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ASSOCIATED BRITISH PORTS

NEWPORT DOCKS

SITE WASTE AND NATURAL MATERIALS MANAGEMENT PLAN

JANUARY 2020

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SITE WASTE AND NATURAL MATERIALS MANAGEMENT PLAN

JANUARY 2020

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1 INTRODUCTION

1.1 Scope of Works

1.1.1 This Site Waste and Natural Materials Management Plan (SWNMMP) has been produced to support the planning application for development of a plasterboard production facility ('the facility') at Newport Docks. It satisfies the national planning guidance for major developments as set out in Planning Policy Wales (edition 10 – December 2018) and the Newport Local Development Plan 2011-2026.

1.1.2 Wardell Armstrong ('the consultant') has been approached by Associated British Ports ('the applicant') to produce a SWNMMP utilising their extensive experience producing equivalent assessments and reports in the UK.

1.1.3 This SMNMMP sets out the materials anticipated to be used and wastes produced during the construction and operation of the facility. The plan outlines the relevant policy and guidance and how the development will be managed to handle materials and wastes in a sustainable manner.

1.2 Project Background

1.2.1 The proposed development is a plasterboard manufacturing facility. The facility will comprise:

- A simple warehouse-type structure enclosing production lines, conveyor belts, storage loading areas and two hoppers;
- Hardstanding parking area;
- An administrative office and associated works; and
- A priority habitat area and associated vegetation.

1.2.2 The proposed development will utilise a brownfield site underdeveloped at the southwest extremity of Newport Docks. The development will create 70 full-time equivalent (FTE) jobs. The process will utilise a combination of raw materials, primarily gypsum, and recycled plasterboard to produce new plasterboard for off-site use. Gypsum for the process will be delivered by water utilising the Dockside location of the site.

1.3 Site Overview

1.3.1 The Proposed Development site lies within the southwest corner of the Newport Dock estate which is operated by ABP. The commercial viability of the proposed plasterboard manufacturing facility is predicated on it being located within the docks, as the transportation of gypsum (and associated cost) is significantly reduced.

1.3.2 Newport Docks are located directly to the south of Newport at the mouth of the River Usk. The Docks serve the UK's main industrial and commercial regions and have strategic road links to the M4 and Newport's Southern Distributor Road in addition to active rail links to the wider network within Wales. The Proposed Development site is situated to the west of Severn Sands Terminal and South Dock, and south of a site occupied by Speedy Hire (Grid Reference ST313842). The Proposed Development site borders the River Ebbw located to the west.

1.3.3 The Proposed Development is located on a brownfield site consisting of made ground from when Newport Docks were extended in 1907 and 1914. Since then, the site has had various uses, including a car storage facility in the 1990s until the early 2000s, and ad-hoc cargo storage. In 2008/09, planning permission was obtained for a new biomass power plant (NCC 08/1257), but this was never built. Therefore, the site remains derelict land awaiting development.

1.4 Development Summary

1.4.1 The proposed development comprises the construction of a warehouse style building with a footprint of 14,940 m^2 (main building floor space, not including mezzanine floor). This will contain the main production line and plasterboard recycling equipment. The mezzanine floor area is 200 m2.

1.4.2 The main building will have a maximum height to eaves of approximately 18m and a maximum ridge height of approximately 21m. The predominant eaves height will be approximately 9.2m and the predominant ridge height will be approximately 12.5m. The building will be approximately 202m long at its longest point and approximately 110m wide at its widest point.

1.4.3 Hardstanding, parking and landscaping will be provided around the site, increasing the overall development footprint to 3.439 ha. In addition, there are several areas providing ecological mitigation and enhancement. This includes:

- An area of approximately 0.56 ha to be maintained as priority habitat 'open mosaic habitats on previously developed land'.

- A strip of vegetation approximately 10 m wide to be maintained at the western boundary of the site to ensure connectivity of habitats.

1.4.4 The warehouse will consist of a simple steel portal frame construction, designed to accommodate a large interior space for equipment, storage and handling. Enabling works are required to raise site levels to achieve a FFL of 9.63 m AOD which will entail the construction of an engineered soil platform across the proposed development area. The foundations for the proposed warehouse structure are intended to comprise of piles, end bearing on competent strata at depth.

1.4.5 Given the thickness of the Made Ground layer, which can vary between 0.3 m and 3.0 m, and the thickness of the underlying highly compressible Tidal Flat Deposits, which can vary between 9.5 m and 13.7 m, the proposed solution for ground improvement (soil consolidation) is to install band drains to accelerate the settlement and time for consolidation, and to reduce the risk of excessive total and differential settlement during/post construction.

1.4.6 Alternatively, the enabling works will entail construction of a piled transfer blanket and the proposed building will also be piled and this solution is likely to be more favourable to construction timescales and reduces the risk of settlement issues. Hardstanding parking and an administrative office are also associated with the development.

