mentioned in 19 01 13
		19 01 16	Boiler dust other than those mentioned in 19 01 15
		19 03 07	Solidified wastes other than those mentioned in 19 03 06
Soils (low-level contamination)	Construction and development sites	17 05 04	Soil and stones other than those mentioned in 17 05 03
		17 05 08	Track ballast other than those mentioned in 17 05 07
Dredge spoil & drilling muds	Dredging of waterways	01 05 04	Freshwater drilling muds and wastes
		17 05 06	Dredging spoil other than those mentioned in 17 05 05
Sludges	Water and Wastewater treatment plants	06 05 03	Sludges from onsite effluent treatment other than those mentioned in 06 05 02
		19 08 02	Waste from desanding

Description	Typical Source	EWC	EWC Description
		19 08 05	Sludges from treatment of urban waste water
		19 08 12	Sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
		19 02 06	Sludges from physico/chemical treatment other than those mentioned in 19 02 05
waste processing fines	Waste treatment	19 12 05	Glass
		19 12 09	Minerals (for example sand, stones)
		19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
Plaster Waste	Casting of nonferrous pieces	10 10 08	Casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
Waste from the shredding of ELV'S & White Goods	Waste management facilities	19 10 04	Fluff-light fraction and dust other than those mentioned in 19 10 03
Stabilised or solidified wastes	Waste management facilities	19 05 99	Wastes not otherwise specified
		19 03 05	Stabilised wastes other than those mentioned in 19 03 04
Other Municipal Waste	Street Cleaning	20 03 03	Street-cleaning residues
Waste Resulting from Quarrying and Physical Treatment of Minerals	Quarrying wastes	01 01 02	Wastes from mineral non-metalliferous excavation
		01 04 12	Tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
		01 04 09	Waste sand and clays
		01 04 99	Wastes not otherwise specified
Construction and Demolition Wastes	Construction and development sites	17 01 01	Concrete
		17 01 02	Bricks
		17 01 03	Tiles and ceramics
		17 01 07	Mixture of concrete, bricks, tiles and ceramics
		17 02 02	Glass
		17 03 02	Bituminous mixtures
		17 05 04	Soil and stones
		17 05 06	Dredging spoil
		17 05 08	Track ballast other than those mentioned in 17 05 07
		17 06 04	Insulation materials
		17 09 04	Mixed construction and demolition wastes
Other Waste	Construction and development sites	10 10 06	Casting cores and moulds which have not undergone pouring
	Water treatment plants	19 09 02	Sludges from water clarification
	Industrial	19 09 04	Spent Activated Carbon
	Treatment wastes	19 13 02	Solid wastes from soil remediation other than those mentioned in 19 13 01
All other similar non-hazardous wastes as may be approved by the Agency under the IE Licence.			

5.6.2 Waste Acceptance

Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment established mandatory best practice for the waste sector in relation to operational matters. This BAT will be applied by the EPA in setting conditions for any licence granted.

It is noted that BAT 2 states that: *'In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques given below'* and follows a series of best practice measures including:

> *Acceptance procedures aim to confirm the characteristics of the waste, as identified in the pre-acceptance stage. These procedures define the elements to be verified upon the arrival of the waste at the plant as well as the waste acceptance and rejection criteria. They may include waste sampling, inspection and analysis. Waste acceptance procedures are risk- based considering, for example, the hazardous properties of the waste, the risks posed by the waste in terms of process safety, occupational safety and environmental impact, as well as the information provided by the previous waste holder(s).*

The existing waste acceptance procedures at the site (as described in **Section 5.4.4**) are highly robust and exceed the requirements of BAT above and the existing Waste Licence to ensure maximum traceability and protection for the environment. For the proposed development, the various waste streams will undergo a similar three tier waste acceptance procedure as follows:

- Level 1 Basic Characterisation Testing – Level 1 testing constitutes through determination of the short and long-term behavioural properties of the waste (laboratory testing);
- Level 2 '1 in 100' Compliance Testing – Level 2 testing constitutes periodical testing (every 1 in 100 loads) of a select set of parameters identified by Level 1 basic characterisation, to further verify the level 1 laboratory results; and
- Level 3 On-Site Verification Testing – Level 3 on-site verification may consist of visual and odour inspection at the site before and after unloading at the site.

The Level 2 Compliance Testing may be modified under agreement with the EPA for a varied periodical testing for some waste streams. For example, non-hazardous waste loads may be subject to a more frequent periodic test to inert waste streams. The scale and frequency of testing will be dictated by the EPA and regulated through the IE Licence.

All wastes delivered to the site will typically be via circa 20-tonne rigid HGVs and uncovered to allow for the Level 3 On-Site Verification Testing through CCTV at the weighbridge. The exception is incinerator bottom ash which will be delivered to the site through similar 20-tonne rigid HGVs but all trucks will be covered to ensure no potential for dust generation during transport.

All waste deliveries will be via the new permitted site entrance and will have to report to reception in the Administration Building via the weighbridge and the following will be mandatory:

- Waste shall only be accepted at the facility from holders of valid waste collection permits issued under the Waste Management (Collection Permit) Regulations 2007, as amended, unless exempted or excluded;
- Waste shall only be accepted at the facility from known pre-cleared customers;
- The documentation of waste arriving at the facility shall be checked at the point of entry to the facility. Subject to its verification, the waste shall be weighed, recorded and directed to the waste acceptance/quarantine area as appropriate;
- Like the current operation, a dedicated quarantine area is included in the proposal where loads may be temporarily stored pending testing as part of the routine testing regime; and
- A designated quarantine area will be maintained on the hard stand adjacent to the IBA maturation building. Waste will be stored under appropriate conditions in the quarantine area to avoid odour nuisance, the attraction of vermin and any other nuisance or objectionable condition.

Site records will maintain details of all shipments to the site and the following will be recorded on site records in line with typical licence requirements:

- The tonnages and LoW Code for the waste materials imported and/or sent off-site for disposal/recovery;

- The names of the agent and carrier of the waste, and the waste collection permit details, if required (to include issuing authority and vehicle registration number);
- Details of the ultimate disposal/recovery destination facility for the waste and its appropriateness to accept the consigned waste stream, to include its permit/licence details and issuing authority, if required;
- Details of any rejected consignments;
- The results of any waste analyses required under the licence; and
- The tonnage and LoW Code for the waste materials recovered/disposed on-site.

All of the above records will be maintained in site to facilitate EPA inspection with annual reporting to the EPA through the Annual Environmental Report (AER).

5.6.3 Cell Layout

The proposed layout of cells at the site is shown in **Figure 5-5** (inert cells) and **Figure 5-6** (non-hazardous cells) and identifies the footprints of the following:

- The existing inert cells which have been largely capped and restored (Cells 1 to 5);
- The proposed inert cells (Cells 6 to 8); and
- The proposed non-hazardous cells (Cells 9 to 13).

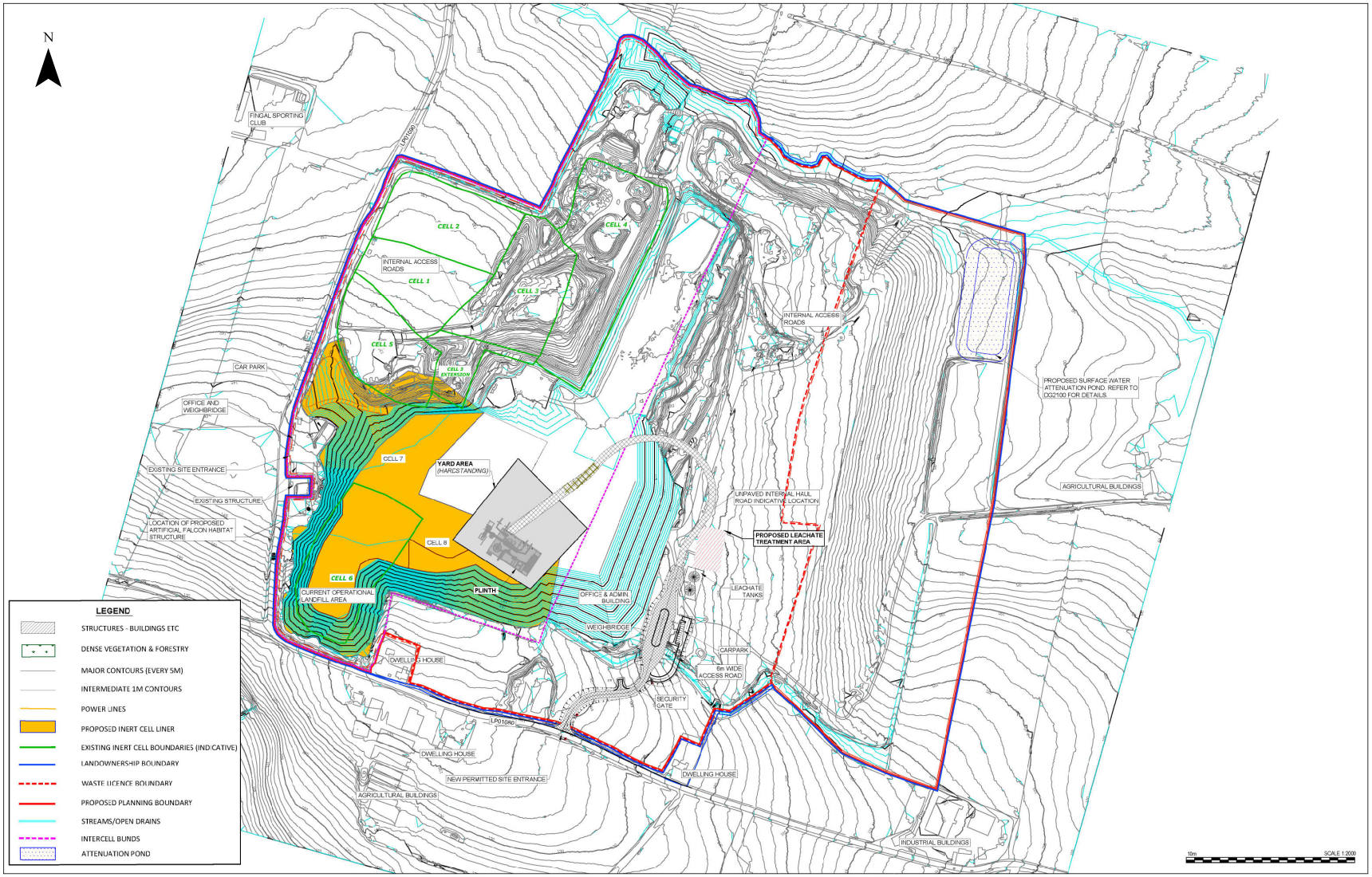
The phasing of these cells is provided in greater detail in **Section 5.8**.

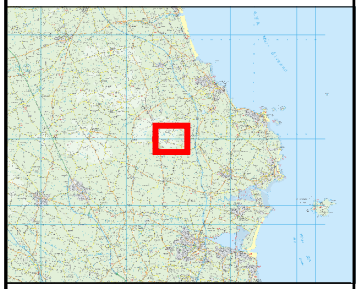
The inert cells are specifically located on the southern sections of the site where the underlying groundwater body (i.e. the Loughshinny Formation) is less protected. This body is identified as locally important and extremely vulnerable and hence the cell layout is proposed to minimise any potential leachate risk to this groundwater body. The north of the site is underlain by a poor aquifer with much greater natural protection and lower vulnerability, so the non-hazardous waste cells are located in this area.

