GNW Developments Limited

GREAT NORTHERN

ENVIRONMENTAL STANDARDS STATEMENT



GNW-WSP-Z0-XX-RP-M-500502
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1 INTRODUCTION

1.1 DEVELOPMENT DESCRIPTION

This Environmental Standards Statement has been prepared by WSP to support a full planning application.

This Statement provides detail of the various measures incorporated into the development proposals to ensure suitable levels of sustainability performance in accordance with local and national planning policy. It should be read alongside supporting documents such as the Design and Access Statement, Planning Statement, and Circular Economy Statement.

The Site is located adjacent to Deansgate and can be broadly divided into four components comprising:

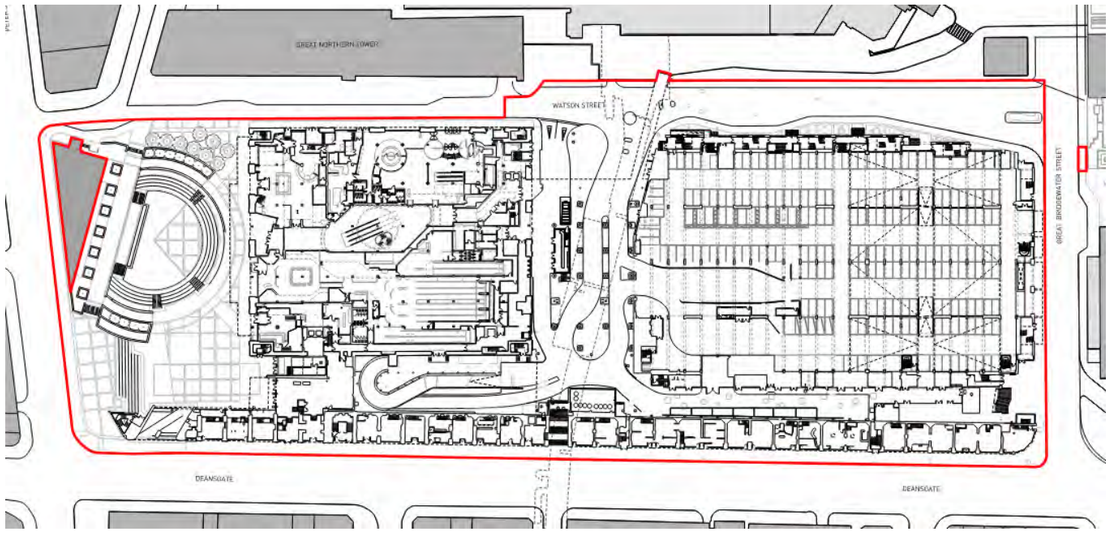
- Great Northern Square – located to the north of the application boundary, the square is an area of public realm with a mix of soft and hard landscaping with an amphitheatre-style seating arrangement in its centre, which currently acts as barrier to movement across the space;
- Great Northern Warehouse and the modern atrium – a Graded II* Listed former railway goods warehouse built between 1896 and 1899, which was refurbished in 1999 to provide retail, commercial and car parking spaces (519 spaces);
- Leisure Box – a modern addition to the Warehouse following the 1999 refurbishments. The Leisure Box contains an Odeon cinema, the Gym and car parking (721 spaces); and Deansgate Terrace –covers the length of Deansgate from Peter Street to Great Bridgewater Street;
- The 3 to 4 storey length of terraces is Grade II Listed and currently comprises a mix of retail, food & drink and commercial.

Development Details

Phased redevelopment of the Great Northern Warehouse (GNW), Deansgate Terrace and Leisure Box, including areas of public realm, comprising:

- Demolition of the central atrium, GNW car park ramps, and other modern elements, alongside removal of 519 car parking spaces from the GNW, retention of casino (Sui Generis), bowling alley and existing food and drink unit (Use Class E) alongside the refurbishment, restoration, and re-use of the Grade II* Listed Great Northern Warehouse to provide office, retail and / or food and drink use (Use Class E) and ancillary areas;
- The refurbishment, restoration, partial demolition and 3-storey extension of the Grade II Listed Deansgate Terrace (northern section) and Goods Yard Entrance to form office, retail and / or food and drink use (Use Class E) and drinking establishments / hot food takeaway (Sui Generis), with associated public realm works comprising the reconfiguration of Great Northern Square and the introduction of additional public realm with associated hard and soft landscaping, together with highways works, access and servicing facilities, rooftop plant and other associated works;
- Partial demolition of the existing leisure box prior to conversion; reconfiguration and extension of existing car parking to provide 929 parking spaces and associated plant, followed by construction of three residential buildings to provide 746 no. apartments (Use Class C3) above the retained car park comprising ground floor plus 16, 27 and 34 storeys respectively including 753 cycle parking spaces, with office, retail and / or food and drink use (Use Class E), or Sui Generis (drinking establishments / hot food takeaway) at ground floor and level 3, hard and soft landscaping, together with highways works, access and servicing facilities, rooftop plant and other associated works; and,
- External alterations and restoration of Deansgate Terrace (southern section) to provide office, retail or food and drink use (Use Class E) or Sui Generis (drinking establishments / hot food takeaway / live music venue), along with delivery of associated public realm, highways works, plant, and associated works.

Figure 1 - Location plan showing the site



2 POLICY CONTEXT

This chapter provides an overview of the relevant sustainability planning policy and guidance from a national and local perspective.

2.1 NATIONAL POLICY

This section sets out a summary of current national guidance and policy in relation to sustainable development.

2.1.1 NATIONAL PLANNING POLICY FRAMEWORK

The National Planning Policy Framework (NPPF) provides a framework for the development of locally prepared plans and the government's planning policies for England and how these are expected to be applied.

Paragraph 7 of the NPPF states that: 'the purpose of the planning system is to contribute to the achievement of sustainable development'.

Paragraph 8 explains that, to deliver sustainable development, the planning system has three overarching objectives which are interdependent and must be pursued in mutually supportive ways.

An ECONOMIC objective to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

A SOCIAL objective supporting strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being;

An ENVIRONMENTAL objective contributing to protecting and enhancing our natural, built and historic environment; including, making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low economy.

These objectives are key to the development of plans and the NPPF sets out a number of key themes for consideration which guide the preparation of local plans and policies, ensuring the delivery of sustainable development.

The July 2021 update to the NPPF recognises the role planning has to play in support of the UK's pursuit of the United Nations Sustainable Development Goals (UNSDGs) which address social progress, economic wellbeing and environmental protection.

2.1.2 PLANNING PRACTICE GUIDANCE

Planning Practice Guidance (PPG) provides further advice on various planning issues associated with development, including those linked to sustainability and renewable energy and underpins the policies within the NPPF.

PPG is a material consideration in planning decisions and should generally be followed unless there are clear reasons not to. It sets out how local authorities should include polices that protect the local environment and strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

The March 2019 PPG update confirmed that Local Authorities have the option to set technical requirements exceeding the minimum requirements of the Building Regulations in respect of access, water and space where sufficient evidence is produced to justify the target.

2.1.3 NATIONAL DESIGN GUIDE

The National Design Guide is based on the national planning policy practice guidance and objective for good design as set out in the NPPF. The Guide introduces ten characteristics of well-designed places which work together to create developments Character and Community, while positively addressing environmental issues affecting climate.

2.1.4 BUILDING REGULATIONS

Whilst not planning policy, the Building Regulations (and specifically Approved Document Part L: Conservation of Fuel and Power) set out the requirements for energy and carbon performance in new buildings.

Periodic updates to these national regulations will drive energy efficiency and carbon reduction improvements. Government has stated that developers will continue to have flexibility in how they meet carbon reduction targets; but that the emphasis is on using a "fabric first" approach.

On 15th June 2022, the Building Regulations were updated as an interim step towards part of the roadmap to the 'full' Future Homes and Buildings Standard, which comes into effect in 2025. The regulations aim to deliver buildings that are of a higher quality, with lower energy bills and reduce GHG emissions by around 30% for new homes and 27% for non-domestic buildings. There is a transition period of one year from this date; this will allow any new building, where plans have been submitted before 15th June, one year to make a meaningful start and be allowed to comply with the previous regulations. These transitions apply at a plot level, not at a site level.

In addition, the UK government has now updated the Building Regulations with a new Approved Document, Part O: Overheating. As of 15th June 2022, this standard is now in place. However, these regulations do not apply to this project as building notice was submitted prior to the 15th June 2022 deadline, and work on site is scheduled to commence prior to the 15th June 2023 cut off.

Part O sets out new requirements for mitigating overheating, specifying that residential developments must limit unwanted solar gains in the summer and provide means to remove heat.

Compliance with Part O can be demonstrated using two methods to demonstrate the risk of overheating from rising summer temperatures has been mitigated:

- Following a simplified prescribed glazing and free area ratio; or,
- Use of a Dynamic Simulation Modelling.

2.1.5 LOCAL PLANNING POLICY

Current and emerging Manchester City Council planning policy relating to sustainable development, energy and climate change is summarised below.

Manchester Core Strategy Development Plan Document (2012) Manchester's Core Strategy (2012), is the key document in the Manchester Local Plan. It sets the out the long-term strategic policies for Manchester's future development and forms the framework against which planning applications are assessed. The following Core Strategy policies are of greatest relevance to sustainable development and the focus of this Statement.

Policy EN4 – Reducing CO2 emissions by enabling low and zero Carbon Development – Development should be designed in accordance with the energy hierarchy to reduce energy demand through active and passive design measures meeting residual requirements through the use of zero carbon, renewable energy technologies.

Developments are encouraged to take into account the following principles:

- Located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies where possible.
- Where possible new development and retrofit projects will be used as a mechanism to help improve the energy efficiency and where possible provide low and zero carbon energy to existing buildings.
- Where appropriate, new development and retrofit projects are encouraged to connect to and/or make commitments to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing/potential decentralised energy networks.

Policy EN6 – Target framework for CO2 reductions from low or zero carbon energy supplies – Applications for development over 10 dwellings or 1,000m2 floor area are expected to meet sustainability targets which vary depending on the scale of the development, where feasible.

Development that meets the criteria above is required to be accompanied by an energy statement which sets out the projected regulated energy demand and associated carbon emissions and how the following targets will be met.

Development below the above thresholds is expected to meet the targets but does not need to have an accompanying energy statement.

For the purpose of this policy, development is split into three target categories:

- Target 1 - Network development areas: Locations where the proximity of new buildings, the mix of use and density of development provides the right conditions to support district heating.
- Target 2 - Electricity intense areas: Locations where the predominant building type has all electric fit out, such as retail units and leisure complexes.
- Target 3 – Micro-generation areas: Locations where lower densities and fragmented mix of uses tend to mean that only building scale solutions are practical.

An Energy Assessment is required to be submitted, and developers are permitted to use green infrastructure elements to contribute to the carbon reduction requirements provided adequate evidence is provided.

Policy EN8 – Adaptation to Climate Change – All new development is expected to be adaptable to climate change and developments should have consideration of adaptation measures including:

- Minimising flood risk through sustainable drainage systems.
- Reducing the urban heat island effect through green infrastructure.
- Minimising overheating through passive design.
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.

Policy DM1 - Development Management – All new development should have regard to a range of sustainability issues including site location, accessibility, waste management, biodiversity and flood risk, as well as incorporating sustainable construction techniques which includes the application of BREEAM.

Policy CC5 – Transport – Developers should work to ensure that all users are able to access development by sustainable means, especially taking account of times when developments are likely to be busiest.

Policy EN9 - Green Infrastructure – New development is expected to maintain existing green infrastructure in terms of its quantity, quality and multiple function. Developers are also encouraged to enhance existing green infrastructure where possible.

Policy EN 14 - Flood Risk – Development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding.

Policy EN 17 - Water Quality – development should avoid adverse impact on water quality, including during the construction phase, and minimise surface run-off.

Policy EN 19 - Waste – requires all developers to demonstrate the proposal's consistency with the principles of the waste hierarchy.

Policy DM 1 - Development Management – New development should have regard to the following specific issues:

- Appropriate siting, layout, scale, form, massing, materials and detail.
- Impact on the surrounding areas in terms of the design, scale and appearance of the proposed development.
- Development should have regard to the character of the surrounding area.
- Accessibility: buildings and neighbourhoods fully accessible to disabled people, access to new development by sustainable transport modes.
- Design for health.
- Refuse storage and collection.

2.1.6 GUIDE TO DEVELOPMENT IN MANCHESTER SUPPLEMENTARY PLANNING DOCUMENT (SPD) (2007)

This Guide to Development Supplementary Planning Document (SPD) (2007) provides guidance to develop and enhance environments within Manchester which are visually attractive, have a unique and positive sense of place and where properly caters for the functions which it accommodates, both now and in the future.

Chapter 4 of the SPD sets out Manchester City Council's expectations on the content of Environmental Standards Statements.

2.1.7 PLACES FOR EVERYONE

Until December 2020 a joint development plan document of the ten Greater Manchester local authorities was being prepared, known as the Greater Manchester Spatial Framework (GMSF).

However, progression of the GMSF ceased following the decision by Stockport Council to withdraw.

Instead, a joint committee formed by the nine other boroughs has been formed to prepare 'Places for Everyone' (PfE), a joint development plan for jobs, new homes and sustainable growth across these boroughs.

Places for Everyone: Publication Plan5 was published in July 2021, with a period for representations taking place between 9th August and 3rd October 2021. The Greater Manchester Combined Authority submitted the plan to the Secretary of State for examination on 14th February 2022.

PfE sets out a number of ambitious sustainability policies, accounting for climate mitigation and adaptation, social value, economic growth and the natural environment.

Policies include a requirement for new commercial development to achieve at least BREEAM 'Excellent' standard for the Ene 01 Reduction of Energy Use and Carbon emissions credit issue, rising to Outstanding' from 2038.

Development will be expected to adopt a net zero carbon approach to operational carbon up to 2028, and incorporate construction carbon from then onwards. However, the practicalities of this policy including carbon calculation method and offset payments have not been fully confirmed yet.

Development should also achieve a net gain in biodiversity of at least 10%. The policies within PfE are not considered further within this statement, due to its current stage of publication. However, the aspiration of Greater Manchester to become net zero carbon by 2038 is supported by the Applicants.

2.1.8 LOCAL PLAN ISSUES CONSULTATION

Manchester City Council Local Plan Issues Consultation (February 2020) explains how the new Local Plan will contribute to a zero carbon city by providing the spatial expression in support of the Council's intention to move towards a zero carbon Manchester by 2038 at the latest. The Issues Consultation covers a range of issues that will have a direct bearing on successfully meeting the zero carbon challenge by 2038.

2.1.9 MANCHESTER CLIMATE CHANGE FRAMEWORK 2020-25

The Manchester Climate Change Framework 2020-25 (February 2020) builds on the Draft Manchester Zero Carbon Framework 2020-38 (published February 2019) and Manchester City Council's declaration of a climate emergency in July 2019.

The Framework sets the following objectives to be met by 2025:

Objective 1: Staying within our carbon budgets – including reducing CO2 emission from our homes, workplaces and ground transport by at least 50% during 2020-25.

Objective 2: Climate adaptation and resilience – adapting the city's buildings, infrastructure and natural environment to the changing climate.

Objective 3: Health and wellbeing – improving the health and wellbeing of everyone in Manchester through actions that also contribute to our climate change mitigation and adaption objectives.

Objective 4: Inclusive, zero carbon and climate resilient economy – ensuring Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit.

2.1.10 VALIDATION REQUIREMENTS

Manchester City Council's Validation Checklist (2018) requires applications for major new development to be accompanied by an Environmental Standards Statement to address the sustainability of the development proposals and demonstrate a 20% carbon reduction.

2.2 PLANNING POLICY SUMMARY

There are several consistent themes across national and local sustainability policy which are relevant to the proposal:

- A minimum 15% reduction in CO2 emission beyond Building Regulations Part L 2010 is required through a combination of building envelope performance, energy efficiency and on-site zero / low carbon energy technology. This performance is equivalent to a circa 9% CO2 reduction on Part L 2013. The latest Part L 2021 targets also surpass this performance equivalent, therefore compliance only with Part L 2021 meets this target.
- Ensuring the development is resilient to a changing climate is a further key requirement at both national and local levels, particularly in relation to increased risk of floods and summertime overheating.
- A minimum BREEAM 'Very Good' rating is required given the proposals comprise commercial office development.
- It is clear from the declaration of climate emergency and ambitious target to achieve carbon neutrality by 2038, that the council and Greater Manchester expect new development to contribution to a carbon neutral future.

The following chapter details the approach proposed to address these policy requirements.

3 SUSTAINABILITY AND ENERGY STRATEGY

3.1 POLICY AND TARGETS

All new buildings constructed in the UK must meet the minimum requirements of the UK Building Regulations. Specifically, with regards to energy and carbon compliance, all buildings must meet the Building Regulations Part L 'Target Emission Rate' (TER) requirements for the Part L revision which is current at the time of initial construction works for each developmental phase.

The residential components of the Proposed Development will be assessed against Approved Document L1 (AD L1) which relates to new build residential buildings and all the non-residential components will be assessed against Approved Document L2 (AD L2) relating to new build non-residential buildings.

Additionally, the new Part O, requires new residential buildings to comply with a set of overheating requirements based on CIBSE TM59.

3.2 LOW CARBON STRATEGY

The purpose of energy assessment is to demonstrate that the proposed climate change mitigation measures comply with the local planning policies, including the energy hierarchy. It also ensures energy remains an integral part of the development's design and evolution.

This energy assessment clearly outline the applicant's commitments in terms of CO2 savings and measures proposed to reduce energy demand.

In line with planning application requirements, major developments are expected to be net zero-carbon by incorporating a series of measures outlined in the following energy hierarchy:

- Be lean: use less energy and manage demand during operation through fabric and servicing improvements and the incorporation of flexibility measures
- Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly by connecting to district heating networks
- Be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
- Be seen: monitor, verify and report on energy performance through the Mayor's post construction monitoring platform

3.2.1 ZONE 2 GREAT NORTHERN WAREHOUSE (PHASE A)

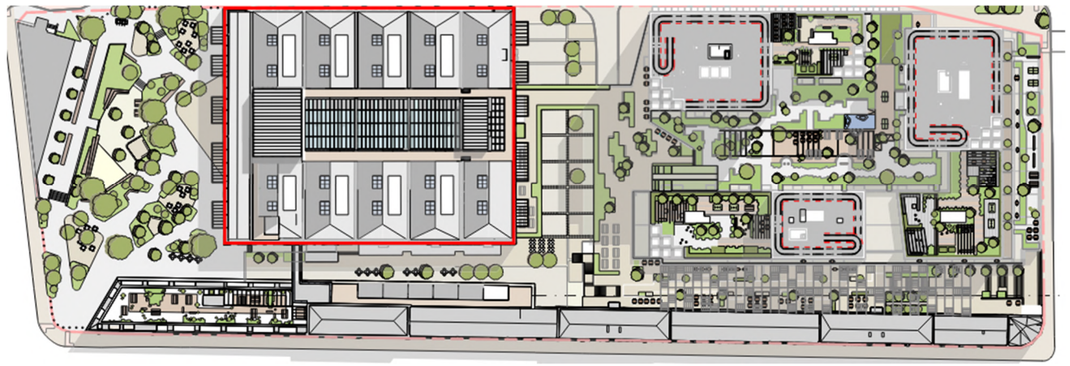
The Great Northern Warehouse building is Grade II* Listed and it is important to restore the Warehouse to its former glory by putting it back into 'splendid isolation' and removing modern alterations and additions to the listed building fabric.

This building is in a poor condition and will be brought back to life with the completion of the development. Many of the building's original features in this area have been covered up and concealed.

Though there is no evidence to suggest significant structural defect, repointing to brickwork and stonework repairs is required. Repair is also required to prevent further water ingress and damp penetration. Windows generally are in poor condition with some missing ironmongery and require replacement of glass and full refurbishment and redecoration. Openers have been sealed shut and hinges are not in working order. Overall condition of external elevations is generally good but the roof has been completely replaced with artificial slates; the latter of which show damage caused by access, vandalism and projectiles.

Proposals to the building, include; demolition of the car park ramps, atrium and other redundant structures constructed during the 1998 conversion of the site and sensitive refurbishment of the Great Northern Warehouse to provide new workspace uses at the upper levels, and to carefully repair and enhance the listed fabric.

Figure 3-1 – Overall Site Plan with the Great Northern Warehouse (Phase A) highlighted in red



BE LEAN: DEMAND REDUCTION

The 'Be Lean' section of the energy hierarchy focuses on energy reduction measures through passive means.

The Warehouse is currently in extremely poor condition. The current use for this building at the levels above the existing retail and casino spaces is as a multi-story car park that is not currently watertight or thermally sealed sufficiently.

This development will seek to significantly improve the fabric of the building through upgrades to glazing and thermal efficiency at roof level. However, it is not possible to upgrade the current wall or glazing u value due to the listed nature of this building as options such as internal dry lining or external cladding would significantly impact the building and be unacceptable from a heritage perspective.

Options explored for the treatment of the masonry walls include; lining and insulation the walls internally would create a significant improvement in the building's overall fabric performance. However, it was considered that this would be detrimental to the character of the listed building. Therefore, the proposed treatment of the masonry walls is to leave them exposed internally.

However, interventions will be made to reduce the energy use through passive means wherever possible.The options explored for refurbishment of the existing windows. Re-glazing the windows with single glazing (as they would have been originally) was discounted, as this would have the lowest thermal performance, and introduce safety issues in the event of breakage. The replacement of window frames with modern replicas was also discounted, despite the fact that this would potentially offer the best thermal performance, as this would also have the most harmful impact to the characterof the listed building. The proposed option comprises the re-glazing of the windows with either vacuum glazing or a slimline DGU (subject to further mock-up and testing), which is considered to provide the optimum performance improvement, whilst respecting the historic character of the original windows

GREAT NORTHERN WAREHOUSE BUILDING FABRIC

The table below sets out the proposed planned performance for the fabric of the Great Northern Warehouse:

Table 3-1 - Building fabric Great Northern Warehouse

FABRIC ASSUMPTIONS	U VALUES LIMIT	CURRENT PLANNED PERFORMANCE
Exposed Floor U-value (w/m2K)	Listed building element	1.60
Roof U-value (w/m2K)	Listed building element	0.16
Wall U-value (w/m2K)	Listed building element	1.40
Glazing U-value (w/m2K)	Listed building element	2.90 (TM54 analysis is based on a U value of 1.6W/m^{2}K)
Glazing g-value	Listed building element	0.3 (TM54 analysis is based on a U value of 0.57)
Rooflight U-value (w/m2K)	Listed building element	2.20
Rooflight g-value	Listed building element	0.3
Air permeability	Listed building element	30.0 m^3/hr.m^2@50pa

GREAT NORTHERN WAREHOUSE BUILDING SERVICES

An energy efficient HVAC system is proposed to allow the project to meet the low energy targets agreed.

The proposed HVAC strategy can be summarised as follows:

- The proposed conversation of office will be provided with new mechanical ventilation via a Under Floor Air Distribution System (UFAD) and new central roof mounted Air Handling Units (AHUs);
- The UFAD system also provides the heating and cooling to the offices. This solution consists of a series of floor mounted heating/ cooling downflow units located on the floor which blow cooled (or heated) air into the raised floor plenum. Outside air is introduced into the system via a plenum at the top of each downflow unit where it is mixed with recirculated air from the space prior to being drawn through the unit and supplied into the floor void. Air is introduced locally to the occupied zone via “fan-tiles” which are selected to operate at 30% of their nominal airflow to avoid discomfort owing to air movement. Optionally, each fan tile can incorporate a small electric heater (electronically controlled) for user adjustment of supply air temperature;
- Proposed toilet areas are provided with new dedicated high efficient extract fans routing to roof level;
- A new “energy centre” is provided at roof level consisting of a series of high efficient electric Air Source Heat Pumps (ASHPs) that provide the heating & cooling load to serve the full office elements as well as the existing and new proposed retail units, including the casino;
- High efficient LED lighting is proposed throughout landlord areas.

Performance Specification

The table below lists the general design rationale and proposed specification for the MEP building services:

Table 3-2 - Proposed energy conservation measures

ELEMENT	DESIGN RATIONALE
Air Handling Plant	Ventilation is proposed to be through centralised AHUs (Air handling unit) supply and extract ventilation system with local UFAD fan tiles. The local units will achieve a specific fan power (SFP) of 0.25W/l/s or lower and the central unit will have a fan power of 1.3 W/l/s.
Space Heating	Space heating will be served by a UFAD system. The seasonal Coefficient of Performance (SCOP) of the central ASHP that feeds this system at roof will be 3.86 or higher.
Domestic Hot Water	DHW shall be produced by direct or storage electric heater with a seasonal efficiency of 1.
Cooling Plant	Cooling will be provided from the UFAD system. The central ASHP that feeds this system at roof will have a minimum Seasonal energy efficiency ratio (SEER) of 5.00.
Lighting Technology	Detailed lighting proposals will be developed during the subsequent design phases. High efficiency lighting will be provided throughout to significantly exceed the minimum requirements of the Non-Domestic Building Services Compliance Guide. This includes the use of high efficiency fluorescent and/or LED luminaries throughout currently assumed with an efficiency of 4 w/m2. Lighting has been assumed with automatic on-off controls in offices/ reception/ toilets and lifts and stores are assumed to have lighting controls manual on- auto off.

The measures above set out the first steps taken to reduce the energy reduction of Great Northern Warehouse through passive means.

BE CLEAN: SUPPLY ENERGY EFFICIENTLY

After consumption has been reduced through the application of energy efficiency measures, the next step is to consider heating infrastructure.

It is not proposed to connect to the existing Manchester Civic Quarter Heat Network (CQHN) as it would be less energy efficient than providing heating/ cooling through renewable means on site.

The Manchester Civic Quarter Heat Network (CQHN) is a £20million energy centre located in the heart of the city. Its aim is to provide a heat and power system to several iconic buildings in and around the city of Manchester.

The new network consists of a 2km district heating network and an energy centre containing a 3.3MWe CHP engine and two 12MW gas boilers that generate energy for landmarks including Manchester Town Hall and Town Hall Extension, Central Library, Manchester Central Convention Centre, The Bridgewater Hall, Heron House, and the Manchester Art Gallery.

Figure 3-2 - Manchester District Heating Route Map



SUSTAINABILITY

The existing CQHN is currently gas powered.

Given the decarbonisation of grid electricity, the use of mains gas for provision of heating is becoming less favourable from a sustainability perspective, as well as for air quality. Furthermore, as the grid decarbonises and electricity is utilised for heat generation the relative impact of in-use energy consumption upon whole life carbon decreases.

As the construction of heat networks is a carbon intensive process, it is not favourable from a whole life carbon perspective as well as an energy use perspective to utilise such an approach.

Decentralised solutions with the decreased infrastructure requirement and lower embodied carbon may be more environmentally sound.

Ongoing discussions with Manchester City Council regarding the future ambitions of the network are underway and the viability of connecting into the district heating network will be further investigated during later design stages.

However, at this stage it is not proposed to connect to the network until the operators can advise on the systems transition to more renewable energy generation that would reduce the carbon more than that of the current proposed systems.

The image below shows how the warehouse's ASHP ambient loop network could be connected to a District Heat Network.

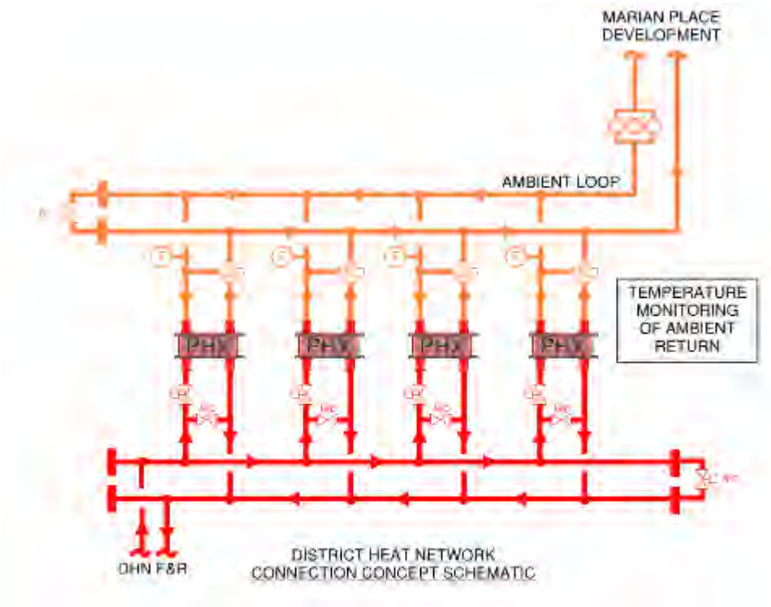


Figure 3-3 - Typical DHN Concept Schematic

BE GREEN: USE RENEWABLE ENERGY

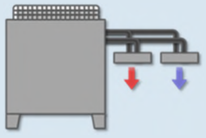
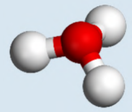
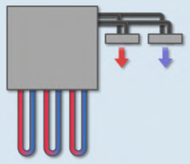
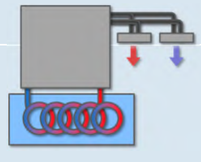
Renewable energy technologies can provide a source of energy on-site that is not primarily based on the consumption of fossil fuels or grid electricity and/ or utilise a heat source that is renewable such as Air Source Heat Pumps (ASHP) and solar photovoltaic (PV) systems.

In this section an evaluation of a number of renewable energy technologies has been undertaken below and outlines how they may be applied to the proposed development. This section also shows the carbon/ energy usage of the building and how the renewable technologies help in reducing the building's operational energy.

GREAT NORTHERN WAREHOUSE RENEWABLE TECHNOLOGIES

Table 3-3 sets out the feasibility for the renewable technologies and indicates which technologies are applicable for the Great Northern Warehouse.

Table 3-3 - Renewable Energy Feasibility

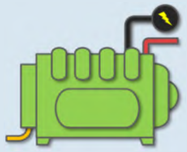
TECHNOLOGY	PROS, CONS & FEASIBILITY
AIR SOURCE HEAT PUMPS (ASHPs)	This technology uses electricity and is commonly installed in a range of development types to provide low-energy heating and cooling.
	ASHPs are capable of providing heating and/ or cooling utilising heat from outside air. The use of ASHPs are an effective Low and Zero Carbon (LZC) technology as they have high efficiencies for both heating and cooling. With the decarbonising grid due to an increase in renewable energy generation and a reduction in coal and gas power generation, the operational impact of electrically led systems is reduced. Therefore, the benefit of heat pump technologies will improve through the lifetime of the Proposed Development.
	Suitability to proposed development: Incorporating an ASHP solution for the development is an energy and carbon efficient solution that provides heating, cooling and hot water to the building, has a neutral impact on local air quality and is a long-term low carbon solution for the development.
HYDROGEN	Hydrogen is a fuel which when consumed in a fuel cell, produces only water.
	▪ Hydrogen is considered a clean fuel. When hydrogen is consumed within a fuel cell the only waste product is water. Hydrogen can be produced from a variety of domestic resources, such as natural gas, nuclear power, biomass and renewables (solar and wind). However, most hydrogen is produced using coal or natural gas. Coal and Natural gas both emit harmful by – products into the atmosphere so whilst hydrogen itself is favourable the processes used to produce the chemical element have a high environmental footprint.
	Suitability to proposed development: The use of hydrogen is not feasible for this development as when considering its whole lifecycle it would have a greater carbon impact and be less efficient than providing heating/ cooling through other means.
GROUND SOURCE HEAT PUMP (GSHP)	Similar to air source heat pumps this technology uses electricity to provide heating and or cooling for buildings. As the name suggests ground source heat pumps use the ground as the heat source as opposed to outside air.
	▪ Ground source heating and/or cooling may be incorporated to make use of the thermal storage and ground temperature to provide heating and/or cooling to a building. Ground source heating is an effective renewable energy source when used to provide space heating via low grade heating systems such as underfloor heating. The space required for installation of underground pipework in the form of or horizontally does not make GSHPs suitable for constrained sites.
	Suitability to proposed development: The use of a GSHP is not considered due to the high costs and potential problems of installing pipework deep underground in this city centre location.
WATER SOURCE HEAT PUMP	Similar to air source and ground source heat pumps, this technology uses electricity to provide heating and or cooling for buildings. Water source heat pumps use a body of water (a river for example) as the heat exchanger as opposed to the air or ground.
	WSHPs have a significantly higher coefficient of performance (COP) than ASHPs due to the higher temperature of the heat source which is relatively constant throughout the year. Low flow temperatures from the WSHPs further reduce the energy consumption and carbon emissions. WSHPs are powered by grid supplied electricity. As mentioned in the ASHP section above, the National Grid is increasingly decarbonising due to an

FEASIBLE
FURTHER INVESTIGATION REQUIRED
UNFEASIBLE

increase in renewable energy generation and a reduction in coal power generation. This leads to a long-term low carbon solution for the Proposed Development.

Suitability to proposed development: The water source heat pump is not considered for this development as there is no suitable body of water close to the site.

COMBINED HEAT AND POWER (CHP)



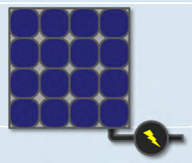
A device which uses an engine to generate electricity and heat simultaneously, contributing towards the development's heating and power demands

- CHP's capture and utilise the heat that is a by-product of the electricity generation process. By generating heat and power a CHP could help to reduce carbon emissions compare to the separate means of conventional generation via a boiler and power station. However, the grid is undergoing decarbonisation at a rapid rate therefore the use of a CHP is significantly less efficient.

