Condition 3b: Construction Environmental Management Plan- Circular Economy Statement

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EXECUTIVE SUMMARY

A circular economy is one where materials are retained in use at their highest value for as long as possible and are then re-used or recycled, leaving a minimum of residual waste. A circular economy will save resources, increase the resource efficiency of businesses, and help to reduce carbon emissions.

The development at Tariff St, Manchester (The Joinery) consists of 2 number blocks for 261 new apartments with 2 units of commercial space on the ground floor. It also includes ancillary indoor and outdoor amenity space, cycle parking and hard and soft landscaping works. The existing site comprises an existing car park lot including a small element of demolition to adjacent building adjoining Sams Yard property.

The site boundaries are formed by Port Street to the Northeast and Tariff St to the Southeast

This circular economy statement has been prepared to support the discharge of Condition 3b of approved Planning Application **Ref 135675/FO/2022**. This report was produced as a result of clarification from the Planning Officer at Manchester City.

The Council expect a circular economy statement to set out the construction, operational and decommissioning impacts in terms of non-renewable material resources and reducing lifecycle impacts.

Approach

Developer Axis RE and the appointed contractor United living, have a proactive approach to sustainability with a range of corporate and project level commitments to reduce the amount of materials required, increase recycling rates and limit the amount of waste sent to landfill.

The approach to circular economy throughout the design has endeavoured to increase longevity of the building by specifying robust materials and using standard fabric sizes and modularisation for ease of replacement and maintenance.

As the existing building on the site is no longer fit for purpose, the buildings will not be refurbished or repurposed. However, the development aims to highly segregate the waste from demolition to aim for a diversion from landfill rate of 95% or better.

The project team have investigated reuse of some of these demolition waste streams, including the reuse of crushed materials for pile mats from other sites. The team have also investigated the reduction of waste during construction through supplier engagement to reduce packaging waste.

Where materials cannot be re-used, they will be sent off-site for re-use and refurbishment elsewhere if possible, instead of being taken by waste carriers.

Where possible, at the end of life, the building and associated infrastructure will be disassembled with individual components directly used elsewhere or sent for recycling.

Commitments.

This circular approach to development includes assessment of design and materials at key stages of the development in order to promote a flexible and adaptable design that also promotes longevity. Certain design decision of materials was made with the whole life carbon in mind in order to reduce emissions associated with construction.

In this context some of the key circular economy commitments incorporated into the Design and Build contract of the development include the following:

- Ongoing encouragement of specifications that maximises energy and resource efficiency. (e.g. water efficiency) within the design.
- Seek to specify the use of recycled materials wherever viable including steel content, aggregates, and building finishes.
- Utilise off-site prefabrication.
- Procurement of sustainable and robust/durable materials.
- Continue to investigate flexibility within the design to allow for changing and future needs of the development.
- Continue to work with suppliers to reduce packaging waste or investigate take-back schemes.
- Internal project targets and commitments will be reviewed by the Design and Build (D&B)
- Contractor, with the circular economy targets added as agenda item within regular team meetings.

Implementation.

At this later stage in design, the design team will continue to investigate opportunities to increase circularity of the design of the development. While some of the principles have been or are in the process of being implemented, as part of the D&B Contract, the primary contractor (United Living) will aim to ensure that where appropriate and viable, the principles will be carried through the remaining design and eventual construction.

INTRODUCTION

This circular economy statement has been prepared by United Living on behalf of Axis RE ('the Applicant'). It supports the discharge of Condition 3 part (b) pursuant to Planning Application Ref 135675/FO/2022- Tariff St, Manchester.

Since the planning permission was issued, it was clarified with the local authority that they require a circular economy statement to act as a high level strategy for the construction, operation and decommissioning stages of the building with respect to non-renewable material resources and reducing lifecycle impacts.

This statement builds on the principles relating to circular economy set out in the Energy and Environmental Standards Statement, the Site Waste Management Strategy and the Design and Access Statement submitted as part of the full planning application – in particular the materials, recycling and waste criteria and Whole Life Carbon principles.

PROPOSED DEVELOPMENT

Application Site

The development at Tariff St, Manchester (The Joinery) consists of 2 number blocks for 261 new apartments with 2 units of commercial space on the ground floor. It also includes ancillary indoor and outdoor amenity space, cycle parking and hard and soft landscaping works. The existing site comprises an existing car park lot including a small element of demolition to adjacent building adjoining Sams Yard property.

