

Sustainability Management Plan

Sydney Metro – Western Sydney Airport, Surface and Civil Alignment Works

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Document Approval

Rev.	Date	Prepared by	Reviewed by	Approved by	Remarks
A	27/05/2022	Christine Mueller	Cindy Liles	Vishal Khosla	Initial Post Contract award
B	01/07/2022	Christine Mueller	Greg Edwards	Vishal Khosla	Revised per SM comments
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01	04/10/2022	Ann Azzopardi	Christine Mueller	Vishal Khosla	Issued for Construction
Signature					

Distribution and Authorisation

Document Control

The CPBUI JV Project Director is responsible for ensuring this plan is reviewed and approved. The Sustainability Manager is responsible for updating this plan to reflect changes to the project, legal and other requirements, as required.

The controlled master version will be maintained on TeamBinder. All circulated hard copies are deemed to be uncontrolled.

Amendments

The implementation of this Plan is under the authority of the CPBUI JV Delegated Authority Matrix. All Contract personnel will perform their duties in accordance with this Plan, supporting plans, and related procedures.

Revision Details

Rev.	Details
A	Internal review of Sustainability Management Plan
B	Updated to address comments received from Sydney Metro
C	Updated to address comments received from Sydney Metro
01	Issued for construction (All Sydney Metro review comments closed)

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Abbreviations and definitions

Further Definitions, Abbreviations and Acronyms can be found in the *Sydney Metro – Western Sydney Airport Surface Civil and Alignment Works Package, Schedule C1 General Specification*.

Table 1 – Abbreviations and definitions

Abbreviation	Description
BAU	Business As Usual
CAP	Climate Adaptation Plan
CCRA	Climate Change Risk Assessment
CEMP	Construction Environmental Management Plan
CIR	Credit Interpretation Request – <i>as submitted to ISC</i>
CMS	CPB Contractors Management System – <i>the PMS is the project specific version</i>
CPB	CPB Contractors Pty Ltd
CPBUI JV	CPB Contractors Pty Limited and United Infrastructure Pty Limited Joint Venture
CPTED	Crime Prevention Through Environmental Design
Deed	Surface and Civil Alignment Works Design and Construction Deed, Contract No: WSA-300-SCAW
DPE	NSW Department of Planning and Environment
DRP	Design Review Panel
EIS	Environmental Impact Statement, <i>in reference to WSA Sydney Metro, Oct 2020</i>
EMS	Environmental Management System
ENM	Excavated Natural Material, as per the <i>Excavated Natural Material Exemption 2014</i>
EPD	Environmental Product Declaration
FFMP	Flora and Fauna Management Plan (as part of the CEMP)
FSC	Forest Stewardship Council
GHG	Greenhouse Gas
GREP	NSW Government Resource Efficiency Policy
iPKL	Interactive Project Knowledge Library - <i>CPB Contractor’s knowledge sharing hub</i>
IS	Infrastructure Sustainability - <i>in reference to the ISC IS rating scheme</i>
ISAP	Infrastructure Sustainability Accredited Professional
ISC	Infrastructure Sustainability Council - <i>previously known as ISCA (A= Australia)</i>
ISP	Independent Sustainability Professional
LCA	Life Cycle Assessment
MCA	Multi-criteria Analysis
NGER	National Greenhouse and Energy Reporting - <i>annual corporate reporting under NGER Act</i>
PEFC	Programme for the Endorsement of Forest Certification
PRR	Principal Risk Register
PV	Photovoltaic
RFT	Request for Tender

Abbreviation	Description
RVTM	Requirements Verification Traceability Matrix – <i>in the Systems Engineering MP (SEMP)</i>
SCAW	Surface & Civil Alignment Works Contract
SDG	United Nations Sustainable Development Goals
SM-WSA	Sydney Metro – Western Sydney Airport project
SME	Subject Matter Expert
SMP	Sustainability Management Plan
SMS	CPB Contractors Sustainability Management System
SLT	Senior Leadership Team
SSTOM	Station, Systems, Trains, Operations & Maintenance Contract
TC	Technical Clarification – <i>as submitted to ISC</i>
tCO ₂ e	Tonnes of carbon dioxide equivalent, which is a measure that allows you to compare the emissions of other greenhouse gases relative to one unit of CO ₂
TfNSW	Transport for NSW
UDLP	Urban Design and Landscape Plan
UI	United Infrastructure Pty Limited
VE	Value Engineering
WoL	Whole of Life

Part A Overview

1. Introduction

Through aligned values, CPBUI JV will partner with Sydney Metro to deliver the Sydney Metro – Western Sydney Airport (WSA) Surface and Civil Alignment Works (SCAW). The joint venture is made up of CPB Contractors and United Infrastructure, a consortium of Western Sydney based companies including Burton Contractors, JK Williams and Mulgoa Quarries. Together we will establish strong foundations and create seamless interfaces to pave the way for the successful completion of Sydney Metro – Western Sydney Airport (SM-WSA), on Darug Country as part of the future Western Parkland City.

1.1. Project Scope

The SM-WSA Project involves the construction and operation of a new 23 km metro rail line that extends from the existing Sydney Trains suburban T1 western line (at St Marys) in the north to the Aerotropolis (at Bringelly) in the south. The alignment includes a combination of tunnels and civil structures, including viaducts, bridges, and surface and open-cut troughs between the two tunnel sections. The Project also includes six new metro stations, and a stabling and maintenance facility and operational control centre at Orchard Hills. The SCAW package is the second major contract package to be procured for the Project. The successful and timely completion of the SCAW package is critical to the subsequent construction activities and ultimate completion of the entire Project.

1.2. Package scope

The scope for the SCAW package includes approximately 10.6 km of alignment up to the underside of track formation from Orchard Hills to the WSI airport. This includes approximately:

- 3.6 km of viaduct
 - 400 m of viaduct over Blaxlands Creek
 - 660 m of viaduct over the Patons Lane area and un-named creek
 - 2.5 km of viaduct in the Luddenham Road area including across the Warragamba pipeline, at Luddenham Station, across Luddenham Road and across Cosgrove Creek
- 205 m of bridges
 - An over rail bridge, approximately 180m long, over the proposed M12 Motorway
 - An over rail bridge, approximately 25m long, over the drainage swale on the WSI airport site
- 6.9 km of at-grade alignment
 - 600 m at Orchard Hills, south of Lansdowne Road
 - 1.6km alongside the stabling maintenance facility in Orchard Hills
 - 900 m to the north of the Warragamba pipelines
 - 1.1 km north of the proposed M12 motorway
 - 1.4 km south of the proposed M12 Motorway on Elizabeth Drive
 - 1.3 km within the Airport site from the northern boundary to the Airport Business Park Station
- Temporary and permanent access roads.

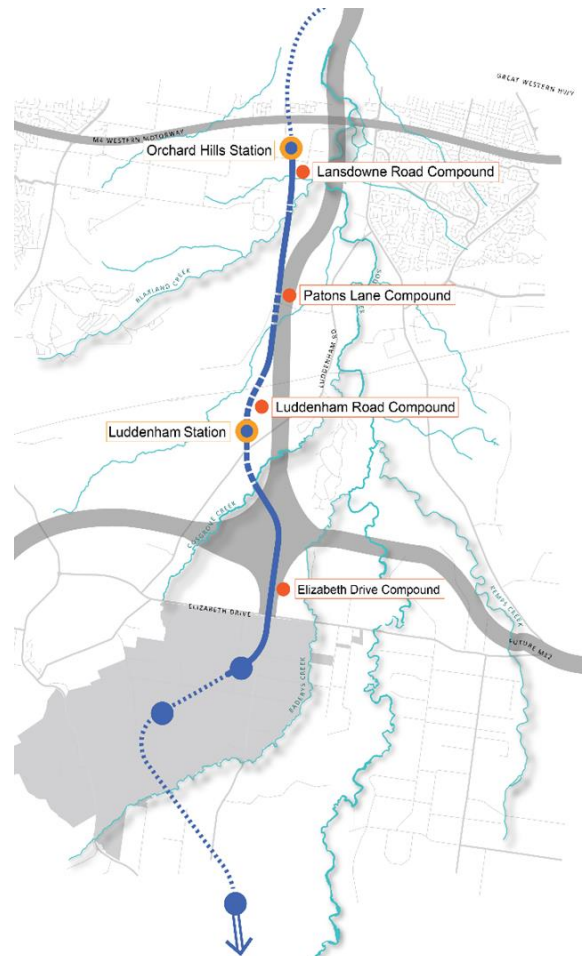


Figure 1 – SCAW Project scope

2. Structure of this Plan

2.1. Plan Purpose and Objectives

The purpose of this Sustainability Management Plan (SMP) is to describe how CPB Contractors, United Infrastructure Joint Venture (CPBUI JV) will consider and apply sustainability aspects during design and construction throughout the delivery of the Sydney Metro – Western Sydney Airport, Surface and Civil Alignment Works (SCAW) on behalf of Sydney Metro Authority.

The SMP provides the overarching governance framework to guide the project team in the delivery of sustainability outcomes during the project design and construction phase in accordance with SMP requirements detailed in Schedule C1-General Specification s5.1.7 (b).

The SMP governance framework will address the:

- sustainability commitments through the projects’ policies;
- sustainability objectives, targets and IS rating credit benchmarks targeted;
- sustainability team governance structure;
- integration of sustainability initiatives and into design and construction processes;
- climate change risk assessment process influences on design and construction;
- Scope 1, 2 and Scope 3 emission estimates and lifecycle impact of initiatives;
- low carbon, energy efficiency, water, materials savings strategies and initiatives;
- sustainable procurement strategies, processes and methods;
- strategies and initiatives to influence subcontractors and materials suppliers;
- sustainability monitoring, reporting and records management processes; and
- processes for identifying, monitoring and evaluating community benefit initiatives.

This Plan has been prepared to incorporate the relevant requirements of the Sydney Metro Environment and Sustainability Statement of Commitment and the Sydney Metro – Western Sydney Airport Sustainability Plan.

This SMP will support the achievement of a ‘Leading’ IS Rating, with a minimum score of 75 pts and a targeted aspirational score of 81 pts or greater.

2.2. Plan structure

This plan is based on three parts which outline our approach to managing sustainability on the Project.

Part A: Overview	<ul style="list-style-type: none"> ▪ Introduction ▪ Structure of this Plan ▪ Sustainability Context ▪ Significant Sustainability Issues ▪ Sustainability Policy, Objectives and Targets ▪ Management and Accountability ▪ Integrating Sustainability ▪ Sustainability Reporting and Information Management ▪ Evaluation and Improvement ▪ Key Sustainability Initiatives
Part B: Implementation Plan	<ul style="list-style-type: none"> ▪ Sustainability Management Elements ▪ Element 1: CPB Management Elements ▪ Element 2: General Specifications ▪ Element 3: Particular Specifications ▪ Element 4: Conditionals of Approval ▪ Element 5: EIS Measures

Part C: Appendices

- Sustainability Policy
- Procurement Policy
- Policy commitment mapping
- Sustainability Initiatives Register
- Mapping to ISO20400 Sustainable Procurement Guidance
- Climate Change Risk Assessment

2.3. Plan Revisions

The SMP has been prepared to be applicable through the life of the SCAW project. This initial version of the SMP is submitted to Sydney Metro within 60 Business Days from the date of the D&C Deed as required.

The plan will be updated annually by the Sustainability Manager to ensure it remains current and relevant to the project scope boundaries and delivery approach.

Updates will take into consideration corrective actions including lessons learnt and improvement or enhancement opportunities identified as the results of:

- audit findings;
- communication, participation and consultation, including from external stakeholders;
- performance of the Project;
- adjustments to the objectives and targets or delivery approach;
- changes to legislation;
- actions management reviews, and recommendations for improvement; and
- feedback for stakeholders.

2.4. Plan approval and distribution

The Sustainability Management Plan will be authorised for implementation by the CPBUI JV Project Director.

All personnel engaged on the Project, including consultants, subcontractors or suppliers, will perform their duties in accordance with the requirements of this Plan, and in compliance with CPB systems, procedures and any specific Project instructions.

The Sustainability Management Plan is a controlled document and registered copies must be distributed and revised in accordance with the Quality Plan. CPBUI JV will advise of any amendments to this Plan and controlled copyholders are responsible for keeping their copies up to date.

The Project Director and the Senior Project Managers will monitor this Plan, and review the need for change or improvement. All changes are to be approved by the Project Director.

2.5. Compliance with the Deed

This Sustainability Management Plan is a nominated Plan under the terms of the General Specifications and Deed and will be implemented, in accordance with Specifications and Planning Approvals.

In accordance with the Deed, this plan will be submitted to the Principal's Representative at least 60 Business days from the D&C Deed award - 1st March 2022. The plan will be updated annually until completion of the last Portion to achieve Completion.

The sustainability management plan requirements as detailed in s5.1.7 of Schedule C1 -General Specifications have been copied verbatim in the table below. The table includes a reference to where requirements are addressed in this Plan.

2.5.1. Sustainability Contract Requirements

Table 2 – Sustainability Contract Requirements

Contract Requirement	Plan Section
The SCAW Contractor must submit a Sustainability Management Plan to the Principal for Review in accordance with Table 2. [SM-WSA-SCAW-GS-1716]	This Plan
The Sustainability Management Plan must address and detail: [SM-WSA-SCAW-GS-1717]	NA
i. the relevant requirements of the Sydney Metro Environment and Sustainability Statement of Commitment and the Sydney Metro Sustainability Plan; [SM-WSA-SCAW-GS-1718]	Appendix C – Mapping policy commitments (extract)
ii. a sustainability policy statement; [SM-WSA-SCAW-GS-1719]	Appendix A – SCAW Sustainability Policy
iii. the sustainability management team structure, including: [SM-WSA-SCAW-GS-1720]	Section 6
A. the SCAW Contractor’s personnel’s Authority and roles of the SCAW Contractor’s personnel; [SM-WSA-SCAW-GS-1721]	Section 6
B. lines of responsibility and communication; [SM-WSA-SCAW-GS-1722]	Section 6
C. minimum skill levels of each role; and [SM-WSA-SCAW-GS-1723]	Section 6
D. interfaces with the overall Project organisation structure; [SM-WSA-SCAW-GS-1724]	Section 6
iv. how sustainability initiatives will be identified and integrated into the design of the Project Works; [SM-WSA-SCAW-GS-1725]	Section 7.2, 7.5
v. the carbon and energy mitigation measures as detailed in the environmental approval documentation that are applicable to the Project Works; [SM-WSA-SCAW-GS-1726]	Section 10
vi. the low carbon strategies and initiatives that will be implemented to minimise the carbon emissions; [SM-WSA-SCAW-GS-1727]	Section 10
vii. the energy efficiency strategies and initiatives that will be implemented to minimise energy use; [SM-WSA-SCAW-GS-1728]	Section 10
viii. support innovative and cost-effective approaches to Energy efficiency, low carbon / renewable energy sources and Energy procurement; [SM-WSA-SCAW-GS-1729]	Section 10
ix. the strategies and initiatives that will be implemented to enhance the biodiversity; [SM-WSA-SCAW-GS-1730]	Section 10
x. the processes and methodologies for assurance, monitoring, auditing, corrective action, continuous improvement and reporting on sustainability performance; [SM-WSA-SCAW-GS-1731]	Section 8, 9
xi. the process for compliance record generation and management; [SM-WSA-SCAW-GS-1732]	Section 9
xii. the processes and methodologies which will be used to achieve the required scores under rating systems identified in section 2.8.2; [SM-WSA-SCAW-GS-1733]	Section 5
xiii. the strategy and methodology for incorporating climate change adaption in designs in response to the climate change risks and baseline adaptation measures allocated to the Project Works; [SM-WSA-SCAW-GS-1734]	Section 10

Contract Requirement	Plan Section
xiv. the strategies and initiatives that will be implemented to minimise overall water use, maximise the availability and use of non-potable water sources; [SM-WSA-SCAW-GS-1735]	Section 10
xv. estimates of the quantity of potable water which will be consumed during construction; [SM-WSA-SCAW-GS-1736]	Section 10
xvi. estimates of the quantity of water from non-potable sources which will be consumed during construction; [SM-WSA-SCAW-GS-1737]	Section 10
xvii. the strategy to reduce material use throughout the Project life cycle; [SM-WSA-SCAW-GS-1738]	Section 10
xviii. the strategies and initiatives that will be implemented to maximise the use of recycled materials; [SM-WSA-SCAW-GS-1739]	Section 10
xix. the strategies and initiatives to recycle and reuse materials onsite; [SM-WSA-SCAW-GS-1740]	Section 10
xx. the strategies and initiatives to prioritise the use of materials with a lower embodied impact; [SM-WSA-SCAW-GS-1741]	Section 10
xxi. estimates of the Portland cement reduction which will be achieved in concrete (averaged across all mixes), compared to a reference case; [SM-WSA-SCAW-GS-1742]	Section 4.3
xxii. the strategies and initiatives to prioritise the use of low volatile organic compound (VOC), low emission materials; [SM-WSA-SCAW-GS-1743]	Section 10
xxiii. the use of sustainably sourced and certified timber and wood products; [SM-WSA-SCAW-GS-1744]	Section 10
xxiv. the development of deconstruction plans to enable recycling and reuse at end-of-life; [SM-WSA-SCAW-GS-1745]	Section 10
xxv. estimates of fuel consumption; [SM-WSA-SCAW-GS-1746]	Section 4.3
xxvi. estimates of electricity consumption; [SM-WSA-SCAW-GS-1747]	Section 4.3
xxvii. estimates of 'Scope 1', 'Scope 2', 'Scope 3' and total carbon emissions (Carbon Emission Targets) that incorporates direct and indirect emissions associated with electricity and fuel consumption, on-site process emissions and embodied emissions for all main materials used; [SM-WSA-SCAW-GS-1748]	Section 4.3
xxviii. reporting of carbon and Energy will be undertaken in accordance with the National Greenhouse and Energy Reporting Act 2007; [SM-WSA-SCAW-GS-1749]	Section 8
xxix. the strategy and initiatives to influence Subcontractors and materials suppliers to adopt sustainability objectives in their works and procurement; [SM-WSA-SCAW-GS-1750]	Section 7.5
xxx. a Sustainable Procurement Policy that must, as a minimum, include: [SM-WSA-SCAW-GS-1751]	Appendix B – SCAW Sustainability Procurement Policy
A. the processes and procedures that will be used to provide environmental and social improvement; [SM-WSA-SCAW-GS-1752]	Section 7.7
B. the responsibilities of the SCAW Contractor's personnel with respect to the implementation of the policy; [SM-WSA-SCAW-GS-1753]	Section 6.4
C. compliance record generation and management; [SM-WSA-SCAW-GS-1754]	Section 7.7

Contract Requirement	Plan Section
D. the processes and environmental and social criteria that will be used for the selection of Subcontractors; [SM-WSA-SCAW-GS-1755]	Section 7.7
E. the processes that will be used to ensure ethical sourcing of labour and materials; [SM-WSA-SCAW-GS-1756]	Section 7.7
F. local sourcing; and [SM-WSA-SCAW-GS-1757]	Section 7.7
G. where equipment, materials or labour are procured from locations outside Australia, the processes that will be used to ensure human rights impacts and risks are identified and mitigated as well as processes to ensure compliance with modern slavery, and modern slavery reporting; [SM-WSA-SCAW-GS-1758]	Section 7.7
xxxii. the retention of records detailing the consideration of sustainability in the procurement of all materials; and [SM-WSA-SCAW-GS-1759]	Section 7.7
xxxii. a Community Benefits Implementation Plan that must, as a minimum, include: [SM-WSA-SCAW-GS-1760]	Section 10
A. community needs analysis and how this has been informed through input from the local community and stakeholders; [SM-WSA-SCAW-GS-1761]	Section 10
B. methodology for the development of community benefit initiatives and legacy community benefit initiatives to add value to the communities in which it is working; [SM-WSA-SCAW-GS-1762]	Section 10
C. a monitoring and evaluation methodology to demonstrate the outputs and tangible outcomes achieved, including key performance indicators; and [SM-WSA-SCAW-GS-1763]	Section 10
D. a community benefit initiative impact register which would include details of initiatives submitted for Review and approval by the Principal and the date approval is granted by the Principal to undertake the initiative. [SM-WSA-SCAW-GS-1764]	Section 10

2.6. Interface with other management plans

The Sustainability Management Plan (SMP) forms part of the Project Management System (PMS). It is part of a suite of plans that together outline how SCAW) the sustainability requirements will be managed to ensure an integrated approach to meeting contract requirements.

Figure 2 shows the Project Plan hierarchy and interface with other plans. Figure 3 shows the role key management plans play in the delivery of the projects' sustainability requirements.

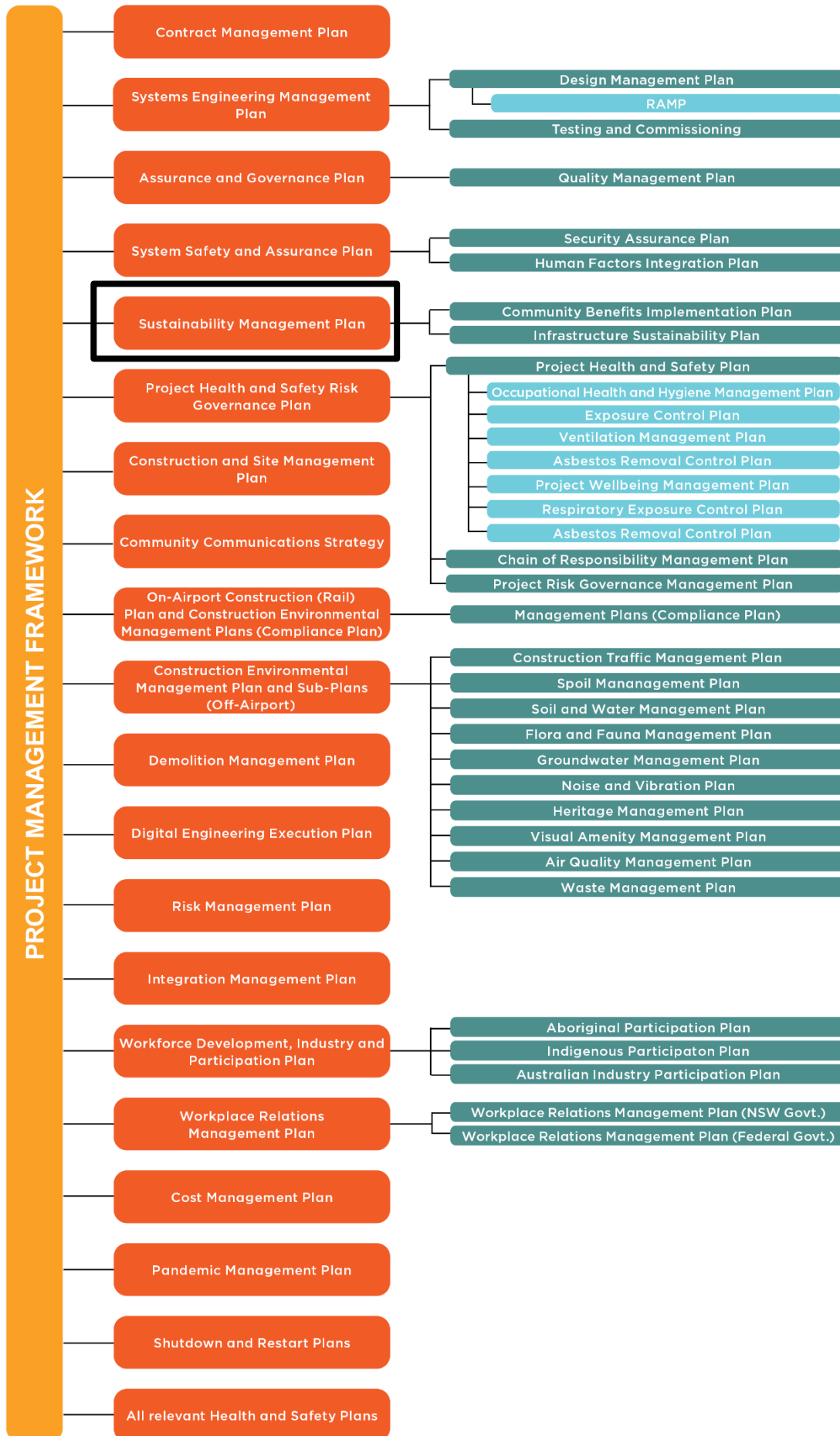


Figure 2 – SCAW Project Management Systems

Table 3 – Interface with other Management Plans

Management Plan	Relevance to Sustainability
Construction and Site Management Plan	Optimises construction sequence, staging, methodology and resourcing with flow on materials reduction and program efficiencies. Includes a Spoil Management Plan which optimising excavation, spoil haulage and beneficial reuse. Includes strategies to avoid, reduce, reuse and recycle waste generation.
Systems Engineering Management Plan	Describes the tools and systems used to track all requirements, including sustainability requirements. It defines the systems and processes for design integration, the requirements management, accountability, verification analysis and traceability (RVTM).
Design Management Plan	Defines the Design Packages and Reports, responsible company, delivery timetable, Value Engineering process and design integration process. It also describes how sustainability is incorporated into design development, review and tracking processes to improve whole of life outcomes. The design process will be informed by Lifecycle assessments in the consideration of options, design change and alternatives for material issues. Sustainability targets will be tracked through each design stage and initiatives identified and adopted that provide material, energy or water savings, or reduced impact as well as climate risks and mitigations.
Risk Management Plan	Defines the risk management system for capturing, assessing, tracking and reviewing all environmental, social and economic risks and opportunities.
Procurement Plan	Supports the process for sustainable decision-making in selecting and managing the supply chain and social procurement initiatives. It details our procurement policy, supplier and subcontractor identification and selection processes, tender evaluation, contract management and reporting expectations, including supplier training, rewards and recognition.
Construction Environmental Management Plan and subplans	Includes systems, policies, procedures, targets and strategies relevant to discharges to air, land and water, pollution prevention, resource and waste management, noise and vibration management, management of topsoil, contaminants, ecology and heritage, environmental risks and environmental auditing.
Community Communications Strategy	Describes how the stakeholder engagement strategy is implemented, communications are measured, and priority issues for community health and wellbeing are established. It identifies and influences project ‘negotiables’, integration of urban design principles and wayfinding.
Workforce Development and Industry Participation Plan	Addresses skill gaps, resource planning and talent management. It ensures a employee culture and wellbeing program, diversity and inclusion initiatives, and knowledge sharing through our workforce engagement processes, are embedded across the project. It defines the workforce participation targets and support indigenous and SME engagement as part of the projects social sustainability commitments.
Quality Management Plan	References the sustainability governance process, IS Rating, sustainability review and auditing program.

2.7. Sustainability Management System

CPB Contractors’ certification to ISO 14001 provides the broader framework for CPB Contractors’ Sustainability Management System (SMS). The CPB SMS will be adopted for the project, which consists of policies, guidance documents, plan templates, IS rating procedures, forms and checklists to provide a systematised approach to managing Sustainability.

CPBUI JV’s Sustainability Management System forms the basis of our Project Sustainability Assurance Framework and ensures the reporting of any data is supported by robust systems strategies for continuous improvement.

The IS rating scheme as owned and managed by the Infrastructure Sustainability (IS) Council is integrated into our management system to support delivery of a Design and As Built IS rating. Figure 3 illustrates the relationship between project specific processes, the IS rating and the CPB SMS.