Suitability to proposed development: The use of CHP is not favoured due to the air quality issues and reduced carbon effectiveness as a result of grid decarbonisation. Therefore, it is not considered for the development

PHOTOVOLTAICS

Panels or sheets that can generate electricity directly from sunlight, which can be installed on the roofs or facades of buildings, or as a standalone 'array'.

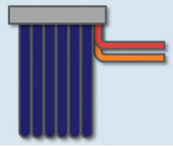


Photovoltaics (PV) are arguably the most practical solution for onsite renewable generation in an urban environment. To maximise their effectiveness they do require roof space at a suitable orientation which is not overshadowed.

Suitability to proposed development: An area on the roof has been identified which currently provides ideal conditions for the installation of roof mounted PV panels on the roof of the Great Northern Warehouse and Deansgate terraces north. The installation of PV is actively promoted by the council and will benefit the scheme; therefore, the installation of roof mounted PV is feasible and considered for the development.

SOLAR WATER HEATING

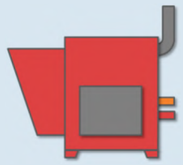
Collectors which generate heat directly from sunlight and can be installed on the roof of buildings to make a contribution towards the domestic hot water demand



Solar thermal hot water (STHW) generation involves capturing solar radiant heat to preheat or heat domestic hot water. Correctly located and orientated, solar thermal systems can meet a proportion of a building's domestic hot water dependent on the expected demand profile and available space for locating STHW panels.

Suitability to proposed development: The majority of roof space will be used for roof mounted PV panels. The limited roof space available on the Proposed Development after the inclusion of those is insufficient to provide any meaningful contribution to the development's heating requirements from solar. This can be investigated further to determine its impact.

BIOMASS BOILER



A type of boiler which typically uses wood chips, pellets or logs to heat water for space heating and domestic hot water, although other sources of biomass can be used

Biomass heating has embodied environmental impacts from transport and fuel combustion which makes it less desirable in Air Quality Management Areas (AQMAs).

Further to this, solid biomass relies on a reliable fuel supply which must be delivered and stored on site. The application Site therefore requires good access routes and space for fuel storage and plant, which could not feasibly be incorporated within the proposed scheme. It also has relatively high maintenance requirements and fuel costs.

Suitability to proposed development: There is a range of issues including high maintenance, large flue and space requirements for both the biomass boiler and the fuel.

WIND POWER

Wind turbines convert the winds' Kinetic energy into Mechanical power/ electricity.



Harnessing the kinetic energy of wind can provide a renewable source of onsite electricity generation. Wind turbines need to be positioned where a frequent and steady source of wind is available that is not too turbulent or uneven in direction. Typically, wind turbines are positioned on the roof of buildings that are significantly higher than their surroundings and or located in open areas where there is minimum disruption to prevailing winds.

Suitability to proposed development:: The proposed development is located within an urban environment with near-by buildings providing turbulent wind conditions unsuitable for wind power generation. In addition, it is not considered appropriate in townscape, architectural and

aviation safeguarding terms to provide wind turbines on top of buildings. On that basis they are not proposed for the Proposed Development.

The following renewable technologies have been deemed relevant for the Great Northern Warehouse building:

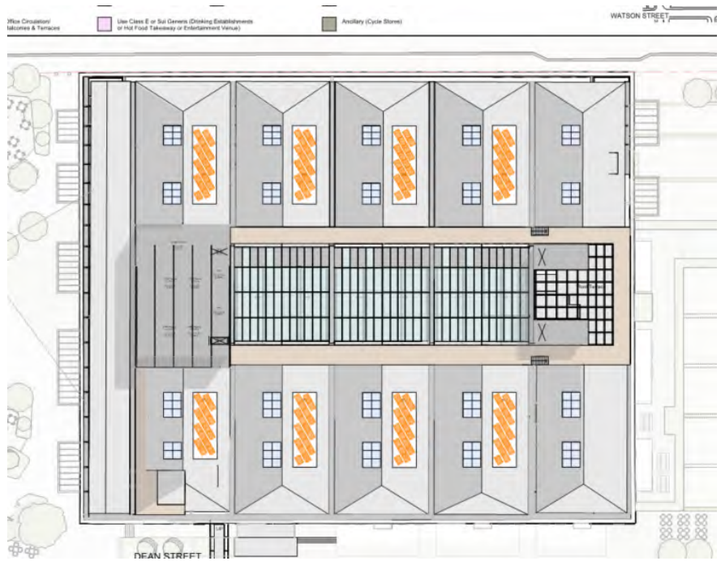
- Air Source Heat Pump (ASHP)
- Photovoltaic panels

The following table and figure sets out the parameters for the PV considered on the roof of the warehouse:

Table 3-4 – PV parameters Warehouse

PV PARAMETER	VALUE
Area of PV	236 m^2
Orientation of PV from north	180 degrees
Inclination of PV	0 degrees
Shading factor	1
Module nominal efficiency	20%
Output requirement (Warehouse)	36,500kwh/annum
Electrical Conversion Efficiency	0.96

Figure 3-4 - Image showing PV locations on the roof of the Warehouse



GREAT NORTHERN WAREHOUSE OPERATIONAL ENERGY

CIBSE TM54 methodology has been used to calculate the Energy Use Intensity for the Great Northern Warehouse area of the Great Northern development as it is proposed in this planning application.

The calculated TM54 operational energy figures are detailed in the form of Energy Use Intensity in kWh/yr. The assessment shows an overall annual energy consumption in the region of 2,713 MWh/year. The highest energy consumption is reported for the servers which accounts for approximately 33% of all the energy demand. The second highest demands come from equipment energy as well as fans and pumps energy. Both categories each account for approximately 20% of the total energy demand. Results are reported in the table below.

Table 3-5 – Energy Use Breakdown

ENERGY USE	ELECTRICITY (KWH)	ELECTRICITY (KWH/M^2)
Lighting	202,321	12
Lifts	14,977	1
Small power	538,114	31
Server Rooms (kWh)	897,987	52
PV Generation (kWh)	-36,470	-2
Domestic hot water	125,836	7

Space heating	407,231	24
Space cooling	14,031	1
Fans and pumps	549,141	32
Total	**2,713,168 kWh**	**158 kWh/m²**

GREAT NORTHERN WAREHOUSE CONSEQUENTIAL IMPROVEMENTS

As the Great Northern Warehouse is a Graded II* Listed building being refurbished, it falls under Approved Document Part L requirement for consequential improvements. Therefore, the building shall take measures to meet the requirements of Part L, where this is practical and technically, functionally and economically feasible.

The intended interventions are listed below and will be confirmed at a later stage of design:

- Upgrading heating systems that are more than 15 years old by providing new plant or improved controls;
- Upgrading cooling systems that are more than 15 years old by providing new plant or improved controls;
- Upgrading air-handling systems that are more than 15 years old by providing new plant or improved controls;
- Upgrading general lighting systems that have an average lamp efficacy of less than 60 light source lumens per circuit-watt and that serve areas greater than 100m2 by providing new luminaires and/or controls;
- Installing energy metering following the guidance given in CIBSE's TM39;
- Installing energy metering following the guidance given in CIBSE's TM39;
- Replacing existing windows, roof windows or rooflights (but excluding display windows) or doors (but excluding high-usage entrance doors) that have a U-value higher than the following:
  - For windows, roof windows and doors – 3.30W/ (m2 ·K);
  - For rooflights – 3.80W/ (m2 ·K).

ZONE 3A AND 3B DEANSGATE TERRACE (PHASE A & C)

The terraces will be restored, extended, and rejuvenated. Deansgate terraces are the longest listed terrace in Europe and the development intends to celebrate this historic listed structure, extending sections onto a newly created Dean Street adjacent to the Warehouse and to the northern edge.

Similar to the Great Northern Warehouse, there is no evidence to suggest significant structural defect, repointing to brickwork and stonework repairs is required. Where stones have fractured or shown large losses, they will need to be replaced in a new stone to match the original as near as possible.

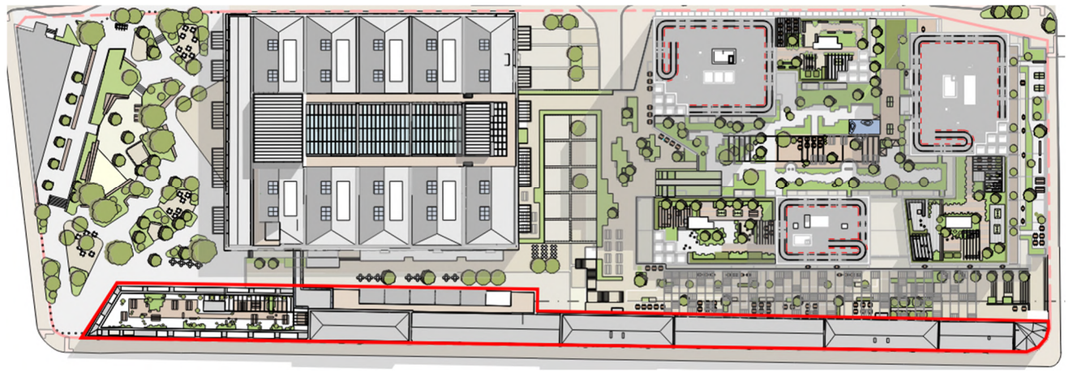
Repair is also required to prevent further water ingress and damp penetration. Overall condition of external elevations is generally good but roof repairs are required, particularly to slipped, displaced and broken tiles, at parapet interfaces, and to mortar joints to ridge tiles, although full roof covering replacement recommended.

Proposals to the terraces include:

Deansgate Terrace North: Demolition of the existing non-original structures added in the 1990's conversion. Part new build, part refurbishment of existing space to create new office studios space within the upper three levels, with part existing and part new build commercial retail space at ground floor with active frontages to Deansgate and Dean Street. Fabric repairs and refurbishment as recommended within conditions surveys.

Deansgate Terrace South: Light refurbishment of existing internal spaces to provide flexible commercial spaces within upper levels, in addition to community space and ground and first floor commercial retail spaces with active frontages to Deansgate and to Deansgate Mews. Fabric repairs and refurbishment as recommended within conditions surveys.

Figure 3-5 **– Overall Site Plan with the Deansgate Terraces highlighted in red**



BE LEAN: DEMAND REDUCTION

Deansgate Terrace Northern end is predominantly new build; however, it does include elements of Grade II Listed in two separate parts, No's 223-233, and No's 235-291. During design development, significant consideration has been given to how the building fabric will respond to its environment in order that the energy consumption of the building is reduced as far as possible through passive means.

The building fabric of the proposed development is optimised to reduce heat loss in winter months and minimise heat gains in summer months. This will reduce the energy required to heat and cool the proposed development.

Deansgate Terrace Southern end will undergo refurbishment only.

DEANSGATE TERRACE NORTH BUILDING FABRIC

All new building fabric will be designed to exceed the limiting fabric requirements of Part L (2021) of the Building Regulations as applicable. It should be noted that it is not possible to upgrade the existing wall U value on the Deansgate Elevation due to the listed nature of this building and retention of heritage elements.

Table 3-6 sets out the U values used within zone 3A of the proposed development:

Table 3-6 - Building Fabric Zone 3A

FABRIC ASSUMPTIONS	U VALUES LIMIT	CURRENT PLANNED PERFORMANCE
Exposed Floor U-value (W/m²K)	0.18	0.15
Roof U-value (W/m²K)	0.18	0.15
Wall new build U-value (W/m²K)	0.26	0.2
Wall existing U value (W/m²K)	0.26	1.4*
New Glazing U-value (W/m²K)	1.6	1.4
New Glazing g-value	0.28	0.4
New Rooflight U-value (W/m²K)	2.2	1.7
New Rooflight g-value		0.4

***VALUE** exceeds the limiting U value for the existing wall within the thermal modelling software as this is a listed building element.

DEANSGATE TERRACE SOUTH BUILDING FABRIC

As this building is listed there may not be much opportunity to improve the building fabric.

Table 3-7 - Building Fabric Zone 3B

FABRIC ASSUMPTIONS	U VALUES LIMIT	CURRENT PLANNED PERFORMANCE
Existing Exposed Floor U-value (w/m2K)	Listed building element	-
Existing Roof U-value(w/m2K)	Listed building element	-
Existing Wall U-value (w/m2K)	Listed building element	1.4
Existing Glazing U-value (restored) (w/m2K)	Listed building element	2.0
Existing Glazing g-value	Listed building element	-
Air permeability	Listed building element	10 $m^3/hr.m^2$@50pa

DEANSGATE TERRACE NORTH BUILDING SERVICES

Within the offices the following HVAC systems are proposed:

- All new office space shall be ventilated either by natural ventilation or mechanical ventilation with heat recovery, with the intention to use as much natural ventilation as possible, subject to window condition and room depth and dedicated mechanical extract to WCs and kitchenettes;
- The offices that are provided with mechanical ventilation will be provided with heating and cooling provision via VRF units which will be situated within a central roof plant compound. The VRF circuits will enable efficient simultaneous heating and cooling across the Terraces. The heating/ coolth will be delivered via the air using ceiling mounted FCUs;
- Electric heating panels to back of house areas, WCs and naturally ventilated office spaces;
- New point of use electric hot water generation to toilets and kitchenettes.

Performance Specification

The general design rationale and proposed specification for the MEP building services is set out in the table below:.

Table 3-8 - Proposed energy conservation measures

ELEMENT	DESIGN RATIONALE
Air Handling Plant	Ventilation is proposed to be through a dedicated supply and extract ventilation system. Outdoor intake and exhaust louvers will be formed at high level on the rear façade. The local units will achieve a specific fan power (SFP) of 0.8W/l/s or lower.
Energy Recovery	Where appropriate, MVHR systems will incorporate heat recovery systems. These transfer waste heat from the exhaust air stream to the supply air stream via a run around coil. The MVHR's will incorporate thermal wheels with a minimum heat recovery efficiency of 79%.
Space Heating	Space heating will be served by an ambient loop with an ASHP as the primary heat generator. The combined seasonal Coefficient of Performance (SCOP) of the ASHP will be 3.86 or higher.
Domestic Hot Water	DHW shall be produced by direct or storage electric heater with a seasonal efficiency of 1
Cooling Plant	Cooling will be provided from the ASHP with a minimum Seasonal energy efficiency ratio (SEER) of 5.00
Lighting Technology	Detailed lighting proposals will be developed during the subsequent design phases. High efficiency lighting will be provided throughout to significantly exceed the minimum requirements of the Non-Domestic Building Services Compliance Guide. This includes the use of high efficiency fluorescent and/or LED luminaries throughout currently assumed with an efficiency of 110lum/watt. Lighting has been assumed with automatic on-off controls in offices/ reception/ toilets and lifts and stores are assumed to have lighting controls manual on- auto off.
Display Lighting	Display lighting can be a significant source of energy consumption in reception areas. High efficiency display lighting will be specified throughout to reduce the carbon emissions and cooling loads associated with display lighting provision. This will exceed Part L limiting values and the limits within the Part L notional building calculation. Display lighting lamp efficacy to target 110lm/W.

The measures above set out the first steps taken to reduce the energy reduction of Zone 3A of the Deansgate terraces through passive means.

DEANSGATE TERRACE SOUTH BUILDING SERVICES

Within the offices areas the following HVAC systems are proposed, this is predominantly a strip out and replace of the existing end of life services:

- All new office space shall be ventilated by natural ventilation with dedicated mechanical extract to WCs and kitchenettes only;
- Electric heating panels to all back of house areas, WCs and office spaces;
- New point of use electric hot water generation to toilets and kitchenettes.

BE CLEAN: SUPPLY ENERGY EFFICIENTLY

After consumption has been reduced through the application of energy efficiency measures, the next step is to consider heating infrastructure.

It is not planned to connect to the current Manchester Civic Quarter Heat Network (CQHN) as discussed in previous sections.

BE GREEN: USE RENEWABLE ENERGY

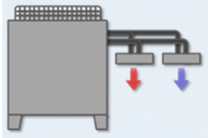
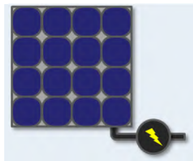
Renewable energy technologies can provide a source of energy on-site that is not primarily based on the consumption of fossil fuels or grid electricity and/or utilises a heat source that is renewable such as air source and solar photovoltaic systems.

No renewable technologies are proposed for use on Deansgate Terrace South as this is a listed building that will have limited interventions, with more suitable opportunities elsewhere within the development to incorporate renewable technologies.

3.2.2 DEANSGATE TERRACE NORTH RENEWABLE TECHNOLOGIES

An evaluation of a number of renewable energy technologies has been undertaken in section 0. Table 3-9 sets out the renewable technologies proposed for the Deansgate Terrace Zone 3A of the development.

Table 3-9 - Renewable Technology Feasibility

TECHNOLOGY	PROS, CONS & FEASIBILITY
AIR SOURCE HEAT PUMPS (ASHPs) 	This technology uses electricity and is commonly installed in a range of development types to provide low-energy heating and cooling. ASHPs are capable of providing heating and/or cooling utilising air temperatures. The use of ASHPs are an effective Low and Zero Carbon (LZC) technology as they have high efficiencies for both heating and cooling. With the decarbonising grid due to an increase in renewable energy generation and a reduction in coal power generation, the operational impact of electrically led systems is reduced. Therefore, the benefit of heat pump technologies will improve through the lifetime of the Proposed Development. **Suitability to proposed development:** Incorporating an ASHP solution for the development of Deansgate Terrace North is an energy and carbon efficient technology that provides heating, cooling and hot water to the building, has a neutral impact on local air quality and is a long-term low carbon solution for the development.
PHOTOVOLTAICS 	Panels or sheets that can generate electricity directly from sunlight, which can be installed on the roofs or facades of buildings, or as a standalone ‘array’. Photovoltaics (PV) are arguably the most practical solution for onsite renewable generation in an urban environment. To maximise their effectiveness they do require roof space at a suitable orientation which is not overshadowed. **Suitability to proposed development:** An area on the roof of Deansgate terraces North has been identified which currently provides ideal conditions for the installation of roof mounted PV panels on the roof of the Great Northern Warehouse and Deansgate terraces north. The installation of PV is actively promoted by the council and will benefit the scheme; therefore, the installation of roof mounted PV is feasible and considered for the development.

FEASIBLE

FURTHER INVESTIGATION REQUIRED

UNFEASIBLE

The following renewable technologies have been deemed relevant for Deansgate Terraces North, new build element:

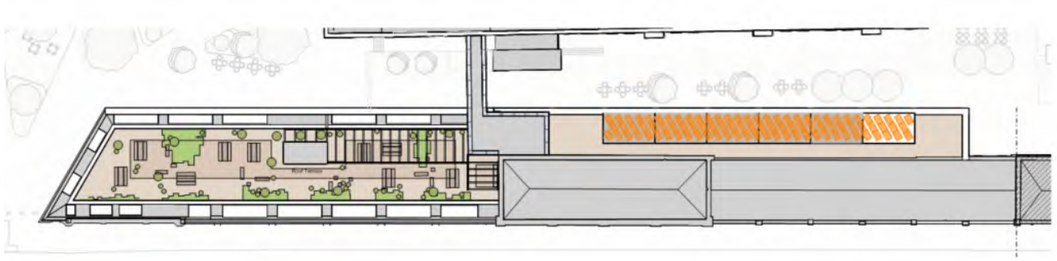
- Air Source Heat Pump (ASHP)
- Photovoltaic panels

The following table and image sets out the parameters for the PV considered on the roof of the Terrace Zone 3A:

Table 3-10 – PV parameters Terraces

PV parameter	Value
Area of PV	172m2
Orientation of PV from north	180 degrees
Inclination of PV	35 degrees
Shading factor (Terraces and Warehouse	1
Module nominal efficiency (Terraces)	21%
Output requirement (Terraces)	31,990kwh/annum
Electrical Conversion Efficiency	0.98

Figure 3-6 - Image showing PV locations of the roof of the Terraces



DEANSGATE TERRACES NORTH CARBON EMISSIONS (ZONE 3A/ PHASE A)

All developments must meet the prevailing Building Regulations requirements. Specifically, with regards to energy and carbon compliance, all buildings must meet the Building Regulations Part L 'Target Emission Rate' (TER) requirements for the Part L revision, which is current at the time of initial construction works for each developmental phase

The Deansgate Terrace North is the new build area of the terraces and therefore is the only part of the terraces that requires a compliance check. This section has been modelled using the approved software IES (Integrated Environmental solutions) 2022 in order to generate a BRUKL.

This BRUKL demonstrates the compliance with Part L of the building regulations and is contained within appendix A.

Results are summarised below and visualised below:

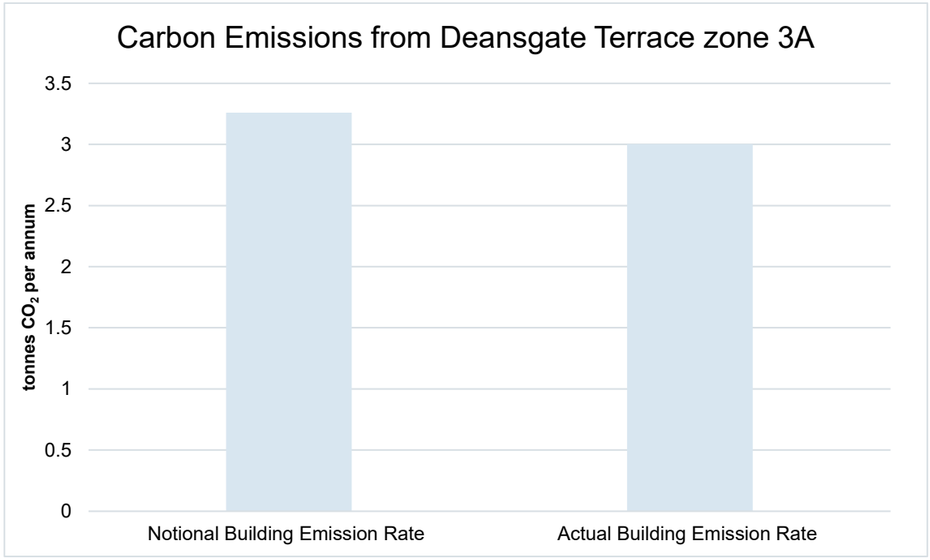
Table 3-11 - Be Green: Carbon emissions after providing renewable energy

	Carbon Dioxide Emissions for non-domestic buildings (tonnesCO_2 per annum)		% Reduction in regulated carbon emissions
	Building emission rate	Notional Building emission rate	
Compliance results	**3.02**	**3.26**	**7%**

A 7% reduction in emissions demonstrates compliance with building regulations and Manchester Planning policy at this stage.

These results are based upon the inputs shown in section 4. If these inputs require modification, the BRUKL will require reproducing.

Figure 3-7 - Carbon emissions from Deansgate Terrace Zone 3A



DEANSGATE TERRACE SOUTH CONSEQUENTIAL IMPROVEMENTS (ZONE 3B/ PHASE C)

As this is a listed building that is being refurbished, Zone 3B area of the Terrace falls under Approved Document Part L requirement for consequential improvements. Therefore, the building shall take measures to meet the requirements of Part L, where this is practical and technically, functionally, and economically feasible.

The intended interventions are listed below and will be confirmed at a later stage of design:

- Upgrading heating systems that are more than 15 years old by providing new plant or improved controls;
- Upgrading cooling systems that are more than 15 years old by providing new plant or improved controls;
- Upgrading air-handling systems that are more than 15 years old by providing new plant or improved controls;
- Upgrading general lighting systems that have an average lamp efficacy of less than 60 light source lumens per circuit-watt and that serve areas greater than 100m2 by providing new luminaires and/or controls;
- Installing energy metering following the guidance given in CIBSE's TM39;
- Installing energy metering following the guidance given in CIBSE's TM39;
- Replacing existing windows, roof windows or rooflights (but excluding display windows) or doors (but excluding high-usage entrance doors) that have a U-value higher than the following:
  - For windows, roof windows and doors – 3.30W/ (m2 ·K);
  - For rooflights – 3.80W/ (m2 ·K).

3.2.3 ZONE 4 LEISUREBOX (PHASE B):

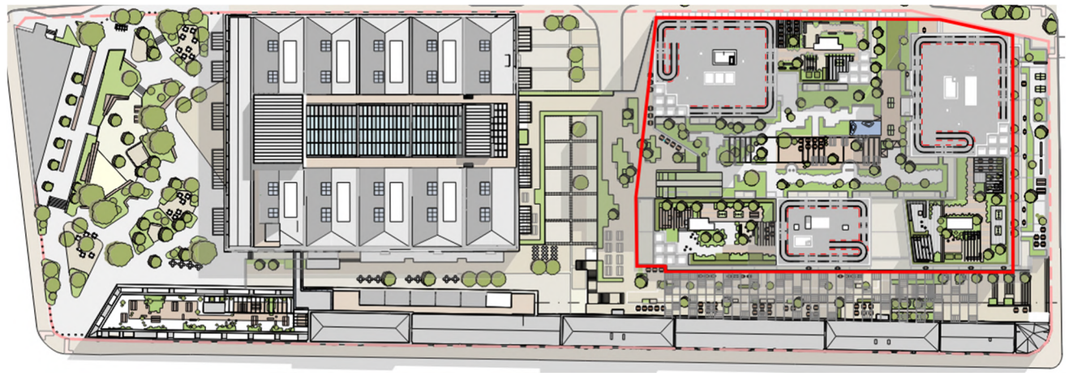
The plan for the Leisurebox is demolition of the upper section of the Leisurebox building, retaining and re-using the car park structure below, and the construction of new retail and residential uses above to provide 746 new homes within three buildings, designed to compliment the setting of the listed buildings and to respond to issues of microclimate and privacy/ amenity to nearby residential buildings.

Proposals include:

- Residents' Podium - A generous shared flexible and comfortable amenity space for the residential community. A space to dwell, to meet and relax. This space will promote a sense of shared ownership, and contribute to a livable, healthy residential neighbourhood.
- Residents' Terraces - High quality, tactile sheltered shared roof terraces providing far-reaching panoramas of the city.

These spaces will foster a sense of community and delight within each individual building.

Figure 3-8 - Leisurebox area



BE LEAN: DEMAND REDUCTION

The first step to achieving Building Regulations compliance and compliance with the targets outlined previously is to reduce energy demand. The measures associated with reducing demand can be termed as 'Energy Efficiency Measures'.

During design development, significant consideration has been given to how the building fabric will respond to its environment in order that the energy consumption of the building is reduced as far as possible through passive means.

The building fabric of the proposed development is optimised to reduce heat loss in winter months and minimise heat gains in summer months. This will reduce the energy required to heat and cool the proposed development.

The building fabric will be designed to exceed the limiting fabric requirements of Part L (2021) of the Building Regulations as applicable.

LEISUREBOX BUILDING FABRIC

The Leisurebox residential area is newbuild so there is scope to reduce the energy consumption as far as possible through passive means.

Table 3-12 - Building Fabric for zone 4

FABRIC ASSUMPTIONS	U VALUES LIMIT	CURRENT PLANNED PERFORMANCE
Exposed Floor U-value (w/m2K)	0.18	0.13
Roof U-value (w/m2K)	0.16	0.11
Wall U-value (w/m2K)	0.26	0.17*
Balcony Walls (w/m2K)	0.26	0.26
Balcony door – glazed (w/m2K)	1.6	1.50
Balcony door g value		0.40
Glazing U-value (all glazing areas excluding purge vents) (w/m2K)	1.6	1.50
Glazing g-value		0.40
Air permeability	8	5

*This value is inclusive of repeating thermal bridging (precast brackets), however it does not include non-repeating thermal bridging (psi-values), such as window lintel/jamb/sill, party floor, balcony and so on. Default psi-values have been assumed for thermal bridging.

LEISUREBOX BUILDING SERVICES

The proposed HVAC strategy can be summarised as follows within the residential apartments within the Zone 4:

- Each apartment will be provided with a Mechanical Ventilation Heat Recovery (MVHR) unit. This will be in the utility cupboard within each apartment and ducted at ceiling void level. All the apartments have rapid vent openings that will satisfy the Building Regulations to purge ventilate the apartments;
- The apartment heating will be provided by electric panel heaters. All heaters will be complete with 7-day timers and temperature control and fed from the consumer unit located within the utility cupboard.

Within the residential bathrooms, electric towel radiators shall be provided and fitted with temperature control complete with a 7-day timer.

- Domestic hot water shall be generated within each residential apartment via dedicated un-vented electric hot water heaters. Any common residential areas shall be provided with local electric hot water heaters.

BE CLEAN: SUPPLY ENERGY EFFICIENTLY

After consumption has been reduced through the application of energy efficiency measures, the next step is to consider heating infrastructure.

It is not planned to connect to the current Manchester Civic Quarter Heat Network (CQHN) as discussed in previous sections.

BE GREEN: USE RENEWABLE ENERGY

No renewable technologies have been proposed within the Leisurebox area as more suitable opportunities are available elsewhere within the proposed development and a significant reduction in operational carbon has been achieved through passive design measures.

There is also limited roof space for PV provision and the introduction of ASHPs for heating/ DHW provision for the residential units is not considered economically viable.

Electricity is decarbonising at a rapid rate as shown via the carbon factors since 2013 within the table below. Electric heaters are proposed for the Leisurebox and due to the reductions in carbon factors, electric heating is now the favourable option for new residential developments.

Table 3-13 - SAP carbon factors

FUEL TYPE	PART L 2013 ($KG.CO_2/KWH$)	SAP10.0 ($KG.CO_2/KWH$)	SAP10.2 ($KG.CO_2/KWH$)
Grid Supplied Electricity	0.519	0.233	0.136
Natural Gas	0.216	0.210	0.210

RESULTS: LEISUREBOX CARBON EMISSIONS

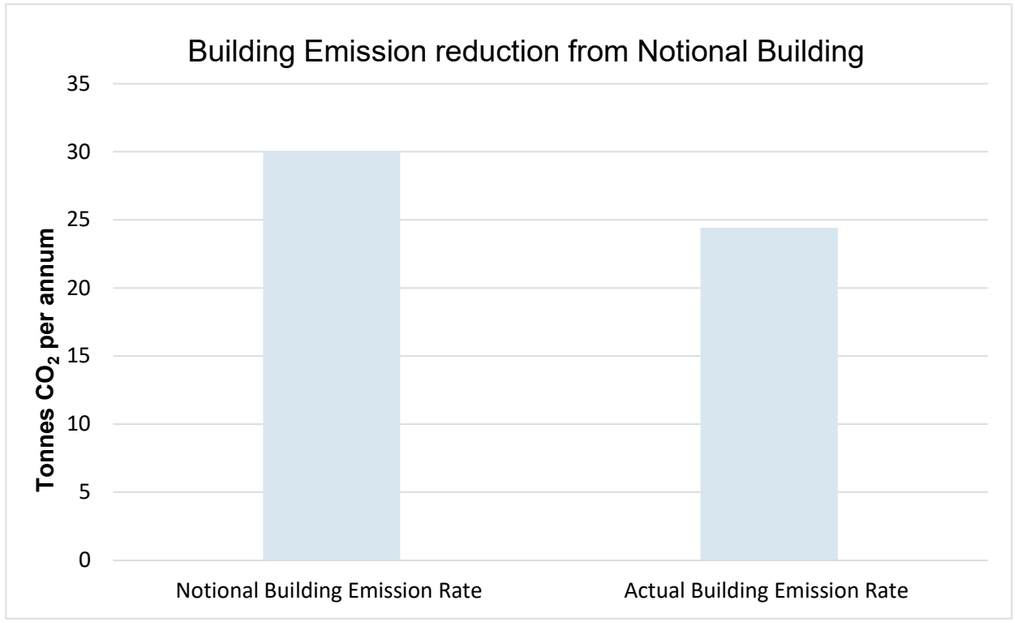
The regulated carbon emissions for the residential spaces were determined using Accredited Design SAP 10 software.

The table below summarise the total baseline carbon emissions and the carbon emissions after the application of energy efficiency measures since there are no low and zero carbon technologies currently planned for the Leisurebox area of the development.

Table 3-14 – Leisurebox Carbon Emissions

	Carbon Dioxide Emissions for non-domestic buildings (Tonnes CO_2 per annum)	% Reduction in regulated carbon emissions
	Building emission rate	Notional Building emission rate	
Compliance results	25.42	30.06	15%

Figure 3-9 - Leisurebox carbon emissions reduction



BE SEEN

The ‘Seen’ aspect of the Lean, Clean, Green and Seen approach to an energy strategy recognises that in the past various measures were described and adopted in the project proposals, but the reality of actual energy consumption and carbon savings was often worse than predicted.

When buildings were occasionally assessed to compare real life consumption with predicted consumption the reality was often far from the original intentions for a wide variety of reasons.

This was described in energy management circles as a ‘performance gap’.

Common sense is clearly to monitor the actual results against the targets derived from the design.

The ‘Be Seen’ aspect now formalises this process and requires an obligation for monitoring, targeting and reporting monthly figures for a minimum of 5 years.

There is a full commitment to meeting this obligation and enthusiasm and confidence that the design targets can be achieved in practice. A suitable Building Energy Management System (BEMS) will be applied in order to monitor energy use via sub meters. Where there are discrepancies, the reasons behind the discrepancies will be established and corrective action taken.

3.2.4 SUMMARY

This section summarises the compliance results for new build elements of the development as well as the approach being taken on zones undergoing refurbishment.

The table below gives a high-level overview of the scheme and relevant regulations.

