



CONTENTS

9	WASTE.....	9.1
9.1	Introduction and background	9.1
9.2	Consultation & Scope of the Assessment	9.1
9.3	Policy Context.....	9.2
9.4	Assessment Methodology	9.6
9.5	Baseline Conditions	9.8
9.6	Potential Effects	9.8
9.7	Mitigation	9.13
9.8	Residual Effects	9.15
9.9	Cumulative Effects.....	9.16
9.10	Summary & Conclusions.....	9.16

TABLES

Table 9.1: Criteria used in the definition of significance of waste management.....	9.7
Table 9.2: BRE SMARTwaste benchmark for New Build Construction waste	9.10

APPENDICES

N/A

FIGURES

N/A

9 WASTE

9.1 Introduction and background

- 9.1.1 This Chapter assesses the likely significant effects of the development of the IAMP ONE Phase Two site (construction and operation) on waste management, with both hazardous and non-hazardous wastes assessed.
- 9.1.2 The proposed development consists of a single, three-storey industrial unit that is to house a capacity electrode and battery manufacturing facility with a maximum capacity of up to 9 GWh / annum, split across two battery manufacturing plants separated by a central spine of offices. The development includes the removal of the existing topsoil within the Site to facilitate the development of the Site as part of the wider IAMP area.
- 9.1.3 The facility will employ circa 1,000 staff consisting of circa 850 shift-based staff and circa 150 day-based (office) staff. Access to the Site will be from the A1290 via International Drive and an 800-space staff carpark will be created to the immediate north of the unit.
- 9.1.4 This ES Chapter details consideration of construction and operational waste generation. Specifically, sources, quantities, management techniques and treatment and disposal routes.
- 9.1.5 Wardell Armstrong LLP has prepared this chapter using a team of experienced waste management professionals.

9.2 Consultation & Scope of the Assessment

- 9.2.1 The informal consultation that was undertaken with Sunderland City Council (SCC) in 2019 as part of the previous outline application concluded that the waste chapter of the 2020 ES would focus in particular on the demolition of West Moor Farm and the disposal of arisings from this, together with the disposal of the topsoil present onsite (whether re-used within the wider IAMP site area or removed off site). As the demolition of West Moor Farm was previously considered as part of the March 2020 outline application (ref. no. 20/00556/OU4), which was approved in June 2020, and a subsequent detailed application for its demolition (ref. 21/01330/FUL) was submitted (with supporting technical documents) in June 2021, the demolition is not considered, here.



- 9.2.2 A detailed masterplan has been prepared for the planning application, which has been used as the design basis for this waste assessment [Drawing 101 Proposed Site Plan]. The assessment considers the development layout, building construction and development envelope.
- 9.2.3 Waste generated during the construction phase will include topsoil and subsoil from excavations, packaging waste from material and equipment deliveries, as well as waste generated during construction (for instance, surplus building materials, food and paper/plastic waste from site offices, surplus oil/fuels).
- 9.2.4 Waste generated during the operational phase of the development includes that created by site staff and visitors, waste arisings generated by the operations carried out within the development unit, waste from packaging of materials delivered to the manufacturing unit as well as process wastes.
- 9.2.5 The ability of the existing waste facilities within the region to accommodate deliveries of materials during the demolition, construction and operational phases of the Site has been reviewed as part of this assessment. It is intended that materials will be reused on the development Site, reused on alternative development sites or (as a last resort) sent to a local inert landfill. Further details of the local facilities are provided in Section 9.5 of this Chapter.
- 9.2.6 Methods for storing waste onsite will be discussed, as will methods for dealing with any hazardous or contaminated materials.
- 9.2.7 The assessment takes into account the Interim Advice Note (IAN) prepared by Highways England 'Guidance on Environmental Assessment of Materials Resources (Design Manual for Roads & Bridges (DMRB) Volume 11).

9.3 Policy Context

International Policy

- 9.3.1 The following European policies are relevant for the assessment of waste management at the Site:
- European Community (EC) Framework Directive for Waste, 2008/98/EC (the Waste Framework Directive); and
 - EC Landfill Directive, 1999/31/EC.
- 9.3.2 The Waste Framework Directive requires the EC member states to take the appropriate measures to, firstly, encourage the prevention or reduction of waste

production and, secondly, to secure the recovery of waste by means of recycling, re-use or recovery, to extract secondary raw materials, or to make use of the waste as a source of energy. The 'Waste Hierarchy' sets out the stages by which waste is intended to be dealt with, starting with 'Prevention', then 'Re-Use', followed by 'Recycling', 'Other Recovery' and finally 'Disposal' (as the least preferred option).