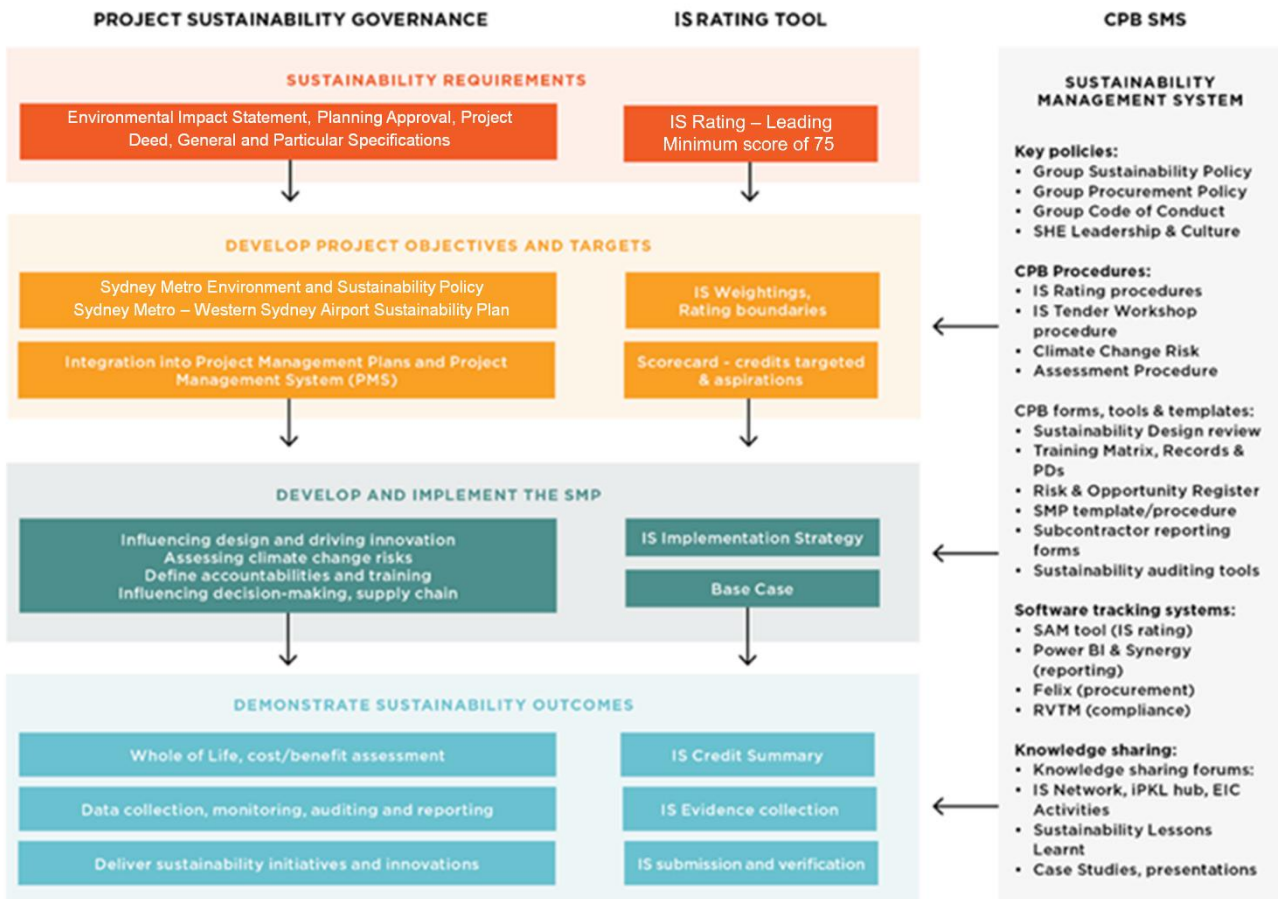


Figure 3 – Sustainability Governance

An excel-based Sustainability Management Tool assists the management of implementing the Project’s sustainability requirements and targeted IS Rating credits. It includes IS scorecards, a compliance matrix, evidence tracking, progress updates, and reporting dashboards. The management tool enables CPBUI JV to track compliance with the Project sustainability policy, objectives and targets, and the Project Company’s appointed sustainability targets and the IS rating tool.

3. Sustainability Context

3.1. Project Context

Underpinning the effectiveness of our governance framework is our understanding of the project's impacts, risk and opportunities. The Surface and Civil Alignment Works project presents a number of sustainability challenges and opportunities, particularly in terms of the program to ensure SM-WSA is operational when Western Sydney International is planned to open for passenger services.

With a short design and construction phase, key priorities will focus on ensuring sustainability initiatives are investigated early and integrated into design. With large haulage volumes and raw materials required for alignment works, key sustainability opportunities will be in the integrating of recycled materials, avoiding offsite spoil and waste disposal and the selection of fuel-efficient plant and equipment. Reducing the embodied carbon of steel and concrete in viaduct structures will also be a significant opportunity to further reduce our impacts.

We recognise the emphasis Sydney Metro places on mitigating the impacts of climate change associated with its infrastructure. Notably the Net Zero requirement across the Western Sydney Airport projects and the emphasis placed on asset durability and the whole-of-life approach. We also recognise the emphasis placed on reducing embodied carbon of materials, and biodiversity enhancement through the project KPI's, as well as the opportunity to support community benefit initiatives, local employment, and sustainable industries in this emerging Western Sydney region.

3.2. Climate Change

The impact of climate change is the most significant sustainability issue, we are facing locally, nationally and globally. The recent IPCC report (AR6) released in Aug 2021, states that human influence on global warming of the atmosphere, ocean and land is 'unequivocal'. We are set to pass 1.5 degrees warming by 2040, and we are closer to an irreversible tipping point. Based on the most optimistic scenario (SSP1.9) if we reach carbon neutrality by 2050 with suitable interim targets, we can limit warming to 1.5 degrees by 2040 and 1.4 degrees by 2100. However, the middle of the road scenario (SSP2 4.5) will see a 2.7 degree rise by 2100. As prompted by Glasgow Cop26, Australia has committed to carbon neutrality by 2050. The NSW Government had already committed to the 2050 goal, and has also committed to a 50% reduction in greenhouse gas emissions below 2005 levels by 2030 as part of the Net Zero: Stage 1 Implementation Update, DPE, Sep 2021.

3.3. Sustainable Development Goals

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

Australia is however performing worse than other advanced countries in achieving the Sustainable Development Goals (SDGs), particularly in terms of addressing climate change, according to the global SDG Index, which compares different nations' performance on the goals. The latest SDG Index released in June 2021, ranks Australia 35th in the world.

The index shows that Australia is performing relatively well in areas such health and wellbeing and providing good-quality education. But its results for the environmental goals and climate change are among the worst in the Organisation for Economic Co-operation and Development (OECD group) of advanced nations. Australia is the worst-performing country in the world on climate action (this SDG takes into account domestic greenhouse gas emissions, emissions embodied in the goods we consume, climate change vulnerability, and exported emissions from fossil fuel shipments to other countries).

3.4. Sydney Metro – sustainability context

The transport sector is the second largest source of greenhouse gas (GHG) emissions in NSW. The transport sector contributes 19% of the state's greenhouse gas emissions and is a growing source of GHG emissions.

The Future Transport 2056 Strategy and the key plans it supports, including the Future Energy Strategy, Connected and Automated Vehicles and NSW Electric and Hybrid and Vehicle Plan, contribute to building a resilient transport system to support the objective of net zero emissions by 2050.

The SCAW project is part of a broader package of works which will provide a metro railway line approximately 23 kilometres in length between St Marys in the north and the Aerotropolis Core precinct in the south. It will provide a sustainable, low carbon travel mode that will reduce the growth in private vehicle use and road congestion. It will all improve access to employment and economic activities, goods and services, education and health facilities, and recreational areas for the Western Sydney region.

The following 6 key guiding sustainability principles define the Sydney Metro approach at an organisational and project level. The CPBUI JV sustainability policy builds on these principles to define the CPBUI JV commitments and objectives for SCAW as per Appendix A and C.



Figure 4 – Sydney Metro Sustainability Principles

3.5. CPB Sustainability Framework

The CPB sustainability framework, that applies to this Project is detailed below.

Sustainability is about meeting the needs of today without compromising the future. For CPB Contractors, sustainability is about ensuring the long-term success of our projects, people, communities and ecosystems by integrating environmental, social, economic and governance factors into our decision making.

Working closely with our clients and partners, our projects connect communities, play a role in urban and rural development, and help drive economic growth. Sustainability is about ensuring the long-term success of our projects, people, communities and ecosystems by integrating environmental, social, economic and governance factors into our decision making.

With a recognition of the urgency to reduce the impacts of climate change, CIMIC Group, including its operating companies like CPB Contractors, have committed to a target of:

- Net Zero by 2038 (Scope 1 & 2)
- Net Zero by 2045 (Scope 3)
- 20% reduction in Scope 1 & 2 by 2025 (from 2019 levels)

Further sustainability goals are to:

- Target and report sustainable performance to generate reliable returns and investor confidence for the CIMIC Group.
- Be recognized as a leader and contractor of choice in sustainability by our clients and the construction industry.
- Develop a culture of collaboration and knowledge sharing to encourage and capture innovation.
- Seek environmentally and socially responsible supply chain solutions.
- Create safe, diverse and rewarding workplaces for our people.
- Deliver resilient projects and places that support communities and leave positive legacies.
- Utilise the employment, training and business opportunities that our projects provide to foster diversity and social inclusion.

Achievement of these goals is guided by the CIMIC Group's five sustainability themes and commitments that help define the way we operate:

- **Environment:** Promote environmentally responsible outcomes by using resources efficiently, minimising waste and building resilience to climate risks.
- **Safety:** Support safe communities and provide safe, supportive and positive workplaces for our people.
- **Integrity:** Act with integrity, operate honestly and respectfully, and seek sustainable supply chain outcomes.
- **Culture:** Promote a culture that builds capability and supports opportunities for sustainability, diversity and inclusion.
- **Innovation:** Target innovation through knowledge sharing and collaboration and seek competitive advantage with a focus on the future.

3.6. Infrastructure Sustainability (IS) Rating Scheme

The IS Rating Scheme is a tool developed and managed by the IS Council (see 3.6.1) to provide a third-party assured assessment of the overall sustainability performance of infrastructure assets.

As per the Deed the project is required to use the IS rating to achieve a minimum score of 75/100, which is a 'Leading' rating using IS version 1.2 for both Design and As Built.

The IS rating submissions to the ISC will be at Design completion and again at Practical Completion. The Design rating is an 'interim' rating and will be replaced by the As Built rating. In total there are 44 credits with up to three benchmark levels for each credit. The IS Scorecard is the tool used to determine the 'IS Pathway', ie credit levels targets with corresponding points. Within the scorecard is a Weightings Assessment as credits are weighted based on materiality (importance) to the project scope and location. The project will consider whether any credits should be scoped out based on contract scope or whether materiality should be further adjusted. The IS rating submission will include Credit Summary Forms (CSF) and supporting evidence documents. The rating submissions will be independently verified and scored by 2 appointed verifiers, involving 2 rounds of review for both Design and As Built.

Subject to further consideration, CPBUI JV may elect to undertake the ISC Innovation Challenges. This provides the opportunity to score additional innovation points through 1) credit benchmark exceedance, 2) trialling of V2.1 as well as 3) specified challenges listed in the Innovation Challenge (ISC document).

3.6.1. Infrastructure Sustainability Council

ISC is a member-based, not-for-profit peak body operating in Australia and New Zealand with the purpose of enabling sustainability outcomes in infrastructure. ISC do this in the following ways:

- With an Infrastructure Sustainability (IS) rating scheme for planning, design, construction and operations of infrastructure assets,
- Education, training and capacity building,
- Connecting suppliers of sustainable products and services with projects through ISupply,
- Bringing together experts to share knowledge and lift the community of practice,
- Recognition and rewarding best practice.

4. Significant sustainability issues

Defining significant issues helps to establish the project risk and opportunities as well as the project sustainability objectives and targets. Significant sustainability issues were identified for this SMP development based on:

- Project key features with high materiality (section 4.1)
- Materiality Assessment using the IS Scorecard (Figure 5)
- Initial carbon footprint based the initial CPBUI JV design and the Reference Design (Figure 8 and 9)
- Supply chain opportunities investigated during tender
- TfNSW sustainability requirements including targets
- Corporate drivers and the global imperative to decarbonise

4.1. Key project features

The project's key features that represent high materiality as well as key opportunities to mitigate impacts include:

- 3.6 km of viaduct
 - 400 m of viaduct over Blaxlands Creek
 - 660 m of viaduct over the Patons Lane area and unnamed creek
 - 2.5 km of viaduct in the Luddenham Road area including across the Warragamba pipeline, at Luddenham Station, across Luddenham Road and across Cosgrove Creek
- 205 m of bridges
 - An over rail bridge, approximately 180m long, over the proposed M12 Motorway
 - An over rail bridge, approximately 25m long, over the drainage swale on the WSI airport site
- 6.9 km of at-grade alignment
 - 600 m at Orchard Hills, south of Landsdowne Road
 - 1.6km alongside the stabling maintenance facility in Orchard Hills
 - 900 m to the north of the Warragamba pipelines
 - 1.1 km north of the proposed M12 motorway
 - 1.4 km south of the proposed M12 Motorway on Elizabeth Drive
 - 1.3 km within the Airport site from the northern boundary to the Airport Business Park Station
- Temporary and permanent access roads.

Category	Weighting		
	Default	Final	Change
Man	10.5	7.7	-2.8
Pro	5.0	3.7	-1.3
Cli	5.0	7.3	+2.3
Ene	10.5	11.5	+1.0
Wat	7.0	7.7	+0.7
Mat	7.0	7.7	+0.7
Dis	10.5	11.2	+0.7
Lan	7.0	7.1	+0.1
Was	7.0	6.6	-0.4
Eco	10.5	7.7	-2.8
Hea	5.0	3.7	-1.3
Her	5.0	7.3	+2.3
Sta	5.0	5.5	+0.5
Urb	5.0	5.5	+0.5
Inn	10.0	10.0	+0.0

Figure 5 – IS Credit Weightings

4.2. Materiality Assessment

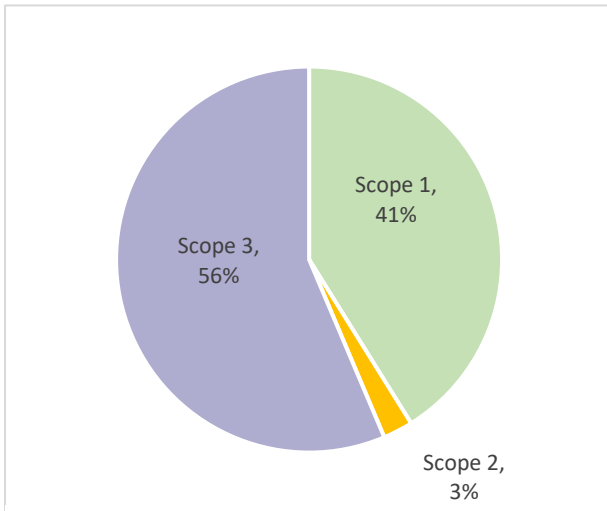


Figure 7 - CPBUI JV Design Carbon Footprint

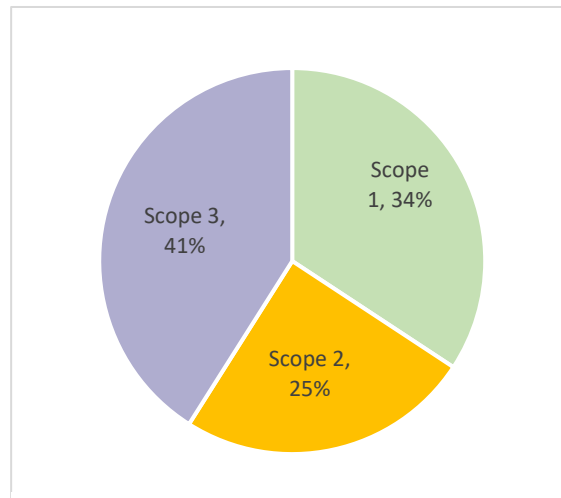


Figure 6 – Reference Design Carbon Footprint

*CPBUI JV Design based on early design.
* Ref design doesn't include offsets of Scope 1 includes emissions associated with waste and vegetation clearing for consistency with Sustainability Design Report

In consultation with the project team, to develop the IS Pathway, an initial Weightings Assessment using the IS Scorecard v.1.2 was undertaken. Figure 5 shows how the IS categories were adjusted to illustrate materiality.

4.3. Carbon Footprint for Construction Phase

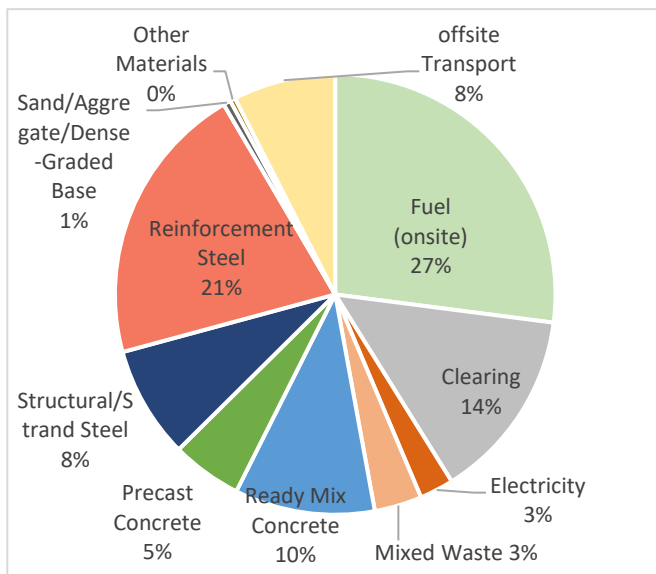


Figure 8 – CPBUI JV Design Carbon Footprint

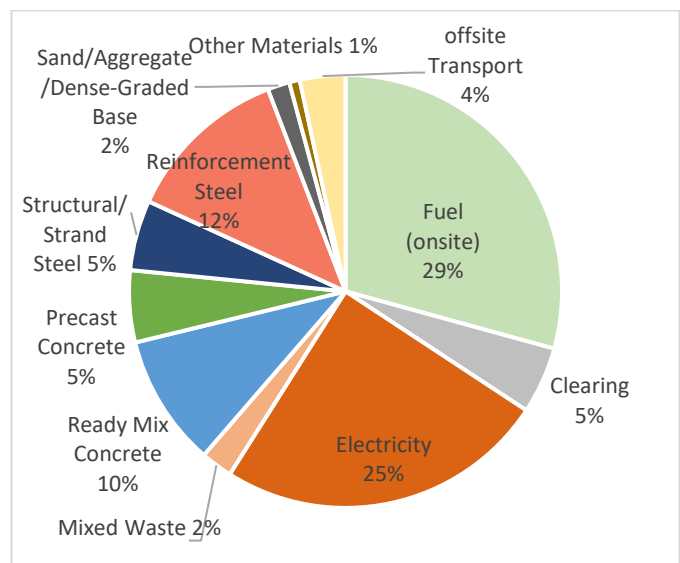


Figure 9 – Reference Design Carbon Footprint

Note: CPBUI JV Carbon Footprint is based on initial LCA or early design and will be adjusted as design progresses

Does not include offsite fuel use (scope 3) emissions

Assumes 35% SCM across all CPBUI JV concrete mixes

Assumes reference design concrete emissions are based on cementitious content criteria for each concrete strength grade (as per BAU Assumptions of the SM WSA SMP). *Note this will be reviewed as part of base case development*

Estimate 50% concrete volume reduction in the CPBUI JV carbon footprint.

Estimated 60% fuel savings in the CPBUI JV carbon footprint

4.4. Significant Issues and Opportunities

Based on this significance assessment and a significant issues workshop in early design, the project team identified the following significant issues and opportunities to be further investigated during design and construction phases. This will be developed through the sustainability team engagement with the project team, including also VE Workshops, Workforce Engagement meetings and the Risk Review process.

- Reducing the embodied carbon in materials, particularly concrete and steel
- Increasing use of materials with recycled materials, waste or byproducts content, such as SCM's in concrete and RAP content in temporary asphalts
- Conducting trials of recycled materials/products or carbon neutral materials/products, other than steel, spoil, and concrete constituents
- Improving climate resilience, including durability of infrastructure and associated assets
- Select highly efficient plant and equipment and use of biofuels to substitute fossil fuel-based fuels
- Optimising construction staging and methodology to avoid clearing of vegetation, particularly native riparian vegetation
- Minimising materials haulage and maximising reuse of site won materials
- Optimising CSR and use of recycled materials in pipe bedding and alignment works
- Optimising design and construction to reduce materials, fuel demand, and waste generation
- Identifying opportunities to enhance business and community partnerships, and provide ongoing employment opportunities for the local workforce
- Strengthening our knowledge of Indigenous people, history, culture, and connection to land so we are able to genuinely engage Aboriginal community representatives, employ Aboriginal staff and workforce, subcontract to Aboriginal-owned businesses
- Creating lasting benefits for the local community and Traditional Owners
- Minimising construction impacts on local community and environment

5. Sustainability Policy, Objectives and Targets

A sustainability policy for the project has been developed, with each commitment and objective mapped to the Sydney Metro Principles and the Environmental and Sustainability Policy Commitments (2020) and IS credit targets, as per Appendix A and C. The SCAW Sustainability Policy is endorsed by the Project Director and will be placed on the project website.

The following sustainability targets are defined in the Schedule C1- General Specifications, s2.8. Progress towards achievement of these targets will be reported monthly in the Quarterly Sustainability Report.

Table 4 – Sustainability Targets

No.	Sustainability Targets
1	Reuse at least 80% of concrete production operation water into concrete production at onsite or offsite batching plants for all concrete used.
2	Use a maximum of 1000 kilolitres of water from potable water mains in the performance
3	Source at least 50% Australian steel, including concrete reinforcing
4	Utilise the following recycled materials or products excluding steel, spoil, and concrete A. 40% Reclaimed Asphalt Pavement (RAP) with 5 – 10% recycled glass trialled for the wearing course on at least one temporary on-site road B. recycled crushed glass trialled as a biofiltration media (subject to hydraulic conductivity tests and EPA requirements); C. B5 biodiesel to be used in all on-site plant and equipment; D. B20 biodiesel to be used in all on-site generators; E. recycled crushed concrete to be used for the haul road base layer, crane pads, piling pads and mainline capping later; F. manufactured sand to be used in drainage; G. 10% manufactured sand used in drainage to be replaced by crushed glass where available; H. 40% of fine aggregate content within blinding layer of culvert slabs will be replaced by recycled crushed glass; and I. geotextiles produced using recycled PET bottles to be used in drainage applications;
5	Undertake at least 3 multidisciplinary sustainability initiatives workshops during detailed design process.
6	100% of planting is to be native species, prioritising endangered & endemic species such as Cumberland Plains Woodland species.

In addition to these sustainability targets, the following key sustainability performance requirements will be monitored and tracking through our project requirements tracking tool.

No.	Key Sustainability Performance Requirements
7	Infrastructure Sustainability Council of Australia Infrastructure Sustainability Rating Tool v1.2. 'Design' and 'As Built' score of 75 .
8	Offset 100% of all Scope 1 and Scope 2 emissions, as defined in National Greenhouse and Energy Reporting (NGER), released in carrying out the SCAW Contractor's Activities.
9	Achieve at least a 20% reduction in greenhouse gas emissions from the project baseline greenhouse gas footprint, to be determined using the Transport for NSW Carbon Estimation and Reporting Tool (CERT)
10	Reduce greenhouse gas emissions by 30% below a base case footprint, achieving a Level 3 for credit Ene-1 'Energy and carbon monitoring and reduction'.
11	Achieve a Level 3 for Cli-2, with a minimum of 50% of "medium" inherent risks are mitigated down to "low" residual risks, with any "medium" residual risks approval prior to Stage 2 Design using best available climate change analysis that addresses the region in which the asset is

No.	Key Sustainability Performance Requirements
	located, and the asset's forecast useful life. Projections must be based on Representative Concentration Pathway (RCP) 8.5. Additional RCPs may be used where they better inform the risk assessment.
12	Implement at least 5 community benefit initiatives which will provide tangible benefits to local community groups within the period of completion of the SCAW Contractors' Activities.
13	Implement at least 5 "legacy" community benefit initiatives which will provide tangible benefits to the broader local community beyond the period of completion of the SCAW Contractors' Activities.
14	Engage at least 5 social enterprises or social benefit organisations in the supply chain within the period of completion of the SCAW Contractor's Activities.
15	Reduce water use by 15% compared to a base case footprint, achieving a Level 2.5 for credit Wat-1 'Water use monitoring and reduction'.
16	Replace potable water with non-potable water sources by at least 33% , achieving a Level 1 for credit Wat-2 'Replace potable water'.
17	Reduce Portland cement content in concrete by an average of 35% through replacement by supplementary cementitious materials such as fly ash or slag.
18	Optimise the maximum cementitious material carbon footprint of concrete mixes for precast viaduct elements with the aim of reducing the carbon footprint of these mixes to a target of 290 kgCO₂-e/m³ , in accordance with process defined in Schedule E12.
19	Reduce the materials lifecycle impact by 15% compared to a business-as-usual case, achieving a Level 2 for credit Mat-1 'Materials lifecycle impact measurement and reduction'.
20	100% of all timber products used in the Project Works and Temporary Works are sourced from: re-used timber, post-consumer recycled timber, Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC) certified timber sources.
21	At least 95% by mass of inert and non-hazardous construction waste, excluding spoil is recycled or alternatively beneficially reused.
22	At least 60% by mass of office waste is recycled or alternatively beneficially reused.
23	100% of reusable spoil is beneficially reused in accordance with the spoil reuse hierarchy identified in the Environmental Documents and is not disposed to landfill.

Note: Additional technical requirements are defined in the Particular Specification.
Social sustainability targets are defined in the Workforce Development Plan.

5.1. IS Rating Targeted Benchmark

The following proposed IS pathway (Table 5) provides the IS credit levels targeted and associated score based on default weighting in the IS Scorecard. Credit level targets may be subject to adjustment as project delivery progresses, aside from those credit level targets that are specified in GS 2.8.2 (d) (vi) (denoted with a "*" in Table 5). The weightings are also subject to adjustment in refining the project boundaries and project materiality issues and credits may also be scope outs. The weightings assessment is subject to verification by the ISC verifier.

Table 5 – IS Pathway

Credit	Levels	SM-WSA	Target	Points
Man-1	3	2	3	0.73
Man-2	2	2	2	0.73
Man-3	2	2	2	0.73
Man-4	2	2	2	0.73
Man-5	3	2	2	0.49

Credit	Levels	SM-WSA	Target	Points
Dis-4	3	2	2	1.16
Dis-5	1	1	1	0.73
Lan-1	3	2	2	1.22
Lan-2	3	2	2	0.49
Lan-3	3	2	2	1.95

Credit	Levels	SM-WSA	Target	Points
Man-6	3	3	3	1.65
Man-7	3	2	2	1.59
Pro-1*	3	2	3	0.91
Pro-2*	3	3	3	0.91
Pro-3*	3	3	3	0.91
Pro-4*	3	3	2	0.61
Cli-1	3	3	3	3.66
Cli-2	3	3	3	3.66
Ene-1*	3	3	3	9.87
Ene-2*	3	1	1	0.55
Wat-1*	3	3	2.5	4.12
Wat-2*	3	1	1	0.91
Mat-1*	3	3	3	6.58
Mat-2	3	1	1	0.37
Dis-1	3	2	2	1.74
Dis-2	3	2	2	2.31
Dis-3	3	2	2	1.74

Credit	Levels	SM-WSA	Target	Points
Lan-4	2	2	2	0.83
Was-1	2	2	2	2.19
Was-2	3	2	3	2.56
Was-3	3	2	0	0
Eco-1	3	1	1	1.83
Eco-2	3	1	1	0.73
Hea-1	3	2	2	1.22
Hea-2	2	2	2	1.83
Her-1	3	2	2	2.44
Her-2	3	2	3	2.44
Sta-1	3	1	3	1.37
Sta-2	3	2	2	0.91
Sta-3	2	1	1	0.69
Sta-4	2	2	1	0.69
Urb-1	3	3	3	4.39
Urb-2	2	2	2	1.1
Inn-1	10	1	2	2
Score				78.2

Note: The SM-WSA benchmarks are based on the SCAW Scorecard_02.03.06.12.01.IFT.01.01.