Zone	Relevant Regulations	New Build/Refurbishment
Great Northern Warehouse (Zone 2)	Approved Document L, Conservation of fuel and power, Volume 2: Buildings other than dwellings	Refurbishment
Deansgate Terrace (Zone 3A and 3B)	Approved Document L, Conservation of fuel and power, Volume 2: Buildings other than dwellings	New build element and refurbishment
Leisurebox (Zone 4)	Approved Document L, Conservation of fuel and power, Volume 1: Dwellings	New build

The project includes extensive refurbishment activity for both the Great Northern Warehouse and Deansgate Terrace.

The table below summarises the measures which are included within the scheme, in line with Table D1 of Approved Document L, Conservation of fuel and power, Volume 2: Buildings other than dwellings, which summarises energy efficiency measures which are typically considered technically, functionally and economically feasible in normal circumstances.

Improvement Measure	Great Northern Warehouse (Zone 2)	Deansgate Terrace (Zone 3A and 3B)
Upgrading heating systems	Included	Included
Upgrading cooling systems	Included	Included
Upgrading air-handling systems	Included	Included
Upgrading lighting systems	Included	Included
Installing energy metering	Included	Included
Upgrading thermal elements	Where considerate to heritage	Where considerate to heritage
Replacing windows or doors	Where considerate to heritage	Where considerate to heritage
Installing LZC energy generation	Included	Included

ZONE 2 GREAT NORTHERN WAREHOUSE (PHASE A)

As the Great Northern Warehouse is a Graded II* Listed building being refurbished, it falls under Approved Document Part L requirement for consequential improvements.

ZONE 3A AND 3B DEANSGATE TERRACE (PHASE A & C)

The Deansgate terrace Zone 3A is the new build area of the terraces.

This building is compliant with Part L of the building regulations and Manchester Planning Policy as per table below.

Table 6-1 – Deansgate Terrace (Zone 3a/ Phase A) Carbon Emissions Results

	Carbon Dioxide Emissions for non-domestic buildings (Tonnes CO_2 per annum)		% Reduction in regulated carbon emissions
	Building emission rate	Notional Building emission rate	
Compliance results	**3.02**	**3.26**	**7%**

The Deansgate terrace Zone 3B is being refurbished, it falls under Approved Document Part L requirement for consequential improvements.

ZONE 4 LEISUREBOX (PHASE B)

This building is compliant with Part L of the Building Regulations and Manchester Planning Policy as per table below.

Table 6-2 – Leisurebox (Zone 4/ Phase B) Carbon Emissions Results

	Carbon Dioxide Emissions for non-domestic buildings (Tonnes CO_2 per annum)		% Reduction in regulated carbon emissions
	Building emission rate	Notional Building emission rate	
Compliance results	**25.42**	**30.06**	**15%**

4 ENVIRONMENTAL DESIGN

Sustainability is at the heart of the plans for The Great Northern. The proposed design takes a holistic approach to maximise its value to the local community and ensure that it has a positive impact on the local environment. It includes the sensitive renovation of the Grade-II listed warehouse, new residential accommodation and the construction of an 'oasis' of greenery within the city centre.

Minimising energy consumption and carbon emissions over the lifecycle of the development is a key driver. A whole life approach is being taken, including assessments of the carbon implications of all interventions to the existing building and the proposed new construction. Analysis has shown that retention of the existing structure saves almost 5,000,00 kgCO2e. Reducing energy consumption during the building's operation is a high priority, as such the project team are taking a design for performance approach and exploring opportunities to undertake in use performance assessments. It is anticipated that the offices will be assessed under the NABERS rating scheme.

Delivering sustainable, high-quality environments for working and living is paramount. Established sustainability focussed accreditations are being targeted with the non-residential elements of the scheme targeting BREEAM "Excellent" as a minimum, alongside a WELL "Gold" rating, while the residential towers are being assessed under Home Quality Mark, with a score of 4.5 anticipated as a minimum.

4.1 BREEAM & HQM

Manchester SPD guidance sets out under Environmental Design what MCC in respect of Sustainability Performance for non-residential development. SPD point 4.8 requires Developments achieve a design and post-construction rating of "very good." SPD also proposes that using alternative modelling tools that enable the developer to exceed the requirements of BREEAM in terms of Energy Efficiency is also encouraged. Trilogy have set out to target BREEAM Excellent for all Office developments, with a BREEAM score of ≥70%.

As part of BREEAM/HQM strategy, the following credits are targeted, with cross-links to SPD Environment themes and standards:

SPD ENVIRONMENTAL STANDARD	SPD GUIDANCE	BREEAM / HQM ISSUE	BREEAM /HQM SOLUTION
Energy Efficiency/4.5	Reduce CO2 emissions by at least 25% beyond Part L.	**Ene 01 / 5.1.2**	Exceed Part L as follows: 5no credits; EPR_{NC} ≥0.375 for New Build and EPR_{NDR} ≥0.36 for refurbished space).
Energy Efficiency/4.7	New homes should achieve at least a three star CfSH sustainability rating	**n/a**	Trilogy have set out to target a 3 star HQM rating for all new dwellings, with potential to achieve up to 4.5 stars.
Energy Efficiency/4.8	BREEAM Very Good	**n/a**	Trilogy have set out to target BREEAM Excellent for all Office development, with a BREEAM score of ≥70%.
Energy Efficiency/4.6	Renewable Energy	**Ene 04 / 5.2.2**	The client team are undertaking passive design analysis, Nabers including LZT feasibility study.
Water Management & Weather Resilience/4.9	FRA & SuDS	**Pol 03 /3.1.1 & 3.2.3**	Sustainable drainage systems (SUDS) are included, and hard surfacing minimised. An FRA has been done.
Water Management & Weather Resilience/4.9	Water consumption	**Wat 01 / 8.1.1**	A 40% reduction on baseline standard potable water consumption.
Waste Management/4.10	Wate Management	**Wst 01 / 7.3.2 & 7.3.3**	Designers to allow for BRE as well as MCC recyclable storage collection strategy requirements. HQM requires consultation with LPA re: waste collection.
Construction Management/4.13	SWMP	**Wst 01/ 10.4.1-10.4.3**	Pre-demolition audit carried out at RIBA Stage 2, with a requirement for SWMP to read across to this maximise reused materials on GNW site.
Construction Management/4.14	Considerate Constructors Scheme	**Man 03**	Considerate Constructors scheme required for Principal Contractor, to achieve Exemplary credit with a score of 13 points / section and 39 overall.
Biodiversity/4.15	enhancing site ecological value/ biodiversity net gain	**LE02-LE05 / 2.1.1 – 2.4.5**	Maximum credits are targeted for enhancing site ecological value, including a high level BNG target of +10% and commitment to producing a Biodiversity Management Plan. A 2022 PEA report has been provided and BNG calculations underway. Landscape Plans to fit with the BNG habitat requirements, trees, green links across the site etc.

5 WATER MANAGEMENT & WEATHER RESILIENCE

The site is currently entirely impermeable comprising of hard landscaping and existing buildings. As the proposed development comprises of new extensions to Terraces and a new external landscape, proposed surface water flow rates from the newly constructed area will be restricted to 50% of the pre-development flow rates as per the recommendations within the Strategic Flood Risk Assessment for brownfield sites within 'Critical Drainage Areas and in line with Manchester City Council Policy and United Utilities advice.

Any new development site drainage will be designed in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30-year storm event and flood water generated for up to the critical 1 in 100-year plus climate change storm event shall be constrained within the areas on site so not to cause damage to buildings, essential services or adjoining developments and services.

As per preliminary advice from the LLFA, an allowance of +45% climate change should be considered in te drainage design as per the current government guidance for the Irwell Catchment, therefore the surface water will be attenuated within the site for storm events up to 1 in 100 year design event plus 45%. Surface water will be restricted and attenuated on site prior to outfall with attenuation provision within porous subbase and oversized pipes. Due to the steep slopes on site, the porous subbase may not be fully utilised and an attenuation tank may also be required, subject to detailed design.

The existing foul water sewage is classified as domestic. The existing development comprises of additional offices, bars, apartments and retail; therefore, classification will not change. The foul water discharge rates from the proposed development compared to existing may increase however United Utilities have been contacted and do not have objections to additional domestic flows from the development.

The new surface water and foul water will discharge to the public sewer in Deansgate in the north-west of the site reusing the existing connection.

The existing buildings (Hub, Warehouse, Terraces) on site are to utilise existing drainage connections, however the existing retained surface water drainage will be modelled to investigate if it has sufficient capacity and where this is insufficient it may require additional connections to an attenuated system.

The new development will not have a negative impact on the Environment.

5.1 WATERWAYS

The site is approximately 1.4 hectares in size and has been identified to be classified as within Flood Zone 1 indicating that the risk of flooding from rivers and sea is low.

Since the site is larger than 1 hectare in Flood Zone 1, lies within a critical drainage area, and is partially at risk from surface water flooding, a Flood Risk Assessment (FRA) is required to support a planning application also taking into consideration the management of surface water run-off. The flood risk assessment assessed all potential sources of flooding including tidal, fluvial, surface water, groundwater, sewers and infrastructure failure. The summary has been provided below:

- The site is within Flood Zone 1 indicating that the risk of flooding from rivers and sea is low.
- There is no river crossing the site. The River Medlock (which is a 'main river') is located approximately 320m south-west of the site. The River Irwell is located approximately 450m north-west of the site at its closest point. The Rochdale Canal (Canal & River Trust) begins approximately 460m south-west of the site.
- A hidden (or 'lost') watercourse appears to flow along the southern boundary of the site, based on SFRA mapping however this is the abandoned Manchester and Salford Junction of the Bridgewater Canal. The canal officially closed in 1922 with the section east of Watson Street being infilled and the western section used with reduced capacity until 1936 when it was officially abandoned. During WW2, the canal was drained, reinforced and used as an air raid shelter.
- Other sources of flooding: tidal flooding, canal flooding, surface water flooding to the site, flooding from the reservoir, and sewer and highway drainage flooding are considered to be very low risk to the site.
- The Curtins Site Investigation Report 068997-CUR-00-XX-RP-001 identifies that deposits were recorded wet in BH03 (6.40mbgl -28.53mAOD), WS01 (2.50mbgl-33.37mAOD), WS02 (5.10mbgl -30.80mAOD), it is likely to be perched water. The groundwater was not recorded in any other boreholes during the investigation and groundwater level monitoring. The risk of groundwater flooding is considered to be very low.
- The source of flooding considered to be the most risk to the site is surface water flooding from the site which will be mitigated by providing new surface water drainage.

Based on the above there is a very low risk of flooding from any sources.



6 WASTE MANAGEMENT

The Waste Management Strategy (WMS) **document reference: 080483-CUR-XX-XX-T-TP-00003** has been prepared to consider the potential refuse and recyclable waste volumes, including potential organic waste, and for all uses of the proposed development. This WMS also provides details of the collection arrangements.

The waste forecast has been calculated based on the recommendations set by the Waste Storage and Collection Guidance for New Developments (GD04), Version 6.00.

An initial recycling percentage of 50% for all uses has been estimated for calculation purposes.

The WMS report demonstrates that the residential uses of the development are proposed with waste stores capable of accommodating the bins required by the local guidance. The bins will be collected by the Council operatives at the collection point.

The commercial uses, including retail, F&B and sui generis (such as the casino) will be served by private refuse collections. The bins will be collected from the proposed commercial waste store by the private collection company operatives.

All commercial uses of the development are anticipated to be served by three-times-a-week collections. The collection frequency is subject to be updated following occupation, as typically the waste generated by both the office and commercial uses varies significantly based on the final occupier.

The collection point for all uses is located within the service area at the Leisure Box, in close proximity to the proposed waste stores. Access to this area will be controlled via a barrier system.

7 CONSTRUCTION MANAGEMENT

7.1 DURATION OF WORKS & WORKING HOURS

The total construction programme will span a period of approximately five years and will be undertaken in two main construction Phases, in advance of the main construction works commencing on site there will be a pre-construction period of approximately one year which will allow for the delivery of a number of key Utility diversion and reinforcement works including provision of a temporary HV substation. Third party notifications and approvals will be discharged during this enabling works stage.

A key programme constraint is the retention of existing tenants on the site including the Casino, Bowling alley and Food & Beverage outlet located within the Great Northern Warehouse Building and the requirement to maintain 100 car parking spaces within the Ground and Basement levels of the existing Leisure Box Structure.

The construction phases are:

- Phase 1 - Great Northern Warehouse & The Northern Terraces;
- Phase 2 - Leisure Box.

The programme is based upon normal working hours in line with Manchester City Council Guidance of 7.30hrs to 1800hrs Monday to Friday and 0800hrs to 1400hrs on Saturdays.

On Sundays and Bank holidays noisy working will generally not be planned. On some occasions there are certain operations that maybe required to proceed during these periods, for example tower crane erection and dismantling. These will be infrequent and will be agreed with the Environmental Health Officer (EHO) and local residents through a series of neighbourly engagements. The frequency of these will vary and respond to demand. Access to the Site will be permitted 30 minutes prior to working day commencing with noise being kept to a minimum for the first half hour of each day.

We acknowledge the close proximity of the neighbouring residents and existing tenants and as such will endeavour at all times to ensure the working hours are adhered to in order to protect this residential amenity.

7.2 DEMOLITION AND CONSTRUCTION

The reuse of Site-won materials should be undertaken in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice to minimise the off-Site disposal of materials and the WRAP End of Waste Criteria for the Production of Aggregates.

Aggregate from demolition arising will be considered for use in blinding, mass fill, hardcore and piling mats.

Measures will be put in place to minimise the quantity of materials ordered and used.

Consideration of the use of the excavated gravels for use as aggregate, either on the development site or for re-use within the other projects.

Where practical all concrete arising will be crushed on-site and re-used.

7.3 CONSTRUCTION SITE ENVIRONMENTAL MANAGEMENT

An Environmental Plan, in line with the appointed Principal Contractors Environmental Management System, will be developed to address and monitor the following issues:

- Applicable environmental legislation;
- Pollution;
- Nuisance (Noise, vibration, dust emission, and light);
- Public relations.

7.4 CONSTRUCTION WASTE MANAGEMENT

In line with the “Site Waste Management Plan Regulations 2008”, a Site Waste Management Plan (SWMP) A Site Waste Management Plan (SWMP) will be completed and agreed with Manchester City Council site setting out targets for waste management, redirect from landfill and recycling and reuse rates. The Waste & Resources Action Programme (WRAP) template will be used to record volumes of waste and ways which waste volumes and tonnage can be reduced. Initiatives which will be put forward to increase diversion of waste from landfill and reduce waste volume include:

- The use and segregation of the materials brought to the waste transfer station for recycling will provide a reduction in waste generated on site;
- Targets will be set around 90% for recycling;
- Packaging will be reduced or eliminated to reduce the amount of plastic sent to landfill.

The SWMP will be reviewed along with the contractor’s supply chain during the procurement stages and pre-start meetings to identify ways to reduce waste from occurring during the project.

7.5 DELIVERIES AND PARKING

7.5.1 DELIVERIES

The Site is well served by the local road network with vehicle access via Deansgate to the west, Quay Street to the north, Watson Street to the east and Great Bridgewater Street to the south.

The proposed vehicle routing approach avoids as far as practicable the need for traffic to access via the city centre to the north of the site.

Following review of the physical location of access nodes to the site, potential routes during the enabling, demolition and construction stage have been identified.

The primary construction access and egress route to the site for demolition and construction HGVs have been considered carefully to reduce the impact of vehicle movements on the local community and road network alike.

Following this assessment and review of the local traffic movements and associated survey data, we have identified vehicle access and egress routes from the north and south to ensure efficient links back to the primary road network.

7.5.2 CAR PARKING

During the early enabling and demolition works the NCP Great Northern Car park which is accessed from Watson Street will be maintained at a reduced capacity of 100 spaces provided at basement and ground floor will be provided through a number of phases as the works progress.

Appropriate temporary signage and advance warnings of changes to the car park will be provided and coordinated with the car park management team.

With the exception of the retained car park facility, there will be no visitor and staff parking permitted within the confines of the site.

All site staff, visitors and personnel will be encouraged to utilise the extensive public transport options available in the local area with rail, tram and bus routes available.

8 BIODIVERSITY

8.1 PUBLIC REALM

The new landscaping proposals will aim to enhance biodiversity on site, provide green infrastructure and new planting and create new habitats for local priority species to achieve a net gain in biodiversity

The proposed tree strategy introduces 156 no. new high quality semi mature trees across the whole site These are largely planted in soft landscaping with additional underground support systems to ensure growth and amenity value. A tree cell system will proposed for the areas trees are planted within paving to ensure their continued growth.

Tree planting on the scheme is driven by a number of objectives. The desire to create a green external space which is more relative to human scale, improving the biodiversity on site and framing views to the historic buildings and along key circulation routes.

TREES

The selection of trees have been chosen for continuity with the residents podium and for their aesthetic qualities such as attractive bark which reflects the industrial and historical character of the build form.

PLANTING

The aim of the planting is to create a high-quality verdant space with seasonal interest with an emphasis on structure. This will be achieved by a selection of grasses which retain form particularly in the winter.

BIODIVERSITY

There is a significant net gain of habitats across the site with a 600% increase in ecological value under the BREEAM, CEEQUAL and HQM Ecology Calculation. In addition to the areas of diverse planting on the site elements such as bee posts and insect hotels will be included with the opportunity to promote public engagement through interpretive boards.

8.2 BUILDING TERRACES

DRAINAGE STRATEGY RESIDENT'S PODIUM

Surface water attenuation will be provided on the resident's podium in the form of a blue and green roof with flow restricted outlets. This area has a deep profile meaning it can accommodate the attenuation layer as well as soft and hard landscaped build-ups above. A green roof can help remove airborne contaminants such as heavy metals, volatile organic compounds and other pollutant particles.

Furthermore, green roofs have been found to reduce the urban heat island effect experienced in built-up areas due to the mass development of once permeable surfaces into impermeable surfaces. A typical green/blue roof build-up from top to bottom the layers include; planting blanket, soil, filter membrane, drainage/irrigation layer, attenuation crate, protection layer, waterproofing system and flow restrictor outlet.

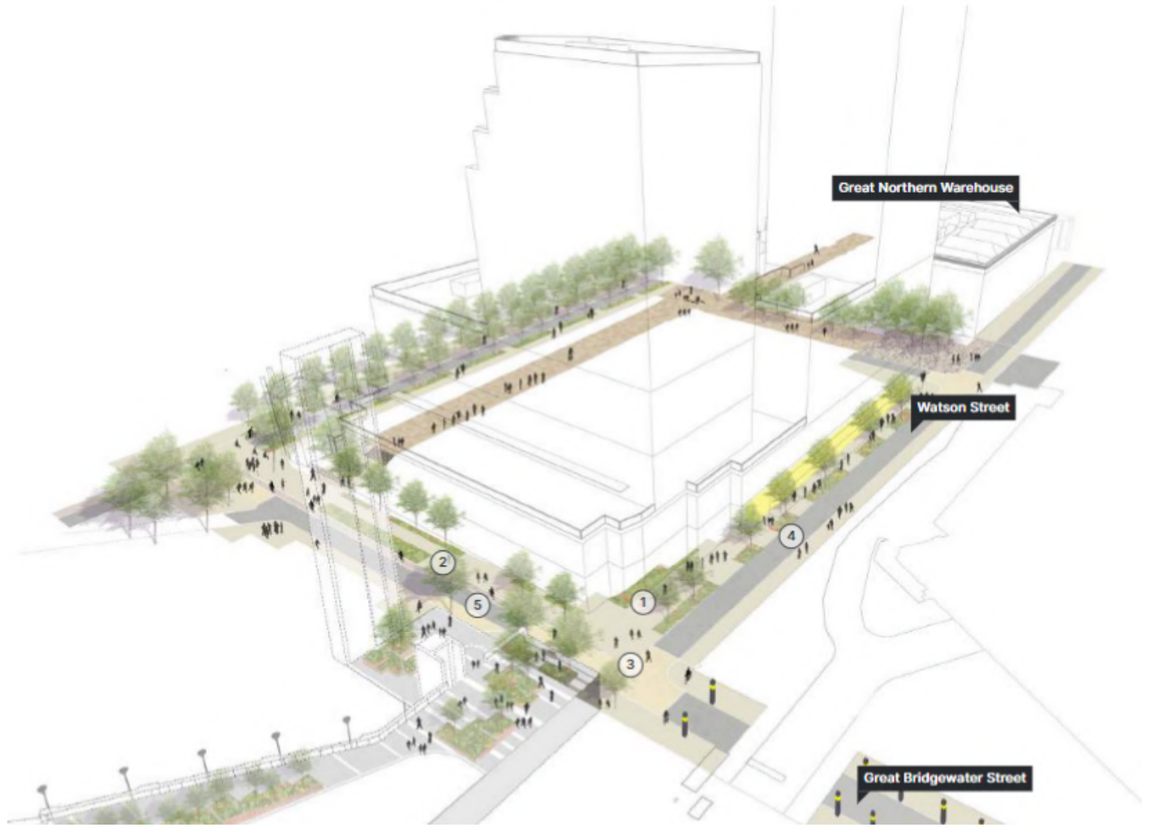
The proposed strategy includes the provision of blue roof attenuation and soft landscaping (green roof) areas on the resident’s podiums, to enhance run-off water quality

TREES RESIDENT'S PODIUM

Alongside the desire for seasonal interest and supporting biodiversity, the tree selection for the residential gardens is guided by two key drivers:

- Micro-climate conditions - Embracing site conditions by specifying trees which can tolerate and thrive in shade or exposed areas;
- Sense of human scale - A selection of multi-stem trees relative to human scale which can provide a sense of privacy and interest for the residents at podium level and create a comfortable sense of screening from above.

Figure 8-1 - Concept Axonometric of Public Realm from Southern Boundary



9 CONCLUSION

This Environmental Standards Statement demonstrates how the proposed development at the Great Northern site responds positively to national and local sustainable policy requirements.

Social and Economic Benefits

The development aims to provide a range of social and economic benefits to Manchester City Centre, through:

- Redevelopment of a listed site currently used as a car park, to provide a high-quality office space;
- Development of significant public realm;
- Support to the local community through increased jobs during construction;
- Incorporation of sustainable transport measures to encourage active travel in the form of walking and cycling, through provision of cycle storage and facilities;
- Provision of a Travel Plan to provide staff with sustainable and safe transport options;
- Provision of a healthy and comfortable indoor and outdoor environment in line with the requirements of BREEAM Health and Wellbeing.

Environmental Protection and Enhancement

Through a range of design measures the development aims to protect and enhance the local environment, including:

- Provision of green infrastructure to provide multi-functional benefits including creation of habitats, climate resilience and recreation;
- Provision of measures through construction and operation of the site to reduce pollution, minimise waste and encourage recycling.

Mitigating and Adapting to Climate Change

In recognition of climate emergency, the development will incorporate a range of measures to reduce carbon emissions, mitigate the effects of climate change, and to ensure the long term resilience of the development to the effects of climate change. Measures include:

- Implementation of circular economy principles throughout design, construction and operation;
- Targeting BREEAM Excellent rating;
- Retention of the existing building substructure and minimisation of new build materials to significantly reduce the embodied carbon emissions associated with new development;
- Reduced carbon emissions through the use of energy hierarchy, using a fabric first approach to design to reduce energy demand, helping mitigate the effects of climate change;
- Specification of an all-electric building services strategy with ASHPs serving the office areas, which in future, will deliver a zero carbon building in operation with the decarbonisation of the national grid, contributing to Manchester's net zero carbon ambitions.

Appendix A

BREEAM PRE-ASSESSMENT

PUBLIC

GNW Developments Limited

GREAT NORTHERN

BREEAM Pre-Assessment Report

NOVEMBER 2022

PUBLIC

GNW Developments Limited

GREAT NORTHERN

BREEAM Pre-Assessment Report

PRE-ASSESSMENT REPORT (VERSION 2) PUBLIC

PROJECT NO. 70078745

DATE: NOVEMBER 2022

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QUALITY CONTROL

Issue/Revision	Draft final – for comment	For Planning		
Remarks	BREEAM Pre-Assessment Report	BREEAM Pre-Assessment Report		
Date	3rd October 2022	17th November 2022		
Prepared by	Nicola Turner, Simon Sullivan	Nicola Turner, Simon Sullivan		
Signature				
Checked by	Ronald Chan	Alistair Lambert		
Signature				
Authorised by	Simon Sullivan	Simon Sullivan		
Signature				
Project Number	70078745	70078745		
Report Number	70078745-232	70078745-232		

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1 EXECUTIVE SUMMARY

1.1 CONTEXT

WSP has been appointed in its capacity as Licensed BREEAM Assessors to provide consultancy advice and undertake a BREEAM feasibility pre-assessment for the Great Northern Warehouse development. This report provides an overview to BREEAM (the most up to date versions of the assessment scheme), highlights opportunities to embed sustainability principals from the outset of the project, and the current BREEAM strategy and scoring during RIBA stage 2.

WSP have at RIBA Stage 2 engaged with the BRE who are the certifying body for all BREEAM schemes in respect of the method to formally assess Great Northern Warehouse and Deansgate Terraces. They have formally confirmed that two separate assessments are required for the individual elements- Warehouse and Terrace. In respect of the Warehouse, the proposed works fit to the BREEAM 2014 Refurbishment & Fit-out (RFO) scheme and the assessed Terrace building fits to a Bespoke BREEAM approach.

WSP held a meeting with BRE on Friday 16th September in relation to the Terrace building. BRE outlined the nature of Bespoke criteria that will apply to the Terraces building – in advance of the client Trilogy formally commissioning this bespoke guidance at RIBA Stage 3. BRE confirm the Bespoke BREEAM combining BREEAM 2014 RFO and BREEAM 2014 New Construction (NC) guidance applied to refurbished and new build areas respectively.

BRE have directed WSP that, in lieu of a single building scoring tool at RIBA Stage 2 for the Terrace building, the pre-assessment strategy should follow a **dual scoring approach** to cover a) new build and b) refurbishment areas. This will provide the clearest picture of the estimated projected scores of the Terrace building likely to be achieved at formal assessment stage. BRE confirmed that a Bespoke scoring tool when commissioned will adopt an area weighted view of scoring across all areas. BRE directed WSP as the assessor organisation that both buildings can now be registered as set out here.

The project under assessment comprises:

Project Name	Great Northern Warehouse & Deansgate Terrace
Location	235 Deansgate, Manchester M3 4EN, United Kingdom
BREEAM Assessment Scheme	BREEAM 2014 RFO Offices – Great Northern Warehouse BREEAM Bespoke – BREEAM 2014 New Construction 2014 and BREEAM RFO 2014 Offices.
Approximate NIA (m^2)	GIA of ~11,223m^2 [~6,054m^2 Refurbishment and ~5,169m^2 New build] for the Terrace, and GIA of ~29,962 m^2 [~24,395m^2 refurbishment and ~5,567m^2 New build – Warehouse.
Current Stage	RIBA Stage 2
Target Rating / Reason	Excellent as a minimum, as desired by the client
Stage of Assessment	Pre-Assessment (Strategy)

The purpose of this report is to:

- Provide an overview to the BREEAM assessment scheme;
- Demonstrate the strategy (targeted BREEAM credits and overall score for RIBA Stage 2) agreed with the project team to achieve the desired Excellent BREEAM rating;
- Highlight opportunities to embed sustainability principles from the outset of the project;
- Represent the status of early-stage credits following the necessary evidence provided by the design team; and
- Outline the actions required by the project team to satisfy BREEAM compliance.

The content including scoring basis is based on information provided by the project team during the workshop on 5th July 2022, and subsequent meetings as well as in reports and information collated from the individual project team members and specialists.

1.2 SCORING OVERVIEW

Scores are predicted in line with the pre-assessment strategy confirmed by BRE for **Warehouse** and **Terrace (Dual scoring, for new build and refurbishment)**. The scores are as set out below in sections 1.2 and 1.3 for the Warehouse and Terrace respectively. **Both buildings are targeting a BREEAM rating of Excellent and projected to achieve BREEAM Excellent performance with a score of 70% and all minimum standards required under the current BREEAM strategy.**

We recommend that at least 5% is targeted above the required rating, i.e. 75% for 'Excellent', and thus as part of RIBA Stage 3, a review of potential and untargeted credits is undertaken to help safeguard for missed credits during completion of the design and construction of the asset.

1.3 SCORING SUMMARY - GREAT NORTHERN, WAREHOUSE

Based on the BREEAM workshop conducted, BREEAM Refurbishment & Fit-out (RFO) 2014 scheme applies to the Warehouse and Terrace refurbishments. In both cases, the scope of works fits to RFO parts 2-4, including MEP Core and Local plant renewal, and interior design. External envelope works were scoped out. After follow-up discussions and agreements with the Design Team and client, the following scoring scenarios are predicted for the Great Northern Warehouse and Terraces refurbishment project under BREEAM 2014 RFO scheme. The scoring projections exclude new build areas:

Table 1-1 – Great Northern - Warehouse Offices Score prediction

Scoring Scenario		BREEAM Score (Cumulative)*	Indicative BREEAM Rating
BREEAM RFO 2014	**Targeted**	**72.73%**	**Excellent**
	Potential	79.34%	Excellent
	Untargeted (High Risk)	83.05%	Excellent

*Score as produced by BRE's BREEAM scoring and reporting tool

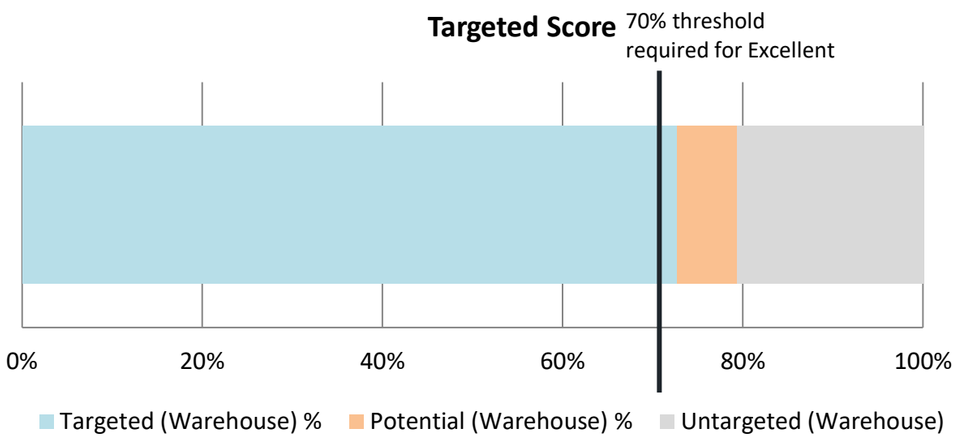


Figure 1. Graphical representation of progress to **a target score of 72.73% (BREEAM Excellent)** for the Warehouse Offices, which exceeds the line that represents the 70% threshold required for an 'Excellent' rating.

1.4 SCORING – GREAT NORTHERN, DEANSGATE TERRACE

Great Northern Terrace comprises ~6,054m^2 Refurbishment and ~5,169m^2 New build areas. BRE have directed that until Bespoke criteria are developed (RIBA Stage 3), a **dual scoring pre-assessment** approach should be taken. This is set out below for both areas, in Tables 1-2 and 1-3. BRE have directed that scoring will be area weighted and thus the projected Terrace score will lean towards the projected New Build Score, as shown in Table 1-2 below.

When area-weighted, the two projected target scores for the Terrace of 70.56% and 69.05% show a combined projected score of 70%.

After follow-up discussions and agreements with the Design Team and client, the following scoring scenarios are predicted for the Great Northern Terraces new construction project under BREEAM 2014 NC scheme. The scoring projections exclude refurbishment areas:

Table 1-2 – Great Northern - Terrace Offices (New Construction) Score prediction

Scoring Scenario		BREEAM Score (Cumulative)*	Indicative BREEAM Rating
BREEAM NC 2014	**Targeted**	**70.56%**	**Excellent**
	Potential	80.18%	Excellent
	Untargeted (High Risk)	83.22%	Excellent

*Score as produced by BRE's BREEAM scoring and reporting tool

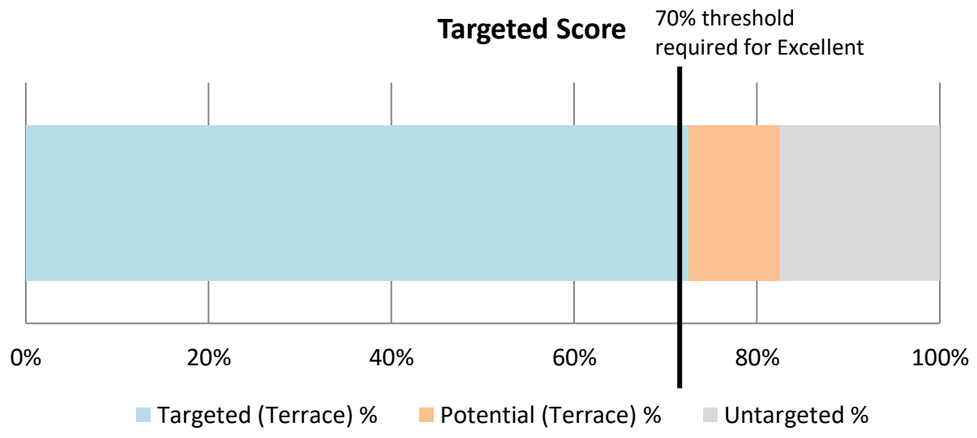


Figure 2. Graphical representation of progress to a target score of **70.56% (BREEAM Excellent)** for the Terrace Offices (New Construction), which exceeds the line that represents the 70% threshold required for an 'Excellent' rating.

