



Design Build Sustainability and Carbon Management Manual

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	<i>Minor change to social value definition. Updated document References</i>			

NOTE:

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Revision History

Issue	Date	Amendments / Comments
1	Jan 2025	New Manual
2	Mar 2025	Minor change to social value definition. Updated document References

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0 Introduction

The Design Build Sustainability and Carbon Management Manual defines the approach for sustainability and carbon considerations with regards to decision making within MWH Treatment's Design and Build activities. The Manual describes the management arrangements adopted to ensure the company's design and build activities are carried out in accordance with the sustainability and carbon business needs, client needs and the requirements of PAS2080: 2023 Carbon Management in Buildings and Infrastructure Standard. Full adoption of PAS2080 on a project or programme of works will be identified at Tender stage.

This Design Build Sustainability and Carbon Management Manual is intended to provide employees, clients and others, with an explanation of the arrangements operated by MWH Treatment for frameworks, projects and programmes.

All employees of MWH Treatment are required to implement the Sustainability, Responsible Business and Carbon Policies through adherence to the principles and practices defined by this Manual and the Sustainability and Environmental Management Manual (MA02), Company Processes and Procedures (The MWHT Way), Environmental Management Plans and other IMS documentation.

0.1 MWH Treatment Sustainability and Responsible Business Approach

Our Vision: To be the leading, trusted sustainable solution provider in the UK Water Industry.

Our Purpose: Our work makes a positive difference to the environment, our people, our clients, their customers and the communities we live in and serve, by creating a safer, sustainable future. As a responsible business it is not just about what we do, it's about how we behave and how we live our values through our people, demonstrating our wider social commitment through our work, will help us 'Shape a Better World'.

We create an environment that enables our people to flourish, bring their best to work, trusting and supporting them to develop and deliver, with a sense of belonging and common purpose.

Our Values

At MWHT we have three core values with supporting statements. Those statement relevant to Design Build Sustainability and Carbon Management are stated below:

Safe, Well and Sustainable

- To deliver work safely and sustainably, while making a positive difference to our people, the environment, our clients and the communities we serve and live in.
- Providing affordable, low carbon and nature-based solutions to secure a long-term future with our clients.

Trust, Integrity and Respect

- We build trust, providing transparent interactions, professional, resilient, high-quality solutions, for our clients, that underpin our proud heritage.

Connected and Innovative

- Collaborating across our business and our supply chain, we leverage collective expertise for our clients, their customers and communities we serve.

- By continuously innovating, improving our delivery and solutions, because what we do together matters, we find solutions and commit to driven delivery, achieving results for our stakeholders.
- Technology will remain at the heart of our delivery, as a facilitator of connectivity and efficiency.

To support us in achieving our vision, purpose and values MWH Treatment need to consider sustainability aspects and reduce carbon within our projects. This Manual details the approach taken within MWH Treatment to achieve this and align with the Integrated Management System. There is an overarching business level MA02 Sustainability and Environmental Management Manual which covers MWHT’s sustainability and environmental management including the requirements to ensure certification to ISO14001 Environmental Management Systems.

Sustainability is the ‘balance of environment, social and economic factors to meet the needs of present and future generations. At MWH Treatment we cover sustainability through seven key areas (refer to Figure 1).

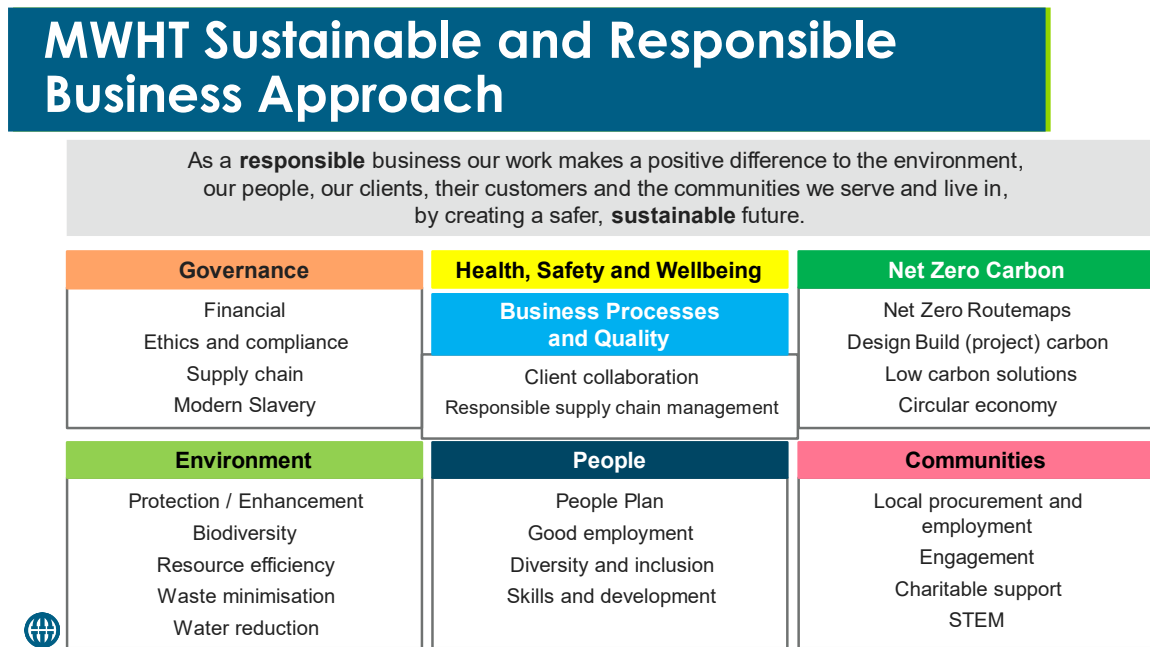


Figure 1: MWHT Sustainable and Responsible Business Approach Key Areas

0.2 MWHT Design Build Sustainability Overview

This Manual will consider sustainability and carbon management during the development of projects and programmes within our design and build capacity. From the MWHT sustainability key areas - Health, Safety and Wellbeing is relevant for our design and build activities but is dealt with through MA03 Health and Safety Policy Manual; the majority of Business Processes and Quality key area is covered through MA01 Quality Management Manual.

For the purposes of this Manual – the Design Build sustainability approach is covered through the following key areas:

- Governance: Supply Chain

- Business Processes and Quality: Responsible Supply Chain Management. To support further development of this MWHT will be adopting the principles of ISO20400: 2017 standard for Sustainable Procurement.
- Net Zero Carbon: Design Build (project) carbon, Low carbon solutions, Circular economy
- Environment: Biodiversity, Resource efficiency, Waste minimisation, Water reduction
- People: Skills and development, Diversity and inclusion
- Communities: Local procurement, Community engagement

0.3 MWH Treatment Carbon Reduction Approach

Reducing embodied carbon emissions (capital carbon), particularly with regards to our supply chain, supports MWHT's vision and our ambition **'To achieve Net Zero Carbon by 2045 - across all our activities, including Scopes 1, 2 and 3'**. This is a priority for us, as an organisation, as the effects of climate change are evident and will play an integral role in the future of the water industry. It is also critical that MWHT plays its part in keeping the global temperature rise to below 1.5°C to comply with the Paris Agreement. Also, by reducing carbon it will increase value across the whole life of buildings and infrastructure.

Reducing embodied (capital) and operational carbon makes good business sense:

- Reduces cost
- Unlocks innovation and drives better solutions
- Drives resource efficiency
- Provides competitive advantage
- Contributes to climate change mitigation

(Note: Taken from Carbon Infrastructure Report Executive Summary).

Where carbon is referred to in this Manual it incorporates greenhouse gas emissions as a whole (see Section 13 for Definitions).

MWHT commercial advantages for adoption of a carbon management strategy include:

- Green Recovery Scheme funding available from Ofwat for the Water companies – with strong carbon / environmental credentials (able to demonstrate project carbon and whole life cost savings) could become contractor of choice.
- Positioning for AMP8 and business growth opportunities (Asset optimisation / assessment – no build and low build; Process engineering – low build and operational carbon).
- Cutting carbon cuts costs, could increase profits with NEC contracts 'gain/pain' share arrangements.
- Collaboration with the supply chain e.g. business diversification by forming partnerships with MSME businesses specialising in nature-based solutions or innovative water treatment.

0.4 PAS2080: 2023 Carbon Management in Buildings and Infrastructure standard

PAS2080: 2023 Carbon Management in Buildings and Infrastructure standard sets out the principles and components of a carbon management system, to promote carbon and cost reduction in infrastructure delivery on a whole life basis. This standard focuses on collaborative working within the value chain (asset owner, designer, constructor and product / material suppliers – see Section 3.1), encourages innovation by challenging the specifications and has Greenhouse Gas Emissions (GHG) quantification requirements.

At MWH Treatment we have adopted PAS2080 requirements as part of our business-as-usual approach for key aspects, as there are increasing demands from our clients on capturing embodied carbon of our projects and delivering reductions. The standard provides structure to achieve this. There is also a mandatory requirement for water companies to report to Ofwat on embodied carbon. Where MWH Treatment are required to fully adopt PAS2080 for a project (due to scale of project or client requirements) all of the standard requirements are to be complied with. The different levels of compliance will be either an MWHT Way requirement or PAS2080 “Only” Requirement.

1 Sustainability and PAS2080 Value Chain Requirements

1.1 Sustainability Requirements

From a Design Build Sustainability perspective, the following are MWHT requirements:

- Effective leadership
- Maximising opportunities for sustainability considerations at all stages of the delivery process
- Adoption of PSFR03-09 Project Sustainability and Social Value Plans, for projects within criteria (refer to PS03 Tender Preparation process)
- Setting appropriate sustainability outcomes, creation of social value (using the National TOMs) and targets for projects
- Establishing metrics (e.g. Key Performance Indicators) for sustainability monitoring and reporting
- Integrating sustainability considerations into procurement and commercial decision making
- Continual improvement of sustainability performance

1.2 PAS2080 Value Chain Requirements

In PAS2080 the Value Chain includes ‘the organisations and stakeholders involved in creating, operating and managing assets and/or networks.’

PAS2080 requirements, are structured around:

- Effective leadership
- Adoption of the decarbonization principles
- Maximising opportunities for whole life carbon reductions at all stages of the delivery process
- Selecting appropriate carbon (greenhouse gas) emissions assessment methodologies
- Setting appropriate carbon reduction targets
- Determining baselines against which to assess carbon reductions

- Establishing metrics (e.g. Key Performance Indicators) for credible carbon emissions monitoring and reporting
- Integrating carbon management into procurement
- Continual improvement of carbon management and performance

Note: From Section 4 onwards (until Section 13: Definitions) the section numbers and letters align with the Clauses as stated in PAS2080: 2023. They will be stated as Clause number for consistency.

2 Project Life Cycle

The Project Life Cycle terminology may differ depending on the client and framework. This Design Build Sustainability and Carbon Management approach will be based upon the Project Life Cycle detailed in Figure 2. MWH Treatment’s involvement along the project life cycle will differ depending on the client framework and structure (including their stage gate processes). For each framework this will be detailed in the BPF06-04 Framework Sustainability and Carbon Management Plan. MWHT’s scope to ensure sustainability considerations and carbon reduction will depend on where the project life cycle begins and is completed.

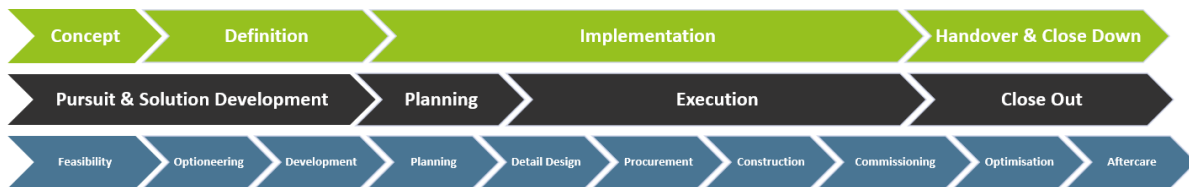


Figure 2: Project Life Cycle

3 Role of MWH Treatment and Stakeholders

3.1 Role of MWH Treatment within PAS2080

PAS2080: 2023 clearly stipulates roles across the value chain to implement carbon management. For MWHT and this strategy the roles we will perform, for compliance with PAS2080: 2023 will be as a **Designer** and a **Constructor**. PAS2080 will be adopted in full where required / agreed with our clients (as the Asset Owner – see below). Where the client does not adopt PAS2080, discussions will be held with the client to confirm sustainability expectations, carbon baseline and targets (see Clause 6). Sustainability and carbon will still be considered as business as usual, outside of PAS2080 compliance.

The roles are stated below (referencing definitions from PAS2080: 2023):

Asset Owner / Manager: “Organisation that manages and is responsible for providing, operating and maintaining a buildings and infrastructure network or asset(s)”. *Note: On some occasions the asset owner/manager may be an organisation charged with operating buildings or infrastructure, a service provider, a developer, a financier, the entity undertaking project works. Note: From here onwards will now be referred to as ‘Asset Owner’.*

Designer: “Entity that creates, prepares or specifies the design of an asset or network that is to be constructed, maintained, repaired or refurbished”. *Note: A designer can be an asset owner/manager, consultant, constructor or product/material supplier. Some of MWHT’s clients may operate as a designer – this will be reflected in the BPF06-04 Framework Sustainability and Carbon Management Plan.*

Constructor: “Entity that undertakes work to construct, build, maintain, repair, replace, disassemble or demolish an asset or network”. *Note: A constructor can be an asset owner/manager or a product/material supplier.*

Product / Materials Supplier: “Organisation that extracts, manufactures and/or produces materials or products for incorporation into works to construct, build, maintain or operate an asset or network”.

3.2 Stakeholders in Carbon Reduction across the Value Chain

MWHT have completed a Materiality Assessment to pinpoint what matters most to our business and to our most important stakeholders; what the business has the most impact on; and what impacts the business the most. The assessment is based upon the importance given by MWHT stakeholders and completed following a detailed review of business stakeholders. Material priorities to the business include Innovation / Innovative Solutions, Net Zero Carbon and Circular Economy. For further details refer to MA02 Sustainability and Environmental Management Manual.

In addition, MWHT complete BPF08-03 Stakeholder Analysis - Interest Influence Matrix for the business (refer to BPPD08-01 Determining Organisational Context, Risk and Opportunity process). The power (influence) and interest matrix below (Figure 3) has been completed to cover more specifically MWHT sustainability considerations and adopting low carbon solutions / carbon reduction across the value chain. The matrix identifies the high interest / influence stakeholders to work closely with (to demonstrate two-way dialogue necessary to fulfil stakeholder expectations). High influence but lower interest stakeholders need to be ‘kept informed’ rather than ‘keep satisfied’ which takes it beyond just informing them of company activities.

For details on the stakeholder expectations refer to the stakeholder analysis shown in Appendix 2.

