



# E2G Infrastructure Sustainability Annual Report April 2021 – April 2022

## Cairns Southern Access Stage 3 (E2G)

| Rev | Date       | Prepared by   | Remarks    |
|-----|------------|---------------|------------|
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# 1. About This Report

The Bruce Highway—Cairns Southern Access Corridor—Stage 3: Edmonton to Gordonvale (the Project) Annual Infrastructure Sustainability Report has been prepared by HSA Group and outlines the Project’s sustainability performance by providing ongoing data of the Project between April 2021 and April 2022.

This report has been prepared to satisfy reporting requirements of the Infrastructure Sustainability Council (ISC) Technical Manual v1.2 and embodies the principles of the Global Reporting Index (GRI) focusing on environmental and socio-economic outcomes.

The report demonstrates how sustainability requirements are helping to shape the delivery of the Project’s program of works.

## 2. Project Objectives and Targets

The Project has established sustainability objectives, considering the risks, opportunities, and compliance obligations. The sustainability objectives are detailed in Table 1 below

Table 1: E2G Targets and Objectives

| E2G Project Objectives   | E2G Project Targets   | IS Credit Target  | Status   |
|--|---|---|--|
| Our business (TMR Sustainability Framework) <ul style="list-style-type: none"> <li>Building a transport system that is resilient in face of long term environmental and resource impacts.</li> <li>Striving to innovate to design and provide long term solutions to connecting Queensland.</li> <li>Understanding the economics of our business in providing efficient and value for money outcomes in delivering on our vision.</li> <li>Investing for long term resilience to key drivers of change.</li> </ul> |   |   |  |
| Attain an ISC Design and As Built Rating. Support the UN Sustainable Development Goals   | <ul style="list-style-type: none"> <li>Achieve an 'Excellent' ISC Rating.</li> </ul>  | Excellent rating  | Not yet assessed<br><br>Submission Target Date <ul style="list-style-type: none"> <li>Design – May 2022</li> <li>As-Built May 2023</li> </ul>  |
| Decision making to integrate economic, social, environmental and governance aspects, and seek to achieve positive outcomes in each   | <ul style="list-style-type: none"> <li>Decisions are driven by sustainability (incorporating economic, social and environmental aspects)</li> </ul>                                     | Sustainability MCA applied to at least 2 significant issues | MCA has been applied to all subcontracts and particular significant issues, including Recycled Glass, Carbon Neutral Concrete, Water Supply Sources, Topsoil Amelioration and E-Mesh.  |
| Source sustainably and ethically, including prioritising local industry participation, social procurement initiatives and a commitment to avoiding modern slavery.   | <ul style="list-style-type: none"> <li>Consideration of environmental and sustainability aspects in the procurement process.</li> <li>Prioritise local material procurement.</li> </ul> | Pro-1 Level 3   | The Projects Sustainability Policy and Targets and Objectives have been posted on both the TMR and JH Websites<br><a href="#">TMR Web Site</a><br><a href="#">JH Web Site</a>  |
|  |   | Pro-2 Level 3   | E2G Tendering Workshop held on the 06/03/2020  |
|  |   | Pro-3 Level 3   | Tender MCA is being completed for all Subcontracts to determine best for Project contractors.  |
|  |   | Pro-4 Level 2   | Subcontractors' environmental objectives and targets are to be monitored<br><br>Sustainability Objectives and Targets to be included in new contracts and retrospectively in existing high material contracts<br><br>Where poor performance or non-compliance is identified it will be actively managed. |

|  |  |               |   |
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| Minimise whole of life asset impact by future proofing our assets and responding to climate change   | <ul style="list-style-type: none"> <li>Implement adaptation options to treat 25-50% of all medium priority climate change risks identified in a climate change risk assessment.</li> </ul>   | Cli-1 Level 2 | <p>Credit submission has been drafted for the Design Submission. The Credit Summary Forms (CSF) indicate the Project has achieved the below levels</p> <ul style="list-style-type: none"> <li>Cli-1 - Level 2</li> <li>Cli-2 – Level 3.</li> </ul> <p>These outcomes are yet to be verified by ISC.</p>   |
|  |  | Cli-2 Level 2 |   |
| Manage all activities ethically, measuring and reporting the sustainability performance of the project   | <ul style="list-style-type: none"> <li>Ensure regular comprehensive and transparent sustainability reporting and review is carried out.</li> </ul>   | Man-5         | <p>IS Audit completed Quarterly with reports being supplied to the client.</p> <p>Weekly IS inspections being completed</p> <p>Quarterly IS Reports completed.</p> <p>IS Report is publicly reported annually on the <a href="#">JH Web Site</a>.</p> <p>Stakeholders have reviewed and commented on the Annual IS Report</p>   |
| <p><b>Our people (TMR Sustainability Framework)</b></p> <ul style="list-style-type: none"> <li>Valuing and developing the competence and capability of our people.</li> <li>Encouraging a dynamic, safe and healthy workplace environment with a vibrant culture.</li> <li>Retaining employees and cultivating our reputation as an employer of choice.</li> </ul> |  |               |   |
| TMR are a leader in sustainability Govern for sustainability by implementing project systems and processes to ensure the effective and efficient delivery and operation of the project Encourage innovation amongst our delivery teams and supply chain to achieve sustainable outcomes.   | <ul style="list-style-type: none"> <li>Sustainability commitments are made in the sustainability strategy and policy documents.</li> <li>The objectives in the sustainability policy are reflected in project contracts.</li> <li>Knowledge sharing, and lessons learnt within the project, between projects, from outside the project, with key stakeholders and to the wider industry is formally conducted.</li> <li>Innovation is a priority for the project.</li> <li>Enhance workforce health and wellbeing and inclusion and diversity, through employee empowerment to deliver sustainable outcomes</li> </ul> | Man-1 Level 2 | <p>SWTC Appendix 26 requires HSA Group to obtain a rating of “Excellent” under ISC V1.2</p> <p>CSF for Design Submission drafted targeting Level 3.</p> <p>This outcome is yet to be verified by ISC.</p>   |
|  |  | Man-6 Level 3 | <p>The Project has completed numerous knowledge shares to various groups both internal and external to the Project, including the Project Erosion and Sediment Control and Sustainability Industry Day completed in March 2021, with presenters from ISC and the TMR Sustainability Forum</p> <p>Credit Summary Form for Design Submission drafted targeting Level 3.</p> <p>This outcome is yet to be verified by ISC.</p> |

|  |  |                               |  |
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|  |  | At least one Innovation point | <p>The Project is Targeting a number of innovation points,</p> <ul style="list-style-type: none"> <li>• ISupply Challenge</li> <li>• ISC V2.0 Sta Credits</li> <li>• ISC V2.0 Eco Credit</li> <li>• E Mesh being used on Cycleway</li> <li>• Topsoil Trial</li> <li>• Solar Hybrid Power Generation for the satellite crib rooms.</li> <li>• E-Mesh Cycleway via Concrete Extruding Machine</li> </ul> |
|--|--|-------------------------------|--|

**Our stakeholders (TMR Sustainability Framework)**

- Partnering with our clients and key stakeholders to create and find innovative products and processes for leading sustainable transport solutions.
- Recognising the importance of our key partners, Federal, state and local agencies and industry and the community.

|   |   |                      |   |
|---|---|----------------------|---|
| <p>Create a sense of place for communities, by making a positive and meaningful difference to the community by genuinely engaging with the community and stakeholders</p> | <ul style="list-style-type: none"> <li>• A comprehensive and inclusive stakeholder engagement strategy is developed and implemented.</li> </ul> | Sta-1 (v2.0) Level 2 | <p>The Community and Engagement Management Plan has been developed.</p> <p>The Design CSF and evidence indicate the Project has achieved Level 3.</p> <p>This outcome is yet to be verified by ISC.</p>   |
|   |   | Sta-2 (v2.0) Level 2 | <p>The Community and Engagement Management Plan has been implemented.</p> <p>The Stakeholder input is being sort by the Project to influence a majority of the priority project 'negotiables' detailed in the Community and Engagement Management Plan.</p> <p>The Design CSF and evidence indicate the Project has achieved Level 3.</p> <p>This outcome is yet to be Verified by ISC.</p> |

**Our society (TMR Sustainability Framework)**

- Meeting the basic access and equity needs of individuals and society.
- Safe, secure and healthy transport system.
- Ensuring that Queensland has a safe and healthy transport system that the community can afford to construct, access and maintain.
- Delivering on infrastructure that connects our cities, towns and regions for current and future prosperity

Recognising the significance of different cultures and the importance of managing Indigenous, historical, shared and natural heritage.

|   |  |                      |  |
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| <p>Be recognised as an industry leader in making our workplaces safer through innovation, collaboration and effective planning and management of risks. Work closely with our customers to achieve optimal and resilient outcomes for users and society</p> | <ul style="list-style-type: none"> <li>Project improves road safety and traffic impacts</li> <li>The project contributes to local employment and education with training specific to sustainability in addition to regular apprenticeship training and job opportunities.</li> </ul> | <p>Hea-1 Level 3</p> | <p>Initiatives</p> <ul style="list-style-type: none"> <li>One of the aims of the Project is to increase road safety in the region.</li> <li>The project includes a cycleway/shared path to facilitate healthy modes of transport and recreation</li> <li>The Project is aiming to deliver significant training and skills development during construction.</li> <li>With,                             <ul style="list-style-type: none"> <li>90025hr Vocational Training</li> <li>60016 Skills Development</li> <li>4273 hrs/mth new entrant hours</li> </ul> </li> </ul> <p>The Design CSF and evidence indicate the Project has achieved Level 3.</p> <p>This outcome is yet to be Verified by ISC.</p> <p>Monitoring<br/>The Project will monitor community health and wellbeing indicators</p> |
|   |  | <p>Hea-2 Level 2</p> | <p>The project has implemented the “Key Steps in Designing Out Crime” from the Designing Out Crime Planning Guidelines.</p> <p>All tunnels or underpasses have end-to-end visibility.</p> <p>Temporary construction diversions and lighting are designed to meet CPTED guidance.</p> <p>The Project is forecasting Level 2 for Hea-2 (note Level 3 is N/A)</p>   |