*Credit level targets are mandatory targets as per the requirements of GS 2.8.2 (d) (vi)

5.2. IS Rating Milestones

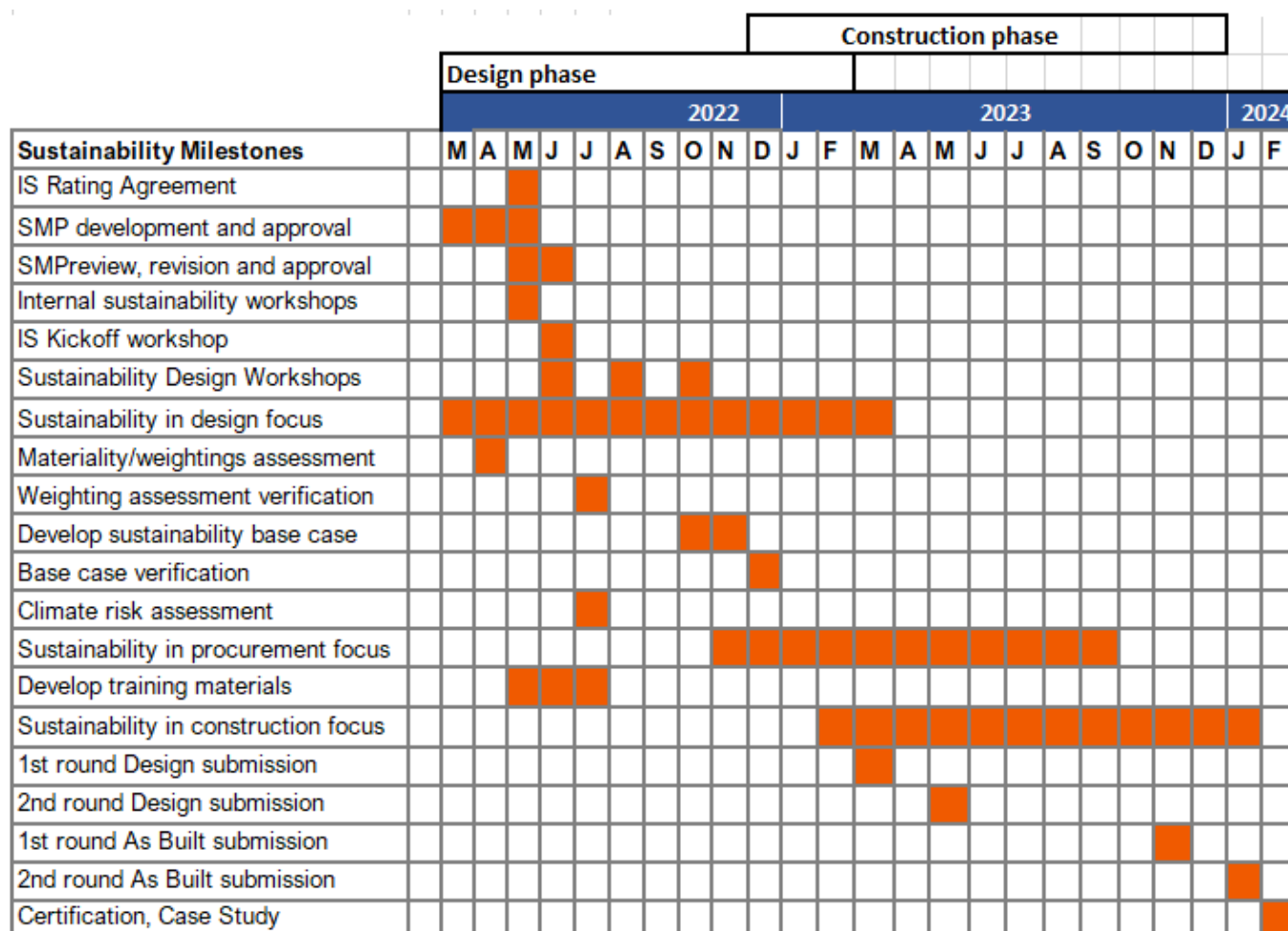


Figure 10 – IS Rating milestones

Note: Indicative timeframes only

5.3. IS Rating Strategy

CPBUI JV is using the IS Rating tool to benchmark our performance, demonstrate industry leadership and identify continuous improvement opportunities. The IS rating acts to guide the integration of sustainability from tender, through design, procurement and construction.

CPB’s strategy to deliver the IS rating includes:

- Development of an IS pathway to achieve a minimum 75 points with sufficient buffer points, including an IS stretch target pathway for 81 points.
- Review of the reference design to establish the base case and BAU Assumptions provided by Sydney Metro.
- Establishment of the tender design materials, energy and carbon footprint to track design development to meet sustainability targets and credit benchmarks.
- Target of high materiality credits, particularly those credits that support achievement of other credits, such as climate change, materials, carbon, and energy.
- Target innovation points using the Innovation Challenge, including exceeding IS credit benchmarks, and trialing v2.1 credits.

5.4. Sustainability Guidelines and Tools

Table 6 – Sustainability Guidelines and Tools

Guideline and tools	Description
Environmental Impact Statement: Sydney Metro - Western Sydney Airport (Oct 2020)	The Environmental Impact Statement (EIS) is a publicly available document that provides information on a project, including its environmental impacts and mitigation measures, and is used to inform development consent decisions.
Infrastructure Sustainability Council (ISC)	
Infrastructure Council of (ISC) - Infrastructure Sustainability (IS) Rating Tool	The IS Rating Tool evaluates sustainability initiatives and impacts of infrastructure projects, and is a guide for sustainable design, procurement, construction and operation
IS Infrastructure Sustainability Technical Manual (v1.2) (Nov 18)	The Technical Manual describes rating process, mandatory credit criteria for each level guidance information
IS Materials Calculator (v1.2) IS Materials Calculator Guideline	A calculator used to determine embodied greenhouse gas emissions (CO ₂ -e) and life cycle impact of products used in the construction of infrastructure projects. The calculation includes transport distances for the delivery of construction materials and waste composition emissions.
IS Scorecard (v1.2)	The IS rating tool scorecard (Excel spreadsheet) facilitates self-assessment against the IS Rating and summary of credits claimed which is submitted to ISC for independent verification.
Innovation Credit Guideline and Innovation Challenge Appendix (v8)	Provides guidance on innovation credits and the Innovation Challenges, including categories, timeframes and fees
Other	
GBCA Ecological Value Calculator (r3)	Provides a scored means to measure ecological value improvement by classifying land types and quantifying area before and after
Supply Chain Sustainability School	Various sustainable procurement related resources & tools. http://www.supplychainschool.org.au/
National Greenhouse Account Factors	The National Greenhouse Accounts (NGA) Factors provide methods that help companies and individuals estimate greenhouse gas emissions. Factors will be used to Scope 1 and Scope 2 emissions. National Greenhouse Accounts Factors (industry.gov.au)
Greenhouse Gas Assessment Workbook for Road Projects, Transport Authorities Greenhouse Group' (TAGG)	The Workbook outlines a process for estimating the GHG emissions for all of the major activities that were found to contribute significantly to the overall emissions arising from a road project. Includes the Carbon Gauge tool.
US EPA air emission standards	Sets limits on certain air pollutants, including setting limits on how much can be in the air anywhere in the United States. Relevant to on-road diesel plant and equipment
Climate change adaptation for settlements and infrastructure – A risk-based approach (AS 5334-2013)	Provides principles and generic guidelines on the management of the risks that settlements and infrastructure face from the impacts of climate change.

Guideline and tools	Description
TfNSW Climate Risk Assessment Guidelines (2021)	Guideline developed and provided by TfNSW to Project Teams to provide practical advice and requirements on conducting a Climate Risk Assessment. The guideline complies with at a minimum the Infrastructure Sustainability Council (ISC) Rating Tool Technical Manual Version 1.2 (Cli-1 and Cli-2) requirements for 'Design' and 'As Built' phases.

5.5. Sydney Metro SCAW Tools, Reports and Guidelines

The following key supporting Sydney Metro documents have been used in the development of this SMP:

Table 7 – Sydney Metro key sustainability documents

Title	Date	Issue no.
SM-WSA Climate Change Risk Register (Version 4)	Mar 2021	02.03.06.01
SM-WSA Climate Change Risk Assessment Report (Rev 2)	Mar 2021	02.03.06.02
SM-WSA SCAW Sustainability Design Report (Rev 5)	Apr 2021	02.03.06.03
SM-WSA SCAW Carbon Footprint Report (Rev 3)	Mar 2021	02.03.06.04
SM-WSA SCAW Sustainability Requirements Matrix	Feb 2021	02.03.06.05
SCAW Carbon Estimate and Reporting Tool (CERT)	Mar 2021	02.03.06.07
TAN Creek Crossing Ecology Calculator	Apr 2021	02.03.06.08
TAN Impacts on Riparian Corridors and Remnant Vegetation Zones	Mar 2021	02.03.06.09
SM-WSA IS Implementation Plan (Rev 5)	Jun 2021	02.03.06.11
ISv1.2 Design As Built Scorecard	-	02.03.06.12
Environment and Sustainability Policy Statement	2020	02.08.01.01
SM-WSA Sustainability Plan	Jan 2022	02.08.01.02
TfNSW Climate Risk Assessment Guidelines (9TP-SD-081/3.0)	Feb 2019	02.08.01.05
Construction Environmental Management Framework	Feb 2021	02.08.01.07
Sydney Metro IMS Waste Classification Procedure (Version 3)	Jun 2021	02.08.01.09
SM-WSA Sustainability Monthly Reporting Guidance (version 1) -updated	Aug 2021	02.08.01.15
Sydney Metro Sustainability Reporting Template -updated	Aug 2021	02.08.01.16
SM-WSA Architecture + Urban Design SCAW Submission Design Report	-	02.03.04.01

5.6. Legislation and Regulatory Requirements

The key legislation relevant to sustainability management includes:

- Protection of the Environment Administration Act 1991 (POEA Act)
- Protection of the Environment Operations Act 1997 (POEO Act)
- National Greenhouse and Energy Reporting (NGER) Act 2007 (Cth)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth)
- Commonwealth Modern Slavery Act 2018

6. Management and Accountability

6.1. Sustainability Organisational Structure

The key roles with accountability for delivery the sustainability requirements of the Project are shown in organisational structure extract in Figure 11.

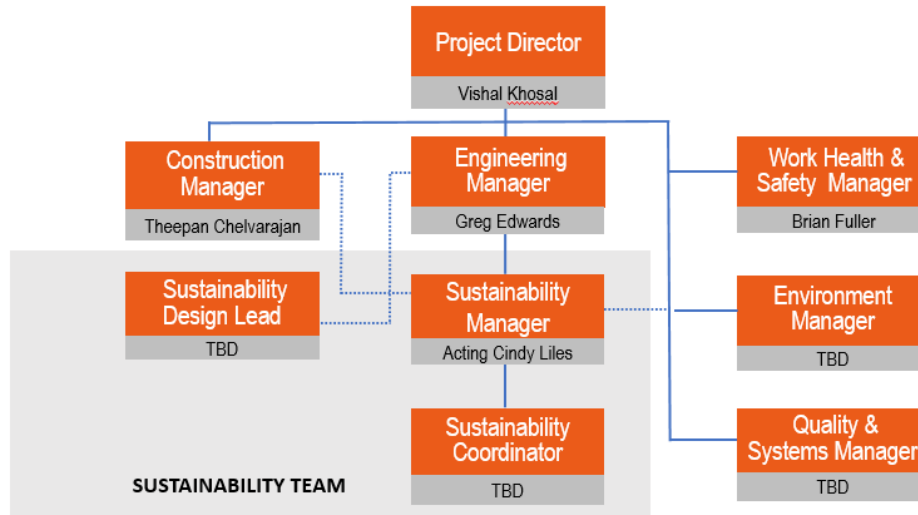


Figure 11 – Sustainability organisational structure

The Project Director will provide overall leadership and ensure accountability for sustainability across the project team. The Sustainability Manager will be part of the senior management team, with responsibility for reporting on progress against sustainability requirements and implementation of the SMP. The Sustainability Manager and the Sustainability Design Lead will champion key initiatives and priorities and have responsibility for internal and external communication relating to sustainability.

The sustainability team will be supported by a Sustainability Coordinator. CPB Corporate Sustainability leaders, and the Aurecon Sustainability Lead will provide technical and audit support.

6.2. Sustainability Team

The Sustainability Manager in conjunction with direct sustainability support roles will work collaboratively across the design and construction teams providing a proactive approach to managing sustainability. The table below outlines the key sustainability team roles, responsibilities and minimum levels of competency.

Table 8 – Sustainability Team Key Roles, Responsibilities and Competencies

Key Roles and Responsibilities	(Minimum) Competency Levels
<p>Sustainability Manager (IS Assessor)</p> <ul style="list-style-type: none"> Available as the primary contact for the CPBUI JV on sustainability matters Will be engaged full-time throughout project delivery, full-time on or around the construction site during construction phase, including temporary works, with responsibilities limited to sustainability management Responsible for the development and implementation of the SMP and associated sub plan(s) Establish project team sustainability roles and responsibilities Facilitate the identification of sustainability risks and opportunities and treatment options Work collaboratively with procurement, design, construction other functional leads to coordinate the implementation of 	<ul style="list-style-type: none"> Current Infrastructure Sustainability Accredited Professional (ISAP) 5 years' sustainable management experience including sustainability advice on design and construction engineering Relevant tertiary qualifications relevant to project activities and recent relevant experience in sustainability management on similar projects

Key Roles and Responsibilities	(Minimum) Competency Levels
<ul style="list-style-type: none"> sustainability initiatives to ensure the project’s sustainability objectives, requirements and targets are achieved ▪ Principal point of contact for ISC in relation to the IS rating process ▪ Establish the IS Rating Agreement and Conduct IS Kick off Workshop and project team sustainability training ▪ Champion innovation, resource efficiency and Whole of Life (WOL) thinking ▪ Ensure sustainability management and reporting is incorporated into project processes and systems ▪ Monitor and report sustainability progress throughout the project delivery ▪ Undertake self-assessment using the IS rating tool and is responsible for ensuring submission readiness for verification ▪ Be responsible for the sustainability induction and training program 	<ul style="list-style-type: none"> ▪ Strong partnering, leadership and governance skills ▪ As specified in Deed Schedule A9 ▪ Strong skills and experience in leading sustainability achievements.
Sustainability Design Lead	
<ul style="list-style-type: none"> ▪ Undertake technical sustainability assessments and reporting, including life cycle assessments, energy modelling, water balance, GHG assessments, climate risk assessments ▪ Assessment will be used to track design development and assess initiatives ▪ Develop BAU Assumptions and Base Case for ISC submission ▪ Conduct Innovation workshops and CCRA Workshop ▪ Collect design evidence for IS design rating submission ▪ Develop the Sustainability Specification for design and procurement 	<ul style="list-style-type: none"> ▪ Qualifications in sustainability, environmental engineering or similar ▪ Appropriate Technical expertise ▪ Infrastructure Sustainability Accredited Professional
Sustainability Coordinator	
<ul style="list-style-type: none"> ▪ Assist the Sustainability Manager with the implementation of identified sustainability initiatives ▪ Assist the Sustainability Manager to develop and collate evidence for the Sustainability Rating Scheme ▪ Assist the Sustainability Manager with the monitoring and reporting of sustainability metrics ▪ Develop induction package, toolbox talks, subcontractor training 	<ul style="list-style-type: none"> ▪ Qualifications in sustainability, environmental engineering or similar ▪ Experience in sustainability of the built environment (minimum 3 years’) ▪ Infrastructure Sustainability Accredited Professional (ISAP)

6.3. Sustainability Meetings

The Sustainability Manager and/or their nominated delegate, will participate in regular meetings with:

- IS Project Manager (as per of the IS Rating Agreement)
- Sydney Metro Sustainability Representative
- Sydney Metro Quarterly Forums (as per GS 2.8.2 (h))
- Environment Team
- Design and Construction Teams
- Project Leadership Team
- Procurement Team.

6.4. Project Team supporting sustainability

The project leadership team will promote the integration of sustainability at all functional management levels and create a culture where everyone acknowledges their role to play towards achieving the project sustainability objectives. The table below outlines the general sustainability responsibilities for typical leadership roles, functional leads and staff. The Sustainability Manager and sustainability support staff roles are further addressed in the section below.

Table 9 – Project Leadership, Functional Leads and Staff Sustainability Responsibilities

Role	Responsibilities
Project Director	<ul style="list-style-type: none"> Establish, support and promote sustainability culture and promote project sustainability achievements across the project Ensure sustainability is represented in senior management decision-making Ensure sustainability is effectively resourced to integrate sustainability across the project and its functions Ensure that sustainability requirements, risks and opportunities are identified and incorporated into project controls and systems Reinforce the sustainability roles and responsibilities across project team Approve key sustainability plans and reports for client submission
Systems Engineering Manager/Design Director / Design Leads	<ul style="list-style-type: none"> Engage with the Sustainability Design Lead to ensure sustainability requirements / performance specifications are integrated into the design plans/packages/specifications and communicated to relevant parties Integrate Sustainability Rating Scheme requirements into design management processes and provide supporting evidence as required to support rating scheme certification Ensure the design team achieves the sustainability objectives and direct/oversee corrective actions where appropriate Ensure sustainability requirements are incorporated in the design verification process Facilitate alternative specifications to help meet sustainability targets Seek WoL assessments and LCAs to support decision-making Use MCA process to support options consideration for significant issues and opportunities
Construction Director / Construction Leads	<ul style="list-style-type: none"> Engage with the Sustainability Manager to ensure sustainability requirements / performance specifications are integrated into the construction plans/packages/specifications and communicated to workforce Ensure the subcontractors and suppliers achieve sustainability objectives in the Delivery Phase and direct/oversee corrective actions where appropriate Scope sustainability initiatives to improve environment, sustainability, community outcomes Integrate sustainability into Construction Management Plan and ensure relevant sustainability targets are achieved and evidence capture through data tracking is maintained
Environment Manager	<ul style="list-style-type: none"> Collect environmental management and monitoring data Work closely with the construction team to support sustainability initiatives Contribute to IS rating submission
Workforce Development and Industry Participation Manager, Stakeholder &	<ul style="list-style-type: none"> Incorporate workforce targets and tracking requirements in RFT specifications Support achievement of community benefit initiatives, identification of community heritage values, stakeholder engagement planning, identification of 'negotiables', and engaging with stakeholder through the IAP2 Spectrum of Public Participation. Conduct community surveys and audits as necessary to meet IS credits

Role	Responsibilities
Engagement Manager and HR	<ul style="list-style-type: none"> Providing evidence to support the achievement of IS credits and support the development of the credit summary forms Develop and implement strategies to achieve the human resource related sustainability initiatives with regard to equality, social enterprises, diversity and training Ensure the provision of appropriate induction and training for sustainability aspects to all relevant Project personnel
Commercial Director / Procurement	<ul style="list-style-type: none"> Engage with the Sustainability Manager to embed sustainability requirements in sub-contracts and supply agreements Embed the Sustainability Procurement Policy into procurement process and outcomes Include Sustainability Manager in the development of RFT scope, RFT specifications, supplier identification, pre-qual review, RFT evaluation, supplier briefings and Kickoff meetings for high impact suppliers/ subcontractors Ensure non-financial evaluation is conducted using relevant sustainability criteria Integrate sustainability risks and opportunities into risk processes and procurement decision-making Facilitate the ongoing identification of High Impact suppliers through the procurement schedule Ensure contract administration resourcing for monthly sustainability reporting Support Sustainability Manager in leveraging sustainability performance and monitoring contractor performance
All Staff	<ul style="list-style-type: none"> Integrate consideration of environmental, social and economic impacts into decision making Support the identification and implementation of sustainability initiatives

6.5. External sustainability roles

Table 10 – External Sustainability Key Roles, Responsibilities and Competencies

Roles	Responsibilities	Communication
ISP/ sustainability reviewer	<ul style="list-style-type: none"> Reviews the Project's sustainability performance and makes recommendations for improvement. Acts independently and objectively, challenging conventional thinking/BAU practices 	Monthly Meetings with IS Project Manager
IS Project Manager	<ul style="list-style-type: none"> ISC staff member assigned to the project once Registration is completed. Holds monthly meetings with the IS Assessor Reviews and advice on, Base Case, and TCs/CIRs Provides advice regarding the self-assessment submission and evidence requirements Manages the formal verification and feedback processes 	
Verifiers (2)	<ul style="list-style-type: none"> Independent industry expert nominated by ISC to projects from a verification panel Provides independent verification of the weighting's assessment, Base Case and the self-assessment IS submission. 	

Roles	Responsibilities	Communication
Internal Technical Panel (ITP)	<ul style="list-style-type: none"> ▪ Sub-committee of the ISC Board ▪ Govern the rating process and are primarily responsible for certifying the achievement of a rating performance level, providing governance of tool development projects, and reviewing of TCs and CIRs. 	
Sydney Metro Sustainability Representative	<ul style="list-style-type: none"> ▪ Work collaboratively with the CPBUI JV team particularly the Sustainability Manager and internal stakeholders to support knowledge sharing and innovation development ▪ Arrange formal sustainability knowledge-sharing workshops at least once during each of the design and construction stages of the Project (subject to agreement) ▪ Facilitate regular meetings with project sustainability team (subject to agreement) ▪ Participate in IS Kick-off Meeting and scoping opportunities ▪ Provide where available planning phase IS evidence to support: <ul style="list-style-type: none"> - Man-7 – Decision-making (option evaluation using MCA) - Cli-1 – CCRA workshop and modelling - Cli-2 – Additional climate mitigation measures - Ene-1 Energy reduction initiatives above BAU - Mat-1 – Materials reduction initiatives above BAU - Wat-1 & Wat-2 – Water initiatives above BAU - Baseline data & mitigations: Dis, Lan, Her, Eco, Sta - Sta-1 – strategy, consultation, establishing priorities - Urb-1 – Independent review - Reference Design and assumptions for Base Case: <ul style="list-style-type: none"> ○ Water balance ○ Energy use and demand ○ GHG emissions/carbon footprint ○ Materials footprint ○ BAU technology assumptions 	Regular meetings (subject to agreement)
Independent Certifier	<ul style="list-style-type: none"> ▪ As part of Interface Works to ensure designed and constructed in accordance with the requirements ▪ Undertakes evidence-based review for completion phase 	Interface Meetings
Environmental Representative (ER)	<ul style="list-style-type: none"> ▪ Independently oversee compliance with the Project Planning Approval and be the principal point of advice on the environmental performance of the works -Refer to the CEMP for further details 	
Parent Companies	<ul style="list-style-type: none"> ▪ Submission of NGER's data (CPB) ▪ Facilitate education and knowledge sharing between projects 	
Council and agencies	Refer to Community Communication Strategy	
Community Stakeholders	Refer to Community Communication Strategy	

7. Integrating Sustainability

By its nature, sustainability involves the integration of multiple disciplines. The sustainability requirements have been integrated with the wider Project Program, including processes, procedures and workstreams.

7.1. Sustainability Assurance Framework

The key sustainability governance processes relevant to the Project delivery stages are outlined in Figure 12. This figure illustrates the overall sustainability assurance mechanism for integrating and embedding sustainability throughout the project lifecycle to help optimise sustainability outcomes.

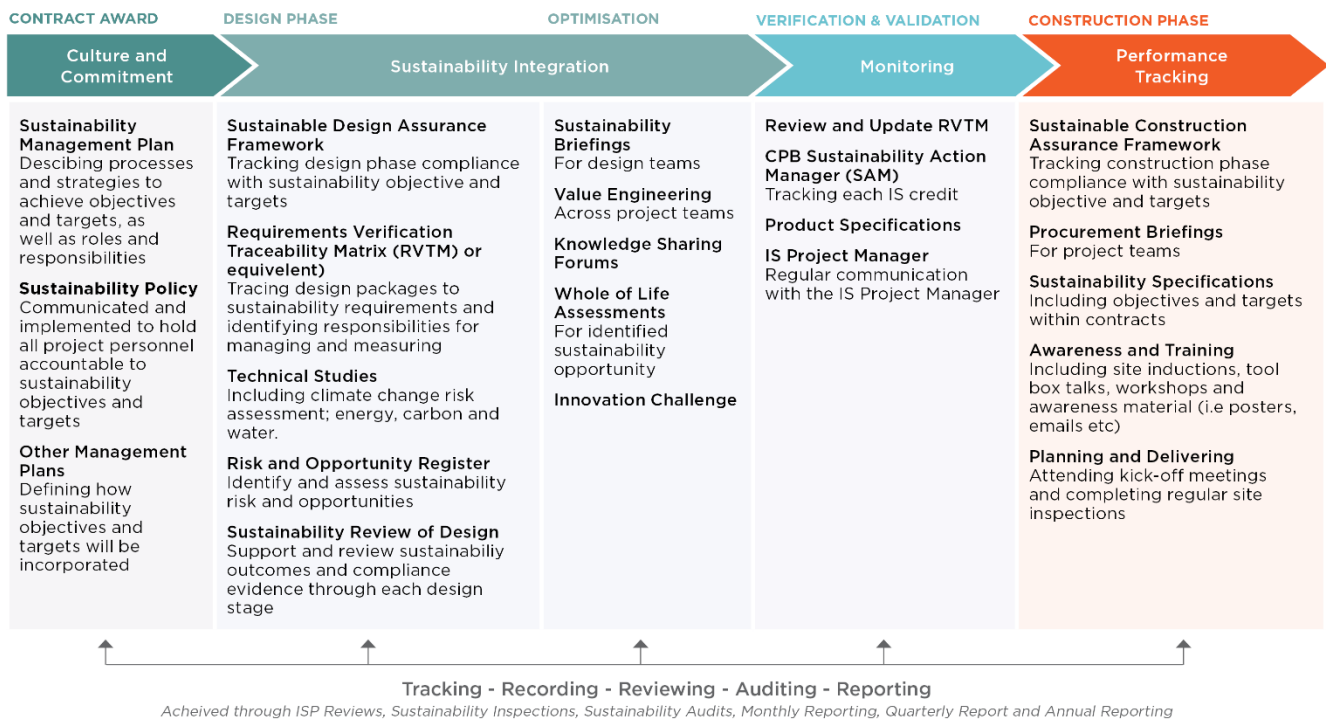


Figure 12 – Sustainability Assurance Framework

7.2. Assess Sustainability Risks and Opportunities

Sustainability risks and opportunities will be assessed/captured using the Project’s Risk management approach, as detailed in the Risk Management Plan.

In terms of sustainability, risk and opportunity assessment will consider direct and (where possible) indirect risks and opportunities for the full project lifecycle (design, construction and operations), including consideration of:

- Governance risks and opportunities
- Economic and financial risks and opportunities
- Environmental risks and opportunities
- Social risks and opportunities

A multidisciplinary team including the Sustainability Manager, Design Leads and Construction Manager will participate in the risk and opportunity assessment processes. The identification of treatment/implementation options for sustainability risks/opportunities will be captured via risk and opportunity documents/processes, which may include:

- Overall Project Risk and/or Opportunity Register
- Sustainability Initiatives Register
- Work Pack Risk Registers
- Climate Change Risk Assessment
- Options Reports

Actions to treat Sustainability related Risks and Opportunities will be identified and address where appropriate:

- The sustainability risks and their treatment/s
- The sustainability opportunities and their implementation option/s
- The selected treatment/implementation options and the reasons for selecting the treatment/implementation option
- Resources required to implement treatment/implementation options
- Timing and schedule
- Reporting and monitoring requirements
- Persons responsible for implementing, measurement, monitoring and reporting

Risks will be documented in the Risk Register (as described in the Risk Management Plan). Review of the sustainability risk and opportunity assessment will be undertaken throughout the Project to ensure the identification, communication and monitoring of risks/opportunities and associated treatments are relevant.

7.3. Sustainability Appraisal

CPBUI JV will use a sustainability impact assessment process as review sustainability. This method allows financial and non-financial aspects to be considered.

Financial review includes the whole of life costing, where appropriate, to highlight the total costs and potential benefits of the initiative across its life cycle relevant to the SCAW scope. Financial review will also review a financial risk / impacts associated with program.

The non-financial review takes into consideration safety, environment, community, stakeholder, workforce, supply chain and any other consideration. This also consider factors such as scope restriction or compliance requirements.

7.4. Assess Options for Significant Decisions

The definition and threshold of significant decisions will change throughout project delivery. Typically, significant decisions are characterised by at least two of the following:

- variations from a business-as-usual (BAU) approach (typically defined within the EIS or tender design),
- high cost
- high risk within the Project Wide risk assessment
- may result in program variations

Significant decision will be referred to the Steering Committee for review. The Sustainability Manager will assist the Steering Committee in the sustainability appraisal of significant decisions.

7.5. Initiatives and innovation

CPBUI JV documents sustainability initiatives using the Sustainability Initiatives Register as per Appendix D. The purpose of this register is to identify and document all initiatives implemented and considered during project delivery. Key sustainability initiatives will be reported within the Monthly Report. For more information refer to Section 8.1.

7.6. Integrating Sustainability in Design

Integrating the sustainability requirements into the design process is critical to achieving the Project's sustainability targets and creating whole life value for key stakeholders. This is one of the key aspects of the Sustainability Assurance Framework (Figure 12) included in Section 7.1, above.

The Sustainability Team delegate will meet regularly with key design disciplines to ensure the Project's sustainability requirements, risk and opportunities are incorporated into design decision making, conducting the tasks as commenced in tender phase, Table 11. A 'Sustainability Requirements Register, which will outline the project sustainability requirements for design/construction elements and packages. Relevant requirements are to be included in the Design Reports.