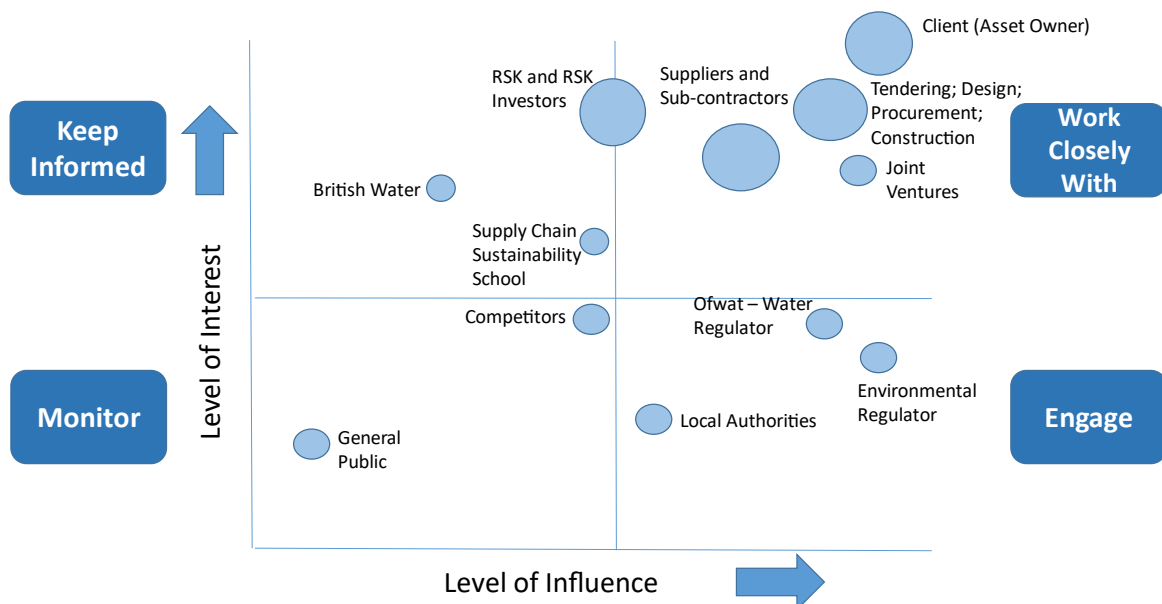


Figure 3: Stakeholder Interest and Influence Matrix

3.3 Company, Framework or Project / Programme Level Requirements

For compliance with PAS2080 each requirement is reviewed to determine if it is required at Company, Framework or Project / Programme Level. This Manual details the MWHT requirements in considering Design Build sustainability considerations including carbon management and compliance with PAS2080:

Company Level [C]: This level will be covered through this Manual and demonstrates how the requirements are covered at business level through the Integrated Management System workstreams and processes.

Framework Level [F]: This will be covered by the client specific BPFR06-04 Framework Project Sustainability and Carbon Plan which will state the client / regional approach with regards to sustainability and carbon management.

Project / Programme Level [P]: At this level how sustainability and carbon should be considered within a project / programme of works as part of the Design Build project life cycle. For MWHT this is predominantly through following the IMS, and completion of the PSFR03-09 Project Sustainability and Social Value Plans and PSFR03-11 Design Build Sustainability and Carbon Checklist.

4 Decarbonization Principles – incorporating wider Sustainability

It is essential that decarbonization is addressed from the system level downwards and through close collaboration across the value chain. Below are the principles summarised from PAS2080: 2023 and incorporating wider sustainability considerations, in addition they are provided in the guidance BPGD06-04 Design Build Decarbonization Principles.

4.1 Whole Life Carbon Management with Control and Influence

4.1.1 a) Activities Boundary

[C, F, P] As a business, at framework, programme and project level need to identify all the activities resulting in carbon emissions or removals that we can control and influence. With MWHT activities we are able to control and influence capital carbon emissions during design/construction, influence usage (capital and operational emissions) and influence end-of-life. From a carbon removal perspective, we can influence the client with regards to design and solution development.

4.1.2 b) Interdependencies and Relationships

[C, F] The interdependences and relationships at a project / programme level are to be identified by engaging with our clients and other framework contractors to determine sustainability and carbon reduction opportunities as well as risks at asset, network and system level (e.g. resilience). Examples of interdependencies and relationships include:

- Installation of duty / stand-by pumps instead of duty /stand-by / stand-by which may decrease resilience but be suitable for the project requirements.
- Installation of solar panels with ethical sourcing considerations (i.e. risk of modern slavery in the supply chain).
- No build is not feasible as treatment is required to be constructed in order to reduce pollutants in the river.
- Consideration to the handling of process emissions – with additional treatment measures installed to produce energy from the gases produced at the treatment works.

4.1.3 c) Nature First

[C, F, P] As an organisation, during solution development, we need to prioritise circular economy principles in the adoption of nature-based solutions to significantly reduce whole life carbon and improve sustainability. We are to seek out potential carbon removals and associated co-benefits such as addressing climate adaptation (e.g. flood capacity), biodiversity net gains and a just transition to decarbonization (a fair and inclusive way to greening the economy - refer to Section 13 definitions).

4.1.4 d) Engagement

[C, F, P] As an organisation, we engage with our stakeholders through the Materiality Assessment (section 3.2), as a partner with the Supply Chain Sustainability School, as a member of British Water (trade body) and through our supplier assessments and audits (PMPD05-01 Subcontractor / Supplier Assessment process).

During project development engagement includes the other value chain members, environmental regulators, local communities, planning authorities and wildlife conservation groups. This is to ensure sustainability approaches and decarbonisation opportunities are aligned for the project, programme, framework or geographical region. Refer to section 3.2 for more details on how MWHT reviews stakeholder expectations to assist in determining levels of engagement.

Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.

4.1.5 e) Control and Influence

[C, F] As an organisation, across the project life cycle MWHT has control and influence with regards to identifying, managing, or delivering low carbon solutions. These will be identified for each Framework, Joint Venture or Alliance using the appropriate project delivery model and detailed in BPFR06-04 Framework Sustainability and Carbon Management Plan. Prioritisation will be made where there are opportunities or risks that would significantly influence system wide decarbonization (refer to Appendix 3 for wider impacts). This will be undertaken in collaboration with our clients.

4.1.6 f) Whole Life Carbon Assessments

[C, F, P] During decision making Whole Life Carbon is to be assessed for emissions and removals. This is the 'sum of greenhouse gas emissions and removals from all work stages of a project and/or programme of works within specified boundaries. Considerations will be made with regards to MWHT control and influence and the boundary of the emissions (which will be specified as part of the project carbon assessment). See Figure 4 below as depending on the boundary, emissions may cover cradle-to-date, cradle-to-site, cradle-to-built asset or cradle-to-grave.

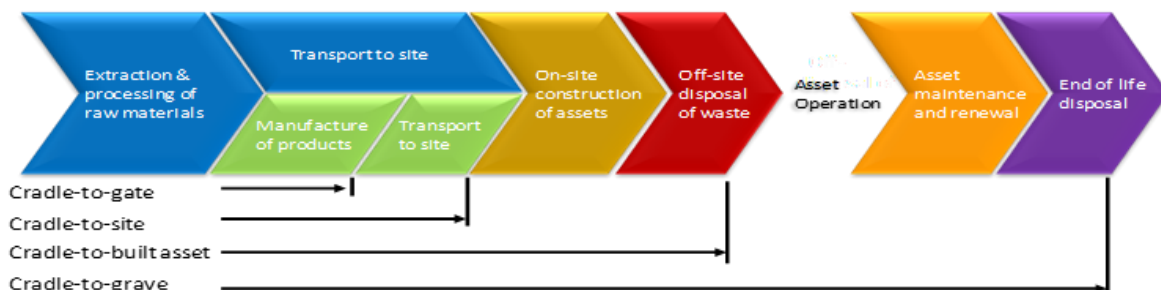


Figure 4: Whole Life Carbon diagram

4.1.7 g) Level of Accuracy

[C, F, P] The level of accuracy needs to be appropriate for the decision-making at each specific stage of the project. The level of accuracy will need to improve as the project progresses (Figure 4) from assumptions at Feasibility and Optioneering, incorporation of supplier data (e.g. Environmental Product Declarations; Whole Life Carbon) at Detailed Design, and actual data (including quantities) in Construction and Optimisation.

4.1.8 h) Integration

[C, F] MWHT are to integrate sustainability considerations and whole life carbon reduction into the decision-making processes, in accordance with Clause 6.

In addition, Asset Owners and Designers are to consider:

4.1.9 1) Wider Implications

[C, F] Wider implications are to be identified by the Asset Owners and Designers. These are the carbon implications of climate resilience, or lack of, at the asset, network or system level and consideration of wider sustainability issues e.g. human rights and ethical sourcing, creating social value, Biodiversity Net Gain and community impacts. These implications are to then be integrated into the decision-making process including across whole life carbon.

A review of positive and negative consequences for 'Buildings' and 'Water' sector are shown in Appendix 3 with identification of those consequences that are material to MWHT activities.

4.1.10 2) Stakeholder Engagement on Solutions

[C, F, P] Stakeholder engagement is to be undertaken by the Asset Owners and Designers. Collaboration and engagement with other value chain members and stakeholders for sustainable solutions to deliver the necessary level of climate change resilience for lowest whole life carbon. This should also consider carbon avoided in recovering from future events. Collaboration and engagement is covered through The MWHT Way and significantly through process BPPD06-03 Value Chain Collaboration for Sustainability and Carbon.

4.2 Aligning to Net Zero Carbon Transition

There should be prioritisation by the Asset Owner for target setting and carbon reduction measures for the project / programme to align and support the net zero carbon transition. This transition may be set out at the system, network or national level. Where there is a lack of policy or regulation the Asset Owner is to engage with other Asset Owners, regulators, government to assess alignment with wider decarbonization goals.

At MWHT, client and sector targets are to be assessed against our own net zero targets and ambitions, to determine alignment and any potential impacts.

4.3 Applying the Sustainability Hierarchy to Whole Life Carbon Emissions

- a) [C, F, P] MWHT, with all value chain members, are to follow the carbon hierarchy (Figure 5) when identifying potential opportunities to reduce whole life carbon emissions and improving on design build sustainability. The hierarchy applies to all emissions – capital, operational and user emissions (see Section 13 for Definitions).

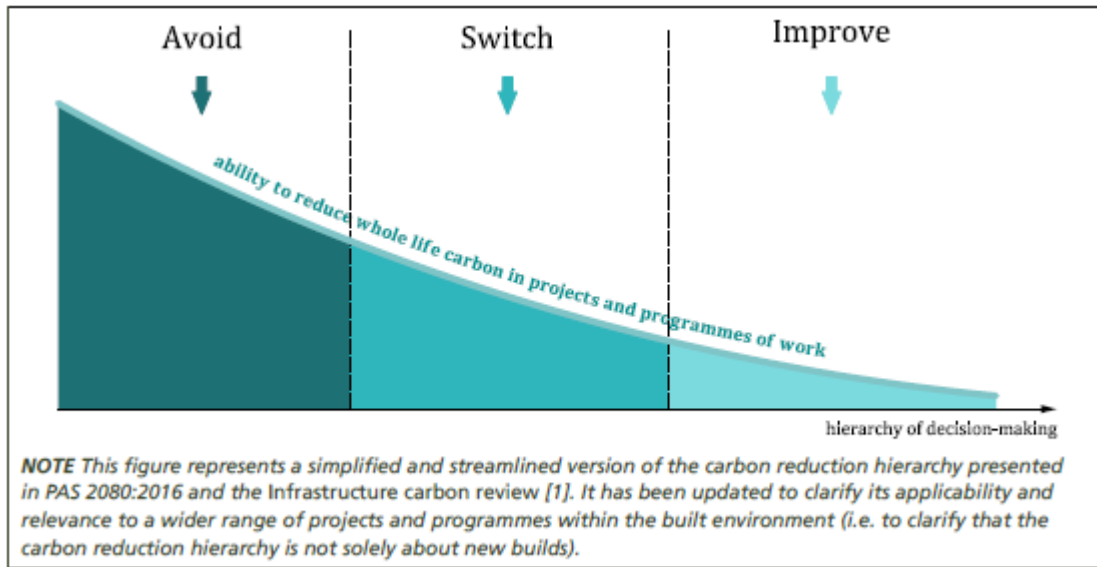


Figure 5: PAS2080 Carbon Reduction Hierarchy

At MWHT we have adapted the PAS2080 carbon hierarchy (from PAS2080 standard - Figure 5) to form BPGD06-02 Design Build Sustainability Hierarchy (Figure 6) which also incorporates circular economy. With using a Sustainability Hierarchy this contributes to ensuring that carbon is not seen as a silo but part of a wider sustainability approach. The Circular Economy three principles are to:

1. Eliminate waste and pollution
2. Circulate products and materials (at their highest value)
3. Regenerate nature

To accompany the BPGD06-02 Design Build Sustainability Hierarchy there are DERU08-01 Engineering Sustainability Rules which are incorporated into the PSFR03-11 Design Build Sustainability and Carbon Checklist.

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Note: BPGD06-02 Design Build Sustainability Hierarchy (Figure 6) is to be followed from the start of the project as this is where there is the greatest ability to influence sustainability and whole life carbon reduction (i.e. the “need” stage with developing and assessing objectives and outcomes of projects / programmes). MWHT involvement in the project life cycle can differ depending on the client (Asset Owner) requirements. This can affect the impact on the level of sustainability benefits realised and the carbon reductions made – refer to the BPFR06-04 Framework Sustainability and Carbon Management Plans.

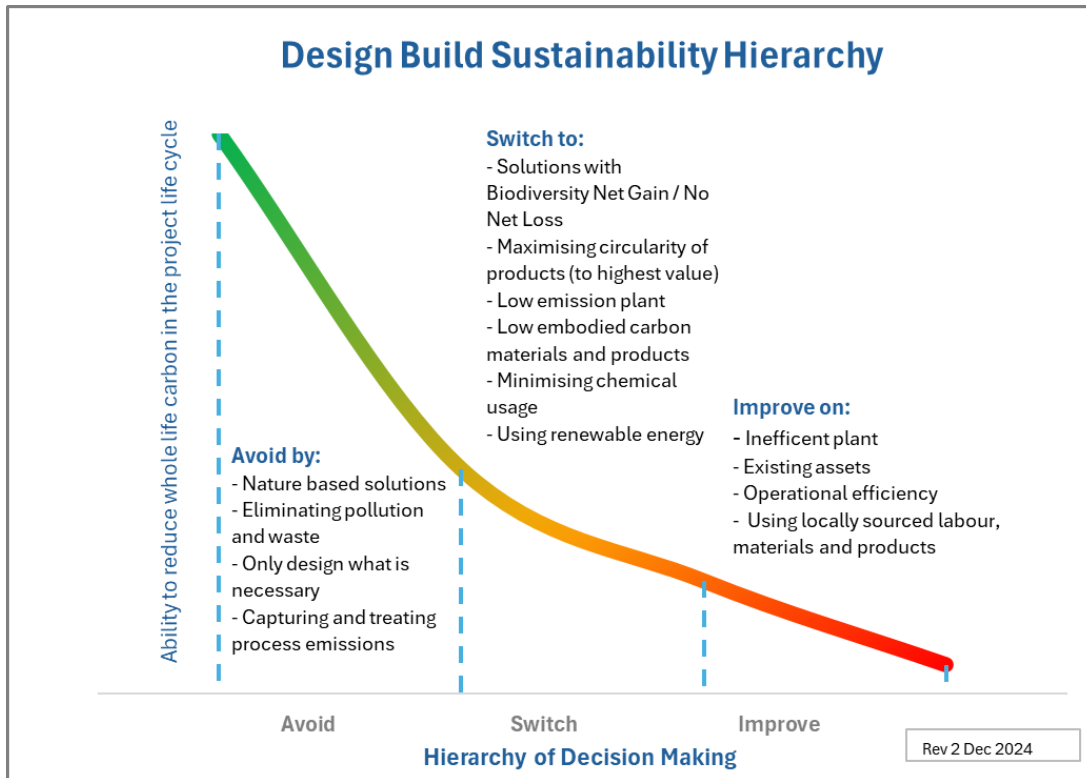


Figure 6: MWH Treatment Sustainability Hierarchy (BPGD06-02) Rev 2 December 2024

- b) In applying BPGD06-02 Design Build Sustainability Hierarchy (including carbon reduction) all value chain members need to demonstrate they have considered the following (with priority given to solutions that promote network and system decarbonization as far as possible - at the highest level of the hierarchy e.g. Avoid).

Avoid:

[C, F, P] To assess at catchment level and evaluating the basic need at the asset and/or network level to align the outcomes of the project / programme of work with the net zero (‘just’) transition (see Section 13 Definitions). This could include optioneering and exploring alternatives (including circular economy) to ensure that the project / programme outcome is achieved (i.e. whole life performance) by not constructing a new asset/network, reusing / retrofitting / repurposing existing ones or eliminating the need.

Switch:

[C, F, P] To assess alternative solutions and adopt one that improves sustainability including adoption of circular economy and reducing whole life carbon emissions (such as operational carbon) through alternative scope, design approach, materials, technologies while satisfying the whole life performance requirements. This could include the use of innovative models that optimise the balance between capital, resource use, operational and user efficiency of an asset/network.