As noted earlier, in order to allow operational flexibility to meet the market demands for waste capacity, the cell layouts and capacities shown are indicative. For example, in the event that there is a greater demand for inert waste in any given year, IMS retain the option to convert some or all of one or more of the non-hazardous cells to an inert cell or expand the capacity of one of the existing inert cells into the non-hazardous cell areas. This is required to meet the evolving demands of the construction sector. All cell design and construction will need to be pre-approved by the EPA under the Specified Engineering Works (SEW) requirements of the licence.

It is important to note that the converse scenario will not apply, and no inert cells will be converted to non-hazardous cells. This is to ensure groundwater protection of the Loughshinny Formation and only inert waste will be landfilled in this area.

Inert cells will be subject to the same liner, capping and construction requirements as presented in **Section 5.4.5** for the current operation.





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IMS Hollywood 2022 Update

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Figure 5-5
Proposed Inert Cell Layout

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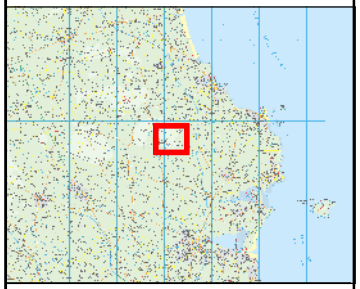

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IMS Hollywood 2022 Update

Title

Figure 5-6: Proposed Non-Hazardous Cell Layout

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Issue Details

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5.6.4 Non-Hazardous Waste Cells

The Landfill Directive simply defines non-hazardous waste as *waste which is not covered by paragraph (c)*, and paragraph (c) defines hazardous waste as any waste which is covered by Article 1(4) of Council Directive 91/689/EEC of 12 December 1991 on hazardous waste. It is proposed that the non-biodegradable non-hazardous waste streams are to be landfilled at the site at a series of engineered cells (Cells 9 to 13).

Phasing of these cells will be numerically with Cell 9 filled first and Cell 13 filled last as per the indicative phasing in **Section 5.8**. This phasing is proposed to allow for the delivery of either of the following project completion stages:

- The planned demolition of the processing yard before infilling Cell 13 at the end of the project lifetime prior to restoration; or
- The retention of the processing yard and access road and the cessation of waste infilling once Cell 12 has been fully capped.

Annex I of the Landfill Directive requires that for non-hazardous waste cells, the landfill base and sides shall consist of a mineral layer which satisfies the following permeability and thickness requirements:

- $K \leq 1.0 \times 10^{-9}$m/s; and
- Thickness ≥ 1m,

In addition, the Directive requires the installation of a liner and drainage layer on all non-hazardous cells. The proposed engineered liner for the non-hazardous cells at the Hollywood site will consist of a composite clay and geo-membrane liner installed on the base and side walls which complies with the following EPA requirements:

- A minimum 0.5m thick leachate collection layer having a minimum hydraulic conductivity of 1×10^{-3} m/s;
- The upper component of the composite liner must consist of a flexible membrane liner. At minimum a 2mm HDPE or equivalent flexible membrane liner should be used; and
- The lower component of the composite liner must consist of a 1m layer of compacted soil with a hydraulic conductivity of less than or equal to 1×10^{-9} m/s constructed in a series of compacted lifts no thicker than 250mm when compacted or a 0.5m artificial layer of enhanced soil or similar giving equivalent protection to the foregoing also constructed in a series of compacted lifts no thicker than 250mm when compacted.

Figure 5-7 shows the typical arrangement for a basal liner for the proposed non-hazardous cells.

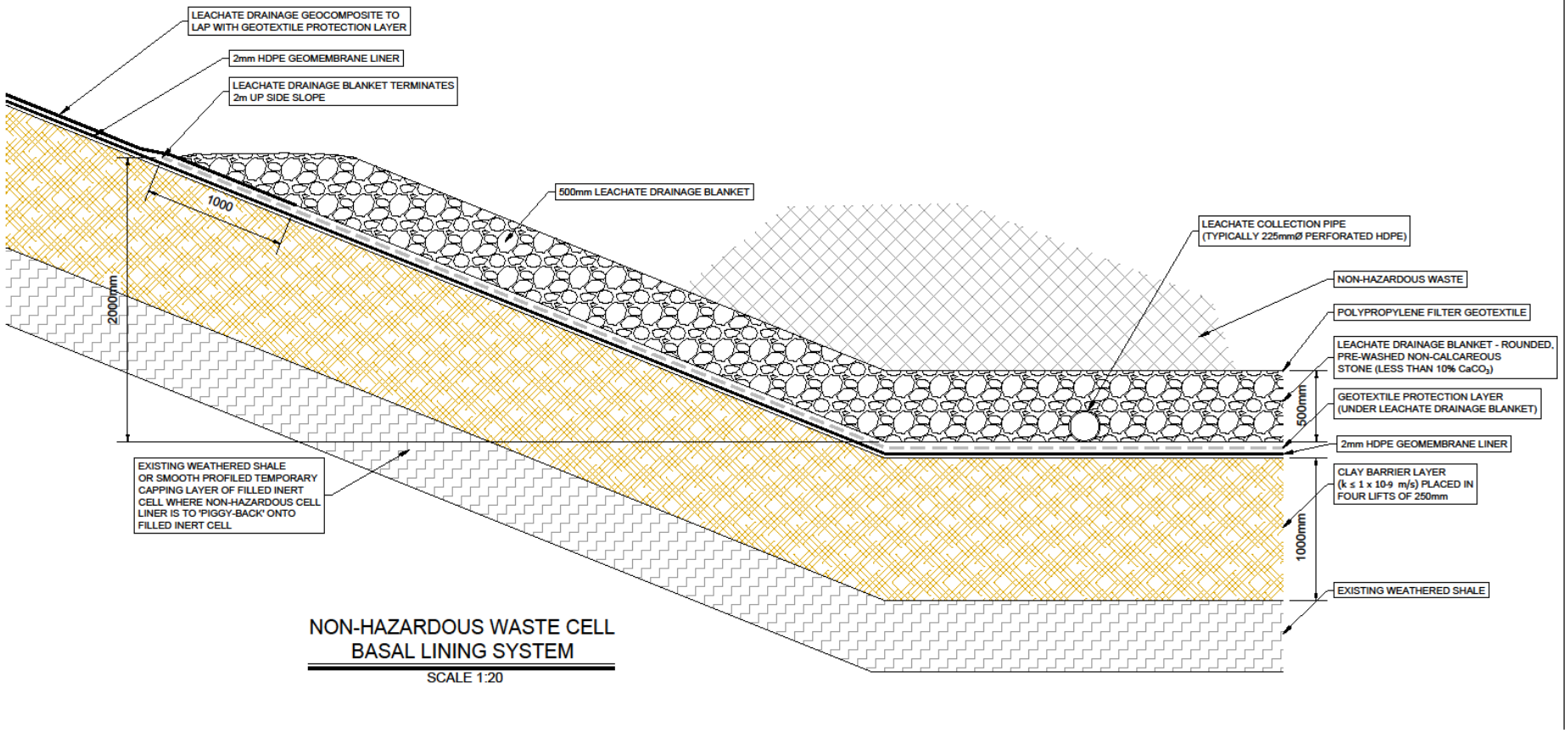


Figure 5-7 Basal Liner details for Non-hazardous Cells

5.6.5 Incinerator Bottom Ash (IBA) Maturation

One of the non-hazardous waste streams proposed for landfilling (incinerator bottom ash or IBA) will require a level of treatment prior to the infilling of this material into the proposed cells. Bottom ash is generated when the non-combustible fraction of municipal solid waste charged to the furnace in waste to energy plants forms a residue (ash). There are two municipal waste to energy plants operating within the State (Poolbeg and Carranstown) with further recommended in national policy. Each of these plants generate IBA at a rate of circa 200-250kg of IBA per tonne of waste combusted.

IBA from municipal solid waste combustion typically contains circa 10-12% ferrous metals and 2-5% non-ferrous metals (predominately aluminium but also copper, lead and zinc). The Best Available Techniques (BAT) Reference Document for Waste Incineration (December 2018) presents the typical chemical composition of IBA from the incineration of MSW and this detail is presented in **Table 5-6**. The data shows that IBA is predominately made up of general elements such as iron, silica, calcium and aluminium dusts with trace levels of heavy metals.

Table 5-6 Chemical composition of IBA from the incineration of MSW (BAT Reference Document for Waste Incineration)

Parameter	Average Level
Chromium (ppm)	648
Nickel (ppm)	215
Copper (ppm)	2,151
Zinc (ppm)	2,383
Lead (ppm)	1,655
Al_2O_3 (%)	8.5
SiO_2 (%)	49.2
Fe_2O_3 (%)	12.0
CaO (%)	15.3

IBA contains total concentrations of elements which are a ‘high level of concern’ based on EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) hazard classification. The selection of elements found in MSW which are considered as High Level of Concern are set out in **Table 5-7**. This data has been collated from the EPA research paper, ‘Waste Incinerator Bottom Ash in a Circular Economy’ (EPA, 2022).

Table 5-7 Selection of element found in MSW IBA which are considered as High Level of Concern

Element	Origin in MSW
Arsenic (As)	Used in electronics and glass, wood preservative. Biocide in plastics.
Barium (Ba)	Antioxidant, colourant, filler, heat and UV stabiliser in plastics.
Bromine (Br)	Major constituent of flame retardants in plastics, foams and textiles.
Cadmium (Cd)	Heat stabiliser, antioxidant and pigment in plastics. Used in metal plating and batteries.
Cobalt (Co)	Catalyst and pigment in plastics. Widely used in magnets and metal alloys.
Chloride (Cl^-)	Plasticiser, heat stabiliser, colourant, antioxidant and catalyst in plastics. Major constituent of polyvinyl chloride (PVC). Wood preservative.
Chromium (Cr)	Catalyst and pigment in plastics. Used in metal plating.
Copper (Cu)	Biocide and pigment in plastics. Present as wiring in most electrical goods.
Lead (Pb)	Colourant, antioxidant, UV and heat stabiliser in plastics. Present in batteries, metal goods, glass, electronics.

Element	Origin in MSW
Mercury (Hg)	Catalyst, colourant, cross-linking agent, filler and biocide in plastics.
Molybdenum (Mo)	Catalyst, cross-linking agent and flame retardant in plastics.
Nickel (Ni)	Catalyst and biocide in plastics.
Antimony (Sb)	Main use is as a flame retardant in plastic, Also plastic catalyst, antioxidant and pigment.
Sulphate (SO_4^{2-})	Filler, colourant, heat and UV stabiliser in plastics.
Tin (Sn)	Biocide and antioxidant in plastics. Used as flame retardant, and in metal plate, glass, ceramics.
Vandium (V)	Antioxidant in plastic. Also, a lubricant in plastic manufacture. Level of concern = vanadium oxide.
Zinc (Zn)	Multiple uses as plastics additive: filler, heat stabiliser, flame retardant, slip agent, pigment

In addition, a number of organic chemical groups are present in bottom ash and are considered as hazardous. These are commonly known as Persistent Organic Pollutants (POPs) and micro plastics.[7]

IBA may be subject to numerous treatment techniques from metal recovery to ageing of the IBA. The proposed development is to age the IBA in a mobile maturation facility consisting of a canopy, impermeable base and suitable runoff containment system as per the example in **Figure 5-8**. This enclosure will be located within the void space designated to accommodate the non-hazardous cells for ease of infilling this waste when matured.