9.3.3 The EC Landfill Directive (1999 Directive) aims to prevent or reduce (as far as possible) adverse effects on the environment from landfilling of waste. This would be achieved by the following:

- Ending co-disposal of hazardous and non-hazardous waste in landfill
- Introducing rigorous technical requirements for landfill sites and waste;
- Phasing in the prohibition of disposal to landfill of specific wastes (including liquid hazardous waste, other hazardous waste, whole and shredded tyres).
- Obliging operators to pre-treat all hazardous waste and all other wastes.
- The introduction of phased targets for the reduction of biodegradable waste sent to landfill, through to 2020.

9.3.4 The new Resources & Waste Strategy for England was published in 2018 and policy measures contained are currently in consultation. Major policy changes encompass Extended Producer Responsibility (EPR), Deposit Return Schemes (DPR), WEEE take back schemes and measures to improve collection of specific material streams (e.g. food waste). As part of these plans, the existing battery regulations will be reviewed focusing on sustainable design. Other key highlights include details of targets for a zero avoidable waste economy by 2050, phasing out avoidable plastic waste by 2042 and eliminating food waste from landfill by 2030.

National Planning Policy

National Planning Policy Framework

9.3.5 The revised National Planning Policy Framework (NPPF) was first published in March 2012 and was last updated in July 2021. It outlines the Government's economic, environmental and social planning policies for England and sets out how these are to be applied against a background of a presumption in favour of sustainable development. It is expected that these policies will be interpreted and applied at the local level to meet the requirements of the local area.

- 9.3.6 With regard to waste and waste management, paragraph 4 of the NPPF states that the Framework should be read in conjunction with the Government's planning policy for waste. This is defined in the national Waste Management Plan (2013) and National Planning Policy for Waste (NPPW) (2014).
- 9.3.7 The **National Waste Management Plan** transposes the requirements of the Waste Framework Directive (WFD) (see above) into English law.
- 9.3.8 The **National Planning Policy for Waste** sets out detailed waste planning policies and is intended to be read alongside the NPPF and the Waste Management Plan for England. Para. 8 of this states that, in determining non-waste related development, local planning authorities should ensure that:
- *"The likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities;*
 - *New, non-waste development makes sufficient provision for waste management and promotes good design to secure the integration of waste management facilities with the rest of the development and, in less developed areas, with the local landscape.;*
 - *The handling of waste arising from the construction and operation of development maximises reuse / recovery opportunities and minimises off-site disposal."*

Local Planning Policy

Sunderland Core Strategy & Development Plan (CSDP) 2015-2033

- 9.3.9 The CSDP is the adopted Development Plan for Sunderland, though this retains some of the 'saved' policies within the UDP until such time as the Allocations and Designations Plan is in place. One of the themes of the CSDP is 'water, waste and energy'; strategic priority 10 is *"to manage waste as a resource and minimise the amount produced and sent to landfill"*. This strategy is supported by a suite of policies (WWE5, WWE6, WWE7, WWE8, WWE9 and WWE10) set out within section 11 of the CSDP.
- 9.3.10 The CSDP notes at para. 2.71 that *"Sunderland is well served by waste infrastructure and is net self-sufficient in the management of waste. The area has significant built*

waste management capacity which provides for the needs of Sunderland and a number of other authorities across the North East region.”

9.3.11 CSDP para. 2.72 states that “*Local authority waste is managed under the South Tyne and Wear Waste Management Partnership (STWWMP) which is a collaboration between Sunderland, Gateshead and South Tyneside Councils and covers the management of this waste for the duration of the plan period.*”

9.3.12 CSDP Policy WWE5 relates to the disposal of foul water; the Site is connected to the public sewers within the local area as discussed in Chapter 10 of this ES.

9.3.13 CSDP Policy WWE6, Waste management, primarily addresses the provision of waste management facilities but also states that development that minimises waste production and encourages the re-use and recovery of waste materials will normally be supported.