Improve:

[C, F, P] To identify and adopt solutions and techniques that improve the use of resources and design life of an asset/network, including applying circular economy principles to assess materials/products in terms of their potential for reuse or recycling after end of life. This can include design, construction and operational efficiency such as with material resources and improvement of plant and assets.

For the implementation of BPGD06-02 Design Build Sustainability Hierarchy within project delivery and design – refer to processes PSPD03-01 Tender Preparation, DEPD02-01 Design Management and DEPD08-01 Safety, Environmental and Sustainability Considerations in Design; guidance DEGD02-03 Value Engineering and DEGD08-02 Sustainability and Carbon in Design Management and Design Build Checklist; completion of the PSFR03-11 Design Build Sustainability and Carbon Checklist.

4.4 Implementing Appropriate Governance

The governance below details specific measures for adopting PAS2080 and consideration to Design Build Sustainability. The governance aligns with high level MWHT committees – the Senior Leadership Group [SLG] (BPGD04-05 Terms of Reference), Strategy SLG (BPGD04-06 Terms of Reference) and Net Zero Carbon Task Force Group (EVGD06-17 Terms of Reference).

	Governance Requirement	MWHT Adoption
a)	[C, F, P] Aligning whole life carbon impacts of any decisions made with the decarbonization principles (Clause 4)	<ul style="list-style-type: none"> • RL01 High Level Risk Review process • PS03 Tender Preparation process • DE01 Design Tendering process • DE02 Design Management process
b)	[C, F] Making carbon management underpin all projects / programmes of work (as per the requirements in Clause 6), regardless of their scale or work stage	<ul style="list-style-type: none"> • DE08 Safety, Environmental and Sustainability Considerations in Design process • PMPD01 Project Procurement process • PMDP01-04 Framework Supplier Management process
c)	[C, F] Embedding whole life carbon into business and management processes, forming part of decision-making alongside cost, time and risk	<ul style="list-style-type: none"> • CM03 Creating Subcontracts process • CD01 Post Award Meeting process [with client] • CD02 Project Planning process • CD06 Project Reporting and Progress Monitoring process • CD16 Control of Subcontractors process
d)	[C, F] Defining and establishing roles and responsibilities for carbon management to promote the outcomes and behaviours required for decarbonization	Roles and responsibilities incorporated into: <ul style="list-style-type: none"> • MA02 Sustainability and Environmental Manual • HSGD36s Roles Responsibilities guidance attached to process Organisation, Designated Individuals and Authorising Engineers process (HS36)
e)	[C, F] Putting in place roles and responsibilities for engagement with other	

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	Governance Requirement	MWHT Adoption
	value chain members and stakeholders so that system-wide opportunities and risks are identified and managed	<ul style="list-style-type: none"> Job Descriptions
f)	[C, F] Allocating resources (human and financial) to support the delivery of sustainability and carbon management processes	<ul style="list-style-type: none"> RL01 High Level Risk Review process PS03 Tender Preparation process CD02 Project Planning process Senior Leadership Group (SLG) meetings for SHEQ; Sustainability and Environment; Operations (BPGD04-05 SLG Functional Meeting - Terms of Reference) SHEQ and Sustainability Annual Review Meeting (SYGD02-01 Terms of Reference) Engineering Leadership Group Meeting – (BPGD04-07 Terms of Reference)
g)	[C, F] Putting processes in place to assess greenhouse gas emissions (GHGs), identify carbon reduction opportunities, and implement them in projects and programmes	Incorporation into existing processes in the Integrated Management System (IMS) 'The MWHT Way'
h)	[C, F] Supporting the implementation of low-carbon solutions	<ul style="list-style-type: none"> SLG Quarterly and Functional meetings (BPGD04-05) Head of Sustainability and Environment Engineering Director Head of Business Development and Proposals Head of Digital and Innovation Regional Engineering and Operational Leads Engineering Leadership Group Meeting – (BPGD04-07 Terms of Reference) Design Build Sustainability and Carbon Working Group (BPGD04-07 Terms of Reference)
i)	[C, F] Collaboration across the value chain, sharing expertise, knowledge and data to drive decarbonization across the industry	Incorporation into existing processes in the Integrated Management System (IMS) 'The MWHT Way' including process BPPD06-03 Value Chain Collaboration for Sustainability and Carbon.
j)	[C, F] Improving business processes based on feedback from other value chain members	<ul style="list-style-type: none"> BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process SY05 Improvement process SY09 Communication and Consulting process Design Build Sustainability and Carbon Working Group (BPGD04-07 Terms of Reference)
k)	[C, F] Allocating senior management support to all decision-making that has a significant effect on sustainability and carbon management	<ul style="list-style-type: none"> Head of Sustainability and Environment Engineering Director Head of Business Development and Proposals Framework Directors / Managers Regional Engineering and Operational Leads

	Governance Requirement	MWHT Adoption
l)	[C, F] Keeping records in support of carbon management monitoring and reporting practices (Clause 9)	Incorporation into existing processes in the Integrated Management System (IMS) 'The MWHT Way' including process BPPD06-03 Value Chain Collaboration for Sustainability and Carbon.

5 Leadership and Commitment

5.0 MWHT Overarching Leadership and Commitment

At parent company level, RSK have set specific greenhouse gas (GHG) emissions goals and targets through the 'Second Nature RSK's 2030 Sustainability Strategy'. This has been approved by the RSK board and fully supported by Alan Ryder, the RSK Chief Executive Officer. This strategy is led by Lucy Thomas, Chief Scientist. The RSK ambition is to "Improve our climate resilience and become a net-zero business". This focuses on decarbonizing the business and incorporates engagement with suppliers to set Science Based Targets (refer to the MA10 MWHT Net Zero by 2045 Strategy). An RSK parent company Carbon Policy is currently in development. RSK require quarterly reporting on carbon emissions and the ESG Plan (MWHT selected targets).

At MWHT our leadership is committed to our net zero targets and carbon reduction. This is championed by Paul Bresnan, our Chief Executive and Simon Cox, SHEQ Director. Catherine Price, Head of Sustainability and Environment, sits on the Senior Leadership Group to ensure sustainability and net zero is considered during business decision making. With regards to Design Build Sustainability and Carbon Management the Engineering Director, Operations Directors and Commercial Director are required to input into strategy and targets.

All organisation-wide targets are approved by the Chief Executive and the SLG are consulted throughout strategy and target development. Framework, Programme and Project related targets will be established through the Framework Senior Leadership Groups / Boards, regional engineering and construction leads and consultation with the Asset Owner (Client).

5.1 Leadership Requirements for all Value Chain Members

In order for MWH Treatment to achieve its Vision, Purpose and Values (refer to 0 Introduction) there are leadership requirements to ensure the direction of the business is maintained and sustainability and carbon are considered. Below is how MWHT will comply with the leadership requirements for all value chain members:

- a) [C] MWHT has a '[Carbon Reduction Policy Statement](#)' (MP15) alongside this strategy document setting out our the roles and responsibilities. The organisation has six business priorities including 'Being a Sustainable and Responsible Business' which incorporates Net Zero Carbon. The Sustainable and Responsible Business strategy aligns with commercial and business goals, the Net Zero to 2045 strategy (M10) and this Manual (MA12). In addition, the MWHT strategy aligns with the parent company (RSK) Second Nature strategy.
- b) [C] Responsibilities will be assigned to those involved in the development and implementation of sustainability and carbon management. This are outlined in MA02 Sustainability and Environmental Manual and HSGD36s Roles Responsibilities guidance.
- c) [C, F, P] Consistent communication as per processes BPPD06-03 Value Chain Collaboration for Sustainability and Carbon and SYPD09-01 [Communication and Consulting](#).

- d) [C] Mandatory SHEQ training requirements and additional training on an as needed basis to ensure sufficient knowledge and skills. This includes EVT06 Sustainability in Design and EVT12 Design Build Sustainability and Carbon Management – PAS2080 Standard (in-house training modules), associated guidance and from external training providers, such as ECITB and Supply Chain Sustainability School.
- e) [C, F] Ensuring adequate resources are available to develop and implement the design build sustainability and carbon management process. At a Company level this is addressed through MA02 Sustainability and Environmental Management Manual. At a Framework level this is addressed through the BPF06-04 Framework Sustainability and Carbon Plan.
- f) [C, F, P] Existing commitment to best practice and continual improvement – through SYPD05-01 Improvement process and BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- g) [C, F] Promotion of a reward culture to recognise projects and people who have championed carbon reduction within the organisation and externally in the value chain. Internally MWHT have a spot bonus scheme ([MP70 policy](#)) and Annual Treatment Excellence Awards. Externally, consideration to a supply chain awards or recognition scheme as part of the MWHT Sustainable and Responsible Business strategy and the Net Zero to 2045 strategy (Manual M10). In addition, RSK hold annual Innovation Awards.
- h) [C, F] This Manual and the Net Zero to 2045 Strategy (M10) are incorporated into 'The MWHT Way' and existing processes.
- i) [C, F, P] Consistent communication with other value chain members and system stakeholders in establishing collaborative relationships (process BPPD06-03 Value Chain Collaboration for Sustainability and Carbon) - to support reducing system level whole life carbon. At a Framework level this is addressed through the BPF06-04 Framework Sustainability and Carbon Plan. At project level this is incorporated into PSFR03-09 Project Sustainability and Social Value Plans and PSFR03-11 Design Build Sustainability and Carbon Checklist.
- j) [F, P] Where feasible, to include relevant value chain members and other external stakeholders (e.g. regulators, local planning authorities etc.) in discussions on delivery of projects / programmes to identify how to achieve decarbonization at asset, network and system level. This is to be undertaken in consultation / collaboration with the Asset Owner and covered in the BPF06-04 Framework Sustainability and Carbon Plan.
- k) [C, F, P] Collaboration with value chain members for promoting and implementing decarbonization solutions within their control and influence. To be covered through process BPPD06-03 Value Chain Collaboration for Sustainability and Carbon, BPF06-04 Framework Sustainability and Carbon Plan, and PSFR03-09 Project Sustainability and Social Value Plans (where required for the project). MWHT representatives attend various client carbon / sustainability working groups and the Supply Chain Sustainability School Climate Action Group.

5.2 Asset Owner Requirements (Client)

- a) Clear documentation and communication on designed carbon management outcomes with specific roles, responsibilities and requirements to the value chain.
- b) Discourage silos and encourage collaboration to support value chain and stakeholder communications.
- c) Encourage challenges on current practices and solutions from the value chain members where whole life carbon reduction is a key objective / outcome for delivery and compliance with the carbon reduction hierarchy.

5.3 Designer Requirements (MWHT)

- a) [C, F, P] To support our clients (Asset Owner) to identify and implement whole life carbon reduction opportunities which the client can control and influence. This includes encouraging collaboration / communication with stakeholders (e.g. product / material suppliers, regulators) e.g. working groups, progress meetings. At a company level refer to the SY09 Communication and Consulting process. At a Framework level this is addressed through BPFR06-04 Framework Sustainability and Carbon Plan and MWHT participate in client carbon / sustainability working groups. For projects, through implementing processes including: PS03 Tender Preparation, DE01 Design Tendering, DE02 Design Management and PMDP01-04 Framework Supplier Management. Whole life cost and carbon comparison to be completed, where appropriate (PSFR03-11 Design Build Sustainability and Carbon Checklist). At all levels refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- b) [F, P] To challenge the specifications and other client requirements to encourage / allow low-carbon solutions. At a Framework level this is addressed through BPFR06-04 Framework Sustainability and Carbon Plan and processes PS03 Tender Preparation, DE01 Design Tendering and DE02 Design Management. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- c) [C, F] Requirements and guidance for our supply chain will be provided through Terms & Conditions, Subcontracts (CM03 Creating Subcontracts process) and the CMGD03-01 SHEQ Code for Subcontractors. This will clearly set out the sustainability requirements and whole life carbon reduction expectations and outcomes.
- d) [F, P] Throughout the design process, coordination across all relevant disciplines is necessary to facilitate sustainability considerations and carbon reduction, including involvement from commercial, procurement and operations. This is incorporated throughout The MWHT Way processes and completion of PSFR03-11 Design Build Sustainability and Carbon Checklist.
- e) [C, F, P] Innovation (including lean design) is integral to MWHT as an organisation which is driven to provide sustainable solutions to our clients (as embedded in our company purpose – see section 0.1). One of our three values is to be ‘Connected and Innovative’; these values are part of our ways of working. Innovation for decarbonization (both design and technological) is addressed through SY05 Improvement process, Senior Leadership Group (SLG) meetings (BPGD04-05 SLG Functional Meeting - Terms of Reference), Engineering Leadership Group Meeting – (BPGD04-07 Terms of Reference) and Design Build Sustainability and Carbon Working Group (BPGD04-07 Terms of Reference). At a Project level this to be reflected in DE02 Design Management process and the PSFR03-11 Design Build Sustainability and Carbon Checklist. Innovation is promoted internally through the RSK Innovation Awards and the MWHT Annual Achievement Awards.

5.4 Constructor Requirements (MWHT)

- a) [C, F] To continually promote the benefits of early involvement in the delivery of projects / programmes and champion this with all our clients. The MWHT Way and incorporation into processes from tender stage onwards facilitates this – see Figure 8: Project Life Cycle Sustainability and Carbon Management Overview.
- b) [F, P] To challenge the specifications and other client requirements to encourage / allow sustainable and low-carbon solutions. At a Framework level this is addressed through BPFR06-04 Framework Sustainability and Carbon Plan and process DE02 Design Management with the PSFR03-11 Design Build Sustainability and Carbon Checklist. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- c) [C, F] To support our supply chain in demonstrating their own carbon reduction commitments through: partnership with the Supply Chain Sustainability School; holding workshops; providing

access to a free organisational carbon calculator; discussions / dialogue with framework suppliers covering sustainability and carbon; guidance provided to supply chain members on reducing their emissions. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.

- d) [C, F] To integrate resource efficiency and circular economy principles in the Integrated Management System through compliance with BPGD06-02 Design Build Sustainability Hierarchy (Figure 6) and applying the DERU08-01 Engineering Sustainability Rules on MWHT projects.

5.5 Product / Material Suppliers (Supply Chain)

- a) To communicate and promote low-carbon solutions early in the project life cycle.
- b) To encourage carbon management processes and low carbon technologies within their supply chain and among their industry peers.
- c) To proactively communicate clear, complete and transparent carbon information to other value chain members.
- d) To challenge their clients, designers and constructors to provide low carbon solutions.

6 Carbon Management within Decision Making

6.1 Requirements for all Value Chain Members (MWHT)

6.1.1 Identifying control and influence in whole life carbon reduction

- a) [C, F] At feasibility, optioneering and/or development stage (depending on where MWHT framework / programme/ project involvement commences) the level of control and influence will be determined. An overview of MWHT control and influence internally, with suppliers and subcontractors is shown in Appendix 1.

At Framework level this needs to be identified by the Framework Manager / Director and Engineering Lead, with support from the Head of Sustainability and Environment, and captured in BPFR06-04 Framework Sustainability and Carbon Plan. For projects / programmes this can be highlighted in the ORC (Operations Risk Committee) Risk Call, with review by the Head of Sustainability and Environment. The control and influence will then determine the carbon reduction expectations and any client objectives and targets. An overview of the influence and control MWHT has, is shown in Appendix 1: MWH Treatment Control and Influence covering internal tendering and design, externally the client, subcontractors and suppliers.

- b) [C, F] Once identified the level of control and influence this will set the direction for the collaborations required for whole life carbon reductions. This will be identified in the BPFR06-04 Framework Sustainability and Carbon Plan.
- c) [C, F] Review required to identify the control and influence for the network(s) and system(s) with which the project / programme of work interacts, and the nature of those interactions. Refer to Appendix 3: Emissions and Removal Sources which provides an overview of the interactions related to MWHT activities covering 'buildings' and 'water infrastructure' and those interactions that are deemed material. Those deemed material are addressed through PSFR03-11 Design Build Sustainability and Carbon Checklist.