Table 1-3 – Great Northern - Terrace Offices (Refurbishment) Score prediction

Scoring Scenario		BREEAM Score (Cumulative)*	Indicative BREEAM Rating
BREEAM RFO 2014	**Targeted**	69.05%	Very Good
	Potential	77.45%	Excellent
	Untargeted (High Risk)	81.16%	Excellent

*Score as produced by BRE's BREEAM scoring and reporting tool

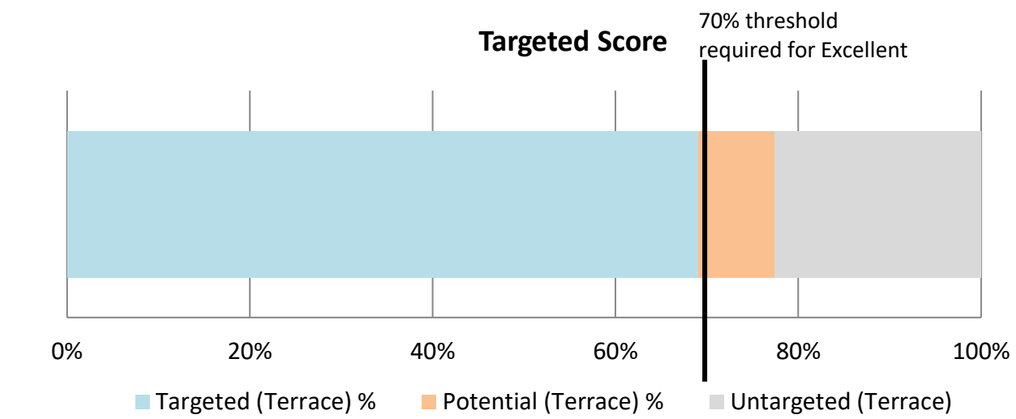


Figure 3. Graphical representation of progress to a target score of **69.05%** and a **potential** score of **77.45% (BREEAM Excellent)** for the Terrace Offices (Refurbishment), which exceeds the line that represents the 70% threshold required for an 'Excellent' rating.

Targeted Scoring Scenario

This is based on the items agreed as being targeted by the project team. Upon the presentation of suitable documentary evidence to the Assessor, the corresponding achievement will be confirmed.

Potential Scoring Scenario

Further to the items noted as targeted, additional credits were identified as potential scoring opportunities. These credits could upon further investigation from the project team or updates to the design result in an additional (higher) score and rating.

There are a number of credits which have been marked as additional, subject to further confirmation or construction development. The majority of these were reviewed during the subsequent BREEAM workshops, however there are a number of credits which require early-stage input that must be determined now if they are to be achieved. These items are shown in Table 1-2 below and must be confirmed as soon as possible to ensure that they are appropriately targeted or discounted.

Untargeted (Higher risk) Scoring Scenario

A third scenario of untargeted credits was also identified. The credits allocated in this scenario, although technically viable, are considered unlikely to be achievable in the current scope and therefore are not included in the Target or Potential Score prediction Tables 1-1 and 1-2. These four credits present an opportunity to boost the current score by up to a further 3 - 3.71%, and may thus be a chance to improve the margin of tolerance above 70% for BREEAM Excellent if sought.

For full details please refer to the main assessment trackers in Appendix A (Refurbishment) and Appendix B (New Construction) respectively.

Table 1-4 – Early-stage BREEAM 2014 RFO credits – High risk options

Item	Credit Requirement commentary	Ownership
Hea 01 Glare Control	Unlikely blinds or alterative compliant glare control will be part of the project brief.	Trilogy (Fit-out spec)
Ene 04 Free Cooling	Subject to building services design development – difficult to achieve on Terrace due to envelope design constraints. [warehouse only credit]	WSP (passive design analysis)
Mat 03 Responsible Sourcing	Unclear if >30% of Eco-points can be achieved for all assessed elements	Contractor
Mat 06 Materials Efficiency	Not part of the architect brief. Could be a potential extension to scope of works	SHA

2 INTRODUCTION

2.1 PROJECT BACKGROUND

The Great Northern Warehouse project is located in Deansgate, Manchester, where its primary function is currently as a shopping centre. The phased redevelopment of the Great Northern Warehouse, Deansgate Terrace and Leisure Box, including areas of public realm, comprises: Removal of the central atrium, car park ramp, 519 car parking spaces and other modern elements, alongside retention of reconfigured casino (Sui Generis), bowling alley and existing restaurant units (Use Class E) alongside the refurbishment, restoration, and re-use of the Grade II* Listed Great Northern Warehouse to provide additional restaurant and / or retail units (Use Class E(b) and/or E(a)) and office space on upper three floors (Use Class E(c)) and associated storage in addition to the refurbishment, restoration and extension of the Grade II Listed Deansgate Terrace and Goods Yard Entrance to form ground floor retail or restaurants (Use Class E(a) and / or E(b)) and office above (Use Class E(c)) with associated public realm works comprising the reconfiguration of Great Northern Square and the introduction of additional public realm with associated hard and soft landscaping, comprising the formation of Dean Street together with highways works, access, servicing, rooftop plant and other associated works, in addition to the demolition of the existing cinema and surrounding elements and structures prior to conversion, reconfiguration and extension of existing car parking facility to provide 929 parking spaces, 753 cycle parking spaces and associated plant, followed by construction of three residential buildings to provide 746 no. apartments (Use Class C3) above the retained car park comprising 16, 27 and 34 storeys, in addition to external alterations, restoration, and extension of Deansgate Terrace to provide ground floor retail or restaurants (Use Class E(a) and / or E(b)) and office above (Use Class E(c)), along with delivery of associated public realm, highways works and associated works.

The client has indicated that they wish to progress BREEAM on the Offices accommodation element. The aspiration is to achieve a BREEAM ‘Excellent’ rating in each assessed Offices areas, as desired by the client.

This report was developed as part of the Pre-Assessment stage of the BREEAM process, and includes the strategy for an ‘Excellent’ rating. Should further appointment be made beyond RIBA Stage 2, the BREEAM Assessor can propose a schedule to progress the Design Stage Assessment, which would be further agreed with the Design Team.

2.2 PRE-ASSESSMENT REPORT PURPOSE

The report constitutes the BREEAM Pre-Assessment report for the proposed development of the Great Northern Warehouse refurbishment works. The content is based on information provided by the project team during the workshop on 5th July 2022, and subsequent information collated from the individual project team members.

The purpose of this report is to:

- Provide an overview to the BREEAM assessment scheme;
- Demonstrate the strategy (targeted BREEAM credits and overall score for RIBA Stage 2) agreed with the project team to achieve the desired BREEAM rating;
- Highlight opportunities to embed sustainability principles from the outset of the project;
- Represent the status of early-stage credits following the necessary evidence provided by the design team; and
- Outline the actions required by the project team to satisfy HQM evidence requirements in accordance with the strategy set for the achievement of a formal HQM ‘3 star’ certification.

To summarise these outcomes, this report includes the following:

- An appraisal of the development proposals against the BREEAM criteria;
- Identification of the mandatory credits which are essential to be included within the development to achieve the desired rating;
- Consideration of additional credits which could be targeted, subject to additional consideration, investigation and possibly additional costs;
- Actions required by the project team and responsible party.

This report has been prepared by qualified BREEAM Assessors at WSP who are licensed by the BRE to undertake assessments using the various BREEAM Schemes.

In order to demonstrate compliance with the targeted BREEAM credits as part of the formal design stage and construction stage BREEAM assessments, documentary evidence demonstrating performance is required to be presented by the project team. It is therefore important for all project team members to ensure that commitments made at this early stage are carried through the design process, and are implemented through to construction. Cost implications of the assumptions made in this report have not been evaluated as part of this study.

The assessment requirements for achieving a BREEAM certificate can be challenging if overlooked during the design evolution process. The team can access the full scheme document (technical manual), which is freely available, at:

BREEAM UK Non-domestic Refurbishment and Fit-out 2014

BREEAM New Construction 2014 (UK)

3 ASSESSMENT STRATEGY

The stages of a BREEAM assessment require as a minimum a Post Construction assessment to receive a final BREEAM certificate. It is strongly recommended that a three-stage assessment process is undertaken to maximise the efficiency of achieving the required rating.

- Pre-Assessment (optional but good practice)
- Design Stage Assessment
- Post Construction Review Assessment

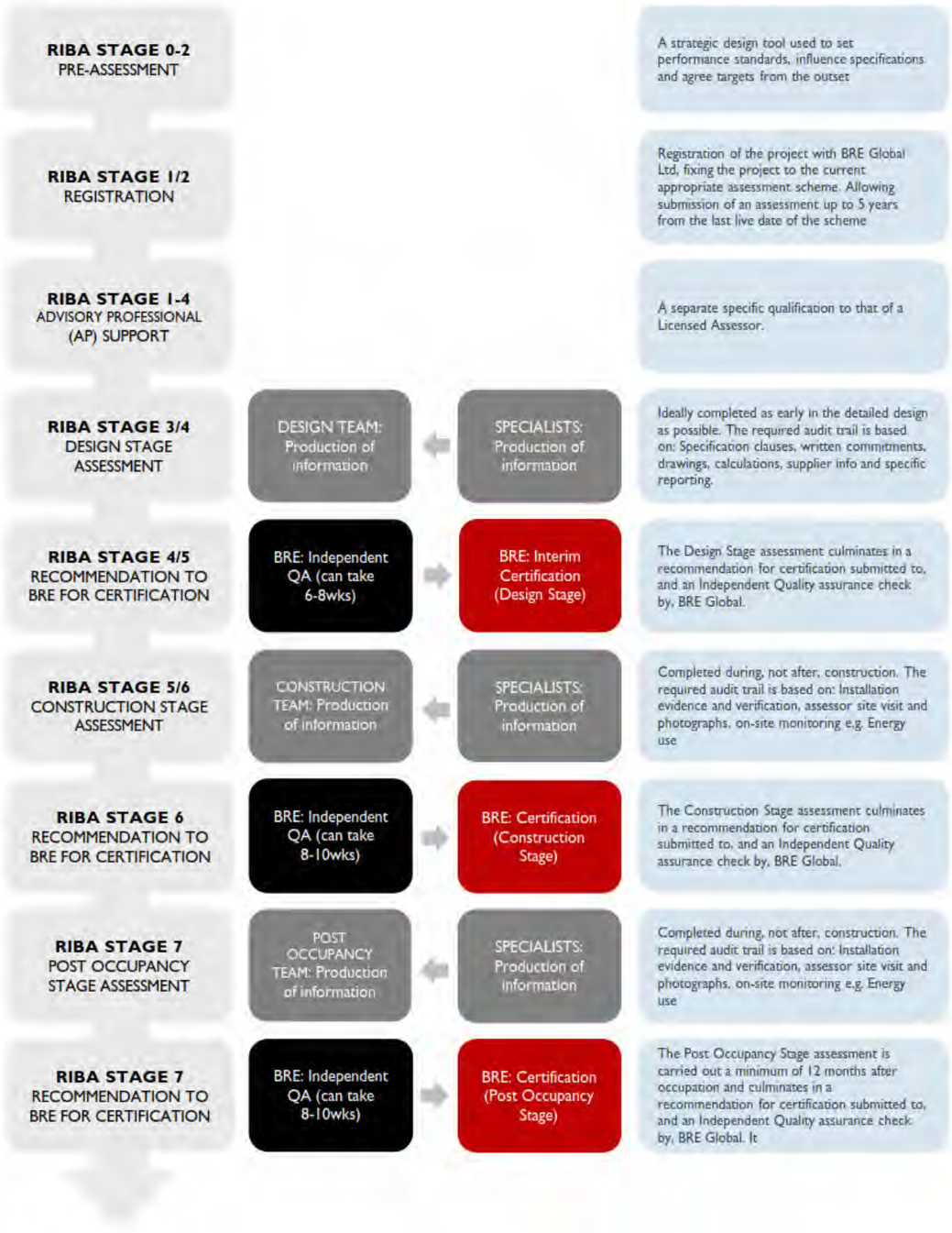
The BREEAM Project Lifecycle diagram shows the full process for a BREEAM assessment.

This report represents the initial pre-assessment stage, whereby the team have identified and agreed a set of BREEAM performance measures to ensure the overall achievement of the desired 'Excellent' BREEAM rating is met, and are working towards demonstrating compliance.

3.1 BREEAM PROGRAMME- STAGE 2

- May 2022 pre-start BREEAM and WELL AP Kick-off meeting
- June-July 2022 Stage 2 Design/ Sustainability workshops
- September – draft EAI and Planning documents to Deloitte for Review, BREEAM LCA and LCC work
- October 31st – finalised planning docs and finalised Stage 2 pack

3.2 BREEAM: PROJECT LIFE CYCLE



4 ROLES AND RESPONSIBILITIES

The BREEAM Assessor and BREEAM Accredited Professional (AP) must act in accordance with their "BREEAM License Agreement" with BRE Global Ltd; the owner, managing body, and certification authority for all BREEAM schemes.

As the scheme progresses past RIBA Stage 2 into a formal BREEAM assessment phase, the design/ construction team will be required to demonstrate "achievement" of the various BREEAM performance requirements through the presentation of documentary evidence as listed by the BRE and conveyed by the Licensed Assessor. This audit material often requires specific responses/ reporting to demonstrate compliance.

During the early stages of assessment, ownership for the various actions and dates for submission will be agreed, which if not met may require a variation to our agreed scope of works.

In accordance with the BREEAM License the Assessor/BREEAM AP must maintain a position of non-conflict of interest. This means that whilst they can provide guidance to the various design/ construction team members, they cannot be responsible for the delivery of any part of the required audit trail.

Note: It is acceptable that the Assessor/ AP is part of the same organisation as a member or members of the design team who are responsible for information production.

5 BACKGROUND TO BREEAM

BREEAM is a market-focused tool aimed at encouraging significant improvements in the performance of buildings through quantification of a building's full life environmental impacts.

The BREEAM score provides a means of recognising a project's sustainability benefits, and so benchmarking it against other buildings. Key benefits of using the methodology include:

- Maximising opportunities to enhance the building's performance during the planning, design, and construction phases of new build, refurbishment and fit out projects.
- Specifying environmental requirements during procurement and management of all types of developments.
- Use of an independently verifiable measurement tool for forming part of Environmental Management Systems.
- Providing an independently verifiable sustainability label for marketing and promotional purposes.

5.1 BREEAM SCORING AND RATING

BREEAM ratings are divided into six levels as shown in Table 1. The associated percentage score is achieved based on meeting the requirements of a number of credits that correspond to meet or exceed the rating benchmarks.

Table 5 – BREEAM rating benchmarks

BREEAM Rating	Percentage Required
UNCLASSIFIED	<30%
PASS	≥30%
GOOD	≥45%
VERY GOOD	≥55%
EXCELLENT	**≥70%**
OUTSTANDING	≥85%

5.2 BREEAM CATEGORY WEIGHTINGS - RFO 2014

The categories within BREEAM are weighted according to relative importance within the country of assessment through a weighting system derived by BRE Global as shown in Table 2. Within each category there are a different number of credits, therefore individual credits carry specific percentage weightings as a percentage of the overall total.

The number of credits available is based on the scoping of appropriate assessment criteria for the project type, location and functions. WSP's assessment trackers (Appendix A (Refurbishment) and Appendix B (New Construction) respectively) show the percentage contribution of each targeted credit to highlight that a credit in one section may not carry the same contribution to the score as a credit in another, due to the category weightings.

BREEAM incorporates a mechanism whereby schemes achieving exemplar performance in a particular area or demonstrating innovation can achieve an additional 1% for each credit up to a maximum of 10. The innovation section is shown at the end of the main assessment table.

Table 6 - Section Weightings – BREEAM 2014 RFO, based on Parts 2-4

Category	Section Weighting (Parts 2-4)
Management	12.00%
Health & Wellbeing	15.11%
Energy	16.12%
Transport	5.44%
Water	7.00%
Materials	14.58%
Waste	8.75%
Land Use & Ecology	9.33%
Pollution	11.67%
Innovation	10%

Based on the BREEAM workshop conducted, BREEAM Refurbishment & Fit-out (RFO) 2014 scheme applies to the Warehouse and Terrace refurbishments. In both bases, the scope of works fits to RFO parts 2-4.

5.3 BREEAM CATEGORY WEIGHTINGS – NEW CONSTRUCTION 2014

Where BREEAM 2014 New Construction criteria may apply, this would be as follows :

Category	Section Weighting
Management	12.0%
Health & Wellbeing	15.0%
Energy	15.0%
Transport	9.0%
Water	7.0%
Materials	13.5%
Waste	8.5%
Land Use & Ecology	10.0%
Pollution	10.0%
Innovation	10.0%

5.4 MANDATORY REQUIREMENTS

To achieve a BREEAM rating, the minimum percentage score (associated with credits achieved) must be met, plus mandatory standards for specific requirements applicable to that rating level must be complied with. These are shown in Table 3.

Table 7 - Mandatory Credits BREEAM New Construction 2014

Credit Ref	Credit	BREEAM Rating/ Minimum Number of Credits				
		Pass	Good	Very Good	Excellent	Outstanding
Man 03	Responsible Construction Practices	-	-	-	One credit (responsible construction practices)	Two credits (responsible construction practices)
Man 04	Commissioning and handover	-	-	One credit (commissioning-test schedule and responsibilities)	One credit (commissioning-test schedule and responsibilities)	One credit (commissioning-test schedule and responsibilities)
Man 04	Commissioning and handover	-	-	Criterion 11 (Building User Guide)	Criterion 11 (Building User Guide)	Criterion 11 (Building User Guide)
Man 05	Aftercare (N/A for Shell and Core)	-	-	-	One credit (commissioning-implementation)	One credit (commissioning-implementation)
Ene 01	Reduction of Energy use and carbon emissions	-	-	-	Four credits (Energy performance OR predicted operational energy)	Six credits (Energy performance) and Four credits (Energy modelling and reporting)
Ene 02	Energy Monitoring (first credit)	-	-	One credit (First sub-metering credit)	One credit (First sub-metering credit)	One credit (First sub-metering credit)
Wat 01	Water Consumption	-	One Credit	One Credit	One Credit	Two Credits
Wat 02	Water Monitoring	-	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Mat 03	Responsible Sourcing of construction products	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)	Criterion 1 only (Legal Timber)
Wst 01	Construction Waste Management	-	-	-	-	One Credit
Wst 03	Operational Waste	-	-	-	-	One Credit

5.5 REQUIREMENTS WITH SPECIFIC ACTION TIMINGS

When targeting some credits, the requirements can include delivery of work ahead of completion of a specific project stage (RIBA Stage) to ensure opportunities for positive sustainability outcomes are not missed by the project team. These are shown in Table 4.

Table 8 – Timing of assessment (key credits), BREEAM New Construction 2014

Credit Ref	Credit	RIBA Plan of work				
		Preparation and brief (1)	Concept design (2)	Developed design (3)	Technical design (4)	Construction and handover (5/6)
Man 01	Stakeholder consultation			Identify and define project delivery stakeholders		
Man 01	Stakeholder consultation (interested parties)		Consultation		Feedback provided	
Man 01	Sustainability champion (design)		Appointment (BREEAM AP) Maximise project performance			
Man 02	Life cycle cost and service life planning		Elemental life cycle cost (LCC)		Component level LCC appraisal	
Man 03	BREEAM AP (site)					Appointment and monitoring
Hea 06	Security of site & Building		Security Needs Assessment			
Ene 04	Passive design analysis		Passive design analysis and thermal model			
Ene 04	Passive design analysis		Passive design analysis and thermal model			
Ene 04	Low or zero carbon technologies		LZC appraisal			
Ene 05	Energy Efficient Cold Storage		N/a			
Tra 01	Travel assessment and travel plan	Travel Plan				
Tra 02	Sustainable transport measures	Consultation with local authority				

Credit Ref	Credit	RIBA Plan of work				
		Preparation and brief (1)	Concept design (2)	Developed design (3)	Technical design (4)	Construction and handover (5/6)
Mat 01	Environmental impacts from construction products - Building life cycle assessment		Building LCA submission to BRE	Building LCA submission to BRE		
Mat 03	Responsible sourcing of materials	Sustainable Procurement Plan				
Mat 06	Materials efficiency	Whole team engagement	Whole team engagement	Whole team engagement	Whole team engagement	Whole team engagement
Wst 01	Construction waste management		Pre-demolition Audit			
Wst 05	Structural and fabric resilience		Climate change adaptation strategy		Update on Climate change adaptation strategy	
Wst 06	Functional adaptability		Adaptability study		Adaptation measures adopted	
LE 02	Identifying and understanding risks and opportunities	Survey and Evaluation	Determining the ecological outcome			
LE 03	Managing negative impacts on ecology	Planning, liaison, implementation and data				

6 FURTHER INFORMATION

6.1 REPORT FORMAT

The table in Appendix A shows the BREEAM criteria against which the development is being assessed. The credits available for each issue are shown along with a calculated overall percentage score and rating. The scoring has also been undertaken on the BREEAM Projects assessment scheme tool.

This allows for simple analysis of the effect of achieving more or removing any given credits. A summary of the required actions has been shown, however the full requirements of the BREEAM assessment can be viewed within the assessment manual, or can be provided upon request.

The table provides explicit ownership, actions, and timing for production based on agreement with the team.

6.2 DISCLAIMER

WSP has undertaken the following HQM One assessment report with input and agreement from the Design Team. All information provided has been accepted in good faith as being accurate and representative of the proposed scheme at the time of review.

The credits and credit requirements are based on the HQM One methodology.

The assessor (for him/herself and as an agent for his/her staff) shall not be held liable whether in Contract or in Tort or otherwise for any loss or damage sustained as a result of using or relying on the information contained in this report, or the final certificate from BRE that it is based on.

6.3 COPYRIGHT

The BREEAM name and logo are registered trademarks of the Building Research Establishment Ltd. Copyright exists on BREEAM and it may not be used or reproduced in any form or for any purpose without prior written consent of BRE.

Appendix A

BREEAM PRE-ASSESSMENT TRACKER - REFURBISHMENT

Public

Great Northern Warehouse Pre-Assessment

70064747 BREEAM Non Domestic Refurbishment and Fit Out 2014

It is understood that the client target is for the development to achieve a 'Excellent' BREEAM rating, aspiring to BREEAM 'Outstanding'. The credits have been targeted based on the information gathered from the design team throughout the design stages. The credits and credit requirements are based on the BREEAM UK Non Domestic Refurbishment and Fit-Out scheme document (SD216 2.0 - 2014) methodology.

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Management																	
Man 01	Project brief and design	**Stakeholder consultation (project delivery)**	The design team develop a sustainability brief prior to during RIBA Stage 1 to set out the following: **(a) Client requirements** **(b) Sustainability objectives and targets including target BREEAM rating** (c) Timescales and budget; (d) List of consultees and professional appointments required (e) Project constraints Prior to completion of the RIBA Stage 2, the project delivery stakeholders meet to identify and define their roles, responsibilities and contributions for each of the key phases of project; considering the following: (a) End user requirements (b) Aims of the design and design strategy (c) Particular installation and construction requirements/limitations (d) Design and construction risk assessments e.g. CDM, legionella risk assessment (e) Legislative requirements e.g. building control notification, heritage requirements (f) Procurement and supply chain (g) Identifying and measuring project success in line with project brief objectives (h) Occupiers' budget and technical expertise in maintaining any proposed systems (i) Maintainability and adaptability of the proposals (j) Requirements for the production of project and end user documentation (k) Requirements for commissioning, training and aftercare support. **The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process influenced the project at each stage.**	**1**	**0.67%**				**1**	**1**	**0**	**0**	**Items (a) and (b) opposite in place.** Client Brief (March 2022) covers the RIBA Stage 1 client requirements (a) Sustainability - Early stage involvement covers (b). Trilogy Client Brief (March 2022) Section 2.1.2 includes to " Target strong ESG Credentials, including BREEAM" Baseline and aspirational targets will be shared in due course". Meeting minutes on SharePoint indicate the **roles** fulfilled, from 25 March 2022 Heritage - Stephen Levrant Heritage Architect, significance appraisals, Curtins Travel surveys (Alex Vogt), SHP as architect Consultation events/timeline tbc and records to be kept. Cross-check Consultation content/consultee group for BREEAM compliance. **Deansgate Terrace comment:** Compliance per GNW.	**Action:** AL/2110 to issue Project Execution Plan at end of RIBA Stage 2, keep meeting minutes/ communication strategy where project team discussed design updates and PExP tracks change to project brief. 03/08 Action with AL/2110 to complete PxP at end RIBA 2..	RIBA Stage 2	2110 Consultant/AL
		Stakeholder consultation (third party)	The design team have covered the minimum consultation content to relevant third party stakeholders prior the completion of RIBA Stage 2. Consultation feedback is given to, and received by all relevant parties by the end of RIBA Stage 4. The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. The consultation exercise used a method carried out by an independent party. **Minimum Consultation Content:** 1. Functionality, build quality and impact (including aesthetics). 2. Provision of appropriate internal and external facilities (for future building occupants and visitors/users). 3. Management and operational implications. 4. Maintenance resources implications. 5. Impacts on the local community, e.g. local traffic/transport impact. 6. Opportunities for shared use of facilities and infrastructure with the community/appropriate stakeholders, if relevant/appropriate to building type. 7. Compliance with statutory (national/local) consultation requirements. 8. Inclusive and accessible design. 9. Where services are taken from outside of the refurbishment area that affect the suitability of the service, e.g. domestic hot water services and legionella prevention.	**1**	**0.67%**				**1**	**1**	**0**	**0**	GN Consultation Strategy is in place (28.03.22). Stakeholder mapping exercise to be done. To include public, public figures, council and members. Clear consultation considerations have been made. **Credit targeted.** **Action**: Consultation events/timeline tbc and records kept. Cross-check Consultation content/consultee group for BREEAM compliance. **Deansgate Terrace comment:** Compliance per GNW.	May Molento noted scope of items 5, 6 and in part to point 4 and 8 (e.g. maintenance of the open space) is covered as part of Community Impact Consultation. The rest is **not** covered in Community Consultation. **Owner: MM/Trilogy - Items 5-6 and 4-8** **Action**: AL to clarify if **items: 1-3 and 7 opposite** are part of statutory/technical stakeholder consultation exercise , confirm media used – e.g. series of stakeholder meetings, feedback loop to design group used, review periods for comments, if resulting design updates are noted in updates to PxP? 04/08 Action with AL/ 2110, to say if scope, not included in community consultation/engagement (as defined by Trilogy/May) is included in the statutory/technical stakeholder	RIBA Stage 2	2110 Consultant/AL
		Sustainability champion (design)	A Sustainability Champion has been appointed at RIBA Stage 1 to facilitate the setting and achievement of BREEAM performance targets. The defined BREEAM performance targets between the client and design/project team no later than RIBA Stage 2. The agreed BREEAM performance targets must be demonstrably achieved via the BREEAM assessor's design stage assessment report.	**1**	**0.67%**				**1**	**1**	**0**	**0**	WSP BREEAM to fulfil the requirements of the role. Simon Sullivan to fulfil the role at Stages 1 & 2. Evidence of the BREEAM target of a Very Good has been set in Stage 1/2 via the WSP BREEAM appointment. **Two Credits targeted.** Trilogy to confirm appointments at next RIBA Stage incl for BRREEAM AP @ RIBA Stage 3. **Deansgate Terrace comment:** Compliance per GNW.	WSP/SS to provide **BREEAM AP notes for Stage 2.** SS to provide updated BREEAM AP note at end of RIBA 2.	RIBA Stage 1/2	WSP/SS
		Sustainability champion (monitoring progress)	Sustainability Champion (design) criteria has been achieved. A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance targets throughout the design process and formally report progress to the client and design team. The Sustainability Champion must attend key project/design team meetings and report throughout each RIBA stage.	**1**	**0.67%**				**1**	**1**	**0**	**0**			RIBA Stage 4	BREEAM AP

										Cumulative Scores					
										69.05%	72.73%	77.45%	79.34%		
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Man 02	Life cycle cost and service life planning	**Elemental life cycle cost (LCC)**	An outline, entire asset elemental life cycle cost (LCC) plan has been carried out at RIBA Stage 2 in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:20081. The elemental LCC plan: a) An outline LCC plan has been undertaken for the project based on the building's basic structure and envelope, appraising a range of options and based on the life expectancy of the refurbished building, e.g. 20, 30, 50+ years. b) The servicing strategy for the project outlining services component over a 15 -year period, in the form of an 'elemental LCC Plan'. c) A fit-out strategy is developed outlining fit-out options over a 10-year period.	**2**	**1.33%**				**2**	**2**	**0**	**0**	The cost consultants have provided a BREEAM compliant elemental LCC report and a transmittal from the design team outlining how the LCC plans have influenced the design. SW/Quartz PS advised the cost plan basis will meet th**e best practice standard PD 156865.** **Two credits targeted.** **Deansgate Terrace comment:** It is assumed a single Stage 2 cost plan would cover both elements of work.	Quartz Property to undertake an Elemental Level Life Cycle Costing. Quartz to agree with SHA/WSP what aspects of options are to be appraised in respect of a), b) and c) opposite. [MP/WSP, DO/SHA, AL/2110]. **Action**: SS to share example Options appraisal report excerpt for discussion. **Action**: Designers/client to agree options to compare. **Action**: AL to set date for designers to share options to SW for options appraisal. 04/08/22 Stuart Wearn to liaise with SHA on fit-out options, Simon Graham (WSP) on servicing strategy and Ramboll on Façade design options, and produce Quartz LCC and options appraisal.	RIBA Stage 2	Quartz Property Services/SW
		Component level LCC Plan	A Component level LCC plan has been developed by the end of RIBA Stage 4 in line with PD 156865:2008 and includes the following component types: **Part 1** assessments, including components within scope of works: Envelope, e.g. cladding, windows, and/or roofing **Part 2 & 3** assessments including newly specified local and core services: Newly specified local and/or core service equipment, e.g. boiler, air-conditioning, air handling unit, and/or controls etc. **Parts 1 – 4**, where finishes are within scope of works: Finishes, e.g. walls, partitions, floors and/or ceilings etc. Where **external spaces** are in scope of works: External spaces, e.g. alternative hard landscaping, boundary protection.	**1**	**0.67%**				**1**	**1**	**0**	**0**	Component level LCC costing provided by costs consultant and a transmittal from the design team outlining how the LCC plans have influenced the design. **Credit marked as target.** **Deansgate Terrace comment**: It is assumed a single Stage 2 cost plan would cover both elements of work. If work phased/assessments split then this may add risk, as compliance would sit with one or other asset e.g. linked to building specific options choices.		RIBA Stage 4	Quartz Property Services/SW
		Capital cost reporting	Report the capital cost for the refurbishment/fit-out works in pounds per square metre (£k/m2)	**1**	**0.67%**				**1**	**1**	**0**	**0**	It is expected that this credit can be targeted and that capital cost is not subject to any non-disclosure. **Action**: Project capital cost to be reported. Action point to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**	-	RIBA Stage 4	Quartz Property Services/SW
Man 03	Responsible construction practices	**Pre-requisite**	All timber and timber-based products used on the project is 'Legally harvested and traded timber'		**0.00%**				**yes**	**yes**	**-**	**-**	**Pre-req targeted** **Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties.		RIBA Stage 4	2110 Consultant/AL
		Environmental management	The principal contractor operates an environmental management system (EMS) covering their main operations. i.e. ISO 14001/EMAS or Compliance with BS8555:2003. The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6	**1**	**0.67%**				**1**	**1**	**0**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**			
		Sustainability Champion (construction)	A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM targets, during RIBA Stages 5 and 6. The principal contractors contract includes BREEAM performance targets The BREEAM assessor's final post construction stage assessment report must demonstrate compliance with BREEAM-related performance targets	**1**	**0.67%**				**1**	**1**	**0**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**			
		Considerate construction	Using the Considerate Constructors Scheme (CCS) the principal contractor must achieve scheme certification and a CCS score as follows: 1. One credit: a CCS score between 25 and 34 and a score of at least 5 in each of the five sections 2. Two credits: a CCS score between 35 and 39 and a score of at least 7 in each of the five sections Innovation Credit: a CCS score of more than 40 and a score of at least 7 in each of the five sections	**2**	**1.33%**		**One credit**	**2**	**2**	**2**	**0**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. Note. A further (exemplary level) credit is available subject to uplift in compliance level of site best practice in line with BREEAM. **Credit targeted. Exemplary credit marked as targeted.**			
		Utility consumption	Responsibility has been assigned to an individuals for monitoring, recording and reporting energy use and water consumption resulting from all on-site refurbishment or fit-out processes. Energy consumption - Monitor and record data of the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation (as relevant to the project type). - Report the total carbon dioxide emissions (total kgCO2/project value) from the construction process Water consumption - Monitor and record data on principal constructor's and subcontractors' potable water consumption (m3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation - Using the collated data report the total net water consumption (m3), i.e. consumption minus any recycled water use from the construction process	**1**	**0.67%**				**1**	**1**	**0**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**			
		Transport of construction materials and waste	Monitor and record data on transport movements and impacts resulting from delivery of the majority of materials to site and demolition or strip-out waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. b. Scope of this monitoring must cover the following as a minimum: - Materials used for core services - Where within scope, ground works and landscaping materials c. Transport of construction waste from the gate to waste disposal processing or recovery centre. Scope must cover the construction waste groups outlined in the project's waste management plan. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and/or total carbon dioxide emissions (kgCO2 eq), plus total distance travelled (km)	**1**	**0.67%**				**1**	**1**	**0**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**			