Method

As part of the pre-construction procedure United Living, and the project team attended a circular economy workshop to confirm the principles, commitments, and targets of the scheme.

The team have worked together to ensure principles of circularity are incorporated into the project, where possible. This input has influenced the sustainability objectives for the project design and construction.

Following the CE workshop, the reporting requirements and processes that set out the principles and targets are summarised below in the conclusions section.

Circular Economy Aspirations

The CE goals for the project have been set below. The goals are for the project to align with the:

- Waste Hierarchy
- Circular Economy Hierarchy.

Incorporating the associated targets and commitments within materials and elements will help to ensure the principles of circularity are incorporated into the design and construction of the project.

As part of the demonstration of commitments to sustainability and circular economy principles,the project aims to achieve at least 95% diversion from landfill rate.

CIRCULAR ECONOMY PRINCIPLES AND COMMITMENTS.

Introduction

A circular economy is one where materials are retained in use at their highest value for as long as possible and are then re-used or recycled, leaving a minimum of residual waste. A circular economy will save resources, increase the resource efficiency of businesses and projects, and help to reduce carbon emissions. For circular principles to be successful, a whole building lifecycle approach is required.
Therefore, the goals of the circular economy statement are closely entwined with the approach of the Sustainability and Energy Standards Statement and Site Waste Management Plan developed for the proposed development.
This will incorporate a number of commitments to manage quantities of materials, resources and waste. These principles underpin the structure and content requirements of this circular economy statement.

National Policy

Planning policy is set at the national level by the National Planning Policy Framework (NPPF) and associated Planning Practice Guidance (PPG) as summarised below.

National Planning Policy Framework NPPF

Most recently updated December 2023 the national Planning policy Framework (NPPF) sets out the Government's planning policy for England

The NPPF states –

The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Key requirements for the environmental objective of relevance to this statement include making efficient use of land, using resources prudently, minimising waste and pollution and mitigating climate change.

Planning Practice Guidance

PPG underpins policies within the NPPF and provides guidance on their implementation. As such PPG is a material consideration in planning decisions and should generally be followed unless there are clear reasons not to. PPG includes a specific section on the implementation of waste planning policy. It explains how local planning authorities can help ensure waste is handled in a manner which protects human health and the environment.

Local planning authorities, to the extent appropriate to their responsibilities, should look to drive waste management up the 'waste hierarchy' (see **Figure 2**).

Our Waste, Our resources: A Strategy for England

The Strategy for England SFE states

Government proposals to preserve our stock of material resources by minimising waste, promoting resource efficiency and moving towards a circular economy (see **Figure 1**).

The Strategy aims to make England a world leader in using resources efficiently andreducing the amount of waste created. By prolonging the lives of materials and goods, society can move away from the inefficient 'linear' economic model of 'take, make, use, throw' towards a more circular economy through which resources will be in use as long as possible so that maximum value can be extracted from them.

The Strategy is framed by natural capital thinking and guided by two overarching objectives:

- To maximise the value of resource use; and
- To minimise waste and its impact on the environment.



Figure 1Circular Economy Waste

National Guidance : UKGBC Circular Economy Guidance

The UK Green Building Councils Guidance UKGBCG designed to enable construction clients to include more ambitious circular design and construction principles for non-domestic built assets. In general, the principles are also transferrable to domestic and infrastructure scenarios.

This is achieved by addressing the common commercial obstacles that developers may encounter, and providing practical support and evidence to assist them in setting clear circular objectives for construction projects.

In contrast to a linear "take-make-dispose" economy, a circular economy builds overall system health by decoupling economic activity from the consumption of finite resources. This should be underpinned by a transition towards renewable energy sources.
The structure of the UKGBC Guidance follows the following Circular Principles:

- Reuse
- Design Buildings for Optimisation
- Standardisation or Modularisation
- Servitisation and Leasing; and,
- Design and Construct Responsibly.

The guidance also aims to ensure that the construction supply chain can effectively deliver circular economy goals and that budget, project management, and timescale risks are minimised and mitigated.

Manchester Core Strategy 2012- 2027

Manchester's Core Strategy was adopted on the 11 July 2012 and is the key document in the Manchester Local Plan. It was updated in March 2024, after the Places for Everyone joint development plan was adopted. It sets out the long term strategic policies for Manchester's future development and will form the framework that planning applications will be assessed against:

Policy EN19 Waste – requires all developers to demonstrate the proposal's consistency with the principles of the waste hierarchy.
Policy DM1 Development Management – all development should have regard for refuse storage and collection in the design.