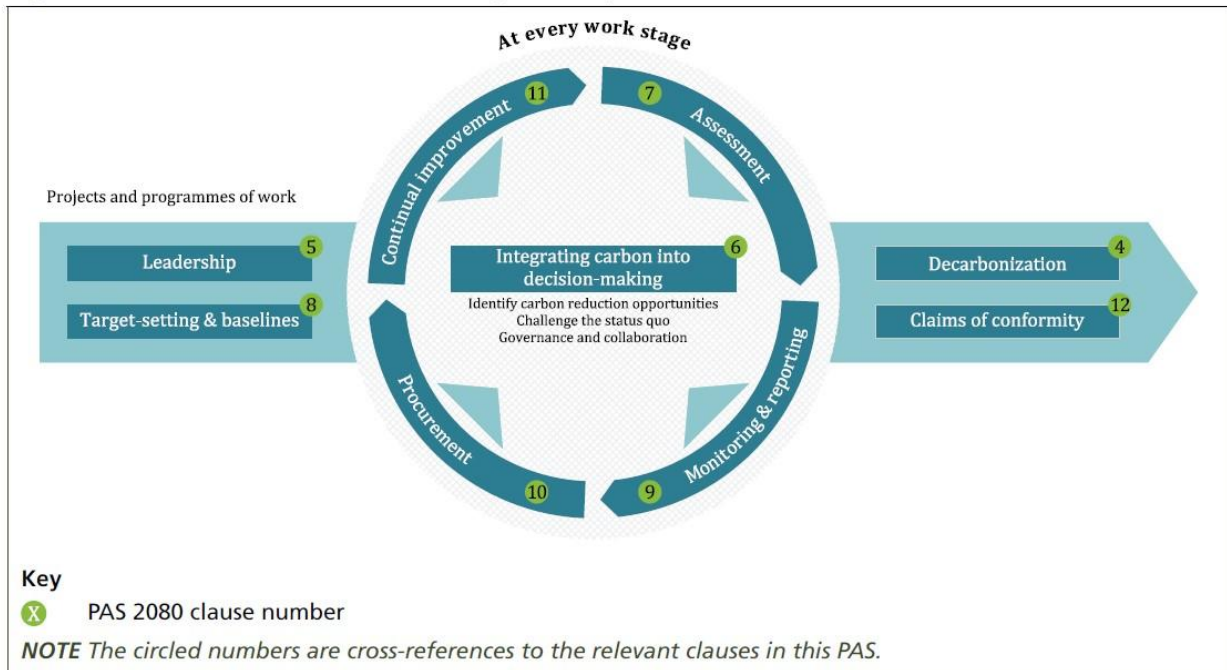


Figure 7: PAS 2080 Carbon Management Process

6.1.2 Establishing and Implementing a Carbon Management Process (adapted for MWHT)

During each work stage the following process needs to be undertaken by all participating value chain members:

- a) [C, F] **Understand and Prioritise**
 - For the delivery of carbon management in the project / programme as determined by Asset Owner. This is addressed in The MWHT Way and the BPF06-04 Framework Sustainability and Carbon Plan.
- b) [F, P] **Identify reduction opportunities**
 - Where have control and influence
 - Comply with the carbon reduction hierarchy – for MWHT BPGD06-02 Design Build Sustainability Hierarchy (Clause 4)
 - Actions taken early where opportunities are the greatest
 - Include in the relevant risk registers (include risks and opportunities)
- c) [F, P] **Prioritise solutions to support decarbonization**
 - These solutions are those contributing to system-wide decarbonization.
 - Refer to Appendix 3 and 6.1.1 c.
- d) [F, P] **Challenge** current practices
 - Can challenge scope, strategy, outcomes, standards, specifications, approaches, programme, cost.
- e) [C, F, P] **Collaborate**
 - Collaborate with value chain members and stakeholders to determine solutions for minimising whole life carbon.

- f) [F, P] **Assess, Monitor and Record**
- Within our control and influence (Clause 7) assess whole life carbon emissions and removals (Clause 4).
 - Clearly record reductions (Clause 9) against baseline and targets (Clause 8).
- g) [F, P] **Identify Alternatives**
- By following all stages of the carbon reduction hierarchy (for MWHT BPGD06-02 Design Build Sustainability Hierarchy) [Clause 4] identify low carbon alternatives, including nature-based solutions and circular economy opportunities (as appropriate).
- h) [C, F, P] **Report**
- Separate reporting of carbon removal activities (planned or undertaken) from carbon emissions and reductions.

6.2 Asset Owner Requirements

The below are taken from the PAS2080 standard.

6.2.1 Requirements for all work stages

In addition to meeting the requirements of 6.1, Asset Owners are to:

- Develop and implement a carbon management process when suited to their project / programme of work at the asset, network or system level.
- Allocate and communicate unambiguous responsibilities for each aspect of the carbon management process to value chain members involved in the delivery of project / programme of work for each work stage.
- Make decarbonization and alignment with the net zero carbon transition central to the scope and requirements of the project / programme of works.
- Align with and support sector, regional or national decarbonization ambition, or clearly explain why such alignment has not been achieved.
- Align in-house asset standards and guidance with the decarbonization principles (see Clause 4).
- Set appropriate governance structures as per the governance principles in Section 4.4. *Note: This involves setting clear roles and responsibilities in the organization to manage whole life carbon when delivering projects and programmes of work, as well as setting up key decision-making milestones in each work stage to challenge every project on the basis of whole life carbon reduction.*
- Define and communicate to the rest of the value chain the assessment requirements for the project / programme of work (including impacts to the network and system as per Clause 7) for achieving consistency when developing and sharing tools or data.
- Set out the objective and frequency of GHG emissions assessments (as per Clause 7) and reporting (as per Clause 9) during the delivery of projects and programmes, so that assessments sufficiently inform decision-making.
- Set out procurement mechanisms that enable the delivery of low-carbon solutions (as per Clause 10).
- Develop a collaborative environment for all value chain members involved in the implementation of the carbon management process during the delivery of systems/networks/assets and the project / programme of work.

6.2.2 Requirements for the need and optioneering stages

In addition to meeting the requirements of 6.1 and 6.2.1, Asset Owners shall:

- a) Demonstrate that the ability of a project / programme to enable and support the net zero carbon transition of its network and/or system has been taken into account when assessing the need for a new project / programme. *Note: Collaboration with other members of the value chain might be required to define this compatibility.*
- b) Identify the required projects / programmes that constitute the organization's contribution to the net zero carbon transition (of the network and system of which their assets are a part) and define a clear implementation strategy that is time-bound and in line with or beyond the set targets.
- c) Identify the carbon impacts associated with meeting the climate resilience needs for asset, network and/or system climate resilience.
- d) Review opportunities for the project / programme to alter land use or deploy nature-based solutions, and prioritise opportunities for these to help decarbonize the network and/or system.
- e) Identify activities that fall within the study boundary in line with the requirements of Clause 4 and Clause 7, including impacts on the network and system.
- f) Assess carbon impacts in accordance with Clause 7, prioritising assessment of emissions and removals that might help identify the lowest carbon outcome.
- g) Compare the whole life carbon of all options considered using a time horizon that reflects the life of the outcome rather than the life of an asset.
- h) Clearly define baselines and time-bound targets at project or programme level (as per Clause 8).
- i) Demonstrate that they have taken into account alternative approaches that minimize whole life carbon.
- j) Demonstrate that they have taken into account options that maximise the use of existing assets where this delivers the lowest whole life carbon outcome.

6.2.3 Requirements for the design and delivery stages

In addition to meeting the requirements of 6.1 and 6.2.1, Asset Owners shall:

- a) Set clear design requirements for the project / programme of work to align with the net zero transition.
- b) Procure design and delivery services based on whole life decarbonization (as per Clause 10). *Notes: This includes not just capital or operational carbon, but also user carbon. Decarbonization requirements are complemented by the commercial and programme requirements and are not in conflict with them.*
- c) Select a study boundary that covers all relevant sources of whole life carbon for the project or programme, including user carbon where relevant, noting that the study boundary might be wider than the project/ programme boundary.
- d) Align standards and guidance with whole life decarbonization requirements.
- e) Use appropriate assessment methodologies for whole life carbon emissions and removals within both the control and the influence of the organisation, in accordance with the requirements of Clause 7.
- f) Demonstrate that they have assessed options that maximise the use of existing assets where this delivers the lowest whole life carbon outcome.

- g) Put in place a system to implement circular economy principles within the planning, design, construction, and operational and end-of-life management, of assets, including collaboration with stakeholders for the useful exchange of resources. *Note: It might be necessary to revisit decisions made in previous stages to check whether carbon at system and/or network level is still being reduced, and whether opportunities/alternatives to reduce carbon at system and/or network level are being considered and implemented.*

6.2.4 Operational and end-of-life requirements

In addition to meeting the requirements of 6.1 and 6.2.1, Asset Owners shall:

- a) Optimise the operational performance of assets, networks and/or systems, identify any need for retrofitting and/or operational efficiency, and specify the timescales over which they shall be addressed.
- b) Procure asset management services based on the whole life carbon that the project / programme influence, as well as that which they control (as per Clause 10).
- c) Capture operational data and feedback to improve baselines.
- d) Assess and report actual emissions and performance against targets, in accordance with reporting principles.

6.3 Designer Requirements (MWHT)

- a) [F, P] To challenge the standards and prescriptive requirements that have an impact on whole life carbon as per BPFR06-04 Framework Sustainability and Carbon Plan, SYPD09-01 Communication and Consulting, PS03 Tender Preparation, DE01 Design Tendering and DEPD02-01 Design Management processes, and PSFR03-11 Design Build Sustainability and Carbon Checklist. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- b) [F, P] To integrate whole life carbon reduction opportunities in the design of the project / programme, as per this manual, BPFR06-04 Framework Sustainability and Carbon Plan and The MWHT Way (IMS). Whole life cost and carbon comparison to be completed, where appropriate (PSFR03-11 Design Build Sustainability and Carbon Checklist).
- c) [C, F] To have governance structures in place that promote whole life carbon reduction opportunities (this is as identified in Section 4.4).
- d) [F, P] To comply with targets defined by the Asset Owner for the project / programme and challenge targets where there is potential for improvement. Refer to SY05 Improvement process, DEPD02-01 Design Management process, to manage through the PSFR03-09 Project Sustainability and Social Value Plans and updates provided as per CDPD06-01 Project Reporting and Progress Monitoring.
- e) [F] To set targets that are aligned with net zero at the network or system level, to the extent that this is possible, where the Asset Owner has not set any targets. This will be identified in the BPFR06-04 Framework Sustainability and Carbon Plan.
- f) [P] Assess whole life carbon emissions of design options as stated in BPFR06-04 Framework Sustainability and Carbon Plan (in compliance with Clause 7 requirements). Whole life cost and carbon comparison to be completed, where appropriate (PSFR03-11 Design Build Sustainability and Carbon Checklist).
- g) [P] Demonstrate that they have followed the carbon reduction hierarchy (Clause 4) – for MWHT to follow BPGD06-02 Design Build Sustainability Hierarchy. This should include the following, as applicable (where identified in the PSFR03-11 Design Build Sustainability and Carbon Checklist):

- how to reuse materials
 - specified sustainable and low-carbon materials
 - specified energy efficient and/or renewable energy generation
 - minimised resource use
- h) [P] To demonstrate that they have assessed future adaptability and material recovery - PSFR03-11 Design Build Sustainability and Carbon Checklist, Site Material and Waste Management Plan (on ActivSHEQ or other regional requirement) and applying Circular Economy principles (including end-of-life for the asset).
- i) [F, P] To submit carbon reduction proposals to other value chain members as appropriate (consider potential benefits and outcomes of the carbon management process). This is to be undertaken as per BPF06-04 Framework Sustainability and Carbon Plan and links with 'lean design' approaches.

6.4 Constructor Requirements (MWHT)

- a) [C, F] To have governance structures in place (this is as identified in Section 4.4).
- b) [F, P] To comply with targets defined by the Asset Owner and challenge targets where there is potential for improvement. Refer to SY05 Improvement process, DEPD02-01 Design Management process and updates provided as per CDPD06-01 Project Reporting and Progress Monitoring.
- c) [F] To set targets that are aligned with net zero at the network or system level, to the extent that this is possible, where the Asset Owner has not set any targets. This will be as identified in the BPF06-04 Framework Sustainability and Carbon Plan.
- d) [F, P] Assess whole life emissions of construction works using an approach as stated in BPF06-04 Framework Sustainability and Carbon Plan (to comply with Clause 7).
- For complex construction works (particularly major infrastructure projects) the data and/or tools may not be fully available to assess carbon during construction.
 - If this is the case, then as a minimum, assessment of the carbon impact of the most significant activities / practices. A plan will be required to capture data to improve future carbon benchmarking (refer to Clause 11 and SY05 Improvement process).
- e) [P] Minimise use of resources (e.g. materials, water, energy), transport to site and construction waste; and maximise opportunities for reuse/recycling/recovery. This is undertaken in compliance with the MWHT BPGD06-02 Design Build Sustainability Hierarchy, the Waste Hierarchy (guidance EVGD03-01 Waste Management and Handling) and in compliance with MWHT workstream - EVPD03-01 Waste and Resource Management. All construction projects are required to have a Site Material and Waste Management Plan. The review will be as captured in PSFR03-11 Design Build Sustainability and Carbon Checklist and tracked in the PSFR03-09 Project Sustainability and Social Value Plans.
- f) [F, P] To capture data and share knowledge on innovative construction techniques, materials and product use. This is to be undertaken as per BPF06-04 Framework Sustainability and Carbon Plan and to follow the processes SY09 Communication and Consulting process and SY05 Improvement process. This will include the obtaining of product life cycle assessments and data such as Environmental Product Declarations (EPDs). Whole life cost and carbon comparison to be completed, where appropriate (PSFR03-11 Design Build Sustainability and Carbon Checklist). Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- g) [F, P] To submit carbon reduction proposals to other value chain members as appropriate (consider potential benefits and outcomes of the carbon management process). This is to be

undertaken as per BPF06-04 Framework Sustainability and Carbon Plan. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.

6.5 Product / Material Suppliers

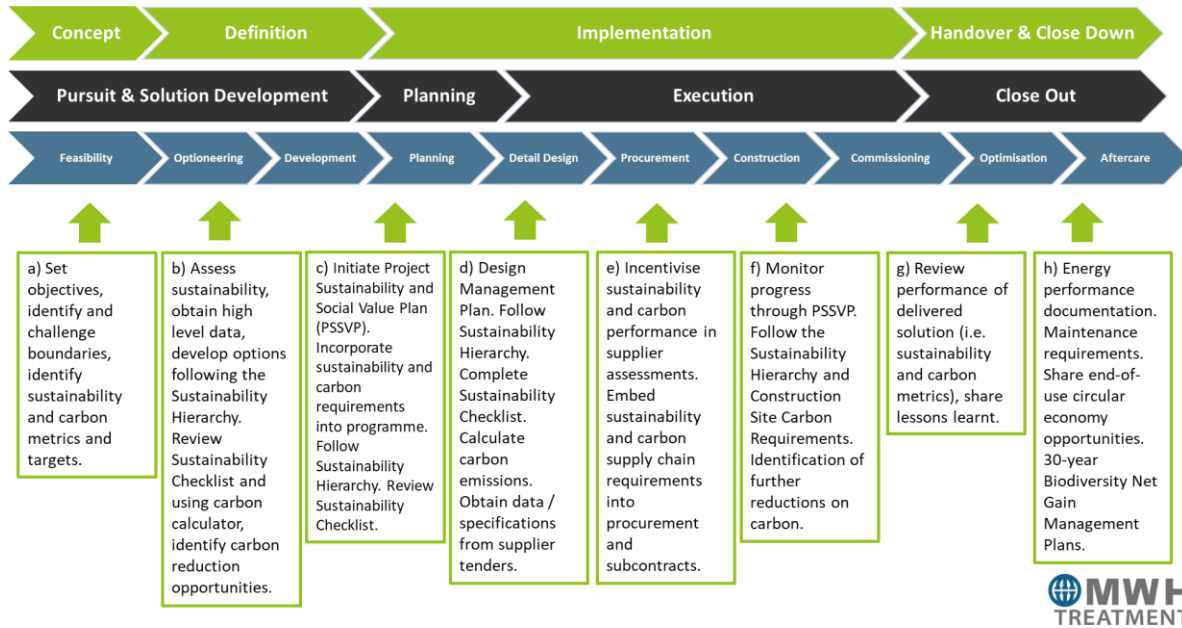
- a) To have governance structures in place (Clause 4).
- b) To develop and deploy low-carbon solutions, technologies, materials, products and/or methods.
- c) To make carbon data of existing and developing products easily accessible, allowing other members of the value chain to identify products that produce the best low-carbon outcomes.
- d) To assess and report to all members of the value chain the whole life carbon emissions of materials/products supplied (including direct operations and those of their supply chain) in a transparent manner:
 - a. To demonstrate efforts towards achieving compliance with an appropriate product level life cycle assessment standard.