The maturation process is employed to stabilise the mineral fraction by uptake of atmospheric CO_2 (carbonation), draining of excess water and oxidation. The purpose of the maturation is to reduce any remaining reactivity of the IBA, to improve the technical properties and to reduce the leachability of this stream. The process of maturation simply allows the IBA to sit in stockpiles for several weeks with some ongoing management (turning, wetting, etc.) prior to landfilling.

Figure 5-8 Example of the mobile enclosure for IBA maturation

[7] [7] Waste Incinerator Bottom Ash in a Circular Economy, Research Report (EPA, 2022)

In addition, maturation mitigates the release of hydrogen gas from IBA. The high levels of aluminium in the IBA may react with calcium hydroxide ($Ca(OH)_2$) and water to form aluminium hydroxide ($Al(OH)_3$) and hydrogen gas (H_2). Hydrogen gas is explosive, and its uncontrolled release can cause engineering difficulties such as swelling of the material post infilling impacting the liner and or cap. Hence, there is a need for any hydrogen gas to be liberated by maturation prior to landfilling.

The proposed maturation and infilling of IBA at the site will be in line with the following procedure:

- Transport from the source waste to energy facilities by road by means of 20 tonne HGVs with all trailers suitably covered. All transport will be undertaken using permitted hauliers with the appropriate EWC codes. The covering of trucks will be mandatory to ensure no fugitive emissions along the haul routes;
- Once through the site weighbridge, the IBA will be temporarily stored in a series of maturation stockpiles laid out within the storage facility as required;
- The stockpiles may be wetted, if required, using a sprinkler or hose system in order to prevent dust formation and emissions and to favour the leaching of salts and carbonation if the IBA is not sufficiently wet;
- Any drained water from this process will be collected and stored in the leachate tanks prior to being tankered to a suitably licenced wastewater treatment plant under agreement with Irish Water. Alternatively, the collected water may be re-used to humidify the stockpiles if the leachate quality is suitable;
- The stockpiles may be turned regularly to ensure the homogeneity of the processes that occur during the ageing process and to reduce the residence time. The typical residence time within the stockpiles will be circa 6-10 weeks;
- Following maturation, the IBA will be brought to the active non-hazardous cell (Cells 9 to 13) where the trailers will be tipped at designated areas prior to compaction by mobile plant. As required, water misting sprays and bowsers will be employed to mitigate dust generation; and
- All active faces will be maintained to the smallest possible areas and will be subjected to daily cover to create a barrier to mitigate potential for generation of dust.

Commission Implementing Decision the (EU) 2019/2010 of the 12th of November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration, states that best practice for IBA is to engage in some level of treatment and BAT 36e is generally applicable as follows:

> *In order to increase resource efficiency for the treatment of slags and bottom ashes, BAT is to use an appropriate combination of the techniques given below based on a risk assessment depending on the hazardous properties of the slags and bottom ashes.*
>
> *(e) Ageing*
>
> *The ageing process stabilises the mineral fraction of the bottom ashes by uptake of atmospheric CO_2 (carbonation), draining of excess water and oxidation. Bottom ashes, after the recovery of metals, are stored in the open air or in covered buildings for several weeks, generally on an impermeable floor allowing for drainage and run-off water to be collected for treatment. The stockpiles may be wetted to optimise the moisture content to favour the leaching of salts and the carbonation process. The wetting of bottom ashes also helps prevent dust emissions.*

The proposed IBA maturation process is now mandatory for consideration as best practice for the proposed development and will be incorporated into the IE Licence application.

Note that BAT 36d includes for the recovery of ferrous and non-ferrous metals through magnetic separation for ferrous metals, eddy current separation for non-ferrous metals and induction all-metal separation. This metal recovery of the IBA may be undertaken on site in a future date under agreement with the EPA.

5.6.6 Materials Balance

While there is a significant void space on the site from the former quarrying operation, there are also numerous stockpiles of glacial till (blue clay that may be used as liner for inert cells), other topsoils/subsoils and a range of other aggregate materials. Annual topographical surveys are undertaken to monitor and report on the remaining void space in the Annual Environmental Report (AER) to the EPA.

However, the existing topography and site layout requires some modification to accommodate cell design and construction. This may include movement of material, grading of side slopes, reprofiling, etc. across the site to allow for the installation of the cell layouts as presented in **Section 5.6.3**. To this end, a geotechnical assessment of the existing materials on site has been undertaken to assess the material balance for construction of cells and identify the levels of material importation and excess associated with the proposed development. This material balance is shown in **Table 5-8** with the breakdown for the inert and non-hazardous elements clearly presented. Note that a negative value illustrates a material deficit while a positive value illustrates a material surplus.

Approximately 830,000m^3 of material will need to be cut from in order to shape Cells 9-13 for in the non-hazardous cells. In addition, a further 97,000m^3 will be cut from the inert Cells 6-8 footprint to maximise the void and regularise the slopes on which the liner will be placed. At present there is approximately 65,000m^3 of clay material already available on site.

In order to fill the cells to shape for basal liner and provide the capping requirements for the non-hazardous cells approximately 400,000m^3 of material is required. Similarly, the shape the base and cap the inert cells approximately 290,000m^3 of material is required.

In line with the principles of sustainability, it is proposed to utilise the site won existing and cut material from the construction of cells as the fill material required for lining and capping. The material has been tested and approved by the EPA as suitable for this purpose on site. The results of the balance indicate that the proposed cell construction and capping will result in a material surplus on site of the order of 299,420m^3 of material. This material may be used in landscaping on site, processed in the aggregate recovery plant or exported off site as engineering material for use other construction sites under agreement with the EPA.

Table 5-8 Materials Balance Estimates

Site Area	Material Requirements	Volume (m^3)
Inert Cells	Existing clay stockpile to north of site	65,000
	Filling of Cells 7-8 to 104.5	-153,209
	Cut to shape for basal liner	97,349
	Fill to shape for basal liner	-20,894
	Clay required for basal liner	-84,378
	Temporary Capping Layer (300mm)	-15,127
	Subsoil required for Capping (850mm)	-16,692
	Topsoil required for Capping (150mm)	-2,946
Non-Hazardous Cells	Cut to shape for basal liner	834,157
	Fill to shape for basal liner	-11,792
	Clay required for basal liner	-186,397
	Temporary Capping Layer (300mm)	-30,195
	Subsoil required for Capping (850mm)	-149,138
	Topsoil required for Capping (150mm)	-26,318
Surplus Material		**299,420**

5.6.7 Leachate Management System

Leachate produced in a landfill is a liquid which has percolated through the waste, picking up suspended and soluble materials that originate from, or are products of, the degradation of waste. The Landfill Directive requires the following appropriate measures to be undertaken at landfills with respect to leachate:

- Control water from precipitations entering into the landfill body;
- Prevent surface water and/or groundwater from entering into the landfilled waste;

- Collect contaminated water and leachate. If an assessment based on consideration of the location of the landfill and the waste to be accepted shows that the landfill poses no potential hazard to the environment, the competent authority may decide that this provision does not apply; and
- Treat contaminated water and leachate collected from the landfill to the appropriate standard required for their discharge.

It is noted that the Directive states that the above provisions may not apply to landfills for inert waste and hence do not apply to the current operations at the site. Notwithstanding this exemption, the current operations include an engineered landfill with a low permeability basal liner that collects leachate from the inert cells (Cells 1 to 6).

While the inert and non-hazardous wastes proposed for the development are non-biodegradable, all of these wastes have the potential to generate leachate. The levels of leachate generation depend on a number of factors including the effective rainfall, the size of the cell, the extent of capping and other factors such as the absorptive capacity of the waste.

Based on the cell layouts and the proposed phasing (as shown in **Section 5.8**) the levels of annual leachate projected for the site are presented in **Table 5-9** and **Figure 5-9**. These projections have been carried out in accordance with the Water Balance Calculation guidelines set out in the EPA Manual on Landfill Site Design as per the following:

$$Lo = [ER(A) + LW + IRCA + ER(I)] - [aW]$$

where:

- Lo = leachate produced (m^3);
- ER = effective rainfall (use actual rainfall (R) for active cells) (m);
- A = area of cell (m^2);
- LW = liquid waste (also includes excess water from sludges) (m^3);
- IRCA = infiltration through restored and capped areas (m);
- I = surface area of lagoons (m^2);
- a = absorptive capacity of waste (m^3/t); and
- W = weight of waste deposited (t/a).

The results are presented as the breakdown between inert and non-hazardous leachate as well as total leachate.

The projected levels vary annually depending on the nature of the works and the extent of capping. The maximum levels on inert waste leachate are generated in 2032/2033 with the maximum non-hazardous waste leachate generated later in 2045. The maximum total generated leachate is in 2033 at 37,240m^3.

It is noted that upon cessation of landfilling at the site after 25 years, the waste body will continue to generate low levels of leachate. This is projected to be circa 7,985m^3 per year. This ongoing leachate generation may reduce in quantity and/or levels of constituents will no longer pose a risk to the environment. Only at that point the licence surrender process may commence with the EPA who will be the regulator for any change in licence requirements.