1.4.7 An indicative layout is shown in Figure 1 below.

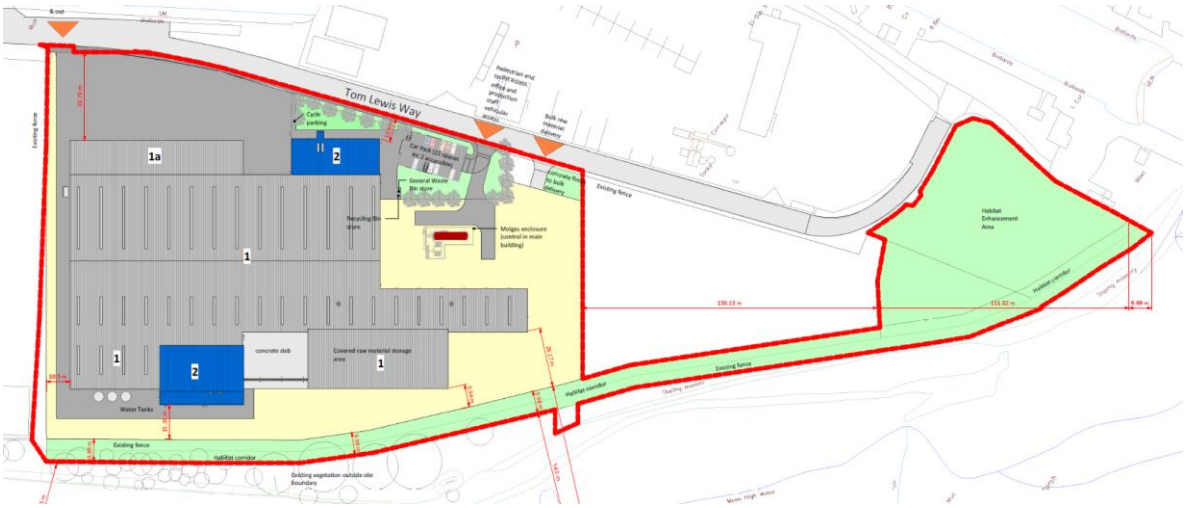

Figure 1: Indicative Proposed Development layout

1.4.8 During operation, gypsum will be delivered to Newport Docks via vessel, and discharged into a quayside storage facility. From there, the raw material will be delivered to site to be stored, internally, before use in production. Plasterboard products will be distributed from the manufacturing facility mainly via road transport, though export markets by sea will also be accessed where possible.

1.4.9 Approximately 70 full-time equivalent (FTE) jobs will be created by the Proposed Development comprising an important benefit to the local economy and supporting NCC policy EM2 in the Local Development Plan (Newport City Council, 2015). This states that '*the existing 206-hectare employment site at Newport Docks is protected for B1, B2 and B8 uses. The council will support such development where it can be demonstrated that the development is complementary to and does not hinder the operational use of the port*'.

1.4.10 The production of plasterboard involves several process stages, as illustrated in Figure 2 below. The raw material is gypsum (chemically known as calcium sulphate dihydrate); a non-toxic, naturally occurring mineral in sedimentary rock formations which contains calcium, sulphur bound to oxygen, and water (Gypsum Association, 2019). A process known as calcination is undertaken to extract half a molecule of water from the gypsum. This dehydration process is achieved by heating to remove 15 % of the water of crystallisation (water that is present in crystalline compounds in definite proportions), allowing the gypsum to harden when mixed with water to form the plasterboard. Once heated, the gypsum is passed through a milling process to reduce grain sizes and is stored in silos.

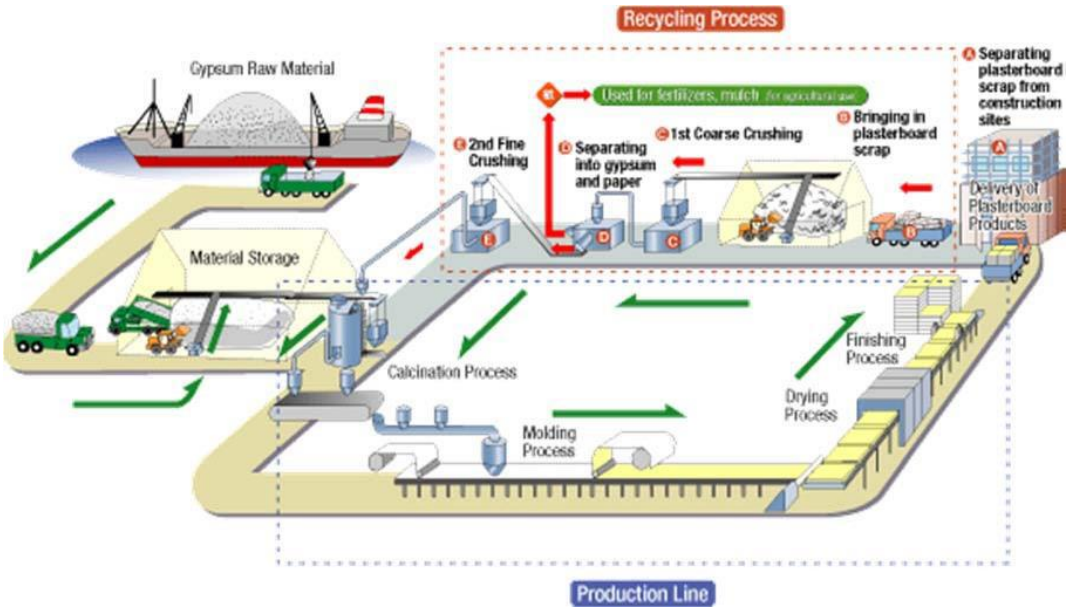

Figure 2: Plasterboard production process schematic

1.4.11 The plasterboard is then formed between two sheets of specialist paper. Depending on the type of plasterboard being produced, different ratios of gypsum, water and additives are combined in a mixer. On a conveyor belt, this paste is then spread on a paper sheet. A superior sheet is applied on top, and the board is passed through a series of bending roll machines to ensure a consistent thickness and width. Once cut, the plasterboards are dried to remove excess water. Following a quality control check, the plasterboards are conditioned in pallets, labelled and stored ready for distribution.

1.4.12 The production process also includes recycling of already used plasterboards which are reintroduced to the beginning of the process after crushing and separation.

1.5 Natural Materials and Waste Management

1.5.1 In order to ensure the promotion of good practice and sustainable development the developer will implement a SWNMMP throughout the detailed design, construction and operational periods of the facility that will broadly follow the approach outlined in the English Site Waste Management Plan Regulations 2008. Whilst this Regulation was never implemented in Wales, and has subsequently been repealed in England, the principles of sustainable waste management for construction projects remain valid. Similarly, this SMNMMP is produced in line with edition 10 (December 2018) of Planning Policy Wales published by the Welsh Government. The developer will, therefore, seek to ensure that any/all waste or materials generated in developing the Site is minimised or otherwise reused, recycled, recovered or, if necessary, disposed of in accordance with the waste hierarchy.

1.5.2 The waste management hierarchy, as introduced by the revised Waste Framework Directive 2008 (Directive 2008/98/EC on waste), and reproduced in national policy since, up to and including, the national waste management plan[1]. The waste hierarchy is reproduced below, in order of precedence and will be considered and followed (where appropriate) by the developer of the Site, having regard to the nature of the waste and any contamination issues.