										Cumulative Scores							
										69.05%	72.73%	77.45%	79.34%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Man 04	Commissioning and handover	**Commissioning and testing schedule and responsibilities**	There is a schedule of commissioning and testing that identifies appropriate commissioning required for the scope of works that includes a suitable timescale for commissioning and re-commissioning of all relevant works carried out. Commissioning should be carried out where changes are being made to buildings services, building services control systems and changes to the building fabric which will affect building performance. All commissioning activities are carried out in accordance with current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within the main programme of works.	**1**	**0.67%**				**1**	**1**	**0**	**0**	**MP** (WSP) reviewed best practice commissioning & testing criteria for building scope and if design brief is likely to comply. Deansgate Terrace comment: Compliance per GNW. **Credit targeted**		RIBA Stage 4	WSP MEP/MP
		Commissioning building services	Commissioning and testing schedule and responsibilities credit is achieved. For projects where work is being undertaken to upgrade, renovate or install new building services and systems. (a) For complex building services and systems, a specialist commissioning manager is appointed during the design stage with responsibility for: (i) Undertaking design reviews and giving advice on suitability for ease of commissioning; (ii) Providing commissioning management input to construction programming and during installation stages; (iii) Management of commissioning, performance testing and handover/post handover stages;	**1**	**0.67%**				**1**	**1**	**0**	**0**	MP(WSP) reviewed in view of WSP's commissioning Manager role/reviewer pre-contract. Likely that an extended Specialist Commissioning Manager role will be included. **Action**: MEP brief for extended Specialist Commissioning Manager role at RIBA Stages 4 and 5 and/or need to be written in to contract/prelims. **Note**: Criteria requires Specialist Commissioning manager to be appointed during Stage 4 to input with the Design. They must be independent from the MEP design team. **Credit targeted** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
		Testing and inspecting building fabric	If the fabric of the building has be upgraded the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of a thermographic survey as well as airtightness testing and visual inspection. This will be undertaken by a Suitably Qualified Professional with any defects rectified prior to building handover and close out.	**1**	**0.67%**				**0**	**0**	**1**	**1**	**Action**: NO (SHA) to review/confirm if a thermographic survey /remediation of any thermal bridging is likely to be in current brief/written in to contract. **Note**: Credit requires a thermographer to be appointed during post construction to undertake thermal imaging. Any defects would need to be remediated. Air testing is assumed to be required to show the building meets the required standard also. Deansgate Terrace comment: Compliance per GNW. **Credit marked as potential.**		RIBA Stage 4	SHA/NO
		Handover	A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers. A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: - The design intent of refurbishment/fit-out works - The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation - Introduction to, and demonstration of, installed systems and features, particularly BMS controls and their interfaces, - Introduction to the Building User Guide and other relevant building documentation. - Maintenance requirements, including any maintenance contracts and regimes in place.	**1**	**0.67%**		**BUG**	**BUG**	**1**	**1**	**0**	**0**	Contractor to produce Building User Guide (BUG), and give introductory training in line with requirements. **Note**. BREEAM Contractors Requirements or Prelims document may need to be produced at RIBA Stage 3/4. **Action**: AL/PM team to confirm a BUG/training can be included in the tender pack. **Credit marked as potential.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL

									Cumulative Scores						
									69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring				Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Health and Wellbeing																
Hea 01	Visual comfort	**Glare control**	1. The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures (see compliance note CN7). 2.The glare control strategy avoids increasing lighting energy consumption, by ensuring that: (a) The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the façade: AND (b) The use or location of shading does not conflict with the operation of lighting control systems.	**1**	**0.80%**				**0**	**0**	**0**	**0**	Specific Glare Control Review is required. Potential additional cost of providing blinds in what is otherwise a Cat A fit-out would need to be confirmed. **Credit not targeted** **Action**: AL to confirm this is not in scope/cannot be targeted. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
		Daylighting	3. Up to three credits are awarded on a sliding scale depending on the percentage of relevant building areas that comply with one of the following daylighting criteria: **Offices - occupied spaces 2% Average Daylight Factor for 40% / 60% / 80% area** 4. Two credits where daylighting, averaged over all relevant spaces, has improved by 30% or more and there is a minimum glazing to floor area ratio of either: a.5% glass to floor area ratio for side windows; OR b.2.5% glass to floor area ratio for roof lights; 5. One credit where daylighting, averaged over all relevant spaces, has improved by 15% or more and there is a minimum glazing to floor area ratio of either: a.5% glass to floor area ratio for side windows; OR b.2.5% glass to floor area ratio for roof lights. Note: The improvement in daylighting provision is calculated using the BREEAM Hea 01 Calculator tool based upon either the increase in glazing area, transmittance, illuminance or percentage daylight factor. *Table 13 daylight uniformity criteria: A uniformity ratio of >0.3 or point daylight factor of >0.3 x average DF. Spaces with glazed roof have a uniformity ration of >0.7 or point daylight factor of >0.3 x average DF. At least 80% of the room has a view of sky from desk or table top height (0.7m) The room depth criterion d/w +d/HW < 2/(1-RB) is satisfied. Where d= room depth, w= room width, HW= window head height from floor level and RB=average reflectance in rear half of room.	**3**	**2.39%**				**0**	**0**	**0**	**0**	It is unclear what natural levels of daylight are available to each office space, given the surrounding development adjacencies (Terrace-Warehouse-Leisure Box and Deansgate itself). **Credit Not Targeted.** David Radcliffe providing a daylight/overshadowing chapter - noted the occupied spaces do not achieve the ADF of 2% for 40%/60% or 80% of assessed area and so no credits can be achieved on the Warehouse. Deansgate Terrace comment: Difficult to assess without modelling. DF in Terrace may be better than in Warehouse owing to room depth/small suite size and natural light from windows in most spaces.		RIBA Stage 3	AA Projects/DR
		View out	6. Two credits where 95% of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out. 7.One credit where 80% of the floor area space in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out and criterion 8 is met. 8.The window/opening must be ≥ 20% of the surrounding wall area (refer to Hea 01 Visual comfort in the Additional information section). Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in Table 1.0 of BS 8206 . 9. In addition, the building type criteria in Table 15 are applicable to view out criteria.	**2**	**1.59%**				**0**	**0**	**1**	**0**	The credit requires at least 80% of the area would be within 7m of a wall with a window with adequate view out. It is thought this could be difficult on the project due to existing structure. Notes. offices 15-19 with no ext window on Level 02 and deep plan areas of others may constrain. Possible long-shot exception if windows to central atrium for ALL suites with unobscured view and depth of view out is >10m **Credit Not Targeted (warehouse)** Deansgate Terrace comment: View Out in Terrace may be better than in Warehouse owing to room depth/small suite size and potential for a compliant View Out in each Suite. **Credit marked as potential (Terrace)**	Depth at points is ~21m in he warehouse so unlikely to achieve. Unable to change deep-plan nature of warehouse, with daylight as a major constraint. Action: NO to comment on potential to achieve this credit for Terraces. Credit to be reviewed @ RIBA 3.	RIBA Stage 3	SHA/NO
		Internal and external lighting levels, zoning and control	**Internal Lighting** - All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts. - Internal lighting in all relevant areas of the building is designed provide illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. - For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. **External lighting** All external lighting located within the refurbishment or fit-out zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. **Zoning and occupant control** Internal lighting is zoned to allow for occupant control in line with the specific criteria for relevant areas present.	**1**	**0.80%**				**1**	**1**	**0**	**0**	MP (WSP) confirmed that lighting luminaires and controls can comply with the credit criteria. Note. External luminaires are not within WSP scope. **Action**: MEP to verify and write in compliance to specifications/stage 2 MEP report. **Action**: compliance for External luminaires to be noted by others. 23.06.22 AL noted Lighting Bureau to compliant external lighting. Separately, Lighting Bureau are undertaking an assessment of external glare also from the facades. **Credit targeted.**		RIBA Stage 4	WSP MEP/MP Lighting Bureau

									Cumulative Scores						
									69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring				Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Hea 02	Indoor air quality	**Indoor air quality (IAQ) plan**	An indoor air quality (IAQ) plan has been produced and implemented, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during the design, construction and occupation of the building.	**1**	**0.80%**				**1**	**1**	**0**	**0**	Indoor Air Quality Plan needed. Potential additional work needed at Stage 2 or 3 - scope to be confirmed. **Credit targeted** Tom Reade, Hilson Moran doing a stage 2 IAQ Plan.	Action: Tom Reade, Hilson Moran doing a stage 2 IAQ Plan.	RIBA Stage 3	2110/AL
		Ventilation	Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows: a)In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution; OR ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:20071 Annex A2. b)In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO2) or air quality sensors specified.	**1**	**0.80%**				**0**	**0**	**0**	**0**	Client brief confirms design to meet BCO compliance with the base occupancy ratio of 1:8m2 for the office elements with exposed, raft or minimalistic soffit. Note. Unclear if spacing of AHUs can achieve compliance with criteria a) i. opposite. **Credit not targeted.** **MP (WSP) commented** on potential to comply with vent intake/extract louvre criteria. **WSP will strive to achieve this credit, but its too early to confirm if achievable** Deansgate Terrace comment: Linear distance from kerb line on Deansgate to opening lights @ FFL may be <10m. Credit not targeted.		RIBA Stage 4	WSP MEP/MP
		Volatile organic compound (VOC) emission levels (products)	All decorative paints and varnishes specified meet the criteria in Table 20 At least five of the seven remaining product categories listed in Table 20 meet the testing requirements and emission levels criteria for volatile organic compound (VOC) emissions (listed in the table).	**1**	**0.80%**				**1**	**1**	**0**	**0**	Interior Design: Decorative Paints and Finishes (panels, flooring, ceiling tiles etc) would need to comply with VOC testing and performance requirements. These should be included in architectural design specification at stage 4 or included in any Stage 4 Contractor Requirements produced. **Action:** NO noted SH spec will reflect VOC product specification to comply with BREEAM performance requirement criteria. Specification to reflect BREEAM performance criteria. Credit targeted. /Table 20 (Hea 02) **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/NO
		Volatile organic compound (VOC) emission levels (post construction)	The formaldehyde concentration level is measured post construction (but pre-occupancy) and is found to be less than or equal to 100µg/m3 averaged over 30 minutes The total volatile organic compound (TVOC) concentration level is measured post construction (but pre-occupancy) and found to be less than 300µg/m3 over 8 hours Where VOC and formaldehyde levels are found to exceed the limits the project team confirms the measures that have, or will be taken, in accordance with the IAQ plan, to reduce the levels to within these limits, including re-measurement. The testing and measurement of the above pollutants are in accordance with the following standards where relevant: a) BS ISO 16000-4: 2011, b) BS ISO 16000-6: 2011, c) BS EN ISO 16017-2: 2003, d) BS ISO 16000-3: 20116 The measured concentration levels of formaldehyde (µg/m³) and TVOC (µg/m³) are reported, via the BREEAM	**1**	**0.80%**				**1**	**1**	**0**	**0**	VOC/formaldehyde testing is required post construction (pre-occupancy) in line with testing standards to show compliance with credit criteria. VOC organic/inorganic air testing may be required for WELL shows some alignment with BREEAM. VOC pre-occupancy testing will be included as a performance requirement to comply with criteria. Contract Performance Specification to reflect BREEAM performance criteria. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/NO
		Adaptability - Potential for natural ventilation	The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. Occupied spaces are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion: - Room depths are designed in accordance with CIBSE AM10 (section 2.4). The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate; OR - The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using the requirements of CIBSE AM10. For fit-out projects (Part 3 assessments), local services are designed to provide fresh air via a natural ventilation strategy and are appropriately designed according to the room depth in accordance with CIBSE AM10. For Part 3 assessments , local services are designed to provide fresh air via a natural ventilation strategy and are appropriately designed according to the room depth in accordance with CIBSE AM10. The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space.	**1**	**0.80%**				**0**	**0**	**0**	**0**	It is considered that a mixed mode ventilation strategy may be adopted and the levels of nat vent required may not be achieved. AL (WSP acoustics) noted potential conflicts with background noise levels in introducing nat vent to this level. MP (WSP MEP) indicated that the criteria was generally not achievable for this type of building. **Credit Not Targeted.** Deansgate Terrace comment: there may be limited potential to provide natural ventilation, though unclear if adequate to meet criteria.		RIBA Stage 4	WSP MEP/MP

										Cumulative Scores			
										69.05%	72.73%	77.45%	79.34%
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring				Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Hea 04	Thermal comfort	**Thermal modelling**	Thermal modelling has been carried out using software in accordance with CIBSE AM11. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. The modelling demonstrates that summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings. Where undertaking a Part 4 assessment must assess the suitability of existing building services and controls to identify any changes that may be required as a result of fit-out works For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.	**1**	**0.80%**				**1**	**1**	**0**	**0**	**Credit marked as target.** Thermal Comfort modelling done - criteria for building scope and design brief likely to comply in current form. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	WSP Sustainability/ JS
		Adaptability - for a projected climate change scenario	All thermal modelling criteria has been achieved The thermal modelling demonstrates that the relevant requirements set out above are achieved for a projected climate change environment. Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions. For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported.	**1**	**0.80%**				**1**	**1**	**0**	**0**	**Credit targeted.** Thermal Comfort modelling done - criteria for building scope and design brief likely to comply in current form. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	WSP Sustainability/ JS
		Thermal zoning and controls	The thermal modelling analysis has informed the temperature control strategy for the building and its users. The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. b. Any new local cooling or heating services (or changes to existing services) are designed to ensure they do not conflict with core services c. The degree of occupant control required for these zones, based on discussions with the end user. d. How the proposed systems will interact with each other and how this may affect the thermal comfort of the building occupants. e. The need or otherwise for an accessible building user actuated manual override for any automatic systems.	**1**	**0.80%**				**1**	**1**	**0**	**0**	**Credit targeted.** Thermal Modelling done. Thermal control strategy at RIBA 3/4 performance will be influenced by the thermal modelling and meet credit requirements. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
Hea 05	Acoustic performance		The building meets the appropriate acoustic performance standards and testing requirements defined in the checklists and tables section which defines criteria for the acoustic principles of: (a) Sound insulation (b) Indoor ambient noise level (c) Reverberation times. Where undertaking a partial refurbishment or fit-out, the performance standards and testing requirements defined in the checklist and tables section for the following principles are applicable to each assessment part: b. Part 2: criteria for indoor ambient noise levels only c. Part 3: criteria for sound insulation and indoor ambient noise levels	**3**	**2.39%**				**2**	**2**	**0**	**0**	WSP acousticians appointed to inform design. Design would need to meet credit requirements a-c. On-site testing would need to be conducted post-construction to confirm credit achievement. **Note**: AL (WSP acoustics) has reviewed criteria and considered that the exposed brick wall and retained ceiling arch interior may mean the third credit for reverberation times is constrained. **Two credits targeted, one credit not achievable.** Deansgate Terrace comment: Compliance per GNW. Potential to achieve 3rd credit if ceiling/wall treatment possible?		RIBA Stage 4	WSP Acoustician/ Alex Lees
Hea 06	Safety and security	**Security of site and building**	1. A Suitably Qualified Security Specialist (SQSS) conducts an evidence based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent), see compliance note where the refurbishment or fit-out zone comprises part of a larger building. 2.The SQSS develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA. 3.The recommendations or solutions proposed by the SQSS are implemented (see CN5.2. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.	**1**	**0.80%**				**1**	**1**	**0**	**0**	Greater Manchester Police (Design for Security) would be instructed to prepare a Crime Impact Statement to consider how the scheme takes into account public safety and security measures in its design. **GDA/Simon Trundle appointed to undertake SNA at RIBA Stage 2.** **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.	GDA as private security consultant to provide the **Security Needs Assessment report.**04/08 Action with ST/GDA	RIBA Stage 2	GDA/ST

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Energy																	
Ene 01	Reduction of energy use and carbon emissions	**Whole building energy model**	Project can demonstrate compliance with a whole building energy model (Max fifteen credits) OR elemental level energy model (Max twelve credits) Two additional credits are available for historic buildings dependant on scores achieved in the whole building energy model/elemental level energy model and if a set list of requirements is met	**15**	**10.08%**		**6 credits (for part 1,2,3 and 4 ass'mnts)**	**10 credits (for part 1,2,3 and 4 ass'mnts)**	**6**	**6**	**0**	**3**	Proposed / existing BRUKL documents and INP files needed to confirm the actual number credits are currently achievable. Note. 6no credits requires a minimum of 6 credits to be achieved (equivalent to an EPRNDR of ≥ 0.36). Six Credits targeted, to fit with BREEAM Excellent rating target. **Action**: JS is investigating the opportunity to score 6+ credits. **Six Credits targeted, three credits marked as potential for Warehouse only.** Deansgate Terrace comment: a highly efficient VRF led fit-out may help secure some of the target credits. It is likely that Terrace Office Suites will not perform as well as the Warehouse. Separate modelling required for each asset.	HVAC strategy likely to be different for Terrace. Terraces will include nat vent if possible tbc. Local systems are still a possibility vs centralised strategy for Warehouse. WSP/JS provided an Initial view of projected energy performance for each building before submission of planning app.	RIBA Stage 4	WSP Sustainability/JS
Ene 02	Energy monitoring	**Sub-metering of major energy consuming systems**	Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2. are metered using an appropriate energy monitoring and management system (e.g. BMS) The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.	**1**	**0.67%**	**1 (pts 2, 3, 4)**	**1 (pts 2, 3, 4)**	**1 (pts 2, 3, 4)**	**0**	**1**	**1**	**0**	Client brief Section 5.4 MEP states for Deansgate Terrace "Each office to be heated individually and provision for tenant a/c but all office use of utilities to be monitored individually. " **MP (WSP** MEP) reviewed criteria and noted compliant sub metering of i) major systems and ii) tenanted areas will be provided to both Terrace and Warehouse Offices. **Action:** MEP to note BREEAM compliant sub metering of i) major systems and ii) tenanted areas in Stage 2 report. **Action:** MEP to say if Terrace will be serviced locally or with Core heating/cooling plant (as per the GN Warehouse Offices). **Two credits targeted (Warehouse)** **Two Credits marked as potential (Terrace)** Deansgate Terrace comment: Project brief does not include sub-metering for the Terrace areas.		RIBA Stage 4	WSP MEP/MP
		Sub-metering of high energy load and tenancy areas	An accessible energy monitoring and management system is provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.	**1**	**0.67%**				**0**	**1**	**1**	**0**				
Ene 03	External lighting		The building has been designed to operate without the need for external lighting (including building, signs and at entrances). OR Where the building does have external lighting: - The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt. - All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	**1**	**0.67%**				**1**	**1**	**0**	**0**	**Credit targeted.** **Action**: External Lighting Designer to say if WSP can detail in MEP Stage 2 report for external light fittings to be provided with min. 70lm/W with photocell's and time control and pir's. **Action**: If targeted, External lighting designer to write in to specifications/stage 2 report. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Lighting Bureau
Ene 04	Low carbon design	**Passive design analysis**	The first credit within issue Hea 04 Thermal comfort has been achieved. The project team carries out an passive design analysis of the proposed building design to influence decisions made during RIBA Stage 2 and identify opportunities for the implementation of passive design solutions. The building implements passive design measures in line with the passive design analysis and provides a meaningful reduction in total energy demand.	**1**	**0.67%**				**1**	**1**	**0**	**0**	To target, a **passive design analysis** of the proposed building design is needed. This should influence decisions made during RIBA Stage 2 and comply with BREEAM to identify opportunities for the implementation of passive design solutions. **Credit marked as targeted** JS confirmed Passive Design Analysis study will be done/ is in scope. WSP to lead Passive design study to show options to comply with this criteria. Deansgate Terrace comment: Compliance per GNW.	WSP as Low Carbon assessor to provide **Passive Design Analysis report.** **Stage requirement is thus met.** Further investigation at RIBA 3/4 to confirm % reduction and if this will meet Ene 04 CN19 which requires ideally a reduction of 5% in light of the heritage considerations such as new heritage window glazing. Initial indication of a 9% saving tbc at RIBA 3.	RIBA Stage 2	WSP Sustainability/JS
		Free cooling	The passive design analysis credit is achieved. The passive design analysis carried out includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. The building uses ANY of the free cooling strategies listed in the BREEAM manual to reduce the cooling energy demand, i.e. it does not use active cooling.	**1**	**0.67%**				**0**	**0**	**0**	**1**	Credit depends on Passive Design Analysis, and a free cooling strategy being implemented. Whilst options exist for some flexibility in choice of free cooling e.g. night purge, it is not clear if the spaces proposed can achieve this criteria. **Credit Not Targeted.** **Action**: JS to advise if a free cooling strategy is a possibility, following passive design work. Deansgate Terrace comment: Unclear if there is an option to achieve a Free Cooling Strategy for the Terraces.	WSP as Low Carbon assessor to provide **Passive Design Analysis report.** Findings of this to determine if this free cooling credit can be targeted. Night-time cooling on Warehouse option.	RIBA Stage 2	WSP Sustainability/JS
		Low zero carbon feasibility study	A feasibility study has been carried out by the completion of the RIBA Stage 2 by an energy specialist to establish the most appropriate recognised local low or zero carbon (LZC) energy source for the building. A local LZC technology has been specified for the development in line with the recommendations of this feasibility study and provides a meaningful reduction in regulated carbon dioxide (CO2) emissions.	**1**	**0.67%**				**1**	**1**	**0**	**0**	JS noted that a BREEAM compliant LZC feasibility study is part of the Energy Statement being undertaken at Stage 2. Early stage 2 drawings show space allowance for ASHP plant/PV at roof level. **Credit targeted.** **Action**: JS to note BREEAM Ene 04 LZC criteria. Deansgate Terrace comment: unclear if buildings are phased, if the Terrace could later assume benefit from connection to Warehouse/LZC electricity.	WSP as Low Carbon assessor to provide **LZC feasibility study.**	RIBA Stage 2	WSP Sustainability/JS

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Ene 06	Energy efficient transportation systems	**Energy consumption**	1.Where new lifts are specified within refurbishment works: a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. b. The energy consumption has been estimated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2: Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following: i. At least two types of system (for each transportation type required); OR ii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR iii. A system strategy which is 'fit for purpose'. c. The use of regenerative drives should be considered, subject to the requirements in CN6 d. The transportation system with the lowest energy consumption is specified.	**1**	**0.67%**				**1**	**1**	**0**	**0**	**Credit marked as targeted** Deansgate Terrace comment: Compliance per GNW.	WSP undertaking traffic analysis calculations to determine the type, size and number of lifts required to meet the building demand; this will be finalised during Stage 3.	RIBA stage 3	WSP Vertical Transport/ David Smith
		Energy Efficient features	For each **newly specified** lift, the following three energy efficient features are specified and for **existing lifts**, at least two of the following energy efficient features are specified: a. The lifts operate in a standby condition during off-peak periods. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. Where the use of regenerative drives is demonstrated to save energy, they are specified.	**2**	**1.34%**				**2**	**2**	**0**	**0**	**Two credits marked as targeted** Deansgate Terrace comment: Compliance per GNW.	Once traffic analysis finalised, WSP will undertake an assessment of energy consumption of two drive systems with the most energy efficient being selected If our assessment determines that regenerative drives will save energy, these will be incorporated into the Vertical Transportation Performance Specification. •The Vertical Transportation Performance Specification will also specify the following energy efficient features: -Standby condition operation during off-peak periods -Lift car lighting and display lighting to provide an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt -A drive controller capable of variable speed, variable voltage and variable frequency (VVVF) control of the drive motor.	RIBA stage 3	WSP Vertical Transport/ David Smith
Transport																	
Transport Section scoped out for a part 2/3 only without a change of use																	
Tra 01	Public transport solutions	**Accessibility Index**	1.The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded according to the building type. For Accessibility Index benchmarks see Table - 34 in the Checklists and tables section. 2.The Accessibility Index is determined by entering the following information into the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node, e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day (see compliance notes and Table - 36 in the Additional information section). Up to three credits - Alternative transport measures 3.Where alternative transport measures are provided, credits can be awarded based upon the number of measures implemented	**3**	**2.33%**				**3**	**3**	**0**	**0**	It is assumed that an accessibility index (GMAL) will be > 4 to achieve 2no credits, whilst its City Centre location may allow it to achieve all 3no credits. **Three Credits targeted.** Alex Vogt confirmed an AI score of >70 and so maximum credits under TRA01 seem reasonable and based on past experience all three should be achievable. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	Curtins TP/Alex Vogt
Tra 02	Proximity to amenities		Recognition of projects where proximity of, and accessibility to, local amenities which are likely to be frequently required and used by building occupants has been reviewed.	**1**	**0.78%**				**1**	**1**	**0**	**0**	Given the Central Manchester location, it is expected that a full array of BREEAM compliant local amenities within 500m of the site entrance, at Deansgate **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	BREEAM AP

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Tra 03	Cyclist facilities	**Cycle storage**	1. Compliant cycle storage spaces that meet the minimum levels set out in Table - 38 are installed.	**1**	**0.78%**				**1**	**1**	**0**	**0**	Project brief sets out design requirement for cycle infrastructure: Section 4.2 point 18. Interim Travel Plan (Document Reference: 80483-CUR-XX-XX-T-TP-00002)). AV table of calculated occupancy for BREEAM /other cycle storage standards applied. For BREEAM, adequate cycle storage for up to 1534 occupants. AV Curtins has set out BREEAM compliance for Offices as follows: BREEAM's predicted occupancy for offices is 0.111 (based on GFA), or ~1:9m². As the NIA is lower than GFA, the slightly higher occupancy figure you have adopted based on NIA seems reasonable.		RIBA Stage 4	SHA/NO
		Cyclist facilities	2. Criterion 1 has been achieved. 3. At least two of the following types of compliant cyclist facilities have been provided for all building users (including pupils where appropriate to the building type) - see Relevant definitions for the scope of each compliant cyclist facility: a) Showers b) Changing facilities c) Lockers d) Drying spaces .	**1**	**0.78%**				**1**	**1**	**0**	**0**	The base standard is 1 space per 10 staff, however when there are more 200 users the BREEAM sliding scale of compliance can be used. As the provision is a minimum requirement, any decimals must always be rounded up. Warehouse – •Over 200 staff (1,534), so 78 spaces minimum (or 94 with a 20% futureproof provision) are required using BREEAM sliding scale of compliance: **AV (Curtins) confirmed the** Terrace occupants will access/share these spaces and facilities, located in the Warehouse building and these will meet cycle storage (1 per 10 staff) requirement, and facilities will be provided in fitted out Landlord spaces (Showers, changing and drying). **The spaces will be fixed, sheltered and lift, and the facilities will comprise of showers (at a rate of one per 10 spaces) and adequate changing facilities.** At RIBA stage 4 drawings and specifications cycle facilities (shower, changing, drying) provided for Office tenants to be provided. Allowance made for Retail provision even though not assessed under BREEAM Cyclist lockers and 9no showers provided. **Two Credits targeted.** Deansgate Terrace comment: Compliance per GNW		RIBA Stage 4	SHA/NO
Tra 05	Travel plan		1.A travel plan has been developed as part of the feasibility and design stages. 2. A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the requirements in the BREEAM manual 3. The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the building's operation and use. 4.If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post refurbishment or fit-out and be supported by the building's management in operation.	**1**	**0.78%**				**1**	**1**	**0**	**0**	A TA and Framework Travel plan are planned. This will be led by Alex Vogt (Curtins). **Action**. AV confirmed Curtins will provide both TA and TP to comply with TRA05 BREEAM criteria. **Credit targeted.**	Curtins to provide **TA** and **Framework Travel plan**.	RIBA stage 1/2	Curtins TP/Alex Vogt
Water																	
Wat 01	Water consumption		Up to five credits where evidence provided demonstrates that the specification includes taps, urinals, WCs and showers that consume less potable water in use than standard specifications for the same type of fittings. Credits are awarded based on the following improvement over the notional baseline: - One credit - 12.5% improvement - Two credits - 25% improvement - Three credits - 40% improvement - Four credits - 50% improvement - Five credits - 55% improvement The calculations is based upon the following sanitary fittings: a) WCs; b) Urinals; c) Taps; d) Showers; e) Baths; f) Dishwashers; g) Washing machine; h) Kitchen pre-rinse nozzles	**5**	**3.89%**	**1**	**1**	**2**	**3**	**3**	**0**	**0**	Sanitaryware Fit-out is part of architect brief, for Stage 4 technical design. JS noted that specifying low-flow fitting should be targeted to secure 3no credits for a 40% improvement on water consumption based on sanitaryware spec meeting standards set out in BREEAM Wat 01 table 8.3. **Three Credits targeted.** **Action:** NO to note overall improvement of 40% required to secure three credits in specification. Where this is a performance standard for others @ Stage 4, this is passed on via Contract/prelims. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/NO
Wat 02	Water Monitoring		One credit where evidence provided demonstrates that a water meter with a pulsed output will be installed on the mains supply to each building/unit. The water consuming plant or areas consuming 10% or more of the building's water use need to be fitted with a pulsed sub meter or have water monitoring equipment integral to the plant or area. If the refurbishment zone is within a site that has an existing BMS, managed by the same occupier/owner, the pulsed/digital water meters must be connected to the existing BMS	**1**	**0.78%**	**Criterion 1 (part 2)**	**Criterion 1 (part 2)**	**Criterion 1 (part 2)**	**0**	**1**	**1**	**0**	Credit compliance centres on mains metering and metering of main water-consuming plant or building areas i.e. consuming 10% or more of building's total water demand. **Credit targeted** MP (WSP MEP) reviewed and noted MEP strategy includes metering the incoming supply and providing sub-meters that will have a BMS output. **Action**: MEP to write in to specifications/stage 2 report. **Credit marked as potential (Terrace only).** Deansgate Terrace comment: water sub-meters not included in Terrace brief.		RIBA Stage 4	WSP MEP/MP

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Wat 03	Water Leak detection	**Leak Detection**	A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection system must be: a) A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed. b) Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c) Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d) Programmable to suit the owner/occupiers' water consumption criteria. e) Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.	**1**	**0.78%**				**0**	**1**	**1**	**0**	WSP MEP to say if a compliant water leak detection system will be provided, to meet points a-e opposite. **MP (WSP MEP) reviewed and noted** BMS provided will provide BREEAM compliant leak detection cover the Warehouse domain. **Credit targeted for Warehouse. Credit marked as Potential for Terrace.** **Action:** MEP to write in to specifications/stage 2 report. Deansgate Terrace comment: leak detection system not included in Terrace brief.		RIBA Stage 4	WSP MEP/MP
		Flow Control Devices	Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).	**1**	**0.78%**				**0**	**1**	**1**	**0**	MP (WSP MEP) reviewed and noted PIR sensors linked to solenoid valves will be specified for landlord services in WC's to comply with credit criteria. **Credit marked as Potential for Terrace.** **Action**: WSP MEP to write in to specifications/stage 2 report. **Credit targeted.** Deansgate Terrace comment: Flow control (sanitary supply shut-off) not included in Terrace brief.		RIBA Stage 4	WSP MEP/MP
Wat 04	Water efficient equipment		One credit where the design team has identified all unregulated water demands that could be realistically mitigated or reduced. The systems or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building. Where no irrigation systems are specified, and therefore there are no unregulated water demands for the building, this issue can be awarded by default.	**1**	**0.78%**				**1**	**1**	**0**	**0**	Planit will provide landscape plans (comprehensive scheme). **Action**: Sarah Barker (Planit) to say if soft landscaping provided will not rely on irrigation (e.g. native species) to meet BREEAM criteria. Note. The above approach assumes no other major water-consuming plant e.g. car wash is provided. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA stage 4	Planit-IE/ Sarah Barker
Materials																	
Mat 01	Life cycle impacts	**Project lifecycle assessment study**	**OPTION 2** Robust environmental performance information has been collected for newly specified materials or where materials are retained in situ for the following elements: a) Heat source, space heating, air-conditioning and ventilation b) Communication, security and control systems c) Electrical installations d) Fire and lightning protection e) Lift and conveyor installations/systems f) Water and waste installations g) Sanitary installations Credits are awarded based upon the percentage of available points achieved. The total number of points achieved is based on the percentage of each element that has been: - reused in situ - reused in situ with minor repairs - specified with robust environmental performance information.	**6**	**6.73%**				**6**	**6**	**0**	**0**	JS noted that an element of WLC modelling is being undertaken. Atm this does not cover the scope of elemental LCA emissions for the proposed building. Note. Under BREEAM 2014 RFO this modelling can be done up to RIBA Stage 4. Note. the scope of works being limited on fabric may reduce the number of potential fabric elements to model. Modeller to advise if sought. **Two Credits marked as potential.** **Action:** stage 2 dates may need to be set for designers to share options for options appraisal. Included as precaution in case of a 2018 criteria shift– refer to meeting notes on Terrace new build areas scope. Deansgate Terrace comment: Compliance per GNW.	JS to co-ordinate with HB/SM and line management on who can lead LCA work	RIBA Stage 4	WSP Sustainability/JS
Mat 03	Responsible sourcing of materials	**Pre-requisite**	All timber and timber based products used on the project is 'Legally harvested and traded timber'	**yes**		**Criterion 1**	**Criterion 1**	**Criterion 1**	**yes**	**yes**	**-**	**-**	**Pre-requisite and minimum standard.** **Action**: BREEAM timber specification criteria to form part of design/project materials specification, or be a performance point in contract prelims/duties for others.		RIBA Stage 4	SHA/NO
		Sustainable procurement plan	The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan	**1**	**1.12%**				**1**	**1**	**0**	**0**	It is unclear if there is a Trilogy Sustainable Procurement policy/plan for materials procurement that can be applied to GNW. **Credit targeted.** **Action**: PM to state if a compliant sustainable procurement plan will be provided to cover the materials sourcing of the project. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
		Responsible sourcing of materials (RSM)	Up to three credits of the available RSM credits can be awarded where the applicable building materials are responsibly sourced in accordance with the BREEAM methodology. Credits are awarded based on the following % points achieved: - Three credits - 54% of available points achieved - Two credits - 36% - One credit - 18%	**3**	**3.36%**				**2**	**2**	**0**	**0**	Specifying materials with responsible sourcing certification can form part of contractor materials procurement at stage 4. **Action**: PM to confirm target. Responsibly sourced (certified) materials specification to be written in to any contract prelims/duties. **Two credits targeted, one credit marked as untargeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
Mat 04	Insulation	**Embodied impact**	Any new insulation specified for use within the following building elements must be assessed: (a.) External walls; (b.) Ground floor; (c.) Roof; (d.) Building services. The Insulation Index for the building fabric and services insulation is the same as or greater than 2.5.	**1**	**1.12%**				**1**	**1**	**0**	**0**	It is assumed that Insulation specification will comply with Green Guide ratings/ thermal index. **Action**: Compliance with BREEAM Green Guide criteria to be included in design materials and MEP specifications /noted in detailed design stage report. **Action**: Performance Criteria to be noted in Stage 2 reports and later, if needed written in to any contract prelims/duties. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/ NO WSP/ NO