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| <p>Natural and cultural heritage is protected, enhanced and managed.</p>  | <ul style="list-style-type: none"> <li>• Adverse impacts to heritage during construction and operation are minimised and opportunities to enhance heritage are implemented.</li> </ul>  | <p>Her-1 Level 2<br/>Her-2 Level 3</p> | <p>Project is engaged with the Traditional Owners to develop legacy projects and enhance heritage values at Stoney Ck and Wrights Ck forecast to achieve Her-1 Level 3</p> <p>Heritage modelling is expected to demonstrate enhancements to heritage values. Heritage monitoring is being completed.</p> |
| <p><b>Our environment (TMR Sustainability Framework)</b></p> <ul style="list-style-type: none"> <li>• Limiting pollution and waste and consumption of resources.</li> <li>• Looking for efficiencies in our transport operations.</li> <li>• Reducing our greenhouse gas emissions.</li> <li>• Reducing the impact of our transport operations on the natural flora and fauna of the state</li> </ul> |   |  |  |
| <p>Address environment considerations in a manner that is sensitive to the needs of our stakeholders and the environment, creating enhanced environmental outcomes wherever practical</p>   | <ul style="list-style-type: none"> <li>• Have no adverse impact on the receiving water environmental values.</li> <li>• No divergences from noise management processes during construction and no exceedances of noise goals for operation.</li> <li>• No exceedances of vibration goals for structural damage to buildings and structures during construction or for human comfort criteria for operation.</li> <li>• Minimise adverse impacts to local air quality.</li> <li>• Light spill is prevented during construction and operation.</li> </ul> | <p>Dis-1 Level 3</p>                   | <p>Dis-1 Level 1 only achievable due to design modelling results.</p> <p>This outcome is yet to be Verified by ISC.</p> <p>Monitoring is being completed in accordance to the Water Quality Monitoring Plan</p>  |
|   |   | <p>Dis-2 Level 3</p>                   | <p>Dis-2 Level 1 only achievable due to design modelling results</p> <p>This outcome is yet to be Verified by ISC.</p> <p>Monitoring is being completed in accordance to the Noise and Vibration Environmental Control Plan</p>  |
|   |   | <p>Dis-3 Level 3</p>                   | <p>Dis-3 Level 1 only achievable due to design modelling results</p> <p>This outcome is yet to be Verified by ISC.</p> <p>Monitoring is being completed in accordance to the Noise and Vibration Environmental Control Plan</p>  |
|   |   | <p>Dis-4 Level 1</p>                   | <p>Dis-4 Level 1 only achievable due to no design modelling being completed.</p>   |

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|---|--|--|---|
|   |  |  | <p>This outcome is yet to be Verified by ISC.</p> <p>Monitoring is being completed in accordance to the Dust and Air Quality Environmental Control Plan</p>   |
| <p>Minimise the energy use and greenhouse gas emissions across the lifecycle of the project</p> | <ul style="list-style-type: none"> <li>Reduce greenhouse gas emissions in construction and operation through energy-efficient lights and construction plant, and offsets using renewable energy technology.</li> </ul> | <p>Ene-1: 10% reduction against Base Case</p>                  | <p>The Base Case Round 1 comments were received on 21<sup>st</sup> Jan 22. The Base Case was resubmitted for Round 2 comments in March 22.</p> <p>Current energy reduction forecasts are 0.03% reduction in carbon emissions.</p> <p>The Design CSF and modelling indicates the Project has achieved Level 1.</p> <p>This outcome is yet to be Verified by ISC.</p> <p>The Project is monitoring energy and continuing to investigate energy reduction opportunities.</p> |
|   |  | <p>Ene-2: 5% substitution of energy from renewable sources</p> | <p>The Main Office electricity is being sourced from Ergon's Clean Energy Program where 100% of power is sourced from carbon neutral sources.</p> <p>Satellite compounds are being powered by remote solar hybrid systems.</p> <p>Current energy substitution is forecasted at 0.003% substitution in energy consumption.</p> <p>The Design CSF and modelling indicates the Project has achieved Level 1.</p> <p>This outcome is yet to be Verified by ISC.</p>           |
| <p>Minimise water use across the lifecycle of the project</p>                                   | <ul style="list-style-type: none"> <li>Reduce water demand and maximise use of non-potable water.</li> </ul>   | <p>Wat-1: 10% reduction against Base Case</p>                  | <p>The Base Case Round 1 comments were received on 21<sup>st</sup> Jan 22. The Base Case was resubmitted for Round 2 comments in March 22</p>   |

|  |   |   |  |
|--|---|---|--|
|  |   |   | <p>Current water usage forecast is 14% reduction compared to the Base Case.</p> <p>The Design CSF and modelling indicates the Project has achieved Level 2.42.</p> <p>This outcome is yet to be Verified by ISC.</p> <p>The Project is monitoring water usage and continuing to investigate water reduction opportunities.</p>   |
|  |   | <p>Wat-2: 100% substitution of potable water from non-potable sources.</p>  | <p>Multiple non-potable water sources have been identified and are being used on the Project. However, given the length of the Project and health requirements for personnel, not all water sources can be non-potable.</p> <p>Current non-potable water usage forecast is 99.72% non-potable water.</p> <p>The Design CSF and modelling indicates the Project is achieving Level 3.</p> <p>This outcome is yet to be Verified by ISC.</p> |
| <p>Minimise embodied energy and GHG emissions of materials across the lifecycle of the project</p> | <ul style="list-style-type: none"> <li>• Reduce project material use and reliance on virgin materials through footprint reductions and material substitutions.</li> </ul> | <p>Mat-1: 15% reduction against Base Case</p>                               | <p>The material model is being drafted and this assessment is to be completed.</p> <p>Initiative that have been implemented inc.</p> <ul style="list-style-type: none"> <li>• Recycling concrete for reuse on site</li> <li>• Cut to fill operations</li> <li>• Use of materials made from recycled products</li> <li>• Change in design to reduce material requirements.</li> </ul>   |
| <p>Protect, manage and enhance the natural environment</p>   | <ul style="list-style-type: none"> <li>• Rehabilitate degraded land along road corridor and implement measures to improve local habitats.</li> </ul>                      | <p>Eco-1: The ecological value of infrastructure site is enhanced by 5%</p> | <p>The Ecological Assessment details the ecological value score of the Project shows no net impact or improvement,</p>   |

|  |  |                                   |  |
|--|--|-----------------------------------|--|
|  | <ul style="list-style-type: none"> <li>• Rehabilitate impacted watercourses.</li> <li>• Creating passageways that allow fauna to safely move across the roadways.</li> </ul> | <p>Eco-2 Habitat connectivity</p> | <p>achieving Eco 1 - Level 1. However, connectivity has been reduced. Not achieving any levels under Eco-2.</p> <p>This outcome is yet to be Verified by ISC.</p> <p>The Project has plans to change these outcomes during the As-Built phase.</p> |
|--|--|-----------------------------------|--|

## 3. Project Overview

### 3.1. Scope of the Project

The Project is located 15 km south of Cairns city between the townships of Edmonton and Gordonvale. The Project's objective is to deliver a total transport solution, long-term improvements to traffic flow and road safety through reducing congestion, reducing highway travel time and improving highway access. The Project will duplicate a 10.5 km section of the highway to create a 4-lane highway from Edmonton south to Gordonvale.

The Project passes primarily through existing sugar cane farmland. The Project alignment crosses four creeks that form part of the Mulgrave River and Cairns Inlet catchments. The Project will be completed in proximity to a number of sensitive receptors, including Matters of State Environmental Significance, Cultural Heritage Sites (both indigenous and non-indigenous heritage), local residences, places of worship and local businesses.

The specific scope of the Project includes:

- Duplication of all existing 2 lane sections of the Bruce Highway between Edmonton and Gordonvale to 4 lanes.
- A new alignment for the Bruce Highway to the eastern side of the existing highway between Petersen Road and Warner Road.
- A new signalised intersection at Petersen Road and upgraded signalised intersections at Draper Road and Riverstone Road.
- Over 10km of new service roads to remove local trips from the highway.
- Realignment and upgrade of 4.5 kilometres of the Queensland Rail North Coast Line to accommodate the duplicated highway.
- Removal of multiple at grade rail crossings and upgrade of boom gates at other crossings.
- New road and rail bridges at Wrights Creek and Stoney Creek.
- New Bruce Highway road overpass south of Maitland Road connecting Pine Creek-Yarrabah Road and Maitland Road.
- Relocation of existing cane rail lines at locations to accommodate the duplicated highway.
- A new pedestrian overpass south of Draper Road, a new pedestrian overpass north of Draper Road and pedestrian path on the Bruce Highway road overpass south of Maitland Road.
- A dedicated off-road high-speed cycleway from Riverstone Road to tie into the existing pathway at Thompson Road.
- Several intersections and direct accesses to the existing Bruce Highway will either be partially closed or removed to improve traffic flow and increase road safety on the highway.
- Changes to the highway completed through this project will allow the posted speed to be 100km/hr from north of the Draper Road intersection to south of Petersen Road intersection.