- *Prevention – Using less material in design and manufacture. Keeping products for longer; reuse. Using less hazardous materials;*
- *Preparing for Reuse – Checking, cleaning, repairing, refurbishing, whole items or spare parts;*
- *Recycling – Turning waste into a new substance or product. Includes composting if it meets quality protocols;*
- *Other Recovery – Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste; some backfilling; and*
- *Disposal – Landfill and incineration without energy recovery.*

1.5.3 The purpose of this SWNMMP is to demonstrate that site waste and natural resources will be managed efficiently and effectively, with opportunities to reduce, reuse and recycle waste materials considered and optimised wherever possible, and to promote best practice and environmental awareness. The SWNMMP provides a comprehensive summary of the waste management proposals as they currently stand, and identifies where site materials will be managed and utilised on site.

1.5.4 At the next stage in the process, following submission of the planning application, ABP will begin to secure the delivery supply chain and refine the proposed design in order to maximise the operational efficiency and environmental benefits of the development.

2 NATIONAL POLICY CONTEXT

2.1.1 The national policy context involves the following:

- Planning Policy Wales, Edition 10, December 2018;

[1] Welsh Assembly Government (2010), Towards Zero Waste - One Wales: One Plant – The Overarching Waste Strategy Document for Wales

- Technical Advice Note 12: Design, March 2016;
- Technical Advice Note 21: Waste, February 2014;
- Technical Guidance Note 21: Waste – Waste Planning Practice Guide, March 2017;
- Towards Zero Waste, June 2010;
- Towards Zero Waste – Construction and Demolition Sector Plan, November 2012;
- Towards Zero Waste – Industrial and Commercial Sector Plan, November 2012;
- The Waste Prevention Programme for Wales, December 2013;
- Natural Resources Policy, August 2017; and
- Sustainable Management of Natural Resources and our Well-being – essentials guide, June 2019

2.1.2 The above policy and guidance is considered in greater detail, below, in the context of how the design proposals meet the key objectives of the policies.

2.2 Planning Policy Wales, Edition 10, December 2018

2.2.1 The Planning Policy Wales (PPW), edition 10, was released by the Welsh Government in December 2018. The PPW sets out the land use planning policies of the Welsh Government, and is supplemented by a series of Technical Advice Notes (TANs), the relevant ones of which are detailed below. The PPW's primary objective is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales.

2.2.2 The PPW outlines a series of National Sustainable Placemaking Outcomes. Specific outcomes include *making better use of resources* through *making better use of natural resources* and *preventing waste*. In order to fulfil the placemaking outcomes four themes have been identified. The importance of waste management and economic productivity fall under *Productive and Enterprising Places*.

2.2.3 Of the planning considerations detailed in the PPW, the following have particular relevance to the development and this SWNMMP:

- Environmental consideration – will the depletion of non-renewable resources be minimised, waste prevented and the efficient and most appropriate use of materials made and re-use and recycling be promoted.
- Productive places – development should prevent problems from occurring or getting worse such as the generation of carbon emissions, poor air quality and waste and the depletion of our natural resources which will need to be managed for many years to come.
- Productive places – collaboration is necessary to strategically plan for employment, energy, waste and mineral needs.
- Proximity principle – implementing the proximity principle for waste, minerals and district scale energy to minimise the need for road transport and its impacts and additional pressure on energy networks.
- Circular economy – drawing on the principles of the circular economy to reduce unnecessary waste and encourage high quality manufacturing and better materials choices in the built environment, including the use of durable materials in development.
- Development design – designing out waste through appropriate site selection and treatment, and the best choice of materials. Developments should adopt use of locally sourced, alternative or recycled materials, and should be recyclable or re-usable in design.
- Materials balance – minimising the requirements for cut and fill volumes to reduce waste, energy consumption an transport requirement.
- Waste hierarchy – waste management should be prioritised in the order of the waste hierarchy.

2.3 Technical Advice Note 12: Design, March 2016

2.3.1 A series of Technical Advice Notes (TAN) support the PPW. Of relevance to the proposed development is TAN 12 on design.

2.3.2 The core premise of the TAN is to equip all those involved in the design of development with advice on how 'Promoting sustainability through good design' and 'Planning for sustainable building' may be facilitated through the planning system.

2.3.3 The design issues covered are intended to complement and not duplicate building regulations.

2.3.4 The key relevant issues from this TAN are summarised here:

- Good design should be fit for purpose and deliver environmental sustainability, economic development and social inclusion.
- Design should be appropriate to its context.
- Early design consideration is essential.
- Collaboration with neighbours, professionals and local stakeholders.
- Incorporation of sustainability measures to reduce the environmental impact associated with buildings and minimising the demand for energy (low and zero carbon sources), water, and materials and creation of waste.
- Incorporation of adaptable and flexible development that can respond to social, technological, economic and environmental conditions/changes (e.g. the current and future effects of climate change) over time to minimise the need to demolish and rebuild.
- Design solutions – sustainable materials - use of materials with a low environmental impact (embodied energy), reduced energy inputs, sourced sustainably (i.e. Forestry Stewardship Council timber), locally sourced (to reduce transport emissions), and the use of used, reclaimed and recycled materials.
- Design solutions – waste management - the way in which waste will be dealt with during and after construction (re-use and disposal), including the provision of appropriate facilities for sorting, storing and recycling of waste in buildings and across the site.

2.4 Technical Advice Note 21: Waste, February 2014

2.4.1 This TAN provides advice on how the land use planning system should contribute towards sustainable waste management and resource efficiency. The TAN sets a framework for facilitating the delivery of sustainable waste management infrastructure through the planning process.

2.4.2 The TAN provides guidance on sustainable waste management, reinforcing principles from the PPW, including the waste hierarchy, environmental impact of waste management activities, and use of waste as a resource.

2.4.3 As a guide on available treatment options the Technical Guidance Note 21: Waste – Waste Planning Practice Guide (March 2017) is not relevant to this manufacturing development.

2.5 Towards Zero Waste, June 2010

2.5.1 Towards Zero Waste (TZW) is the overarching waste plan for Wales, first published in 2010, reviewed in 2015 and currently undergoing an update and consultation process.

2.5.2 The waste management plan delivers ministerial priorities for:

- developing a circular economy,
- the goals of the Wellbeing of Future Generations (Wales) Act 2015,
- green growth,
- resource efficiency,
- tackling poverty, and
- increasing resilience for the Welsh economy.