9.3.14 CSDP Policy WWE7 also relates to new waste facilities; policy WWE8 relates to the safeguarding of existing waste management sites; policy WWE9 relates to the development of new open waste management facilities; policy WWE10 addresses developments relating to the provision of energy from waste. These are therefore not relevant to this assessment.

9.3.15 Within other parts of the CSDP, Policy BH2 relates to sustainable design and construction; point 2 notes the requirement for major development, where possible, to reduce waste and promote recycling during construction and in operation.

The International Advanced Manufacturing Park, Area Action Plan (IAMP AAP)

9.3.16 The IAMP Area Action Plan (AAP) 2017-2032 was adopted by Sunderland City Council (SCC) and South Tyneside Council (STC) in November 2017. The AAP forms part of the SCC Local Plan and STC Local Plan and sets out the specific policies relating to the delivery of the IAMP.

9.3.17 In relation to waste management, the AAP includes the following specific objective:

- Objective 6: Support the efficient use of resources and minimise disposal of wastes to landfill.

South Tyne & Wear Municipal Waste Management Strategy

9.3.18 The waste management planning strategies of Gateshead, Sunderland and South Tyneside Councils (which together form the South Tyne & Wear Municipal Waste

Management Partnership) are set out in the South Tyne & Wear Municipal Waste Strategy, published in 2007 and reviewed in 2012.

9.3.19 The Strategy runs from 2007 to 2027 and aims to reduce the waste sent to landfill across the region. It covers municipal waste but does not include demolition, industrial or commercial wastes and as such is not relevant to the IAMP site.

9.4 Assessment Methodology

9.4.1 This chapter assesses the potential quantities of waste and the various types of waste that can be anticipated from the groundworks, construction and operational phases (including maintenance) of the site. Consideration is also given to the potential environmental impacts associated with the likely methods of storage of any excavated materials, as well as the management of the different waste streams present on site at the different phases of the works.

9.4.2 Mitigation measures are outlined that will be adopted to:

- Minimise waste generation.
- Facilitate the re-use or recycling of waste onsite.
- Minimise the potential exposure to harmful materials and nuisance as part of waste collection, temporary storage and transportation of waste from the Site.

9.4.3 This will also include use of appropriate controls for any waste stored on site, so as to avoid discharge of contaminated material to land or water.

9.4.4 In this detailed application, it has been necessary to make a number of assumptions in order to assess the nature and extent of effects of waste material generated by the proposed development. These include:

- Where uncontaminated excavated material arises during construction, this will be considered for re-use onsite; contaminated excavated material (if encountered) will either be treated onsite or removed offsite for treatment and disposal;
- Where materials are available and suitable for re-use, measures will be taken to incorporate this within the construction process, as detailed in the Construction Environmental Management Plan (CEMP).
- Where figures are not available for the calculation of waste arisings, assumptions will be made based on similar, constructed major infrastructure projects.
- Information on waste quantities and waste types is typically based on a defined plot size; therefore, this assessment has considered development parameters

using the Rochdale Envelope (worst-case) principles, applied across the developable land extents.

- An average depth of 300 mm of topsoil to be removed within the site has been assumed. This will either be re-used onsite or transported off site to (if possible) another development site requiring topsoil or (as a last resort) to inert landfill.

Significance criteria

9.4.5 The significance criteria used when assessing potential effects of waste and waste management will follow the approach used for the IAMP ONE and IAMP TWO EIAs. This has had regard for the predicted level of waste arisings and local waste management capacity, strategies and policies. Table 9.1 (below) defines the criteria used for the assessment of significance.

Table 9.1: Criteria used in the definition of significance of waste management	
Significance	Definition
Major Adverse Impact	An effect that in isolation could have a material influence on the decision-making process (significant effect)
Moderate Adverse Impact	An effect that on its own could influence decision-making, particularly if combined with other similar effects (potentially significant – professional judgement to be applied)
Minor Adverse Impact	An effect that on its own is likely to have negligible / no influence on decision-making, but when combined with other effects could have a more material influence (less likely to be significant – professional judgement to be applied)
Negligible Impact	No effects (not significant)

9.4.6 In order to ensure that the worst-case scenario is considered, for the purposes of this assessment both major and greater than moderate adverse impacts will be considered 'Significant' (in EIA Terms).