Sustainability reviews will be undertaken for design packages at each design stage (Stage 1= 30%, Stage 2= 70-80%, Stage 3 = 100%). The Sustainability Design Lead will have primary responsibility for design reviews and will participate in design meetings as an integral member of this team to discuss and document initiatives implemented during design that relate to sustainability requirements, implications and benefits. Sustainability requirements will be tracked through the RVTM for the capture and tracking of IS design rating progress evidence.

Table 11 – Key elements integrating sustainability into design development

Key Stages	Sustainability role	Governance document
<ul style="list-style-type: none"> ▪ Management Plan development ▪ Design Briefings ▪ Design Package development and review ▪ Initiatives and opportunities development ▪ Risk & opportunity (R&O) reviews ▪ Constructability reviews ▪ Reporting and verification processes 	<p>Develop:</p> <ul style="list-style-type: none"> ▪ Design tools/templates ▪ Sustainability Management Plan <p>Deliver:</p> <ul style="list-style-type: none"> ▪ Sustainability in Design Workshop ▪ Multidisciplinary Sustainable Initiatives Workshop (3) <p>Review:</p> <ul style="list-style-type: none"> ▪ Design Package and Reports ▪ Other Management Plans ▪ Participate in: ▪ Value Engineering Workshops ▪ Design meetings ▪ Risk Reviews <p>Evaluate and Track:</p> <ul style="list-style-type: none"> ▪ Sustainability risk and opportunities 	<ul style="list-style-type: none"> ▪ Training materials/presentation ▪ Management Plans ▪ VE Register ▪ R&O Register ▪ RVTM ▪ Sustainability Requirement Register ▪ Design Packages & Reports ▪ Sustainability Design Reports

Material lifecycle, water and energy footprinting will be undertaken considering WoL outcomes to achieve targeted material reductions and further opportunities as calculated for the IS resource credits (Energy, Water, Materials). Leading into the Procurement phase, a key design objective relevant to sustainability will be durability evaluations of products and materials to meet design life requirements. This will help to ensure WoL and Value for Money considerations deliver the most sustainable outcomes. Sustainability performance related to design will be reported in the Sustainable Design Report, see Section 8.

7.7. Sustainable Procurement

CPBUI JV has adopted CPB Contractor’s procurement process and systems for the delivery of the SCAW. A project specific procurement policy has been developed as per Appendix A, which sets out the Project’s commitment to sustainable procurement in line with ISO 20400:2007 Sustainable Procurement Guidance.

CPBUI JV is committed to requiring environmental and sustainability aspects to be considered in the procurement process. Potential suppliers will be requested to provide details of their environmental and sustainability policies and their implementation and engagement with to explain SCAW sustainability requirements and expectations will occur.

The supplier evaluation process will consider sustainability aspects and supplier contracts will incorporate sustainability objectives and targets. CPBUI will monitor supplier environmental and sustainability performance against the objectives and/or targets. Poor sustainability performance or non-compliance will be actively managed.

7.7.1. Procurement Process

An overview of the procurement process that will be implemented on the SCAW Project is detailed in the Procurement Plan. The following provides an overview of how sustainability considered and incorporated into in the procurement process

7.7.1.1. Review of Procurement Schedule

The Procurement Schedule is a live document and central to the management of the timely delivery of all goods and services for SCAW.

This Procurement Schedule outlines amongst other things, details on each package to be let (including nature of work, type of agreement to be entered into and tenderer identities) and timing requirements pertaining to when the various stages of the procurement process are to be reached with respect to each package, from completion of design documentation through to executed agreements. This schedule has also been used to identify suppliers with high impact works in regard to sustainability. This is defined as having scope/s of works likely to have an impact on the overall achievement of the sustainability targets.

The Sustainability Manager has reviewed the procurement schedule and identified the following as high impact suppliers:

- Spoil and waste haulage
- Concrete supply
- Precast concrete -viaduct segments, planks, piers, beams, retaining walls
- Steel supply- structures and reinforcement
- Asphalt supply
- Road base and aggregate supply
- Bored piling and civil subcontractors
- Drainage structures

The procurement team will use the schedule to ensure that all parties in the development of specifications, work packages and tendering documentation can be effectively co-ordinated, allowing time for engagement with the supply chain. The procurement team will work closely with the Sustainability Team to ensure relative sustainability aspects are adequately managed.

Prequalification

CPBUI JV will use an initial prequalification process which ensures all subcontractors and suppliers meet the minimal requirements. This involves subcontractors and suppliers completing multidisciplinary questionnaires, which includes environment and sustainability and a review for modern slavery. Reviews are carried out by representatives from the Commercial and Procurement Team, in consultation with the Project's Environmental and Sustainability Manager and/or Sustainability Manager as required. This is considered as the first stage of supplier evaluation to ensure suppliers can operate under systems and high standards. Suppliers are either rejected or invited to tender.

Sustainability Specification

All contracts refer to the Sustainability Specification which includes the sustainability targets in plain English. The Sustainability Specification will also be included in all tender requests to set out sustainability systems and targets. All suppliers must agree to the requirements.

Request for Quotation

Tenders accepted within the prequalification can be invited to tender and request for quotation submitted. The tender is provided the Sustainability Specification and is required to comply with all elements.

Pre-Tender Questionnaire

A pre-award tender interview questionnaire will request additional information based on the responses provided in the EOI form. When suppliers are identified as high-impact suppliers, further information may also be requested from the sustainability team at this stage. When a subcontractor accepts all SCAW terms and conditions, this interview is not necessary (at the discretion of the Contracts Manager).

Tender evaluation and recommendation

Once all tender responses are received, SCAW will analyse and document the details of each submission. The analysis will consider each offer from an overall technical, timeframe and commercial viewpoint, as well as from the financial aspect.

The Contracts Manager will coordinate with the respective design and construction staff to analyse and assess tenders in accordance with the Procurement Plan and Sustainability Specification. Analysis of results will be documented in a Tender Analysis sheet and processed for tender selection.

Where a subcontract has been identified as a high-impact supplier, the second stage of environment and sustainability evaluation is utilised, which includes specific environment and sustainability consideration. This criteria is unique to the subcontract and will be detailed in the tender evaluation documentation. These may relate to aspects such as sustainability governance and policy implementation, resource use minimisation (energy, water, materials), circular economy and waste minimisation, ethical supply chain and modern slavery mitigation, and community benefit. These are selected based on the scope and material aspects associated with the subcontract package.

Supply contracts

Supply contracts include requirements to comply with the Sustainability Specification, including Sustainability requirements. Where suppliers are identified as a high-impact subcontractor, additional sustainability requirements may be incorporated into the contract, where relevant.

The Sustainability Specifications include the requirement for all subcontractors to provide reports (in the form required by CPBUI JV)

- (a) energy production and energy usage;
- (b) material usage
- (c) water usage; and
- (d) waste production,

in connection with their Project related activities.

Performance monitoring

Performance of subcontractor is monitored throughout their engagement on the Project. Monitoring processes are dependent on the type of subcontract, and this is detailed in the Sustainability Specification. Sustainability monitoring and assurance processes include;

- review of sustainability reporting in accordance with sustainability objectives and targets,
- work activities inspection and,
- compliance audit with applicable Project management plans, processes and procedures.

Corrective action will be issued to the subcontractor where identified. This may include;

- inspection/audit actions,
- information requests for sustainability reports
- evidence of compliance/certification

Where corrective actions remain unresolved, management will be escalated to the Procurement and Commercial team for management. Unresolved corrective actions or where a subcontractor fails to carry out corrective action, it will be treated as breaches in their contract and CPBUI JV may exercise their rights in respect of default.

Rewarding Sustainability Performance of Suppliers and Subcontractors

Once suppliers and subcontractors have been engaged, CPBUI JV will recognise and/or reward the sustainability performance of suppliers by:

- Recognition and involvement at Subcontractor Forums
- Considering their sustainability performance in the assessment of additional tender packages
- Considering sustainability innovations identified by subcontractors or suppliers.
- Considering sustainability performance in After Action Improvement Reviews which aim to capture lessons learnt and are shared with Parent Companies to assist in improving future performance on other relevant projects.

7.7.2. ISO 20400 Sustainability Procurement

CPBUI JV will embed processes into procurement practices that are consistent with the principles of ISO 20400 Sustainable Procurement. This will include:

- Defining sustainable procurement commitments, intentions and requirements to prospective suppliers.
- Screening potential suppliers for their sustainability credentials, risks and opportunities not previously considered (e.g. independently certified green labelled materials).
- Establishing sustainable procurement targets with our supply chain.
- Monitoring supplier sustainability performance and provision of sustainability related evidence.
- Recognising and promoting well-performing suppliers.

Mapping the ISO 20400 Principles has been undertaken as per Appendix E to illustrate how the principles apply to the project and the respective organisation of the consortium members.

7.7.3. Human Rights and Modern Slavery

CPBUI JV will implement CIMIC Group Policies including the commitments for actively avoiding human rights violations, abiding by the human rights and civil liberties included in the Universal Declaration of Human Rights, the International Labour Organisation (ILO) and the ten principles of the United Nations Global Compact.

Further information can be found on the CIMIC Joint Modern Slavery Statement, which is publicly available <https://modernslaveryregister.gov.au/statements/file/71eddadd-72cf-469d-af02-6f05d24b3be1/> See Section 8.1 for further information on reporting requirements.

The CIMIC Group's Code of Conduct and the Dealing with Third Parties Policy, in addition to CPBUI JV's Sustainability Policy requires specific due diligence to be undertaken regarding risks associated with modern slavery.

Supply chain due diligence includes the screening of third parties (including vendors, suppliers and business partners) against a range of risk factors and indicators which include:

- Sanctions, watch-lists, adverse litigation and Politically-Exposed-People (PEP) lists
- Adverse media (print media and social media) in any jurisdictions in which CIMIC operates
- Financial information including company ownership, structure, credit rating and financial strength
- Potential for modern slavery, bribery and corruption to occur in particular industries and countries

As part of prequalification and onboarding, all suppliers must also complete a Third-Party Anti- Bribery and Business Integrity Declaration in which they disclose (among other things) whether they (or any of their subcontractors or suppliers) have:

- Been subject to or received any prosecutions, regulatory notices, tendering restrictions, sanction notices, litigation or arbitration concerning allegations of fraud, bribery, ethical-business practices or corruption, modern slavery or breaches of the human rights of employees or contractors, or environmental or safety breaches or any similar or associated laws or regulations
- Used modern slavery, human trafficking or forced or child labour anywhere
- A compliance management program (i.e., policies, procedures, training, whistleblower protection) to ensure compliance with business integrity laws and regulations (i.e., bribery and corruption, fraud, modern slavery legislation and or any other associated laws or regulations)

Suppliers are also required to make certain assurances, such as that they will not use any payments which they receive from CPB in violation of any modern slavery, anti-bribery, anti-money laundering, trade sanctions, terrorist financing or other similar laws and regulations.

CIMIC also conduct Human Rights Impact Assessments (HRIA) of its operations including CPB Contractor activities. Locations are chosen based on risk assessments which included: the size of each location's workforce as a portion of the overall international workforce, the size of the Group's business in each location, each location's ranking in the Global Slavery Index and an internal evaluation of potential risks when reviewed against the HRCA Quick Check. Information regarding HRIA are presented in the CIMIC Annual Report.

7.8. Integrating Sustainability in Construction

Integrating the sustainability requirements into the construction process is critical to achieving the Project's sustainability targets and creating whole life value for key stakeholders. The Project's

Sustainability Team will conduct meetings with the Construction Director (or delegate), and other relevant construction leads to discuss and document initiatives implemented at key construction phases that relate to sustainability requirements, implications and benefits.

The Sustainability Team will prepare a ‘Sustainability Requirements Register’, which will outline the project sustainability requirements for construction elements.

Impacts from implemented opportunities, such as material or operational energy reductions, will be calculated as part of the IS resource credits (Energy, Water, Materials). Identified sustainability opportunities will be documented as sustainability initiatives as per Section 7.5 and Appendix D.

Section 7.1 (including Figure 12), 7.7 and Section 7.9 are also relevant in detailing how sustainability is embedded into construction processes.

7.9. Training Requirements

Sustainability training requirements will be identified and documented within the Project training matrix for each role, including competency, needs and capability, further details provided in the Workforce Development Management Plan.

CPBUI JV will provide additional training and education on sustainability aspects for the SCAW Project staff and workforce as detailed in the table below.

Table 12 – Sustainability training program

Training	Description	Indicative participates
Project induction	Address Project-specific sustainability issues, including sustainability objectives and targets and sustainability expectations of employees and subcontractors. Induction materials will be reviewed at least annually and amended where necessary to reflect changes to Project sustainability issues.	All personnel, subcontractors and visitors will undergo an induction before commencing work on-site
Project Sustainability Training	The Project will deliver (internally or externally facilitated) sustainability training to improve awareness of sustainability aspects across the SCAW. Training will be developed for specific disciplines which have interactions with sustainability.	Where needed
Multidisciplinary sustainability initiatives workshops	Workshops will be completed at key design phases to improve sustainability consideration within the design	Design
Sustainability toolbox talks	toolbox talks targeted around relevant sustainability initiatives and ideas generation will be rolled out across the worksites to communicate key messages, reinforce requirements, and seek feedback.	Construction Team
ISC Infrastructure Sustainability Accredited Professional Training (ISAP)	Relevant project staff will be encouraged to complete ISC’s ISAP training, particularly personnel within the Environment and Sustainability Team and other relevant functional areas	Where needed
High Impact Suppliers Sustainability Training	Improves sustainability awareness across the SCAW high impact supply chain to improve sustainability outcomes on the SCAW and beyond. Delivery of training will be varied	Subcontractors identified as High Impacts in Section 7.7.1

Training	Description	Indicative participates
	dependent on supplier/subcontractor existing knowledge. Training may include <ul style="list-style-type: none"> ▪ Training provided through the Supply Chain School (or equivalent), ▪ Internal workshops to discuss constraints and drive innovation 	

7.9.1. Knowledge sharing

CPBUI JV is committed to enhancing sustainability culture and raising awareness about sustainability principles and initiatives throughout the SCAW Project and beyond. As such, CPBUI JV will ensure knowledge sharing is carried out regularly with the project team, parent companies, key stakeholders and the wider infrastructure industry.

The Sustainability Manager will participate in relevant forums for sharing knowledge across the industry. Where appropriate, sustainability case studies will be generated by the project for internal and external communications as appropriate.

Knowledge sharing processes are iterative and evolve as the project progresses. Key examples of knowledge sharing initiatives to be adopted by CPBUI JV are shown in the table below.

Table 13 – Examples of sustainability knowledge sharing initiatives

Audience	Knowledge Sharing Initiatives
Internal	Sustainability toolbox talks Sustainability workshops
Parent Organisation	The CPB IS Network - was developed as a forum for information sharing and to provide IS rating support. Where relevant, the project will share updates, lessons learnt, key achievements and challenges with the network to facilitate learning and capability building across CPB IS project teams.
Sydney Metro	Sustainability knowledge sharing workshop
Key Stakeholders	Community consultation Annual report
Wider Industry	Industry Conference and Workshops - The Environment and Sustainability Manager, Project Sustainability Manager and/or other relevant personnel may present on sustainability initiatives, and lessons learnt at relevant industry conferences Case Studies – CPBUI JV will work collaboratively with Industry to prepare case studies to document specific sustainability initiatives, and lessons learnt. Annual report

8. Sustainability Reporting and Information Management

8.1. Sustainability Reporting Requirements

Table 14 describes the required reporting for sustainability on the SCAW Project.

Table 14 – CPBUI JV sustainability reporting requirements

Reporting Requirement	Description	Frequency
Client		
Progress report	<p>A sustainability section will be included within the “Environment Management” section which, as a minimum, will discuss:</p> <ul style="list-style-type: none"> ▪ a summary of performance in meeting sustainability requirements and targets, which includes the identification of areas of actual or potential non-compliance; and ▪ data on resource consumption, carbon emissions, waste recycling and disposal, spoil management and concrete mixes in the form of a completed Sydney Metro Sustainability Reporting Template. 	Monthly on the first Business Day of each calendar month
Quarterly Sustainability Report	<p>Each report is to include the following:</p> <ul style="list-style-type: none"> ▪ an executive summary ▪ the SCAW Contractor’s performance against the sustainability requirements of this D&C Deed, including compliance with the Sustainability Management Plan and performance against sustainability targets; ▪ the status of the implementation of the sustainability strategies, targets and initiatives identified in the Sustainability Management Plan; ▪ details of where the climate change risk assessment have influenced the design and construction for the Project Works and Temporary Works; ▪ details of greenhouse gas reduction initiatives which have been implemented in the design and construction of the Project Works and Temporary Works; ▪ life cycle assessments undertaken, and details of environmental impact reduction initiatives which have been implemented in the design and construction of the Project Works and Temporary Works; ▪ compliance with sustainable procurement requirements; ▪ corrective actions taken where non-conformances with sustainability requirements have been identified; ▪ compliance with all relevant NSW and Australian modern slavery legislation; and ▪ a copy of the community benefit initiative impact register and the status of the implementation of the 	Quarterly from the date of this D&C Deed until the Date of Completion of the last Portion to achieve Completion

Reporting Requirement	Description	Frequency
	community benefit initiatives and “legacy” community benefit initiatives.	
Climate Change Impact Assessment Report	<p>The Climate Change Impact Assessment Report must:</p> <ul style="list-style-type: none"> ▪ be prepared in accordance with the guidance and requirements included in the TfNSW Climate Risk Assessment Guidelines (SD-081); ▪ document all project specific amendments to the climate change risk framework; and ▪ identify, assess and demonstrate how risk adaptation measures, including baseline risk adaptation measures, have been and will be implemented to mitigate risk levels ▪ Align with the Climate Change Adaptation category of the IS Technical Manual v1.2. <p>For more information see Section 10.1</p>	With design documentation at each Design Stage and again prior to the Date of Completion of the last Portion to achieve Completion
Greenhouse Gas Inventory Report	<p>The Greenhouse Gas Inventory Report must include data relating to emissions associated with electricity and fuel consumption, on-site process emissions and embodied emissions for all materials used in the SCAW.</p> <p>For more information see Section 0.</p>	With design documentation at each Design Stage Prior to the Date of Completion of the last Portion to achieve Completion six-monthly basis during construction
Air Emissions Workbook	<p>Inventory of non-road diesel powered vehicles used for the SCAW Contractor’s Activities and reporting of engine conformity with United States Environmental Protection Agency (US EPA) Tier 4 or European Union Stage V exhaust emission standard and the fitting of any exhaust after-treatment devices (using the TfNSW Air Emissions Data Collection Workbook (9TP-FT-439).</p>	Annually during construction
IS Submission	<p>Copies of documents which are submitted to the Infrastructure Sustainability Council (ISC) in relation to the Infrastructure Sustainability (IS) ratings for information, excluding commercial or confidential information.</p>	After verification of Design and As-built IS Rating
Sustainable Design Report	<p>Sustainable Design Report must include;</p> <ol style="list-style-type: none"> A. a compliance table which shows the status of the compliance with sustainability requirements which are addressed in design; B. evidence of how the sustainable design initiatives achieve the targets; C. a graphical representation of the achievement of targets D. illustrations of key sustainability initiatives; E. evidence to show where climate change mitigation and adaptation measures or changes have been implemented in the design; F. scoring achieved using the ISC IS Rating Scheme ‘design’ rating including supporting completed scorecards 	With Design Documentation at the completion of Combined Design Stage 1 & 2 and Design Stage 3

Reporting Requirement	Description	Frequency
	<p>G. demonstration of progress toward achieving ISCA Ene-1, Ene-2, Mat-1, Wat-1 and Wat-2 credits;</p> <p>H. performance against design-related sustainability targets;</p> <p>I. life cycle assessments and evidence of how these have informed design, materials selection and materials sourcing to minimise life cycle environmental impacts;</p> <p>J. details of where low carbon initiatives have been implemented in the design and construction of the Project Works and Temporary Works;</p> <p>K. initiatives which have been implemented to minimise the embodied carbon emissions of concrete mixes which will be used in Project Works and Temporary Works;</p> <p>L. updates on sustainable procurement activities; and</p> <p>M. a demonstration and description of innovative sustainable design initiatives.</p>	
Australian Steel	Report the percentage of steel which is manufactured in Australia	As requested
Water Balance Study	Identifies the sources, uses and estimated quantities of potable and non-potable water which will be either created or used in the performance of the SCAW	<ul style="list-style-type: none"> ▪ Within 100 days of the commencement of the Deed (01 March 2022) ▪ Prior to the commencement of Project Works and Temporary Works.
Legislation		
NGERS Reporting	CPBUI JV is required to report sustainability data to CPB Contractors and CIMIC to fulfil reporting requirements under the National Greenhouse and Energy Reporting Scheme (NGERS)	Annual
Commonwealth Modern Slavery Act	Companies with revenue above \$100 million per annum are required need to report a Modern Slavery Statement. This is covered under CIMIC's Modern Slavery Statement	Annual
IS Rating related		
Ene Model	As detailed in the IS Technical Manual v1.2, the Ene Model will compare estimated and actual consumption of energy and associated greenhouse gas emissions	Design and As-Built IS Rating
Mat-1 Calculator	As detailed in the IS Technical Manual v1.2, the IS Materials Calendar (prepared for IS Rating credit Mat-1) will compare the base case and actual materials footprint of the Project	Design and As-Built IS Rating
Water Balance study	As detailed in the IS Technical Manual v1.2, the Water balance study will demonstrate the total and monthly water usage.	Design and As-Built IS Rating

8.2. Sustainability Data Capture

8.2.1. Resource data

To meet the reporting requirement detailed above (Section 8.1), in regards consumption of resources (energy, water and materials) and the generation of waste, CPBUI JV will develop an online data capture system to manage the reporting requirements. All data procured by CPBUI JV and its subcontractors is entered into using an electronic form, and the data is stored in an online database. The system includes automatic calculations which amalgamate and distribute data in line with the different requirements and categories used in each reporting process. This prevents the need to enter data into multiple systems and removes the risk of errors associated with double handling of data.

This system will allow for increased efficiency, reliability and validity of the sustainability data collection process and enables CPBUI JV to easily:

- Enter data directly into the reporting system minimises the risk of errors and eliminates double handling associated with transposing written information
- Track data collected from across the SCAW Worksites and reported by subcontractors
- Review and validate data, including the ability to pinpoint potential errors
- Collate reported data to fulfil client and parent company reporting requirements
- Use of set formulas to collate and calculate data for various reporting outputs creates a consistent, automated method that reduces the risk of human error

Table 15 shows high material resources, and the source of information used to monitor and capture consumption during the Project

Table 15 – Sustainability data capture source

Resource Type		Source/s
Resource	Fuel	Project invoices Subcontractor monthly reports
	Energy	Project invoices Mains meter reads
	Gas	Project invoices Mains meter reads
	Other (LPG, oil, grease solvents, acetylene)	Project invoices Subcontractor monthly reports Site tracking register
Water	Potable water	Project invoices Water meter reads Subcontractor monthly reports
	Non-potable water	Water meter reads Modelled consumption estimates (where water meter reads are unavailable) Subcontractor monthly reports
	Water discharge	Water meter reads Modelled estimates (where water meter reads are unavailable)
Waste	Construction waste	Waste tracking register Subcontractor monthly reports
	Office waste	Subcontractor monthly reports
Materials	Concrete	Subcontractor monthly reports
	Steel	Subcontractor monthly reports

Resource Type		Source/s
	Road base	Project invoices
	Other materials (timber, aggregates, glass, plastic, etc)	Site tracking registers

8.2.2. Sustainability Items Reported by other Functions

Sustainability aspects reported by other functions are listed in Table 16.

Table 16 – Sustainability Items Reported by Other Functions

Sustainability Target, Requirement/Risk/Opp	Function	Reporting Frequency
Environment Pollution	Environment	Monthly Progress Report
Environment and Sustainability Inspections	Environment	Monthly Progress Report
Environment and Sustainability Risk	Risk Management	Monthly Progress Report
Workforce Development and Industry Participation	HR	Monthly Progress Report
Proposed community benefit	Community	Community benefit initiative approval to proceed request form

9. Evaluation and improvements

9.1. Audits and Review

Audits, inspections, and reviews will be undertaken where required to achieve targeted rating scheme credit requirements and evaluate project performance associated with sustainability. Table 17 highlights an indicative list of audits

Table 17 – CPBUI JV required sustainability audit

Name	Detail	Timing/ Frequency
Client Required		
Sustainability Management Plan Audit	Audit of the Sustainability Management Plan	Annually
IS Rating relevant*		
Design ISP Review (Man-3 Review)	Review of ISC Submission and Sustainability Management System	Quarterly during design, and
Construction ISP Review (Man-3 Review)		Six monthly during construction
Design External Sustainability Audit (Man-4 Audit)	Audit which covers environment and social issues related to the SCAW Works. This may include <ul style="list-style-type: none"> ▪ Sustainability Management Plan ▪ Construction Environment Management Plan and sub-plans ▪ Community Management Plan ▪ Workforce Development and Industry Participation Plan Audit aspects should be selected to cover the “material” components to works: Scope and justification will be included in audit reports	Once during design
Construction Internal Sustainability Audit (Man-4 Audit)		3 per year
Construction External Sustainability Audit (Man-4 Audit)		Annual
Energy & Carbon Monitoring and Modelling (Ene-1 Audit)	Audit of energy and carbon monitoring and modelling	Once during Design and Once during Construction
Waste Handling and Disposal to destination (Was-1 Audit)	Waste Handling Audit	6 monthly during construction

**Audit/Review is desired, but not contractually required*

The Sustainability Manager will prepare an audit and review schedule to identify required actions, frequency and responsibilities throughout design and construction.

All persons conducting audits and reviews will be required to confirm they meet the requirements outlined within applicable project requirements or IS rating tools. This may include identification of qualifications and/or meeting the relevant thresholds of “IS suitably experienced”.

9.2. Inspections

Sustainability compliance monitoring on site will be undertaken using two types of sustainability inspections, which will be carried out throughout the delivery of the SCAW Project. This sustainability inspection regime has been developed in line with the requirements of ISC credit Man-4. These inspections are:

1. Weekly environment and sustainability inspections, which will be carried out by personnel in the CPBUI JV Environment and Sustainability Team. This process is detailed in the CEMP. The sustainability component of the inspection will focus on initiatives to reduce both environmental and social impacts and, where required, actions may be raised to address any issues identified.
2. Quarterly detailed sustainability inspections, which are predominately carried out by the Sustainability Team to assess the implementation of sustainability initiatives and compliance with sustainability requirements at the SCAW Project.

9.3. Sustainability Performance Review

Sustainability performance will be reviewed monthly by the CPBUI JV Senior Leadership Team (SLT) and reported in the Monthly Sustainability Progress Reporting (refer to Section 8.2)

In addition, sustainability performance will be presented formally, at least annually, to the Senior Leadership Team.

CPBUI JV will investigate methods to report sustainability performance to key stakeholders during construction. This will enable stakeholder feedback. Methods of delivery may include:

- Presentations during interface meetings.
- Sustainability information included in community newsletters and notifications.
- Annual sustainability performance report prepared and published online (publicly available).

10. Key Sustainability Initiatives

10.1. Climate change

In collaboration with Sydney Metro – Western Sydney Airport, CPBUI JV will develop a comprehensive response through design and management strategies to climate change risk, in order to reduce the potential impacts and ensure resilience’s to shocks and stresses.

Sydney Metro – Western Sydney Airport has prepared an overarching Climate Change Risk Assessment (CCRA) report (SMWSAEDS-SMD-SWD-SB-RPT-006005). This considers a holistic review of the climate risk to the Sydney Metro – Western Sydney Airport. This report assesses climate change risk in accordance with the TfNSW Climate Risk Assessment Guidelines, informed by:

- Australian Standard: AS 5334-2013: Climate Change Adaptation for Settlements and Infrastructure: A Risk-based Approach (Standards Australia, 2013).
- Climate Change Impacts & Risk Management: A Guide for Business and Government (Australian Greenhouse Office, 2006).
- Infrastructure Sustainability Rating Tool Technical Manual: Cli-1 Climate Risk Management (ISCA, 2015).

It is noted this report will inform the IS Rating Cli-1 and Cli-2 Credits.

The report identified 36 risks across the Sydney Metro – Western Sydney Airport Project, shown in Table 18, below.