2.5.3 The TZW strategy sets ambitious long-term national goals for waste management and a guide to how these will be achieved. A number of key challenges are identified, including sustainability, ecological footprint, climate change and resource security. TZW incorporates targets, including a 1.5 % annual waste reduction till 2025, a 2025 recycling target of 70 % rising to 90 % in the construction sector, closed loop recycling, food waste collections and market establishment.

2.5.4 The TZW strategy enshrines in policy key principles of legislation including the waste hierarchy, consistency and closed loop recycling.

2.6 Towards Zero Waste – Construction and Demolition Sector Plan, November 2012

2.6.1 This plan details outcomes, policies and actions on waste for organisations, companies and individuals in construction and demolition (C&D) in Wales. This sector plan covers construction and demolition companies of all sizes in Wales. The plan is relevant for the construction stage of the project.

2.6.2 The plan covers waste materials which are generated by a C&D business, including all types of construction development; each phase within those developments; and, waste generated by renovation and maintenance of existing buildings.

2.6.3 Key themes of the plan follow on from those in TZW, including commitments to sustainability and sustainable development. The overarching ambitions are to reduce waste generation, increase reuse and recycling and promote construction excellence.

2.6.4 The plan identifies priority materials in line with ecological footprints. These are wood, plastic gypsum products, hazardous waste and metals.

2.7 Towards Zero Waste – Industrial and Commercial Sector Plan, November 2012

2.7.1 This plan details outcomes, policies and actions on waste for organisations, companies and individuals in the industrial and commercial sectors in Wales. This Sector Plan covers material resources and waste in all businesses in Wales in the sector. It outlines how government, with stakeholders, plan to prevent, reduce and ultimately manage resources in a sustainable way.

2.7.2 This plan seeks to create a sustainable approach to resource management by ensuring that: material resources are used as efficiently as possible; waste is prevented as far as possible and that which is generated is maintained as a resource rather than disposed to landfill; a high volume of clean reusable or recyclable material is separated at source; material is collected and delivered to reprocessors (based in Wales as appropriate) - the reuse of material is a first priority followed by recycling or recovery and a last resort landfill; and, markets are developed for the recycled material (within Wales as far as possible).

2.7.3 The plan covers a number of key principles including resource efficiency, sustainability and the waste hierarchy.

2.8 The Waste Prevention Programme for Wales, December 2013

2.8.1 The Waste Prevention Programme (WPP) for Wales was released alongside sector plans to support the overarching TZW strategy, waste prevention is the top of the waste hierarchy, and as such the most sustainable and least environmentally impactful management technique. The WPP established waste prevention as a priority area.

2.8.2 The WPP describes the Welsh government's priority sectors and work programmes to support waste prevention. The benefits of the WPP are cited as support for businesses

and citizens to save money; support for people to be helped out of poverty; economic sustainability and resilience; and, environmental protection.

2.8.3 Key measures outlined by the WPP include re-use and product life extension, eco-innovation and construction materials life-cycle identification.

2.9 Natural Resources Policy, August 2017

2.9.1 The Natural Resources Policy (NRP) of the welsh government sets out the vision for sustainable management of natural resources. The NRP targets a reduction in pressures that are currently exerted onto natural resources, and the importance of ecosystem resilience and protection.

2.9.2 A key area of the policy, relevant to this development, is the need for resource efficient developments which utilise existing resources sustainably and minimise waste production. This can be done through waste prevention, reuse, recycling and recovery.

2.10 Sustainable Management of Natural Resources and our Well-being – essentials guide, June 2019

2.10.1 This guide provides details on how developments, industry and the population can protect natural resources and improve well-being in Wales. The key theme is building resilience into natural resources and associated ecosystems, so that benefits are maintained for future generations.

2.10.2 The guide is targeted at public bodies and includes direction for planning authorities. As such the themes of waste prevention, good design, natural resource protection and environmental protection are core principles that the Proposed Development should consider.

2.11 National Development Framework

2.11.1 The Planning Directorate is working on the production of a National Development Framework (NDF). The NDF will set out a 20-year land use framework for Wales and will replace the current Wales Spatial Plan. The plan has not, to date, been published, and is therefore of limited relevance to the proposed development at this stage.

2.11.2 The NDF will:

- set out where nationally important growth and infrastructure is needed and how the planning system - nationally, regionally and locally - can deliver it;

- provide direction for Strategic and Local Development Plans and support the determination of Developments of National Significance;
- sit alongside Planning Policy Wales, which sets out the Welsh Government's planning policies and will continue to provide the context for land use planning; and
- support national economic, transport, environmental, housing, energy and cultural strategies and ensure they can be delivered through the planning system.

3 LOCAL POLICY CONTEXT

3.1.1 The local policy context includes the following:

- Establishment of the South East Wales Strategic Development Plan
- Newport Local Development Plan 2011-2026, January 2015
- Wildlife and Development – Supplementary Planning Guidance, August 2015
- Development of the Newport Waste Strategy

3.1.2 The above policy and guidance is considered in greater detail, below, in the context of how the design proposals meet the key objectives of the policies.

3.2 South East Wales Strategic Development Plan

3.2.1 The South East Wales Strategic Development Plan is currently under development. It is understood that this regional plan will concentrate on delivery of strategic sites focusing on housing, employment sites and transport infrastructure. The proposed development will contribute towards these through the creation of jobs.

3.3 Newport Local Development Plan 2011-2026, January 2015

3.3.1 Newport's Local Development Plan (LDP), adopted in January 2015, is the overarching plan for development in Newport to 2026.

3.3.2 The plan's vision is "As a gateway to Wales, Newport will be a centre of regeneration that celebrates its culture and heritage, while being a focus for varied economic growth that will strengthen its contribution to the region. It will be a place that people recognise as a lively, dynamic, growing City, with communities living in harmony in a unique natural environment."

3.3.3 Key issues identified in the plan, relevant to the Proposed Development, include tackling economic decline, utilising redundant sites and protection of biodiversity.

3.3.4 The LDP sets a number of objectives. Key objectives are summarised below:

- Objective 1 – Sustainable Use of Land. To ensure that all development makes the most efficient use of natural resources by seeking to locate development in the most sustainable locations, minimise the impact on the environment and make a positive contribution to local communities.
- Objective 2 – Climate Change. To ensure that development and land uses in Newport make a positive contribution to minimising, adapting to or mitigating

against the causes and impacts of climate change, by incorporating the principles of sustainable design, changes to travel behaviour, managing the risks and consequences of flooding, and improving efficiency in the use of energy, waste and water.