Assumptions & Limitations

9.4.7 In-line with the Rochdale Envelope principles, a worst-case scenario has been used for the impact assessment. This has assumed that all of the land required for the development of the main infrastructure components (including roads and drainage) as well as the plot areas within the site will require topsoil to be removed to a depth of 300 mm.

9.4.8 No invasive species are recorded as currently being present within the site. Should any invasive plant species subsequently be found at the site, the material will be removed from site. A Biodiversity Construction Environment Plan (BCEMP) is in place for the IAMP ONE Phase One site and it is assumed that this will also apply to the IAMP ONE Phase two site. This document includes Method Statements in relation to a range

of elements, including invasive species, and an Ecological Clerk of Works (ECow) oversees the implementation of the BCEMP.

- 9.4.9 Opportunities to segregate and recycle waste streams from the site during construction and operation have been identified, as detailed in sections 9.6 and 9.7 of this Chapter.

9.5 Baseline Conditions

Existing Conditions

- 9.5.1 The information relating to the capacity of existing waste disposal sites within the region is set out in the 2018 ES for IAMP ONE (chapter H) and the PEIR for IAMP TWO (chapter H) and is, therefore, not repeated here. The information¹ used in the capacity review concluded that “*there is no significant need to identify new waste management sites in the Plan Area for most reviewed waste types.*” (PEIR 2018, chapter H, para. H4.2.4). There could be a shortfall post-2032 in inert landfill capacity, but it was considered by the 2018 Addendum Report² that increased recycling could mitigate any requirement to obtain additional capacity. Para. H4.3.1 of the 2018 PEIR Chapter H concluded that, as part of the baseline assessment, void space should be available throughout the North East region sufficient to accommodate the proposed development.

Future baseline

- 9.5.2 With increased recycling and increased use of energy from waste facilities, it is anticipated that void space within existing disposal sites will continue to be available, and the available options for alternative treatment and disposal will grow.

9.6 Potential Effects

During Construction of the Development Site

- 9.6.1 Excavation of the Site will result in removal of topsoil. An indicative, worst case, calculation has been made based on the assumption that a 300 mm depth of topsoil will be removed. This forecasts that there will be requirements to remove an estimated 86,000 m³. This is based on a worst-case estimate and it is likely that the

¹ Urban Mines report, “Model of Waste Arisings and Waste Capacity for the North East of England Waste Planning Authorities, July 2012.

² Urban Mines report, “Model of Waste Arisings and Waste Capacity for the North East of England Waste Planning Authorities, July 2012, Addendum June 2018.

actual quantity of removed topsoil will be less. The actual quantities of soil removed will be recorded once excavation activities commence.

- 9.6.2 The worst-case treatment and disposal scenario assumes that all material will be removed from site and disposed to inert landfill, whereas in practice some or all of this may be re-used as part of the landscaping works (this approach will be encouraged).
- 9.6.3 It is envisaged that topsoil will be used onsite for a growing medium for all landscaped and vegetated areas.
- 9.6.4 General construction waste will arise from the development of the site. This will be sent to a local inert landfill facility or will be re-used or recycled wherever possible, as described, below.
- 9.6.5 Some materials used as part of construction will be suitable for re-use:
- Plastic sheeting can be re-used as weather protection.
 - Pallets can be re-used for moving materials.
 - Polypropylene bags can be re-used for storing waste.
 - Packaging will be returned to suppliers for re-use (where possible).
- 9.6.6 Other materials will be suitable for recycling applications:
- Scrap metal will be segregated and sent for recycling.
 - Waste Electrical and Electronic Equipment (WEEE) will be segregated and sent for specialist recycling.
 - Some plastic wastes will be suitable for segregation and sent for recycling.
 - Paper and cardboard will be segregated and sent for recycling.
 - Timber and wood will be segregated and sent for recycling.
- 9.6.7 Waste that cannot be re-used or recycled or which is hazardous will be sent for appropriate disposal. This can be anticipated as including a small amount of waste oil.
- 9.6.8 All waste will be handled by licensed operators and disposed of at secure sites.
- 9.6.9 Most waste arisings from the excavation and construction phase will, in the worst-case scenario, be disposed of to landfill. The potential impacts of the development are, therefore, assessed as Moderate and **Not Significant**.

9.6.10 The proposed development is currently in concept design stage and, therefore, industry benchmarks are the most appropriate method for estimating construction waste generation.