## 4. Governance

### 4.1. Our Values

HSA Group is up for the challenge of transforming lives. Developed by our people, our values capture the essence of who we are and where we're heading.

|                       |   |
|-----------------------|---|
| <b>Caring</b>         | We think deeply about what we do and how it affects lives |
| <b>Empowering</b>     | We gain trust through action                              |
| <b>Imaginative</b>    | We push the boundaries                                    |
| <b>Future-focused</b> | We're in it for the long, long term                       |

We also respect the values of our client, Queensland Department of Transport and Main Roads (DTMR), and ensure we effectively collaborate by integrating our client's values into our behaviours that we live by every day.

|                          |  |
|--------------------------|--|
| <b>Customers first</b>   | know your customer, deliver what matters and make decisions with empathy                             |
| <b>Ideas into action</b> | challenge the norm and suggest solutions; encourage and embrace new ideas and work across boundaries |
| <b>Unleash potential</b> | expect greatness; lead and set clear expectations and seek, provide and act on feedback              |
| <b>Be courageous</b>     | own your actions, successes, and mistakes; take calculated risks and act with transparency           |
| <b>Empower people</b>    | lead, empower and trust; play to everyone's strengths and develop yourself and those around you      |

### 4.2. Our Sustainability Approach

This project is committed to sustainability and creating lasting benefits through an integrated consideration of social, environmental, and economic aspects in all its activities. It is registered for an Infrastructure Sustainability rating and obliged to achieve at least an IS Design Rating and IS As-Built Rating of Excellent. The project has developed a Sustainability Management Plan which specifies the sustainability requirements the project must meet in order to enhance its sustainability performance.

Overall responsibility for Sustainability sits with the Project Manager with responsibility delegated to a number of discipline leads including Sustainability, Environment, Commercial, Design, Construction, Community and Stakeholder Engagement.

### 4.3. Our Policy

The Projects Sustainability Policy (see Appendix A) outlines our commitment to integrating economic growth, environmental resilience, and social progress as priorities into decision-making at every level of the business, with the ambition to create long-term value. This commitment is supported by the project sustainability strategies, which ensure sustainability is embedded in all aspects of project activities and seamlessly integrated into the design, procurement and delivery processes.

HSA Group is committed to delivering reliable and innovative infrastructure and best practice in sustainability. Sustainability underpins our core values, with a holistic approach that considers the environment, safety, wellbeing and socio-economic benefits to the community.

## 4.4. Our Strategy

The Project has determined external and internal stakeholders that are relevant to its purpose and that affect its ability to achieve its intended sustainability outcomes. The client (DTMR) is a State Government department whose role is to lead the development of a safe, efficient, integrated transport system in Queensland.

DTMR has developed a Strategic Plan for years 2019 - 2023.

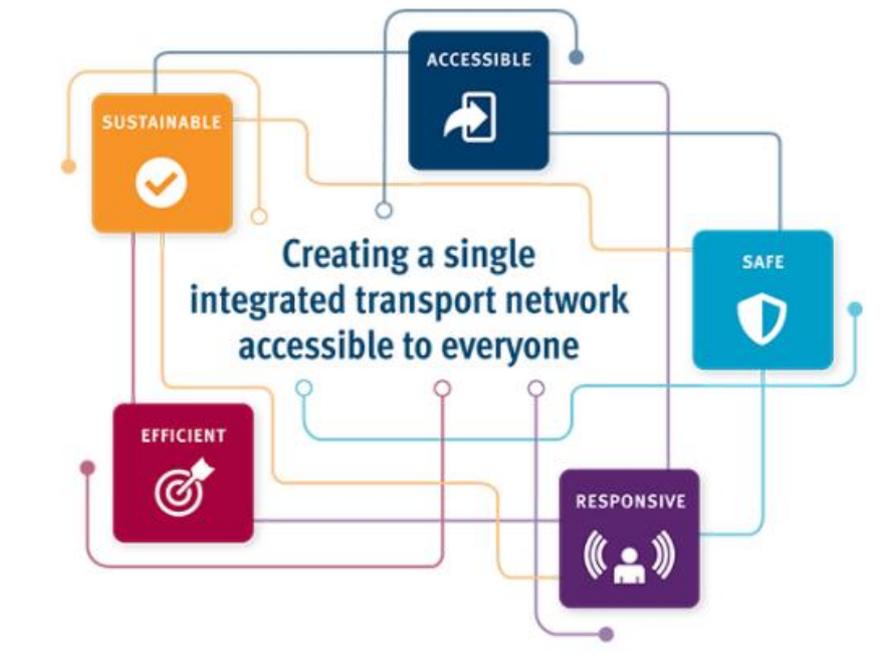


Figure 1: DTMR Strategic plan 2019–2023 (revised for 2020-21) Framework

DTMR’s strategic plan details four strategies to achieving their sustainable goal of “Planning, investment and delivery outcomes support a more liveable and prosperous Queensland”:

- Encourage active and shared transport modes
- Enhance network resilience to minimise the impacts of climate change and incidents
- Prioritise planning and investment decisions that enhance benefits realisation
- Support low and zero emission transport technologies, modes and materials

HSA Group is committed to incorporating our Sustainability Framework into the Project to complement our client’s framework. The framework is designed to leverage our people and diverse expertise by encouraging a thoughtful, collaborative, interconnected approach to decision making, centred around building resilience. Each component of the framework is interconnected – each of the four pillars and their 12 elements define our approach to decision-making that we see as a ‘whole of business’ challenge.

### Why Resilience?

Delivering our projects using a sustainability approach enables us to build resilience in our business, for our customers, for our people and for our supply chain.

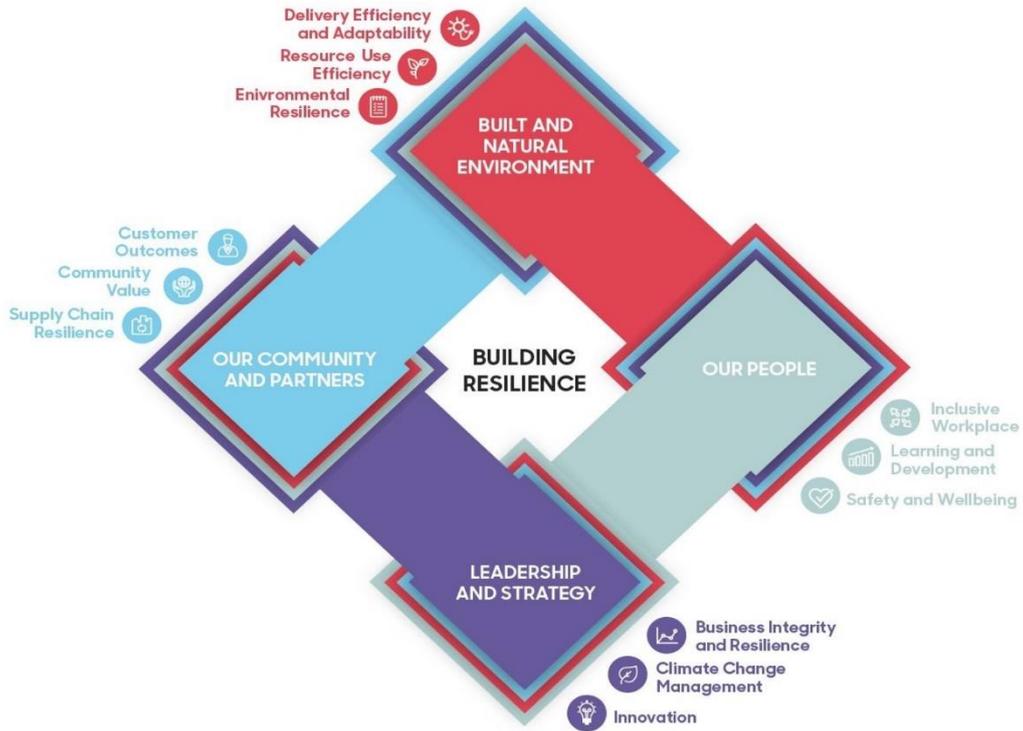


Figure 2: HSA Group Sustainability Framework

## 5. Measuring Sustainable Performance

### 5.1. ISCA Infrastructure Sustainability Rating

ISCA is a not-for-profit industry council with the mission to 'improve the productivity and liveability of industry and communities through sustainability in infrastructure'. ISCA has developed an IS rating scheme which provides a consistent evaluation of sustainability across the design, construction and operation of infrastructure. To achieve an IS rating, the infrastructure project or asset is assessed based on a variety of Sustainability themes including:

- Management and Governance
- Using Resources
- Emissions
- Pollution and Waste
- Ecology
- People and Place
- Innovation

Within each theme are multiple categories in which credits may be achieved based on how successfully the infrastructure supports or achieves sustainable guidelines. DTMR requires that the rating be achieved, with the ISCA v1.2 Rating to be obtained within the 'Excellent' rating band.

| Target Rating            | Design Rating                         | As-built Rating                        |
|--------------------------|---------------------------------------|--|
| 'Excellent' (>50 points) | Not yet assessed – targeting May 2022 | Not yet assessed – targeting June 2023 |

### 5.2. Management Systems

The Project has implemented a Sustainability Policy that is endorsed by Project management and is publicly displayed on both the Project's DTMR [website](#) and on the John Holland [website](#). The policy informs the E2G team on the actions and standards that are mandated by the HSA Group.