Table 18 – Number of climate change risks by risk rating across the Sydney Metro – Western Sydney Airport

Rating Risk	Inherent risks	Residual risks
Very high	0	0
High	0	0
Medium	32	14
Low	4	22
Total	36	36

Climate Change Risk specifically relevant to SCAW as identified in this report, are attached in Appendix F. CPBUI JV will undertake a further review of the CCRA in respect to the SCAW and provide information to Sydney Metro information in regard to:

- Revised risks
- Revised proposed controls
- Additional risks identified.

Approval from Sydney Metro will be sought where CPBUI JV identifies the requirement for the transfer of responsibility for adaptation of risks. Where additional modelling is required, a climate change factor which is the greater of 19.7% or as determined in accordance with Australian Rainfall and Runoff (ARR) 2019 would be adopted, based upon Representative Concentration Pathway RCP8.5.

This review will include risks associated with construction phase extreme weather such as risk of flash flooding and protection of sensitive equipment.

CPBUI JV will implement adaptation measures to mitigate all climate change risks classified as “extreme”, “high”, and “medium” in (vi) above, such that all residual risks are classified as “low”, relevant to the SCAW Works scope. This will be presented in a climate change risk assessment report (see 8.1). Energy Efficiency and Greenhouse Gas Emissions Strategy

This section includes the energy efficiency and greenhouse gas emissions strategy that identifies processes and methods to: (1) improve energy efficiency; and (2) reduce greenhouse gas (GHG) emissions for the construction, including embodied carbon.

CPBUI JV has adopted an energy management hierarchy (in approaching energy and GHG management. This approach has been introduced early in the design development process and will be

revisited at each of the key delivery phases to ensure any new opportunities to improve energy performance are investigated.

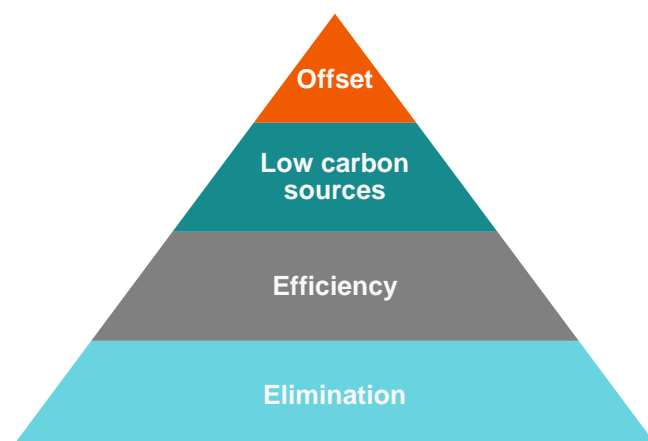


Figure 13 – Energy management Hierarchy

The options analysis will be conducted to ensure whole-of-life costs and benefits are examined. Refer to Section 7.2 for further details on the processes for the identification of opportunities.

10.1.1. Carbon Modelling

CPBUI JV has categorised the carbon emissions as defined by the NGER legislation and National Greenhouse Accounts Factors (2020).

Table 19 – Carbon emissions scope classifications

Scope	Definition	SCAW aspect
1	Emissions produced within the boundary of an organisation as a result of the organisation's activity	Fuel products procured by CPBUI JV and consumed on the SCAW Works premised area
		Fuel products procured by the subcontractor and consumed on the SCAW Works premised area
		Vegetation clearing
2	Emissions produced through the generation of the electricity purchased and consumed by an organisation	Energy (electricity) consumed onsite as part of the SCAW Works
3	Emissions produced outside the project's boundary, which are produced a result of the organisation's activity	Embodied carbon associated with the materials used on the SCAW Works
		Fuel burnt transporting products or waste to/from the SCAW works premised area
		Emissions associated with the off-site disposal of waste generated from the SCAW premised area
		Indirect emissions associated with the extraction, production and transport of the fuel burned at the generations and the indirect emissions attributable to the electricity lost in the delivery in the transmission and Distribution network

Carbon and energy modelling is used to understand the carbon footprint. Knowledge from similar previous project highlight that aspects of project delivery that contribute to the greatest proportion of energy use and GHG emissions are:

- Surface excavation and bulk excavation of temporary civil structures (Scope 1, diesel-powered plant)
- Material consumption, predominately concrete, and steel (Scope 3 emissions)
- Waste transportation and disposal (Scope 3 emissions)

- Vegetation clearing (Scope 1)

CPBUI JV has completed a preliminary carbon model to estimates of Scope 1, Scope 2, Scope 3 and total carbon emissions, the results are summarised as per section 4.3. The following table provides quantities based on tender estimates which will change as design scope is refined and BAU assumption determined.

Table 20 – Preliminary carbon model

Component	SMP Quantity	Unit	Indicative carbon Emissions (t CO2e)
Fuel (onsite)	9,000	kL	25,638
Electricity	25,638	kWh	2,370
Vegetation Clearing	34	ha	13,351
Concrete (ready-mix)	25,539	m3	9,758
Concrete (precast)	28,038	t	4,900
Grout and Asphalt	4,000	t	370
Reinforcement steel bars	10,358	t	19,681
Structural steel, beams and columns	3,150	t	7,785
Other Materials (sand and aggregates)	94,572	t	515
Materials transportation	2,500	kL	7,122
Waste to landfill	16,000	t	3,303
Total Emissions			94,793

CPBUI JV will review and update the carbon model throughout the design. CPBUI JV will use this model to develop the:

- ISC IS Energy Model which capture Scope 1, 2, and 3 emissions (excluding embodied carbon associated with materials) which compares against a business-as-usual design;
- A greenhouse gas inventory report using the Carbon Estimate and Reporting Tool (CERT), and
- ISC IS Material Calculator Model which captures the embodied carbon associated with materials and compares against a business-as-usual design.

This information from the carbon modelling will be used to drive initiatives and innovation to reduce carbon related to high impact aspects of the project.

10.1.2. Fuel and Energy

Carbon and energy management strategies and initiative will be developed for high consumption activities.

Table 21 – Potential initiatives, related to energy and fuel consumption

Material	Initiative
Energy	Utilise of energy-efficient equipment – The construction methodology uses a range of energy efficient systems, including variable speed drives, power factor correction, efficient fans, pumps, compressors and energy-efficient lighting in site compound and for site plant and equipment.
	Reduce or eliminate energy use through the refinement of work activities – using prefabricated assets where possible
	Procure sustainable site facilities to reduce energy consumption

Material	Initiative
	Investigate opportunities to use renewable energy during construction (in line with the requirements of IS Rating credit Ene-2)
	Use of new and regularly serviced equipment and plant on site to maximise fuel efficiency
	Use of electrical plant and equipment (in replacement of fuel-powered)
	Automation of plant and equipment maximise efficiency
Fuel	Procure plant compliance to European Union or US EPA air emissions standards for all non-road diesel plant and equipment to maximise fuel efficiency
	Procure excavators and mobile cranes with European Union Stage V or US EPA Tier 4 exhaust air emissions standards for plant onsite for more than three months
	Implement a plant maintenance program to ensure all vehicles, plant and equipment <ul style="list-style-type: none"> i. selected and operated for optimum energy efficiency; ii. not left idling when not in use; iii. fitted with catalytic converters, diesel particulate filters or equivalent devices where reasonable and feasible; and iv. well maintained and serviced in accordance with relevant equipment maintenance documentation to reduce emissions due to poor engine performance.
	Adopt the use of alternative fuels, including: <ul style="list-style-type: none"> ▪ B5 biodiesel on all on-site plant and equipment; and ▪ B20 biodiesel to be used in all on-site generators
	Use of new and regularly serviced equipment and plant on site to maximise fuel efficiency
	Implement of an idling reduction policy for plant and equipment
	Prioritise local suppliers and waste disposal site to minimisation of fuel consumption
Offset	Offset 100% of all Scope 1 and Scope 2 emissions through one or a combination of the following: <ul style="list-style-type: none"> i purchase of large-scale generation certificates; ii purchase Australian Carbon Credit Units (ACCU); and/or iii purchase of renewable Energy from an Australian Government Accredited renewable energy supplier.

10.1.3. Materials initiatives

The SCAW Project will place a significant demand on a range of resources, including both primary and secondary materials that have undergone some degree of offsite processing. This demand has the potential to create a resource depletion risk. As such CPBUI JV has a sustainability objective to maximise efficiencies to reduce our footprint in relation to energy, water, materials, and waste. To manage this risk, CPBUI JV will adopt the materials management hierarchy shown in Figure 14 during the SCAW Project.

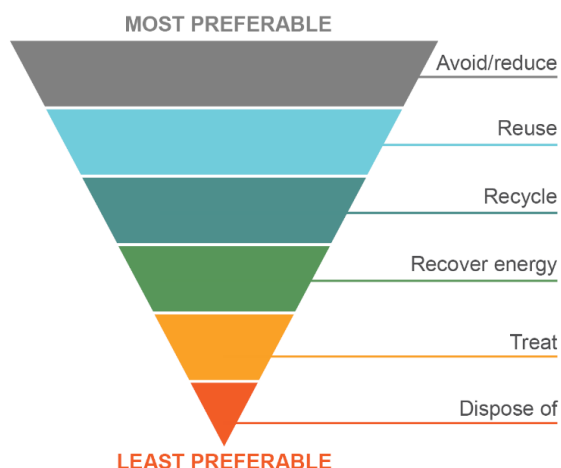


Figure 14 – Materials Management Hierarchy

Material selections will take into consideration life cycle analysis within design and construction using ISO 14044. The following table outlines CPBUI JV’s approach to sustainably manage materials used during the delivery of the SCAWT Works Project where appropriate:

Table 22 – Potential initiatives related to material consumption

Aspect	Initiative
Concrete	Minimise the quantity of Portland cement in concrete mix designs and using supplementary cementitious material (e.g. fly ash, slag, silica), where possible, while still meeting other Design requirements. See Section 10.1.3.1
	Reduce quantities through value engineering initiatives identified during design development
	Enforce maximum cementitious content targets within concrete used for civil and structures. See Section 10.1.3.1
	Achieve a concrete mix design for the precast viaduct and bridge segments with a maximum carbon footprint of 290kg CO ₂ -e / m ³ (subject concrete test and trial results as per Schedule E12).
	Ensure recycled aggregate is used in non-structural concrete, where feasible
	Investigate geopolymer concrete for non-structural applications, where feasible
Steel	Reduce steel reinforcement quantities through use of steel fibre reinforcement or plastic fibre reinforcement (e.g. in shotcrete), while still meeting other Design requirements;
	Use of recycled or reused steel where possible.
	Source reinforcing steel (rebar and mesh) from suppliers who use electric arc furnaces which adopt energy-reducing processes such as Polymer Injection Technology (PIT), to reduce the embodied energy per unit.
	Ensure suppliers are members of the World Steel Association (WSA) Climate Assessment Program (CAP);
	Prioritise Australian manufactured steel products, ensuring that at least 50% Australian steel
	Reduce quantities through value engineering initiatives identified during design development
Timber	Sourcing timber from FSC sources certified suppliers or, where it can be shown it is impractical to source timber using the FSC scheme, timber will be sourced from Forestry Corporation NSW managed schemes which can provide Chain of Custody using PEFC certification;

Aspect	Initiative
	Reuse of formwork. If materials used on site can be reused without diminished performance or easily repurposed without the need for off-site treatment or processing, they will be used as a preference.
Recycled materials and improved efficiencies	Provide for asset reuse, where appropriate. This approach removes and/or minimises the need to procure various items of equipment through reuse of existing plant and facilities;
	Support the circular economy through the use of post-consumer, post-industrial recycled material or waste materials, including crushed glass, recycled aggregate, tyre-derived aggregate and recycled materials for noise attenuation devices
	Recycled crushed concrete to be used for the haul road base layer, crane pads, piling pads and mainline capping later
	Manufactured sand to be used in drainage;
	10% manufactured sand used in drainage to be replaced by crushed glass where available
	40% of fine aggregate content within blinding layer of culvert slabs will be replaced by recycled crushed glass; and
	Geotextiles produced using recycled PET bottles to be used in drainage applications;
Surface coating	Ensure low volatile organic compound paints, finishes, sealants and adhesives, and zero formaldehyde emission composite wood products are used onsite
	Ensure all surface coating comply with the Australian Paint approval scheme

10.1.3.1. Concrete

Concrete represents a considerable amount of the carbon footprint of the SCAW Works and therefore particular consideration is undertaken to ensure sustainable outcomes.

There is a full range of concrete mixes proposed for use on the SCAW Works, all of which will require trial mixing and performance testing prior to use. They include the following:

- 20MPa will be a ready-mix blinding concrete for retaining walls, slabs and buried structures. Mass concrete will be a minimum compressive strength of 20 MPa (s4.7.5 PS)
- 25MPa will be a ready-mix concrete for road furniture
- 32MPa will be both precast and ready-mix for bridge components and drainage
- 40MPa will be both precast and ready-mix concrete is the minimum strength nominated in the General and Particular Specification for all permanent concrete. Uses include viaduct structures, bridge concrete
- 50MPa will be both precast and ready-mix concrete will be used for precast bridge and viaduct segments, bridge girders, Super Ts and parapets, drainage and piling
- 55MPa will be used for precast box segments.
- 65MPa if required

CPBUI JV will work collaboratively to;

1. Reduce the overall quantity of cementitious material
2. Use supplementary cementitious materials for Portland cement replacement
(maximum cementitious and supplementary cementitious material targets within cement products are shown in the table below)

This method will reduce the overall embodied carbon associated with concrete. CPBUI JV aims to achieve a minimum 35% reduction in the embodied carbon associated with concrete (measured as a weighted average across all concrete mixes used on the Project), compared to equivalent conventional structures.

Table 23 – Maximum cementitious and supplementary cementitious material within cement products

Type	Strength (MPa)	Thickness (mm)	Water/ cementitious ratio	Embodied carbon (maximum)	Supplementary cementitious replacement (minimum)	Maximum cementitious content	
Ready mix concrete	Up to 65	> 500	< 0.4	TBA	50% fly ash, or 70% slag *	Up to and including 25 MPa	310
		>500	> 0.4	TBA	30% fly ash, or 55% slag, *		
		< = 500	n/a	TBA	30% fly ash, or 55% slag *	32 MPa	360
					40 MPa	420	
					50 MPa	450	
	Above 65	n/a		Performance-based assessment to be complete to optimise cementitious content and supplementary material			
Precast Segments	50	n/a		290 kg** CO ₂ e		450	

*A triple blend can be used if the embodied carbon footprint can be demonstrated to be lower than the benchmark. Where required the embodied carbon will be calculated using the following calculation:

$$\text{Embodied Carbon} = [\text{kg cement per cubic metre of concrete} \times 0.982] + [\text{kg fly ash per cubic metre} \times 0.012] + [\text{kg slag per cubic metre} \times 0.187]$$

10.1.4. Waste initiatives

Waste management is an important aspect of sustainability on the SCAW Works. The Waste and Resources Sub-plan to the CEMP details CPBUI JV’s management practices in relation to waste. A focus will be on minimising waste excavated and maximising recycling and reuse potential. Initiatives may include:

Table 24 – Potential initiatives related to waste generation

Material	Initiative
Construction and Demolition Waste	Recycle or alternatively beneficially reuse at least 95% of inert and non-hazardous construction and demolition waste
	Investigation of best practice approach to utilise existing asset where feasible and practicable, including removal of unnecessary work activities and option-engineering
	Ensure the highest percentage of demolition and construction waste is reused or recycled
	Recycled hardstand materials use for temporary works, if possible, and existing hardstand areas will be maintained for use
Spoil	Ensure 100% of reusable spoil is beneficially reused in accordance with the spoil reuse hierarchy identified in the environmental documents and is not disposed to landfill
	Spoil reuse opportunities will be sought and maximised, targeting 100% reuse of reusable spoil generated during delivery of the Works. This may involve seeking Resource Recovery Exemptions
	Use site won materials onsite when feasible and practicable
	Ensure 100% of reusable topsoil will be separated and reused (noting that weed laden topsoil may only be reused when buried beneath a minimum of 200 mm of

Material	Initiative
	cleaner material or placed in dedicated linear landscape buffer mounds at the boundary of the corridor that are no higher than 1 m and no wider than 8 m).
Office Waste	Recycle or alternatively beneficially reuse at least 60% of office waste
	Implement office recycling programs onsite
	Reduce single use office items, where practicable
	Communicate recycling statistics to ensure share responsibility

Additionally, CPBUI JV will supply the circular economy through the use of post-consumer, post-industrial recycled material or waste materials (see Section 10.1.3).

Further, as part of design development, CPBUI JV will consider deconstruction and disassembly of the asset to enable recycling and reuse at end-of-life. This will be captured in a deconstruction plan prepared in line with the requirements of IS Rating credit Was-3. For more information regarding waste management, refer to the Waste Management Plan.

10.1.5. Vegetation management

About 14% of the Project’s preliminary carbon footprint estimate is attributed to vegetation clearing. CPBUI JV is committed to minimising the amount of vegetation clearing during delivery of SCAW to the greatest extent practicable. Overall, the Sydney Metro SM-WSA Project has been designed to avoid biodiversity impacts, where possible, by providing bridge and viaducts over key riparian and vegetated areas and ensuring these structures are designed to maintain fauna connectivity.

Further detail on biodiversity conservation and minimisation of vegetation clearing is included in Section 10.3.1 and the Project Flora and Fauna Management Plan.

10.1.6. Monitoring and reporting carbon and energy

CPBUI JV will monitor carbon, including energy, fuel, material and waste consumption/generation, through environmental and sustainability inspection and monthly client reporting detailed in Section 8.1 and the modelling processes detailed in Section 8.1.

10.2. Water Management

One of CPBUI JV’s key sustainability objectives is to *maximise efficiencies to reduce our footprint, in relation to water during design and construction*. The CPBUI JV is committed to minimising water demand and using alternative water sources to potable water. The strategy we will adopt to support sustainable consumption of water during delivery of the SCAW Works is based on the following three principles:

1. Reduce the volume of water required during delivery, to the greatest extent practicable
2. Replace potable water with sustainable non-potable sources, where feasible
3. Monitor and measure water consumption during delivery.

A preliminary water balance model was conducted during tender to analyse the water needs of the SCAW Works and identify opportunities for potable water replacement and for minimising water needs. The aim of this study is to understand the aspects of the SCAW Works’ water demand that have high materiality. Our multidisciplinary team has prepared and reviewed the water balance to ensure suitability and feasibility. The results of this study are summarised in Table 25.

Table 25 – Water consumption estimates on the SCAW Works

Water Source	Demand (kL)
Potable	1,000
Non-potable	152,500
Total	153,500

This water balance study is currently being reviewed based on water demand for earthworks and may be amended. The table below details potential water minimisation and replacement initiatives for SCAW.

Table 26 – Potential initiatives related to water management

Initiative type	Initiative
Minimisation	Use of efficient water practices during construction activities and site establishment.
	Installation of water-efficient fixtures and fittings in the showers, basins and waterless urinals
	Installation of wheel wash systems
	Inclusion of water minimisation practices into the construction methodology statements
	Procure sustainable site facilities to reduce water consumption (e.g. ensuring temporary facilities have efficient fixtures and fittings)
Replacement	Installation of rainwater tanks on site facilities to allow for rainwater harvest for site facilities to use rainwater
	Ensure the reuse at least 80% of concrete production operation water into concrete production at onsite or offsite batching plants

10.2.1. Monitoring and reporting of water use

During construction, we will monitor the use of water from both potable and non-potable sources. Water use will be monitored using smart meters and supported by meter reads, invoices or estimations (e.g. for recirculation systems). Data will be captured and reported as per reporting requirements, see Section 8.1.

10.3. Environment Management Systems

Environment management is a core pillar of sustainability management. CPBUI JV has committed to mitigating pollution, avoiding environmental harm according to environmental requirements, and achieving net positive benefits for the environment and community and leaving a positive legacy.

The Construction Environment Management Plan (CEMP) is the overarching document that details the environmental systems and how CPBUI JV will achieve this objective. The CEMP includes a range of documents that support the management practices and initiatives across the SCAW Works Project related to environment management.

10.3.1. Biodiversity Conservation

Overall, the SM-WSA Project has been designed to avoid biodiversity impacts, where possible, by providing bridge and viaducts over key riparian and vegetated areas and ensuring these structures are designed to maintain fauna connectivity.

As part of the tender a Biodiversity Impact Study was undertaken to ensure riparian vegetation specifically at the viaduct crossings is protected and impacts minimise to with specified ecological value scores as contractually specified in accordance with ecological value scores.

CPBUI JV will implement strategies and initiatives to enhance the biodiversity through design:

- Fauna crossing design and development
- Investigation of altering the grade of embankments which will allow for additional vegetation
- Facilitation of native vegetation seed, plant material and / or propagated plant collection
- Investigation of optimising haul road design resulting in reduced vegetation clearing
- Where possible, reusing native trees removed by the Project.

The assessment, criteria and construction strategies are detailed in the FFMP as part of the CEMP.

Table 27 identifies potential biodiversity conservation initiatives which will be further investigated and implemented where practical and feasible. The impacts of biodiversity and conservation approaches are further detailed in the Flora and Fauna Management Plan.

Table 27 – Potential initiatives related to biodiversity conservation management

Initiative type	Initiative
Onsite	Above ground activities will be conducted to minimise clearing required. This will be achieved through minimising the project footprint during design development and planning construction activities (including establishment of access routes) to ensure minimal disturbance of native vegetation.
	Allow Sydney Metro site access for seed collection
	Installation of nest boxes
Offsite	Consider biodiversity-related initiatives when considering potential community benefits
	Donate cleared vegetation and structures to local community groups for reuse where available

10.4. Heritage Management

CPBUI JV is committed to protecting, promoting and enhancing heritage values through appropriate design, planning, and management controls. CPBUI JV approach to heritage management is detailed in the Heritage CEMP Sub-plan.

10.5. Community and Social Benefit

Social sustainability is about identifying impacts (both positive and negative) that affects people and their community. CPBUI JV will ensure the SCAW Works Project will leave a positive legacy through effective and comprehensive community engagement. This is detailed in a separate Community Benefits Implementation Plan. This includes specific objectives and targets.

The Plan addresses the following requirements:

- Implement at least 10 community benefit initiatives which target identified community needs in each of the following categories which provide demonstrable and tangible benefits to local community groups during construction and beyond construction
- Engage at least five Social Enterprises or community benefit organisations as part of its Supply Chain for the Project Works.

CPB is taking the following steps to establish our community and social benefit plan:

Collaborate with Liverpool City Council, Penrith City Council, and other Western Parkland City districts to identify local and broader community needs.

Establish an industry-leading Sydney Metro Training Academy, similar to WestConnex Training Academy, to train workers during construction and leave a long-lasting skills legacy for Western Sydney. We will provide bespoke training and direct opportunities for employment for target groups including Aboriginal people and women in non-traditional roles.

Collaborate with primary, secondary and tertiary education institutes within Liverpool City and Penrith City to provide STEM engagement, pre-employment and research opportunities.

Create a local community network to enable storytelling and support of disadvantaged groups, including Aboriginal people, immigrants, the elderly and youth.

Partner with local sporting clubs, such as Western Sydney Wanderers and Penrith Panthers, to offer sporting and wellbeing opportunities to local Aboriginal groups, women and under 18s.

Part B Implementation Plan

Elements and Expectations

Part B of this Plan explains how sustainability requirements and targets will be met during the SCAW Works. Compliance with all elements of these systems and tools is required to minimise the likelihood of causing unauthorised harm, maximise the uptake of sustainability and met contractual requirements

The Sustainability Elements are:

- Element 1: CPB Management Elements
- Element 2: General Specifications
- Element 3: Particular Specifications
- Element 4: Conditionals of Approval
- Element 5: EIS Measures

Element 1: CPB Management Elements

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
Context and objectives			
Identify project context, objectives, targets and requirements	Establish Sustainability Policy applicable for the project Identify project key contract requirements and targets Identify project Legislation and Regulatory Requirements Identify project key stakeholders Establish project external sustainability related resources if required Integrate sustainability elements into other functional management plans	Sustainability Manager Project Manager/Director	Details included in SMP Section 3, Section 5 and Appendix A
Assess sustainability materiality	Assess Sustainability Materiality	Sustainability Manager Project Manager Design manager Engineering Manager Construction Manager Risk Manager Stakeholder/Social Inclusion Manager Workforce Manager Environment Manager Commercial Manager	Section 4 and Section 10 IS Scorecard as in Section 5
Leadership, collaboration, and support			
Define sustainability roles, responsibilities and competencies	Define project leadership sustainability responsibilities Define sustainability team roles, responsibilities and competencies Define rating scheme associated roles and responsibilities	Project Manager/Director Sustainability Manager	Details included in SMP Section 6.