Note: It is acknowledged that smaller organisations might not have environmental product declarations (EPDs) for new and innovative products/materials, e.g. backlog of EPD certification. EPD certification could include BS EN 15804 and ISO 21930, among others. This PAS focuses on product / material suppliers sharing relevant whole life carbon emissions information using appropriate methodologies in a transparent manner.

- b. To submit carbon reduction proposals to other value chain members as appropriate, supported by the anticipated benefits and outcomes of the carbon management process.

6.6 MWHT Sustainability and Carbon Management Process Overview

Figure 8 provides an overview of the MWHT Sustainability and Carbon Management Process. Specific requirements are incorporated into the MWHT Way Integrated Management System (certified to ISO14001, ISO9001 and ISO45001). An overview of this Integration is shown in BPGD06-03 Design Build Sustainability and PAS2080 Overview.



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Figure 8: Project Life Cycle Sustainability and Carbon Management Overview

7 Whole Life Carbon Assessment Principles

This section (clause) covers the following:

- Key principles for **consistency** in the assessment approach throughout the value chain
- Encourages a **level of detail** in preparation with the decision-making at the stage considered
- Recognises that the **accuracy of assessment** improves as the project/programme develops
- Emphasises the **importance of assessing whole life carbon**, even in the absence of detailed data during the early optioneering stage of the delivery process to drive low-carbon behaviours and decisions

The framework allows **carbon hotspots to be identified** and support whole life carbon reductions – with the importance of systems thinking for achieving decarbonisation.

7.1.1 Assessing GHG emissions over the Whole Life to Inform Decision-making

Note: This section is to be covered in detail for those projects applying the PAS2080 standard.

The section below will be covered through the BPF06-04 Framework Sustainability and Carbon Plan with collaboration with the client and the supply chain, as necessary. Appendix 3: Emissions and Removal Sources covers the areas for considerations, as required below.

All value chain members shall:

- a) [C, F] To establish a comprehensive study boundary that takes into account all emission sources and removals included in the whole life carbon framework for decision-making (see Clause 4). This study boundary is greater than the project / programme boundary to account for impacts on the wider network and system. Appendix 3 covers the recommended considerations from the PAS2080 standard which apply to the water and building sectors.
- b) [F, P] To assess emissions and removals for all sources within the control and influence of the value chain member (as per the whole life carbon framework for decision-making in Clause 4) during all stages of the delivery process. Refer to Appendix 3.
- c) [F, P] To assess the impact of all emissions or removals to a level of detail that supports decision-making at each work stage, such that:
 1. At the need and optioneering stages, an appropriate methodology (see 7.3) is used to prioritise assessment of emissions and removals that might affect which option is identified as the lowest carbon outcome. This is to include:
 - Impacts / consequences to the network and system, even when outside the project boundary)
 - Working with benchmarks or initial quantities where needed (e.g. Bill of Quantities).
 2. At the design, delivery and client operation stages, an appropriate methodology (see 7.3) is used to assess to an appropriate degree of detail all relevant (material) sources of emissions and removals attributable to the project / programme including impacts (consequences) on the network and system. *Note: To only include impacts that are deemed material to the project / programme.*

Refer to Figure 9 for the level of detail that supports decision-making at different stages of the delivery process.

- d) [F, P] To assess and record emissions and removals associated with land use change (including nature-based and climate resilience solutions) as part of the decision-making process. For MWHT this is likely to be client led as the landowner, but project considerations will need to be made from a Biodiversity Net Gain perspective – refer to EVGD05-03 Biodiversity Net Gain Approach guidance.
- e) [F, P] To not include market-based offsets (where the offsets have been purchased) within the assessment boundary.

7.1.2 Selecting an Appropriate Level of Accuracy and Detail

[C, F] To adopt a whole life carbon framework for decision-making (see Decarbonisation Principles Section 4). This is to support and inform the decision-making process (see Section 6) for meeting carbon reduction targets (Clause 7). For MWHT this is incorporated into the IMS, detailed in this manual and an overview in guidance BPGD06-03 Design Build Sustainability and PAS2080 Overview.

Note: The accuracy of any GHG assessment, particularly the availability of carbon and/or asset data, improves over the delivery process. The accuracy of any assessment might be lower at the initial option selection stages. See Figure 9 for an illustration of this.

All value chain members are to seek to improve the accuracy of their assessment(s), to neither overestimate nor underestimate actual emissions, and to reduce uncertainty as much as practicable.

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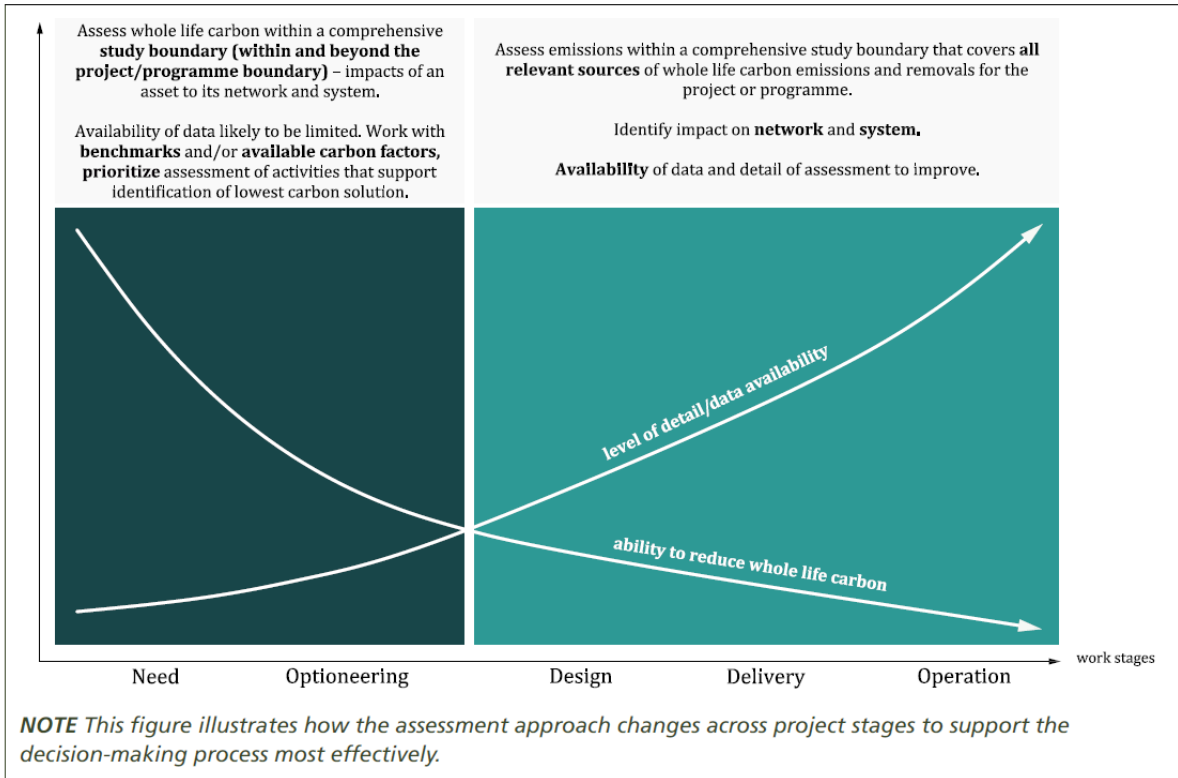


Figure 9: Degree of accuracy and data availability in Whole Life Carbon Assessments across work stages (taken from PAS2080)

7.1.3 Selecting a Carbon (GHG) Assessment Methodology

All value chain members are to:

- a) [F] To assess whole life carbon (GHG) emissions using appropriate carbon (GHG) assessment methodologies from existing lifecycle analysis standards and/or other recognised sources. MWHT predominantly use data sources from the Inventory of Carbon and Energy (ICE) database and UK Government Conversion Factors and Greenhouse Gas Protocol Methodologies. For each region the methodologies will be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and to incorporate client or MWHT calculation tools.
- b) [F, P] To identify the limitations in existing methods and address these to meet the assessment requirements in (Whole Life Carbon 7.1; Accuracy and Detail 7.2) that focus on assessing whole life carbon to inform decision-making at the asset, network or system level. This is as stated in the BPFR06-04 Framework Sustainability and Carbon Plan (for framework specific assumptions) and the DEFR02-01 Design Management Plan (for project specific assumptions).
- c) [F] To compare the whole life carbon impact of options using the same carbon (GHG) assessment methodology for consistency. The carbon tool(s) to be utilised will be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and the DEFR02-01 Design Management Plan.

8 Targets and Baselines

Carbon reduction targets provide a clear direction and communicates intent for carbon reduction. It is important that targets are set against clear baselines so that performance against them can be determined. For PAS2080 the focus is on the whole life of projects / programmes of work at the asset or network level. Net zero targets are set at organisational level (e.g. client Net Zero by 2050, MWH T by 2045). It is important that Net Zero targets at asset level are not isolated as would cause unintended consequences, e.g. increasing carbon elsewhere in the system or cause increased focus on offsetting rather than reduction.

8.1 Requirements for all Value Chain Members (MWHT)

8.1.1 Carbon Reduction Targets

- a) [F, P] To adopt the carbon reduction targets set by the Asset Owner as a minimum. This may be a Framework or a Project level target – to incorporate into PSFR03-09 Project Sustainability and Social Value Plans, where appropriate. The agreed targets are to be confirmed with the client (Asset Owner – processes CDPD01-01 Post Award Meeting, BPPD06-03 Value Chain Collaboration for Sustainability and Carbon) and stated in:
- BPFR06-04 Framework Sustainability and Carbon Plan for framework wide target(s)
 - RLFR01-01 Framework Project Risk Management Form / RLFR01-02 Non-Framework Project Risk Management Form for project specific target(s)
 - DEFR02-01 Design Management Plan and PSFR03-09 Project Sustainability and Social Value Plans for project specific target(s)
- b) [F, P] To communicate and share carbon targets with other value chain members. This is to be undertaken through Contracts and Terms & Conditions (CMPD03-01 Creating Subcontracts process; PMPD01-01 Project Procurement process).

8.1.2 Baselines

- a) [F, P] To collect and report asset and whole life carbon data relevant to activities during project / programme delivery to inform future baselines. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. To be implemented through use of the PSFR03-11 Design Build Sustainability and Carbon Checklist.
- b) [F, P] To identify limitations in the accuracy of setting baselines when making comparisons against their activities during the delivery of projects / programmes. To report any uncertainties at appropriate stages of infrastructure and buildings delivery. This is to be similar to cost assessments. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan.

8.2 Asset Owner Requirements

8.2.1 Carbon Reduction Targets

In addition to meeting the requirements of for all Value Chain members (as above) the Asset Owner should develop whole life carbon reduction targets that:

- a) Are set for projects and programmes at the asset (project) or network level and align with the relevant system-level net zero carbon targets. *Note: Where system-level target is not set, engage with industry peers and/or other value chain members not covered under the scope of this PAS (e.g., regulators/government) to influence the setting of the net zero carbon target at the system level.*

- b) Relate to a defined outcome based on the functional unit set for the project or programme of works at the asset or network level (in line with Clause 7);
- c) Are appropriate in scope to the work stage to which they are relevant.
- d) Are time-bound.

Note: An Asset Owner could set a net zero target at the network level, where appropriate. For example, in the absence of system-level net zero target in an infrastructure or buildings sector, may set a net zero target at the network level covering their entire portfolio.

8.2.2 Baselines

In addition to meeting the requirements of for all Value Chain members (as above) shall set baselines that:

- a) Are set for projects and programmes at the asset or network level.
- b) Follow the assessment principles (Section 7), and which align to the boundary used for setting whole life carbon targets.
- c) Create a reference level against which future performance can be compared relative to targets set.
- d) Reflect good industry practice

Note: Baselines should, across the industry, improve over time to mirror improvements in practice and reflect latest good practices for design and activity data (such as for materials and design choices) and reputable sources of emissions factors. These are expected to take into account these aspects when developing a baseline to mutually agree a starting point from which all value chain members should work to improve.

- e) Provide sufficient detail to assist with identifying carbon emissions hotspots, on which to focus efforts to reduce emissions.
- f) State any assumptions used to fill data gaps and the limitations this might have on the relevance of the baseline.
- g) Describe inclusions and exclusions.
- h) Set out the circumstances in which the baseline might be updated.
- i) Where gaps exist within the baseline, identify any uncertainty in the assessment.
- j) Follow a continual improvement process to make good practices in current GHG assessments contribute to future baselines.

Note: There might be limitations when setting baselines for the first time where there is not enough existing data within an organisation, or relevant secondary data to produce baselines which follow the principles for carbon (GHG) emissions assessment (Clause 7). In such instances, the best available data is chosen to allow the most valid comparisons against a design. It is critical, however, that mechanisms are put in place that require the collection of relevant data from the value.

8.3 Designer and Constructor Requirements (MWHT)

8.3.1 Carbon reduction targets

- a) [P] To work towards meeting the Asset Owner's carbon reduction targets. These targets are to be stated in the DEFR02-01 Design Management Plan and PSFR03-11 Design Build Sustainability and Carbon Checklist. The target is to be identified ideally during PS03 Tender

Preparation process and included in the project ORC review (RL01 High Level Risk Review process). To be finalised with the client (Asset Owner) at CDPD01-01 Post Award Meeting.

- b) [F, P] To challenge the Asset Owner for agreeing a whole life carbon reduction target where one has not been set. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and can be determined at PS03 Tender Preparation process and/or discussed at the CDPD01-01 Post Award Meeting. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- c) [F, P] To recommend and record improvements to the Asset Owner's approach to target setting, as appropriate, following the SYPD05-01 Improvement process. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan, DEPD02-01 Design Management and DEFR02-01 Design Management Plan. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.

8.3.2 Baselines

- a) [F, P] To support the Asset Owner in setting baselines, where requested, by providing relevant activity data. *Note: Where the Asset Owner has not set a baseline – the project (depending on scope and requirement for a PSSVP) could set own baseline.* This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan, with an item in the PSFR03-11 Design Build Sustainability and Carbon Checklist.
- b) [F, P] To recommend and record improvements on the Asset Owner's approach to setting baselines, as appropriate following the SYPD05-01 Improvement process. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- c) [F, P] To collect and share relevant data for improving future baselines and communicate to the Asset Owner (SYPD05-01 Improvement process). This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.

8.4 Product / Material Supplier Requirements

8.4.1 Carbon reduction targets

- a) To recommend and record improvements to the Asset Owner approach to target setting e.g. sector specific targets for specific materials (such as concrete).

8.4.2 Baselines

- a) To support Asset Owners in setting / development of baselines, where requested by the Asset Owners, by providing relevant environmental impact information of the product or material (as per Section 6 and Section 7).
- b) To recommend and record improvements to the Asset Owner on their approach to setting baselines.
- c) When making claims that a product or material reduces carbon compared to another product or material (as per Clause 6 and Clause 7), align these claims with the baseline assumptions specified by the Asset Owner.

Note: This is to avoid product / material suppliers making further claims of carbon reductions already captured in the target-setting and baseline process.