9.6.11 The likely amounts of mixed hard construction waste arisings have been assessed using the Building Research Establishment's (BRE) SMARTwaste Benchmark Data. This is based on the type of property, the size of the development and the costs of construction. The performance indicators developed by BRE are quantifiable indices that can be used by businesses as a measurement tool. The indicators include:

- Environmental Performance Indicators (EPI): m³ of waste/100m² of floor area.
- Key performance Indicators (KPI); m³ of waste/£100,000 of project value.

9.6.12 The data from approximately 1,500 projects has been analysed and the average EPIs and KPIs for different project types relevant to the proposed development are shown in Table 9.2.

Table 9.2: BRE SMARTwaste benchmark for New Build Construction waste		
Project type	Average EPI (m ³ Waste/100m ² floor area)	Average KPI (m ³ waste/£100K project value)
Industrial Buildings	13.0	10.8
Commercial Offices	19.8	9.3

9.6.13 For the proposed development, the EPI indicator will be applied.

9.6.14 The proposed development comprises a single industrial style building with Plant, store and office accommodation to the northern façade. The floor area for the combined premises will be 92,215 m², of which 3,840m² is office accommodation. For benchmarking, therefore, these values can be used in conjunction with the values in Table 9.2 to calculate the estimated total construction waste arisings volume.

- $(13.0 \times 88,375/100) + (19.8 \times 3,840/100) = 11,488.75 + 760.32 = \mathbf{12,249.1 \text{ m}^3}$.

9.6.15 Construction is estimated to be phased and take place over approximately 18 months. The annual generation of construction waste is, therefore, estimated to be approximately **8,166 m³**.

9.6.16 This is without mitigation measures, which are described below. Using WRAP's waste volume to mass conversion factors provided in their conversion tool, this volume of waste is equivalent to approximately **8,145 tonnes** of waste per annum prior to mitigation.

9.6.17 The Contractors for the construction phase are in the process of being appointed hence, a full Site Waste Management Plan (SWMP) has not been produced. This is stipulated as part of the development contracts, and the preparation of and adherence to a SWMP will almost certainly be a stipulation of the planning permission (should this be granted), as part of the CEMP.

9.6.18 Given the high priority accorded to reduction of site waste, general waste arisings during the construction phase will be minimised. It is difficult to quantify general site waste; this type of waste will include waste from workers using the compounds at the Site and some mixed construction waste unsuitable for re-use at the Site. It is anticipated that some of this may be stored and re-used elsewhere on the Site during the phased construction, although most of this waste is expected to be taken offsite for disposal or recycling. With the implementation of an SWMP, it is expected that adverse environment affects will not occur from the storage, handling, and transportation of general site waste. The need to dispose of this offsite is considered to be a Negligible-Minor Adverse impact and **Not Significant**.

During Operation

9.6.19 Commercial and Industrial Waste will be generated during the operation of the Site. Waste sources will include staff employed in the manufacturing units, staff employed in the offices, and from the manufacturing process itself.

9.6.20 Waste storage facilities will be made available in all locations at which waste is generated. Waste will be collected from these units regularly and stored in centrally located storage units.

9.6.21 The proposed development will operate under a 'segregation at source' policy. This will involve separating waste streams at generation, facilitating high recycling and recovery rates. Waste generated at site will be collected by a suitable waste collection contractor and sent to an appropriate facility, depending on the waste stream. As far as is practicable, waste streams such as packaging and containers will be returned to suppliers for re-use.

9.6.22 The operator(s) of the manufacturing facilities will regularly audit waste management facilities and procedures on site and will ensure that all waste is recorded, handled and managed appropriately.

9.6.23 Likely waste streams anticipated to be generated onsite will include:

- Packaging waste.



- Waste anode.
- Waste cathode.
- Waste dry cell.
- Waste laminate.
- Off-cuts.
- Label waste.
- Waste oils.
- Hydraulic fluids and hoses.
- Fluorescent tubes and light bulbs.
- Paint cans.
- Food and beverage waste and containers.
- General office waste.
- Batteries.

9.6.24 All waste generated during operation will be managed in accordance with the SWMP³. This will be developed following further design process and identification of estimated process waste quantities. During operation waste will be managed in accordance with site operation procedures and environmental permits.