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
Identify and facilitate sustainability training opportunities	<ul style="list-style-type: none"> ▪ Include sustainability training requirements in training matrix. All resources to deliver the training including personnel, equipment, funding and materials, will be allocated in the Project budget ▪ Unless already completed, sustainability team staff will complete the ISC Accredited training course and exam within 6 months of project commencement or when the course is next offered ▪ Industry sustainability training courses including ISC Accredited training courses will be offered to functional leads and project leadership roles where appropriate <p>The project induction will address appropriate Project-specific sustainability issues</p> <p>The Project will deliver (internally or externally facilitated) mandatory sustainability training opportunities as relevant to project team members including key functional leads which may include Environment manager, Procurement Manager, Commercial Manager and Design Manager.</p> <p>Undertake training evaluation and review</p>	Sustainability Manager HR Manager	Details included in SMP Section 7.8 External to SMP: Training Matrix Training records Position Descriptions
Risk and opportunity assessment			
Assess Sustainability Risks and Opportunities	<p>A multidisciplinary team including the Sustainability Manager, Design Manager and Construction Manager will participate in the risk and opportunity assessment processes. The identification of treatment/implementation options for sustainability risks/opportunities will be captured via risk and opportunity documents/processes which may include:</p> <ul style="list-style-type: none"> ▪ Overall Project Risk and/or Opportunity Register ▪ Sustainability and Innovation Opportunity Register ▪ Climate Change Risk Assessment ▪ Options Reports 	<p>Sustainability Manager</p> <p>Project Manager Design Manager Engineering Manager Construction Manager Risk Manager Stakeholder/Social Inclusion Manager Workforce Manager Environment Manager Commercial Manager</p>	External to SMP: Project Wide Risk Register Sustainability Initiatives Register (extract in Appendix D)

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
	<p>The Risk and Opportunity assessment will consider direct (and indirect where possible) risks and opportunities for the full project lifecycle (design, construction and operations) including consideration of:</p> <ul style="list-style-type: none"> ▪ Governance risks and opportunities ▪ Economic and financial risks and opportunities ▪ Environmental risks and opportunities ▪ Social risks and opportunities <p>Where risks and opportunities are assessed separately from the projects overall risk and opportunity assessment, then:</p> <ul style="list-style-type: none"> ▪ Any risks rated as extreme, very high or high (or equivalent scale) must be included in the projects overall risk register or appropriate functional risk register ▪ Any opportunities rated as extreme, very high or high (or equivalent scale) must be included in the projects overall opportunity register. ▪ Treatment/implementation options will be identified and implemented so that there are no residual extreme, high or very high risks. 		
	<p>The Sustainability Manager will maintain a Sustainability and Innovation Opportunity Register or similar to capture ideas and initiatives that may lead to sustainable outcomes. The Sustainability and Innovation Opportunity Register will qualitatively assess individual opportunities based on Governance, Economic, Social and Environmental benefits. The Register will be used to track the status and responsibility for progressing sustainability and innovation opportunities.</p>	<p>Sustainability Manager</p>	<p>External to SMP: Sustainability Initiatives Register (extract in Appendix D)</p>

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
Assess sustainability impacts	<p>The Sustainability Manager will assist the project team assess feasible options/alternatives where appropriate for high impact/significant project related initiatives. High impact/significant initiatives will be defined by the project team and may include initiatives associated with high materiality, high cost or high impact initiatives. The options/alternatives will include a credible range of high-level options.</p> <p>Feasibility of high impact/significant project related initiatives will initially be assessed using a qualitative assessment to score the relative merit of each option followed by a detailed assessment where required to justify and communicate benefits and costs.</p> <p>The Whole of Life costs of key/significant project initiatives will be considered over the assets lifecycle to assist decision making. Whole of life costing will consider where appropriate and feasible the total costs and potential benefits of the initiative across its life cycle.</p>	<p>Sustainability Manager Commercial Manager Engineering Manager Design Manager Construction Manager</p>	<p>Refer Section 7.6 for more details. External to SMP: Options Assessment</p>
Sustainable Procurement			
Identify Material procurement scopes/packages	<p>The Sustainability Manager will engage early with the Procurement Team and Commercial Team to understand the procurement process specific to this project and identify the key packages/scopes associated with high materiality sustainability topics.</p>	<p>Sustainability Manager Commercial Manager Procurement Manager</p>	<p>Refer Section 7.6 for more details.</p>
Incorporate sustainability performance specifications (requirements) in subcontractor and supplier contract documents	<p>The Sustainability Manager will develop a set of Sustainability Performance Specifications to clearly articulate the performance requirements associated with selected high materiality design/construction packages and/or technical disciplines to achieve the sustainability requirements/targets. The Sustainability Performance Specification will be included in relevant design, construction and procurement contract documentation.</p>	<p>Sustainability Manager Procurement Manager</p>	<p>External to SMP: Sustainability Performance Specification / Sustainability Guidance Pack</p>

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
	<p>The Sustainability Performance Specifications and/or supply agreements will include the supplier / subcontractors reporting requirements.</p> <p>The Procurement Manager will include Sustainability Performance Specifications (requirements) in Request for Quotation packages outlining sustainability performance and targets associated with selected high materiality packages.</p>		
<p>Incorporate sustainability considerations in subcontractor and supplier prequalification</p>	<p>The Procurement Manager will use the Request for Quotation to invite suppliers to identify project-specific opportunities/risks that may contribute to sustainability performance.</p> <p>The [Procurement Manager] will request suppliers complete CPB Contractors' Prequalification Questionnaire to confirm details of their sustainability and environmental policies/strategies and their implementation, objectives and recent achievements and incidents.</p>	<p>Procurement Manager Sustainability Manager</p>	<p>External to SMP: Pre-qualification questionnaire</p>
<p>Consider environmental, social and financial aspects in tender evaluation</p>	<p>The Procurement Manager and Sustainability Manager will evaluate selected suppliers prior to contract award using CPB Contractors supplier evaluation process, which assigns at least 30% of weighting to an index of non-financial criteria which may include sustainability, environment, safety and innovation.</p>	<p>Procurement Manager Sustainability Manager Project/Site Engineer</p>	<p>External to SMP: Tender Evaluation</p>
<p>Ensure supply chain partners report periodically on sustainability performance</p>	<p>The Commercial Manager will ensure suppliers and subcontractors provide applicable reporting as required with progress claims.</p>	<p>Commercial Manager</p>	<p>External to SMP: Monthly Environment and Sustainability Reports</p>
<p>Review subcontractor/supplier performance</p>	<p>The Sustainability Manager and Construction Manager will monitor and/or audit suppliers and subcontractors to verify commitments made in tender documents and identify areas of risk and identify areas for improvement. Regular feedback will be provided to celebrating success and collaboratively resolving non-conformances.</p>	<p>Sustainability Manager Construction Manager</p>	<p>External to SMP: Audit / Inspection Report</p>

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
	Where appropriate, Suppliers' actual delivery performance post award will be assessed in accordance with the CIMIC Group Procurement Procedure.		
Integrating sustainability in Design and Construction			
Allocate appropriate resources and costs for sustainability	<p>The Construction and Commercial Directors will ensure that sufficient cost provisions for resources are included in design and construction phases to ensure clear accountability for contributing to the achievement of sustainability requirements/targets.</p> <p>The Sustainability Manager will advise the Commercial Manager of indicative Rating Scheme costs (registrations etc), cost uplift or savings associated with potential sustainability initiatives and any additional sustainability cost/benefit considerations.</p>	Commercial Manager Construction Director Sustainability Manager	External to SMP: Functional Management Plans Design Plans Construction Plans
Integrate sustainability in design	<p>During design, The Sustainability Manager will identify sustainability opportunities and agree responsibilities with relevant design packages leads.</p> <p>The Sustainability Manager and Design Manager will define and agree on specific records and documentation required during the design phase to evidence and achieve the project sustainability requirements/targets (e.g. a table which could be included in the design report for each design package).</p> <p>The Sustainability Manager will:</p> <ul style="list-style-type: none"> ▪ Be provided updates to Design Schedules and progress reports to assist identify upcoming design review gateways for relevant design packages. ▪ Provide input at specified design review gateways for material design packages. ▪ Ensure that sustainability impacts are captured in the design process. E.g. include a sustainability section in template. <p>The Design Manager will add Sustainability as an ongoing agenda item for relevant meetings and/or establishment of a dedicated sustainability in design meeting.</p>	Sustainability Manager Design Manager	Refer Section 7.2.2 for more details. External to SMP: Functional Management Plans Design Plans Sustainability and Initiatives Register (extract App D)

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
	<p>The Sustainability Manager will undertake a review of proposed design changes for sustainability initiatives. The review will include an evaluation of client, stakeholder, quality, environmental, community, safety, cost and program impacts.</p>		
<p>Integrate sustainability in construction</p>	<p>During Construction: The Sustainability Manager will identify sustainability opportunities and agree responsibilities with relevant construction lot leads. The Sustainability Manager and Construction Manager will define and agree on specific input into the Construction Plans and key construction planning controls/documents/processes (e.g. Work Packs and Construction Area Plans) as relevant to evidence and achieve the project sustainability requirements/targets. The Sustainability Manager will:</p> <ul style="list-style-type: none"> ▪ Be provided construction/procurement schedules and progress reports to enable input and review ▪ Provide input at specified construction review gateways for material packages. <p>The Construction Manager will add Sustainability as an ongoing agenda item for relevant meetings and/or establishment of a dedicated sustainability in construction meeting.</p>	<p>Sustainability Manager Construction Manager</p>	<p>External to SMP: Functional Management Plans Construction Plans</p>
<p>Prepare a register of sustainability requirements and responsibilities</p>	<p>The Sustainability Manager will prepare a 'Sustainability Requirements Register' which will outline the project sustainability requirements and determine which functional leads/design and construction packages are associated with and responsible for the delivery of individual requirements.</p>	<p>Sustainability Manager</p>	<p>External to SMP: Sustainability Requirements Register Design Reports</p>
<p>Reporting, communication and information management</p>			
<p>Project sustainability performance reported Monthly</p>	<p>A monthly sustainability report will be prepared by the Sustainability Manager for the Support Services Director.</p>	<p>Sustainability Manager Support Services Director</p>	<p>Refer to Section 8 for more information External to SMP:</p>

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
	Information to be provided to the Business Unit Sustainability Manager upon request includes: <ul style="list-style-type: none"> ▪ Rating Scheme progress ▪ Evidence submitted ▪ Credit Summary Forms ▪ Weighting Assessment ▪ Verification summary spreadsheet / scorecard 		Sustainability Report
Supply chain performance is tracked and reported	Key supply chain providers will be required to report periodically on sustainability performance metrics as required by contract requirements and CPB Reporting Procedures.	Sustainability Manager Commercial Manager Procurement Manager	External to SMP: Monthly Sustainability Report
Sustainability rating scheme actions are managed	The project will utilise a Sustainability Action Management Tool such as/or similar to the CPB Contractors/EIC Activities IS Sustainability Action Management (SAM) Tool for projects with a Sustainability Rating Scheme.	Sustainability Manager	External to SMP: Rating Scheme Management tracking tool and progress reports
Project documents are managed and stored	Relevant documents and records must be stored and managed using the designated electronic document management system. The following Systems apply: <ul style="list-style-type: none"> ▪ Energy consumption, water consumption and waste generation data will be reported in JDE and Synergy (supporting evidence will be stored in within the designated doc management system) ▪ Incident reports and corrective actions will be stored and managed using Synergy ▪ Risk registers will be retained in excel spreadsheet and/or an applicable Risk Management System. Copies of risk registers will be saved to the designated electronic document management system periodically. ▪ The Project network drive (K: Drive) will be used to store working documents only. Final versions of key documents to be retained such as monthly reports, 	Sustainability Manager	External to SMP: Sustainability Rating Submissions

Expectations	Required actions (refer to Part A for all actions/details)	Responsible / Key Contributor	Deliverables
	<p>programme, etc. are to be stored on the designated electronic document management system</p> <ul style="list-style-type: none"> Final copies of sustainability ratings, case studies, certificates etc. must be saved to the CPB Contractors Sustainability Shared Drive. 		
Sustainability knowledge is captured and shared	<p>Project sustainability knowledge, case studies and lessons learnt will be captured and shared as appropriate with CPB Contractors staff/projects.</p> <p>The Sustainability Manager (or appropriate personnel) will participate in the CPB Contractors Bi-Monthly Sustainability Network which has been developed as a forum for sharing knowledge across CIMIC and CPB Contractors projects.</p> <p>Any external project communication must be approved by the Project, Client, CPB Contractors Communications Manager and CIMIC prior to release of any information.</p>	Sustainability Manager Communications Manager	External to SMP: Lessons Learnt Reports
Evaluation and improvement			
Sustainability performance is reviewed targeting continuous improvement	The Sustainability Management Plan will be reviewed annually by the Sustainability Manager to assess the adequacy of the Sustainability Management Plan and overall performance against Project sustainability requirements, targets and objectives. Applicable findings of the review will be incorporated into the Sustainability Management Plan and/or the CPB Sustainability Management System.	Sustainability Manager Project Manager Business Unit Sustainability Manager CPB Contractors Group Sustainability Manager	Refer to Section 9 for more details. External to SMP: Project Audit Schedule Audit/Review Reports
Sustainability audits, review and inspections are scheduled	The Sustainability Manager will prepare a Review and Audit schedule or include requirements in the project audit schedule to identify required actions, frequency and responsibilities throughout design and construction including IS Rating requirements.		
Sustainability audits, review and inspections are undertaken	Audits, inspections and reviews are undertaken as scheduled and where required to achieve targeted rating scheme credit requirements.		

Element 2: General Specifications

Ref	Requirement	How it is addressed
2.8.1 (a)	The SCAW Contractor must ensure that sustainability is addressed throughout the performance of the SCAW Contractor's Activities and that sustainability is embedded into the design and construction of the Project Works.	This Pan
2.8.1 (b)	The SCAW Contractor must meet the following sustainability targets:	n/a
	reuse at least 80% of concrete production operation water into concrete production at onsite or offsite batching plants for all concrete used in the performance of the SCAW Contractor's Activities;	Section 10.2
	use a maximum of 1000 kilolitres of water from potable water mains in the performance of SCAW Contractor's Activities	Section 10.2 Water Reuse Strategy
	source at least 50% Australian steel, including concrete reinforcing	Section 10.2 Water Reuse Strategy
	utilise the following recycled materials or products excluding steel, spoil, and concrete constituents in the performance of the SCAW Contractor's Activities;	Section 10.1.3
	40% Reclaimed Asphalt Pavement (RAP) with 5 – 10% recycled glass trialled for the wearing course on at least one temporary on-site road;	Section 10.1.3
	recycled crushed glass trialled as a biofiltration media (subject to hydraulic conductivity tests and EPA requirements;	Section 10.1.3
	B5 biodiesel to be used in all on-site plant and equipment	Section 10.1.2
	B20 biodiesel to be used in all on-site generators;	Section 10.1.2
	recycled crushed concrete to be used for the haul road base layer, crane pads, piling pads and mainline capping later	Section 10.1.3
	manufactured sand to be used in drainage;	Section 10.1.3
	10% manufactured sand used in drainage to be replaced by crushed glass where available;	Section 10.1.3
	40% of fine aggregate content within blinding layer of culvert slabs will be replaced by recycled crushed glass; and	Section 10.1.3
	geotextiles produced using recycled PET bottles to be used in drainage applications;	Section 10.1.3
	undertake three (3) multidisciplinary sustainability initiatives workshops during the detailed design process	Section 7.5
	100% of planting is to be native species, prioritising endangered and endemic species such as Cumberland Plains Woodland species.	FFMP
2.8.2 (a)	The SCAW Contractor must allow for and address sustainability objectives and sustainability requirements in:	n/a
	for all personnel involved in the preparation of Design Documentation;	Section 7.5

Ref	Requirement	How it is addressed
	the Design Documentation;	Section 7.5 Section 7
	Project Plans for the design, delivery and management, of the SCAW Contractor's Activities; and Construction Site inductions.	Section 2.6 Section 2 & 7.8
2.8.2 (b)	The SCAW Contractor must register with the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) Rating Scheme to use the IS rating tool in consultation with the Principal.	Section 3.6 & 5.2
2.8.2 (c)	The SCAW Contractor must achieve a verified "design" rating score of at least 75 points, using the ISCA IS rating tool version 1.2 "Design and As Built" for the design of the Project Works and Temporary Works prior to NAC Control Gate 3.	Section 5
2.8.2 (d)	In achieving the "design" rating, the SCAW Contractor must, as a minimum, achieve the following levels using the ISCA IS rating tool version 1.2	Section 5
	Level 3 for credit Ene-1 'Energy and carbon monitoring and reduction' demonstrating a greenhouse gas emissions reduction of 30% below a base case footprint;	Section 0
	Level 1 for credit Ene-2 'Use of renewable energy' to fully investigate opportunities for use of renewable energy;	Section 10.1.2
	Level 2.5 for credit Wat-1 'Water use monitoring and reduction', demonstrating a reduction in water use of 15% compared to a base case footprint;	Section 10.2 Water Reuse Strategy
	Level 1 for credit Wat-2 'Replace potable water', demonstrating that at least 33% of water used is from non-potable sources;	Section 10.2 Water Reuse Strategy
	Level 2 for credit Mat-1 'Materials lifecycle impact measurement and reduction', demonstrating a 15% reduction in materials lifecycle impacts compared to a base case footprint; <i>NOTE: IS Rating Pathway target is 30%</i>	Section 10.1.3
	Level 2 for credit Pro-1 'Commitment to sustainable procurement'; and	Section 7.6
	Level 3 for credit Pro-2 'Identification of suppliers'.	Section 7.6
2.8.2 (e)	The SCAW Contractor must achieve a verified "as built" rating score of at least 75 points, using the ISCA IS rating tool version 1.2 "Design and As Built" for the construction of the Project Works and Temporary Works.	Section 5
2.8.2 (f)	In achieving the "as built" rating, the SCAW Contractor must, as a minimum, achieve the following levels using the ISCA IS Rating Scheme version 1.2:	Section 5
	Level 3 for credit Ene-1 'Energy and carbon monitoring and reduction' demonstrating a greenhouse gas emissions reduction of 30% below a base case footprint;	Section 0
	Level 1 for credit Ene-2 'Use of renewable energy' to fully investigate opportunities for use of renewable energy;	Section 10.1.2

Ref	Requirement	How it is addressed
	Level 2.5 for credit Wat-1 'Water use monitoring and reduction', demonstrating a reduction in water use of 15% compared to a base case footprint;	Section 10.2 Water Reuse Strategy
	Level 1 for credit Wat-2 'Replace potable water', demonstrating that at least 33% of water used is from non-potable sources;	Section 10.2 Water Reuse Strategy
	Level 2 for credit Mat-1 'Materials lifecycle impact measurement and reduction', demonstrating a 15% reduction in materials lifecycle impacts compared to a base case footprint; <i>NOTE: For IS Rating Pathway is a target 30%</i>	Section 10.1.3
	Level 2 for credit Pro-1 'Commitment to sustainable procurement';	Section 7.6
	Level 3 for credit Pro-2 'Identification of suppliers';	Section 7.6
	Level 3 for credit Pro-3 'Supplier evaluation and contract award'; and	Section 7.6
	Level 2 for credit Pro-4 'Managing supplier performance'.	Section 7.6
2.8.2 (g)	The SCAW Contractor must develop, implement and maintain governance structures, processes and systems that ensure integration of all sustainability considerations, initiatives and reporting during the SCAW Contractor's Activities.	This Plan
2.8.2 (h)	<p>The SCAW Contractor must participate in sustainability forums, hosted by the Principal on a quarterly basis and:</p> <ul style="list-style-type: none"> ▪ present progress updates; ▪ present sustainability performance information; ▪ present sustainability lessons learned; and ▪ provide other information as reasonably requested. 	Section 6.3 & 7.8
2.8.3 (a)	The SCAW Contractor must undertake greenhouse gas assessment and reporting which covers the SCAW Contractor's Activities.	See Section 8 & Section 10.1.1
2.8.3 (b)	<p>The greenhouse gas assessment and reporting must be conducted in accordance with the requirements of:</p> <ul style="list-style-type: none"> ▪ TfNSW's Carbon Estimate and Reporting Tool (CERT) <https://www.transport.nsw.gov.au/industry/doing-business-transport/sustainability-at-transport>; or ▪ an alternative system agreed with the Principal 	
2.8.3 (c)	All reports required to be produced under the greenhouse gas assessment and reporting system must be provided to the Principal for Review with the appropriate Design Documentation and on a six-monthly basis during construction.	

Ref	Requirement	How it is addressed
2.8.4 (a)	<p>The SCAW Contractor must offset 100% of the all Scope 1 and Scope 2 emissions, as defined in National Greenhouse and Energy Reporting (NGER), released in carrying out the SCAW Contractor's Activities through one or a combination of the following:</p> <ul style="list-style-type: none"> ▪ purchase of large-scale generation certificates; ▪ purchase Australian Carbon Credit Units (ACCUs); and/or ▪ purchase of renewable Energy from an Australian Government Accredited renewable energy supplier. 	Section 10.1.1
2.8.5 (a)	The SCAW Contractor must identify and implement initiatives for biodiversity impact reduction as part of the Sustainability Report.	Section 10.3.1
2.8.5 (b)	The SCAW Contractor must minimise clearance of vegetation, particularly native vegetation.	Section 10.3.1
2.8.6 (a)	The SCAW Contractor must develop, implement, and maintain a sustainable procurement policy and processes that are consistent with ISO 20400 Sustainable Procurement - guidance, and are documented in the SCAW Contractor's Sustainability Management Plan.	Section 7.7.2 and Appendix E
2.8.6 (b)	The SCAW Contractor must demonstrate and implement a process for identifying and providing sustainability training to High Impact Suppliers and document in the SCAW Contractor's Sustainability Management Plan.	Section 7.6
2.8.6 (c)	<p>Where a high risk is identified under (a), the SCAW Contractor must ensure the supplier's operations are in compliance with:</p> <ul style="list-style-type: none"> ▪ all relevant laws and regulations local to that country; ▪ the International Labour Organization's Fundamental Conventions; and ▪ the "Ten Principles" of the UN Global Compact. 	Section 7.6
2.8.6 (d)	The SCAW Contractor must comply with all relevant NSW and Australian modern slavery legislation and provide the Principal with a copy of any reporting relevant to the Project Works.	Section 7.7.3
2.8.6 (e)	The SCAW Contractor must record the percentage of steel sourced from Australian manufacturers and make this information available to the Principal upon request.	Section 8.1
2.8.7 (a)	<p>The SCAW Contractor must implement at least 10 community benefit initiatives which target identified community needs in each of the following categories which provide demonstrable and tangible benefits to:</p> <p>local community groups during the period of construction period; and</p> <p>the broader local community beyond the construction period to leave a lasting legacy.</p>	Section 10.4 Community Benefit Strategy
2.8.7 (b)	The SCAW Contractor must engage at least five Social Enterprises or community benefit organisations as part of its Supply Chain for the Project Works.	

Ref	Requirement	How it is addressed
2.8.7 (c)	The SCAW Contractor must submit each proposed community benefit initiative and proposed “legacy” community benefit initiative for the Principal’s review and approval.	
5.2.4 (a)	From the date of this D&C Deed until the Date of Completion of the last Portion to achieve Completion, the SCAW Contractor must provide a quarterly sustainability report to the Principal.	Section 8.1
5.2.4 (b)	<p>The report must be in such format as is required by the Principal. Each sustainability report is to include the following:</p> <ul style="list-style-type: none"> an executive summary; the SCAW Contractor’s performance against the sustainability requirements of this D&C Deed, including compliance with the Sustainability Management Plan and performance against sustainability targets; the status of the implementation of the sustainability strategies, targets and initiatives identified in the Sustainability Management Plan; details of where the climate change risk assessment have influenced the design and construction for the Project Works and Temporary Works; details of greenhouse gas reduction initiatives which have been implemented in the design and construction of the Project Works and Temporary Works; life cycle assessments undertaken, and details of environmental impact reduction initiatives which have been implemented in the design and construction of the Project Works and Temporary Works; compliance with sustainable procurement requirements; corrective actions taken where non-conformances with sustainability requirements have been identified; compliance with all relevant NSW and Australian modern slavery legislation; and a copy of the community benefit initiative impact register and the status of the implementation of the community benefit initiatives and “legacy” community benefit initiatives. 	Section 8.1
5.2.4 (a)	From the date of this D&C Deed until the Date of Completion of the last Portion to achieve Completion, the SCAW Contractor must provide a quarterly sustainability report to the Principal.	Section 8.1
5.2.4 (b)	<p>The report must be in such format as is required by the Principal. Each sustainability report is to include the following:</p> <ul style="list-style-type: none"> an executive summary; the SCAW Contractor’s performance against the sustainability requirements of this D&C Deed, including compliance with the Sustainability Management Plan and performance against sustainability targets; the status of the implementation of the sustainability strategies, targets and initiatives identified in the Sustainability Management Plan; 	Section 8.1

Ref	Requirement	How it is addressed
	<p>details of where the climate change risk assessment have influenced the design and construction for the Project Works and Temporary Works;</p>	
	<p>details of greenhouse gas reduction initiatives which have been implemented in the design and construction of the Project Works and Temporary Works;</p>	
	<p>life cycle assessments undertaken, and details of environmental impact reduction initiatives which have been implemented in the design and construction of the Project Works and Temporary Works;</p>	
	<p>compliance with sustainable procurement requirements;</p>	
	<p>corrective actions taken where non-conformances with sustainability requirements have been identified;</p>	
	<p>compliance with all relevant NSW and Australian modern slavery legislation; and</p>	
	<p>a copy of the community benefit initiative impact register and the status of the implementation of the community benefit initiatives and “legacy” community benefit initiatives.</p>	

Element 3: Particular Specifications

Ref	Requirement	How is it addressed
3.4.1 (a)	The SCAW Contractor must, as a minimum, achieve the Infrastructure Sustainability Council of Australia ratings, identified in the General Specification.	Section 5
3.4.1 (b)	The SCAW Contractor must ensure that sustainability requirements are addressed throughout the performance of the SCAW Contractor’s Activities and that sustainable practices are embedded into the construction of the Project Works and the Temporary Works.	This Plan
3.4.2 (a)	<p>The SCAW Contractor must:</p> <p>use the project climate change framework (‘the SM-WSA Climate Change Register’ and ‘the SM-WSA Climate Change Risk Assessment Report’) provided as Information Documents to inform the design and to ensure the Project Works are resilient to the effects of climate change over the relevant Design Life;</p> <p>undertake a review of the project climate change framework in respect to the Project Works, which includes the following:</p> <ul style="list-style-type: none"> climate change risk assessment; climate change projections; risk allocation; and current risk controls; <p>as appropriate, provide written request to the Principal’s Representative to amend any part of the climate change risk framework applicable to the Project Works;</p> <p>not amend the project climate change framework without prior approval from the Principal’s Representative;</p> <p>demonstrate the project climate change framework is used as an input to inform Design Documentation;</p> <p>develop all necessary adaptation measures that comprehensively address risks classified as “very high”, “high” and “medium” during the Design Life of the Project Works using AS/NZS ISO 31000 Risk management – Principles and guidelines;</p> <p>implement measures to mitigate all climate change risks classified as “very high”, “high”, and “medium” in (vi) above, such that:</p> <ul style="list-style-type: none"> all residual risks are classified as “medium” or “low”; a minimum of 50% of “medium” inherent risks are mitigated down to “low” residual risks; 	Section 10.1

Ref	Requirement	How is it addressed
	<p>any “medium” residual risks are submitted to the Principal’s Representative for approval prior to Stage 2 Design, with documentation demonstrating they have been reduced as far as reasonably practicable; and</p> <p>the responsibility for adaptation of risks related to climate change are not transferred to other parties without prior approval from the Principal's Representative;</p> <p>describe in the Design Documentation how adaptation measures have been implemented;</p> <p>describe in the Design Documentation how mitigation measures have been implemented; and</p> <p>adopt a climate change factor which is the greater of 19.7% or as determined in accordance with Australian Rainfall and Runoff (ARR) 2019, based upon Representative Concentration Pathway RCP8.5. This climate change factor must be included in all annual exceedance probability calculations used for design purposes.</p>	
3.4.3 (a)	<p>The SCAW Contractor must ensure that all vehicles, plant and equipment, are:</p> <p>selected and operated for optimum energy efficiency;</p> <p>not left idling when not in use;</p> <p>fitted with catalytic converters, diesel particulate filters or equivalent devices where reasonable and feasible; and</p> <p>well maintained and serviced in accordance with relevant equipment maintenance documentation to reduce emissions due to poor engine performance.</p>	Section 10.1.2
3.4.3 (b)	<p>The SCAW Contractor must investigate the feasibility of opportunities for using onsite sources of renewable energy during the SCAW Contractor’s Activities.</p>	Section 10.1.2
3.4.3 (c)	<p>The results of the feasibility assessment must be documented in the first sustainability report as defined in section 5.2.4 (Sustainability Report) of the General Specification.</p>	Section 8.1
3.4.3 (d)	<p>The SCAW Contractor must implement all opportunities for onsite sources of renewable energy which will achieve a cost-benefit ratio greater than 1 during the SCAW Contractor’s Activities.</p>	Section 10.1.2
3.4.3 (e)	<p>The SCAW Contractor must achieve at least a 20% reduction in greenhouse gas emissions from the project baseline greenhouse gas footprint, to be determined using the Transport for NSW Carbon Estimation and Reporting Tool (CERT) or an alternative system agreed with the Principal.</p>	Section 5 & 10.1.1
3.4.4.1 (a)	<p>The SCAW Contractor must undertake a water balance study and submit it to the Principal’s Representative, within 100 days of the commencement of the D&C Deed and again prior to the commencement of Project Works and Temporary Works, that identifies the sources, uses and estimated quantities of potable and non-potable water which will be either created or used in the performance of the SCAW Contractor’s Activities.</p>	Section 8.1 & 10.2

Ref	Requirement	How is it addressed
3.4.4.1 (b)	The SCAW Contractor must ensure that the water balance study in (a) above identifies initiatives to reduce water demand and use non-potable water, which must be adopted in order to achieve both the sustainability ratings and the performance the targets set out in the section 2.8 (Sustainability) of the General Specification.	Section 10.2
3.4.4.1 (c)	The SCAW Contractor must minimise water demand including total water consumption and potable water consumption during the design and construction phase by:	Section 10.2
	using water efficient controls, fixtures and fittings;	
	harvesting rainwater wherever available;	
	using water from recycled water networks where available;	
	collecting, treating and reusing stormwater and wastewater; and metering and sub-metering water use.	
3.4.4.1 (d)	The SCAW Contractor must not use potable water as a substitute for non-potable water where on-site or local sources of non-potable water are suitable for the SCAW Contractor's Activities and are available.	Section 10.2 Water Reuse Strategy
3.4.4.1 (e)	The SCAW Contractor must ensure that all construction equipment requiring water are selected taking into account the water efficiency of the equipment and associated construction methodology.	Section 10.2
3.4.4.1 (f)	The SCAW Contractor must ensure that water efficient construction methods are described in all construction method statements to be applied by the SCAW Contractor.	Section 10.2
3.4.4.1 (g)	For water used in onsite and offsite concrete batching plants which supply the SCAW Contractor's Activities:	Section 10.2 Water Reuse Strategy
	The SCAW Contractor must endeavour to ensure that a portion of offsite and onsite batching plant concrete production operation water is recycled and incorporated into concrete production, provided it meets the relevant Codes and Standards; and	
	The SCAW Contractor must pass requirements relating to concrete production operation water down through its supply chain.	
3.4.4.1 (h)	The SCAW Contractor must meter the water supplied for the SCAW Contractor's Activities from both recycled water networks and potable sources in order to report against the targets set out in the General Specification.	Section 10.2
3.4.4.1 (i)	All landscaping provided by SCAW Contractor must:	Urban and Architectural Strategy (PUDCLP) Landscape Strategy
	be chosen to suit the local soil, drainage, microclimate and development environment;	
	comprise of plant species that have minimal additional water requirements beyond the establishment phase;	
	comprise of plant species that are demonstrated to require low maintenance and have drought tolerance;	