Table 5-9 Projected Water Balance for Leachate Generation

Year	Inert Cells - Leachate Production (m^3)	Non-Hazardous Cells - Leachate Production (m^3)	Total Leachate Production (m^3)
2023	10,684	0	10,684
2024	6,934	0	6,934
2025	13,373	0	13,373
2026	14,514	0	14,514
2027	10,764	22,400	33,164
2028	7,014	18,650	25,664

Year	Inert Cells - Leachate Production (m^3)	Non-Hazardous Cells - Leachate Production (m^3)	Total Leachate Production (m^3)
2029	10,467	5,970	16,437
2030	10,047	20,343	30,390
2031	3,056	16,702	19,758
2032	15,543	12,952	28,495
2033	15,543	21,697	37,240
2034	804	14,002	14,806
2035	804	20,794	21,598
2036	804	29,312	30,116
2037	804	26,983	27,787
2038	804	26,917	27,721
2039	804	16,359	17,163
2040	804	8,338	9,142
2041	804	27,743	28,547
2042	804	33,842	34,646
2043	804	23,841	24,645
2044	804	28,395	29,199
2045	804	34,520	35,324
2046	804	27,020	27,824
2047	804	27,020	27,824
2048	804	23,270	24,074
2049	804	10,046	10,850
2050	804	10,297	11,101
2051	804	9,456	10,260
2052-2082	804	7,181	7,985

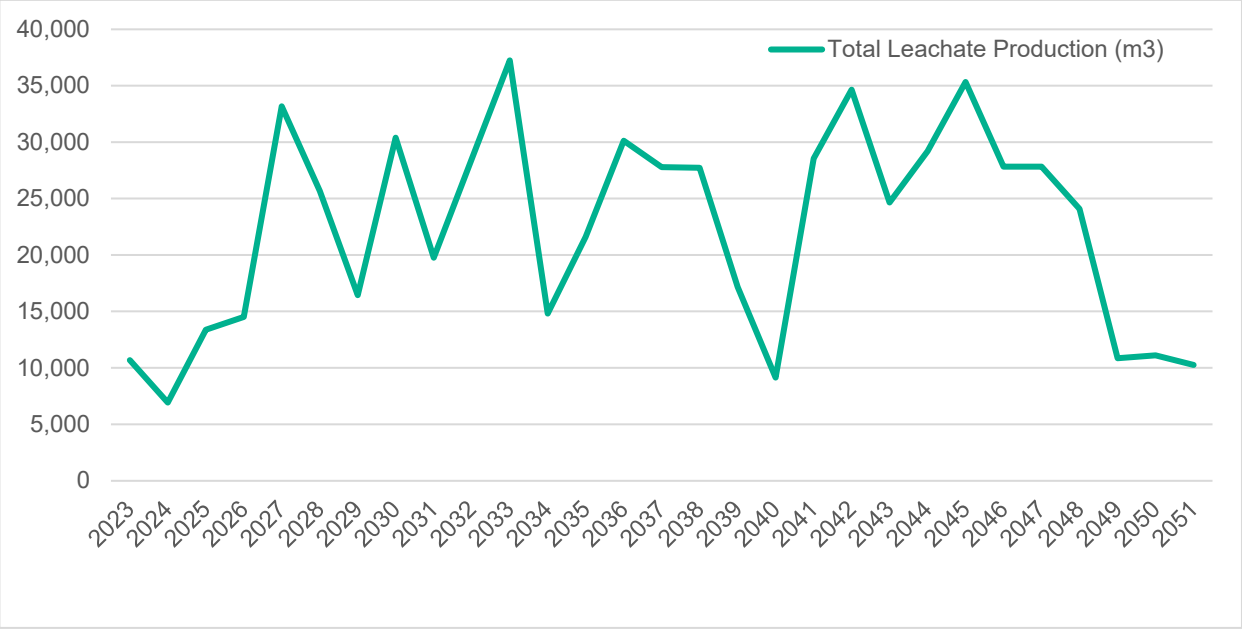


Figure 5-9 Estimated Leachate Generation

The leachate management on site will consist of the following requirements which are mandatory for a non-hazardous landfill cell:

- A drainage layer constructed of a 500mm leachate collection stone layer (non-calcareous, less than 10% $CaCO_3$ or other material as approved by the EPA) with a minimum hydraulic conductivity of $1x10^{-3}$ m/s;
- A network of perforated smooth bore leachate collection pipes (minimum diameter 300mm and 200mm HDPE) within the drainage blanket laid to a self-cleansing gradient to collect leachate and carry it to a sump or collection header pipe;
- A network of leachate monitoring points and inspection chambers; and
- A set of twin leachate collection and storage tanks where leachate will be stored temporarily prior to tankering off site.

Based on a maximum leachate generation rate of circa $102m^3$ per day (based on a maximum $37,240m^3$ in 2029), a total of seven days of storage capacity is required in accordance with the EPA Landfill Operation Manual. Based on a seven day capacity a minimum storage capacity of $714m^3$ is required for the leachate holding tanks on the site.

In order to accommodate this volume, a set of twin $532m^3$ tanks have been proposed for this purpose. These will be vertical cylindrical tanks of 12.8m diameter and 4.27m high. These tanks will be located in a fully bunded area surrounded by a 1m high concrete wall capable of containing 110% capacity of the largest tank (i.e. 532 x 110% = $585m^3$). Overall, the footprint of the bunded area with the tanks amounts to circa $720m^2$ and these tanks will be located on the east of the new access road adjacent to the wheel wash.

All leachate collected in sumps and chambers will be pumped to these holding tanks to maintain levels of leachate within the landfill cells. The leachate will be transferred from the holding tank to enclosed $23m^3$ road tankers for transport to a suitably licensed wastewater treatment plant under agreement with Irish Water.

There are five large licensed (population equivalent or p.e. greater than 10,000) wastewater treatment plants in the GDA and these are listed in **Table 5-10**. In addition, Irish Water was granted permission in November 2019 by ABP (Case reference: PL06F.301908) for a new regional wastewater treatment facility at Clonshaugh which will have a capacity of 500,000 p.e. If granted, this plant will provide additional regional capacity at circa 20km from the Hollywood site. This new site has yet to apply for a WWDA from the EPA so is not included in **Table 5-10**.

Table 5-10 Licenced WWTP in the north Dublin Area

Registration Number	Agglomeration Name	Design Capacity (p.e.)
D0021-01	Malahide	20,000
D0023-01	Balbriggan	70,000
D0024-01	Swords	90,000
D0034-01	Ringsend	1,640,000
D0114-02	Portrane, Donabate, Rush, Lusk	65,000

IMS will engage with Irish Water to establish an agreement to accept the leachate volumes projected and one or more the licensed WWTP within the north Dublin area. The nearest plant to the site is the Balbriggan WWTP and the maximum daily leachate from the site (estimated $102m^3$/day maximum) to the Balbriggan plant represents circa 1% of the current hydraulic load to that plant ($8,951m^3$/day on average reported in 2021, source: 2021 AER). Furthermore, the Balbriggan plant has a design capacity of $16,100m^3$/day hydraulic load (dry weather flow) illustrating the headspace available at this plant and significant availability to treat the volumes from the proposed development.

The agreement with Irish Water will be a requirement of the IE Licence and will be subject to quality criteria for acceptance. In terms of quality, indicative leachate quality data has been collated for the various waste streams and this is presented in **Table 5-11**. This data has been collated from the existing inert cell monitoring data, laboratory data on these waste stream and other literature sources.

Table 5-11 Landfill Leachate Waste Stream Estimate Quality

Parameter	Unit	Inert Waste[1]	IBA	C&D Fines
pH	pH Units	8.93	12.27	
Ammoniacal Nitrogen	mg/lNH_4-N	6	-	-
Chloride	mg/l	269	382	47
Fluoride	mg/l	-	2	1
Bromide	mg/l	-	1	-
COD	mg/l	89	-	-
List I & II Substances	mg/l	-	-	-
Organic Carbon Dissolved	mg/l	32	-	88
TOC	%	-	5	1
Sodium	mg/l	235		-
Sulphate	mg/l	789	51	1,622
Aluminium	µg/l	-	18,878	-
Sulphur	µg/l	-	12,722	-
Arsenic	µg/l	-	10	8.5
Barium	µg/l	-	3,556	77
Cadmium	µg/l	-	1	ND
Calcium	µg/l	-	571,111	-
Chromium	µg/l	-	7	2.6
Cobalt	µg/l	-	5	-
Copper	µg/l	-	473	ND
Iron	µg/l	-	10	-
Lead	µg/l	-	5,432	ND
Manganese	µg/l	-	10	-
Molybdenum	µg/l	-	43	12
Nickel	µg/l	-	10	13
Potassium	µg/l	47,000	72,345	-
Thallium	µg/l	-	20	-
Vanadium	µg/l	-	10	-
Zinc	µg/l	-	1,083	46
Antimony	µg/l	-	3	-
Selenium	µg/l	-	1	-
Tin	µg/l	-	2	-

Notes: 1. From existing leachate analysis of the inert cells 1 to 6 on the Hollywood site

While in the short term leachate tankering is proposed, the proposed development also includes provision for potential on-site leachate treatment infrastructure to be developed once more detailed information on leachate volumes and concentrations are available. Any development of this on-site treatment infrastructure will be subject to the SEW process approval with the EPA.

The system will include the following infrastructure in addition to the two holding tanks noted earlier:

- A prefilter to trap particulate matter from entering the treatment system;

- One or more Reverse Osmosis (RO) modular treatment systems – these RO systems will be designed to target the key contaminants listed in **Table 5-11** and separate these contaminants from the leachate by using pressure to push the leachate through a specialized membrane;
- The high concentration leachate generated through the RO systems will then be stored in an assigned holding tank to await removal off site by tanker to an Irish Water WWTP – this option increases the concentration of the leachate but reduces the volume to be treated off site;
- The remaining hydraulic load has a low contaminant concentration and may be recirculated through the landfill, used for on-site processes (such as aggregate recovery) or may be diverted to a secondary treatment system such as an integrated constructed wetland (ICW). If required, this ICW would be developed as part of the attenuation pond to the north of the site under agreement with the EPA.
- The treated water would then discharge to the Ballough Stream at greenfield run off rates and monitored through the licence monitoring regime. The EPA will require any discharge to the Ballough Stream to comply with the requirements of the Surface Waters Regulations (S.I. No. 272 of 2009) as well as the relevant Best Available Technique (BAT) reference document or conclusions for the sector.

This on-site treatment system will be located to the south of the site directly adjacent to the leachate holding tanks.

5.6.8 Stormwater Management System for the Landfill

Currently there are two silt settlement ponds located along the northern part of the site. These ponds regulate the discharge of surface water runoff from the landfill to the stream running along the northern boundary of the site. For cell development, any water ponding at the base of the quarry cell may be pumped to the two settlement ponds, left to settle and allowed to discharge to the stream at Licence Emission Point SWD3 in line with the Waste Licence requirements. The lands outside the quarry void drains naturally to the stream at the northeast via existing open drains along the boundaries.

In the short term, these drains will be diverted to the existing settlement ponds to the north of the site which will provide attenuation and treatment (settlement) prior to monitoring discharge (Licence Emission Point SWD3) to the stream that bounds the north of the site.

The proposed surface water drainage system is designed to collect and transport run off from the landfill and surrounding area to drains at the periphery of the landfill for attenuation and discharge. The collection system will be a network of perimeter drains at the boundary of the landfill footprint as shown in **Figure 5-4**. The drains will be designed to minimise run off entering the waste body for active cells and capture the runoff from the drainage layers of the capped cells.

The surface water design has been carried out in accordance with requirements of BS 752; the GDSDS and the '*Recommendations for Site Development Works for Housing Areas*' – published by the Department of the Environment. It is proposed to re-use water in the surface water attenuation pond for a number of purposes, namely:

- Supply of water for waste management processes (such as aggregate processing or IBA maturation);
- Supply of water for firefighting requirements; and
- Supply of water for operation and maintenance requirements (such as dust minimisation).

Implementing the design standards of the GDSDS, the surface water drainage system takes into account the recommendations of the GDSDS and utilises SuDs (sustainable urban drainage) devices where appropriate. The principle behind SuDs is to reduce the quantity of discharge from developments to predevelopment flows and also to improve the quality of runoff from proposed developments. In this case, it is proposed to decrease the quantity of runoff to greenfield rates by providing a surface water attenuation pond and utilising some of the stored water in IBA maturation, dust suppression and general onsite operations.

Applying this SuDs in conjunction with site specific rainfall data, an allowable outflow from the landfill footprint of 5.24 l/s/ha was calculated (refer **Appendix E in Volume III**). It is proposed to limit outflow from the site through the attenuation pond, controlled by way of actuated valves such as a hydro brake.