### 5.3. Procurement and Purchasing

The Project has implemented a Multi Criteria Assessment (MCA) to consider multiple aspects when considering subcontractor's submissions.

The MCA is weighted for each sustainability aspect that is considered when analysing tender submissions, with 55% of the weighting on Price and 45% on non-price components, like HSE performance, sustainability performance, proximity to the Project, training of personnel quality of work etc, Refer Figure 3.

| Selection Criteria   | Weighting Percentage (WP)* |                              |
|--|----------------------------|------------------------------|
| <b>1 Price</b><br>1.1 Price  | 55.0%                      | 55.0%                        |
| <b>2 Commercial</b><br>2.1 Prior performance<br>2.2 Conditions / qualifications  | 5.0%                       | 2.5%<br>2.5%                 |
| <b>3 Project Management / Systems</b><br>3.1 Safety<br>3.2 Environment & Cultural Heritage & Sustainability<br>3.3 QA<br>3.4 Community & Social      | 15.0%                      | 5.0%<br>5.0%<br>2.5%<br>2.5% |
| <b>4 Local Benefits</b><br>4.1 Jobs<br>4.2 Supply chain<br>4.3 Apprentices / trainees<br>4.4 ATSI Jobs   | 20.0%                      | 8.0%<br>4.0%<br>4.0%<br>4.0% |
| <b>5 BPP (where not considered elsewhere)</b><br>5.1 Best Practice IR<br>5.2 History of compliance with procurement, tendering and other govt policy | 5.0%                       | 2.5%<br>2.5%                 |
| <b>Total</b>   | 100%                       | 100%                         |

Figure 3: Subcontractor Analysis MCA

## 6. Environmental Aspects and Performance

### 6.1. At a Glance

| Aspects   | Total for Project |
|---|-------------------|
| Percentage of previously disturbed land used to construct the Project       | 37%               |
| Design Case previously disturbed land (m <sup>2</sup> )                     | 160,517           |
| Design Case previously undisturbed land, inc. agriculture (m <sup>2</sup> ) | 268,719           |
| Rehabilitation/revegetation planned (m <sup>2</sup> )                       | 14,948            |
| Actual rehabilitation/revegetation to date (m <sup>2</sup> )                | 0                 |
| Total Water Consumption to date (kL)  | 283,527.656       |
| Total Non-Potable Water Used to date (kL)                                   | 268,131.519       |
| Total fuel consumption to date (L)  | 1,865,255.61      |
| Total non-hazardous waste generated by project (t)                          | 37,833.85         |
| Total Inert non-hazardous waste diverted from landfill (t)                  | 36,962.17         |
| Total Office waste diverted from landfill (t)                               | 441.49            |
| Electricity used to date (kWh)  | 212,274.86        |
| Renewable electricity to date (kWh)   | 164,166.86        |
| Total imported quarry materials used in project (t)                         | 2,205,007.39      |
| Concrete to date (m <sup>3</sup> )  | 15,181.2          |
| Cementous replacement to date (t)   | 9,218.02          |
| Steel reinforcement to date (t)   | 204,825.15        |
| Macro-Fibre Reinforcement (t)   | 0                 |
| Asphalt to Date (t)   | 9,433.75          |
| Bitumen to Date (kL)  | 494.79            |
| Foam Bitumen to Date (t)  | 42,166.24         |
| Foamed Bitumen Cementous replacement to Date (t)                            | 2,108.31          |

The Project is focused on minimising impacts to the environment during construction and operation through:

- avoiding and reducing energy demand, while maximising energy efficiency
- maximising carbon offsetting, and mitigating climate risk
- minimising the wastage of water
- minimising impact on the physical environment.

## 6.2. Biodiversity

This section looks at measures to sustain and enhance biodiversity. The Project has employed a range of methods to mitigate impacts on biodiversity

| Key Targets          | Status                               |
|----------------------|--------------------------------------|
| Ecological values    | Design: Maintaining<br>As-Built: TBC |
| Habitat Connectivity | Design: Reducing<br>As-Built: TBC    |

### 6.2.1. Mitigating Environmental Impacts

Project has implemented a Flora and Fauna Environmental Control Plan that incorporates the Species Management Programs (SMP) for Tampering Breeding Places-Low Risk and Micro Bat and Bird Breeding". In addition to the ECP and SMPs, the project is planning biodiversity offsets to offset the loss of native vegetation and creek bed restoration works.

#### 6.2.1.1. Ecological Assessments

Environmental design assessments were undertaken before construction commenced. These assessments helped to verify the findings of the Review of Environmental Factors (REF) and Species Impact Statements. These assessments helped to confirm ecological mapping in the REF, vegetation type boundaries, and vegetation condition and species composition.

The REF and the assessments were used to assess the impacts of the design in the Environmental Design Reports. Each design package was assessed for the environmental outcomes and mitigation measures included in the design to offset environmental aspects.

An Ecological Impact Assessment to assess the ecological performance of the design against the Eco-1: Ecological Value and Eco-2: Habitat Connectivity credits was undertaken using the environmental design reports. The report calculated the change in ecological value and habitat connectivity between the pre and post-construction scenarios. This assessment found that the design was maintaining ecological value but reducing habitat connectivity.

#### 6.2.1.2. Pre-Clearance Surveys

Pre-clearance surveys are undertaken before clear and grub works commenced and throughout construction. These surveys helped to identify significant species, habitat trees and nesting fauna within the areas to be cleared. Where areas of significance are identified during the surveys, the area is cordoned off as a No-Go Zone and mitigation measures investigated and implemented. These measures included either changing the design or relocating the nesting fauna or significant species. No works within the area occurred until the mitigation measures were implemented.

During the pre-clearance surveys completed during this reporting period, no significant species, habitat trees being used, or nesting fauna were identified. This is possibly due to the majority of the clearing works being completed at times outside of expected species breeding seasons, to avoid nesting fauna.

During the previous reporting period a nesting pair of Macleay's Fig Parrot (Vulnerable under *Nature Conservation Act*) was identified. The tree was flagged, sign posted and remained

until the fledgling had left the nest. The Project inspected the nest and confirmed the fledgelings had left using a drone prior to clearing the tree.



*Figure 4: Blue Phase Green Tree Snake Relocated Prior to Clearing*

### 6.2.1.3. Fauna Crossings

One of the key elements of the ecological assessment was the habitat connectivity for fauna to cross the Bruce Highway. The region is highly fragmented with limited opportunities for fauna movement both terrestrial and aquatic. To allow terrestrial fauna passage through the riparian zone's fauna paths were included under the bridges, refer Figure 5. The paths will be furnished with logs, hollows and rocks retained during the clearing works to provide shelter for the fauna during movement.

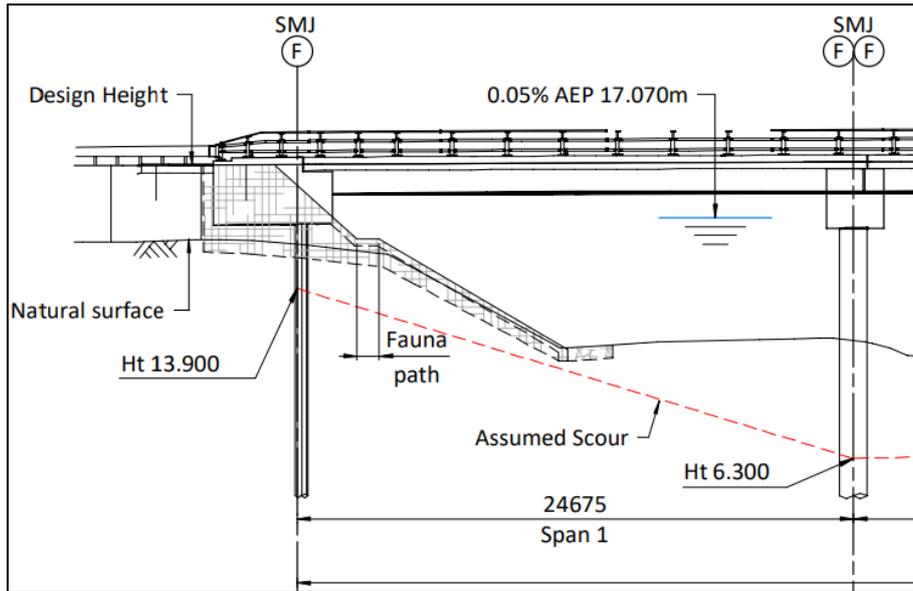


Figure 5: Wrights Ck Bruce Highway Bridge General Arrangement Exert

However, the design case ecological impact assessment has found that the design is reducing connectivity with a pre-construction score of 6.6/10, which equates to a Low/Moderate habitat connectivity rating. The post-construction score of 4.7/10 represents a Low habitat connectivity rating. Despite the post-construction scores considering the design’s ecological impact mitigation and management measures, some reduction in connectivity value could not be avoided. This is primarily associated with the terrestrial connectivity value at Stony Creek, Wright Creek and Mackey Creek where disconnections between habitat fragments were enlarged to widen the alignment.

The Project is planning to complete biodiversity offsets with the aim to at least maintain the habitat connectivity score within the As-Built Ecological Impact Assessment to be completed.

#### 6.2.1.4. Biodiversity Offsets

The project is planning on completing a community planting day along the old QR line between Wrights Ck and Stoney Ck. This vegetation offset will increase the ecological value through the use of native endemic species to recreate terrestrial habitat for fauna in the region. Additionally, the planting will increase habitat connectivity between the two creeks. The aim of this initiative is to add to the ecological impact mitigation measures already being implemented on the Project to provide better habitat and connectivity for native fauna in the future.