- Objective 3 – Economic Growth. To enable a diverse economy that meets the needs of the people of Newport and those of the wider South East Wales economic region.
- Objective 6 – Conservation of the Natural Environment. To protect and enhance the quality of the natural environment, including landscape, protected habitats and species of principal importance for biodiversity in Wales (regardless of greenfield or brownfield status) and the protection of controlled waters.
- Objective 10 – Waste. To ensure that waste management choices are based on the proximity principle, where appropriate, and a hierarchy of reduce, reuse, recovery and safe disposal, and that there is adequate provision for facilities to enable this to happen.

3.3.5 In order to meet these objectives a series of strategic policies (SPs), general policies (GPs) have been adopted. The key SPs and GPs relevant to the proposed development are listed below:

- SP1 Sustainability. Proposals will be required to make a positive contribution to sustainable development by concentrating development in sustainable locations on brownfield land within the settlement boundary. Assessment will include efficient use of land; re-use of previously developed land; the minimisation, re-use and recycling of waste; and, conserving and ensuring the efficient use of resources such as water and minerals.
- SP17 Employment Land. provision will be made for approximately 172 hectares of employment land for the period 2011 - 2026.
- SP18 Urban Regeneration. Proposals will be favoured which assist the regeneration of the urban area, particularly where they contribute to re-use of vacant, underused or derelict land.
- SP20 Waste Management. The sustainable management of waste arisings in Newport will be facilitated by promoting and supporting additional treatment

facilities, that have regard to the waste hierarchy, the proximity principle and contribute to an integrated network of facilities.

- SP21 Minerals. The plan will fulfil its contribution to the regional demand by: safeguarding hardrock and sand & gravel resource blocks; protecting existing and potential wharves and existing rail infrastructure at Newport Docks to ensure the continued sustainable transportation of aggregate; encouraging the use of secondary and recycled aggregates where appropriate; considering proposals for the winning and working of minerals in the regional context, whilst having clear regard to local factors.
- GP1 General Development Principles – Climate Change. Development proposals should: be designed to withstand the predicted changes in the local climate and to reduce the risk of flooding on site and elsewhere by demonstrating where appropriate that the risks and consequences of flooding can be acceptably managed, including avoiding the use of non-permeable hard surfaces; and, be designed to minimise energy requirements and incorporate appropriate renewable, low or zero carbon energy sources, including on site energy provision where practicable; be designed to reuse or recycle existing construction materials present on the site.

3.4 Newport Wildlife and Development Supplementary Planning Guidance, August 2015

3.4.1 Newport's Wildlife and Development supplementary planning guidance (SPG) provides specific direction on how biodiversity should be conserved and enhanced throughout the development control process in support of the LDP, and overarching sustainable development goals.

3.4.2 The SPGs aims are to:

- ensure that the key principles of national planning guidance on biodiversity and nature conservation are fully met at the local level;
- ensure that local planning decisions maintain, restore and enhance biodiversity in Newport;
- ensure best practice is followed consistently and openly;
- minimise the cost to development and streamline the application process by ensuring nature conservation implications are built in at the earliest stages, are as

predictable as possible, and that only relevant development proposals are affected; and

- integrate Newport's local biodiversity action plan into the planning process and identify pathways for delivery.

3.5 Newport Waste Strategy

3.5.1 There is not currently a municipal waste management strategy for Newport. It is understood that one is currently under development and the authority is under pressure from the Welsh Government to finalise and adopt this. At this stage it is not possible to assess the relevance of this document to the Proposed Development.

4 SITE DESIGN

4.1.1 The overall site design will consider safe and efficient material use, management, waste storage and collection during the design and construction phases, as well as in the longer term, during the operational phase. The Site will be designed to both optimise the material use, recycling and reprocessing, whilst also meeting high standards for environmental and waste management. Opportunities to employ additional environmental measures will be explored such as energy efficiency measures in the buildings.

4.1.2 To reflect the site's marine context and enshrine ecological sustainability into the design, a priority habitat area and associated vegetation will be established.

4.1.3 The proposed development enjoys good transport links. The A48 Usk Way is accessible via the docks service roads in under 3 km. From here the M4 and wider national motorway network is easily accessible. Due to its docklands location the Proposed Development will benefit from easy access to shipping facilities, enabling import of materials and export of products by water. The excellent transport links will enable the optimisation of material delivery and waste collection logistics. The proximity of existing commercial properties and the town of Newport will further facilitate efficiencies in waste management, allowing extensions to the current arrangements to be organised and synergies to be identified.

4.1.4 The detailed design and layout of the Proposed Development will seek to encourage sustainable waste management, facilitating ease of collection and minimising process wastage. In accordance with national and local policy, the aim will be to ensure that there is sufficient provision for recycling and that (wherever possible) waste management facilities are integrated into the scheme, so that their use is inherent in the wider development and operation. This will be done through integration of the plasterboard recycling capabilities into the plant design.

4.1.5 The detailed design of the Site will include careful consideration of the following:

- The principles of 'designing out waste' to identify waste reduction opportunities;
- WRAP's (Waste and Resources Action Programme) 'Choosing Construction Products' for guidance on materials recycled content;
- Selection of robust and durable construction materials, sourced from reputable suppliers;

- Reduction in waste generation during site clearance, earthworks, site preparation and construction through appropriate design;
- Materials specifications that encourage the use of reused or recycled products, material from sustainably management sources and materials that are suitable for reuse or recovery without significant environmental impact;
- Use of aggregates that are derived from recovered materials rather than virgin aggregates (wherever feasible);
- Reuse of excavated materials onsite (wherever feasible and necessary); and
- Techniques to encourage segregation of materials for recycling.

4.1.6 Specific measures incorporated within the scheme will include achieving local and national standards at the time of the development, as covered in Chapters 2 and 3, including the provision of sufficient space for bin storage and ensuring that the internal road layout of the scheme is appropriate for refuse vehicles to safely manoeuvre around the Site.