Greater Manchester Spatial Framework 2020-2037 GMSF

The production of the Greater Manchester Spatial Framework, an update to the Core Strategy, is no longer being progressed in its current form however the draft plan sets out the ambition for Greater Manchester to achieve a circular economy and a zero-waste economy, by implementing the following policy:

Policy GM-S 7 – Resource Efficiency - the following measures will help achieve a circular economy: using sustainable design and construction techniques to reduce carbon emissions, adapt and future proof the impact of climate change, reduce and recycle waste and minimise water use; and, designs should incorporate storage space to facilitate recycling.

Goals

The national principles and guidance and Policy EN19 and DM1 of the adopted Manchester Core Strategy, along with the development of the Greater Manchester Spatial Framework, demonstrates the ambition to move to a circular economy. The proposed development wants to demonstrate the clear commitment to designing and building a development which considers the impacts of circularity in relation to materials and waste.

The following Goals have therefore been set :

Goal 1. Waste and Resource Management through adoption of principles of Waste Hierarchy

Follow the principles set out in the Waste Hierarchy with the goal to conserve resources; design to eliminate waste to landfill; and increase recycling rates. In accordance with their sustainability commitments, the Contractor(United Living) aims to utilise optimum level of resources and minimise waste output and achieve high levels of recycling and reuse.
The Client will also commit to minimising waste output and work with property managers and suppliers to improve sustainability performance in our portfolio and in products, and integrate sustainability considerations into all asset planning and decision-making.

As this is a Design and Build (D&B) contract, the future occupier will also have a large role to play in designing out waste and ensuring construction practises on site minimise waste production in the first instance as well as limit the amount of waste to landfill.

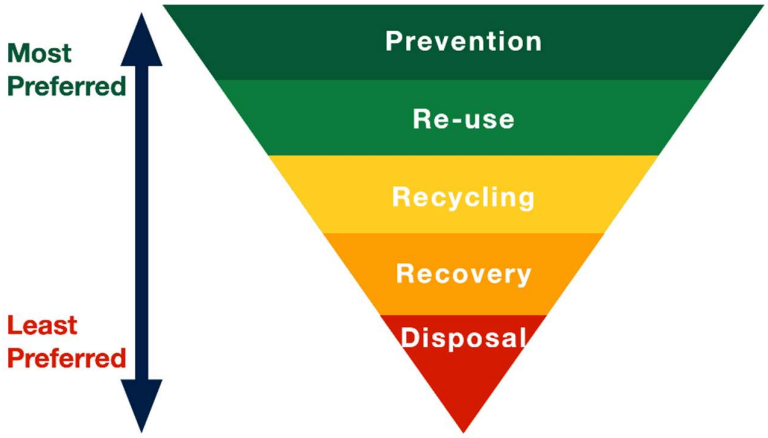


Figure 2 Waste Hierarchy

Goal 2. Adopt principles of Circular Economy Hierarchy

Deeper analysis of the Waste Hierarchy enables the circular economy hierarchy and avoidance of the linear "take-make-dispose" economy.
The goal is therefore to manage waste sustainably and at the highest value. In this way, a circular economy will help to build overall system health by decoupling economic activity from the consumption of finite resources.

In order to achieve these goals, a number of principles and commitments have been developed for the project.

Circular Economy Targets and Commitments

This section provides a more detailed description of how the targets and commitments will be achieved where possible.

The structure provides a response to each of the following principles of Circular Economy.

For each principle, the narrative includes a short summary of the proposed approach, along with itemised target(s). Commitments and measures that will be adopted where possible, are also listed along with key information about how each measure will be implemented and at what stage. Anticipated challenges and counter-actions is also included where relevant.