8.5 MWHT Client Targets and Baselines

The targets and baselines currently established are for AMP8, for each of our clients will be detailed in the regional Management Administration Plans (BPFR05-01), in compliance with the Management Administration Plan process (BPPD05-01). These targets and the mechanisms for achieving the targets will be detailed in the regional BPFR06-04 Framework Sustainability and Carbon Plans.

Company-wide sustainability objectives and targets are covered as per MA02 Sustainability and Environmental Management Manual, section 8.5.

9 Monitoring and Reporting

The carbon management process should have robust monitoring and transparent reporting at frequent intervals during the delivery of projects / programme. This is to highlight the progress of carbon reductions against targets. Reports are to be used to inform decision-making in managing whole life carbon, as well as provide information for future continual improvement. Figure 10 below provides a high-level overview of monitoring and reporting in practice.

Report	Report to government and system-level stakeholders. Report actual emissions and performance vs targets
Review	Repeatedly review performance vs targets through development
Use	Use captured data to improve performance over the baseline
Share	Share good practice outcomes, including non-carbon impacts / co-benefits
Identify	Identify roles and responsibilities, and stakeholders to report to
Record	Record identified carbon reduction opportunities across all stages

Figure 10: Monitoring and Reporting in Practice

For details on the process covering the elements below, for MWHT, refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.

9.1 Requirements for all Value Chain Members (MWHT)

- a) [C, F] To identify roles and responsibilities at each work stage for monitoring and reporting and submitting monitoring reports to the relevant stakeholders. For Asset Owner (Client) specifics refer to BPFR06-04 Framework Sustainability and Carbon Plan which will determine the level of project / programme carbon calculations required. The table below provides a general overview.

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Work Stage	Role	Responsibility
Optioneering	Client	Provide initial carbon calculation (where appropriate), proposed baseline / target, governance for monitoring and reporting. Provide governance system.
Optioneering	Proposals Manager	Ensuring completion of carbon calculation at initial stages or obtain from the client.
Outline Design / Development	Client	Provide initial carbon calculation (where appropriate), proposed baseline and target(s), governance for monitoring and reporting. Where appropriate, provide expectations (including reporting) with regards to sustainability considerations e.g. social value, biodiversity net gain.
Outline Design / Development	Proposals Manager	Ensuring completion of carbon calculation at initial stages or obtain from the client; agree baseline and target(s). Where appropriate, determine / agree sustainability expectations with the client and / or internally. Commence the PSFR03-09 Project Sustainability and Social Value Plan as per MWHT criteria. PAS2080 specific: To report to the client (and supply chain, as appropriate) on where carbon hotspots (greatest carbon emissions) are expected or have occurred, and where future reductions can be made.
Outline Design / Development	Design Manager	Supporting completion of carbon calculation / reviewing baseline; review of carbon calculator to ensure reflects project scope. Include sustainability and carbon expectations / requirements into the Design Management Plan (DEFR02-01). Input into the PSFR03-09 Project Sustainability and Social Value Plan. Commence the PSFR03-11 Design Build Sustainability and Carbon Checklist with the Proposals Manager. PAS2080 specific: To identify and report to the Project Manager on where carbon hotspots (greatest carbon emissions) are expected or have occurred, and where future reductions can be made.
Planning	Project Manager	Undertake quarterly reviews of the PSFR03-09 Project Sustainability and Social Value Plan. Ensuring monitoring and reporting requirements for carbon management at appropriate work stages (including resource needs). Follow CDPD06-01 Project Reporting and Progress Monitoring.

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Work Stage	Role	Responsibility
Planning	Design Manager	Supporting contribution to the carbon calculator and carbon management. Ongoing reviews of the PSFR03-11 Design Build Sustainability and Carbon Checklist. Feedback to the Project Manager with regards to potential design changes, low carbon solutions, further sustainability considerations.
Detailed Design	Project Manager	Ensure completion of carbon calculator for “detailed design” stage, monitoring against baseline and reporting on target progress. Ensure continual reviews of the PSFR03-11 Design Build Sustainability and Carbon Checklist. Where appropriate, feed into project management. PAS2080 specific: To report to the client (and supply chain, as appropriate) on where carbon hotspots (greatest carbon emissions) are expected or have occurred, and where future reductions can be made.
Detailed Design	Design Manager	Supporting in completion of “detailed design” calculation and reporting on actions taken for achieving targets. Ensure continual reviews of the PSFR03-11 Design Build Sustainability and Carbon Checklist. Where appropriate, feed into project management and engineering meetings. PAS2080 specific: To identify and report to the Project Manager on where carbon hotspots (greatest carbon emissions) are expected or have occurred, and where future reductions can be made.
Procurement	Procurement Manager	Obtaining Environmental Performance Certificates for products (e.g. EPDs). Provision of data for incorporation into carbon calculator covering “As Built”, reporting across value chain on low-carbon solutions.
Construction and Commissioning	Project Manager	Organising data collation for “As Built” drawings (resources within project or design team) to input into carbon calculator covering “As Built”. Reporting back to the Client, as agreed, on target progress. At the end of construction, close out review of the PSFR03-09 Project Sustainability and Social Value Plan to finalise social value figures. Reporting on Supplier Performance. Reporting back to relevant Central teams with regards to sustainability and low carbon solutions / best practice.
Construction and Commissioning	Site Manager	Provide data for inclusion into carbon calculator covering “As Built”. Actions as per PSFR03-09 Project Sustainability and Social Value Plan. Environmental monthly reporting requirements.

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Work Stage	Role	Responsibility
		Monthly environmental reporting via ActivSHEQ or other agreed Framework reporting tool.
Commissioning	Commissioning Manager	Providing data to support completion of the input into carbon calculator covering "As Built".
Optimisation	Project Manager	Provision to Client of carbon calculator covering "As Built, Environmental Performance Certificates for products (e.g. EPDs), maintenance and circular economy (e.g. end-of-life requirements). Completion of the 'Project Report' in the PSFR03-09 Project Sustainability and Social Value Plan. Reporting back to Client, as agreed with final review of performance against baseline and targets for carbon and biodiversity (as applicable). PAS2080 specific: Recommend opportunities for improvements regarding carbon monitoring and reporting, to the client.
Aftercare	Project Manager	

- b) [F, P] To report whole life carbon emissions at each work stage as required by the carbon management process (Clause 6), in line with the Whole Life Carbon Assessment Principles (Clause 7). This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.
- c) [F, P] To report progress made against targets (these may be set at an asset, project or programme level). The requirements to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.
- d) [F, P] To keep records on low-carbon options and the extent of which they can improve performance over a baseline. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.
- e) [F, P] To share good practice outcomes, including non-carbon impacts and benefits of opportunities, where relevant, with other value chain members to drive low-carbon solutions in similar projects / programmes of work. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. To follow SY09 Communication and Consulting and SY05 Improvement processes. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan. This can be evidenced through MWHT involvement within client sustainability and carbon related working groups, participating in the Supply Chain Sustainability School Groups and the RSK Carbon Management Collaboration Group.

9.2 Asset Owner Requirements

In addition to meeting the requirements of Clause 9.1:

- a) To report whole life carbon emissions during the delivery work stages, in line with the assessment principles Whole Life Carbon Assessment Principles (Clause 7).

- b) To develop KPIs to monitor and report carbon emissions. These are to be in the same functional unit as used for the baseline and target setting.
- c) To incorporate carbon monitoring and reporting into a governance system – to allow proactive collection and reporting of KPI data.
- d) To be not overly burdensome to particular value chain members, with data gathering and reporting requirements shared across the value chain.
- e) As a minimum, monitor and report carbon emissions during all work stages or at key points where decisions are made that influence whole life carbon reduction.
- f) To follow relevant requirements for reporting to government and other system-level stakeholders. If there are no requirements for this then to identify how reporting practices can support system-level stakeholders in facilitating decarbonisation. *Note: Scope 3 carbon reporting for water companies is an Ofwat requirement.*
- g) To review KPIs and project / programme carbon risks regularly to identify any further actions required to meet targets.
- h) To publish summary information on the performance of assets, networks and/or systems against carbon targets.

Note: Asset Owners can decide the frequency of monitoring of GHG emissions against the baseline. This will depend on the nature of the project or programme of work being delivered.

9.3 Designer Requirements (MWHT)

In addition to meeting the requirements of 9.1:

- a) [F, P] To monitor and report the predicted carbon emissions of design, at appropriate and agreed delivery work stages. These are to be reported against the Asset Owner's carbon reduction targets at the frequency determined with the Asset Owner. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan, agreed at the CDPD01-01 Post Award Meeting. To comply with CD06 Project Reporting and Progress Monitoring process. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.
- b) [F, P] To recommend opportunities for improvements regarding monitoring and reporting, to the Asset Owner. Where this is accepted, to assist in the implementation with regards to project / programme delivery. To follow SY05 Improvement process and undertake as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and DEFR02-01 Design Management Plan. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.
- c) [F, P] To identify carbon hotspots in the design of the project / programme. These are to be reported to the Asset Owner, and other relevant value chain members, at regular intervals (to be agreed). This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan / DEFR02-01 Design Management Plan and reviewed in the PSFR03-11 Design Build Sustainability and Carbon Checklist. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.

9.4 Constructor Requirements (MWHT)

In addition to meeting the requirements of 11.1:

- a) [F, P] To monitor and report carbon emissions in construction, commissioning and decommissioning activities (as appropriate) during the relevant delivery stages. This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and PSFR03-09 Project Sustainability and Social Value Plan, agreed at the CDPD01-01 Post Award Meeting. To comply with CD06 Project Reporting and Progress Monitoring process. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.
- b) [F, P] To recommend opportunities for improvements to monitoring, where identified, to the Asset Owner. Where this is agreed to assist in the implementation with regards to project / programme. To follow SY05 Improvement process and undertake as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and the PSFR03-09 Project Sustainability and Social Value Plan. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan.
- c) [C, F, P] To identify and report where the greatest carbon emissions are expected to occur or have occurred, and where future reductions can be made. This is to be as stated in the as stated in the BPFR06-04 Framework Sustainability and Carbon Plan and the PSFR03-09 Project Sustainability and Social Value Plan. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan and PSFR03-11 Design Build Sustainability and Carbon Checklist.

9.5 Product / Material Supplier Requirements

In addition to meeting the requirements of 11.1:

- a) To put in place a system within their organisation to monitor and share carbon emissions of their own product/material carbon data so that such data is made available to other users.

10 Procurement and Subcontracting

Procurement and subcontracting is critical to sustainability considerations and whole life carbon reductions in the value chain. Sustainability and carbon considerations / requirements for procurement and subcontracts are incorporated within the Integrated Management System and appropriate processes with adoption of the principles of ISO 20400: 2017 Sustainable Procurement – Guidance. These main principles are:

- Accountability
- Transparency
- Ethical behaviour
- Full and fair opportunity
- Respect for stakeholder interests
- Respect for the rule of law and international norms of behaviour
- Respect for human rights
- Innovative solutions
- Focus on needs
- Integration
- Analysis of all costs (life cycle)
- Continual improvement

10.1 Asset Owner Requirements

10.1.1 Contracts

- a) To assess how requirements in contracts for Designers, Constructors or Product / Material Suppliers or within a delivery model could support the Asset Owner's alignment with the decarbonization principles (see Section 4) and the requirements in the carbon management process.
- b) To prioritise whole life carbon as a performance drive, avoiding prescriptive specification.
- c) To make requirements proportionate and relevant to each work stage.
- d) To provide regular updates of the contract's performance against the agreed carbon reduction targets and other requirements to the contracted entity, and review and/or re-incentivise performance against these targets on par with performance against cost and programme.
- e) Where appropriate, include data management / information exchange requirements in contracts to support monitoring and reporting (see Section 9 and Section 11).
- f) Where appropriate, identify incentive mechanisms that reward whole life carbon performance.
- g) Where appropriate, allow for challenges to asset standards that enable low-carbon performance.
- h) To support appropriate risk allocation mechanisms that promote the inclusion of low whole life carbon solutions which might be novel and not proven in previous projects and/or programmes of work.
- i) To incentivise collaborative contractual arrangements across the value chain that maximise carbon reduction opportunities. *Note: This may also include specification of a baseline performance level if including numerical carbon targets in contracts (reference to 8.2.2).*

10.1.2 Sourcing

- a) To periodically review the procurement categories that support the delivery of their projects and/or programme of works and identify those with a material carbon impact.
- b) To develop proportionate criteria for inclusion in tenders that support the selection of suppliers who can efficiently enable delivery of low-carbon outcomes.
- c) To review and update asset standards and specifications to promote the integration of low whole life carbon solutions.
- d) To provide timely and actionable feedback to suppliers on how they performed in tenders, including carbon-focused selection criteria.

Note: The importance of carbon should be explicit and aligned with other procurement priorities, such as commercial outcomes, programme and risk.

10.1.3 Engagement

- a) To communicate project and/or programme and carbon targets to the contracted entity.
- b) To communicate the role the value chain has in achieving the Asset Owner's carbon targets.
- c) To periodically engage with their value chain to identify potential low-carbon techniques or products that can support their projects / programmes of work.
- d) To identify opportunities to collaborate with the value chain to develop low-carbon skills and capability.

10.2 (and 10.3) Designer and Constructor Requirements (MWHT)

10.2.1 (and 10.3.1) Contracts

- a) [C, F] To support appropriate risk allocation approaches set in contracts by the Asset Owner that promote low-carbon solutions. This is covered through the processes RL01 High Level Risk Review, PS03 Tender Preparation and the PSFR03-11 Design Build Sustainability and Carbon Checklist.
- b) [F] To engage with the Asset Owner / value chain members to agree on a solution acceptable to all relevant parties, where the risk allocation approach needs to be challenged. This is to be

as stated in BPF06-04 Framework Sustainability and Carbon Management Plan and included in the guidance for RL01 High Level Risk Review and can be covered during the process CDPD01-01 Post Award Meeting with the client.

- c) [F, P] To demonstrate, in the tender process, the approach to identify low-carbon options relevant to the specific objectives for the project / programme of work. This is to be as stated in BPF06-04 Framework Sustainability and Carbon Management Plan, PS03 Tender Preparation and DEFR01-01 Design Tendering processes.
- d) for designer; f) for constructor - [F, P] To provide regular updates to the Asset Owner on performance against the carbon reduction targets, and review performance against these with performance against cost and programme. This is to be as stated in BPF06-04 Framework Sustainability and Carbon Management Plan, confirmed in the CDPD01-01 Post Award Meeting, stated in the DEFR02-01 Design Management Plan and updates provided as per CDPD06-01 Project Reporting and Progress Monitoring. To be monitored through PSFR03-09 Project Sustainability and Social Value Plan. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.
- e) for designer; g) for constructor – [F] To demonstrate how they will meet the requirements of the Asset Owner's carbon management process. This is to be as stated in BPF06-04 Framework Sustainability and Carbon Management Plan. Refer to BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process.

10.2.2 (and 10.3.2) Engagement

- o) [C, F, P] To promote our low-carbon solutions within the value chain. This is to be undertaken through various means as per processes BPPD06-03 Value Chain Collaboration for Sustainability and Carbon process and SY09 Communication and Consulting including:
 - At Company level can be through the 'Sustainability and Carbon Communications Plan' as part of the BPRE06-02 Sustainable and Responsible Business Action Plan. For example, Supply Chain Sustainability School (SCSS) partnership and requirement for completion of the SCSS carbon tool, promoting sharing of best practice i.e. through email correspondence, case studies and the external MWHT website (specific [Supply Chain page](#)). To be addressed during various company level meetings including Design and Build Sustainability and Carbon Working Group (EVGD06-11 Terms of Reference) and Engineering Leadership Group Meeting (BPGD04-07 Terms of Reference).
 - At Company and Framework level within procurement and commercial – PMPD01-04 Framework Supplier Management process, CMPD03-01 Creating Subcontracts process, CMGD03-01 SHEQ Code for Subcontractors, PMFR05-08 Sustainable Supply Chain Charter and collation of Environmental Product Declarations (or other relevant sustainability certification) for key suppliers.
 - At Company, Framework and Project level for operations - CDPD16-01 Control of Subcontractors process, promoting sharing of best practice i.e. through emails and meetings, collation of Environmental Product Declarations for key suppliers.
- c) for designers; e) for constructor – [C, F] To identify opportunities to collaborate with the value chain in the development of low-carbon skills and capability. Related processes are - PMPD01-04 Framework Supplier Management process (including through periodic meetings and setting of KPIs), SYPD05-01 Improvement process and CMPD03-01 Creating Subcontracts process (including incorporation into Terms & Conditions). For example, collaboration can take place through partnership with the Supply Chain Sustainability School and ECITB.