Furthermore, the planting day will build on the project’s already strong community engagement. The tree’s, when mature, will provide a noise and visual screen between the current Bruce Highway, which will become a local road for residents to access their properties, and the new four lane highway being constructed.

### 6.2.2. Monitoring and Management

Weekly environmental site inspections incorporate ecological monitoring and management activities. Project Environmental Representatives (PER) inspect the ecological conditions of the Project and address issues ranging from pest control, weed management and native species monitoring, to erosion and sediment control

### 6.3. Water Use and Efficiency

The Project seeks out new ways to reduce water consumption and encourages contractors to reduce water usage and use non-potable water (non-drinking water) sources for suitable construction and operational activities.

Water efficiency measures are incorporated into all designs, to ensure potable water and non-potable water savings are realised. This section looks at how water efficiency targets have been met for the Project.

| Key Targets  | Status   |
|--|--|
| Reducing water use by 10% compared to a base case design footprint                     | <ul style="list-style-type: none"> <li>- Base Case: 1,131,904.9kL (not verified)</li> <li>- Design Actual Case: 971,320kL or 14% reduction</li> <li>- As-Built To Date: 283,527.7kL</li> </ul>         |
| Maximising the proportion of water from non-potable sources (substituting for potable) | <ul style="list-style-type: none"> <li>- Base Case: 100% potable water (verified)</li> <li>- Design Actual Case: 99.72% Non-potable water (not verified)</li> <li>- As-Built To Date: 94.6%</li> </ul> |

#### 6.3.1. Water Use During Construction

Infrastructure construction involves significant use of both potable and non-potable water especially during major civil works.

The design case has shown that by using various water use reduction techniques, i.e. water saving taps and soil binders, the Project will be able to reduce its total water usage by 14%.

Additionally, the design case has also shown that 99.72% of the 971,320kL of water forecast to be used will be sourced from non-potable water sources.

Since the commencement of construction, the Project has used a total of 283,527kL of water with 94.6% sourced from non-potable water supplies, refer to Figure 6.

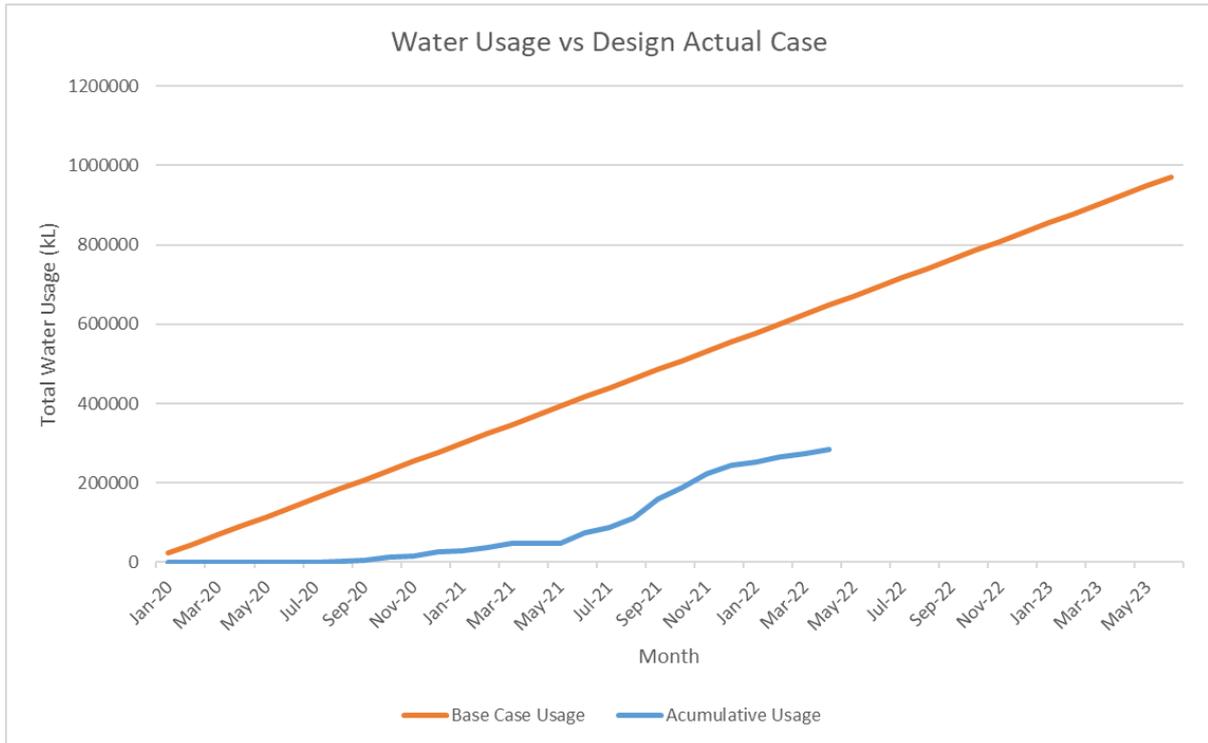


Figure 6: E2G Water Usage Graph

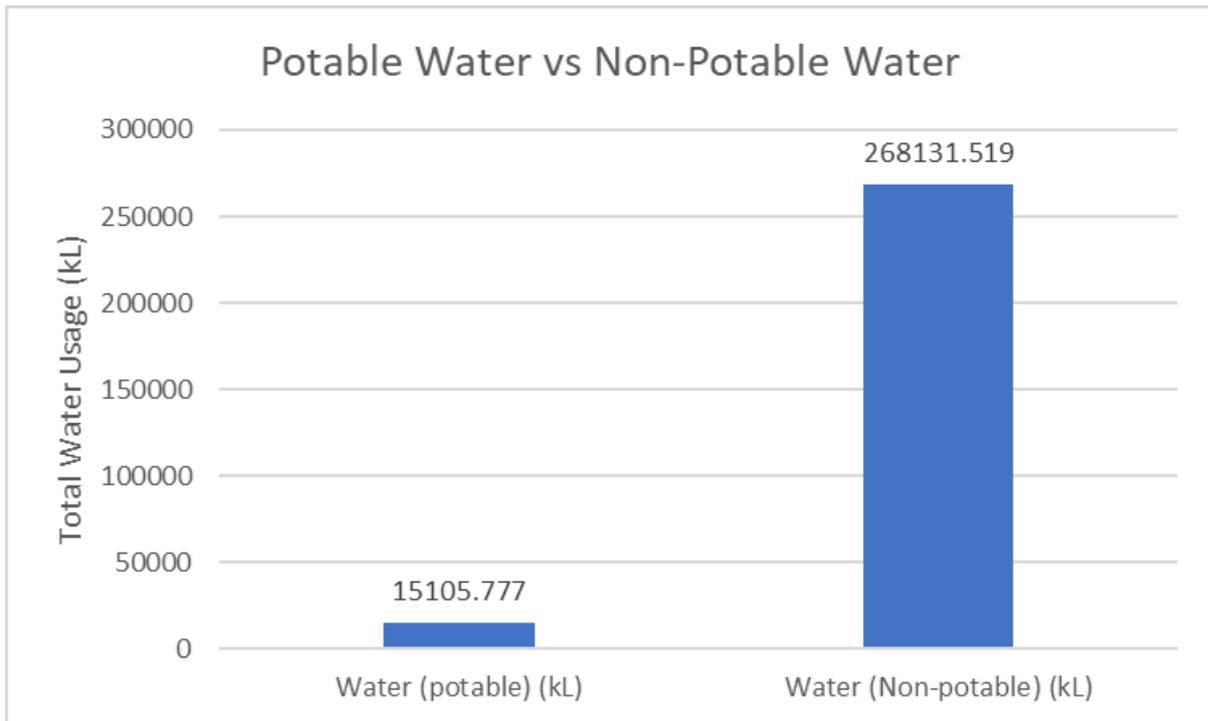


Figure 7: Potable water vs non-potable water usage to date

Key initiatives to reduce potable water use in construction activities include:

- use of rainwater for amenities
- re-use of stormwater captured by basins for dust suppression
- use of creek water
- use of soil binders to as a dust suppressant

- use of high efficiency water fittings at the facilities.

### 6.3.2. Water Use During Operation

Water used during operation of this portion of the Bruce Highway will be negligible. The design does not include vegetation irrigation or any intensive use of water.

## 6.4. Energy and Carbon

The Project is committed to:

- reducing operational, construction and embodied carbon emissions where feasible
- identifying low carbon energy generation and procurement solutions.

| Key Targets  | Status  |
|--|---|
| Reducing GHG emissions by 10% compared to a base case footprint (covering at least Scope 1, Scope 2 and land clearing) | <ul style="list-style-type: none"> <li>- Base Case – 949,125.4 tCO<sub>2</sub>e</li> <li>- Design – 948,822.2 tCO<sub>2</sub>e or 0.03%</li> <li>- As Built - TBC</li> </ul>  |
| 5% substitution of energy from renewable sources   | <ul style="list-style-type: none"> <li>- Base Case – 0.0 GJ</li> <li>- Design – 1,347.5 GJ or 0.003% of forecast energy use</li> <li>- As Built to Date – 591.00GJ</li> </ul> |
| Ensuring greater than 9% of materials/products by value have ISCA approved environmental labels                        | As-Built to Date: 12.73% of total material cost to date (\$8.61m)   |

### 6.4.1. Construction Energy Use

The Project encourages the use of alternate fuels and renewable energies where feasible. The Gordonvale main office compound is sourcing electricity from the Clean Energy Program offer by Ergon. This Program sources 100% of its power from carbon neutral sources.