4.1.7 The developer is committed to the following environmentally considerate designs:

- Incorporating an area of approximately 0.56 ha for the priority habitat 'open mosaic habitats on previously developed land'. A strip of vegetation approximately 10 m wide will also be maintained at the western boundary of the Site to ensure connectivity of habitats.
- Minimising earthworks where possible to limit environmental impacts on neighbouring habitats.
- Enabling works are required to raise site levels to achieve a FFL of 9.63 m AOD which will entail the construction of an engineered soil platform across the proposed development area. The foundations for the proposed warehouse structure are intended to comprise of piles, end bearing on competent strata at depth. The proposed solution for ground improvement (soil consolidation) is to install band drains.
- The production equipment chosen is lightweight and does not require special foundations.

5 SITE PREPARATION

5.1 Site Preparation and Access

5.1.1 The preparation phase will include the following:

- Clearance of existing vegetation undertaken with an ecological watching brief;
- Clearance of other site obstructions, if any;
- Raising of site levels utilising suitable imported engineered fill to achieve flood mitigation requirements;
- Excavation may be required for foundations, etc.;
- Ground engineering works to mitigate differential settlement;
- Removal of any fly-tipped waste (to suitable material recycling facilities);
- Fencing and site security (to prevent unauthorised access);
- Installation of suitable portacabin/welfare facilities (to be erected ready for construction to commence); and
- Installation of appropriate construction management facilities (e.g. wheel wash, waste collection points etc.)

5.1.2 Where it is necessary to remove established trees or shrubs that might be suitable for use in landscaping of the Proposed Development, these will be removed and relocated in a secure area away from the site works until landscaping takes place. Green and woody wastes generated during site preparation will be removed for composting at an authorised facility.

5.1.3 Where relevant and possible, any excavated material will be reused on the Site, rather than removed. Stripped topsoil will be retained onsite for use in soft landscaping, and habitat establishment. Sub-soils will be stockpiled ready for reuse in site engineering and earthworks. It is forecast that there will be a requirement for import of materials to achieve requisite site levels and flood prevention thresholds. It is anticipated that 36,000 m^3 of material will be required for this. It is therefore assumed that no removal of materials from site, as a result of earthworks, will be undertaken. In the event that there is surplus subsoil or topsoil already present at site, the developer will seek to utilise these in other local construction or land reclamation works.

5.1.4 Throughout the site design opportunities to minimise earthworks have been investigated.

5.1.5 Where wastes require removal from Site, suitable access arrangements will be put in place to ensure that contractor vehicles can easily and safely access areas where waste materials are stored and empty containers for onward processing, recycling or disposal.

5.2 Site Access During Operation

5.2.1 Consideration will be given to the access requirements of collection vehicles to ensure that they can easily and safely access areas where waste materials are stored and empty containers for onward processing, recycling or disposal. A clearly designated route will be indicated from the public highway to the storage areas on the Site and this will be designed to be safe and viable for the anticipated collection vehicle types. The design allows sufficient space for the anticipated collection vehicles to manoeuvre and the containers will be selected in partnership with the contractors to ensure that they are compatible and can be unloaded safely and effectively. The containers will be stored away from parking areas and away from the area(s) where other vehicles will be required to manoeuvre.

5.2.2 Suitable collection frequencies will be agreed with the collection contractor and the storage containers sized appropriately to ensure provision of adequate storage capacity, to optimise the collection frequency and to avoid waste materials being stored onsite for prolonged periods.

5.2.3 Should the need arise for additional storage capacity (e.g. if large quantities of materials are consistently produced), the inclusion of provisions for a static waste compactor, baler, crusher or additional suitable storage vessels will be considered.

6 MATERIAL TYPES AND QUANTITIES

6.1.1 There is an online and freely accessible 'waste forecasting tool' developed by WRAP for materials quantity measurement and reporting to aid with designing out waste from building developments. A tool similar to this will be used to provide monthly records of waste generated, reused, recycled or disposed; thereby allowing performance to be measured against targets and aspirations.

6.1.2 The developer will seek to minimise waste through the supply chain, specifying the use of reusable (or returnable) packaging for materials delivered to Site and programming material delivery wherever possible. This will help to reduce the amount of packaging that can typically be generated during the construction period. All incoming packaging that requires storage onsite prior to off-site recovery can be segregated and stored under cover in clearly identifiable areas. This may include segregation of card, paper, wood, hard plastics and plastic film.

6.1.3 Construction and demolition[2] wastes will also be segregated wherever viable and cost effective, to avoid mixed waste streams that may be difficult to recycle, and to raise recyclate quality. This is likely to include:

- Concrete;
- Masonry (e.g. brick and tiles, etc.);
- Asbestos;
- Steel;
- Non-ferrous metal;
- Wood;
- Glass; and
- Plasterboard.

6.1.4 For mixed construction and demolition waste streams that do arise, the developer will (wherever practicable) record estimated quantities of different waste types within this mixed waste stream in order to assist with 'lessons learned' and future assessment of recycling potential.

[2] It is not anticipated that there will be generation of demolition waste at the site due to its previously undeveloped state.

6.1.5 Details of construction material types and quantities will be confirmed as part of the detailed design phase. A preliminary forecast of anticipated waste generation has been developed utilising the WRAP Designing Out Waste tool.

6.1.6 The following list provides a summary of some of the anticipated construction materials and, therefore, potential waste streams:

- Drainage and services:
  - Surface water drainage pipework;
  - Surface water drainage to buildings; and
  - Foul sewer pipework.
- Road and parking infrastructure:
  - Sub-base, base and binder courses;
  - Asphalt; and
  - Kerbing.
- Substructure and structural concrete:
  - Ground slabs, foundations, piling, stone columns etc.
- Superstructures:
  - Steel frames; and
  - Roof.
- Masonry, brickwork, cladding:
  - Internal masonry / blockwork;
  - External cladding and internal acoustic / fire cladding; and
  - Glass.

6.1.7 It will be necessary to identify which of these waste streams are inert, hazardous or non-hazardous. It will also be determined when in the construction programme and where on the Site they will be principally generated, as well as what the intended destinations are for the materials. Wherever possible, they will be reused or recycled onsite. Where materials are to be reused, recycled or reprocessed, details of when, where and by whom will be recorded (including details of the on or offsite location of these services).