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Mat 05	Designing for durability and resilience	**Protecting vulnerable parts of the building from damage and material degradation**	Protecting vulnerable parts of the building from damage. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements; such as: - Bollards/barriers/raised kerbs to delivery and vehicle drop-off areas - Corridor walls specified to Severe Duty (SD) as per BS 5234-21 - Protection rails to walls of corridors - Kick plates/impact protection (from trolleys etc.) on doors - Hard-wearing and easily washable floor finishes in heavily used circulation areas (i.e. main entrance, corridors, public areas etc.) Protecting exposed parts of the building from material degradation. The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors Existing building elements, have been assessed to identify impacts of material degradation effects including an assessment to grade the severity of any degradation effects. Design measures have been developed to repair and protect existing elements according to the severity of any degradation affects, to limit degradation. Newly specified materials or newly constructed elements (e.g. a new external wall) within the scope of refurbishment or fit-out works incorporate appropriate design and specification measures to limit material degradation due to environmental factors	**1**	**1.12%**				**1**	**1**	**0**	**0**	It is assumed this credit can be achieved subject to adequate protection of all vulnerable areas of the building (internal /external) and correct specification such as listed opposite. It is assumed materials specified will be able to resist degradation from the elements and fit-for-purpose to maximise the element's lifespan. **Action**: NO to review criteria and note compliance required in SHA Stage 2 architect report. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/ NO
Mat 06	Material efficiency		Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life. The above is carried out by the design/construction team in consultation with the relevant parties at each of the following RIBA stages: a. Preparation and Brief b. Concept Design c. Developed Design d. Technical Design e. Construction.	**1**	**1.12%**				**0**	**0**	**0**	**0**	NO uncertain this credit would be achievable based on need for lead designer scope and wide-ranging criteria to be met. **Credit not targeted.**	-	RIBA Stage 1/2	SHA/ NO
Waste																	
Wst 01	Project waste management	**Pre-refurbishment audit**	The client shall ensure that a pre-refurbishment audit of all existing buildings, structures or hard surfaces within the scope of the refurbishment or fit-out zone is completed. The audit should be carried out prior to strip-out or demolition works, be referenced in the resource management plan and cover: d. Identification and quantification of the key materials where present on the project e. Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy. f. Identification of local reprocessors or recyclers for recycling of materials g. Identification of overall recycling rate for all key materials h. Identification of reuse targets where appropriate. i. Identification of overall landfill diversion rate for all key materials.	**1**	**0.73%**				**1**	**1**	**0**	**0**	**Action**: pre-demolition audit to be done at Stage 2 OR written in to contracts for others to carry out pre-SoS. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW. **ADW Pre-demolition Audit, Sept 2022** Pre-demolition audit: content meets BREEAM Wst 01 criteria 1a & 1b) for scope. Audit categories all per the EU waste streams (table 1) – matches BRE waste groups, qtys, potential applications for re-use & recycling, local processors , overall recycling rate target (95% by weight), reuse target (1% by weight) and overall landfill diversion rate (95% diversion from landfill by weight), all fine. For Toby's role as author, he meets the BRE ok as 'competent person' with site survey experience. Next steps– to implement audit: 1.Write requirement in as a performance clause – audit to be cross-ref to PC's Site Waste Management Plan/RMP: at construction, they need to compare actual vs forecast.	**to target one or two BREEAM Wst 01 Re-use & Direct Recycling credits:** 2.GNW & DT (Refurb): need a take off (a split) of Material arisings for each of GNW and Deansgate Terrace buildings only i.e. qtys below split against Key Demolition Products (per ADW Report table 2) 3.Identify solution for re-use on-site/off-site or sent back via closed-loop recycling, for each materials listed in BREEAM table 65 using attached Wst 01 tool: 50% of pts available gains one credit, 75% of pts available gains two credits. 4.Write requirement in as a performance clause*, to gain credits – can be from client and separate to audit if needs be/must be contractual. *Pre-empt a query on partial compliance, it seems BRE allow max pts in a given category even if not all material is reused/recycled via the compliant route – so long as potential is maximised.	RIBA Stage 3	2110 Consultant/AL
		Reuse and direct recycling of materials	Where waste material types detailed in the BREEAM manual are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling Credits are awarded based on the % of available points achieved for the waste material types detailed in Table - 64, that are present on the project: - Two credits - 75% - One credit - 50%	**2**	**1.46%**				**0**	**0**	**1**	**1**	The quantification from the pre-refurbishment could be used to determine if 1 credit it achievable. WSP BREEAM can provide a proforma to assist in the quantification of materials being reused or recycled. Credit to be reviewed in RIBA stage 4. **Two credits marked as potential.** Deansgate Terrace comment: If work phased, it may be difficult to achieve this credit for the Terrace on its own due to small floor area and need to achieve benchmarks.	**See above - ADW pre-demolition audit** Minimal levels of demolition. Inert materials (excluding soil) targeted (24.5 million bricks) Metal - 120 year old steel and timber roof trusses structures to be retained in situ No composite materials Plasterboard - small areas of spec. Potential to specify a take-back scheme for 2pts. Subject to contract performance item.	RIBA Stage 4	2110 Consultant/AL
		Resource efficiency	Develop and implement a compliant resource management plan covering the waste arising's project One credit for <11.3 m³ per 100m² (gross internal floor area) Two credits for <4.5m³ per 100m² Three credits for < 2.1m³ per 100m²	**3**	**2.19%**				**2**	**2**	**0**	**0**	It is expected that waste minimisation could be achieved through efficient construction practice, specification and re-use on site. **Action**: PM to say if a construction efficiency target of <4.5m3 waste per 100m2 will be required of the contractor. **Action:** Wst 01 Benchmarks to be written in to contracts/prelims. **Two Credits targeted** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
		Diversion of resources from landfill	One credit where evidence provided demonstrates that: - 85% by volume or 90% by tonnage non-hazardous construction AND - 90% by volume or 95% by tonnage demolition waste generated by the development will be diverted from landfill and reused or recycled.	**1**	**0.73%**				**1**	**1**	**0**	**0**	It is assumed that the principal contractor will be required to will be target a minimum 80% by volume or 90% by tonnage non-hazardous construction and demolition waste is diverted from landfill and reused or recycled. **Action**: Wst 01 Benchmarks to be written in to contracts/prelims. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
Wst 02	Recycled aggregates		1. The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled or secondary aggregate, as specified in Table 68. 2. The total amount of recycled or secondary aggregate specified, and meeting criterion 1, is greater than 25% (by weight or volume) of the total high grade aggregate specified for the project. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified. 3. The recycled or secondary aggregates are EITHER: a) Construction, demolition and excavation waste obtained on-site or off-site; OR b) Secondary aggregates obtained from a non-construction post-consumer industrial by product source.	**1**	**0.73%**				**0**	**0**	**0**	**0**	VC (Curtins) highlighted this credit is unlikely to be achieved. In particular: Curtins do not expect there to be sufficient demolition waste warrant crushing material on site. The availability of secondary aggregates from industrial process cannot be guaranteed. As a result, and given the potential need to have to bring recycled fill to a city centre site (for unbound aggregate compliance on pipe bedding and granular fill and capping) as impractical, this credit is marked as constrained. **Credit not targeted.**		None	None

										Cumulative Scores						
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Wst 03	Operational waste	**Operational waste**	1. Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste 2. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, the following facilities are provided: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. Vessel(s) for composting suitable organic waste; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection. c. Where organic waste is on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.	**1**	**0.73%**				**1**	**1**	**0**	**0**	It is assumed that the bin store location and accessibility route plan and collection details will been provided by the architect along with sizing plan confirming appropriate labelling of the dedicated space for recycling use only. **Note.** It is assumed no major consistent waste streams will be present a compactor, baler or organic waste vessel are **only required where major paper/card or organic food waste stream** (from commercial kitchen) is included in the Offices scheme. **Credit targeted.** **Action:** NO to confirm dedicated recycling storage (and refuse) space allowance for Office domain in m2 vs the floor plate area. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/NO
Wst 04	Speculative floor and ceiling finishes		1. For tenanted areas (where the future occupant is not known), prior to full fit-out works, interior finishes (including carpets, other floor finishes, ceiling finishes and any other interior finishes) have been installed in a show area only. 2. In a building being refurbished or fitted out for a specific occupant, that occupant has selected (or agreed to) the specified interior finishes.	**1**	**0.73%**				**1**	**1**	**0**	**0**	It is assumed that as a Cat A fit-out, floor finishes will not be specified for more than the landlord (prescribed) areas and (at most) a show area to comply with BREEAM criteria. **Credit targeted.** **Action:** NO to verify understanding is accurate and credit can be targeted safely. Deansgate Terrace comment: Compliance per GNW.		RIBA stage 4	SHA/NO
Wst 05	Adaptation to climate change	**Structural and fabric resilience**	1. Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach: a) Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages: i. Hazard identification ii. Hazard assessment iii. Risk estimation iv. Risk evaluation v. Risk management.	**1**	**0.73%**				**0**	**0**	**1**	**1**	WSP appointed and provided a Climate Change Statement as part of the EIA chapters. Note Wst05 study requires input from the project team, a specialist appraisal to identify any CC mitigation measures set out in a report along with proof of these implemented in the final design. **Action**: JS to explore what additional work is needed to undertake a CC resilience appraisal for BREEAM. **Credit marked as potential.** Deansgate Terrace comment: Compliance per GNW.	**Action**: JS to explore what additional work is needed to undertake a CC resilience appraisal for BREEAM.	RIBA Stage 2	WSP Sustainability/JS
Wst 06	Functional adaptability		A building-specific functional adaptation strategy study has been undertaken by the client and design team by RIBA Stage 2, which includes recommendations for measures to be incorporated to facilitate future adaptation. Functional adaptation measures have been implemented by RIBA Stage 4 in accordance with the functional adaptation strategy recommendations, where practical and cost effective.	**1**	**0.73%**				**1**	**1**	**0**	**0**	NO indicated this credit can be targeted and can be provided to reflect the work done for Stage 2 on space and design flexibility for future usage. **Action:** NO to complete functional adaptation study. **Credit targeted** Deansgate Terrace comment: Compliance per GNW.	NO to complete **functional adaptation study.**	RIBA Stage 2	SHA/NO
Land Use and Ecology																	
Issue scoped out of the assessment as there is no new or existing landscaping areas within the refurbishment or fit-out zone																	
Le 02	Protection of ecological features		1. All existing features of ecological value within and surrounding the refurbishment or fit-out zone and site boundary area are adequately protected from damage during clearance, site preparation and refurbishment or fit-out activities in line with BS42020: 20131. 2. In all cases, the principal contractor is required to construct ecological protection recommended by the Suitably Qualified Ecologist (SQE), prior to any preliminary site refurbishment or fit-out or preparation works (e.g. erection of temporary site facilities).	**1**	**2.33%**				**1**	**1**	**0**	**0**	It is understood Indigo Surveys ecology team are appointed to provide necessary surveys and reporting. It is expected protection recommendations are followed by the contractors. **Action**: Andrew Turnbull to confirm if a BREEAM section will be provided as part of the planned PEA/BNG reports, with comments on BREEAM credit compliance. **Action:** Where appropriate, implementation of protection measures and further work to be written in to prelims/ contract. **Action**: Contractor to comply with requirements. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Ecology - Indigo Surveys/ Andrew Turnbull
Le 04	Enhancing site ecology		1. A suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the RIBA Stage 1 to advise on enhancing the ecology of the site at an early stage. 2. The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at RIBA Stage 2. The report is based on a site visit/survey by the SQE (see also CN4.1). 3. The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the refurbishment or fit-out.	**1**	**2.33%**				**1**	**1**	**0**	**0**	It is assumed that in meeting the high-level BNG target for this project that the landscape design can secure maximum BREEAM Ecology credits for enhancing species numbers. Public Realm to North end of Warehouse shows significant green planted space including trees. Leisure box plans show courtyard cards (4FL), @ 2FL and 3FL tree planting in public realm **Action**: Andrew Turnbull noted Andy Warren (indigo) to confirm if a BREEAM section will be provided as part of the planned PEA/BNG reports, with comments on BREEAM credit compliance. **Action**: Contractor to comply with requirements. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.	**Action**: Andy Warren/Indigo to confirm if a BREEAM section will be provided as part of the planned PEA/BNG reports, with comments on BREEAM credit compliance.	RIBA Stage 2	Ecology - Indigo Surveys/ Andy Warren

									Cumulative Scores						
									69.05%	72.73%	77.45%	79.34%			
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Le 05	Long term impact on biodiversity		1. Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the refurbishment or fit-out process. 2. Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:20131 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff. 3. Where additional measures to improve the assessed site's long term biodiversity are adopted: 1 credit where 2 additional measures are adopted 2 credits where 4 additional measures are adopted	**2**	**4.67%**				**2**	**2**	**0**	**0**	It is assumed that all long-term biodiversity criteria can be met by the contractor and that a habitat management plan will be implemented for ecology management in operation. **Action**: Andrew Turnbull to confirm if a BREEAM section will be provided as part of the planned PEA/BNG reports, with comments on BREEAM credit compliance. **Action**: Contractor to comply with requirements within their brief. **Two credits targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Ecology - Indigo Surveys/ Andrew Turnbull
Pollution																
Pol 01	Impact of refrigerants	**Pre-requisite**	All systems (with electric compressors) must comply with the requirements of BS EN 378:20081 and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.	-					**yes**	**yes**			**Impact of Refrigerants** - It is understood the energy strategy will be fossil fuel free and future proofed to achieve the UK 2050 Net Zero Carbon targets, with ASHPs and ambient loop distribution under consideration. Thus refrigerants will likely be specified in HVAC services. It is unclear if the heat pumps in use will meet the requirements for **both** DELC refrigerant credits. Action: AL (WSP) to comment - it is assumed that up to one credit may be attainable, based on very high COP and careful specification of refrigerant R value - this is also subject to calculation. **One credit marked as potential.** **Leak Detection** - it is assumed a leak detection system can be specified to meet full BREEAM criteria. MP (WSP MEP) reviewed and noted MEP strategy should achieve one credit. **Action**: MEP to write in to specifications/stage 2 report. **One credit marked as potential.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
		Impact of Refrigerant	**3 credits:** Where the building does not require the use of refrigerants within its installed plant/systems. **2 credits:** Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 100 kgCO2e/kW cooling/heating capacity. To calculate the DELC CO2e please refer to the Relevant definitions in the Additional information section and the Methodology section. OR Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤ 10. **1 credit:** Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity.	**2**	**1.80%**				**0**	**0**	**1**	**1**			RIBA Stage 4	WSP MEP/MP
		Leak detection	Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an inbuilt automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident	**1**	**0.90%**				**0**	**0**	**1**	**1**			RIBA Stage 4	WSP MEP/MP
Pol 02	NO_x emissions	**NOx emissions**	Credits achieved are based on the following scores where the dry NOx emissions (at 0% excess O2): - One credits- ≤100 mg/kWh (space heating) - Two credits - ≤70 mg/kWh (space heating) - Three credits - ≤40 mg/kWh (space heating)	**3**	**2.69%**				**0**	**0**	**0**	**0**	The MEP team advised no combustion plant will be used to provide heating and hot water. Electricity run systems score poorly for NOx emissions in this version of the BREEAM scheme (due to grid electricity NOx figures) therefore it is anticipated no credits can be achieved. **Credits Not Targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP

										Cumulative Scores			
										69.05%	72.73%	77.45%	79.34%
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Pol 03	Flood risk management and reducing surface water run-off	**Flood risk management**	**Low flood risk** Where flood maps from the appropriate statutory body confirm the refurbishment or fit-out is situated in a flood zone that is defined as having a low annual probability of flooding; OR The project meets the requirements for avoidance of flooding in accordance with Checklist 1, where the refurbishment or fit-out zone is of a floor level that is 0.3m higher than the obtained/estimated flood level and safe access/escape routes are available/present **Medium/high flood risk** Where flood maps confirm the site has a medium/high flood risk a site specific FRA his undertaken AND 5.The refurbishment zone achieves avoidance from flooding through either: a. The refurbishment zone is located entirely on the first floor or above and a flood emergency plan has been developed in accordance with 'Would your business stay afloat? A Guide to preparing your business for flooding', Environment Agency, 2011 b. As a result of the building's floor level or measures to keep water away, the building is defined as achieving avoidance from flooding by following Checklist A-1. OR 6. Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the building's scope of works in accordance with recommendations made by a Suitably Qualified Building Professional.	**2**	**1.80%**				**2**	**2**	**0**	**0**	Site is within a Critical Drainage Area and therefore a Drainage Strategy is required. Curtins/Victoria Chekley to provide. Curtins doing FRA and drainage. **VC shared Curtins 2017 FRA & Drainage strategy for Great Northern. This shows that the site is wholly located in Flood Zone 1.** **Two Credits targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	Curtins/VC
		Surface water run-off	One credit 7. There is no increase in the impermeable surfaces as a result of the refurbishment works; OR 8. If there is an increase in the impermeable surface as a result of the refurbishment works then the following must be met: a) Hard standing areas - where there is an extension or increase in the hardstanding areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hardstanding area must be permeable or be provided with on-site SuDS to allow full infiltration of the additional volume, to achieve the same end result. The permeable hardstanding must include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscaped areas which will drain onto a naturally permeable surface. b) Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension must be managed on-site using an appropriate SuDS technique for rainfall depths up to 5mm. Two credits - reducing run-off 9. An Appropriate Consultant has been used to design an appropriate drainage strategy for the site. 10. Either of the following criteria are met: a) There is a decrease in the impermeable area by 50% or more, from the pre-existing impermeable hard surfaces; OR b) Where run-off as a result of the refurbishment is managed on-site using source control achieving the following requirements: i. The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 50% from the existing site. ii. The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration has been reduced by 50%. iii. An allowance for climate change must be included for all of the above calculations; this should be made in accordance with current best practice planning guidance.	**2**	**1.80%**				**2**	**2**	**0**	**0**	**Surface Water Run-off** As a SuDS strategy is required, it is assumed that two credits may be targeted. **Action**: VC /Curtins to review criteria and advise if compliance likely. Deansgate Terrace comment: Compliance per GNW. **Two credits targeted.**		RIBA Stage 4	Curtins/VC
		Minimising water course pollution	11. There is no discharge from the developed site for rainfall up to 5mm. 12. Where suitable pollution prevention measures are put in place (or already exist) for the different sources of pollution present on the assessed site 13. A comprehensive and up to date drainage plan of the site will be made available for the building/site occupiers. 14. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.	**1**	**0.90%**				**0**	**0**	**0**	**0**	**Minimising water course pollution** SuDS must be employed and first 5mm run-off prevented from leaving the site. **Action**: VC /Curtins to review criteria and advise if compliance likely. **Fifth credit not targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Curtins/VC
Pol 04	Reduction of night time light pollution		One credit where evidence provided demonstrates that the external lighting design is in compliance with the guidance in the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except safety and security) should be automatically switched off between 23:00 and 7:00 hours. Safety and security lighting levels should be lowered between these hours to meet the criteria in table 2 of the ILP notes. illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements	**1**	**0.90%**				**1**	**1**	**0**	**0**	WSP MEP team to say if external lighting will meet requirements relating to reduction of night time light pollution. **Action**: MEP to check criteria and write in to specifications/stage 2 report if targeted. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
Pol 05	Reduction of noise pollution		Where there are no noise-sensitive areas or buildings within 800m radius of the assessed site. OR Where the building does have noise-sensitive areas or buildings within 800m radius of the site: - A noise impact assessment in compliance with BS 7445 is carried out - The noise impact assessment must be carried out by a suitably qualified acoustic consultant - The noise level is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level. - Where the noise is greater than the levels described measures have been installed to attenuate the noise at its source to a level where it will comply.	**1**	**0.90%**				**1**	**1**	**0**	**0**	WSP acousticians are appointed to undertake background noise surveys and provide recommendations to comply with requirements. Compliant acoustics report provided. Confirmation from PM of implementation of acousticians stage 3 advice received. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.	WSP acousticians are appointed to undertake background noise surveys and provide recommendations to comply with requirements. Compliant acoustics report provided. Confirmation from PM of implementation of acousticians stage 3 advice received. **Credit Achieved.**	RIBA Stage 4	WSP Acoustician/ Alex Lees

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for				Design Stage - projected scoring				Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding		Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Innovation																	
Man 03	Responsible construction		See Man 03 above	**1**	**1.00%**					**1**	**1**	**0**	**0**	Note. A further (exemplary level) credit is available subject to uplift in compliance level of site best practice in line with BREEAM. Exemplary credit marked as potential (see also Man 03 above). 'Action: AL to confirm target. Best practice Construction Site Management and Monitoring to be written in to any contract prelims/duties. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
Hea 01	Daylighting		- Occupied areas have an average daylight factor of 3% in 80% of the space - A minimum point daylight factor of 1.2% OR 2.1% for spaces with glazed roofs, such as atria	**1**	**1.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Hea 02	VOC		**One credit** - All seven remaining categories meet the testing requirements and emission levels criteria - For products b) – f) listed in the table, the formaldehyde emission levels are measured and found to be less than or equal to 0.06mg/m3 air in accordance with the approved testing standards **Two credits** - All seven remaining categories meet the testing requirements and emission levels criteria - For products B to F listed in the table, the formaldehyde emission levels are measured and found to be less than or equal to 0.01mg/m3 air, in accordance with the approved testing standards	**2**	**2.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Ene 01	Reduction of energy use and carbon emissions		Building meets 'zero regulated' or Carbon negative as demonstrated via Part L modelling	**5**	**5.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Wat 01	Water consumption		As per Wat 1, one exemplary credit can be achieved where there is a 65% reduction in water consumption over the notional building.	**1**	**1.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Mat 01	Environmental impact of materials		Achieve at least 85% of points within the Option 2 proforma	**1**	**1.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Mat 03	Responsible sourcing of materials		Where, in addition to the standard BREEAM requirements, 70% of the available responsible sourcing points have been achieved.	**1**	**1.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Was 01	Construction waste management		- Non-hazardous construction waste is no greater than 1.4m3 or 0.4 tonnes per 100m2 - The percentage of non-hazardous construction and demolition waste diverted from landfill meets is at least 95% by volume or 97 by tonnage - Waste materials are sorted into separate key waste groups either on-site or off-site through a licensed contractor for recovery. - 75% of difficult to manage wastes have been reused on or off-site rather than recycled	**1**	**1.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Was 02	Recycled aggregates		Where 35% (by weight or volume) of the total high-grade aggregates specified in the development are recycled and/or secondary. The percentage of high-grade aggregate that is recycled and/or secondary, must meet the following levels: - Structural frame - 30% - Bitumen or hydraulically bound base, binder and surface courses for paved areas and roads - 75% - Concrete road surfaces - 45% - Pipe bedding - 100% - Building foundations - 35% - Granular fill and capping - 100%	**1**	**1.00%**					**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above

										Cumulative Scores						
										69.05%	72.73%	77.45%	79.34%			
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring					Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Targeted (Warehouse)	Potential (Terrace)	Potential (Warehouse)				
Was 05	Adaptation to climate change		Achievement of the Structural and fabric resilience criterion in this issue and the following criteria points or credits: Hea 04 Thermal comfort Criterion 6 in the second credit of the Hea 04 issue has been achieved. Ene 01 Reduction of energy use and carbon emissions At least eight credits in this issue have been achieved. Ene 04 Low carbon design The Passive design analysis credit in this issue has been achieved. Wat 01 Water consumption A minimum of three credits in this issue have been achieved. Mat 05 Designing for durability and resilience Criterion 2 relating to material degradation in this issue has been achieved. Pol 03 Surface water run-off Flood risk – a minimum of one credit has been achieved. Surface water run-off – two credits have been achieved.	**1**	**1.00%**				**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	RIBA Stage 2	As above
Pol 03	Flood risk and reducing surface water run-off		- The peak rate of run-off as a result of the refurbishment for the 1 in 1 year event is reduced to zero. - The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero. - There is no volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration. (An allowance for climate change must be included for all of the above calculations)	**1**	**1.00%**				**0**	**0**	**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above

Appendix B

BREEAM PRE-ASSESSMENT TRACKER – NEW CONSTRUCTION

Public

Great Northern Warehouse Pre-Assessment

70064747 BREEAM New Construction 2014 v5

It is understood that the client target is for the development to achieve a 'Excellent' BREEAM rating, aspiring to BREEAM 'Outstanding'. The credits have been targeted based on the information gathered from the design team throughout the design stages. The credits and credit requirements are based on the BREEAM New Construction 2014 v5: Offices methodology.

									Cumulative Scores						
									72.45%	82.45%					
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility	
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)					
Management															
Man 01	Project brief and design	**Stakeholder consultation (project delivery)**	The design team develop a sustainability brief prior to during RIBA Stage 1 to set out the following: **(a) Client requirements** **(b) Sustainability objectives and targets including target BREEAM rating** (c) Timescales and budget; (d) List of consultees and professional appointments required (e) Project constraints Prior to completion of the RIBA Stage 2, the project delivery stakeholders meet to identify and define their roles, responsibilities and contributions for each of the key phases of project; considering the following: (a) End user requirements (b) Aims of the design and design strategy (c) Particular installation and construction requirements/limitations (d) Design and construction risk assessments e.g. CDM, legionella risk assessment (e) Legislative requirements e.g. building control notification, heritage requirements (f) Procurement and supply chain (g) Identifying and measuring project success in line with project brief objectives (h) Occupiers' budget and technical expertise in maintaining any proposed systems (i) Maintainability and adaptability of the proposals (j) Requirements for the production of project and end user documentation (k) Requirements for commissioning, training and aftercare support. **The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process influenced the project at each stage.**	**1**	**0.57%**				**1**	**0**	**Items (a) and (b) opposite in place.** Client Brief (March 2022) covers the RIBA Stage 1 client requirements (a) Sustainability - Early stage involvement covers (b). Trilogy Client Brief (March 2022) Section 2.1.2 includes to " Target strong ESG Credentials, including BREEAM" Baseline and aspirational targets will be shared in due course". Meeting minutes on SharePoint indicate the **roles** fulfilled, from 25 March 2022 Heritage - Stephen Levrant Heritage Architect, significance appraisals, Curtins Travel surveys (Alex Vogt), SHP as architect Consultation events/timeline tbc and records to be kept. Cross-check Consultation content/consultee group for BREEAM compliance. **Deansgate Terrace comment:** Compliance per GNW.	**Action:** AL/2110 to issue Project Execution Plan at end of RIBA Stage 2, keep meeting minutes/ communication strategy where project team discussed design updates and PExP tracks change to project brief. 03/08 Action with AL/2110 to complete PxP at end RIBA 2..	RIBA Stage 2	2110 Consultant/AL
		Stakeholder consultation (third party)	The design team have covered the minimum consultation content to relevant third party stakeholders prior the completion of RIBA Stage 2. Consultation feedback is given to, and received by all relevant parties by the end of RIBA Stage 4. The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. The consultation exercise used a method carried out by an independent party. **Minimum Consultation Content:** 1. Functionality, build quality and impact (including aesthetics). 2. Provision of appropriate internal and external facilities (for future building occupants and visitors/users). 3. Management and operational implications. 4. Maintenance resources implications. 5. Impacts on the local community, e.g. local traffic/transport impact. 6. Opportunities for shared use of facilities and infrastructure with the community/appropriate stakeholders, if relevant/appropriate to building type. 7. Compliance with statutory (national/local) consultation requirements. 8. Inclusive and accessible design. 9. Where services are taken from outside of the refurbishment area that affect the suitability of the service, e.g. domestic hot water services and legionella prevention.	**1**	**0.57%**				**1**	**0**	GN Consultation Strategy is in place (28.03.22). Stakeholder mapping exercise to be done. To include public, public figures, council and members. Clear consultation considerations have been made. **Credit targeted.** **Action**: Consultation events/timeline tbc and records kept. Cross-check Consultation content/consultee group for BREEAM compliance. **Deansgate Terrace comment:** Compliance per GNW.	May Molento noted scope of items 5, 6 and in part to point 4 and 8 (e.g. maintenance of the open space) is covered as part of Community Impact Consultation. The rest is **not** covered in Community Consultation. **Owner: MM/Trilogy - Items 5-6 and 4-8** **Action**: AL to clarify if **items: 1-3 and 7 opposite** are part of statutory/technical stakeholder consultation exercise , confirm media used – e.g. series of stakeholder meetings, feedback loop to design group used, review periods for comments, if resulting design updates are noted in updates to PxP? 04/08 Action with AL/ 2110, to say if scope is included in the statutory/technical stakeholder.	RIBA Stage 2	2110 Consultant/AL
		Sustainability champion (design)	A Sustainability Champion has been appointed at RIBA Stage 1 to facilitate the setting and achievement of BREEAM performance targets. The defined BREEAM performance targets between the client and design/project team no later than RIBA Stage 2. The agreed BREEAM performance targets must be demonstrably achieved via the BREEAM assessor's design stage assessment report.	**1**	**0.57%**				**1**	**0**	WSP BREEAM to fulfil the requirements of the role. Simon Sullivan to fulfil the role at Stages 1 & 2. Evidence of the BREEAM target of a Very Good has been set in Stage 1/2 via the WSP BREEAM appointment. **Two Credits targeted.** Trilogy to confirm appointments at next RIBA Stage incl for BREEAM AP @ RIBA Stage 3. **Deansgate Terrace comment:** Compliance per GNW.	WSP/SS to provide **BREEAM AP notes for Stage 2.** 04/08/22 SS to provide tracker to SharePoint and BREEAM AP notes at end of RIBA 2.	RIBA Stage 1/2	WSP/SS
		Sustainability champion (monitoring progress)	Sustainability Champion (design) criteria has been achieved. A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance targets throughout the design process and formally report progress to the client and design team. The Sustainability Champion must attend key project/design team meetings and report throughout each RIBA stage.	**1**	**0.57%**				**1**	**0**			RIBA Stage 4	BREEAM AP