10.2 Designer Specific Requirements (MWHT)

10.2.2 Engagement

- b) [C, F, P] (See 10.2.2) To engage with the value chain for identifying how incentives within contracts can encourage the implementation of low-carbon solutions. Related processes are - PMPD01-04 Framework Supplier Management, CDPD01-01 Post Award Meeting, CMPD03-

01 Creating Subcontracts and SYPD05-01 Improvement process. Incentives include supplier assessments (with sustainability section); weightings within the framework supplier tenders; weightings with subcontractors / material suppliers; setting of KPIs.

- d) [C, F] To collaborate with the value chain to develop and integrate capability, where opportunities exist. This is covered by the processes SY09 Communication and Consulting process, PMPD01-04 Framework Supplier Management and CMPD03-01 Creating Subcontracts.

10.3 Constructor Specific Requirements (MWHT)

10.3.1 Contracts

- d) [P] (See 10.2.1) To identify carbon reduction measures in any tender responses, as applicable. This is to be covered through the processes PS03 Tender Preparation, DEPD01-01 Design Tendering and DEPD02-01 Design Management.
- e) [C, F] To assess how requirements in sub-contracts can, in line with Asset Owner's carbon management process (see process CMPD03-01 Creating Subcontracts and CMGD03-02 Environmental and Quality Subcontract Statements):
- support the project / programme carbon targets
 - support the identification of low-carbon solutions

10.3.2 Sourcing

- a) [C] To undertake review / risk assessment of the procurement purchase groups, which includes identification of those which have a material carbon impact. This will be undertaken periodically with representatives from procurement, sustainability and environment.
- b) [C, F] To develop proportionate criteria in tenders to support selection of suppliers who can deliver low-carbon solutions. This is to be covered through the following processes - PMPD05-01 Subcontractor / Supplier Assessment, PMPD01-04 Framework Supplier Management, PS03 Tender Preparation and CMPD03-01 Creating Subcontracts. Regional requirements will be as stated within BPFR06-04 Framework Sustainability and Carbon Management Plan.
- c) [C, F] Where required, identify and integrate low-carbon solutions within their proposed responses to tenders (in MWHT case – tender responses to the Asset Owner). This is to be as stated in the BPFR06-04 Framework Sustainability and Carbon Management Plan and PSPD03-01 Tender Preparation process.

10.3.3 Engagement

- b) and c) [C, F] (See 10.2.2) To communicate carbon targets to the value chain and how the value chain can support in achieving these carbon targets.
- At Company level through SY09 Communication and Consulting process and the 'Sustainability and Carbon Communications Plan' (as part of the BPRE06-02 Sustainable and Responsible Business Action Plan) and adoption of MA10 MWH Treatment Net Zero Strategy to 2045 – Manual, with email correspondence and the external MWHT website (specific [Supply Chain page](#)). In addition, following the PMPD01-04 Framework Supplier Management, CMPD03-01 Creating Subcontracts and CDPD16-01 Control of Subcontractors processes.
 - At Framework level approach as described in the BPFR06-04 Framework Sustainability and Carbon Management Plan.
- d) [C, F] To periodically engage (and collaborate as appropriate) with the value chain for identifying potential low-carbon techniques or products for the projects / programmes of work.
- At Company level refer to above – b) Engagement.

- At Framework level approach as described in the BPF06-04 Framework Sustainability and Carbon Management Plan with communication methods such as Framework Supplier meetings, sub-contractor meetings, RSK internal Supplier Events, SCSS workshops and attendance at industry events to meet suppliers.

10.4 Product / Material Supplier Requirements

- a) To engage with the value chain members for identification of commercial models to support the uptake of low-carbon solutions
- b) To identify opportunities to collaborate with the value chain to develop low-carbon skills and capability
- c) To regularly communicate innovative, low-carbon solutions to other value chain members

11 Continual Improvement

The focus of continual improvement within PAS2080 is to ensure it becomes a core part of the sustainability and carbon management process. The emphasis is on sharing and learning for other members of the value chain to identify effective decarbonisation approaches, including innovation. This is incorporated into the Annual SHEQ and Sustainability Review and within SYPD05-01 Improvement process.

Continual improvement drives the actions taken for MWHT to achieve target to be operational Net Zero by 2030 and ambition to be Net Zero by 2045 (including the supply chain). The actions required are detailed in BPRE06-02 Sustainable and Responsible Business Action Plan (from a wider company perspective across all of sustainability) and EVRE01-05 Net Zero Route Map and Action Plan. This includes highlighting carbon hotspots within purchased goods and services and actions to identify alternative sustainable and low carbon solutions.

At parent company level, MWHT are active members of the RSK Carbon Management Collaboration Group and the MWHT internal Design Build Sustainability and Carbon Working Group (Terms of Reference EVGD06-11). MWH Treatment also sits on the Supply Chain Sustainability School Climate Action Group.

11.1 Requirements for all Value Chain Members (MWHT)

- a) [C] The following are incorporated into SYPD05-01 Improvement process and cross-referenced in appropriate processes across pre- construction, design, commercial, procurement and construction delivery workstreams:
 - Developing low carbon solutions
 - Capabilities and organisation to deliver low carbon solutions
 - Procurement improvements
 - Carbon management related process improvements.

	MWHT / Alliance / Joint Venture	For Value Chain Members
b)	[C, F] Capture carbon emissions information	Share information to facilitate carbon improvements E.g. through client and Supply Chain Sustainability Working Groups
c)	[C, F, P] Capture carbon reductions solutions	Share learnings to influence/ inform good practice

	E.g. through client and Supply Chain Sustainability Working Groups
d) [C, F] Ensure ongoing engagement across the value chain	To further develop learnings for industry innovations. E.g. through client and Supply Chain Sustainability Working Groups

11.2 Asset Owner Requirements

- a) Annual review of carbon management process and governance to determine effectiveness. Improvements to be made where they do not result in low carbon solutions.
- b) Regular review of procurement process is and make improvements (as necessary) to assist value chain members in delivering whole life carbon reductions.
- c) Adopt GHG assessment methods in line with improvements in data availability, to increase accuracy and consistency.
- d) Keep an inventory of the most relevant data for setting baselines and assessing carbon emissions at different programme / project stages.
- e) Assess need to update programme / project work baselines. This is to ensure carbon reductions are not based on outdated and / or inappropriate baselines.

11.3 Designer Requirements (MWHT)

- a) [F, P] Provide and share carbon data to the Asset Owner to aid continual improvement, particularly for future delivery of programmes / projects. This is covered by BPFR06-04 Framework Sustainability and Carbon Management Plan and CDPD06-01 Project Reporting and Progress Monitoring process. To be referenced in the DEFR02-01 Design Management Plan.
- b) [C, F] Skills and capability within the business / Alliance / Joint Venture is assessed through HRPD06-01 Induction, Training and Competency Management process. This is incorporated into the HRGD06-01 SHEQ Training Matrix and will include training and guidance (e.g. with module EVT06 Sustainability in Design, EV12 Design Build Sustainability and Carbon Management; Supply Chain Sustainability School assigned learning pathways) to include:
 - Following BPGD06-02 Design Build Sustainability Hierarchy
 - Carbon (GHG) assessment, baselines and targets
 - Identifying and promoting whole life carbon reduction
 - Delivery of sustainable and low carbon solutions

11.4 Constructor Requirements (MWHT)

- a) [F, P] Provide continual improvement, through SYPD05-01 Improvement, input to the Asset Owner and share improved carbon data to inform future projects / programmes.
- b) [C, F] Assessment process in place to review procurement processes and establish appropriate incentives and / or requirements for value chain members to deliver whole life carbon reduction in projects / programmes. This is incorporated into the SYRE03-01 SHEQ Audit Programme and associated audit checklists such as EVFR02-04 Project Design Environmental and Sustainability Audit.
- c) [C, F] Calculate as-built carbon data and feedback to the client and other value chain members to assist in improving the setting of baselines. Requirements detailed in BPFR06-04 Framework Sustainability and Carbon Management Plan, PSFR03-09 Project Sustainability and Social Value Plan and refer to CDFR43-08 Handover Checklist.

- d) [C] Evaluate the skills and capability within the business / Alliance / Joint Venture through HRPD06-01 Induction, Training and Competency Management process. This is incorporated into the HRGD06-01 SHEQ Training Matrix and will include training and guidance (e.g. with EVT04 Environmental Management in Construction; EV12 Design Build Sustainability and Carbon Management) to include:
- Following BPGD06-02 Design Build Sustainability Hierarchy
 - Carbon (GHG) assessment, baselines and targets
 - Sustainable and low-carbon solutions
 - Sustainable and low-carbon procurement
 - Monitoring and reporting

11.5 Product / Material Supplier Requirements

- a) Engage across the value chain in sharing low carbon innovations and assessing suitability for the programmes / projects.
- b) Evaluate the skills and capability within their organisation and, where necessary, provide training and guidance in relation to:
- Carbon (GHG) assessment, baselines and targets
 - Low-carbon solutions
 - Low-carbon procurement

12 Claims of Conformity

Claims of conformity to PAS2080 can be demonstrated through:

- a) Independent third-party certification
- b) Other party validation
- c) Self-validation

MWH Treatment, as part of the parent company RSK, have selected independent third-party certification with BSI. This certification will cover MWH Treatment's processes as a whole with example programmes or projects to demonstrate PAS2080 compliance.

For any additional independent third-party certifications (e.g. as part of a Joint Venture or Asset Owner management) the MWHT Head of Sustainability and Environment is to be notified and informed of the findings post audits / certification.

Where other party validation or self-validation are to be considered e.g. within a Joint Venture or Asset Owner requirement, the adoption of these methods of compliance are to be approved by the Head of Sustainability and Environment. This is to ensure full compliance with PAS2080: 2023 requirements and the MWHT Way (Integrated Management System).

13 Definitions

MWHT has EVGD06-01 Carbon Jargon Explained - Guidance covering carbon related terminology and their definitions.

The definitions below are taken from PAS2080: 2023 Carbon Management in Infrastructure, unless otherwise stated:

Asset Owner / Manager: "Organisation that manages and is responsible for providing, operating and maintaining a buildings and infrastructure network or asset(s)". *Note:* On some occasions the asset owner/manager may be an organization charged with operating buildings or infrastructure, a service provider, a developer, a financier, the entity undertaking project works.

Baseline: Scenario for what carbon emissions and removals would have been in the absence of planned measures aiming to reduce emissions

Biodiversity Net Gain: Development that leaves biodiversity in a better state than before. Where a development will have an impact on biodiversity – the net gain approach provides an increase in appropriate natural habitat and ecological features over and above that being affected. (Adapted from CIEEM – Chartered Institute of Ecology and Environmental Management).

Capital Carbon: GHG emissions and removals associated with the creation and end-of-life treatment of an asset, network or system, and optionally with its maintenance and refurbishment.

Carbon: Where carbon is referred to this is covering greenhouse gases (see definition below) and is often referred to as Carbon Dioxide equivalent (CO₂e).

Carbon Dioxide equivalent: The universal unit of measurement to indicate the global warming potential (GWP) of each of the six greenhouse gases, expressed in terms of GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis. (taken from [GHG Protocol](#)).

Carbon reduction: Process of minimising greenhouse gas emissions in the development of new, or the refurbishment of existing, assets or networks.

Circular economy (PAS2080 definition): Economy that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles.

Circular economy (Ellen MacArthur definition and adopted by MWH Treatment): A system where materials never become waste and nature is regenerated. In a circular economy, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. The circular economy tackles climate change and other global challenges, like biodiversity loss, waste, and pollution, by decoupling economic activity from the consumption of finite resources. The circular economy is based on three principles, driven by design:

- Eliminate waste and pollution
- Circulate products and materials (at their highest value)
- Regenerate nature

Constructor: “Entity that undertakes work to construct, build, maintain, repair, replace, disassemble or demolish an asset or network”. *Note: A constructor can be an asset owner/manager or a product/material supplier.*

Decarbonization: Process by which organisations, sectors or other entities aim to achieve zero fossil carbon emissions, typically referring to a reduction of the carbon emissions associated with key sectors, such as electricity, industry and transport.

Designer: “Entity that creates, prepares or specifies the design of an asset or network that is to be constructed, maintained, repaired or refurbished”. *Note: A designer can be an asset owner/manager, consultant, constructor or product/material supplier.*

ECITB: Engineering Construction Industry Training Board

Embodied Carbon: Embodied carbon is the total greenhouse gas (GHG) emissions (often simplified to “carbon”) generated to produce a built asset. This includes emissions caused by extraction, manufacture/processing, transportation and assembly of every product and element in an asset. In some cases, (depending on the boundary of an assessment), it may also include the maintenance,

replacement, deconstruction, disposal and end-of-life aspects of the materials and systems that make up the asset. It excludes operational emissions of the asset. (UK Building Council Definition).

End of Life: Stage which begins when the asset has reached the end of its design life and is ready for refurbishment, retrofit, disposal, dismantling, etc., and ends when the asset is recycled, reused, recovered or returned to nature (combustion, deterioration).

Greenhouse Gas: gaseous constituent of the atmosphere, natural or anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere and clouds (taken from ISO Net Zero Guidelines IWA 42:2022(E)).

Greenhouse Gases (GHGs): GHGs are the six gases covered by the UNFCCC (United Nations Framework Convention on Climate Change): carbon dioxide (CO₂); methane (CH₄); nitrous oxide (N₂O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF₆) - GHG Protocol definition for the purposes of the GHG Protocol standard.

Greenhouse Gas Emissions: Release of a greenhouse gas into the atmosphere (taken from ISO Net Zero Guidelines IWA 42:2022(E)).

IMS: Integrated Management System – MWHT certified to ISO14001, ISO9001 and ISO45001. Internally known as 'The MWHT Way'.

Influence: Ability of value chain member to support other value chain members to make low-carbon decisions.

Leadership: Ability of an individual, group or organization to lead, influence or guide other individuals, teams or entire organisations.

Life cycle: Consecutive and interlinked stages of a product, equipment or service, from raw material acquisition or generation from natural resources to design, production, transportation/delivery, use, end-of-life treatment and final disposal.

Just Transition: Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind. (International Labour Organization (ILO) - <https://climatepromise.undp.org/news-and-stories/what-just-transition-and-why-it-important>).

MSMEs: Micro, Small and Medium Sized Enterprises

National TOMs: The National TOMS (Themes, Outcomes, and Measures) is a framework designed to help companies measure and report on the social value created through projects. There are four themes: Community, Economy, Work and Planet.

Nature-based solutions: Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

Network: Combination of interconnected assets (buildings and infrastructure) that provide services (e.g. water, power, transport) to society as part of a wider system.

Net Zero: Condition in which human-based residual GHG emissions are balanced by human-led removals over a specified period and within specified boundaries (taken from ISO Net Zero Guidelines IWA 42:2022(E)). From PAS2080: Reduction of anthropogenic greenhouse gas emissions to zero or to a residual level that is consistent with reaching net zero emissions in eligible 1.5 °C pathways (hence time-bound) and neutralising the impact of residual emissions (if any) by removing an equivalent volume of carbon.

Operational carbon (emissions): Greenhouse gas emissions and removals associated with the operation of an asset, network and/or system required to enable it to operate and deliver its service.

ORC: Operations Risk Committee as part of MWHT process RL01 High Level Risk Review for projects / programmes.

Product / Materials Supplier: “Organisation that extracts, manufactures and/or produces materials or products for incorporation into works to construct, build, maintain or operate an asset or network”.

Programme of works: Defined set of projects related to the construction, maintenance, operation and/or end of life of an asset, network or system.

Project / programme boundary: Physical, process, temporal and geographical limits of a project or programme of work.