6.1.8 The preliminary construction waste forecast is reproduced in , below demonstrating the expected scale of development proposed. If best practice management is applied, reductions in waste generation from 763 tonnes to 307 tonnes is forecast, a potential improvement of 456 tonnes. Reflecting the levelled and prepared nature of the site no demolition or excavation wastes are forecast.

Table 1: Forecast Waste Generation

Activity	**Waste Stream**	**Material Type**	**Estimated Quantity (tonnes)**
Construction	Inert - mixture of concrete, bricks, tiles etc.	concrete	450
Construction	Metals	iron and steel	35
Construction	Other C&D segregated waste	insulation materials other than those mentioned in 17 06 01 and 17 06 03	10
Construction	Inert - mixture of concrete, bricks, tiles etc.	bricks	300
Construction	Wood	wood	12
Construction	Other C&D segregated waste	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	2

7 WASTE MANAGEMENT PROPOSALS DURING CONSTRUCTION

7.1.1 The waste hierarchy offers significant opportunities for waste reduction and long-term development sustainability during the construction phase. The developer will be committed to sustainable construction practices, such as modern methods of construction, the use of recycled content in building materials and waste minimisation. The developer will consider those measures identified in local guidance and specific targets can be set (e.g. commitments to recover a certain percentage of construction and demolition materials) aspiring to best practice recovery performance.

7.1.2 Appointed contractors and staff working onsite will be required to consider opportunities for enhancing the sustainability of their practices and, more specifically, waste minimisation and the ability to enhance reuse, recycling, refurbishment and innovative ways to utilise recycled products.

7.1.3 Waste avoidance measures to be considered and applied (where suitable) will include:

- Purchasing materials to the agreed design specification, to the required quantities and to the correct dimensions in order to avoid wastage and storage problems;
- Take back agreements with material suppliers to ensure that surplus materials are returned and offered for use at other development sites, as appropriate;
- Deliveries to be scheduled so that storage space requirements are minimised and managed efficiently, whilst reducing risk of potential material damage and deterioration;
- Material storage areas will be secure, weatherproof and with clearly identified segregation of incoming products and different waste streams; and
- Identification of, and discussion with local providers of, construction waste recycling capacity (and waste streams requiring specialist treatment) prior to works commencement.

7.1.4 Areas designated for the safe storage of the various anticipated waste types to be generated during construction, demolition and operation of the proposed development will be provided and indicated on the layout plans. Large allocated areas and containers (as appropriate) will include storage for such materials as rubble, metals (i.e. ferrous and non-ferrous), plastics and waste liquids.

7.1.5 The storage containers will be arranged so that they can safely be accessed by appropriately trained staff members, with clear labelling (e.g. in-line with the

nationally agreed colour-coded scheme detailed within Waste Aware Construction) and suitable containment for each material type. Site staff will be trained as appropriate in the use of these waste storage facilities and clear labelling and signage will be employed to ensure that materials are handled and stored in-line with legislative and company requirements (e.g. avoiding rainwater entering certain containers and sealed storage to discourage pests and mitigate nuisance). This will form part of the induction for permanent and temporary staff and visitors.

7.1.6 In order to prevent accidental damage, liquid waste will be stored in double skinned containers placed upon impermeable surfacing and away from any vehicle manoeuvring areas.

7.1.7 Where possible, the developer will be required to consider the use of secondary and recycled materials (e.g. secondary aggregate) in their proposals. This will be sourced from the construction and demolition work undertaken onsite, from similar works off-site, or potentially from non-construction post-consumer industrial by-product sources.

7.1.8 The developer will also be required to consider the options for utilising any waste materials produced during the construction works on the Site, rather than disposing of them as waste or recycling. Specifically, this will include consideration of landscaping and secondary aggregate use for hardstanding and access roads. This might involve numerous activities, including directly reusing the materials in the construction or minor reprocessing such as crushing and sieving. This will be in-line with governing legislation and aiming to demonstrate best practice where economically and technically practicable.

7.1.9 There is the potential that other local business, including those on ABP's Newport Dock Estate, might value some of the waste materials generated during the construction works, or may also be undertaking similar works at the same time and, therefore, potential synergies will be considered.

7.1.10 If relevant, priority will be given to the reuse of excavated materials on the Site where suitable either as landscaping or, where they have the required engineering properties, in construction. Any materials that cannot be recovered onsite will be handled, segregated and stored for offsite reuse or recycling.

7.1.11 It is intended that a certain proportion of construction materials will have a recycled content, for example aggregates and plastics.

7.1.12 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 utilised for off-suite recovery, recycling or disposal of waste, and copies of these kept onsite.

7.1.13 The developer will liaise with other departments and sub-contractors, as well as other businesses across the local area in order to identify any potential synergies in the waste streams generated. For example, multiple sites may generate similar waste types that could benefit from combined storage and collection in order to maximise the collection efficiency and minimise overall storage requirements across the Site.

8 NATURAL MATERIAL MANAGEMENT

8.1.1 The development will seek to minimise the natural environment burden of materials required for construction and operation of the facility. This will be achieved through minimisation of waste generation and repurposing of available materials, whether available on Site or created during construction.

8.1.2 During the operation of the facility careful consideration has been applied to minimise the requirement for raw materials. To reduce the quantities of raw gypsum required in plasterboard manufacture the facility is designed to use recycled plasterboard feedstock.

8.1.3 The facility is designed to utilise the minimum possible energy requirements through the application of best practice manufacturing techniques. The proposed facility will have the following operational requirements:

- 4.5 GWh/annum Electricity
- 15 000 litre/hour Water
- 90 GWh/annum Gas

8.1.4 Additionally, in order to minimise environmental burdens associated with the facilities operation, the availability of water based transport access will be utilised as practicable to reduce transportation of materials by road or rail.

9 MATERIAL REPROCESSING AND REFURBISHMENT

9.1.1 During both the construction phase and operational phase there are opportunities to investigate the reprocessing of materials. There is the potential for some reuse, reprocessing and/or refurbishment of materials identified during the works period, and these will be discussed during a design review and demolition audit once the developer has been appointed.

9.1.2 Measures might include a review of the existing hard surfaces and hard standing to identify opportunities where it is feasible for materials to be reused on the Site for a variety of purposes ranging from landscaping through to grading of the materials into reusable aggregates.

9.1.3 This will also cover opportunities to recycle, refurbish and reprocess materials if available. Options for both on and offsite services to support in this regard will be considered to determine viability for this project.