Bearing in mind the requirements of the GDSDS and in order to avoid flooding of the site, a storage volume for a 1 in a 100-year storm event was used with provision included for a climate change factor of 20%. This results in a storage requirement of 15,000m^3 including a climate change factor of 20% for the site (refer **Appendix E in Volume III**). This storage for a 1 in 100 year will be achieved through provision of 1m of

freeboard in the pond. The attenuation pond will be located in the north-eastern section of the site as shown in **Figure 5.4**.

Surface water runoff will be discharged through a perforated pipe laid in crushed stone to a water course. The crushed stone allows infiltration into the ground but also provides the required attenuation for the worst-case scenario, i.e. assuming that there is no infiltration. This runoff will pass through oil interceptors, as required, prior to reaching the surface water attenuation pond.

The drainage pipe network has been designed to incorporate gravity flow where feasible. The majority of the surface water flow comes from the landfill cover. This runoff will be collected by the proposed drainage pipes and gravitate to the surface water attenuation pond.

In short, the surface water discharge system was designed as follows:

- The surface water storage pond will cater for the 1:100 year storm event;
- The surface water storage pond will have a minimum free board of 1m; and
- Outflow will be at greenfield runoff rates (5.24 l/s/ha).

The quality of the runoff from the proposed development will be improved by the following measures:

- Runoff will pass through oil interceptor prior to discharge to the stream. These oil interceptors will retain any hydrocarbons in the runoff and thereby improve the quality of the runoff; and
- Surface water storage ponds will also act as settlement ponds to reduce the levels of suspended solids in the surface water.

This new infrastructure will result in a new discharge point in the IE licence. This discharge will be from the attenuation pond will be at greenfield run off rates through the use of flow control unit via a monitoring chamber to the stream that bounds the site to the north. This new emission point will be referenced as SWD8 within this EIAR and the licence application to the EPA. All discharges from this new emission point will be required to comply with the limits set out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No 272 of 2009).

5.6.9 Landfill Gas Management System

Landfill gas (LFG) is generated from the degradation of organic and biodegradable wastes. As the proposed development consists only of non-biodegradable wastes, there is no potential for LFG generation at the Hollywood site. As such, there is no proposed LFG management infrastructure included in the proposed development.

5.6.10 Other Infrastructure

It is proposed to repurpose the existing storage building on the western perimeter of the site (adjacent to the existing site entrance) as a laboratory to facilitate on site testing of materials (wastes and secondary aggregates). The external bulk and form of the building will remain unchanged with only internal works proposed to fit out the structure with standard laboratory infrastructure such as benches, sinks, offices and specialist equipment.

The proposal also includes for the relocation of the existing artificial Peregrine Falcon nesting box installed on the cliff face in 2020 as part of the Peregine Falcon Management Plan to a proposed elevated pole-mounted location to the south west of the site. This nest box will contain a sheltered nesting ledge and will be monitored regularly as per the mitigation presented in **Chapter 8**.

5.7 Construction Phase

It is important to note that the proposed development relates to the development of landfill cells and associated infrastructure (e.g. drainage and leachate). These cells will be developed as required through the lifetime of the project as outlined in the phasing in **Section 5.8**. As noted earlier, the development of all cells will be subject to the standard licence requirement for Specified Engineering Works (SEW). This SEW protocol is required for all cell development and potentially other development on site (leachate management, surface water management, etc.) at the discretion of the EPA. For clarity, these cell developments are considered as standard landfill operations within this application and do not constitute a

construction phase or construction 'works' as typically referred to within planning. Cell development and construction constitute the operation phase of this development and is not included in the following paragraphs.

However, there are a number of new structures and features that will be constructed at the site during the construction phase/works and these include the following:

- Leachate holding tanks, bund and treatment area; and
- Surface water attenuation pond.

The construction phase of the proposed development will be undertaken simultaneously with the ongoing infilling operation at the site. Both phases will run concurrently to allow for the complete restoration in the 25-year timeframe sought under this application. The construction phase will proceed as per standard construction phasing including the following elements:

- Detailed design of the infrastructure based on the drawings presented in this application by a suitably qualified design team;
- Site investigation works including any additional boreholes or trial pits required to inform the design phase;
- Site preparation works including a temporary works compound to be established in the vicinity of the proposed new infrastructure area, removed from any watercourse or drainage ditch;
- Site clearance will be undertaken through the removal of topsoil and overburden in the area of the proposed works. Excavated material (subsoil / topsoil) will be retained on site and replaced during reinstatement. No material will be taken offsite and all material will be retained on site to minimise construction traffic; and
- Any utilities required (e.g. SCADA systems) will be installed prior to the main construction works being implemented on site.

An estimate of 12 to 18 months is proposed for the construction phase of the new infrastructure (excludes cell development which is addressed as operation phase). Construction of cells will be ongoing at various stages throughout the sites operation with construction elements requiring submissions to the EPA in the form of Specified Engineering Works reports as required under IE/Waste Licences.

Construction traffic will be minimised through the retention of all soil and stone waste on site (as authorised under the licence) and the use of on-site quarried aggregates for sub-grade and base material. Construction traffic will be limited to the importation of the specialist equipment for the pond, concrete and ancillary equipment as well as construction staff.

All construction works will be required to comply with the mitigation and monitoring stipulated in this EIAR, mitigation stipulated in the NIS and any condition imposed in the IE licence. All of these mitigation and monitoring requirements will be incorporated into the site EMS. All construction works undertaken on the site are regulated by IMS through implementation of all works within the site's EMS procedures for surface water, spills, dust, noise, traffic, complaints and incident management.

5.8 Project Phasing

In relation to general site infrastructure other than landfill cell development, it is proposed that all such infrastructure will be constructed and operational within 18 months of grant of permission and the IE Licence from the EPA. The construction phase for new infrastructure will run concurrent with the ongoing operational phase as outlined below for landfilling operations.

Since the infilling works at the site commenced on grant of the first Waste Licence in 2002, the cells have been developed and infilled in a phased basis. To date Cells 1, 2, 3 (and Cell 3 extension), 4 and Cell 5 have been fully infilled and capped. Restoration of the lands is partially complete and some of this area is currently being used for agricultural pasture.

The indicative phasing of the cell development is outlined in **Table 5-13** for the inert cells – Cells 6, 7 and 8. The indicative phasing illustrates the anticipated year of cell construction (in yellow), the period of infilling (in green) and the timeframe for final capping (in blue). Note that cell construction on Cell 6 is complete under the current planning permission and Waste Licence and infilling in this cell commenced in 2020 under agreement with the EPA.

It is noted that under the indicative phasing, Cells 6, 7 and 8 will be fully infilled and capped within the first ten years of operation. This is anticipated because of market demand and the need to complete these cells to allow for the construction of the adjacent non-hazardous cells (Cells 12 and 13).

Assuming a year of commencement of 2026, the indicative phasing of the non-hazardous cell development is outlined in **Table 5-13** (for the period 2026 to 2038) and **Table 5-14** (for the period 2038 to 2051). Note that filling rates are dependent on market demand and this phasing is indicative and subject to change.

The void space proposed for non-hazardous cells is larger than for the inert cells and hence the timeframe to complete infilling in longer with a projected completion at circa the 25-year timeframe of the proposed development. The final cell to be completed will be Cell 13 which is the largest cell as this cell will sit on the side slopes of the adjacent cells and thus requires a longer infilling period.

It should be noted that the permitted hardstand is to be located in the area shown in **Figure 5-4** and this location is broadly within the footprint of Cell 13. It is proposed that the hardstand will be constructed in the proposed location under the existing planning permission.

At circa 2043, Cells 6 to 12 will have been fully infilled (and in most cases restored). As noted earlier, this phasing is proposed to allow for the delivery of either of the following project completion stages:

- The planned demolition of the yard and infrastructure before infilling Cell 13 at the end of the project lifetime prior to restoration; or
- The retention of the yard and access road and the cessation of waste infilling once Cell 12 has been fully capped.

In the event that Cell 13 is to be infilled the following works will be undertaken:

- Any structures will be fully decommissioned with the removal of all plant items, waste material, tank contents, fuels, or any other substance or object that may pose a risk to the environment;
- Any structures will undergo a planned deconstruction and any material may be reused elsewhere on other sites or disposed of or recovered as waste at a suitably licensed facility;
- The concrete base will be either used as a base liner for the cell (under agreement with the EPA under the IE Licence and through the SEW) or demolished with the material crushed to a suitable grade and used as infill within the cell; and
- All of the above will be regulated by the EPA as a Closure, Restoration & Aftercare Management Plan (CRAMP) which is a requirement of the IE Licence.

Once the structures and hardstand are fully removed from the area, the construction of Cell 13 can be completed and the infilling of this cell will continue through the projected period of 2044 and 2049 prior to the restoration phase. An indicative phasing plan is shown in **Figure 5-10.**

In the event that Cell 13 is not infilled all side slopes of other cells will be maintained and managed as appropriate under agreement with the EPA through the CRAMP process.

Table 5-12 Indicative Filling Plan for Inert Cells (in tonnes)

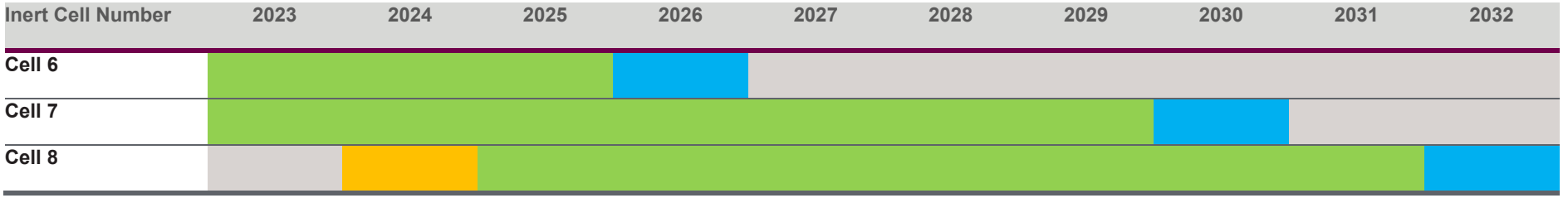


Table 5-13 Indicative Filling Plan for Non-Hazardous Cells (in tonnes) – 2026 to 2038