Principle 1:Conserve resources increase efficiency and source sustainably
Commitment 1.1: minimise the quantities of materials used
Responsibility –Architect- Structural engineer/Contractor **Timeframes** – Commenced at RIBA Stage 4 **Proposed Approach** The form of the building Tarrif St is simple and efficient, thereby using less materials within the design. Furthermore, the design and procurement process will aim to specify robust materials for elements that historically required regular replacement. During the design, the Client, Architect and Contractor have investigated the standardisation or modularisation of key components such as windows, lighting and cladding that will simplify maintenance, part repair and replacement for the operations, asset management and maintenance team. Furthermore, the standardised or modular elements may be able to be demounted or dis-assembled, relocated and refurbished thereby extending the lifespan of these building elements and reducing the demand for new raw materials. The D&B project team will endeavour to: • Investigate the use of demountable cladding elements. • Set out building elements based on standard fabric sizes. During construction, the project team will also aim to ensure where possible, efficient materials procurement and reduced construction waste by designing for less material use and less construction waste produced by: • Off-site prefabrication has been promoted and maximised where possible to minimise the potential for both on-site and off-site construction waste. • Reinforced steel is pre-cut off-site to minimise off-cuts and therefore waste.
Targets – The project will target the use demountable cladding to the amenity space
Commitments and Measures - Standardisation and modularisation requirements relating to materials will be investigated by the team members. Cladding will be investigated to be demountable to ensure simplified maintenance and repair. Offsite prefabrication of building elements will be utilised where possible.
Implementation - Designers will consider standardisation and modularity in design and identify 'specials' on design drawings. Procurement models for standardised components should be reviewed with the main contractor. Transportation and construction details of modular components should be reviewed by the contractor and supply chain as early as possible to determine if low carbon solutions are available.
Challenges /Counter Actions - Some modular elements may have higher embodied carbon than regular construction due to transportation and lifting dictating the limiting structural state of the unit. / Solutions to reduce the embodied carbon, such as localised reinforcement for lifting, can be realised through early engagement with the supply chain. Production capacity for modular / standardised components within the UK supply chain can fluctuate. / Early commitment to a fabricator is encouraged to secure the

fabrication slot and maintain programme.

Commitment 1.2 Minimise the quantities of the resources used
Responsibility-Architect/Engineer and MEP/Contractor **Timeframes** -Commenced Stage 2 ,refined Stage 3 and 4 and discussed win weekly team meetings. Proposed Approach – United Living aims to mitigate the potential impact of the development by addressing key sustainability issues and incorporate a range of procedures to maximise resource efficiency and minimise waste during all stages of the development. Tariff Street takes a fabric first approach in reduction of operational energy (heating/cooling/ventilation) by having a low U-Value façade, low Y-value thermal bridging, improved air tightness, use of a sustainable heating system, and a very efficient form factor and optimised glazing ratio. A fabric-first and all-electric energy strategy will be adopted, resulting in a reduction of energy demand by approximately 22%. The development will benefit from the ongoing decarbonisation of the UK electricity grid. The design incorporates designated roofs for PV. United Living will assess the environmental impact associated with all the phases of the life cycle of the new building, from the manufacture of the building materials through to the operation of the building and how it will be demolished and replaced, focusing on a range of sustainability metrics. Each design and specification decision is to be measured against the impact it will have on the net of the whole life carbon of the project. The apartments will be designed to reduce water consumption and will include water efficient devices and equipment, including 'A' rated appliances. The Energy and Environmental Standards Statement concluded a daily consumption rate of 125 litres / person / day. 'Green' Euro Water Label to be used for hot water outlets (e.g. certified 6l/min shower head). 95% of the apartments will achieve an EPC level 'A' accreditation. During the construction, the team will also investigate further measures to reduce use of other resources, such as packaging, as discussed below in Commitment 3.3. The use of water, electricity and fuel will be monitored to track performance throughout construction, with decisions being taken considering these KPIs.
Targets - Water – 125 l/p/d Water – 125 l/p/d Energy as per policy requirements: 1. Residential elements to achieve 9% reduction in dwelling emission rate over current building regulations 2. Non-domestic units to achieve 6% reduction in dwelling emissions rate over current building regulations
Commitments and Measures - Water Resources: the project aims to 1. minimise the use of mains water in line with the Optional Requirement of the Building Regulations (residential development), achieving mains water consumption of 125 litres or less per head per day, and will investigate betterment of this. 2. Incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise future-proofing.