9.6.25 Hazardous waste will be separately stored and disposed of to a licensed facility.

9.6.26 The expected waste generation during operation is estimated using BS 5906:2005 Waste Management in Buildings. The total employment is estimated to be 1,000.

9.6.27 The estimated mass of industrial waste is calculated from the floor area of this type of employment area. The total operational floor area indicated for the proposed industrial areas is estimated at 108,615 m². BS 5905:2005 equates 5 litres of waste per week from each square metre (m²) of floor area.

9.6.28 The estimated mass of commercial waste arisings per employee is shown as 0.96 tonnes per annum in BS5096:2005. The volume of commercial waste generated annually is calculated to be 960m³.

³ The preparation of a SWMP for construction is expected to be a condition of planning requested by Sunderland City Council. It will detail the proposals for the management of demolition waste, excavation waste and construction waste during the development of the site. The SWMP will be prepared before any works commence on the site. This will include an estimate of waste generation, against which actual generation will be measured. The principal construction contractor will be responsible for updating the SWMP periodically as works progress.

9.6.29 Combined industrial and commercial waste arisings represents a very small percentage of regional waste generation from commercial and industrial sources, and the development can, therefore, be considered to present a Negligible-Minor adverse impact and **Not Significant**.

9.7 Mitigation

9.7.1 As a condition of the planning permission, it is anticipated that the construction contractors will be required to produce a SWMP. This will include details of the types and volumes of demolition, excavation, construction and decommissioning wastes expected from the development.

9.7.2 Mitigation measures will be used that focus on promoting sustainable waste management practices and will ensure that all activities are undertaken with due regard to legislation and policy, including the waste hierarchy principles.

9.7.3 Mitigation measures will help to embed good site management practices at the Site and will cover resource efficiency, litter prevention and environmental protection.

During Construction of the Development Site

9.7.4 In order to minimise waste during the construction of the development, the Construction Contractor will prepare a detailed SWMP covering good practice, waste reduction, re-use, recycling, and disposal options. The SWMP could form part of the CEMP.

9.7.5 An approved person will be nominated to manage waste during construction. Their responsibilities will include arranging collection of wastes and effective disposal to an appropriate facility.

9.7.6 Good practice measures will ensure that the site waste management is effective and achieves high standards, through:

- A system of recording and monitoring to track waste generation, recycling performance, re-use performance and disposal.
- Training to ensure proper waste management handling procedures are implemented.

9.7.7 Waste reduction will be a key objective of waste management practices at the development. Numerous measures will be enacted to support this, including:

- Site practices implemented to minimise damage or contamination of construction

materials.

- Effective planning will ensure that over-ordering is prevented, and that wastage is minimised.
- Prefabricated construction panels will be used (where feasible) to reduce material handling, associated risk of wastage and associated transportation impacts.
- Sustainable procurement practices will be implemented, seeking to minimise packaging and exert influence on contractors to undertake best practice.
- Materials will be returned to suppliers where not required or, alternatively, used elsewhere as part of the development and associated works.

9.7.8 Where waste cannot be prevented, recycling and re-use will be encouraged:

- Cut and fill management will be employed seeking to minimise waste removal offsite using both inert demolition materials and soil.
- Waste will be monitored, sorted and stored in as many segregated waste streams as appropriate to make material available for re-use and recycling applications.
- Onsite processing of waste and re-use of materials to supply secondary aggregate will be investigated and all necessary licences obtained to undertake such operations.
- Where it is possible to do so, and without compromising building integrity, materials with recycled content will be specified.
- All suppliers will be requested to take back unwanted packaging.
- Where inert demolition and construction wastes which cannot be used on site are generated, potential off-site users will be identified and approached as part of the development of a materials management plan.

9.7.9 Ultimately, some materials will require disposal where none of the above practices are suitable. General site waste will be securely stored in bins or compaction units (if appropriate). Wastes will only be removed from the Site by registered waste carriers. Waste movements will be accompanied by a Duty of Care Controlled Waste Transfer Note or a Special Waste Consignment Note, if appropriate, and copies of these will be stored on the site throughout construction. Waste permits will be required (and obtained) for any facilities use for off-site recovery, recycling or disposal of waste, and copies of these kept onsite.

9.7.10 Any excavated soils will undergo waste acceptance criteria testing to ensure that they are correctly classified prior to disposal at an appropriate landfill or remediation site.