										Cumulative Scores					
										72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Man 02	Life cycle cost and service life planning	**Elemental life cycle cost (LCC)**	An outline, entire asset elemental life cycle cost (LCC) plan has been carried out at RIBA Stage 2 in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:20081. The elemental LCC plan: a) An outline LCC plan has been undertaken for the project based on the building's basic structure and envelope, appraising a range of options and based on the life expectancy of the refurbished building, e.g. 20, 30, 50+ years. b) The servicing strategy for the project outlining services component over a 15 -year period, in the form of an 'elemental LCC Plan'. c) A fit-out strategy is developed outlining fit-out options over a 10-year period.	**2**	**1.14%**				**2**	**0**	The cost consultants have provided a BREEAM compliant elemental LCC report and a transmittal from the design team outlining how the LCC plans have influenced the design. SW/Quartz PS advised the cost plan basis will meet the best practice standard PD 156865. **Credit marked as potential.** **Deansgate Terrace comment:** It is assumed a single Stage 2 cost plan would cover both elements of work.	Quartz Property to undertake an Elemental Level Life Cycle Costing Quartz to agree with SHA/WSP what aspects of options are to be appraised in respect of a), b) and c) opposite. [MP/WSP, DO/SHA, AL/2110]. **Action**: SS to share example Options appraisal report excerpt for discussion. **Action**: Designers/client to agree options to compare. **Action**: AL to set date for designers to share options to SW for options appraisal. 04/08/22 Stuart Wearn to liaise with SHA on fit-out options, Simon Graham (WSP) on servicing strategy and Ramboll on Façade design options, and produce Quartz LCC and options appraisal. **WORK IN PROGRESS.**	RIBA Stage 2	Quartz Property Services/SW
		Component level LCC Plan	A Component level LCC plan has been developed by the end of RIBA Stage 4 in line with PD 156865:2008 and includes the following component types: **Part 1** assessments, including components within scope of works: Envelope, e.g. cladding, windows, and/or roofing **Part 2 & 3** assessments including newly specified local and core services: Newly specified local and/or core service equipment, e.g. boiler, air-conditioning, air handling unit, and/or controls etc. **Parts 1 – 4**, where finishes are within scope of works: Finishes, e.g. walls, partitions, floors and/or ceilings etc. Where **external spaces** are within scope of works: External spaces, e.g. alternative hard landscaping, boundary protection.	**1**	**0.57%**				**1**	**0**	Component level LCC costing provided by costs consultant and a transmittal from the design team outlining how the LCC plans have influenced the design. **Credit marked as target.** **Deansgate Terrace comment**: It is assumed a single Stage 2 cost plan would cover both elements of work. If work phased/assessments split then this may add risk, as compliance would sit with one or other asset e.g. linked to building specific options choices.		RIBA Stage 4	Quartz Property Services/SW
		Capital cost reporting	Report the capital cost for the refurbishment/fit-out works in pounds per square metre (£k/m2)	**1**	**0.57%**				**1**	**0**	It is expected that this credit can be targeted and that capital cost is not subject to any non-disclosure. **Action**: Project capital cost to be reported. Action point to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**	-	RIBA Stage 4	Quartz Property Services/SW
Man 03	Responsible construction practices	**Pre-requisite**	All timber and timber-based products used on the project is 'Legally harvested and traded timber'		**0.00%**				**yes**	**-**	**Pre-req targeted** **Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties.		RIBA Stage 4	2110 Consultant/AL
		Environmental management	The principal contractor operates an environmental management system (EMS) covering their main operations. i.e. ISO 14001/EMAS or Compliance with BS8555:2003. The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6	**1**	**0.57%**				**1**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**			
		Sustainability Champion (construction)	A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM targets, during RIBA Stages 5 and 6. The principal contractors contract includes BREEAM performance targets The BREEAM assessor's final post construction stage assessment report must demonstrate compliance with BREEAM-related performance targets	**1**	**0.57%**				**1**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**			
		Considerate construction	Using the Considerate Constructors Scheme (CCS) the principal contractor must achieve scheme certification and a CCS score as follows: 1. One credit: a CCS score between 25 and 34 and a score of at least 5 in each of the five sections 2. Two credits: a CCS score between 35 and 39 and a score of at least 7 in each of the five sections Innovation Credit: a CCS score of more than 40 and a score of at least 7 in each of the five sections	**2**	**1.14%**		**One credit**	**2**	**2**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. Note. A further (exemplary level) credit is available subject to uplift in compliance level of site best practice in line with BREEAM. **Two credits targeted.** Exemplary credit marked as potential.			
		Utility consumption	Responsibility has been assigned to an individuals for monitoring, recording and reporting energy use and water consumption resulting from all on-site refurbishment or fit-out processes. Energy consumption - Monitor and record data of the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation (as relevant to the project type). - Report the total carbon dioxide emissions (total kgCO2/project value) from the construction process Water consumption - Monitor and record data on principal constructor's and subcontractors' potable water consumption (m3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation - Using the collated data report the total net water consumption (m3), i.e. consumption minus any recycled water use from the construction process	**1**	**0.57%**				**1**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted.**			
		Transport of construction materials and waste	Monitor and record data on transport movements and impacts resulting from delivery of the majority of materials to site and demolition or strip-out waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. b. Scope of this monitoring must cover the following as a minimum: - Materials used for core services - Where within scope, ground works and landscaping materials c. Transport of construction waste from the gate to waste disposal processing or recovery centre. Scope must cover the construction waste groups outlined in the project's waste management plan. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and/or total carbon dioxide emissions (kgCO2 eq), plus total distance travelled (km)	**1**	**0.57%**				**1**	**0**	**Action**: Best practice Construction Site Management and Monitoring to be written in to any Stage 4 design contract prelims/duties. **Credit targeted**			

										Cumulative Scores					
										72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Man 04	Commissioning and handover	**Commissioning and testing schedule and responsibilities**	There is a schedule of commissioning and testing that identifies appropriate commissioning required for the scope of works that includes a suitable timescale for commissioning and re-commissioning of all relevant works carried out. Commissioning should be carried out where changes are being made to buildings services, building services control systems and changes to the building fabric which will affect building performance. All commissioning activities are carried out in accordance with current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within the main programme of works.	**1**	**0.57%**				**1**	**0**	**MP** (WSP) reviewed best practice commissioning & testing criteria for building scope and if design brief is likely to comply. Deansgate Terrace comment: Compliance per GNW. **Credit targeted**		RIBA Stage 4	WSP MEP/MP
		Commissioning building services	Commissioning and testing schedule and responsibilities credit is achieved. For projects where work is being undertaken to upgrade, renovate or install new building services and systems. (a) For complex building services and systems, a specialist commissioning manager is appointed during the design stage with responsibility for: (i) Undertaking design reviews and giving advice on suitability for ease of commissioning; (ii) Providing commissioning management input to construction programming and during installation stages; (iii) Management of commissioning, performance testing and handover/post handover stages;	**1**	**0.57%**				**1**	**0**	MP(WSP) reviewed in view of WSP's commissioning Manager role/reviewer pre-contract. Likely that an extended Specialist Commissioning Manager role will be included. **Action**: MEP brief for extended Specialist Commissioning Manager role at RIBA Stages 4 and 5 and/or need to be written in to contract/prelims. **Note**: Criteria requires Specialist Commissioning manager to be appointed during Stage 4 to input with the Design. They must be independent from the MEP design team. **Credit targeted** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
		Testing and inspecting building fabric	If the fabric of the building has be upgraded the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of a thermographic survey as well as airtightness testing and visual inspection. This will be undertaken by a Suitably Qualified Professional with any defects rectified prior to building handover and close out.	**1**	**0.57%**				**0**	**1**	**Action**: NO (SHA) to review/confirm if a thermographic survey /remediation of any thermal bridging is likely to be in current brief/written in to contract. **Note**: Credit requires a thermographer to be appointed during post construction to undertake thermal imaging. Any defects would need to be remediated. Air testing is assumed to be required to show the building meets the required standard also. Deansgate Terrace comment: Compliance per GNW. **Credit marked as potential.**		RIBA Stage 4	SHA/NO
		Handover	A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers. A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: - The design intent of refurbishment/fit-out works - The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation - Introduction to, and demonstration of, installed systems and features, particularly BMS controls and their interfaces, - Introduction to the Building User Guide and other relevant building documentation. - Maintenance requirements, including any maintenance contracts and regimes in place.	**1**	**0.57%**		**BUG**	**BUG**	**1**	**0**	Contractor to produce Building User Guide (BUG), and give introductory training in line with requirements. **Note**. BREEAM Contractors Requirements or Prelims document may need to be produced at RIBA Stage 3/4. **Action**: AL/PM team to confirm a BUG/training can be included in the tender pack. **Credit marked as targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
Man 05	Aftercare	**Aftercare support**	There will be operational infrastructure and resources in place to provide aftercare support to the building occupiers, which meets the following as a minimum: a) A meeting programmed to occur between the aftercare team/individual and building occupier/management to: i. Introduce the aftercare team or individual to the aftercare support available ii. Present key information about features of the refurbished building b) On-site facilities management training c) Initial aftercare support provision for at least the first month of building occupation d) Longer term aftercare support provision for occupants for at least the first 12 months from occupation There will be operational infrastructure and resources in place to co-ordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months. If discrepancies between actual and predicted performance are identified, commitments are required to address the discrepancies.	**1**	**0.57%**				**1**	**0**	**Credit targeted** Note. BREEAM Contractors Requirements or Prelims document may need to be produced at RIBA Stage 3/4. Action: AL/PM team to confirm Aftercare Support will included in the tender pack e.g. as an extension to the defects package.	N/A	RIBA Stage 4	2110 Consultant/AL
		Seasonal commissioning	Seasonal commissioning activities must be completed over a minimum 12-month period, once the building becomes substantially occupied. Complex systems - Specialist Commissioning Manager: i. Testing of all building services under full load conditions ii. Where applicable, testing should also be carried out during periods of extreme (high or low) occupancy. iii. Interviews with building occupants to identify problems or concerns on the effectiveness of the systems. iv. Re-commissioning of systems, and incorporating any revisions in operating procedures into the operations and maintenance (O&M) manuals.	**1**	**0.57%**		**One credit**	**Seasonal Comm'ing**	**1**	**0**	**Credit targeted** Note. BREEAM Contractors Requirements or Prelims document may need to be produced at RIBA Stage 3/4. Action: AL/PM team to confirm Seasonal Commissioning will included in the tender pack e.g. as an extension to the Commissioning package.	N/A	RIBA Stage 4	WSP MEP/MP
		Post occupancy evaluation	The client or building occupier makes a commitment to carry out a post occupancy evaluation (POE) exercise one year after initial building occupation. This is done to gain in-use performance feedback from building users to inform operational processes, including re-commissioning activities, and maintain or improve productivity, health, safety and comfort. The POE is carried out by an independent party and needs to cover: a) A review of the design intent and construction process b) Feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering c) Sustainability performance The client or building occupier makes a commitment to carry out the appropriate dissemination of information on the building's post-occupancy performance.	**1**	**0.57%**				**1**	**0**	**Credit targeted** Considered likely in view of WELL standard being sought, and WELL target credit T02.1 Thermal Comfort (post occupancy evaluation) and Occupant Survey (C04.1 /2). It is thought that there will be around 10 employees, though the exact number will only be known once contracts around receptions etc are finalised.	N/A	RIBA Stage 4	2110 Consultant/AL

										Cumulative Scores					
										72.45%	82.45%				
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Health and Wellbeing														
Hea 01	Visual comfort	**Glare control**	1. The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures (see compliance note CN7). 2.The glare control strategy avoids increasing lighting energy consumption, by ensuring that: (a) The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the façade: AND (b) The use or location of shading does not conflict with the operation of lighting control systems.	**1**	**1.07%**				**0**	**0**	Specific Glare Control Review is required. Potential additional cost of providing blinds in what is otherwise a Cat A fit-out would need to be confirmed. **Credit not targeted.** **Action**: AL to confirm not in scope/cannot be targeted.		RIBA Stage 4	2110 Consultant/AL
		Daylighting	ONE CREDIT IS AVAILABLE FOR OFFICE BUILDINGS Occupied areas have an average daylight factor of 2% in 80% of all staff and public spaces, and 3% in 80% in all occupied patient spaces (consulting rooms) AND either item a or items b and c below are achieved: a. A uniformity ratio of at least 0.3 or a minimum point daylight factor of at least 0.3 times the relevant average daylight factor value b. At least 80% of the room has a view of sky from desk or table top height c. The room depth criterion d/w +d/HW < 2/(1-RB) is satisfied	**1**	**1.07%**				**0**	**1**	It is unclear what natural levels of daylight are available to each office space, given the surrounding development adjacencies (Terrace-Warehouse-Leisure Box and Deansgate itself). **Credit marked as not targeted.** David Radcliffe providing a daylight/overshadowing chapter - noted the occupied spaces do not achieve the ADF of 2% for 40%/60% or 80% of assessed area and so no credits can be achieved on the warehouse. Deansgate Terrace comment: Difficult to assess without modelling. DF in Terrace may be better than in Warehouse owing to room depth/small suite size and natural light from windows in most spaces. **Credit marked as potential (Terrace only)**	David Radcliffe providing a daylight/overshadowing chapter - may be able to provide a comment. DavidRadcliffe@aaprojects.co.uk Item to review @ RIBA Stage 3.	RIBA Stage 3	AA Projects/DR
		View out	4. 95% of the floor area in each relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out. 5. The window/opening must be ≥ 20% of the surrounding wall area (refer to Hea 01 Visual comfort in the Additional information section). Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in table 1.0 of BS 82061. 6. In addition, the building type criteria in Table 13 are applicable to view out criteria.	**1**	**1.07%**				**0**	**1**	The credit requires at least 80% of the area would be within 7m of a wall with a window with adequate view out. It is thought this could be difficult on the project due to existing structure. Notes. offices 15-19 with no ext window on Level 02 and deep plan areas of others may constrain. Possible long-shot exception is if windows to central atrium for ALL suites with unobscured view and depth of view out is >10m. **Credit marked as Potential.** **Action:** NO to comment on potential to achieve this credit to be reviewed at RIBA Stage 3. Deansgate Terrace: View Out in Terrace may be better than in Warehouse owing to room depth/small suite size and potential for a compliant View Out in each Suite.	Depth at points is ~21m in he warehouse so unlikely to achieve. Unable to change deep-plan nature of warehouse, with daylight as a major constraint. Item to review @ RIBA Stage 3.	RIBA Stage 3	SHA/NO
		Internal and external lighting levels, zoning and control	**Internal Lighting** - All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts. - Internal lighting in all relevant areas of the building is designed provide illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. - For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. **External lighting** All external lighting located within the refurbishment or fit-out zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. **Zoning and occupant control** - internal lighting is zoned to allow for occupant control in accordance with the specific criteria for relevant areas present within the building:	**1**	**1.07%**				**1**	**0**	MP (WSP) confirmed that lighting luminaires and controls can comply with the credit criteria. Note. External luminaires are not within WSP scope. **Action**: MEP to verify and write in compliance to specifications/stage 2 MEP report. **Action**: compliance for External luminaires to be noted by all. 23.06.22 AL noted Lighting Bureau to compliant external lighting. Separately, Lighting Bureau are undertaking an assessment of external glare also from the facades. **Credit targeted.**		RIBA Stage 4	WSP MEP/MP Lighting Bureau

										Cumulative Scores					
										72.45%	82.45%				
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Hea 02	Indoor air quality	**Indoor air quality (IAQ) plan**	An indoor air quality (IAQ) plan has been produced and implemented, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during the design, construction and occupation of the building.	**1**	**1.07%**				**1**	**0**	Indoor Air Quality Plan needed. Potential additional work needed at Stage 2 or 3 - scope to be confirmed. **Credit targeted** Tom Reade, Hilson Moran doing a stage 2 IAQ Plan.		RIBA Stage 3	Hilson Moran/TR
		Ventilation	Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows: a)In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution; OR ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:20071 Annex A2. b)In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO2) or air quality sensors specified.	**1**	**1.07%**				**0**	**0**	Client brief confirms design to meet BCO compliance with the base occupancy ratio of 1:8m2 for the office elements with exposed, raft or minimalistic soffit. Note. Unclear if spacing of AHUs can achieve compliance with criteria a) i. opposite. **Credit not targeted.** MP (WSP) commented on potential to comply with vent intake/extract louvre criteria. WSP will strive to achieve this credit, but its too early to confirm if achievable at next stage of design. Deansgate Terrace comment: Linear distance from kerb line on Deansgate to opening lights @ FFL may be <10m. Credit not targeted.		RIBA Stage 4	WSP MEP/MP
		Volatile organic compound (VOC) emission levels (products)	All decorative paints and varnishes specified meet the criteria in Table 20 At least five of the seven remaining product categories listed in Table 20 meet the testing requirements and emission levels criteria for volatile organic compound (VOC) emissions (listed in the table).	**1**	**1.07%**				**1**	**0**	Interior Design: Decorative Paints and Finishes (panels, flooring, ceiling tiles etc) would need to comply with VOC testing and performance requirements. These should be included in architectural design specification at stage 4 or included in any Stage 4 Contractor Requirements produced. **Action:** NO noted SH spec will reflect VOC product specification to comply with BREEAM performance requirement criteria. Specification to reflect BREEAM performance criteria. Credit targeted. /Table 20 (Hea 02) **Credit targeted.** Deansgate Terrace comment: Compliance per GNW. Tom Reade, Hilson Moran doing a stage 2 IAQ Plan.		RIBA Stage 4	SHA/NO
		Volatile organic compound (VOC) emission levels (post construction)	**Volatile organic compound (VOC) emission levels (post construction)** - The formaldehyde concentration level is measured post construction (but pre-occupancy) and is found to be less than or equal to 100µg/averaged over 30 minutes. - The total volatile organic compound (TVOC) concentration level is measured post construction (but pre-occupancy) and found to be less than 300µg/over 8 hours. - The testing and measurement of the pollutants are in accordance with the relevant standards confirmed in the BREEAM manual.	**1**	**1.07%**				**1**	**0**	VOC/formaldehyde testing is required post construction (pre-occupancy) in line with testing standards to show compliance with credit criteria. VOC organic/inorganic air testing may be required for WELL shows some alignment with BREEAM. VOC pre-occupancy testing will be included as a performance requirement to comply with criteria. Contract Performance Specification to reflect BREEAM performance criteria. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW. Tom Reade, Hilson Moran doing a stage 2 IAQ Plan.		RIBA Stage 4	SHA/NO
		Adaptability - Potential for natural ventilation	The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. Occupied spaces are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion: - Room depths are designed in accordance with CIBSE AM10 (section 2.4). The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate; OR - The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using the requirements of CIBSE AM10. For fit-out projects (Part 3 assessments), local services are designed to provide fresh air via a natural ventilation strategy and are appropriately designed according to the room depth in accordance with CIBSE AM10. For Part 3 assessments , local services are designed to provide fresh air via a natural ventilation strategy and are appropriately designed according to the room depth in accordance with CIBSE AM10. The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space	**1**	**1.07%**				**0**	**0**	It is considered that a mixed mode ventilation strategy may be adopted and the levels of nat vent required may not be achieved. AL (WSP acoustics) noted potential conflicts with background noise levels in introducing nat vent to this level. MP (WSP MEP) indicated that the criteria was generally not achievable for this type of building. **Credit Not Targeted.** Deansgate Terrace comment: there may be limited potential to provide natural ventilation, though unclear if adequate to meet criteria.		RIBA Stage 4	WSP MEP/MP

								Cumulative Scores					
								72.45%	82.45%				
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Hea 04	Thermal comfort	**Thermal modelling**	Thermal modelling has been carried out using software in accordance with CIBSE AM11. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. The modelling demonstrates that summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings. Where undertaking a Part 4 assessment must assess the suitability of existing building services and controls to identify any changes that may be required as a result of fit-out works For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.	**1**	**1.07%**				**1**	**0**	**Credit marked as target.** Thermal Comfort modelling done - criteria for building scope and design brief likely to comply in current form. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	WSP Sustainability/ JS
		Adaptability - for a projected climate change scenario	All thermal modelling criteria has been achieved The thermal modelling demonstrates that the relevant requirements set out above are achieved for a projected climate change environment. Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions. For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported.	**1**	**1.07%**				**1**	**0**	**Credit marked as target.** Thermal Comfort modelling done - criteria for building scope and design brief likely to comply in current form. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	WSP Sustainability/ JS
		Thermal zoning and controls	The thermal modelling analysis has informed the temperature control strategy for the building and its users. The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. b. Any new local cooling or heating services (or changes to existing services) are designed to ensure they do not conflict with core services c. The degree of occupant control required for these zones, based on discussions with the end user d. How the proposed systems will interact with each other and how this may affect the thermal comfort of the building occupants. e. The need or otherwise for an accessible building user actuated manual override for any automatic systems.	**1**	**1.07%**				**1**	**0**	**Credit targeted** Thermal Modelling done. Thermal control strategy at RIBA 3/4 performance will be influenced by the thermal modelling and meet credit requirements. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
Hea 05	Acoustic performance		The building meets the appropriate acoustic performance standards and testing requirements defined in the checklists and tables section which defines criteria for the acoustic principles of: (a) Sound insulation (b) Indoor ambient noise level (c) Reverberation times. Where undertaking a partial refurbishment or fit-out, the performance standards and testing requirements defined in the checklist and tables section for the following principles are applicable to each assessment part: b. Part 2: criteria for indoor ambient noise levels only c. Part 3: criteria for sound insulation and indoor ambient noise levels		**0.00%**				**2**	**0**	WSP acousticians appointed to inform design. Design would need to meet credit requirements a-c. On-site testing would need to be conducted post-construction to confirm credit achievement. **Note**: AL (WSP acoustics) has reviewed criteria and considered that the exposed brick wall and retained ceiling arch interior may mean the third credit for reverberation times is constrained. **Two credits targeted, one credit not achievable.** Deansgate Terrace comment: Compliance per GNW. Potential to achieve 3rd credit if ceiling/wall treatment possible?		RIBA Stage 4	WSP Acoustician/ Alex Lees

									Cumulative Scores					
									72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Hea 06	Safety and security	**Safe access**	1. Dedicated cycle paths provide direct access from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path and, if relevant, connect to off-site cycle paths (or other appropriate safe route) where these run adjacent to the development's site boundary. 2. Footpaths on-site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off-site (where existing), providing practical and convenient access to local transport nodes and other off-site amenities (where existing). 3. Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes. 4. Dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes, and appropriate traffic calming measures are in place to slow traffic down at these crossing points. 5. For large developments with a high number of public users or visitors, pedestrian footpaths must be signposted to other local amenities and public transport nodes off-site (where existing). 6. The lighting for access roads, pedestrian routes and cycle lanes is compliant with the external lighting criteria defined in Hea 01 Visual comfort, i.e. in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas. **Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply:** 7. Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public. 8. There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 9. Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. 10. There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking (if appropriate given the building type/function).	**1**	**1.07%**				**0**	**0**	**Credit not targeted.**		RIBA Stage 2	GDA/ST
		Security of site and building	1. A Suitably Qualified Security Specialist (SQSS) conducts an evidence based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent), see compliance note where the refurbishment or fit-out zone comprises part of a larger building. 2.The SQSS develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA. 3.The recommendations or solutions proposed by the SQSS are implemented (see CN5.2. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.	**1**	**1.07%**				**1**	**0**	Greater Manchester Police (Design for Security) would be instructed to prepare a Crime Impact Statement to consider how the scheme takes into account public safety and security measures in its design. **GDA/Simon Trundle appointed to undertake SNA at RIBA Stage 2.** **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.	GDA as private security consultant to provide the **Security Needs Assessment report.**04/08 Action with ST/GDA to provide SNA	RIBA Stage 2	GDA/ST
Energy														
Ene 01	Reduction of energy use and carbon emissions	**Energy Performance**	Up to twelve credits where evidence provided demonstrates an improvement in the energy efficiency of the building's fabric and services and therefore achieves lower building operational related CO2 emissions. This is based upon the Energy Performance Ratio for New Constructions.	**12**	**8.57%**		**6 credits**	**10 credits**	**6**	**0**	Proposed / existing BRUKL documents and INP files needed to confirm the actual number credits are currently achievable. Note. 6no credits requires a minimum of 6 credits to be achieved (equivalent to an EPRNDR of ≥ 0.36). Six Credits targeted, to fit with BREEAM Excellent rating target. **Action**: JS is investigating the opportunity to score 6+ credits. **Six Credits targeted.** Deansgate Terrace comment: a highly efficient VRF led fit-out may help secure some of the target credits. It is likely that Terrace Office Suites will not perform as well as the Warehouse. Separate modelling required for each asset.	HVAC strategy likely to be different for Terrace. Terraces will include nat vent if possible tbc. Local systems are still a possibility vs centralised strategy for Warehouse. **Action**: WSP/JS to provide an Initial view of projected energy performance for each building before submission of planning app.	RIBA Stage 4	WSP Sustainability/JS
Ene 02	Energy monitoring	**Sub-metering of major energy consuming systems**	Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2. are metered using an appropriate energy monitoring and management system (e.g. BMS) The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.	**1**	**0.71%**	**1 credit**	**1 credit**	**1**	**0**	**1**	Client brief Section 5.4 MEP states for Deansgate Terrace "Each office to be heated individually and provision for tenant a/c but all office use of utilities to be monitored individually. " **MP (WSP** MEP) reviewed criteria and noted compliant sub metering of i) major systems and ii) tenanted areas will be provided to both Terrace and Warehouse Offices. **Action:** MEP to note BREEAM compliant sub metering of i) major systems and ii) tenanted areas in Stage 2 report. **Action:** MEP to say if Terrace will be serviced locally or with Core heating/cooling plant (as per the GN Warehouse Offices). **Two Credits marked as potential.** Deansgate Terrace comment: Project brief does not include sub-metering for the Terrace areas.		RIBA Stage 4	WSP MEP/MP
		Sub-metering of high energy load and tenancy areas	An accessible energy monitoring and management system is provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.	**1**	**0.71%**				**0**	**1**				

										Cumulative Scores					
										72.45%	82.45%				
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Ene 03	External lighting	**External lighting**	The building has been designed to operate without the need for external lighting (including building, signs and at entrances). OR Where the building does have external lighting: - The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt. - All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	**1**	**0.71%**				**1**	**0**	**Credit targeted.** **Action**: External Lighting Designer to say if WSP can detail in MEP Stage 2 report for external light fittings to be provided with min. 70lm/W with photocell's and time control and pir's. **Action**: If targeted, External lighting designer to write in to specifications/stage 2 report. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Lighting Bureau
Ene 04	Low carbon design	**Passive design analysis**	The first credit within issue Hea 04 Thermal comfort has been achieved. The project team carries out an passive design analysis of the proposed building design to influence decisions made during RIBA Stage 2 and identify opportunities for the implementation of passive design solutions. The building implements passive design measures in line with the passive design analysis and provides a meaningful reduction in total energy demand.	**1**	**0.71%**				**1**	**0**	To target, a **passive design analysis** of the proposed building design is needed. This should influence decisions made during RIBA Stage 2 and comply with BREEAM to identify opportunities for the implementation of passive design solutions. **Credit marked as targeted.** JS confirmed Passive Design Analysis study will be done/ is in scope. WSP to lead Passive design study to show options to comply with this criteria. Deansgate Terrace comment: Compliance per GNW.	WSP as Low Carbon assessor to provide **Passive Design Analysis report.**	RIBA Stage 2	WSP Sustainability/JS
		Free cooling	The passive design analysis credit is achieved. The passive design analysis carried out includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. The building uses ANY of the free cooling strategies listed in the BREEAM manual to reduce the cooling energy demand, i.e. it does not use active cooling.	**1**	**0.71%**				**0**	**0**	Credit depends on Passive Design Analysis, and a free cooling strategy being implemented. Whilst options exist for some flexibility in choice of free cooling e.g. night purge, it is not clear if the spaces proposed can achieve this criteria. **Credit Not Targeted.** **Action**: JS to advise if a free cooling strategy is a possibility, following passive design work. Deansgate Terrace comment: Unclear if there is an option to achieve a Free Cooling Strategy for the Terraces.	WSP as Low Carbon assessor to provide **Passive Design Analysis report.** Findings of this to determine if this free cooling credit can be targeted.	RIBA Stage 2	WSP Sustainability/JS
		Low zero carbon feasibility study	A feasibility study has been carried out by the completion of the RIBA Stage 2 by an energy specialist to establish the most appropriate recognised local low or zero carbon (LZC) energy source for the building. A local LZC technology has been specified for the development in line with the recommendations of this feasibility study and provides a meaningful reduction in regulated carbon dioxide (CO2) emissions.	**1**	**0.71%**				**1**	**0**	JS noted that a BREEAM compliant LZC feasibility study is part of the Energy Statement being undertaken at Stage 2. Early stage 2 drawings show space allowance for ASHP plant/PV at roof level. **Credit targeted.** **Action**: JS to note BREEAM Ene 04 LZC criteria. Deansgate Terrace comment: unclear if buildings are phased, if the Terrace could later assume benefit from connection to Warehouse/LZC electricity.	WSP as Low Carbon assessor to provide **LZC feasibility study.**	RIBA Stage 2	WSP Sustainability/JS
Ene 06	Energy efficient transportation systems	**Energy consumption**	1.Where new lifts are specified within refurbishment works: a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. b. The energy consumption has been estimated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2: Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following: i. At least two types of system (for each transportation type required); OR ii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR iii. A system strategy which is 'fit for purpose'. c. The use of regenerative drives should be considered, subject to the requirements in CN6 d. The transportation system with the lowest energy consumption is specified.	**1**	**0.71%**				**1**	**0**	**Credit marked as targeted** Deansgate Terrace comment: Compliance per GNW.	WSP undertaking traffic analysis calculations to determine the type, size and number of lifts required to meet the building demand; this will be finalised during Stage 3.	RIBA stage 3	WSP Vertical Transport/ David Smith
		Energy Efficient features	For each **newly specified** lift, the following three energy efficient features are specified and for **existing lifts**, at least two of the following energy efficient features are specified: a. The lifts operate in a standby condition during off-peak periods. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. Where the use of regenerative drives is demonstrated to save energy, they are specified.	**2**	**1.43%**				**2**	**0**	**Two credits marked as targeted** Deansgate Terrace comment: Compliance per GNW.	Once traffic analysis finalised, WSP will undertake an assessment of energy consumption of two drive systems with the most energy efficient being selected If our assessment determines that regenerative drives will save energy, these will be incorporated into the Vertical Transportation Performance Specification. •The Vertical Transportation Performance Specification will also specify the following energy efficient features: -Standby condition operation during off-peak periods -Lift car lighting and display lighting to provide an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt -A drive controller capable of variable speed, variable voltage and variable frequency (VVVF) control of the drive motor.	RIBA stage 3	WSP Vertical Transport/ David Smith

										Cumulative Scores					
										72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for				Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding		Targeted (Terrace)	Potential (Terrace)				
Transport															
Transport Section scoped out for a part 2/3 only without a change of use															
Tra 01	Public transport solutions	**Accessibility Index**	Up to three credits are awarded on a sliding scale based on the assessed buildings' accessibility to the public transport network.	**3**	**3.00%**					**3**	**0**	Curtins TS report confirms an accessibility index (GMAL) will be 72.38 to achieve 2no credits, whilst its City Centre location may allow it to achieve all 3no credits. **Three Credits targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	Curtins TP/Alex Vogt
Tra 02	Proximity to amenities		Recognition of projects where proximity of, and accessibility to, local amenities which are likely to be frequently required and used by building occupants has been reviewed.	**1**	**1.00%**					**1**	**0**	Given the Central Manchester location, it is expected that a full array of BREEAM compliant local amenities within 500m of the site entrance, at Deansgate. Curtins TS report Table 5.1 confirms. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	Curtins TP/Alex Vogt
Tra 03	Cyclist facilities	**Cycle storage**	1. Compliant cycle storage spaces that meet the minimum levels set out in Table - 38 are installed.	**1**	**1.00%**					**1**	**0**	Project brief sets out design requirement for cycle infrastructure: Section 4.2 point 18. Interim Travel Plan (Document Reference: 80483-CUR-XX-XX-T-TP-00002)). AV table of calculated occupancy for BREEAM /other cycle storage standards applied. For BREEAM, adequate cycle storage for up to 1534 occupants. AV Curtins has set out BREEAM compliance for Offices as follows: BREEAM's predicted occupancy for offices is 0.111 (based on GFA), or ~1:9m². As the NIA is lower than GFA, the slightly higher occupancy figure you have adopted based on NIA seems reasonable. The base standard is 1 space per 10 staff, however when there are more 200 users the BREEAM sliding scale of compliance can be used. As the provision is a minimum requirement, any decimals must always be rounded up. Warehouse – •Over 200 staff (1,534), so 78 spaces minimum (or 94 with a 20% futureproof provision) are required using BREEAM sliding scale of compliance: **AV (Curtins) confirmed the** Terrace occupants will access/share these spaces and facilities, located in the Warehouse building and these will meet cycle storage (1 per 10 staff) requirement, and facilities will be provided in fitted out Landlord spaces (Showers, changing and drying). **The spaces will be fixed, sheltered and lift, and the facilities will comprise of showers (at a rate of one per 10 spaces) and adequate changing facilities.** At RIBA stage 4 drawings and specifications cycle facilities (shower, changing, drying) provided for Office tenants to be provided. Allowance made for Retail provision even though not assessed under BREEAM Cyclist lockers and 9no showers provided. **Two Credits targeted.** Deansgate Terrace comment: Compliance per GNW		RIBA Stage 4	SHA/NO
		Cyclist facilities	2. Criterion 1 has been achieved. 3. At least two of the following types of compliant cyclist facilities have been provided for all building users (including pupils where appropriate to the building type) - see Relevant definitions for the scope of each compliant cyclist facility: a) Showers b) Changing facilities c) Lockers d) Drying spaces .	**1**	**1.00%**					**1**	**0**			RIBA Stage 4	SHA/NO
Tra 04	Maximum car parking capacity		1. The building's car parking capacity is compared to the maximum car parking capacity benchmarks in Table 33 and the relevant number of BREEAM credits awarded. 2. For most building types, except those where stated, the benchmarks vary according to the building's public transport Accessibility Index: **Deansgate Offices: AI is >8, thus KPI ratio is for 1no parking space per 6 (or more) building users.**	**2**	**2.00%**					**2**	**0**	Curtins Transport Statement (Sept 2022) indicates car parking will not be allocated to the Office accommodation (Section 3.3.3, page 18) **Two credits targeted.**	not applicable as not a change of use	RIBA Stage 4	Curtins TP/Alex Vogt
Tra 05	Travel plan		1.A travel plan has been developed as part of the feasibility and design stages. 2. A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the requirements in the BREEAM manual 3. The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the building's operation and use. 4.If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post refurbishment or fit-out and be supported by the building's management in operation.	**1**	**1.00%**					**1**	**0**	A TA and Framework Travel plan are planned. This will be led by Alex Vogt (Curtins). **Action**. AV confirmed Curtins will provide both TA and TP to comply with TRA05 BREEAM criteria. **Credit targeted.**	Curtins to provide **TA** and **Framework Travel plan**.	RIBA stage 1/2	Curtins TP/Alex Vogt