Sustainability and Energy Strategy: an energy strategy has been produced to meet the requirements of the local Plan. Supply Chain: To reduce packaging waste on site and promote closed-loop recycling of key construction products, through pro-active engagement with the supply chain.
Implementation - Sustainability & Energy Standards Statement has been completed and submitted as part of the Planning Application. Contractors are required to explore reusable packaging solutions with key product manufacturers at the earliest opportunity.
Challenges/Counter actions - Solutions with key supply chain partners can lead to a significant reduction of site waste management and disposal costs. However, the supply chain is only likely to invest in reusable packaging solutions for large product orders. / Scale may be helped through the implementation of a standardisation strategy including off-site/modular components. Suppliers need time to respond to requests for re-usable packaging and develop suitable solutions. / Discussions should start during the earliest phase.

Commitment 1.3 – Specify and source materials and other resources responsibly and sustainability
Responsibility – Architect/Structural engineer/Main Contractor **Timeframes** – Commenced at Stage 4 and discussed win weekly team meetings. **Proposed Approach** - United Living endeavour to reduce the reliance on raw virgin materials and procure from sustainable sources**.** United Living will also aim to ensure a construction specification that maximises energy and resource efficiency. To reduce the reliance on virgin materials in the construction material, the Contractor seeks to specify the use of recycled materials wherever viable including steel content, aggregates, blockwork and building finishes and furnishes. The procurement team will ensure use of products from certified sustainable sources, and ensure the availability of supply for the needs of the development e.g. FSC/PEFC certified timber. **Targets-** The Contractor will endeavour to implement targets of increasing the recycled content of materials such as concrete, blockworks, insulation, etc. They will be cross checked by the team in line with commercial viability. Recycled materials with low embodied carbon will be preferred. Materials suppliers that have an established Environmental Management System will be preferred.
Commitments and measures- Design team and contractor participated in CE Workshop Procure sustainable material, certified where possible e.g. FSC/PEFC timber.
Implementation - Implement monitoring and reporting procedures to ensure opportunities are realised by contractors and their supply chain partners.

Challenges /Counter Actions - Possible issue with recycled content not explicitly communicated to sub-contractors. / Requirements to be incorporated into specifications for subcontractors. Lead in times / availability. / Increased recycled content is often available in mainstream products by large suppliers and does not incur a cost premium, but it does require project team awareness to ensure the correct products are selected.
The design team & contractor may not be aware of products with increased recycled content, nor be familiar with including requirements in specifications. / Additional sustainability workshops may be needed to engage the design team / add circular economy and Waste to agenda.

Principle 2: Design and eliminate waste (and for ease of maintenance)
Commitment 2.1 Design for Longevity, Adaptability or flexibility and reusability or recoverability
Responsibility – Architect/Engineer **Timeframes** -Commenced at Stage 4 discussed in team meetings. **Proposed Approach** - In order to ensure that circular economy principles are embedded within the construction process, the development aims to meet long term needs while being durable and resilient. It should be able to cope with change from, for example, climate change or different ways of living. The lightweight partitions and riser arrangements mean the internal arrangements can be adapted at a later date with little impact. The clear orthogonal organisation, structural strategy and adaptable floor plates allow for future flexibility so that walls between units and internal partitions can be moved without significant structural alteration. The materials have been specified to be robust and long lasting and based on standard fabric sizes. Material specifications and procurement will aim to achieve durability standards. Materials are to be demountable and recyclable where practicable. Off-site prefabrication and design for modularisation / standardisation will be promoted and maximised where possible to ensure ease of maintenance and repair/replacement during operation. **Targets** - Achieve durability standards (such as BS 7543:2015)All materials will also be sourced in accordance with a sustainable procurement strategy which includes the following measures: - all timber will be sourced from sustainable sources; - recycled materials with low embodied carbon will be preferred; and, Materials suppliers that have an established Environmental Management System.
Commitments and Measures - United Living is committed to designing out waste, recognising that the Design and Build process has an important role in reducing waste and associated environmental impact of the materials in accordance with the waste and circular economy hierarchies. United Living seeks to integrate longevity into the design, by procurement robust materials and implementing modularisation where possible.
Implementation - Adaptability and flexibility is a key component of the design brief for the team. The design and build has and as it evolves will continue to take into account the needs of the present with consideration of how those needs might change in the future.