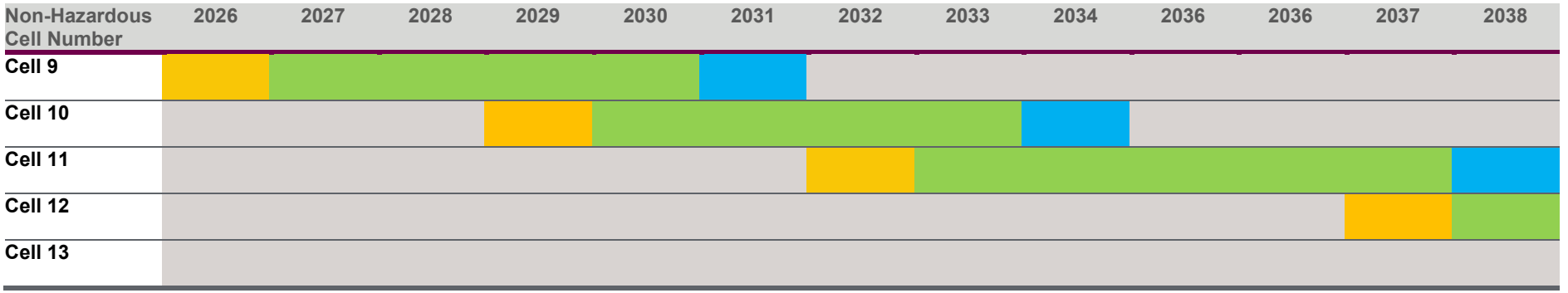
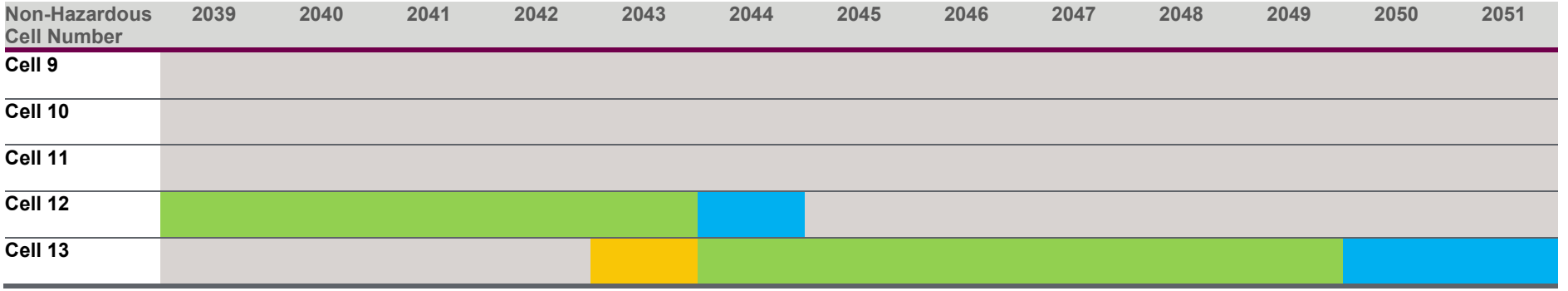
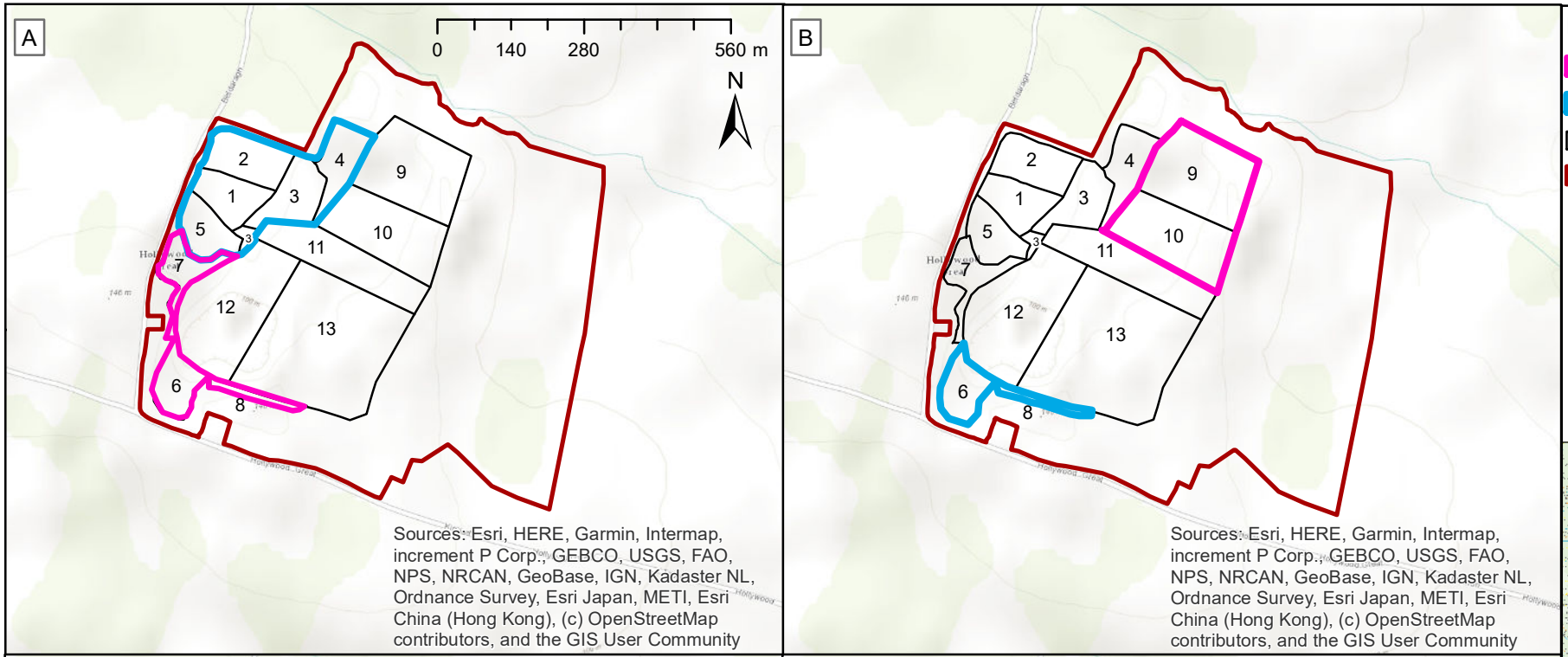
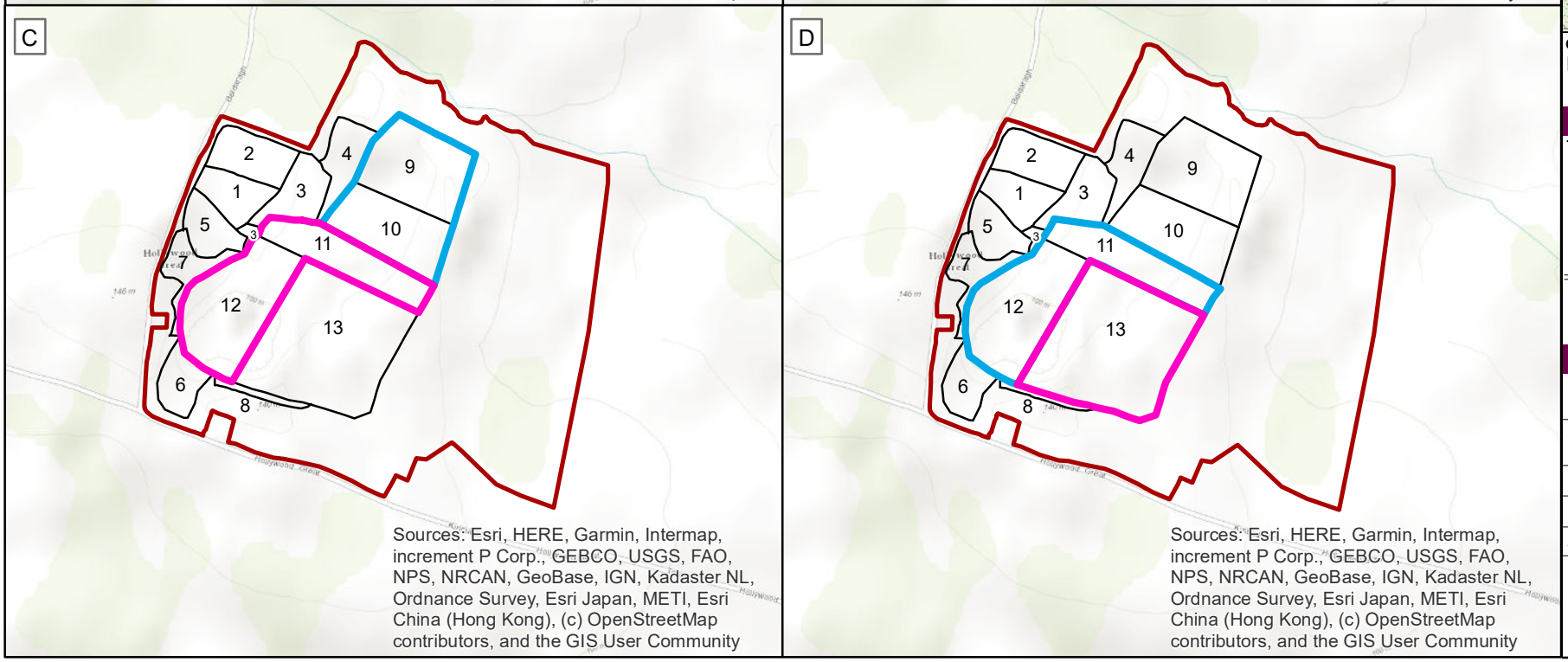


Table 5-14 Indicative Filling Plan for Non-Hazardous Cells (in tonnes) – 2039 to 2051



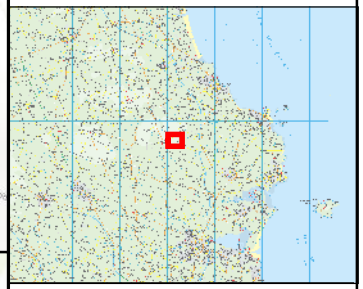
Key: Cell Construction, Infilling, Capping





Legend

- Infilled
- Restored
- Cells
- Site Boundary



Client

Integrated Materials Solutions (IMS) Limited Partnership

IMS Hollywood 2022 Update

Title

Figure 5-10: Indicative Project Phasing

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Issue Details

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Status: S0	**Rev:** P01	**Model File Identifier:**
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Checked: SA		**Scale:** 1:12,500 @A4
Approved: PC		**Projection:** ITM

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5.9 Site Restoration

The overall purpose of the proposed development is to allow for the infill of the former quarry to facilitate the restoration of the site to natural levels. After completion of the infilling the site will be capped and landscaped to allow for the site to be restored for future use. This restoration will be sympathetic to the surrounding land uses and the designation of the area as 'High Amenity' and the protected views along the local road network.

The following conditions are contained within the current Waste Licence and IMS will be obliged to comply with a set of similar conditions in relation to the ultimate restoration of the site within the revised IE Licence:

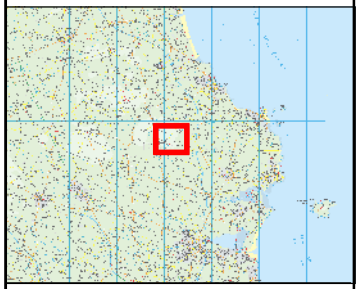
> *10.1 The final profile of the facility shall tie in the facility to the surrounding land levels and shall be as shown on Figure 4.2 Phasing of Restoration of the Environmental Impact Statement (March 1999). The final height shall not exceed 149.0 mAOD Malin.*
>
> *10.2 The facility shall be restored as described in Attachment G.1 Restoration Scheme of the application for W0129-01 and Section 4.7 Landscaping Plan of the Environmental Impact Statement (March 1999) subject to the following:*
>
> *10.2.1 The final capping shall consist of the following:*
>
> *(i) Top soil (150-300mm); and,*
>
> *(ii) Subsoils, such that total thickness of top soil and subsoils is at least 1m.*
>
> *10.3 The licensee shall restore the facility on a phased basis as per Figure 4.2 Phasing of Restoration of the Environmental Impact Statement (March 1999). Unless otherwise agreed, filled cells shall be permanently capped within 24 months of the cells having been filled to the required level.*

It should be noted that Figure 4.2 of the 1999 EIS was superseded in the 2007 planning application and EIS, however, the associated licence condition was not updated accordingly. This application proposes a revised set of restoration contours for the proposed development and these are shown in **Figure 5-11**. These revised contours are required to ensure that the final infilling restores the land to a smooth provide with the existing levels to the east and west of the site. It should be noted that while the contours vary, the final height remains at 149.0mAOD to mitigate any potential landscape impact.