Ref	Requirement	How is it addressed
	be designed to minimise the need for irrigation but where possible, plants must be grouped to take advantage of the irrigation design layout.	
3.4.4.2 (a)	The SCAW Contractor must identify and implement waste minimisation initiatives and material selection strategies to minimise the embodied carbon and lifecycle impacts of waste and materials associated with the SCAW Contractor's Activities.	Section 10.1.4 Waste Management Plan
3.4.4.2 (b)	The SCAW Contractor must: minimise the generation of waste; and demonstrate through design refinement, construction planning and construction methods, waste minimisation, recycling and resource recovery.	
3.4.4.2 (c)	The SCAW Contractor must ensure that at least 95% by mass of inert and non-hazardous construction waste, excluding spoil, and at least 60% by mass of office waste is recycled or alternatively beneficially reused.	
3.4.4.2 (d)	The SCAW Contractor must identify and implement opportunities for recycling and reuse of non-putrescible general solid wastes, other than construction and demolition waste and office waste, during the SCAW Contractor's Activities.	
3.4.4.2 (e)	The SCAW Contractor must investigate packaging take-back arrangements with suppliers and implement these where feasible.	
3.4.4.2 (f)	The SCAW Contractor must use compostable or reusable temporary erosion control devices where practicable.	
3.4.4.2 (g)	The SCAW Contractor must avoid the production of hazardous waste where practicable.	
3.4.4.2 (h)	The SCAW Contractor must implement the following waste management measures during the SCAW Contractor's Activities: provide co-mingled recycling bins adjacent to all general waste bins; provide separate bins for storage of specialist waste streams, including oil, electrical and electronic waste, and equipment waste; and provide sufficient on-site storage space for the safe storage of recyclable waste and general waste prior to collection for treatment and disposal.	
3.4.4.3 (a)	The SCAW Contractor must identify and implement material selection strategies to minimise the embodied carbon and lifecycle impacts of waste and materials associated with the SCAW Contractor's Activities.	
3.4.4.3 (b)	The SCAW Contractor must undertake life-cycle assessments in accordance with ISO 14044 to assist in selection of the most appropriate low-impact materials for the SCAW Contractor's Activities.	Section 10.1.3

Ref	Requirement	How is it addressed
3.4.4.3 (c)	The SCAW Contractor must ensure that the life-cycle assessments described in (b) are undertaken before the completion of Combined Design Stage 1 & 2, and the results of the life cycle assessments are included in its Design Documentation for Combined Design Stage 1 & 2.	Section 10.1.3
3.4.4.3 (d)	<p>The SCAW Contractor must demonstrate that it has achieved a minimum 15% reduction in the environmental footprint of the materials used for the SCAW Contractor's Activities, compared to a business-as-usual case, using: <i>NOTE: For IS Rating MUST target 30%</i></p> <p>a methodology agreed with the Principal's Representative; or</p> <p>the materials calculator included in the Infrastructure Sustainability Council of Australia IS Rating Scheme available at https://isca.org.au/resources/57-infrastructure-sustainability-resources/downloads/873-is-materials-calculator-v1-2.</p>	Section 10.1.3
3.4.4.3 (e)	The SCAW Contractor must reduce materials use through materials avoidance and reduction strategies and minimise construction materials volumes through design refinement, construction planning and construction methods.	Section 7 Section 10.1.3
3.4.4.3 (f)	The SCAW Contractor must minimise embodied carbon and lifecycle impacts by using, where practicable:	Section 7
3.4.4.3 (i)	blended cement that contains waste industrial products such as fly ash and ground granulated blast furnace slag;	Section 10.1.3 & 10.1.4
3.4.4.3 (ii)	low carbon concrete including geopolymer concrete where feasible;	
3.4.4.3 (iii)	aggregate containing recovered products such as glass, plastic and concrete;	
3.4.4.3 (iv)	recycled steel, including in concrete reinforcing; and	
3.4.4.3 (v)	spoil generated on-site.	
3.4.4.3 (g)	At least 35% of Portland cement will be replaced by supplementary cementitious material, measured as a weighted average across all concrete mixes used for the SCAW Contractor's Activities.	Section 10.1.3.1
3.4.4.3 (h)	The SCAW Contractor must use recycled and recyclable materials where possible, without compromise to the structural integrity, longevity and visual quality of materials and structures.	Section 10.1.3
3.4.4.3 (i)	The SCAW Contractor must use reusable formwork and clearly identify and justify in design documentation applications where reusable formwork is not considered practicable.	
3.4.4.3 (j)	<p>The SCAW Contractor must source the materials for the Project Works and Temporary Works in accordance with the following requirements:</p> <p>Concrete must be sourced from members of:</p> <p>Cement Concrete & Aggregates Australia; or</p>	

Ref	Requirement	How is it addressed
	<p>a “similar” association or organisation by agreement with the Principal’s Representative;</p> <p>steel must be sourced from suppliers that:</p> <ul style="list-style-type: none"> are certified under the Australian Certification Authority for Reinforcing and Structural Steels; or a “demonstrated equivalent” association or organisation, where agreed by the Principal’s Representative; <p>Steel must be sourced from steelmakers with an ISO 14001:2015 Environmental management certified Environmental Management System;</p> <p>Fabricated steel products must be in accordance with AS 5131:2016 Structural steelwork – Fabrication and erection and certified through the National Structural Steelwork Compliance Scheme; and</p> <p>Polyvinyl chloride must be compliant with the Green Building Council of Australia (GBCA) Best Practice Guidelines for polyvinyl chloride (PVC) in the built environment.</p>	
3.4.4.3 (k)	<p>All timber products for the Project Works and Temporary Works must be sourced from either:</p> <ul style="list-style-type: none"> re-used timber; post-consumer recycled timber; Forest Stewardship Council (FSC) certified timber sourced within Australia; or Programme for the Endorsement of Forest Certification (PEFC) certified timber sourced within Australia. 	
3.4.4.4 (a)	<p>The SCAW Contractor must use low volatile organic compounds (VOC) paints, finishes, sealants and adhesives and zero or low formaldehyde emission composite wood products (as defined in the Green Star Design and As Built Sydney Metro Rating Tool) for the SCAW Contractor’s Activities.</p>	
3.4.4.4 (b)	<p>All surface coatings used by the SCAW Contractor must comply with the Australian Paint Approval Scheme (APAS) volatile organic compounds limits.</p>	
3.4.4.5 (a)	<p>The SCAW Contractor must identify and implement initiatives to both reduce spoil quantities which will be generated during the performance of the SCAW Contractor’s Activities and beneficially reuse 100% of reusable spoil, including topsoil.</p>	Section 10.1.4 Waste Management Plan
3.4.4.5 (b)	<p>Beneficial reuse of spoil must be in accordance with the following spoil reuse hierarchy, in order of preference:</p> <ul style="list-style-type: none"> ▪ within the project; ▪ environmental works; ▪ other development projects; ▪ land restoration; and ▪ landfill management. 	Urban and Architectural Strategy (PUDCLP) Landscape Strategy

Ref	Requirement	How is it addressed
3.4.4.5 (c)	Where spoil cannot be classified as either virgin excavated natural material (VENM) or excavated natural material (ENM), the SCAW Contractor must determine the feasibility of beneficial reuse by characterising the spoil against the specific contaminant concentration (SCC) and toxicity characteristics leaching procedure (TCLP) values in Tables 1 and 2 of the NSW Environment Protection Authority (EPA) Waste Classification Guidelines Part 1 (2014). Where contamination meets the requirements for General Solid Waste the SCAW Contractor must seek receivers who are able to re-use or recycle spoil that meets the General Solid Waste thresholds as outlined in the NSW EPA Waste Classification Guidelines (2014) (as updated from time to time). Alternatively, the SCAW Contractor may apply to the EPA for a Resource Recovery Order or Exemption granted under the Protection of the Environment Operations (Waste) Regulation 2014.	
3.4.4.5 (d)	<p>Subject to paragraphs (e) to (g), the SCAW Contractor must ensure that landscape mounds are:</p> <p>designed and constructed to meet the requirements of the D&C Deed including the requirements of the Planning Approval related to landscaping, visual impact, flooding and drainage;</p> <p>not placed within riparian buffer zones as defined by Guidelines for controlled activities on waterfront land riparian corridors (Department of Industry 2018) and at least 60m from middle of creek, whichever is greater;</p> <p>naturally shaped with smooth transitions into the surrounding topography;</p> <p>constructed with batter slopes less than or equal to 3 horizontal to 1 vertically; and</p> <p>covered by at least 400mm of topsoil to enable revegetation of the native bushlands.</p>	
3.4.4.5 (e)	The SCAW Contractor must ensure that the top 100mm of weed laden topsoil is stripped and separated from cleaner underlying topsoil. Weed laden topsoil may only be reused when buried beneath a minimum of 200mm of cleaner material or placed in dedicated linear landscape buffer mounds at the boundary of the corridor that are no higher than 1 metre and no wider than 8m..	
3.4.4.5 (f)	<p>The subsections below set out the requirements by location for all landscape mounds constructed to manage excess spoil on the Project Site:</p> <p>Within the Project Site north of the Warragamba pipeline excluding Project Site areas PS-101B, PS-102 and PS-105, all permanent landscape mounds must:</p> <p>be no higher than 3m above existing ground level;</p> <p>have batter slopes less than or equal to 5 horizontal to 1 vertical;</p> <p>not be located within 200m of the eastern boundary of the Construction Site north of Blaxland Creek (Project Site PS-44); and</p> <p>be located at least 200m north of the northern boundary of the Warragamba Pipeline easement.</p>	

Ref	Requirement	How is it addressed
	<p>Landscape mounds in the area for the Stage 2 stabling yard and located in areas of the Project Site PS-101B and PS102 may only be used to stockpile VENM or ENM material.</p> <p>Section 3.4.4.5(f)(ii) is not applicable to landscape mounds within Project Site area PS-102 outside of the area for the Stage 2 stabling yard.</p> <p>The use of Project Site area PS-25 directly south of Luddenham Road for managing excess spoil on the project must only consist of site levelling with VENM and ENM material and must not restrict or limit the future development opportunities for this site as defined within the Western Sydney Aerotropolis Precinct Plan 2020 (or as updated from time to time by the Western Sydney Planning Partnership).</p>	
3.4.4.5 (g)	The SCAW Contractor is to prioritise and maximise the use of Project Site PS-105 in its approach to landscape mounds for the purpose of managing excess spoil on the project.	
3.4.4.6 (a)	The SCAW Contractor must minimise the clearance of vegetation, particularly native vegetation.	
3.4.4.6 (b)	<p>Calculated using the Green Building Council of Australia’s ‘Green Star Design and As-Built v1.3 Ecological Value Calculator’, the SCAW Contractor must achieve ecological value scores no worse than the following:</p> <p>for the Blaxland Creek viaduct crossing - 0.32;</p> <p>for the Unnamed Creek viaduct crossing - 0.34;</p> <p>for the Cosgrove Creek viaduct crossing - 0.26;</p> <p>for the average score of (i), (ii) and (iii) above – 0.33.</p>	Biodiversity Impact Study (from tender) as incorporated and further developed in the FFMP
3.4.4.6 (c)	<p>For the Blaxland Creek viaduct crossing, ecological value scores should be calculated for works done within the following boundary:</p> <p>E 291857.851 N 6257830.853;</p> <p>E 291803.353 N 6257838.272;</p> <p>E 291780.225 N 6257668.389; and</p> <p>E 291834.723 N 6257660.970.</p>	
3.4.4.6 (d)	<p>For the Unnamed Creek viaduct crossing, ecological value scores should be calculated for works done within the following boundary:</p> <p>E 291542.881 N 6255602.386;</p> <p>E 291488.384 N 6255609.805;</p> <p>E 291465.254 N 6255439.917; and</p> <p>E 291519.751 N 6255432.497.</p>	

Ref	Requirement	How is it addressed
3.4.4.6 (e)	<p>For the Cosgrove Creek viaduct crossing, ecological value scores should be calculated for works done within the following boundary:</p> <p>E 291080.119 N 6252402.863; E 291033.600 N 6252373.519; E 291122.690 N 6252227.031; and E 291169.209 N 6252256.375.</p>	
3.4.4.6 (f)	<p>The SCAW Contractor must ensure that the viaducts across Blaxland Creek, Unnamed Creek and Cosgrove Creek span the entire creek channel without impacting water flow. The design of each viaduct must:</p> <p>comply with the Planning Approvals and all associated approval documents</p> <p>demonstrate, so far as reasonably practicable, that impacts on the riparian buffers (as detailed in Table 4.2 and Figure 4.1 of the Environmental Impact Statement Technical Paper 3: Biodiversity Development Assessment Report) are avoided; and</p> <p>include details of the viaduct construction methodology which must:</p> <p>minimise short term and avoid long term impacts to the riparian buffers; and</p> <p>be approved by the Principal.</p>	
3.4.4.6 (g)	<p>The SCAW Contractor must identify and implement initiatives for biodiversity enhancement and enhancing habitat connectivity.</p>	
3.4.4.6 (h)	<p>Fauna and Flora crossings to be provided at the following chainages: nominally 22+870; 23+600; nominally 25+320; 25+615; 26+420; 28+170; nominally 29+185.</p>	
3.4.4.6 (i)	<p>Flora and Fauna crossings to be in line with the Environmental Impact Statement Chapter 27 (Synthesis) Table 5 details.</p>	
3.4.4.6 (j)	<p>The SCAW Contractor must:</p> <p>ensure the Seed Collection Contractor or delegate approved by the Principal's Representative participates in the pre-clearing inspection required under the construction environmental framework (CEMF) to identify and preserve any native seeds suitable for collection;</p> <p>maximise opportunities for the Seed Collection Contractor to preserve any native seeds suitable for collection;</p> <p>notify the Seed Collection Contractor at least 20 Business Days prior to the commencement of clearing of any native vegetation;</p>	

Ref	Requirement	How is it addressed
	<p>develop, submit to the Principal for Review, implement and maintain a program of clearance activities indicating areas, timing and extent of clearing activities in the SCAW Contractors Flora and Fauna Management Plan (prepared in accordance with the CEMF);</p> <p>whenever vegetation is to be preserved, provide access to the Seed Collection Contractor to undertake seed salvage; and</p> <p>comply with all other conditions of the Planning Approvals and the Flora and Fauna Management Plan.</p>	
3.4.4.6 (k)	<p>In order to assist the follow-on contractor's rehabilitation activities, the SCAW Contractor must develop and submit to the Principal for Review, pre-construction diagrams for impacted and adjoining areas showing:</p> <p>vegetation communities;</p> <p>important flora and fauna habitat areas; and</p> <p>locations of threatened species, populations or ecological communities.</p>	
3.4.4.6 (l)	<p>The pre-construction diagrams required under paragraph (g) must be submitted to the Principal no less than [30] Business Days prior to the clearing of any native vegetation.</p>	
3.4.5.1 (a)	<p>The SCAW Contractor must identify and implement pollution control initiatives and target zero major pollution incidents.</p>	Section 10.3
3.4.5.1 (b)	<p>The SCAW Contractor must ensure that all excavators and mobile cranes used for the SCAW Contractor's Activities, which are onsite for more than three (3) months, comply with United States Environmental Protection Agency (US EPA) Tier 4 or European Union Stage V exhaust emission standards.</p>	Section 10.1.2
3.4.5.2 (a)	<p>The SCAW Contractor must adopt an integrated approach to urban water cycle management and design to minimise impacts on stormwater quality during construction phase and operation. This includes consideration of stormwater management within site facilities.</p>	Section 10.3
3.4.5.2 (b)	<p>The SCAW Contractor's integrated approach must achieve:</p> <p>a reduction in potable water demand through:</p> <ul style="list-style-type: none"> ▪ the use of rainwater or greywater where a reticulated reuse system is not available; and ▪ the use of water efficient appliances and fittings; ▪ a reduction in wastewater generation; ▪ the relevant Authority's stormwater quality targets which are suitable for either reuse or discharge into local streams and waterways; a maximum use of stormwater in the urban landscape; and ▪ the water pollutant targets identified in paragraph (c). 	Section 10.2

Ref	Requirement	How is it addressed
3.4.5.2 (c)	<p>The SCAW Contractor must ensure that any discharge of water from the Works meets the following specified water pollutant reduction targets:</p> <ul style="list-style-type: none"> ▪ a 90% reduction of total suspended solids (TSS); ▪ a 95% reduction of gross pollutants; ▪ 60% reduction of total nitrogen (TN²); ▪ 70% reduction of total phosphorus (TP); and ▪ if a site has more than 200m² of uncovered areas where vehicles are likely to transit and/or park, then hydrocarbon treatment devices must be installed, specified to remove at least 98% of hydrocarbons, sized to treat a 1-in-3 month ARI (4EY) flow. 	Soil and Water Management Plan
3.4.6 (a)	<p>The SCAW Contractor must ensure that, where reasonable and feasible, any temporary site facilities provided by the SCAW Contractor incorporate:</p> <p>energy efficient lighting schemes and light emitting diode (LED) light fittings with effective lighting control to eliminate the energy consumption from lighting during inactive periods;</p> <p>plug-in electrical equipment which complies with the requirements of the Equipment Energy Efficiency Program (E3) “Minimum Energy Performance Standards” and has at least a five (5) star Energy Rating Label;</p> <p>high performance thermal insulation in all walls (R2.0), ceilings (R3.0) and floors that optimise thermal performance;</p> <p>natural daylighting;</p> <p>natural ventilation;</p> <p>rainwater harvesting;</p> <p>water efficient fixtures, fittings and controls;</p> <p>air conditioning refrigerants with low or zero global warming potential;</p> <p>crime prevention through environmental design principles;</p> <p>occupancy based controls for air-conditioning units to eliminate operation when the facility is not occupied;</p> <p>low volatile organic compounds (VOC) paints, adhesives, sealants and carpets where applicable;</p> <p>the use of Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC) certified timber;</p> <p>the use of door-closers on all external doors as well as weather seals at all doors and windows (to air-conditioned spaces);</p>	Section 10.1.2 & 10.2 Sustainability Specification for Site Facilities procurement

Ref	Requirement	How is it addressed
	solar PV panels installed to feed facilities, and potentially the site as well; and separate gender inclusive bathroom facilities and changing amenities with a high degree of privacy; and	
3.4.6 (b)	Any security and warning lighting used by the SCAW Contractor must be installed so that light is not directed at neighbouring properties, or in such a way that light reflects onto structures or neighbouring properties.	
3.4.6 (c)	The SCAW Contractor must show that they have introduced programs and solutions to address at least five (5) of the following: suicide prevention; preventing discrimination; racism and bullying on-site; healthy eating and active living; reduce harmful alcohol and tobacco consumption and avoid drug use; increased social cohesion, community and cultural participation; understanding depression; preventing violence and injury; decreased psychological stress; and finding fulfilment at work or mindful meditation. The programs or solutions can be implemented directly by the head contractor or through partnerships with mental and physical health organisations.	Workforce Development and Industry Participation Plan
4.4.5 (a)	The SCAW Contractor must include the following climate change requirements in the drainage design: climate change effects are to be incorporated in accordance with section 3.4.2 (Climate Change); and document in a design report within the Design Documentation the impact of increasing the design rainfall intensities by 30% and 40%.	Drainage Design Package
4.7.1 (a)	The SCAW Contractor must use low volatile organic compound (VOC) sealants and adhesives and low emission formaldehyde composite wood products in the Project Works.	Sustainability Specification
4.7.2.1.1 (e)	The specific maximum cementitious material carbon footprint of concrete mixes for precast viaduct and bridge elements must be no greater than 290 kgCO ₂ -e/m ³ . <i>NOTE: See Schedule E12</i>	Concrete Test Plan
4.7.2.1.1 (f)	For precast viaduct and bridge elements, if the maximum cementitious content requirements in section (d) and/or the maximum cementitious material carbon footprint requirements in section (e) cannot be met, the Principal will accept an alternative maximum cementitious content if the SCAW Contractor can demonstrate to the Principal: the reasons why it cannot comply with the requirements in sections (d) and/or (e), based on the results of testing and trialling of concrete mixes; the increase in total embodied carbon content (kgCO ₂ -e) of the relevant viaduct or bridge associated with the proposed alternative concrete mix, compared to a concrete mix which complies with the requirements in section (d) and/or section (e), using the greenhouse gas intensity factors provided in section 4.7.2.1.2(b)(vi); that the quantified increase in cementitious content and total embodied carbon content identified in paragraph (ii) will be offset to the maximum extent reasonably practicable by reductions in the cementitious content and embodied carbon (kgCO ₂ -e) of concrete used in other elements; and a commitment to work collaboratively with the Principal throughout the design development process to achieve the maximum offset possible as required by paragraph (iii).	Concrete Test Plan

Ref	Requirement	How is it addressed
5.1.2 (a)	The SCAW Contractor must prepare and submit a “Climate Change Impact Assessment Report” to the Principal's Representative with the Design Documentation at each Design Stage and again prior to the Date of Completion of the last Portion to achieve Completion	Section 8
5.1.2 (b)	The Climate Change Impact Assessment Report must:	
	be prepared in accordance with the guidance and requirements included in the TfNSW Climate Risk Assessment Guidelines (SD-081);	
	document all project specific amendments to the climate change risk framework;	
	identify, assess and demonstrate how risk adaptation measures, including current risk controls have been and will be implemented to mitigate risk levels; and	
	align with the sustainability rating scheme that is being adopted for the Project.	
5.1.2 (c)	The SCAW Contractor must prepare and submit a report titled the “Greenhouse Gas Inventory Report” to the Principal’s Representative, using the TfNSW’s Carbon Estimate and Reporting Tool (CERT) or an alternative agreed system, with the Design Documentation at each Design Stage, annually thereafter and again prior to the Date of Completion of the last Portion to achieve Completion.	
5.1.2 (d)	The Greenhouse Gas Inventory Report must include data relating to emissions associated with electricity and fuel consumption, on-site process emissions and embodied emissions for all materials used in the SCAW Contractor’s Activities.	
5.1.2 (e)	The SCAW Contractor must provide to the Principal’s Representative, an annual inventory of non-road diesel powered vehicles used for the SCAW Contractor’s Activities and reporting of engine conformity with United States Environmental Protection Agency (US EPA) Tier 4 or European Union Stage V exhaust emission standard and the fitting of any exhaust after-treatment devices.	
5.1.2 (f)	The SCAW Contractor must provide to the Principal’s Representative copies of documents which are submitted to the Infrastructure Sustainability Council of Australia (ISCA) in relation to the Infrastructure Sustainability (IS) ratings for information.	
5.1.2 (g)	The SCAW Contractor must:	
	prepare and submit a report named the “Sustainable Design Report” to the Principal’s Representative with the Design Documentation at the completion of Combined Design Stage 1 & 2 and Design Stage 3, which includes:	
	a compliance table which shows the status of the compliance with sustainability requirements which are addressed in design;	
	evidence of how the sustainable design initiatives achieve the targets;	

Ref	Requirement	How is it addressed
	a graphical representation of the achievement of targets;	
	illustrations of key sustainability initiatives;	
	evidence to show where climate change mitigation and adaptation measures or changes have been implemented in the design;	
	scoring achieved using the ISCA IS Rating Scheme 'design' rating including supporting completed scorecards;	
	demonstration of progress toward achieving ISCA Ene-1, Ene-2, Mat-1, Wat-1 and Wat-2 credits;	
	performance against design-related sustainability targets;	
	life cycle assessments and evidence of how these have informed design, materials selection and materials sourcing to minimise life cycle environmental impacts;	
	details of where low carbon initiatives have been implemented in the design and construction of the Project Works and Temporary Works;	
	initiatives which have been implemented to minimise the embodied carbon emissions of concrete mixes which will be used in Project Works and Temporary Works;	
	updates on sustainable procurement activities; and	
	a demonstration and description of innovative sustainable design initiatives.	

Element 4: Conditions of Approval

Ref	Requirement	Reference
E100	A Sustainability Plan must be prepared to achieve an Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability rating of +75 (Version 1.2) (or equivalent level of performance using a demonstrated equivalent rating tool) or a 5-Star Green Star rating (or equivalent level of performance using a demonstrated equivalent rating tool).	Section 5
E101	The Sustainability Plan must be submitted to the Planning Secretary for information within six (6) months of the date of this approval and must be implemented throughout construction and operation. Note: Nothing in this condition prevents the Proponent from preparing separate Sustainability Strategies for the construction and operational stages of the CSSI.	Sydney Metro – Western Sydney Airport Sustainability Management Plan (see Section 4.3)
E102	A Water Reuse Strategy must be prepared, which sets out options for the reuse of collected stormwater and groundwater during construction and operation. The Water Reuse Strategy must include, but not be limited to: <ul style="list-style-type: none"> evaluation of reuse options; details of the preferred reuse option(s), including volumes of water to be reused, proposed reuse locations and/or activities, proposed treatment (if required), and any additional licences or approvals that may be required; measures to avoid misuse of recycled water as potable water; consideration of the public health risks from water recycling; and time frame for the implementation of the preferred reuse option(s). The Water Reuse Strategy must be prepared based on best practice and advice sought from relevant agencies, as required. The Strategy must be applied during construction. Justification must be provided to the Planning Secretary if it is concluded that no reuse options prevail. A copy of the Water Reuse Strategy must be made publicly available.	Water Reuse Strategy

Element 5: EIS Measures

Ref	Requirement	Reference
SUS1	A Sustainability Plan would be developed to be consistent with the Western Sydney Airport Sustainability Plan, and would be implemented during construction of the project. It would inform the preparation of Sustainability Management Plans	Section 5
SUS2	Protect sensitive construction equipment from the effects of extreme weather and climate, such as direct exposure to the sun on extreme heat days and flooding	Section 10.1
SUS3	Address climate change impacts in emergency management procedures for the construction of the project, such as consideration of impacts of flash flooding on evacuation procedures	Section 10.1
SUS4	A Sustainability Plan would be developed to be consistent with the Western Sydney Airport Sustainability Plan, and implemented during operation of the project	Section 5
SUS5	Climate change risk treatments would be confirmed and incorporated during further design development	Section 10.1
GHG1	Carry out an iterative process of greenhouse gas assessments and design refinement prior to construction to identify opportunities to minimise greenhouse gas emissions Performance would be measured in terms of a percentage reduction in greenhouse gas emissions, and assessed against a baseline inventory calculated at the design development and construction planning stage	Section 10.1.1
GHG2	Carry out an iterative process of greenhouse gas assessments and design refinement during detailed design to identify opportunities to minimise greenhouse gas emissions Performance would be measured in terms of a percentage reduction in greenhouse gas emissions, and assessed against a baseline inventory calculated at the design development stage	Section 10.1.1

Part C Appendices

Appendix A – SCAW Sustainability Policy

Sustainability Policy

CPBUI JV will work collaboratively with Sydney Metro to ensure sustainable outcomes through integration of environmental, social and governance factors into everything we do.

Employees, subcontractors, suppliers and consultants will strive together to identify and implement excellence and innovation throughout design, procurement and construction of the Surface and Civil Alignment Works.

CPBUI JV are committed to:

Demonstrating leadership

- Embedding sustainability governance practices into all processes for the delivery of a “Leading” IS rating
- Monitoring, tracking and reporting progress against Sustainability Targets
- Engaging with internal and external stakeholder to drive best practice
- Conducting trials of recycled and/or low carbon materials to support Innovation

Tackling climate change

- Incorporating climate change adaption in design in response to the climate change risks and baseline adaptation measures
- Ensuring the Project Works are resilient to the effects of climate change over the asset Design Life
- Updating and refining the climate change risk assessment and adaptation measures through the project life cycle
- Integrating onsite and offsite renewable energy, using fuel efficient plant and equipment and delivering Net Zero emissions for construction energy

Valuing community

- Implementing community benefit initiatives which target identified local community needs
- Engaging social enterprises or social benefit organisations during construction
- Providing tangible benefits to the broader local community beyond the construction period to leave a lasting legacy

Drive supply chain best practice by:

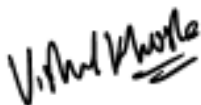
- Integrating the projects’ Sustainable Procurement Policy into procurement processes and practices

Managing resources efficiently

- Developing strategies and initiatives to reduce the environmental footprint of materials consumed and waste generated
- Minimising the quantity of materials required and selecting materials with lower embodied impacts to business-as-usual materials
- Improving the durability of materials to reduce frequency of replacement or repair
- Using recycled materials and recovering materials from waste and minimising waste to landfill
- Prioritising local sourcing of materials where this reduces transport emissions and allows greater recycled content
- Diverting all clean reusable spoil from landfill
- Reducing potable water use and increasing non-potable water substitution
- Prioritising high embodied carbon materials such as concrete, steel and asphalt
- Informing design through whole-of-lifecycle impacts, costs and opportunities

Protecting the environment

- Limiting the construction footprint to minimise clearing of vegetation, particularly of native vegetation
- Protecting the ecological value of areas adjacent to our works
- Support retention and enhancement of vegetation as habitat and as means of sequestering carbon
- Applying construction methods that protect the ecological value of riparian vegetation at viaduct crossings and avoid impact on water flow and water quality
- Minimising impacts on stormwater quality during construction phase and operations
- Minimising noise and vibration impacts on the community
- Complying with laws to protect the environment and avoid or reduce pollution



Vishal Khosla
SCAW Project Director

26 May 2022

Appendix B – SCAW Sustainability Procurement Policy

Sustainable Procurement Policy

This Policy sets out the CPBUI JV sustainable procurement commitments for the Surface and Civil Alignment Works. CPBUI JV are committed to using our purchasing power to support innovation and drive a more sustainable supply chain.