Removal: Withdrawal of a greenhouse gas from the atmosphere and stored as a result of deliberate human activities.

SLG: MWHT Senior Leadership Group

Social Value: Looking beyond the financial cost of a contract to consider how the services we commission and procure, and our activities, can improve the economic, social and environmental wellbeing of an area. (Definition adapted from Public Services (Social Value) Act (2013)). MWHT social value approach is based upon the National TOMs (see definition above).

Target: Desired quantity of carbon emissions (defined as an absolute value or as a reduction amount/percentage against a baseline value) that a project or programme of works is to achieve within a temporal (time) extent.

User carbon (emissions): Greenhouse gas emissions associated with users’ utilisation of an asset, network and/or system, and the service it provides during operation.

Value Chain: Organisations and stakeholders involved in creating, operating and managing assets and/or networks.

Whole Life Carbon: Sum of greenhouse gas emissions and removals from all work stages of a project and/or programme of works within specified boundaries.

Appendix 1: MWH Treatment Control and Influence

Tendering and Design

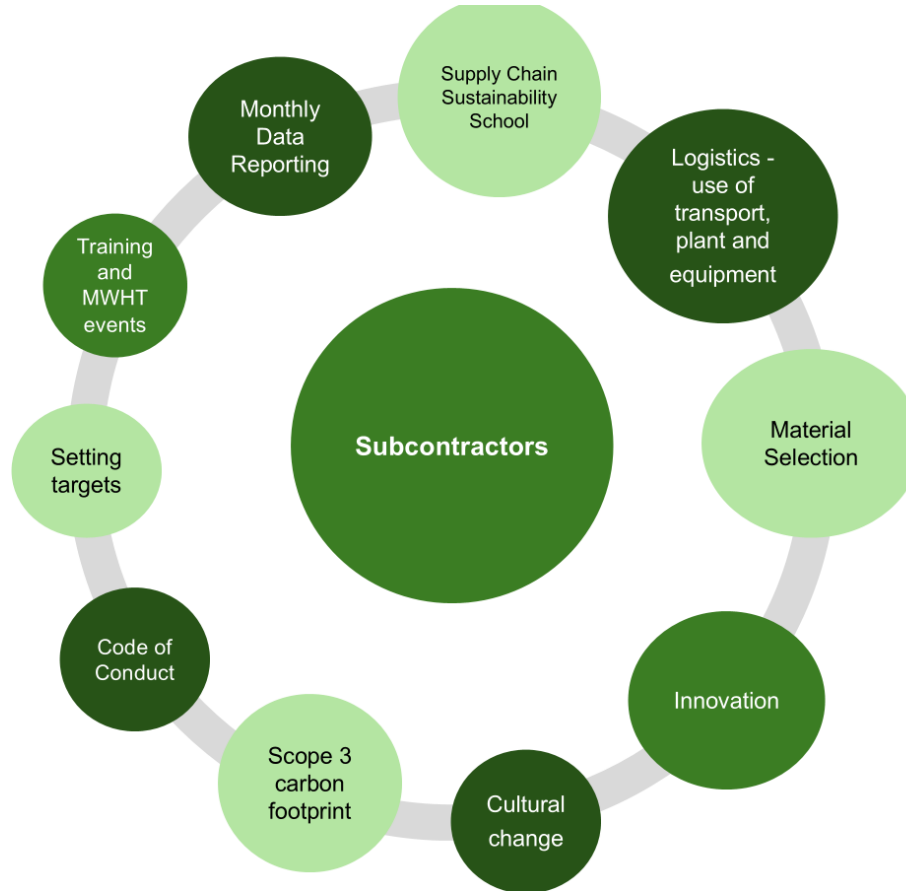
Control and Influence



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Supply Chain-Subcontractors

Control and Influence



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Supply Chain-Suppliers

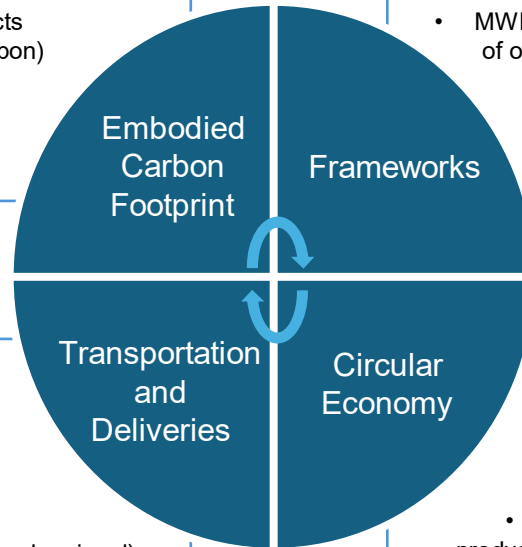
- Life cycle assessment (extraction through to end-of-life)
- Embodied carbon of products
- Standard products (low carbon)

- Client framework agreements - direction set by client
- MWHT framework agreements - control of own frameworks; influence of clients

Influence

- Packaging reduction
- Logistics
- Local purchasing (national and regional)

- Material selection
- Eliminating pollution
- Designing out waste
- Regenerating nature
- End-of-life reuse and recycling of products / materials at their highest value
- Additional markets



Appendix 2: Stakeholder Analysis

Stakeholder	1st or 2nd	Influence	Proximity ¹	Why we engage
INTERNAL				
Proposals (Tendering)	1st	High	Yes	<ul style="list-style-type: none"> • Tenders to incorporate sustainability considerations (incl. carbon reduction) and cost savings • Sales to the client / profit margins • Compliance with the Sustainability Hierarchy • Whole Life Cost and Carbon • Ability to challenge client specifications • Encourage reduction in resource use, waste minimisation and energy efficiency • Early implementation of Project Sustainability and Social Value Plans
Design	1st	High	Yes	<ul style="list-style-type: none"> • Encourage material selection; off-site fabrication (where appropriate); circular economy • Compliance with the Sustainability Hierarchy • Compliance with Project Sustainability and Carbon Checklist • Whole Life Cost and Carbon • Maximise use of existing assets • Ability to challenge client specifications • Encourage reduction in resource use, waste minimisation and energy efficiency • Minimise use of chemicals • Requirement to provide carbon calculations
Delivery	1st	High	Yes	<ul style="list-style-type: none"> • Waste minimisation and resource efficiency • 'Just in time' deliveries • Reduce fuel use on site • Reduce transport movements / deliveries

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¹ Adapted from Accountability (2005) - people the organisation interacts with most including internal, longstanding relationships and local communities affected by works.

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Stakeholder	1st or 2nd	Influence	Proximity ¹	Why we engage
Procurement / Commercial	1st	High	Yes	<ul style="list-style-type: none"> Compliance with the Sustainability Hierarchy Progression of Project Sustainability and Social Value Plans Selection of low embodied carbon / energy efficient equipment (from design recommendations) Framework agreements (e.g. plant; site accommodation) Identify products with sustainability credentials / circular economy
Joint Ventures	1st	High	Yes	<ul style="list-style-type: none"> Share best practice Collaborative working Report on resource use and waste Apply carbon reduction measures / low carbon solutions
RSK and RSK Investors	1st	Medium	Yes	<ul style="list-style-type: none"> Set RSK Sustainability KPIs Report on Environment, Social and Governance including quarterly operational carbon reporting and annual supply chain Scope 3 reporting Science Based Targets (i.e. supplier engagement) RSK investor requirements on carbon reduction ESOS (Energy Savings Opportunity Scheme) compliance through RSK
EXTERNAL				
Client (Asset Owner)	1st	High	Yes	<ul style="list-style-type: none"> Identify needs and project outcomes Collaborative working to identify / implement sustainable solutions and carbon reduction Improve performance Value added
Competitors	2nd	Low	Yes	<ul style="list-style-type: none"> Learn from our competitors (particularly working alongside our clients) Potential Joint Venture partners

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Stakeholder	1st or 2nd	Influence	Proximity ¹	Why we engage
Supply Chain				
Suppliers	1st	Medium	Yes	<ul style="list-style-type: none"> Insights into upcoming innovation Product / material selection Calculate embodied carbon (MWHT upstream Scope 3) Encourage innovation / circular economy Solution development Whole Life Cost and Carbon Feedback / improvements on ways of working and carbon reduction Supply chain mapping Encourage selection of local procurement
Sub-contractors	1st	Medium	Yes	<ul style="list-style-type: none"> Encourage innovation / circular economy Reduce resource use on site Reduce transport movements / deliveries Material selection No rework Feedback / improvements on ways of working carbon reduction Encourage use of local subcontractors
Regulators				
Environmental Regulator	2nd	Low	Partial	<ul style="list-style-type: none"> Maintain good relations Ensure legal compliance Determine Best Available Technology (BAT)
Local Authorities	2nd	Low	Partial	<ul style="list-style-type: none"> Identify planning requirements, including need for Biodiversity Net Gain, SUDS (Sustainable Urban Drainage) Operation within Low Emission Zones
Ofwat – Water Regulator	2nd	None	No	<ul style="list-style-type: none"> Awareness of current and future regulatory trends Water company carbon reporting requirements and expectations

Stakeholder	1st or 2nd	Influence	Proximity ¹	Why we engage
				<ul style="list-style-type: none"> • Innovation Fund • Ofwat determination for water companies
Interest Groups				
British Water (Trade Body)	1st	Medium	Yes	<ul style="list-style-type: none"> • Awareness of key water sector industry trends • Present and attend at sustainability related conferences • Communication routes with clients and supply chain
Supply Chain Sustainability School	1st	Medium	Yes	<ul style="list-style-type: none"> • Share best practice; latest industry innovations • Provide support to the supply chain through e-learning, workshops and communications
General Public	2nd	Low	No	<ul style="list-style-type: none"> • Maintain good community relationships • Demonstrate and promote sustainability and social value • Improve public perspective of the water industry

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Appendix 3: Emissions and Removal Sources

Below is taken directly from PAS2080: 2023 standard. The tables have assisted with the identification of emission sources and removals for the water sector and construction of buildings. This is to ensure that the emissions assessed are appropriate and wider system level emissions and removals are also considered, to take into account how decisions could make a positive or negative consequence on the environment and/or wider sustainability goals.

An assessment has been completed below, which determine the material for MWHT activities. If deemed ‘non-material’ these will not be assessed further. Where deemed ‘material’ are incorporated into PSFR03-11 Project Sustainability and Carbon Checklist or as Business As Usual (BAU).

Typical Emissions and Removal Sources considering Whole Life Carbon at Asset, Network and System Level

	Before Use	Use	End-of-life
Buildings	Site preparation. Planning, design and construction or substantial retrofit/ refurbishment of existing buildings, including substructure, superstructure, facades and fit out.	Energy and materials involved in the maintenance and upkeep of buildings. Use of energy and water by the building, including both regulated and unregulated energy sources.	Reuse, repurposing or removal of buildings.
Water Infrastructure	Site preparation. Planning, design and construction or substantial retrofit/ refurbishment of infrastructure: <ul style="list-style-type: none"> • water resources assets – boreholes, reservoirs and dams • potable water supply – distribution systems, pumping stations and treatment works • collection and treatment of sewage – sewers, pumping stations and treatment works • distribution – pipelines and pumping stations; and • flood and coastal defences. 	Energy (including fuels used for transport) and materials involved in maintenance of water infrastructure. Energy used in conveyance of water. Direct treatment process emissions. Energy use (including fuel used for transport) for the operation of water assets. Chemicals for treatment of water. Energy use for the heating of water and conveyance of water at the point of use.	Reuse, repurposing or removal of waste infrastructure.

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Typical Emissions and Removal Sources considering Wider Consequences

BUILDINGS SECTOR

Wider Sector	Consequence	Material or immaterial
Consequence for Energy	Changes in types of energy and energy infrastructure needed for building heat, e.g. electricity networks, hydrogen, district heat networks.	Material – Use of renewables, green electricity, alternative energy sources within buildings and treatment processes. <i>Note: For inclusion in Design Build Checklist.</i>
Consequence for Energy	Excess energy generated and exported to the grid.	Material – Can install processes to capture process emissions to create energy e.g. THP plants, anaerobic digesters and production of methane.
Consequence for Water	Reduced need for clean water and drainage infrastructure through efficiency and reduced demand.	Material – Designing for Sustainable Urban Drainage (SUDs) and reducing hardstanding. <i>Note: For inclusion in Design Build Checklist.</i>
Consequence for Transport	New transport infrastructure requirements to support sustainable urban developments.	Immaterial – Centred around residential and commercial properties.
Consequence for Transport	Reduced need for transport infrastructure through mixed-use, digitally enabled buildings and neighbourhoods.	Immaterial – Centred around residential and commercial properties.
Consequence for Waste	Changes to waste streams and waste processing requirements from use of different building materials, e.g. timber, recycled concrete.	Material - Solid waste - minimisation off site through reducing excavations, correct storage and use of materials, reusing materials on and off site. Site Material and Waste Management Plans. BAU
Consequence for Communications	Integration of communications infrastructure when delivering new buildings, reducing the need for additional construction.	Material – Identification of linkages with other new services i.e. works within highways. Stakeholder discussions (i.e. Local Authority) to reduce impact on communities.

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Wider Sector	Consequence	Material or immaterial
		Note: For inclusion in Design Build Checklist.
Consequence for Buildings	Alleviation of pressure for new supply from other less sustainable locations.	Immaterial – Centred around residential and commercial properties.

WATER SECTOR

Wider Sector	Consequence	Material or immaterial
Consequence for Energy	Demand for energy, e.g. extraction of potable water, wastewater treatment, desalination.	Material – Projects can result in an increase in energy usage in order to achieve discharge requirements, set by the Environmental Regulator. E.g. phosphorus removal treatments can be energy intensive. <i>Note: For inclusion in Design Build Checklist.</i>
Consequence for Energy	Excess energy generated and exported to power and gas grids.	Material – Can install processes to capture process emissions to create energy e.g. THP plants, anaerobic digesters and production of methane. <i>Note: For inclusion in Design Build Checklist.</i>
Consequence for Energy	Provision of water for cooling.	Immaterial – Unlikely to impact upon project design and construction.
Consequence for Energy	Risk of flooding disruption to generation, transmission and distribution plants.	Material – Designs generally to reduce risk of flooding at existing wastewater treatment works. Reducing impact on potential electricity assets in proximity to the treatment works. BAU
Consequence for Water	Wastewater to potable water recycling.	Material – Potentially part of project scope. Projects are required to result in improvements of treatment of water (either waste or potable water). <i>Note: For inclusion in Design Build Checklist.</i>
Consequence for Water	Risk of flooding/ contamination of potable water supplies.	Material – Designs reviewed to determine flood risk, Measures are implemented within the design as

Wider Sector	Consequence	Material or immaterial
		necessary (i.e. through Town & Country Planning requirements, client requirements, climate adaptation/resilience). BAU
Consequence for Transport	Facilitates production of low-carbon fuels, e.g. hydrogen, biofuels	Material – Depending on design – i.e. anaerobic digestors (using methane to create electricity); innovative measures to create hydrogen from sewage. <i>Note: For inclusion in Design Build Checklist.</i>
Consequence for Transport	Risk of disruption/ impact from flood damage.	Material – Designs generally to reduce risk of flooding at existing wastewater treatment works. Reducing flooding impact on highways and roads in proximity to the treatment works. BAU
Consequence for Waste	Changes in amount of waste to be treated.	Material – From a sewage perspective could reduce the amount of water reaching the sewage treatment works (i.e. separating sewage and surface water flows). Solid waste - minimisation off site through reducing excavations, correct storage and use of materials, reusing materials on and off site. BAU
Consequence for Communications	Provision of water for cooling.	Immaterial – Unlikely to impact upon project design and construction.
Consequence for Buildings	Integration of water efficiency measures in buildings and cities.	Immaterial – Unlikely to impact upon project design and construction. Water efficiencies covered as part of value engineering from a very local level (i.e. recirculation at the treatment works).
Consequence for Buildings	Risk of flood damage.	Material – Designs generally to reduce risk of flooding at existing wastewater treatment works. Reducing flooding impact on buildings in proximity to the treatment works. BAU