Furthermore, as the licensee IMS is obliged to prepare and maintain a fully detailed and costed plan for the closure, restoration and aftercare of the site or part thereof, including details of the final profile. This closure, restoration and aftercare will provide details for the phased restoration of cells, demolition of existing structures and the broader procedures for leaving a site in a 'satisfactory state' in advance of a licence surrender.

This application seeks to further refine the final contour levels and to this end a final contour layout of the fully restored site is presented in **Figure 5-11**.

It is also noted that upon cessation of landfilling at the site the waste body will continue to generate low levels of leachate at a rate of circa 7,985m^3 per year (refer **Section 5.6.7**). The management and transport/disposal of this leachate volume will still be required during the restoration and aftercare phases of the development and the liability for the cost of same will be covered by IMS through the financial provision requirements that will be imposed by the EPA through the IE Licence.



Client
Integrated Materials Solutions (IMS) Limited Partnership

IMS Hollywood 2022 Update

Title

Figure 5-11
Final Restoration Levels

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5.10 Community Gain

The Planning and Development Act 2000 (as amended by the Planning and Development (Strategic Infrastructure) Act 2006, Section 37 G(7)(d)) specifies that, in the event that planning permission is granted for a SID, ABP can make provision for community gain arising out of the development:

The Board may attach a condition providing for community gain which may require the construction or the financing, in whole or in part, of a facility or the provision of a service in the area in which the proposed development would be situated and which the Board considers would constitute a substantial gain to the community.

In addition, the '*Changing Our Ways*' national waste policy (September 1998) stated that '*Local authorities, working closely with local communities, should utilise a proportion of income from waste charges and gate fees to mitigate the impact of such facilities on these communities through appropriate environmental improvement projects'*.

With regard to the proposed development, in the event of a grant by ABP, IMS would propose establishing a fund to contribute to the provision of environmental improvement and recreational or community amenities in the locality. This fund will be administered by the establishment of a local committee (for agreement with Fingal County Council) who will be tasked with identifying such environmental works and community facilities which are suitable for funding by IMS.

This is the standard community gain model for waste operations in Ireland and IMS would anticipate that the scale of funding would be in line with current practice on other waste facilities that accept similar waste streams (i.e. excludes MSW landfills).

5.11 Vulnerability to Accidents and/or Disasters

The EIA Regulations require a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to the development. The *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (August 2018) state that there are two key considerations under this requirement, namely:

- The potential of the project to cause accidents and/or disasters, including implications for human health, cultural heritage, and the environment; and
- The vulnerability of the project to potential disasters/accidents, including the risk to the project of both natural disasters (e.g. flooding) and man-made disasters (e.g. technological disasters).

This section identifies the both the potential for the proposed development to cause, and vulnerability to, disasters/accidents. The resultant environmental impacts are identified in the various environmental chapters of this EIAR.

For traffic accessing the site via the M1, the R132 and LP-1080, the risk of accident will remain unchanged relative to the existing consented operation. Further details are provided in the traffic and transportation section of this EIAR.

The proposed development relates to the infilling of inert material into a former quarry. As part of the former and current operations there are a number of minor areas for storage and handling of fuels and chemicals as follows:

- There is a former fuel tank and mobile plant filling area located along the internal access road located on concrete hardstand. This area is no longer in use, but the infrastructure remains in place;
- There is a mobile fuel bowser currently employed on site for fuelling mobile plant; and
- There are some vehicle maintenance liquids currently stored in the site workshop.

There are no additional facilities planned for the storage or handling of dangerous substances such as fuels, chemicals, compressed gases, flammable materials, oxidising agents, toxic materials, etc. As such, the potential for the proposed development to cause accidents from such material is negligible.

The main potential hazard from the proposed development relates to road traffic accidents associated with the continued road haulage to and from the site. Through the development of the new site

entrance on the LP-1080, the road haulage risk will be reduced through the improved layout and sightlines afforded relative to the existing junction between the LP-1090 and LP-1080.

The four key vulnerabilities that may potentially impact the proposed development include the following:

- Proximity to Seveso (COMAH) establishments;
- Site Subject to Flood Risk;
- Site Subject to extreme weather events; and
- Road traffic accidents and disruption to operations.

The Seveso establishments within the vicinity of the proposed development are listed in **Table 5-15**. Also shown in the table is the approximate distance to the proposed development. The proximities show that all establishments are a significant distance from the site and hence the site is not vulnerable to accidents from these operations.

Table 5-15 Seveso Establishments Located in the area

Establishment Name	Tier	Location	Distance to Site
Flogas Ireland Ltd	Upper	Drogheda Marine Terminal, Marsh Road, Drogheda, Co. Louth	18km
CLH Aviation	Lower	Corballis Road, Dublin Airport, Dublin 2	14km
Gensys Power Ltd.	Lower	Huntstown Power Station, Huntstown Quarry, Dublin 11	17km
Swords Laboratories	Lower	Watery Lane, Swords, Co. Dublin.	11km

The Strategic Flood Risk Assessment for the Fingal Development Plan 2017-2023 indicates that the site of the proposed development is not vulnerable to flood risk (confirmed by the OPW during consultation). A project specific flood risk assessment has been undertaken and confirms the low vulnerability and this is presented in **Chapter 10** of this EIAR.

Other extreme weather events also have the potential to significantly impact on operations and the frequency of such events at the nearest meteorological met station (Dublin Airport) are outlined below. These statistics are based on the 1981–2010 averages for Dublin Airport and it should be noted that these frequencies are anticipated to increase as a result of climate change.

- Absolute Maximum Temperature: 28.7^{0}C;
- Absolute Maximum Temperature: -12.2^{0}C;
- Greatest Daily Total Rainfall: 73.9mm;
- Maximum Gust: 80knots;
- Mean Days with Snow or Sleet per Year: 16.6 days; and
- Mean Days with Thunder per Year: 5.5 days.

Vulnerability of the site to extreme weather includes a number of factors as follows:

- Extreme rain event – increased surface water run-off and requirements for attenuation and management of storm water to mitigate the potential for surface water or groundwater impact. Refer **Chapter 10** of this EIAR for details on how such an event has been mitigated through the design and operations;
- Extreme weather event (e.g. heavy snow, hurricane, etc.) – such an event would likely result in a temporary shutdown of operations on site and hence no residual impact is predicted;
- Extreme cold event – potential for freezing of standing water across the site impacting on the handling systems and stockpile management where materials are 'bound' by the extreme temperatures. No residual impact on the environment is predicted;
- Drought and/or prolonged high temperature – potential for reduced capacity to implement dust mitigation measures and fugitive dust releases causing impacts on neighbouring communities. Refer **Chapter 11** of this EIAR for details on how such an event has been mitigated through operations. No other residual impact on the environment is predicted; and

- Prolonged or extreme high winds – as above, there would be potential for increased need to implement dust mitigation measures (depending on levels of associated rainfall) and fugitive dust releases causing impacts on neighbouring communities. Refer **Chapter 11** of this EIAR for details on how such an event has been mitigated through operations. No other residual impact on the environment is predicted.

In the event of a road traffic accident on the M1, R132 and/or LP-1080 impacting on access to the site from the east, site access would be temporarily halted on this route which would impact on operations. For a more prolonged disruption to easterly access, it is an option to access the site from the west, i.e. through the R108 and LP-1080 and then entering the site trough the retained existing access on the LP-1090 which is to be retained for such an emergency event. The traffic management and mitigation measures listed in **Chapter 13** of this EIAR includes specific details for emergency planning in the event of such road accidents and will outline the approved and safe alternative approaches to be adopted by drivers accessing the site. Appropriate training, signage and communications will be incorporated into the site operating procedures to ensure full compliance with emergency procedures.

5.12 Other Relevant Projects

A review of other relevant operations in the area has been undertaken to determine the potential for cumulative impacts with the proposed development. These existing and proposed operations are outlined in the following sections of this report and the relevant cumulative impact assessed in the various environmental discipline chapters.

A search was conducted of planning applications (projects) within the vicinity of the proposed development using the FCC planning portal map viewer and the Department of Housing, Planning and Local Government EIA portal map viewer. The search was limited to the five-year period preceding the date of issue of this report and excluded retention applications (i.e. typically local-scale residential or commercial developments where an impact has already occurred), withdrawn and refused applications. The sull suite of relevant applications are listed in **Table 5-16**. There is limited development in the immediate environs of the proposed development so limited potential for cumulative impact.

It is noted that both the sand and gravel pit (Ref. AA191263) and the waste facility (Ref. W0265-01) have the potential for both cumulative traffic and environmental impacts. However, the traffic for these developments and the proposed development at Hollywood will be via separate haul routes and as such, no significant cumulative traffic impact is anticipated. Further details are provided in **Chapter 13** of this EIAR.

Similarly, the Hollywood site is located within the drainage catchment of the Ballough Stream while the local topography in the area results in the developments at the Naul lying within the Delvin catchment and, as such, there is no potential for cumulative adverse impact on the aquatic environment. Further details are provided in **Chapter 10** of this EIAR.

Fingal County Council applied to the EPA for Industrial Emissions Licence for the proposed Fingal Landfill, a planned municipal solid waste landfill on a greenfield site in north County Dublin (W0231-01) (An Bord Pleanála case reference: PL06F.EL2051), 1.4km southeast of the site. The EPA granted Fingal County Council a Waste Licence in May 2010 for third (class 4, 5, 6, 7, 11 and 13) and fourth (class 3, 4, 9, 11 and 13) scheduled activities. However, this facility was never constructed and there are no plans to commence waste operations at this site.

There are a small number of other commercial enterprises located within the surrounding area, including TEAM Accessories Ltd, an aviation maintenance and repair business, located to the southwest at the corner of the site landownership boundary. A farm and commercial premises (Ecopipe, a plumbing and heating supplier) is situated along the LP-1080 immediately opposite the southern boundary of the site. Existing traffic volumes from these enterprises have been accounted for in the baseline traffic analysis.