We will do this by reducing the overall impacts of our products and materials, proactively seeking opportunities to generating social value and ensure responsible sourcing in terms of our human rights considerations.

Our procurement approach and methods will include:

Sustainable procurement strategies

- Implementing strategies to avoid unnecessary consumption, manage demand and reduce waste
- Incorporate sustainability requirements into our subcontractor contracts
- Procuring fuel efficient plant and equipment and using biodiesel blends (B5-B20) for all onsite plant and equipment
- Implementing all onsite sources of renewable energy which are at least cost neutral over construction phase
- Securing 100% renewable energy for electricity use from an accredited energy retailer
- Purchasing Australian Carbon Credits Units to offset all unabated Scope 1 emissions, associated with fuel use for plant and equipment and vegetation clearing

Supplier Identification and selection processes

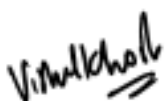
- Requiring suppliers to have socially responsible practices including compliance with legislative obligations to employees
- Identifying at risk suppliers to ensure supply of materials and equipment aligns with human rights legislation, ethical sourcing of labour and materials and compliance with environmental standards
- Implementing procurement initiatives that support ANZ SME and Recognised Aboriginal Businesses accessing the scope of works within the Supply Chain
- Establishing sustainability assessment criteria for supplier selection and evaluation

- Including sustainability in the non-financial criteria of High Impact Supplier evaluations and the weighting of all non-financial criteria will be at least 30%
- Conducting lifecycle assessments to inform procurement options and evaluations
- Preferring local suppliers that also support sustainability outcomes
- Supporting the use of products and services which have Environmental Product Declarations or other eco-labelling credentials

Monitoring, training and driving innovation

- Establishing data capture and reporting processes to track supplier quantities against sustainability targets
- Working with our local and regional supply chain to develop innovative solutions, enhance sustainable practices and materials
- Collaborating, training, supporting and empowering our employees, contractors and suppliers to develop positive partnerships that will assist meeting our objectives
- Increasing industry sustainability awareness and knowledge through the delivery of sustainability training to High Impact Suppliers (those that potentially have significant environmental, social or socio-economic impacts)
- Monitoring key Supply Chain partners by requiring partners to regularly report against sustainability performance and record compliance

The CIMIC Group Procurement Policy and the CPB Contractors' Procurement Procedures, tools and knowledge resources, form the basis of the project procurement approach in line with ISO20400:2017 Sustainable Procurement Guidance.



Vishal Khosla
SCAW Project Director

26 May 2022

Appendix C – Mapping policy commitments (extract)

Sydney Metro Commitment/ SMWSA Business Requirements (shaded)		Sydney Metro Principle	CPBUI JV Commitment/ Comment	IS Rating credits	Contract targets	SMWSA System Requirements	Relevant document
No.	Action						
	SMWSA shall be low carbon infrastructure during construction and operation. SMWSA shall achieve resource and materials efficiency through design, construction, and operation. SMWSA shall reuse waste materials and ensure waste diversion from landfill.		<ul style="list-style-type: none"> Informing design through whole-of-life costs and considerations 		PS 5.11.2 (xv) B GS 5.2.4 (vi) PS 5.1.2 (g) (i) I PS 5.1.2 (g) (iii) F		
7	Promote a diverse and inclusive workforce and supply chain, build capability and capacity within industry, and increase Aboriginal participation.	Drive supply chain best practice	Drive supply chain best practice by:	Pro-1.L2	GS s2.8.6 (a) The SCAW Contractor must develop, implement, and maintain a sustainable procurement policy and processes that are consistent with ISO 20400 Sustainable Procurement - guidance, and are documented in the SCAW Contractor's Sustainability Management Plan.	SMWSA design and project outcomes shall respond to the local Aboriginal narrative and culture as identified through Aboriginal community engagement	Sustainable Procurement Policy
			<ul style="list-style-type: none"> Integrating the projects' Sustainability Procurement Policy into procurement practices 	Pro-2.L3	GS s2.8.6 (b) The SCAW Contractor must demonstrate and implement a process for identifying and providing sustainability training to High Impact Suppliers and document in the SCAW Contractor's Sustainability Management Plan		Procurement Plan
				Pro-3.L3 Pro-4.L3	GS s2.8.6 (c) Where a high risk is identified under (a), the SCAW Contractor must ensure the supplier's operations are in compliance with: (i) all relevant laws and regulations local to that country; (ii) the International Labour Organization's Fundamental Conventions; and (iii) the "Ten Principles" of the UN Global Compact. (d) The SCAW Contractor must comply with all relevant NSW and Australian modern slavery legislation and provide the Principal with a copy of any reporting relevant to the Project Works		Sustainability Management Plan Workforce Development Plan Aboriginal Engagement Plan
8	Responsibly minimise environmental and social risks in our supply chain.		See line 7	See line 7			See line 7
9	Create liveable places that are well integrated and promote active and sustainable transport.		NA. Relevant only to interface with SSTDM Contractor to provide 'space-protected corridor provisions'. See: SMWSA SCAW Schedule C1- Particular Specification, s2.3.1(c)(viii)	NA			NA
10	Conserve and enhance the natural environment and our built and cultural heritage. SMWSA shall promote heritage through appropriate design, planning and management controls.		See line 5				Cultural Heritage Plan
11	Work collaboratively with delivery partners to provide social benefits to the communities in which we work.	Value community and customers	Value community by:	Hea-1	GS 2.8.7 (a) The SCAW Contractor must implement at least five community benefit initiatives which target identified community needs in each of the following categories which provide demonstrable and tangible benefits to: (i) local community groups during the period of construction period; and (ii) the broader local community beyond the construction period to leave a lasting legacy.		Community Benefit Plan
	SMWSA shall contribute to the delivery of legacy projects to benefit local communities.		Community Engagement Strategy				
Drive resilience							
	Tackle climate change and contribute to the NSW Government target of net zero emissions.		Tackle climate change by:	Cli-1			
			<ul style="list-style-type: none"> Incorporating climate change adaption in designs in response to the climate change risks and baseline adaptation measures 	Cli-2	PS 3.4.2 (vii) Implement measures to mitigate all climate change risks classified as "very high", "high", and "medium" in (vi) above, such that: A. all residual risks are classified as "medium" or "low"; B. a minimum of 50% of "medium" inherent risks are mitigated down to "low" residual risks; C. any "medium" residual risks are submitted to the Principal's Representative for approval prior to Stage 2 Design, with documentation demonstrating they have been reduced as far as reasonably practicable	SMWSA shall mitigate urban heat island effect and adverse micro-climates along the corridor, at Stations, Plazas, SMF and other facilities including substations and Car Parks.	Sustainability Management Plan Climate Action Plan
			<ul style="list-style-type: none"> Ensuring the Project Works are resilient to the effects of climate change over the relevant Design Life 		PS 3.5.1 Design Life		

Appendix D – Sustainability Initiatives Register (extract)

No.	Discipline	Sustainability Category	Initiator	Opportunity	Comment	Status
1	Civil	Green infrastructure	SMWSA - SDR	Consider stormwater capture and reuse for construction phase non-potable water use.	Forms part of the PS	Accepted
2	Civil	Green infrastructure	SMWSA - SDR	Increase opportunities for stormwater capture and reuse during operations beyond minimum requirements in the SCAW Particular Specification. This could be achieved by maximising the use of water collected from viaducts and other areas.	To be incorporated into Water Reuse Strategy to be submitted at Stage 2.	To be investigated
3	Various	Green infrastructure	SMWSA - SDR	Achieve best practice Urban heat island effect reduction.	Check opportunity for SCAW as more relevant to SSTOM	To be investigated
4	Structural	Green infrastructure	SMWSA - SDR	Use of gabions in lieu of shotcrete retaining walls, and alternatives to include genuine gardens /planters where practicable.	Materials savings expected. LCC to confirm merits.	To be investigated
5	Geotech	Materials and resource efficiency	SMWSA - SDR	Reducing embodied carbon of concrete used in Geotech applications.	Forms part of the PS	Accepted
6	Viaducts	Materials and resource efficiency	SMWSA - SDR	Coating(s) to act against concrete carbonisation.		To be investigated
7	Viaducts	Materials and resource efficiency	SMWSA - SDR	Handrails with high recycled content.	An LCA will be required to determine sustainability merits of recycled plastic, steel, aluminium or other materials	To be investigated
8	Viaducts	Materials and resource efficiency	SMWSA - SDR	Use of recycled materials instead of steel for Passageways on viaducts (e.g. grating).	An LCA will be required to determine sustainability merits of Fibre Reinforced Polymer (FRB) of glass carbon or ball vs other materials.	To be investigated
9	Viaducts	Materials and resource efficiency	SMWSA - SDR	Drainage - crushed recycled glass in base of trenches. Precedent from other Metro projects indicates this is cost effective and feasible where a Resource Recovery exemption has been granted for the crushed glass.	Identify other projects and relevant suppliers for specific drainage applications	To be investigated
10	Mainline / Pway	Materials and resource efficiency	SMWSA - SDR	High recycled content % (e.g. 50-80%) for GSTs (Galvanised Steel Troughs).	An LCA will be required to determine sustainability merits of recycled plastic (such as TuftDuct) over steel troughs	To be investigated
11	Viaducts	Materials and resource efficiency	SMWSA - SDR	Use of Geopolymer / very low carbon concrete for non- structural applications. Some recent precedent in NSW.	Relevant to precast drainage and pavements. See Rozelle Interchange geopolymer trials	To be investigated
12	Civil	Green infrastructure	SMWSA - SDR	Minimise irrigation water demand by planting during the correct season, selection of species, passive watering systems and water efficient irrigation.	Forms part of the PS	Accepted
13	Mainline / Pway	Materials and resource efficiency	SMWSA - SDR	Investigate alternatives to GSTs such as non-metallic (plastic) cable containments such as those which utilise recycled plastic. Precedent from other Metro projects indicates these are acceptable in ground level troughing applications.	An LCA will be required to determine sustainability merits of recycled plastic over BAU	To be investigated
14	Various	Green infrastructure	SMWSA - SDR	Minimise ecological impacts and limit remanent vegetation removal through careful construction planning and minimisation of construction footprint in sensitive locations.	Forms part of the PS	Accepted
15	Civil	Green infrastructure	SMWSA - SDR	Maximise the incorporation of Water sensitive urban design (WSUD). This could be achieved through seeking best practice approaches from similar projects and understanding the hydrology of the area.	Forms part of the PS	Accepted
16	Viaducts	Green infrastructure / Community Benefit	SMWSA - SDR	Investigate potential artwork / vegetation / hanging gardens on viaduct elements, and potential for Design with Country. Consider a community art competition for nominated element(s). Benefits include reduced need for graffiti removal.		To be investigated
17	Civil	Carbon and Energy	CPBUI Tender	Site facilities will be fitted with energy-efficiency technology, including LED light fittings, as well as air conditioners and refrigerators with high energy ratings	Expect this to be BAU	Accepted

Appendix E – Mapping to ISO 20400 Sustainable Procurement

20400 Principle	Definition	Project level	Organisational
Accountability	an organisation should be accountable for its own impacts on society, the economy and the environment, including the impacts of its supply chain and taking into account life cycle impacts	<ul style="list-style-type: none"> Role and responsibilities as per this plan Sustainability Procurement Policy 	CIMIC Procurement Policy
Transparency	an organisation should be transparent in its procurement decisions and activities, and encourage its supply chain to be transparent, particularly in relation to its impacts on the environment, society and economy	IS credits: Pro-1, Man-7 Sustainable Procurement Policy to be publically available on project website.	Publicly accessible policies: https://www.cimic.com.au/en/our-group/governance/policies
Ethical behaviour	an organisation should behave ethically and promote ethical behaviour throughout its supply chains	Requirements of CIMIC policies Code of Conduct training for staff	CIMIC Policies: <ul style="list-style-type: none"> Group Code of Conduct Diversity and Inclusion Policy Anti-bribery and Corruption Declaration Gifts and Hospitality Policy
Full and fair opportunity	an organisation should avoid bias, and prejudice in all procurement decision making. All suppliers including local suppliers and SMOs should have a full and fair opportunity to compete;	Procurement Plan Workforce targets Direct engagement with supply chain as part of the Workforce Development Plan and the Aboriginal Engagement Plan	Reconciliation Action Plan, 2019
Respect for stakeholder interests	an organisation should respect, consider and respond to the interests of stakeholders impacted by its procurement activities;	Community Stakeholder Management Plan	Whistleblower Policy
Respect for human rights, the rule of law and international norms of behaviour	an organisation should be aware of any violations throughout its supply chains. It should actively encourage its suppliers to abide by these rules and assess and address compliance as situations require;	<ul style="list-style-type: none"> All suppliers are required to adhere to the CIMIC Code of Conduct RFQ Tender Questionnaire Incorporate human right requirements into contracts 	Mandatory CPB and Supplier training - Code of Conduct (which includes provisions to prohibit of all forms of modern slavery and child labour in accordance with the Modern Slavery Act) All new suppliers are risk assessed using a tool created by Bureau van Dijk (BvD) for the organisation Modern Slavery Statement (annual) CIMIC Code of Conduct specifically addressed human rights Whistleblower Policy
Innovative solutions	an organisation should seek solutions to address its sustainability objectives and encourage innovative procurement practices to promote more sustainable outcomes throughout the entire supply chain;	IS credit: Inn-1 Risk and Opportunities Register Value Engineering Workshops Deed includes trials of recycled materials	<ul style="list-style-type: none"> CIMIC Procurement Policy CIMIC IPKL CIMIC Sustainability Community of Practice IS Networks -Forum for knowledge sharing held monthly by CPB who invite JV partners to participate.
Focus on needs	an organisation should review demand, buy only what is needed and seek more sustainable alternatives first;	IS credit: Mat-1 Identification of high materiality through IS Material Calculator & CERT Quantity Surveyor evaluation Design review processes Value Engineering Workshops	
Integration	an organisation should ensure that sustainability is integrated into all existing procurement practices to maximise sustainable outcomes;	Pro-1, 2, 3 & 4, Mat-2 <ul style="list-style-type: none"> Environment and Sustainability Policy Procurement Plan RFQ Questionnaire Supplier Checklist Code of Conduct Sustainability Specifications 	<ul style="list-style-type: none"> CIMIC Procurement Policy CPB Template Procurement Plan CPB Template SMP CPB RFQ Questionnaire Code of Conduct
Life cycle costing	an organisation should consider the cost incurred, the value for money achieved and also the costs and benefits to society, the environment and economy, resulting from its procurement activities;	Man-7 <ul style="list-style-type: none"> Life cycle costing report Life Cycle Assessments 	CIMIC Procurement Policy
Continual improvement	an organisation should work towards continually improving its sustainability practices and encouraging supply chains to do the same.	IS credits: Man-3, Man-4 & Pro-4 <ul style="list-style-type: none"> ISP Reviews Sustainability Audits Contract management and engagement requirements 	<ul style="list-style-type: none"> CPB ISO 14000 independent Annual Audits CPB Sustainability Network Forums

Appendix F – Climate Change Risk Assessment (SCAW extract)

Sydney Metro Climate Change Risk Assessment				
Details			Identification	
Risk ID	Climate Variable	Climate Hazard	Risk Description	Risk Consequence / Impact
	<i>Please select the appropriate climate variable for this risk</i>	<i>Please select the appropriate climate hazard for this risk</i>		
CCR7	Temperature	Extreme heat and heatwave events	Increase in extreme heat causing exposed black asphalt to melt.	Passenger and staff safety risk. Increased maintenance and/or repair costs.
CCR9	Temperature	Extreme heat and heatwave events	Prolonged extreme heat resulting in a greater day and night temperature range affecting track rail, structures, bearings and stability.	Passenger and staff safety and wellbeing (comfort level) at risk. Increased maintenance and/or repair costs. Train service disruption through reduced speed "go slow" running through potentially affected sections, overall service delays
CCR16	Precipitation	Extreme / Intense rainfall events	More high intensity rainfall events followed by drought impacting on soil potentially causing subsidence, soil movement (erosion), cracking of embankments and potential for landslip which could result in the progressive failure of the embankments and cutting slopes.	Increased maintenance and/or repair costs. Passenger and staff safety risk. Train service disruption.

CPBUI to update this column only
Risk Treatment
Proposed Treatment
<i>What treatments, beyond current controls, will be employed to avoid or mitigate this risk? These are new treatments which are above and beyond standard controls, developed by the design team to specifically address this risk.</i>
<ul style="list-style-type: none"> * Addressed in station and urban design. * Maximise shade during summer from mid day and afternoon sun. * Operational training and communications for extreme weather events. * Consider shading of precinct priority roads and car parking areas using trees, solar PV shading structures and other structures. * Tree canopy targets and deep soil zones for absorption. * Be aware of over-engineering roads (e.g. width for buses). 'How much do we really need?' approach should be taken. This will reduce amount of asphalt. * Replace asphalt with alternative materials e.g. Footpaths can be paving. Council may have specific paving/concrete requirements that may impact what's able to be installed. * Aim to exceed the green infrastructure targets to ensure there is sufficient canopy coverage.
<ul style="list-style-type: none"> * Considerations from the Slab versus Ballast Technical Paper to be reviewed and direction proposed. * A sign access technical paper will need to consider potential increased maintenance access. * Revision of the SFT for this location. * Inspection and maintenance regime. * Increase length of subsurface or covered track. * Unknown increases beyond 2100 may require additional redundancy or adaptability included in the structure. * Assessment of passive cooling of the platform structures, misting within the tunnels to create a cooler wind temperature, cooling of structures through the storage and movement of water within them. * Capture of the wind through the tunnels to exhaust hot air and to create a cooler environment. * Consider impact of temperature range changes with respect to steel structures.
<ul style="list-style-type: none"> * Consideration of the depth of granular materials under alignment. * Design electrical earthing systems for lower soil moisture conditions. * Management control would include appropriate maintenance of slopes including vegetation, drainage and inspections. * Appropriate scour protection. * Nature-based solutions have been proven to be more effective in preventing landslides. Trees and shrubs can provide slope stabilisation because of the dual effect of roots in reinforcing soil, acting like nails into the slopes, and in reducing water content by evapotranspiration processes. * Another way of slope stabilisation is vegetated crib walls combined with vegetated slope grids

CCR20	Weather	Combined - Increase in intensity / duration / frequency of storms	Increase in extreme storm and wind events interrupting mains power supply and damaging overhead wires.	Passenger and staff safety risk. Train service disruption. Passenger and income loss. Increased maintenance and/or repair costs. Passenger safety risk.	<ul style="list-style-type: none"> * Inclusion of OESS. * Consideration of using battery operated trains to increase resilience to power shortage. * Consideration of E&B design. * UPS and n -1 redundancy for grid electricity source has been included in concept design and will reduce this risk.
CCR23	Weather	Combined - Increase in intensity / duration / frequency of storms	Increase in high wind during extreme weather events affecting rolling stock stability and speeds.	Train service disruption. Passenger and income loss.	<ul style="list-style-type: none"> * Consider additional windbreaks along alignment (open line, bridges and viaducts). * Wind deflection structures in high wind areas to reduce the potential impact on the trains. * Consider risk in the planting strategy along the alignment. * Consider debris impact in design and ensure resilience to high wind. * Increase the amount of track that is subsurface.
CCR25	Weather	Combined - Increase in intensity / duration / frequency of storms	Increase in extreme weather events requiring greater frequency of shutdowns and increased maintenance. This would incur cost and income penalties and additional costs for alternative services.	Train service disruption. Passenger and income loss.	<ul style="list-style-type: none"> * Extreme weather plan needs to be drafted by Operator/Maintainer. * Increase in the track that is subsurface and not exposed to the elements.
CCR27	Weather	Combined – Increased atmospheric CO2 and relative humidity	Increase in acid rain and carbonisation reducing structural and material durability and performance as well as track corrosion.	Passenger and staff safety and wellbeing risk. Increased maintenance and/or repair costs.	<ul style="list-style-type: none"> * Review the ASA standards for potential input or parameter changes due to climate change. * Higher re-enforcement cover requirements, to mitigate long term impact. * Consideration in concrete mix design. * Inspection and maintenance regime.
CCR30	Precipitation	Decrease in annual precipitation	Increase in drought leading to a reduction in water quality and availability restricting the replenishment of basins, HVAC supply, maintenance regimes and decreasing plant durability leading to water restrictions.	Increased operational, maintenance and/or repair costs. Passenger and staff safety and wellbeing risk.	<ul style="list-style-type: none"> * Instalment of water storage for cooling towers if there is not a reliable water supply. * Closed circuit towers can operate as air-cooled heat rejection when ambient conditions suit, in order to save water. They would also still give some capacity if the water supply failed. * Intake vents to be located in a sheltered position away from afternoon sun, allowing cooler air to enter the intake, reducing the load on system. * Species mix design, use local provenance for the plant and vegetation * Undertaking seed collection and seed salvage prior to construction to enable future planting of locally suitable vegetation. * Growing profile needs to be considered (depth and type) * Passive irrigation * Ongoing irrigation of priority landscape areas.
CCR34	Weather	Combined - Increase in intensity / duration / frequency of storms	Increase in hail events damaging rail infrastructure (e.g.. stations, drainage systems, stabling facility) or impacting staff/customers.	Passenger and staff safety and wellbeing risk. Train service disruption. Passenger and income loss. Increased maintenance and/or repair costs.	<ul style="list-style-type: none"> * Consider the placement of box gutters to reduce the impact on equipment rooms. * Consider modular construction for easy replacement of damaged objects. * Review the ASA standards for potential input or parameter changes due to climate change. * The alignment, stations, stabling and maintenance yards, and other critical infrastructure will be designed to a less than once every 100 years frequency. * Use more durable materials for the station and platforms. * Provide more canopy for waiting passengers. * Adequacy assessment of current standards against projections. * Operation and maintenance - Review of Sydney Trains records of severe hail events within the system and the impact of these events on the wider network to further develop mitigation measures

CCR38	Combined	Combined - Increase in intensity / duration / frequency of storms	An increase in rain events coupled with Land use changes reducing land permeability and affecting water quality and the integrity of basins, swales and earthworks.	Passenger and staff safety and wellbeing risk. Increased maintenance and/or repair costs.	No further control measures identified at this time. Future packages to revisit as further design details are resolved.
CCR39	Precipitation	Extreme / Intense rainfall events	More extreme rainfall events preventing maintenance access leading to asset failure.	Increased maintenance and/or repair costs.	<ul style="list-style-type: none"> * Design for access roads to address flood immunity design requirements and be inclusive of climate change effects e.g. increased rainfall intensities. * Condition monitoring for asset inspection to reduce staff time on site. Potential short duration impact.
CCR41	Precipitation	Extreme / Intense rainfall events	More extreme summer rainfall events leading to flooding and or the washout of track ballast and subgrade failure causing track damage.	Passenger and staff safety and wellbeing risk. Increased maintenance and/or repair costs.	The alignment, stations, stabling and maintenance yards, and other critical infrastructure will be designed to 1% AEP storm event including a 19.7% climate change factor. Noting the only locations where drainage will be designed to a lower recurrence interval is at the station precincts where these systems will be design ed in accordance with council requirements at either a 20% or 10% AEP design storm event.
CCR42	Precipitation	Extreme / Intense rainfall events	More extreme and frequent rainfall events and an increase in impervious surfaces will increase runoff, impacting the water detention and drainage infrastructure, hydrostatic loading, and potholes and structures while leading to an increased flood risk.	Increased maintenance and/or repair costs.	<ul style="list-style-type: none"> * Detention systems to be tested for performance under climate change conditions. * Ensure third parties and subcontractors have knowledge and procurement process to manage impacts effectively. * Consideration that the design life (120 years) exceeds the projected climate change projections of 2090. * Maximise the water holding capacity of the infrastructure installed for short duration high intensity events.
CCR44	Weather	Combined - Increase in intensity / duration / frequency of storms	Increase in extreme winds resulting in flying debris damaging structures (e.g. overhead cables, communications, CCTV, track, rolling stock) or causing power/asset failure.	Passenger and staff safety risk. Increased maintenance and/or repair costs.	<ul style="list-style-type: none"> * Vigilant management of line-side vegetation will help. * Cooperate with neighbours re management of vegetation on adjoining lands. * Consider risk in the planting strategy along the alignment. * Consider debris impact in design and ensure resilience to high wind. * Review the ASA standards for potential input or parameter changes due to climate change. * At both concept and detail design stage Façade & Structural engineers will undertake design review and calculations to assess material/façade performance and to inform fixing details and support spacing requirements. These requirements will be incorporated by the architects into station and stabling designs. * Unknown increases beyond 2100 may require additional redundancy or adaptability included in the structure. * An adaptation action for reducing power outage from falling trees is investigating using insulated or covered conductors for OHW where possible.
CCR48	Precipitation	Extreme / Intense rainfall events	More extreme and frequent rainfall events leading to flooding causing substation, critical equipment, electrical, communication and signalling equipment damage or failure.	Passenger and staff safety and wellbeing risk. Train service disruption. Passenger and income loss. Increased maintenance and/or repair costs.	<ul style="list-style-type: none"> * Adaptive system responses to asset failure. * Design for flood immunity taking into account climate change adaptations. * Minimise signalling equipment in flood prone areas. * All radio systems will have adequate transmitter power margin, industrial grade, mechanically rigid, fully redundant to prevent disruption of radio services due to severe weather conditions. * Consider placement of box gutters to reduce likelihood of impacting electrical assets. * Consider raising key electrical assets. * Adaptive system responses to electrical asset failure. * Increasing platform canopy coverage from 60% to 100% cover, incorporate WSUD, provide flood retention storage areas, limit imperviousness and increase ground surface porosity. * Plant equipment on plinths where possible. * Design so faults are contained to specific areas. * Design of risers to include bunding to prevent water flooding down risers to various levels. * Investigate the possibility of sealing of risers for ingress – this is done for fire. Review this with fire team.

CCR50	Precipitation	Extreme / Intense rainfall events	Increase in flooding from extreme weather events affecting viaducts structures leading to asset fatigue and failure.	Loss of operational performance. Passenger and staff safety risk. Train service disruption. Passenger and income loss. Increased maintenance and/or repair costs.	* Unknown increases beyond 2100 may require additional redundancy or adaptability included in the structure.
CCR53	Precipitation	Extreme / Intense rainfall events	More extreme rainfall events leading to the flooding of the stabling and maintenance facility and damaging drainage systems.	Staff safety and wellbeing risk. Train service disruption. Passenger and income loss. Increased maintenance and/or repair costs.	* Assessment of the downstream drainage amenity, and engagement with authorities around providing for sufficient drainage to mitigate this risk. * Stabling site to be designed with consideration to the same flooding scenario. * All the current stabling sites under consideration are close to the creek, additional work should be done to assess this risk and design accordingly
CCR55	Combined	Extreme heat and heatwave events	Prolonged extreme heat and increased humidity resulting in a greater day and night temperature range resulting in building materials expanding and contracting impacting on joints and degrading the infrastructure.	Increased maintenance and/or repair costs. Passenger and staff safety risk.	* Choose light coloured finishes and limit sun exposure to reduce surface temperature. OR choose appropriately coloured materials, while considering their thermal properties and performance e.g. for building fabric materials (insulation, etc.) * Incorporation of the infrastructure into a wider greening program that helps to create a cooler micro climate. * Ensure steel components are protected from corrosion. * Inspection and maintenance regime considered in the material selection process. * Select materials that have been installed in temp ranges that are similar to what is expected in Western Sydney. * Include water features to cool temperatures. * Strategic planting (size a particular consideration) with respect to building aspect/orientation to improve shading throughout the day. * Complete shadow analysis of public areas.