Commitment 2.2 Design out Construction, demolition, excavation and municipal waste arising
Responsibility – Architect/Engineer/Main Contractor/Waste Contractor. **Timeframes** – Stage 4 discussed at contractor meetings. **Proposed Approach** - During construction, the team will work together to maximise the value and quantity of materials recovered for potential reuse and recycling. This will include encourage efficient use of materials by applying lean design principles, using reclaimed materials, and components, and substituting high replacement cycle materials with more robust materials, including the use of pre-fabrication and modularisation, as described above in Principle 1. The contractor, United Living will continue review the reuse and recovery of materials & components. **Targets** - Aim to divert 95% of waste from landfill.
Commitments and measures - The construction of the development will aim to re-use as many suitable materials on site as possible. Where materials cannot be re-used, they will be sent off-site for re-use and refurbishment elsewhere if possible, instead of being taken by waste carriers. Recovery of materials and products onsite could include: - Concrete: crushed and recycled to be used as sub-base below hard landscaping. Demolition contractor should endeavour to salvage natural stone, bricks, and good quality items of furniture, timber and top soil. Plasterboard, carpets, vinyl flooring, concrete, asphalt and mixed masonry should all be carefully segregated to maximise recycling potential (see commitment 3.1). Salvaged materials can be donated to local businesses, construction colleges and community groups where appropriate.
Implementation - During Stage 4 the team will aim to ensure: - design proposals responding to the existing site topography to minimise cut and fill; - Review the existing site to identify potential materials that may be salvaged and incorporated into the design; and Identify potential sites for safe storage and on-site reprocessing.
Challenges/Counter Actions - Identification, specification and reuse of salvaged materials. Deconstructing buildings rather than demolishing requires more time, space (for an increased number of segregated skips)and commitment from the demolition contractor, possibly increasing the cost of demolition (although subsequent savings may be realised in construction phases). Safe storage space for salvaged materials, particularly where materials are intended for use in future construction phases

Principle 3 Manage Waste Sustainabily and at the highest value
Commitment 3.1 manage Demolition waste
Responsibility – Architect/Engineer/Main Contractor/Waste Contractor **Timeframes -** Commenced at Stage 4, metrics and progress monitored and reported on regularly as part of monthly construction meetings. **Proposed Approach -** The scheme proposes to maximise the value and quantity of materials recovered for potential reuse and recycling during demolition. The materials generated from the soft strip of the existing building will be segregated for recycling where possible. Not this is a small element of demolition on the project. **Targets –** aiming to divert 95% of waste from landfill
Commitments and Measures - Additional resources required to brief contractors and monitor demolition works. • Quantity of materials recovered may differ significantly from pre-demolition estimates. • On-site reprocessing of concrete and other inert materials requires a crushing license and technical expertise. On-site reprocessing may create a dust nuisance if not carefully managed.
Implementation - A Site Waste Management Plan has been completed for the scheme to set out the above waste segregation streams and soft strip management to contractors. A Demolition Management Plan has been completed for the scheme.
Challenge/Counter Actions- Safe storage space for salvaged materials, particularly where materials are intended for use in future construction phases. /Additional resources and space required to brief contractors and monitor demolition works. Quantity of materials recovered may differ significantly from pre-demolition estimates. / Updates to SWMP to monitor totals. On-site reprocessing may create a dust nuisance if not carefully managed. / Site manager to ensure careful management and mitigate any issues.

Commitment 3.2 manage Excavation Waste
Responsibility – Main Contractor and waste contractor **Time frames –** Commenced Stage 4, metrics and progress monitored and reported regularly as part of monthly meetings **Targets** - 95% of waste to be diverted from landfill
Commitments and measures - The Contractor should ensure that contaminated material (if present and requiring removal from the site) would be collected by suitable waste carriers and sent for disposal at appropriately licensed hazardous waste facilities. Monthly environmental inspections will take place and KPIs will be monitored. The KPIs will include waste generation, segregation, and diversion from landfill. **Implementation -** Incorporate excavation requirements into contractor specification to help assign ownership of waste within the supply chain and minimise excavation waste. Establish excavation requirements within the SWMP which excavation waste totals will need to be updated by the contractor at regular intervals. Ensure the site induction to staff and sub-contractors includes awareness of good waste management and the specific measures used at the site .Use regular tool box talks to make sure that everyone who comes to site knows how to reduce, re-use and recycle at the site. Implement good housekeeping throughout the site to promote good waste segregation and re-use opportunities.
Challenges/Counter actions - Safe storage space for excavated materials required. / Site manager to dedicate space as needed or ensure logistics allow for swift removal as necessary. Additional resources and space required to brief contractors and monitor demolition works. Quantity of materials recovered may differ significantly from pre-excavation estimates. / Updates to SWMP to monitor totals excavated.