9.7.11 Hazardous waste materials will be handled by appropriate licensed operators.

During Operation

9.7.12 The SWMP will cover the management of waste generated during the operational phase of the development. All waste materials will be segregated and stored separately. Appropriate outlets will be identified for each recycling and waste stream, with the proximity principle applied to minimise transportation impacts.

9.7.13 Occupants will be required to regularly audit their waste management systems from generation to treatment or disposal point to ensure compliance with the SWMP. Where non-conformances are identified, changes to working practices will be made. The SWMP will be regularly reviewed and updated to ensure that it is suitable and reflects best practice development throughout the development's lifetime.

9.8 Residual Effects

During Construction of the Development Site

9.8.1 The residual impacts of the waste arisings from excavation and construction are assessed to be Negligible-Minor adverse and **Not Significant** with the successful implementation of the SWMP. This is because the main expected type of waste arising (i.e. soil and earth) will be inert and will be safely disposed of to landfill or re-used on/offsite, and represents a small proportion of similar waste arisings regionally. Any hazardous waste will be handled and disposed of in a safe and appropriate manner using specialist contractors.

9.8.2 Previous ground investigations at the IAMP ONE site have not encountered any significant concentrations of contaminated soils. If contamination is encountered during site works, it will need to be reported to the Local Authority and may require remediation works or collection by a specialist hazardous waste operator. Details of suitable licensed treatment facilities would be included in the CEMP.

During Operation

9.8.3 There will be no additional requirements over and above those included in the mitigation section 9.7 that will affect waste management operations during the site's operational phase. There is no additional mitigation or monitoring recommended to

further reduce the identified impacts, which remain Negligible-Minor adverse and **Not Significant**.

9.9 Cumulative Effects

- 9.9.1 Cumulative effects of waste generation from neighbouring developments, namely the wider IAMP ONE development, IAMP TWO, and also those identified within Chapter 2 of this ES, which include industrial units, highway improvements, a hotel and roof mounted solar panels have been considered.
- 9.9.2 These have potential to increase the significance of the environmental burden of the development. These are, however, unlikely to generate significant volumes of waste materials, and the local treatment and disposal facilities assessed are deemed to have capacity to accommodate materials from the cumulation of these developments.
- 9.9.3 During the demolition phase of the development, no other demolition works are programmed for the IAMP ONE site. However, there is likely to be some degree of demolition involved in IAMP TWO. Both IAMP ONE and IAMP TWO, and the other planned developments identified in Table 2.5 are likely to include ground works / excavation of soils. Waste quantities produced are estimated to be minor, and initial assessment indicates that the cumulative effect of demolition remains of Minor adverse impact and **Not Significant**.
- 9.9.4 Excavation works for the entire IAMP site (IAMP ONE and TWO) are programmed to be undertaken as part of the development. It was determined that the overall site development has a minor adverse impact in terms of potential excavation wastes. Similarly, cumulative construction impacts will result from development of the wider IAMP ONE and IAMP TWO site. The application of consistent mitigation measures across the entire site means that the cumulative development impacts are likely to be Moderate to Minor adverse impact and **Not Significant**.
- 9.9.5 During operation, cumulative waste arisings will arise from the IAMP ONE and IAMP TWO development sites. In-line with the ES for the wider site, the cumulative impacts will remain Negligible-Minor adverse and **Not Significant**.

9.10 Limitation of study

- 9.10.1 The Envision battery plant is a novel industrial process and as such will not have been considered by WRAP in generating their guidance on prediction of waste volumes. It

is however, the only published guidance that can be used. Envision will recycle chemicals used on site in battery making.

9.11 Summary & Conclusions

9.11.1 The proposed development will require levelling and grading of the existing site, including excavation of an estimated 300 mm depth of topsoil from areas of agricultural land; construction of the new manufacturing building; construction of ancillary structures and infrastructure; and landscaping. This assessment has focused on the likely quantities and waste types arising from these activities and how they can best be managed.

9.11.2 It is expected that the majority of waste arisings will be sent for disposal to local landfill sites or to suitable offsite locations for re-use. The anticipated waste volumes form a small fraction of regional waste generation and capacity. Any hazardous waste arisings would be dealt with by a specialist hazardous waste operator.

9.11.3 **No Significant effects** have been identified as a result of waste arisings and management practices in relation to the proposed IAMP ONE Phase Two development.