The Project has investigated the use of biodiesel (B5 and B20 blends) for use in plant and equipment, which has the potential to reduce carbon emissions by up to 15% compared to a standard diesel fuel. However, due to the current unavailability of diesel B5 and B20 blends in the Cairns region, the use of these products is not feasible. Alternatively, the project is targeting plant that meet the US EPA Tier 4 emission standards. These newer machines are more fuel efficient compared to older machinery.

The Project, in collaboration with a locally owned and operated solar company, has developed and deployed relocatable solar hybrid systems to provide power to the satellite compounds. These world first systems provide reliable 3-phase power 24 hours per day while reducing diesel burn by approx. 70% compared to a normal generator. The systems have reduced noise, increased security (night lighting and CCTV) and increased storage capacity on site. The systems are currently powering all three of its satellite compounds with these systems.



Figure 8: Relocatable Solar Hybrid Generator

#### 6.4.2. Embodied Energy

Embodied energy' refers to the energy that goes into producing manufactured materials, such as concrete and steel. The energy used to manufacture these key building materials produces greenhouse gases and leaves behind a carbon footprint.

Quarry products, concrete, steel and asphalt/bitumen comprise the majority of materials used on the project by volume.

The amount of cement used has been reduced to minimise embodied carbon emissions, with a focus on using low environmental impact alternatives and recycled cementitious material. Portland cement is a key greenhouse gas intensive material used in concrete, and the proposed quantities used have been reduced on average by 25.4%. This reduction was achieved through the use of supplementary cementitious material such as fly ash, which is a waste by-product from other industries.

The cycleway is being constructed with E-Mesh macro fibre reinforcement. E-Mesh is a recycled plastic concrete reinforcement that replaces the traditional steel mesh in the cycleway. Additionally, the cycleway is being constructed with a concrete extruding machine (aka concrete paver), refer to Figure 9. This method removes the need for formwork and significantly accelerates the production of building the cycleway. Combined, the E-Mesh and paver removes the need to steel mesh reinforcement and formwork while significantly increasing productivity. This reduces materials and energy used to construct the cycleway.

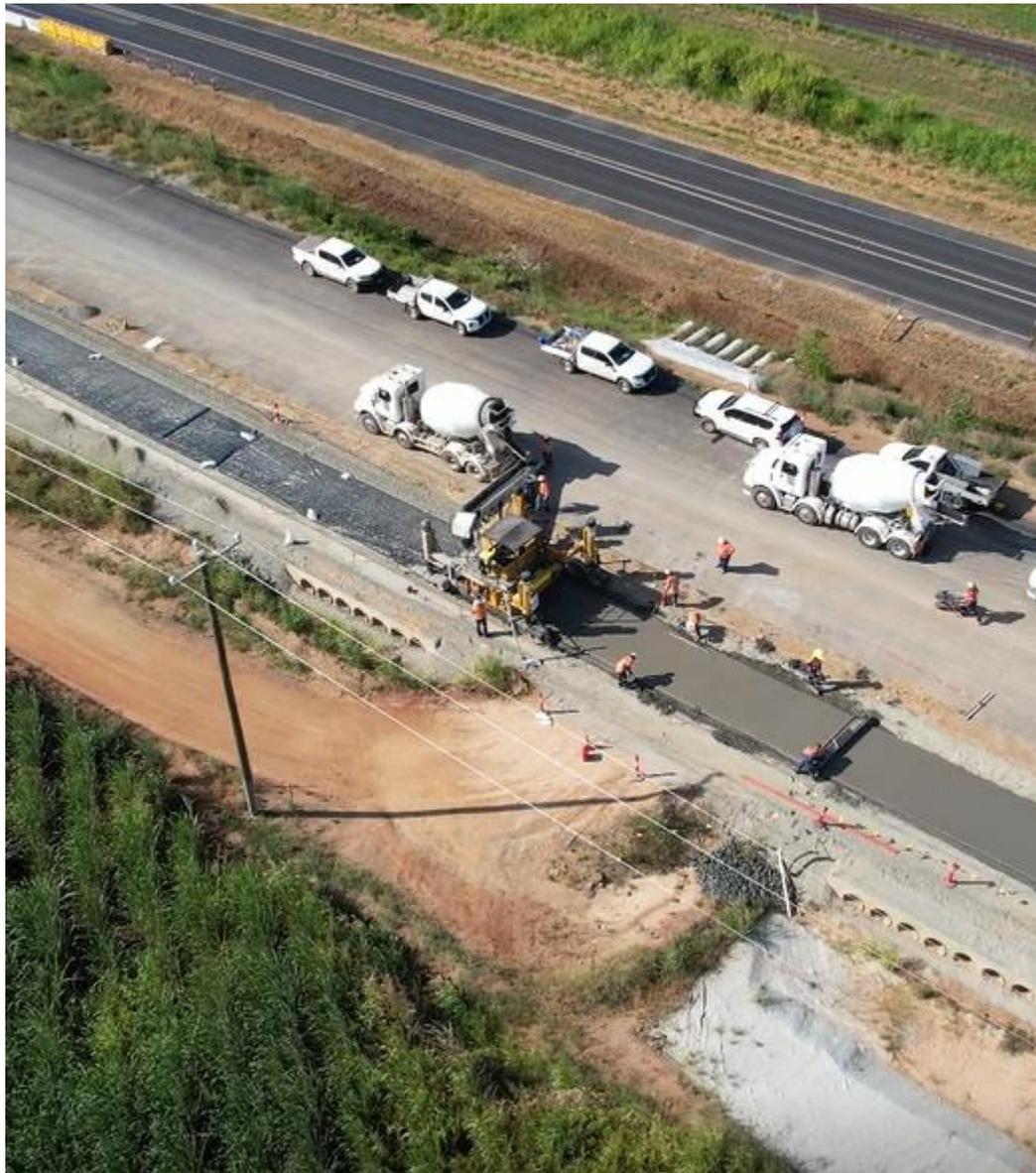


Figure 9: Cycleway Constructed with E-Mesh Reinforcement through a Paver

### 6.4.3. Materials

| Imported Material                                   | Total for Project |
|---|-------------------|
| Total imported quarry materials used in project (t) | 2,205,007.39      |
| Concrete to date (m <sup>3</sup> )                  | 15,181.2          |
| Reinforcement to date (t)                           | 204,825.15        |
| Asphalt to Date (t)                                 | 9,433.75          |
| Bitumen to Date (kL)                                | 494.79            |

| Imported Material  | Total for Project To Date |
|--|---------------------------|
| Sand (quarried) (t)  | 1,579.89                  |
| Recovered glass sand (t)                                   | 2,000                     |
| Fly Ash (t) (recycled)                                     | 11,326.34                 |
| Ballast (t)  | 26,863.09                 |
| Aggregate (t)  | 108,549.99                |
| Fill material (t)  | 1,971,167.49              |
| Road base and pavements (t)                                | 96,847.23                 |
| Asphalt (t)  | 9,433.75                  |
| E-Mesh Concrete (m <sup>3</sup> )                          | 508                       |
| E-Mesh Macro fiber Reinforcement (t) at 4kg/m <sup>3</sup> | 2.03                      |
| Reinforcing steel (t)                                      | 204,825.15                |
| (Rail) (t)   | 960                       |

#### 6.4.4. Operational Energy

The Project has committed to reducing energy requirements within the design of the highway, consequently decreasing the carbon footprint of the road. The key measures incorporated into the design include:

- Energy efficient street lighting
- Energy efficient signal lighting

### 6.5. Waste and Recycling

The Project is committed to the efficient management of materials and waste, minimising the number of materials used in projects where possible, and there is a heavy focus on recovering, reusing and recycling construction and demolition waste

| Key Targets   | Status                                  |
|---|---|
| Ensuring 100% of all spoil is diverted from landfill                    | Nil spoil sent to landfill for disposal |
| Ensuring 90% of inert and non-hazardous waste is diverted from landfill | 90.2%                                   |
| Ensuring 60% of office waste is diverted from landfill                  | 94.79%                                  |

#### 6.5.1. Construction Waste Management

To date, The Project has generated 38,279.12 tonnes of waste. Of this, 37,403.66 tonnes have been recycled (97.71% overall).

| Waste Types  | Diversions Stream    | Tonnes      |
|--|----------------------|-------------|
| Inert non-hazardous (Building waste, Concrete waste, Timber waste, Steel waste)                      | Landfill             | 407.18 t    |
|  | Recycled/Reused      | 3,767.23 t  |
| Spoil  | Landfill             | Nil         |
|  | Recycled/Reused      | 33,194.94 t |
| Office Waste (Comingled waste, Food waste, Mixed Solid waste, Paper & Cardboard, Printer Cartridges) | Landfill             | 22.99 t     |
|  | Recycled             | 441.49      |
| Hazardous Waste (Asbestos Contaminated Material)   | Landfill             | 724.77 t    |
|  | Recycled             | Nil         |
| Liquid Waste (Effluent and Non-destructive)  | Wastewater Treatment | 150.68 t    |
|  | Recycled             | Nil         |
| Plastic Collection   | Recycled             | 17.76 t     |