Table 5-16 Potential Development in the Area

Planning Application Reference Number	Applicant	Brief Development Description	Application Status/ Outcome	Approximate Distance (km) and Direction from Proposed Development	Date Planning Application Granted
F17A/0184 PL06F.249179. 249179	Doran Cray Architectural Services	The proposed development is a mixed-use development with 2 no. vehicular accesses from the Ballyboughal Road to the south and 1 no. vehicular access from the R108 Naul Road to the west of the site. The proposed development will consist of: (a) Demolition of existing 1,023m² partially built structures in the south western corner of the site; (b) 57 no. dwellings to include: 5 no. 5-bed detached, 20 no. 4-bed detached, 2 no. 4-bed semi-detached, 5 no. 3-bed semi-detached, 8 no. 3 bed semi-detached/end of terrace, 4 no. 2-bed terraced, 5 no. 4-bed bungalows, 5 no. 3-bed bungalows and 3 no. 2 bed bungalows; (c) Two storey commercial block (323m² gross floor area) with 2 no. ground floor retail units and 2 no. first floor office units with associated signage; 13 no. associated surface car parking spaces, 1 no. loading bay and 4 no. cycle spaces; (d) Internal roads, footpaths, associated landscaping, boundary treatments and all associated ancillary works.	Granted	3.68 south	11/08/2017
F17A/0440	Courtlough Shooting Ground Ltd.	Development consisting of (i) alteration of site levels to create raised earthen area to accommodate new zip line platform and zip wire associated with existing adventure centre development (ii) 2 no. subsonic 0.22 calibre rifle shooting ranges including 2 no. shooting range huts on each range (4 no. in total) and earthen enclosure berms around each range all sides (ranging in height from 3m to 7m), additional earthen outer enclosure berms to north and east of range area; (iii) new equestrian centre development consisting of paddock area, training area, corral, wash down area, single storey stables building (including stable bays, feed store, bedding store, tack and cleaning room, equipment store), trailer parking area and car parking. The proposed development includes associated SuDS drainage, landscaping, boundary treatments (including paddock fencing), alterations of site levels and all associated site development works necessary to facilitate the development.	Granted	3.86 east	15/09/2017
F17A/0762 PL06F.301183. 301183	Sorciem Ltd.	The construction of 28 houses including 20 no. two storey, 4 bedroom detached dwellings (154m^2) and 8 no. single storey, three bedroom detached dwellings (129m^2). The works will also include the construction of 60 bed nursing home facility on 2 storeys (3563m^2) and the construction of 16 no. Enterprise Units (2662m^2 total) with ground and mezzanine floors in three blocks, with new vehicular entrances from Naul Hill Road (R108), a pedestrian/cycle link to chapel Lane, and associated car parking, landscaping and site development works including SUDS drainage, stormwater attenuation, pumping station and for the demolition of all existing structures.	Granted	3.20 northwest	22/02/2018

Planning Application Reference Number	Applicant	Brief Development Description	Application Status/ Outcome	Approximate Distance (km) and Direction from Proposed Development	Date Planning Application Granted
F18A/0210	Country Crest LTD	Permission for a 386.4m2 side extension to existing Dispatch Shed including all associated site	Granted	4.97 southeast	19/06/2018
F18A/0581	Ballyboughal Gaelic Athletic Association Football Club	The construction of a clubhouse facility containing dressing rooms with ancillary spaces together with associated car parking, landscape and drainage works.	Granted	3.63 south	10/12/2018
F18A/0593	Motcombe Ltd.	For the construction of a production and distribution warehouse building of 7939m^2 with loading bays and yard for articulated lorries; and attached 2-storey office building of 1385m^2 with first floor terrace and setback roof plant enclosure of 68m^2; external single storey plant enclosure at ground level of 622m^2 separate single storey ESB substation, electrical switch room and transformer room at ground level of 49m^2; landscaped surface staff and visitor car parking; covered bike parking, smoking shelter, 2 no. vehicular entrances from access road, one of which is also a pedestrian entrance; signage on building and at entrances; boundary fencing and extensive boundary landscaping and all other associated site services and utilities necessary to facilitate the site development.	Granted	2.51 east	19/03/2019
F18A/0746	Gas Networks Ireland	For works to an existing Above Ground Natural Gas Installation. The works will consist of the replacement of approximately 390m of existing 2.4m high chainlink perimeter fencing and associated access/emergency gates with new 3m high security fencing, gates and all associated site works.	Granted	3.83 southeast	19/02/2019
F19A/0216	Hedgestown National School	Construction of new detached, pre-fabricated portable building for the purposes of a resource room, and all associated site works.	Granted	2.70 east	11/07/2019
F19A/0052	Gas Networks Ireland	The development will consist of a new Above Ground Gas Installation comprising gas filtration metering, heating, pressure reduction and all associated interconnecting above and below ground pipework and telemetry including: A new access road to the existing road which links Baldrumman Road to the Southbound Eastern Applegreen Service Station; 2.4 high security fencing including a single vehicular entrance; Internal concrete road pavement and gravelled areas; 1 no. single storey control building; 1 no. single storey boiler house; 1 no. single storey pressure regulator building; 1 no. kiosk; lighting; and all associated apparatus, plant and equipment including surface water drainage and landscaping features.	Granted	3.38 southeast	03/07/2019
F20A/0391	Irish Aviation Authority	Permission for a proposed radar and support mast with a total height of 34.4m; a single storey plant room/open plant compound; a single storey support building (153.2m^2); 3	Granted	0.06 southeast	10/02/2021

Planning Application Reference Number	Applicant	Brief Development Description	Application Status/ Outcome	Approximate Distance (km) and Direction from Proposed Development	Date Planning Application Granted
		no. car parking spaces; a new vehicular entrance off the Local Road (L1080); boundary treatments and site development works on a site of 4,290m^2.			
F21A/0033	Transport Infrastructure Ireland	Extension of the existing Heavy Goods Vehicles (HGV) parking area to provide an additional 55 no. HGV parking spaces for a temporary period up to the end of 2021, comprising pavement and landscaping works, and ancillary site development works including a surface water network and attenuation pond.	Granted	2.82 south	16/03/2021
F21A/0211	Courtlough Shooting Grounds Limited	(1) Construction of single storey changing facility (356m^2) comprising reception area, WC, changing rooms (male and female), wet suit room, shower room, mechanical room and covered outdoor patio. (2) Construction of a 2-storey indoor activity centre (979m^2) comprising open plan activity area, reception, cafe, seating area, WC, stairwell, and covered outdoor patio at ground floor level. First floor will comprise an office, 3 no. classrooms, and WC. (3) Provision of new 1-way vehicular entrance into the site from the Balrothery Road (LP01155). Vehicles will exit via the existing entrance onto the same road. (4) Provision of car parking comprising 42 no. car parking spaces and 3 no. mobility parking spaces and (5) SUDS drainage, foul treatment system, landscaping, boundary treatments and all associated works necessary to facilitate the development.	Granted	3.78 east	04/01/2022
F21A/0290	Ballyboughal Boxing Club	Permission for development which is within the curtilage of a protected structure (RPS No. 0151). The development will consist of the 1) change of use and internal & external alterations of the existing gallery to a boxing club, 2) single storey extension to the south elevation to accommodate changing rooms and toilets 3) demolition of single storey link building along north elevation 4) install new waste water treatment system and percolation area, and 5) all ancillary site development works.	Granted	4.54 south	06/07/2021
F22A/0020	Oberstown Children Detention Campus	Permission for installation of a 5.2m high wire security fence with both vehicular pedestrian access gates at Oberstown Children Detention Campus. The proposed development will consist of the installation of a 33-meter-long, 5.2 meters high, 358 wire security fence known as Prison Mesh with a vehicular security gate and a separate pedestrian gate on the lands adjacent to Area A, Unit 1, Trinity Buildings within the Oberstown Children Detention Campus. The wire fence will adjoin an existing brick wall to the east and connect into an existing wire security fence to the west and shall be similar in colour and type to the existing security fencing at Oberstown Children Detention Campus.	Granted	3.72 east	11/03/2022

Planning Application Reference Number	Applicant	Brief Development Description	Application Status/ Outcome	Approximate Distance (km) and Direction from Proposed Development	Date Planning Application Granted
F22A/0077	Ballymaguire Foods Ltd	1. A total of 2520m^2 part single storey, part two storey agri-business facility including 2. 2160m^2 ground floor works area, staff amenities and storage 3. 360m^2 first floor offices and associated amenities 4. Enlarged percolation area serving the existing WWTU 5. New Internal roadway with car parking, service yard, roof mounted PV panels and all associated works. A total of 2520sqm part single storey, part two storey agri-business.	Granted	4.82 east	03/08/2022
F22A/0085	Pat White	Permission for the construction of 2 No. 780m2 new portal frame agricultural sheds (total floor area 1560m2) for the storage of crops, including all associated site, surface water, drainage and ancillary works.	Granted	4.29 southeast	25/05/2022
AA191263	Kilsaran Concrete	Planning permission duration of 10 years sought for sand and gravel extraction, associated processing plant and upgrade works to existing site entrance over an area of 17 hectares with restoration back to an agricultural after use. The EIAR for this development indicates that up to 30 vehicles per day will be generated along the proposed haul route which consists of the R108 and R122 to the M1 motorway.	Granted with conditions	4.4 northwest	28/07/2020
F17A/0340	Gaelectric Renewable Energy Development	10 year planning permission for the development of a solar photovoltaic (PV) energy development.	Granted with conditions	3.6 south	20/03/2018
W0265-01	Clashford Recovery Facility Ltd	A licence review application by Clashford Recovery Facilities Limited to the EPA to continue restoration of the quarry through the recovery of waste soil and stones and dredging spoil with a maximum annual intake of 170,000 tonnes equating to an additional 76 road vehicles per day on the road network. The EIAR for this development states that the haul route that will be employed includes the R108 (on which the site is located) and the R122 via the Naul village and east to the M1.	Granted with conditions	3.8 northwest	20/09/2019

5.13 References

1 Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

2 The European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

3 The European Union (Waste Management) (Environmental Impact Assessment) Regulations 2020 (S.I. No. 130 of 2020).

4 The Environmental Protection Agency (Integrated Pollution Control) (Licensing) (Amendment) Regulations 2020 (S.I. No. 189 of 2020).

5 The Environmental Protection Agency (Industrial Emissions) (Licensing) (Amendment) Regulations 2020 (S.I. No. 190 of 2020).

6 The European Union (Environmental Impact Assessment) (Environmental Protection Agency Act 1992) (Amendment) Regulations 2020 (S.I. No. 191 of 2020).

7 Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, DHPLG (August 2018).

8 Council Directive 1999/31/EC on the Landfill of Waste.

9 National Hazardous Waste Management Plan 2014-2020, EPA, 2014.

10 Waste Licence (Register W0129-02).

11 Annual Environmental Reports (AER), IMS, 2003-2020.

12 Fingal County Development Plan 2017-2023, Fingal County Council (2017).

13 Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

14 Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste.

15 Manual on Landfill Site Design, EPA (2000).

16 European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011.

17 Waste Management Act 1996, No 10 of 1996 (as amended).

18 Council Decision, 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

19 Decision on End of Waste Criteria relating to Recycled Aggregates from Crushed Demolition Concrete for use by Integrated Materials Solutions Limited Partnership (IMS), EPA 2019.

20 Best Available Techniques (BAT) Reference Document for Waste Incineration (December 2018).

21 Commission Implementing Decision the (EU) 2019/2010 of the 12th of November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration.

22 Code of Practice for Water Infrastructure and outlines design and construction for developers (IW-CDS-5020-03), Irish Water.

23 European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No 272 of 2009).

24 Planning and Development Act 2000 (as amended by the Planning and Development (Strategic Infrastructure) Act 2006.

25 Changing Our Ways (September 1998).

26 Toxic Fallout, Waste Incinerator Bottom Ash in a Circular Economy, EPA (2022).