10 WASTE MANAGEMENT PROPOSALS DURING OPERATION

10.1.1 The waste hierarchy is equally applicable to business waste as it is construction wastes. Developments have the potential to positively influence individual habits and behaviours through good design, ensuring that waste reduction, reuse and recycling is practiced and communicated in plant operation.

10.1.2 Incorporating design features within the Proposed Development will facilitate increased recycling performance overall. This will include providing sufficient storage for recyclable materials generated in plasterboard production, alongside the recycling of plasterboard as process feedstock and the reprocessing or reject produce.

10.1.3 The main waste outputs from the operations of the facility will be paper - used in the production process, plastics - used in wrapping the plasterboard products, broken wood and scrap metal. Two large 30 or 35 yard RoRo skips will be used to store these materials. Paper and plastics will be mixed, and wood and metal mixed, as specified by the collection contractor. The vast majority of waste material generated will be paper and plastic material streams.

10.1.4 Recycling provision will also be made available for site visitors and office / welfare use, where appropriate. Consideration will also be given to more innovative schemes to encourage recycling by staff members. However, adoption of these will be dependent upon the specific waste management options employed by Newport Council or local waste and recycling collection contractors.

10.1.5 Liaison with the other local businesses will identify opportunities for partnering on waste and resource management (e.g. if a waste material from the Site is able to be utilised as a resource be a neighbouring site replacing an otherwise separately procured raw material). These links will be investigated and pursued (as appropriate) and discussed and agreed with the local authorities where it effects waste collections and/or generates environmental benefits.

11 SITE WASTE AND NATURAL MATERIALS MANAGEMENT IMPLEMENTATION

11.1.1 The site manager will be responsible for finalisation, review and update of this SWNMMP, as well as managing and monitoring the implementation. It will be an evolving process and the plan will be adapted as the development progresses, innovative solutions are considered, and procedures become established. The responsibility for the plan and the key methods of implementation will be clearly communicated to all relevant staff and contractors and included with the procurement documentation for all companies engaged to work onsite.

11.1.2 It is recommended that such third parties as trades, suppliers, architects and designers, etc. are engaged in the development of the SWNMMP from the outset in order to ensure that all elements have been fully considered by the wider team. The principles will then be engendered in the development design and will more easily roll out to all staff and contractors employed throughout the life of the Proposed Development.

11.1.3 There will be a sustainable procurement strategy in place and all products purchased and utilised onsite will be recorded and monitored so that future orders can be informed and adapted, taking in to account the usage over the previous period, and changing requirements. The strategy will also ensure consideration of the use of secondary and recycled materials during both the construction and operational phases of the Proposed Development.

11.1.4 Incorporation of the SWNMMP and other core environmental objectives for the Proposed Development will be clearly presented in all documentation when procuring for contractors to work on the Site. Contracts will also set out clear targets and specific Key Performance Indicators (KPI) to ensure that those employed onsite will understand and comply with the requirements and aid the site-wide implementation. NB - This can also align with any existing relevant procurement strategies, corporate policies and targets.

11.1.5 Linked to the procurement of the supply chain is the identification of potential off-takers of waste materials. There is an intention to explore options (both within the development and external to the development), of passing-on items that are no longer needed, but which might hold value to others, as well as the requirement for onsite recyclate segregation. Relevant staff member(s) will be allocated responsibility for specific parts of the SWNMMP, which will include the monitoring of waste management and sustainable procurement practices.

11.1.6 To aid decisions concerning product purchases and output material destinations, a flow diagram may be implemented ensuring that all staff consider all options in-line with the waste hierarchy. This may include such questions as:

- Is there an alternative product available that is made from recycled material?
- Is there an option to refurbish this material for reuse?
- Would another business benefit from this waste product?
- Can we arrange for this product to be collected for reprocessing instead of disposal?

11.1.7 This diagram will be a dynamic, bespoke document that will evolve to meet the requirements of the Proposed Development and effectively aid the staff with sustainable waste management practices. Options to be considered will range from investigating sourcing construction materials with recycled content through to training vehicle users in more efficient and fuel saving driving techniques.

11.1.8 Staff and contractors will be trained in the safe and effective use of the waste and recycling provision and practices both through the initial site induction and through the subsequent site staff training programme. Messages in this training programme will be supplemented with written information on notice boards throughout the site buildings, other signage and labelling of all bins. Staff will be encouraged to take responsibility for the dissemination of the message and the implementation of the procedures, providing ownership and further incentives to deliver and meet any targets set in relation to waste management practices.

11.1.9 When improvements are proposed and made to waste management practices, it is important to ensure that there is a baseline established from which progress can be monitored in-line with the SWNMMP. The waste or materials data will be recorded as part of the SWNMMP and will include waste generated, stored, any issues or problems arising, waste movements and trends in waste generation or material use.

11.1.10 The SWNMMP will be kept under regular review to ensure that best practice is being maintained and that any offsite treatment or recovery facilities are still the best choice for any particular waste stream. Reports summarising the data and outcomes covering the Site design, preparation and construction stages will ensure the SWNMMP covers all stages from development to operation. This may include comparison of forecast and actual performance for waste quantities, data on types and quantities of recycled

and recovered materials in Site development/construction, waste sent offsite for recovery or recycling and disposal routes.

11.1.11 Responsibility will be allocated for the environmental management of the Site, including the SWNMMP and will include monitoring the flow of inputs and outputs to the development at a high-level. This will include the transport of construction waste to the points of disposal/recovery and the quantities of waste materials diverted from landfill. This will be aligned with the environmental management system for the operational Site (e.g. ISO 14001 or EMAS) in order to provide a structure for the process of monitoring and recording. This will allow further opportunities to be identified where waste generation can be minimised.

11.1.12 The SWNMMP will be disseminated to all staff and contractors (as appropriate) so that the whole team is engaged in the environmental improvements and performance of the site. This will help foster ownership of Site processes and achievements in improving performance.

11.1.13 Any programmes, plans, policies, and targets developed will be regularly reviewed and adapted to evolve with the Proposed Development in order to ensure that they continue to remain relevant and achievable. The outputs from the monitoring and reporting will provide a platform the Proposed Development to promote its environmental achievements, providing an opportunity to excel in the market relative to competitors.

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