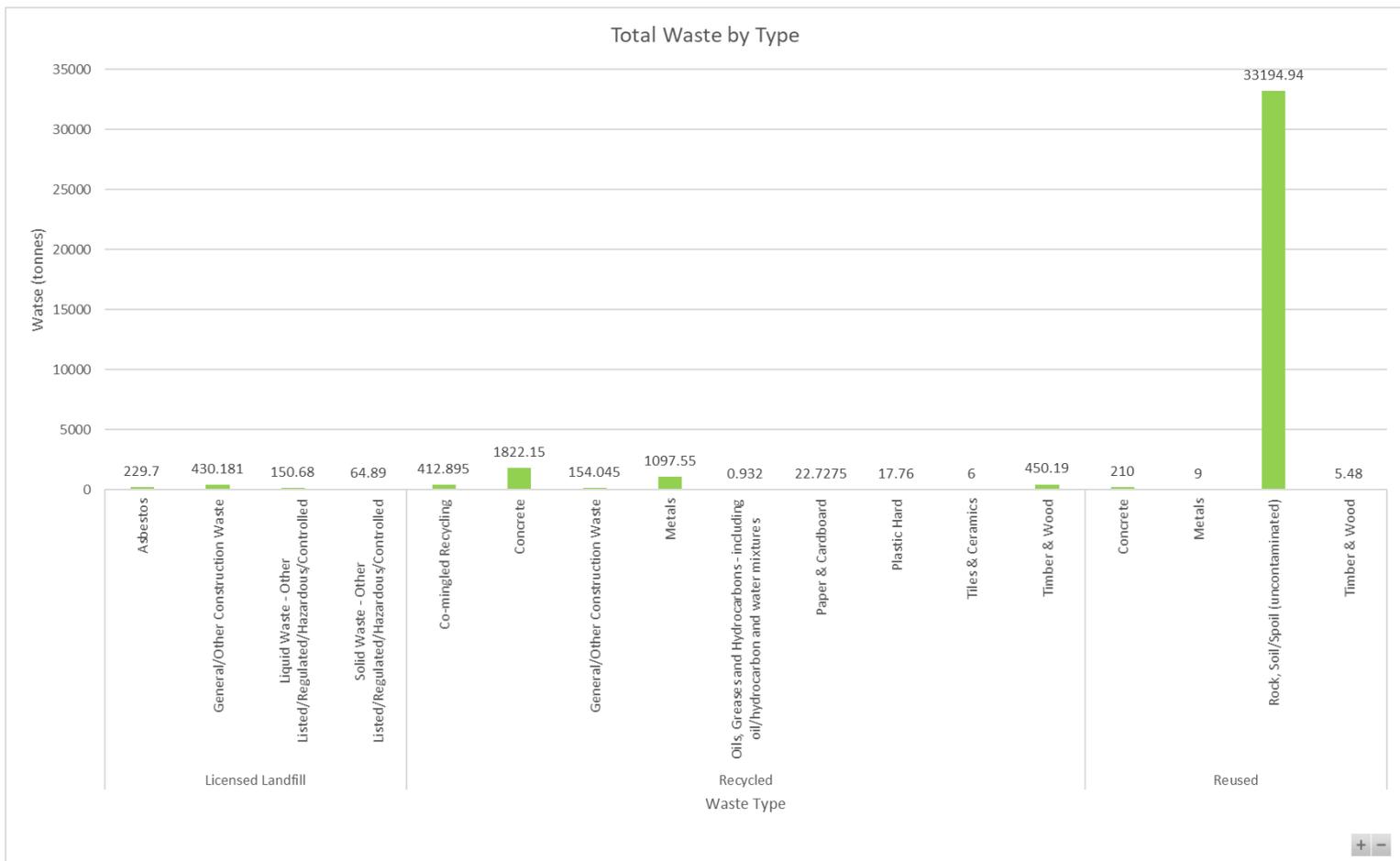


Figure 10: Total Waste by Type and Destination

### 6.5.2. Spoil Management

The classification of spoil is based on the Environmental Protection Act's classification process. The project has completed preliminary contamination assessment and geotechnical investigations to determine areas of suitable natural material, unsuitable natural material or contaminated material within the Project footprint. Material classified as 'suitable' meet the engineering and contamination requirements for the Project and are being reused within the Project. Material classified as 'unsuitable' don't meet the engineering requirements for the Project. This material is being reused/recycled where opportunities allow and comply with Planning legislation. The Project is beneficially reusing the spoil material for non-structural mounds and has been exported to Suez to be used at Landfill Capping materials at the Springmount Waste Management Facility.

Material classified as contaminated will be managed in accordance to Environmental Protection Act and where able rehabilitated and recycled/reused in a sustainable method.

### 6.5.3. General Waste Management

The Project is working under the Global Mandatory Requirements (GMR) which mandates the implementation of the waste hierarchy as a foundation of reducing waste and diversion of waste from landfill.

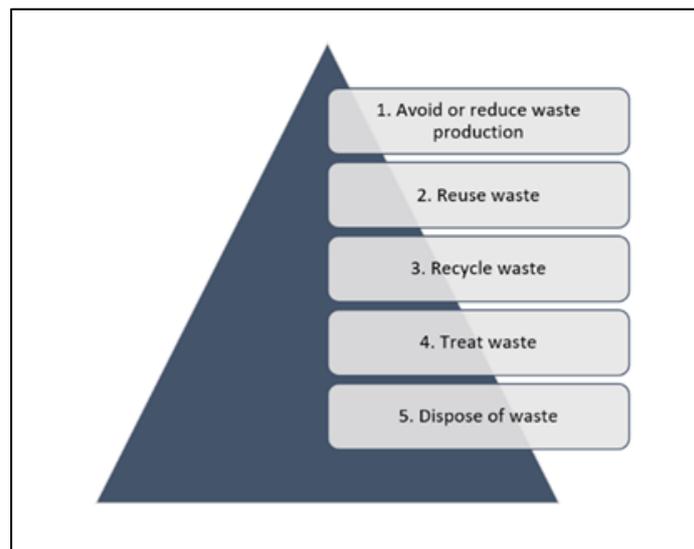


Figure 11: Waste Hierarchy

Based on this principle the Project has been able to recycle or reuse 85.8% of the waste generated to date.

## 6.6. Climate Change

The effects of a changing climate present complex challenges to the built environment and transport infrastructure due to the projected changes in intensity and frequency of severe climate events. Climate change can increase the exposure of the road and rail infrastructure to risks including structural asset damage, service interruption, productivity losses and reduced customer satisfaction. Recognising the importance of understanding projected climate impacts, HSA Group is committed to mitigating the risks of climate change to the road and rail corridor between Edmonton and Gordonvale.

| Key Targets   | Status   |
|---|----------|
| Undertake climate change risk assessment                  | Complete |
| Identify and implement adaptation measures                | Complete |
| Address all extreme, high and medium climate change risks | Complete |

### 6.6.1. Early Identification of Climate Change Risks

The Project is committed to take effective action on climate change in order to make the road and rail corridor between Edmonton and Gordonvale resilient. Accordingly, the design and build of the Project addresses the likely impacts of climate change risk over the life of the infrastructure and incorporates appropriate mitigation measures.

Climate change risks have been identified and addressed from early-stage design, with risks being revisited on an ongoing basis through project delivery.

### 6.6.2. Our Approach

The Project has taken a forward-looking approach toward climate risks, such as increased sea level, flooding, and extreme temperature events. For example, the design process for the Project has factored in a sea level change of 0.8m and up to 1:2000 year flood events, refer Figure 12. These design factors allow for adaptability and resilience of the road corridor for its designed life of 100 years.

The Project undertook an assessment of climate change risks early in project development. The aim was to understand potential risks and impacts to determine appropriate measures to manage and mitigate identified risks during construction and operation. HSA Group have developed and implemented adaptation measures to address risks identified as extreme, high and medium including designing the Project to cope with flood events up to a 100 year ARI to maintain resident access to the Bruce Highway and North Coast Rail Corridor during extreme flooding.

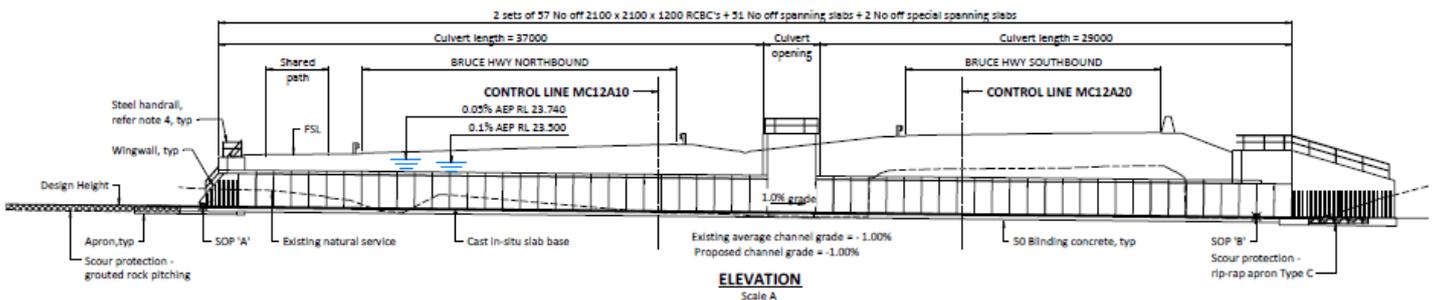


Figure 12: Mackey Ck Culvert Cross Section detailing 0.1%AEP (1:1000 year) and 0.05%AEP (1:2000 years)

## 6.7. Heritage

The Project is committed to heritage conservation and identifying opportunities to enhance heritage value within the region. The heritage assessment for the Project identified a number of significant Aboriginal heritage items within the Project footprint, including indigenous burials and a sacred tree and the potential for further indigenous finds. Opportunities to enhance heritage value are under investigation in collaboration with the Gimuy Walubara Yidinji peoples, the Dulabed Malanbarra Yidinji peoples, and the wider regional community.