								Cumulative Scores							
								72.45%	82.45%						
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Water														
Wat 01	Water consumption		Up to five credits where evidence provided demonstrates that the specification includes taps, urinals, WCs and showers that consume less potable water in use than standard specifications for the same type of fittings. Credits are awarded based on the following improvement over the notional baseline: - One credit - 12.5% improvement - Two credits - 25% improvement - Three credits - 40% improvement - Four credits - 50% improvement - Five credits - 55% improvement The calculations is based upon the following sanitary fittings: a) WCs; b) Urinals; c) Taps; d) Showers; e) Baths; f) Dishwashers; g) Washing machine; h) Kitchen pre-rinse nozzles	**5**	**3.89%**	**1**	**1**	**2**	**3**	**0**	Sanitaryware Fit-out is part of architect brief, for Stage 4 technical design. JS noted that specifying low-flow fitting should be targeted to secure 3no credits for a 40% improvement on water consumption based on sanitaryware spec meeting standards set out in BREEAM Wat 01 table 8.3. **Three Credits targeted.** **Action:** NO to note overall improvement of 40% required to secure three credits in specification. Where this is a performance standard for others @ Stage 4, this is passed on via Contract/prelims. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/NO
Wat 02	Water Monitoring		One credit where evidence provided demonstrates that a water meter with a pulsed output will be installed on the mains supply to each building/unit. The water consuming plant or areas consuming 10% or more of the building's water use need to be fitted with a pulsed sub meter or have water monitoring equipment integral to the plant or area. If the refurbishment zone is within a site that has an existing BMS, managed by the same occupier/owner, the pulsed/digital water meters must be connected to the existing BMS	**1**	**0.78%**	**Criterion 1 (part 2)**	**Criterion 1 (part 2)**	**Criterion 1 (part 2)**	**0**	**1**	Credit compliance centres on mains metering and metering of main water-consuming plant or building areas i.e. consuming 10% or more of building's total water demand. **Credit targeted for Warehouse** MP (WSP MEP) reviewed and noted MEP strategy includes metering the incoming supply and providing sub-meters that will have a BMS output. **Credit marked as Potential for Terrace.** **Action**: MEP to write in to specifications/stage 2 report. Deansgate Terrace comment: water sub-meters not included in Terrace brief.		RIBA Stage 4	WSP MEP/MP
Wat 03	Water Leak detection	**Leak Detection**	A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection system must be: a) A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed. b) Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c) Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d) Programmable to suit the owner/occupiers' water consumption criteria. e) Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.	**1**	**0.78%**				**0**	**1**	WSP MEP to say if a compliant water leak detection system will be provided, to meet points a-e opposite. **MP (WSP MEP) reviewed and noted** BMS provided will provide BREEAM compliant leak detection cover the Warehouse domain. Action: MEP to write in to specifications/stage 2 report. **Credit targeted for Warehouse.** **Credit marked as Potential for Terrace.** Deansgate Terrace comment: leak detection system not included in Terrace brief but easy to update for a potential further credit.		RIBA Stage 4	WSP MEP/MP
		Flow Control Devices	Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).	**1**	**0.78%**				**0**	**1**	MP (WSP MEP) reviewed and noted PIR sensors linked to solenoid valves will be specified for landlord services in WC's to comply with credit criteria. Action: WSP MEP to write in to specifications/stage 2 report. **Credit targeted.** **Credit marked as Potential for Terrace.** Deansgate Terrace comment: Flow control (sanitary supply shut-off) not included in Terrace brief but easy to update for a potential further credit.		RIBA Stage 4	WSP MEP/MP
Wat 04	Water efficient equipment	**Water efficient equipment**	One credit where the design team has identified all unregulated water demands that could be realistically mitigated or reduced. The systems or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building. Where no irrigation systems are specified, and therefore there are no unregulated water demands for the building, this issue can be awarded by default.	**1**	**0.78%**				**1**	**0**	Planit will provide landscape plans (comprehensive scheme). Note. The above approach assumes no other major water-consuming plant e.g. car wash is provided. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.	Sarah Barker (Planit) confirmed soft landscaping provided will not rely on irrigation to meet BREEAM criteria.	RIBA stage 4	Planit-IE/ Sarah Barker

									Cumulative Scores						
									72.45%	82.45%					
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Materials														
Mat 01	Life cycle impacts	**Life Cycle Impacts**	Up to five credits are available, determined by the Green Guide to Specification ratings, third-party Environmental Product Declaration (EPD) and Life cycle Green House Gas emissions for the major building elements. Covering: - External Walls - Windows - Roof - Upper Floor Slabs - Floor finishes/coverings	**5**	**5.19%**				**4**	**1**	JS noted that an element of WLC modelling is being undertaken. Atm this does not cover the scope of elemental LCA emissions for the proposed building. Note. Under BREEAM 2014 RFO this modelling can be done up to RIBA Stage 4. Note. the scope of works being limited on fabric may reduce the number of potential fabric elements to model. Modeller to advise if sought. **Four Credits marked as potential.** **Action:** stage 2 dates may need to be set for designers to share options for options appraisal. Included as precaution in case of a 2018 criteria shift– refer to meeting notes on Terrace new build areas scope. Deansgate Terrace comment: Sept 2022 BRE have said they don't know which approach they will apply to deal with this one – LCA or LCA + Green Guide – tbc at RIBA 3 once Bespoke criteria are developed.	JS to co-ordinate with HB/SM and line management on who can lead LCA work	RIBA Stage 4	WSP Sustainability/JS
Mat 02	Hard landscaping and boundary protection	**Hard landscaping and boundary protection**	One credit where evidence provided demonstrates that at least 80% of the combined area of external hard landscaping and boundary protection specifications achieve an A or A+ rating, as defined by the Green Guide to Specification.	**1**	**1.04%**				**0**	**0**	Unclear even using recycled sub-grade and sub-ase if all assessed external surfacing can achieve a GG A rating. **Credit not targeted.**		None	n/a
Mat 03	Responsible sourcing of materials	**Pre-requisite**	All timber and timber based products used on the project is 'Legally harvested and traded timber'	**yes**		**Criterion 1**	**Criterion 1**	**Criterion 1**	**yes**	**-**	**Pre-requisite and minimum standard.** **Action**: BREEAM timber specification criteria to form part of design/project materials specification, or be a performance point in contract prelims/duties for others.		RIBA Stage 4	SHA/NO
		Sustainable procurement plan	The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan	**1**	**1.04%**				**1**	**0**	It is unclear if there is a Trilogy Sustainable Procurement policy/plan for materials procurement that can be applied to GNW. AL (2110) instructed WSP to develop a SPP for both residential and office development. **Credit targeted.** **Action**: PM to state if a compliant sustainable procurement plan will be provided to cover the materials sourcing of the project. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
		Responsible sourcing of materials (RSM)	Up to three credits of the available RSM credits can be awarded where the applicable building materials are responsibly sourced in accordance with the BREEAM methodology. Credits are awarded based on the following % points achieved: - Three credits - 54% of available points achieved - Two credits - 36% - One credit - 18%	**3**	**3.12%**				**2**	**0**	Specifying materials with responsible sourcing certification can form part of contractor materials procurement at stage 4. **Action**: PM to confirm target. Responsibly sourced (certified) materials specification to be written in to any contract prelims/duties. **Two credits targeted, one credit marked as untargeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
Mat 04	Insulation	**Embodied impact**	Any new insulation specified for use within the following building elements must be assessed: (a.) External walls; (b.) Ground floor; (c.) Roof; (d.) Building services. The Insulation Index for the building fabric and services insulation is the same as or greater than 2.5.	**1**	**1.04%**				**1**	**0**	It is assumed that Insulation specification will comply with Green Guide ratings/ thermal index. **Action**: Compliance with BREEAM Green Guide criteria to be included in design materials and MEP specifications /noted in detailed design stage report. **Action**: Performance Criteria to be noted in Stage 2 reports and later, if needed written in to any contract prelims/duties. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/ NO WSP/ NO

										Cumulative Scores					
										72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Mat 05	Designing for durability and resilience	**Protecting vulnerable parts of the building from damage and material degradation**	Protecting vulnerable parts of the building from damage. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements; such as: - Bollards/barriers/raised kerbs to delivery and vehicle drop-off areas - Corridor walls specified to Severe Duty (SD) as per BS 5234-21 - Protection rails to walls of corridors - Kick plates/impact protection (from trolleys etc.) on doors - Hard-wearing and easily washable floor finishes in heavily used circulation areas (i.e. main entrance, corridors, public areas etc.) Protecting exposed parts of the building from material degradation. The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors Existing building elements, have been assessed to identify impacts of material degradation effects including an assessment to grade the severity of any degradation effects. Design measures have been developed to repair and protect existing elements according to the severity of any degradation affects, to limit degradation. Newly specified materials or newly constructed elements (e.g. a new external wall) within the scope of refurbishment or fit-out works incorporate appropriate design and specification measures to limit material degradation due to environmental factors	**1**	**1.04%**				**1**	**0**	It is assumed this credit can be achieved subject to adequate protection of all vulnerable areas of the building (internal /external) and correct specification such as listed opposite. It is assumed materials specified will be able to resist degradation from the elements and fit-for-purpose to maximise the element's lifespan. **Action**: NO to review criteria and note compliance required in SHA Stage 2 architect report. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/ NO
Mat 06	Material efficiency		Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life. The above is carried out by the design/construction team in consultation with the relevant parties at each of the following RIBA stages: a. Preparation and Brief b. Concept Design c. Developed Design d. Technical Design e. Construction.	**1**	**1.04%**				**0**	**0**	NO uncertain this credit would be achievable based on need for lead designer scope and wide-ranging criteria to be met. **Credit not targeted.**	-	RIBA Stage 1/2	SHA/ NO
Waste														
Wst 01	Project waste management	**Pre-requisite**	The client shall ensure that a **pre-demolition audit** of all existing buildings, structures or hard surfaces within the scope of the refurbishment or fit-out zone is completed. The audit should be carried out prior to strip-out or demolition works, be referenced in the resource management plan and cover: d. Identification and quantification of the key materials where present on the project e. Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy. f. Identification of local reprocessors or recyclers for recycling of materials g. Identification of overall recycling rate for all key materials h. Identification of reuse targets where appropriate. i. Identification of overall landfill diversion rate for all key materials.	**yes**					**yes**	**-**	**Action**: pre-demolition audit to be done at Stage 2 OR written in to contracts for others to carry out pre-SoS. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW. **ADW Pre-demolition Audit, Sept 2022** Pre-demolition audit: content meets BREEAM Wst 01 criteria 1a & 1b) for scope. Audit categories all per the EU waste streams (table 1) – matches BRE waste groups, qtys, potential applications for re-use & recycling, local processors , overall recycling rate target (95% by weight), reuse target (1% by weight) and overall landfill diversion rate (95% diversion from landfill by weight), all fine. For Toby's role as author, he meets the BRE ok as 'competent person' with site survey experience. Next steps– to implement audit: 1. Write requirement in as a performance clause – audit to be cross-ref to PC's Site Waste Management Plan/RMP: at construction, they need to compare actual vs forecast.	**to target one or two BREEAM Wst 01 Re-use & Direct Recycling credits:** 2.GNW & DT (Refurb): need a take off (a split) of Material arisings for each of GNW and Deansgate Terrace buildings only i.e. qtys below split against Key Demolition Products (per ADW Report table 2) 3.Identify solution for re-use on-site/off-site or sent back via closed-loop recycling, for each materials listed in BREEAM table 65 using attached Wst 01 tool: 50% of pts available gains one credit, 75% of pts available gains two credits. 4.Write requirement in as a performance clause*, to gain credits – can be from client and separate to audit if needs be/must be contractual. *Pre-empt a query on partial compliance, it seems BRE allow max pts in a given category even if not all material is reused/recycled via the compliant route – so long as potential is maximised.	RIBA Stage 3	
		Resource efficiency	Develop and implement a compliant resource management plan covering the waste arising's project Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than the following (Table 51 One credit for ≤13.3 m³ /11.1 tonnes per 100m² (GIFA) Two credits for ≤7.5m³ /6.5 tonnes per 100m² Three credits for ≤ 3.4m³/3.2 tonnes per 100m² Where existing buildings on the site will be demolished a pre-demolition audit of any existing buildings, structures or hard surfaces is completed to determine if, in the case of demolition, refurbishment/reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high grade/value applications.	**3**	**2.83%**				**2**	**0**	It is expected that waste minimisation could be achieved through efficient construction practice, specification and re-use on site. **Action**: PM to say if a construction efficiency target of <4.5m3 waste per 100m2 will be required of the contractor. **Action:** Wst 01 Benchmarks to be written in to contracts/prelims. **Two Credits targeted** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
		Diversion of resources from landfill	One credit where evidence provided demonstrates that: - 85% by volume or 90% by tonnage non-hazardous construction AND - 90% by volume or 95% by tonnage demolition waste generated by the development will be diverted from landfill and reused or recycled.	**1**	**0.94%**				**1**	**0**	It is assumed that the principal contractor will be required to will be target a minimum 80% by volume or 90% by tonnage non-hazardous construction and demolition waste is diverted from landfill and reused or recycled. **Action**: Wst 01 Benchmarks to be written in to contracts/prelims. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL

										Cumulative Scores					
										72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Wst 02	Recycled aggregates		1. The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled or secondary aggregate, as specified in Table 68. 2. The total amount of recycled or secondary aggregate specified, and meeting criterion 1, is greater than 25% (by weight or volume) of the total high grade aggregate specified for the project. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified. 3. The recycled or secondary aggregates are EITHER: a) Construction, demolition and excavation waste obtained on-site or off-site; OR b) Secondary aggregates obtained from a non-construction post-consumer industrial by product source.	**1**	**0.94%**				**0**	**0**	VC (Curtins) highlighted this credit is unlikely to be achieved. In particular: Curtins do not expect there to be sufficient demolition waste warrant crushing material on site. The availability of secondary aggregates from industrial process cannot be guaranteed. As a result, and given the potential need to have to bring recycled fill to a city centre site (for unbound aggregate compliance on pipe bedding and granular fill and capping) as impractical, this credit is marked as constrained. **Credit not targeted.**		None	None
Wst 03	Operational waste	**Operational waste**	1. Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste 2. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, the following facilities are provided: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. Vessel(s) for composting suitable organic waste; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection. c. Where organic waste is on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.	**1**	**0.94%**				**1**	**0**	It is assumed that the bin store location and accessibility route plan and collection details will been provided by the architect along with sizing plan confirming appropriate labelling of the dedicated space for recycling use only. **Note.** It is assumed no major consistent waste streams will be present a compactor, baler or organic waste vessel are **only required where major paper/card or organic food waste stream** (from commercial kitchen) is included in the Offices scheme. **Credit targeted.** **Action:** NO to confirm dedicated recycling storage (and refuse) space allowance for Office domain in m2 vs the floor plate area. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	SHA/NO
Wst 04	Speculative floor and ceiling finishes		1. For tenanted areas (where the future occupant is not known), prior to full fit-out works, interior finishes (including carpets, other floor finishes, ceiling finishes and any other interior finishes) have been installed in a show area only. 2. In a building being refurbished or fitted out for a specific occupant, that occupant has selected (or agreed to) the specified interior finishes.	**1**	**0.94%**				**1**	**0**	It is assumed that as a Cat A fit-out, floor finishes will not be specified for more than the landlord (prescribed) areas and (at most) a show area to comply with BREEAM criteria. **Credit targeted.** **Action:** NO to verify understanding is accurate and credit can be targeted safely. Deansgate Terrace comment: Compliance per GNW.		RIBA stage 4	SHA/NO
Wst 05	Adaptation to climate change	**Structural and fabric resilience**	1. Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach: a) Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages: i. Hazard identification ii. Hazard assessment iii. Risk estimation iv. Risk evaluation v. Risk management.	**1**	**0.94%**				**0**	**1**	WSP appointed and provided a Climate Change Statement as part of the EIA chapters. Note Wst05 study requires input from the project team, a specialist appraisal to identify any CC mitigation measures set out in a report along with proof of these implemented in the final design. **Action**: JS to explore what additional work is needed to undertake a CC resilience appraisal for BREEAM. **Credit marked as potential.** Deansgate Terrace comment: Compliance per GNW.	JS to explore what additional work is needed to undertake a CC resilience appraisal for BREEAM.	RIBA Stage 2	WSP Sustainability/JS
Wst 06	Functional adaptability		A building-specific functional adaptation strategy study has been undertaken by the client and design team by RIBA Stage 2, which includes recommendations for measures to be incorporated to facilitate future adaptation. Functional adaptation measures have been implemented by RIBA Stage 4 in accordance with the functional adaptation strategy recommendations, where practical and cost effective.	**1**	**0.94%**				**1**	**0**	NO indicated this credit can be targeted and can be provided to reflect the work done for Stage 2 on space and design flexibility for future usage. **Action:** NO to complete functional adaptation study. **Credit targeted** Deansgate Terrace comment: Compliance per GNW.	NO to complete **functional adaptation study.**	RIBA Stage 2	SHA/NO

										Cumulative Scores					
										72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Land Use and Ecology														
Issue scoped out of the assessment as there is no new or existing landscaping areas within the refurbishment or fit-out zone														
Le 01	Site Selection	**Re-use of land**	One credit where evidence provided demonstrates that the majority (75%) of the footprint of the proposed development falls within the boundary of previously developed land.	**1**	**1.00%**				**1**	**0**	Deansgate Terrace to be largely redeveloped in its current location with aspects of infill and some physical extension. **Credit targeted.**		RIBA Stage 4	SHA/NO
		Contaminated land	One credit where a specialist's site investigation, risk assessment and appraisal demonstrate that the land used for the new development has, prior to development, been defined as significantly contaminated and where adequate remedial steps have been taken to decontaminate the site prior to construction.	**1**	**1.00%**				**0**	**0**	Unclear there is any significantly contaminated land (in need of formal remediation) that this credit could be targeted. **Credit not targeted.**			
Le 02	Ecological value of site and protection of ecological features	**Ecological value of site**	One credit is awarded where evidence provided demonstrates that the construction zone is defined as land of low ecological value.	**1**	**1.00%**				**1**	**0**	It is understood Indigo Surveys ecology team are appointed to provide necessary surveys and reporting. It is expected protection recommendations are followed by the contractors. **Indigo PEA/BNG report complete.** **Action**: Andrew Turnbull to provide comments on BREEAM credit compliance @ RIBA Stage 2. **Action:** Where appropriate, implementation of protection measures and further work to be written in to prelims/ contract. **Action**: Contractor to comply with requirements. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Ecology - Indigo Surveys/ Andy Warren
		Protection of ecological features	All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013 prior to any preliminary site construction or preparation works.	**1**	**1.00%**				**1**	**0**	Action: Andrew Turnbull to provide comments on BREEAM credit compliance @ RIBA Stage 2.		RIBA Stage 4	Ecology - Indigo Surveys/ Andy Warren
Le 03	Minimising impact on existing site ecology existing site ecology	**Change in ecological value**	One credit where evidence provided demonstrates that the change in the site's existing ecological value, as a result of development, is minimal.	**1**	**1.00%**				**1**	**0**	Action: Andrew Turnbull to provide comments on BREEAM credit compliance @ RIBA Stage 2.		RIBA Stage 4	Ecology - Indigo Surveys/ Andy Warren
			Two credits where evidence provided demonstrates that there is no negative change in the site's existing ecological value as a result of development.	**1**	**1.00%**				**1**	**0**	Action: Andrew Turnbull to provide comments on BREEAM credit compliance @ RIBA Stage 2.		RIBA Stage 4	Ecology - Indigo Surveys/ Andy Warren
Le 04	Enhancing site ecology	**Ecologist's report and recommendations**	One credit where the design team (or client) has appointed a suitably qualified ecologist to advise and report on enhancing and protecting the ecological value of the site; and implemented the professional's recommendations for general enhancement and protection of site ecology.	**1**	**1.00%**				**1**	**0**	It is assumed that in meeting the high-level BNG target for this project that the landscape design can secure maximum BREEAM Ecology credits for enhancing species numbers. Public Realm to North end of Warehouse shows Significant green planted space including trees. Leisure box plans show courtyard cards (4FL), @ 2FL and 3FL tree planting in public realm **Action:** Andrew Turnbull to provide comments on BREEAM credit compliance @ RIBA Stage 2. **Action**: Contractor to comply with requirements. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.	**Action**: Andy Warren/Indigo to confirm if a BREEAM section will be provided as part of the planned PEA/BNG reports, with comments on BREEAM credit compliance.	RIBA Stage 2	Ecology - Indigo Surveys/ Andy Warren
		Increase in Ecological value	A second credit where, in addition to the above, there is a positive increase in the ecological value of the site of six plant species or greater	**1**	**1.00%**				**1**	**0**	Action: Andrew Turnbull to provide comments on BREEAM credit compliance @ RIBA Stage 2.		RIBA Stage 4	Ecology - Indigo Surveys/ Andy Warren
Le 05	**Long term impact on biodiversity**		One credit where the client has committed to achieving the mandatory requirements listed and at least two of the additional requirements: These include any of the following: a) Nominating a Biodiversity Champion to ensure detrimental impacts on site biodiversity are minimised b) Training the site's workforce on how to protect site ecology during construction. c) The Principal Contractor records actions taken to protect biodiversity and monitor their effectiveness. d) The creation of a new ecologically valuable habitat which supports locally important biodiversity e) Site works are programmed to minimise disturbance to wildlife.	**1**	**1.00%**				**1**	**0**	It is assumed that all long-term biodiversity criteria can be met by the contractor and that a habitat management plan will be implemented for ecology management in operation. **Action**: Andrew Turnbull to provide comments on BREEAM credit compliance @ RIBA Stage 2. **Action**: Contractor to comply with requirements within their brief. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Ecology - Indigo Surveys/ Andy Warren

									Cumulative Scores					
									72.45%	82.45%				
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Pollution														
Pol 01	Impact of refrigerants	**Pre-requisite**	All systems (with electric compressors) must comply with the requirements of BS EN 378:20081 and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.	**-**					**yes**		**Impact of Refrigerants** - It is understood the energy strategy will be fossil fuel free and future proofed to achieve the UK 2050 Net Zero Carbon targets, with ASHPs and ambient loop distribution under consideration. Thus refrigerants will likely be specified in HVAC services. It is unclear if the heat pumps in use will meet the requirements for **both** DELC refrigerant credits. Action: AL (WSP) to comment - it is assumed that up to one credit may be attainable, based on very high COP and careful specification of refrigerant R value - this is also subject to calculation. **One credit marked as potential.** **Leak Detection** - it is assumed a leak detection system can be specified to meet full BREEAM criteria. MP (WSP MEP) reviewed and noted MEP strategy should achieve one credit. **Action**: MEP to write in to spec/stage 2 report. **One credit marked as potential.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
		Impact of Refrigerant	**3 credits:** Where the building does not require the use of refrigerants within its installed plant/systems. **2 credits:** Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 100 kgCO2e/kW cooling/heating capacity. To calculate the DELC CO2e please refer to the Relevant definitions in the Additional information section and the Methodology section. OR Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤ 10. **1 credit:** Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity.	**2**	**1.54%**				**0**	**1**			RIBA Stage 4	WSP MEP/MP
		Leak detection	Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an inbuilt automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident	**1**	**0.77%**				**0**	**1**			RIBA Stage 4	WSP MEP/MP
Pol 02	NO_x emissions		Credits achieved are based on the following scores where the dry NOx emissions (at 0% excess O2): - One credits- ≤100 mg/kWh (space heating) - Two credits - ≤70 mg/kWh (space heating) - Three credits - ≤40 mg/kWh (space heating)	**3**	**2.31%**				**0**	**0**	The MEP team advised no combustion plant will be used to provide heating and hot water. Electricity run systems score poorly for NOx emissions in this version of the BREEAM scheme (due to grid electricity NOx figures) therefore it is anticipated no credits can be achieved. **Credits Not Targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
Pol 03	Flood risk management and reducing surface water run-off	**Flood risk management**	**Low flood risk** Where flood maps from the appropriate statutory body confirm the refurbishment or fit-out is situated in a flood zone that is defined as having a low annual probability of flooding; OR The project meets the requirements for avoidance of flooding in accordance with Checklist 1, where the refurbishment or fit-out zone is of a floor level that is 0.3m higher than the obtained/estimated flood level and safe access/escape routes are available/present **Medium/high flood risk** Where flood maps confirm the site has a medium/high flood risk a site specific FRA his undertaken AND 5.The refurbishment zone achieves avoidance from flooding through either: a. The refurbishment zone is located entirely on the first floor or above and a flood emergency plan has been developed in accordance with 'Would your business stay afloat? A Guide to preparing your business for flooding', Environment Agency, 2011 b. As a result of the building's floor level or measures to keep water away, the building is defined as achieving avoidance from flooding by following Checklist A-1. OR 6. Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the building's scope of works in accordance with recommendations made by a Suitably Qualified Building Professional	**2**	**1.54%**				**2**	**0**	Site is within a Critical Drainage Area and therefore a Drainage Strategy is required. Curtins/Victoria Chekley to provide. Curtins doing FRA and drainage. **VC shared Curtins 2017 FRA & Drainage strategy for Great Northern. This shows that the site is wholly located in Flood Zone 1.** **Two Credits marked as potential.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 3	Curtins/VC
		Surface water run-off	**One credit** 7. There is no increase in the impermeable surfaces as a result of the refurbishment works; OR 8. If there is an increase in the impermeable surface as a result of the refurbishment works then the following must be met: a) Hard standing areas - where there is an extension or increase in the hardstanding areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hardstanding area must be permeable or be provided with on-site SuDS to allow full infiltration of the additional volume, to achieve the same end result. The permeable hardstanding must include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscaped areas which will drain onto a naturally permeable surface. b) Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension must be managed on-site using an appropriate SuDS technique for rainfall depths up to 5mm. **Two credits - reducing run-off** 9. An Appropriate Consultant has been used to design an appropriate drainage strategy for the site. 10. Either of the following criteria are met: a) There is a decrease in the impermeable area by 50% or more, from the pre-existing impermeable hard surfaces; OR b) Where run-off as a result of the refurbishment is managed on-site using source control achieving a target of: i. The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 50% from the existing site. ii. The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration has been reduced by 50%. iii. An allowance for climate change must be included for all of the above calculations; this should be made in accordance with current best practice planning guidance.	**2**	**1.54%**				**2**	**0**	**Surface Water Run-off** As a SuDS strategy is required, it is assumed that two credits may be targeted. **Action**: VC /Curtins to review criteria and advise if compliance likely. Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Curtins/VC
		Minimising water course pollution	11. There is no discharge from the developed site for rainfall up to 5mm. 12. Where suitable pollution prevention measures are put in place (or already exist) for the different sources of pollution present on the assessed site 13. A comprehensive and up to date drainage plan of the site will be made available for the building/site occupiers. 14. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.	**1**	**0.77%**				**0**	**0**	**Minimising water course pollution** SuDS must be employed and first 5mm run-off prevented from leaving the site. **Action:** VC /Curtins to review criteria and advise if compliance likely. **Credit not targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	Curtins/VC

										Cumulative Scores					
										72.45%	82.45%				
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						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Pol 04	Reduction of night time light pollution		One credit where evidence provided demonstrates that the external lighting design is in compliance with the guidance in the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except safety and security) should be automatically switched off between 23:00 and 7:00 hours. Safety and security lighting levels should be lowered between these hours to meet the criteria in table 2 of the ILP notes. illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements	**1**	**0.77%**				**1**	**0**	WSP MEP team to say if external lighting will meet requirements relating to reduction of night time light pollution. **Action**: MEP to check criteria and write in to specifications/stage 2 report if targeted. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	WSP MEP/MP
Pol 05	Reduction of noise pollution		Where there are no noise-sensitive areas or buildings within 800m radius of the assessed site. OR Where the building does have noise-sensitive areas or buildings within 800m radius of the site: - A noise impact assessment in compliance with BS 7445 is carried out - The noise impact assessment must be carried out by a suitably qualified acoustic consultant - The noise level is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level. - Where the noise is greater than the levels described measures have been installed to attenuate the noise at its source to a level where it will comply.	**1**	**0.77%**				**1**	**0**	WSP acousticians are appointed to undertake background noise surveys and provide recommendations to comply with requirements. Compliant acoustics report provided. Confirmation from PM of implementation of acousticians stage 3 advice received. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.	WSP acousticians are appointed to undertake background noise surveys and provide recommendations to comply with requirements. Compliant acoustics report provided. Confirmation from PM of implementation of acousticians stage 3 advice received. **Credit Achieved.**	RIBA Stage 4	WSP Acoustician/ Alex Lees
Innovation														
Man 03	Responsible construction		See Man 03 above	**1**	**1.00%**				**1**	**0**	Note. A further (exemplary level) credit is available subject to uplift in compliance level of site best practice in line with BREEAM. Exemplary credit marked as potential (see also Man 03 above). **Action**: AL to confirm target. Best practice Construction Site Management and Monitoring to be written in to any contract prelims/duties. **Credit targeted.** Deansgate Terrace comment: Compliance per GNW.		RIBA Stage 4	2110 Consultant/AL
Hea 01	Daylighting		- Occupied areas have an average daylight factor of 3% in 80% of the space - A minimum point daylight factor of 1.2% OR 2.1% for spaces with glazed roofs, such as atria	**1**	**1.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Hea 02	VOC		**One credit** - All seven remaining categories meet the testing requirements and emission levels criteria - For products b) – f) listed in the table, the formaldehyde emission levels are measured and found to be less than or equal to 0.06mg/m3 air in accordance with the approved testing standards **Two credits** - All seven remaining categories meet the testing requirements and emission levels criteria - For products B to F listed in the table, the formaldehyde emission levels are measured and found to be less than or equal to 0.01mg/m3 air, in accordance with the approved testing standards	**2**	**2.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Ene 01	Reduction of energy use and carbon emissions		Building meets 'zero regulated' or Carbon negative as demonstrated via Part L modelling	**5**	**5.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Wat 01	Water consumption		As per Wat 1, one exemplary credit can be achieved where there is a 65% reduction in water consumption over the notional building.	**1**	**1.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Mat 01	Materials specification		Route 1: Using the Green Guide to Specification (elemental approach) - **one credit** - The building achieves at least two points in addition to the total points required to achieve maximum credits under the standard BREEAM criteria Route 2: Using compliant life cycle assessment software tools (whole building approach) - **two credits** - Where the design team has used an IMPACT compliant software tool (or equivalent) to measure the environmental impact of the building. - Where the design team can demonstrate how the use of an IMPACT compliant software (or equivalent) has benefited the building in terms of measuring and reducing its environmental impact. - Where the design team submit the building information model (BIM) from the IMPACT compliant software tool (or equivalent) for the assessed building to BRE Global via the project's appointed BREEAM Assessor.	**2**	**2.00%**				**2**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Mat 03	Responsible sourcing of materials		Where, in addition to the standard BREEAM requirements, 70% of the available responsible sourcing points have been achieved.	**1**	**1.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above

								Cumulative Scores							
								72.45%	82.45%						
Ref	Title	Sub- Title	BREEAM criteria	Max Credits	% Worth	Mandatory for			Design Stage - projected scoring		Commentary (General)	Stage 2 Actions/Dependencies (for immediate attention/action)	Indicative timeframe for Consideration	Responsibility
						Very Good	Excellent	Outstanding	Targeted (Terrace)	Potential (Terrace)				
Was 01	Construction site waste management		Where non-hazardous construction waste generated by the building's development meets or exceeds the resource efficiency benchmark required to achieve three credits (as outlined in the guidance). Construction waste produced meets the following: <1.6 m³ per 100m² (gross internal floor area) Where at least 85% by volume and 90% by weight of non demolition waste and 85% by volume and 95% by weight of demolition waste has been diverted from landfill and either: a. Reused on site (in-situ or for new applications) b. Reused on other sites c. Salvaged/reclaimed for reuse d. Returned to the supplier via a 'take-back' scheme e. Recovered from site by an approved waste management contractor and recycled. Where all key waste groups are identified for diversion from landfill at pre-construction stage SWMP.	**1**	**1.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Was 02	Recycled aggregates		Where 35% (by weight or volume) of the total high-grade aggregates specified in the development are recycled and/or secondary. The percentage of high-grade aggregate that is recycled and/or secondary, must meet the following levels: - Structural frame - 30% - Bitumen or hydraulically bound base, binder and surface courses for paved areas and roads - 75% - Concrete road surfaces - 45% - Pipe bedding - 100% - Building foundations - 35% - Granular fill and capping - 100%	**1**	**1.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above
Was 05	Adaptation to climate change		Achievement of the Structural and fabric resilience criterion in this issue and the following criteria points or credits: Hea 04 Thermal comfort Criterion 6 in the second credit of the Hea 04 issue has been achieved. Ene 01 Reduction of energy use and carbon emissions At least eight credits in this issue have been achieved. Ene 04 Low carbon design The Passive design analysis credit in this issue has been achieved. Wat 01 Water consumption A minimum of three credits in this issue have been achieved. Mat 05 Designing for durability and resilience Criterion 2 relating to material degradation in this issue has been achieved. Pol 03 Surface water run-off Flood risk – a minimum of one credit has been achieved. Surface water run-off – two credits have been achieved.	**1**	**1.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	RIBA Stage 2	As above
Pol 03	Flood risk and reducing surface water run-off		- The peak rate of run-off as a result of the refurbishment for the 1 in 1 year event is reduced to zero. - The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero. - There is no volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration. (An allowance for climate change must be included for all of the above calculations)	**1**	**1.00%**				**0**	**0**	**Credit Not Targeted.**	**Credit Not Targeted.**	None	As above

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