Commitment 3.4 manage Municipal waste
Responsibility – Main contractor **Timeframe -** Design Elements commenced stage 3 . ongoing waste requirements commence at stage 7, tenant guidelines to be produced and establish timelines. **Proposed Approach** - A Waste Management Strategy has been developed by United living, ensuring that adequately sized bin storage areas are provided, access for collection personnel and vehicles has been established and other aspects of waste management is designed into the development at an early stage of the design. The estimated volumes can be found within the Site Waste Management Strategy. The dwellings will be provided with four bins. One for general waste, one for pulpable waste, one for mixed recyclables and one for food waste, stored internally in each apartment before decanted into the communal bins in the ground floor bin store. This allows for appropriate waste management facilities in accordance with the Waste Hierarchy to enable segregation and recycling. It is anticipated that 50% of the bins in the residential waste store would be dedicated for recycling, including organic waste. This meets the Greater Manchester Municipal Waste Management Strategy, which aims to achieve 50% recycling and composting of household's rates by 2020. This recycling rate will be reviewed upon occupation. The commercial units will have colour coded bins to facilitate identification of waste streams to encourage recycling. Waste collection frequency will be dependent upon the volume of waste generated, the storage method (i.e. whether balers and waste compactors are used) and the schedule of the appointed waste contractor. It is anticipated that commercial waste will be collected twice a week. The management company would be responsible for

the monitoring of recycling rates and promote actively high recycling rates in the building, e.g. by providing information on segregation. Commercial tenants will be served by private waste contractors.

Targets - Meet or exceed the municipal waste recycling target of 50%, updated upon review of actual rates.

Commitments and measures- The design team will ensure that appropriate recycling and waste facilities are provided within the building to facilitate and maximise recycling opportunities.

Implementation - At Stage 4 the design team will design the appropriate spaces required for management of waste and recycling.

Challenges/Counter- actions - Levels of recycling may be compromised by cross contamination. / Building manager to provide information on recycling and waste requirements within the common spaces and provide information as necessary.

Timeframes - Stage 4 – finalise design principles.

Commitment 4 – End of life

In order to promote use of materials and elements at the end the buildings' life, D&B team will investigate the following and where possible:

- Select products and materials that can be remanufactured or reused at end of first life, largely brick, concrete and steel;
- Use materials with recycled content;
- Select products that are designed for disassembly, such as demountable cladding.
- Select materials that can be recycled or composted at end of life.
- Consider leasing short-lived components.
- Avoid permanent fixing of products, such as by glue and cement mortar, to enable end of life deconstruction and salvage of building elements; and
- Ensure fixings are easy to access to enable disassembly.

When the asset is approaching obsolescence, the client will aim to investigate the feasibility of options to extend end of life. If extending is not feasible, the client may be in a position to consider replacement scenarios where appropriate.

CONCLUSION

United Living has a proactive approach to sustainable development and takes a holistic view to delivering a building that embraces the principles of the circular economy.

This circular economy statement has been prepared to demonstrate how the proposed development at The Joinery, Tariff St has and will deliver the principles of circularity to discharge condition 3b made on the decision notice for full planning permission.

United Living and Axis RE have a proactive approach to sustainability with a range of corporate goals to reduce the amount of materials required, increase recycling and limit the amount of waste sent to landfill. This circular approach to development includes assessment of design and materials at key stages of the development in order to promote a flexible and adaptable design that also promotes longevity.

In this context the key circular economy commitments incorporated into the proposed development include the following.

- Ongoing encouragement of specifications that maximises energy and resource efficiency (e.g. water efficiency) within the design.
- Ongoing investigation into the inclusion of modularisation into the design of demountable cladding.
- Seek to specify the use of recycled materials wherever viable including steel content, aggregates, and building finishes.
- Utilise off-site prefabrication and precast concrete where possible.

Procurement of sustainable and robust/durable materials.

- Continue to investigate flexibility within the design to allow for changing and future needs of the development.
- Reuse of site-won material within the on-site construction, or where possible investigate options for recovery and reuse of material to increase diversion from landfill.
- Continue to work with suppliers to reduce packaging waste or investigate take-back schemes.
- The demolition and construction waste targets and commitments will be monitored.

As this is a D&B Contract, the primary contractor will include the circular economy as an agenda item within regular meetings.