### 6.7.1. Indigenous Heritage

The Project engaged with the Traditional Owners of the region, the Gimuy Walubara Yidinji and the Dulabed Malanbarra Yidinji people, and undertook a Cultural Heritage Field Assessment (CHFA). This assessment identified

- The entire project area is significant to the Traditional Owners.
- The entire project area is a Significant Aboriginal Area, in accordance with the Aboriginal Cultural Heritage Act.
- The six creek crossings and the cultivated area between Collinson Creek and Stoney Creek, have a high cultural heritage significance to the Traditional Owners and there is a potential for items and object of cultural heritage value to be identified in these areas during construction activities.

Based on the assessment's findings the Project entered into a Cultural Heritage Management Agreement (CHMA) with the Traditional Owners. The agreement details the methods to avoid harm to Aboriginal Cultural Heritage and, if harm cannot be reasonably and practicably avoided, to minimise the potential impacts on Aboriginal Cultural Heritage Finds within the Project Works Area through collaboration with the Traditional Owners.

Through this collaborative process, nine indigenous burials, three campsites and numerous indigenous artefacts have been identified on the Project. Four of the identified burials were within the Project's footprint and required relocation. Through close consultation with the Traditional Owners, the burials were relocated by the traditional owners.



Figure 13: Mortar and Pestle artifact found near Stoney Ck

To commemorate the indigenous heritage of the area the Project is investigating a legacy project at the locations of the relocated burials and a story line along the cycleway.

### 6.7.2. Non-Indigenous Heritage

Portions of the Meringa Sugar Experiment Station are identified as State Heritage on the Queensland Heritage Register. Initially established in 1917 as an entomological station investigating insect pests, the Meringa Sugar Experiment Station has housed research into disease-resistance, farming techniques, and technological innovation.

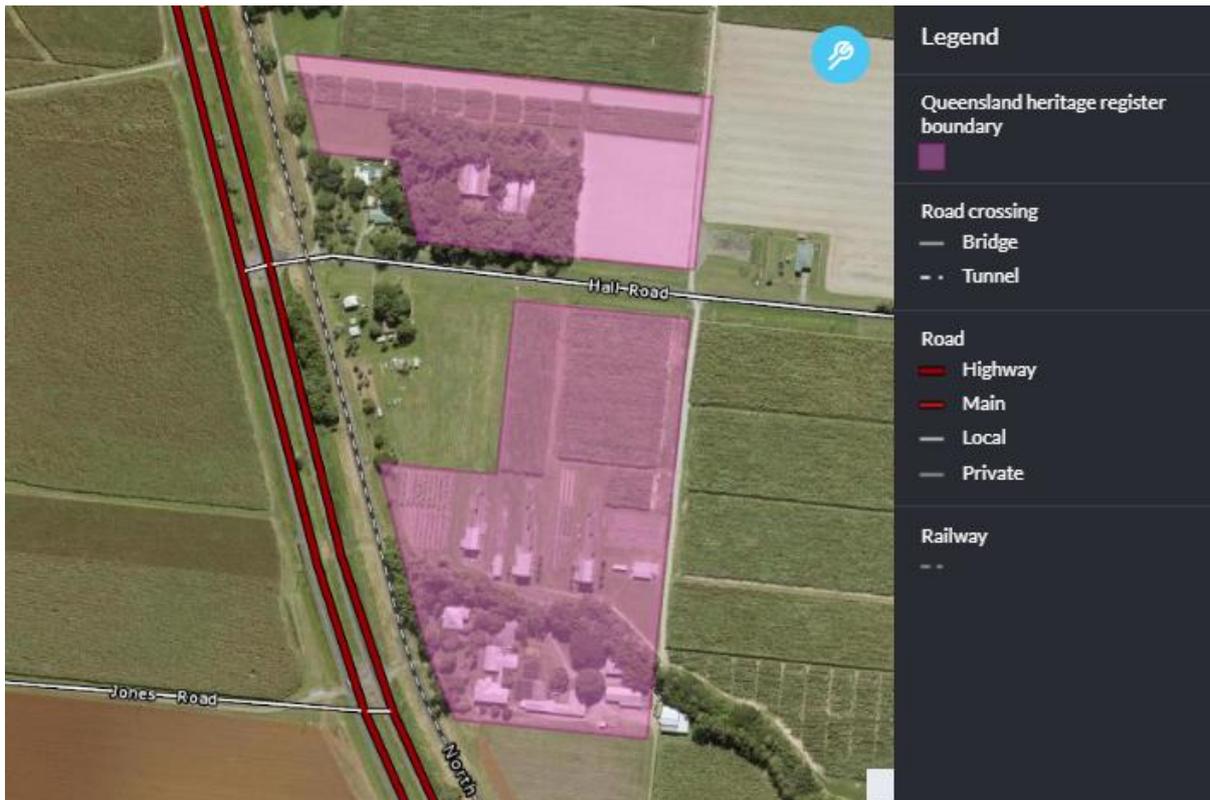


Figure 14: Queensland Globe Mapping of Heritage Register Areas

To increase road safety on this portion of the Bruce Highway the design requires the closure of the existing Meringa Sugar Experiment Station access, which is directly off the highway. Due to this, the Project has collaborated closely with Sugar Research Australia (SRA), the operators of the Experiment Station, and designed an appropriate new access road off Hall Rd. The design was endorsed by SRA and construction of the new access road will be completed in 2022.

To facilitate the construction of a new access road a Heritage Exemption Certificate was gained with the aid of a Heritage Impact Assessment (HIA). The HIA identified that the design proposed by the project did

## 6.8. Environmental Management

| Key Targets                            | Status                  |
|--|-------------------------|
| No major pollution incidents (Class 1) | On track – zero to date |

*\*Class 1: Environmental discharges, environmental pollution or degradation which has high severity impacts on the community and/or environment (>3 months) or may have irreversible detrimental long term impacts.*

The Project is being delivered under the relevant environmental and planning acts, including but not limited to the *Environmental Protection Act 1994, Water Act 2000, Fisheries Act 1994, Planning Act 2016, Nature Conservation Act, Biosecurity Act 2015*. The conditions contained within these legislations create hundreds of environmental compliance requirements that need to be adhered to by the Project within the construction and operational phases of the Project. Our Construction Environmental Management Framework encompasses a range of strategies / management plans that characterise our approach to environmental management during construction and are outlined below. These have been successfully implemented and have resulted in zero major pollution events to date.



Figure 15: HSA Group Environmental Management Framework

### 6.8.1. External Stakeholders

The Project liaises with numerous external stakeholders that influence how we manage environmental aspects on site. These include:

- DTMR
- Department of Environment and Science
- Department of Agriculture and Fisheries
- Department of Natural Resources, Mining and Energy
- Cairns Regional Council
- Queensland State Assessment and Referral Agency

The Project engages with these stakeholders as required to ensure the project is effectively managing its environmental aspects in accordance with regulatory conditions.

As part of this engagement, the Project has engaged closely with the Department of Agriculture and Fisheries to ensure the waterway barriers within the creeks that cross the project don't cause environmental harm and a managed appropriately.

### 6.8.2. Tendering

Environmental considerations are a key component to the procurement of delivery and supply contracts. Tenderers need to respond to a high standard of environmental performance while complying with our construction environmental management framework. Tender submissions include questionnaires that aid in the determination of the subcontractor's construction readiness. This information is used in a Multi Criteria Assessment (MCA) that allows the Project to identify subcontractors that align with the targets and objectives of E2G.

The MCA consists of price and non-price criteria that is weighted to align with the Projects values, refer to Table 2.

| Selection Criteria                                   | Weighting Percentage (WP)* |       |
|--|----------------------------|-------|
| <b>1 Price</b>                                       | <b>55.0%</b>               |       |
| 1.1 Price  |                            | 55.0% |
| <b>2 Commercial</b>                                  | <b>5.0%</b>                |       |
| 2.1 Prior performance                                |                            | 2.5%  |
| 2.2 Conditions / qualifications                      |                            | 2.5%  |
| <b>3 Project Management / Systems</b>                | <b>15.0%</b>               |       |
| 3.1 Safety   |                            | 5.0%  |
| 3.2 Environment & Cultural Heritage & Sustainability |                            | 5.0%  |
| 3.3 QA   |                            | 2.5%  |
| 3.4 Community & Social                               |                            | 2.5%  |
| <b>4 Local Benefits</b>                              | <b>20.0%</b>               |       |
| 4.1 Jobs   |                            | 8.0%  |
| 4.2 Supply chain                                     |                            | 4.0%  |
| 4.3 Apprentices / trainees                           |                            | 4.0%  |
| 4.4 ATSI Jobs  |                            | 4.0%  |

|   |             |             |
|---|-------------|-------------|
| <b>5 BPP</b> (where not considered elsewhere)                               | <b>5.0%</b> |             |
| 5.1 Best Practice IR  |             | 2.5%        |
| 5.2 History of compliance with procurement, tendering and other govt policy |             | 2.5%        |
| <b>Total</b>  | <b>100%</b> | <b>100%</b> |

Table 2: Subcontract Multi Criteria Assessment Weighting

### 6.8.3. Monitoring and Reporting

To ensure a level of assurance that we are appropriately managing environmental risks during construction, environmental monitoring and surveillance programs are implemented to pre-empt our impact and facilitate proactive management initiatives. This involves a combination of community consultation, environmental inspections, auditing of environmental management systems and incident response processes. There are also targeted monitoring programs in place.

#### 6.8.3.1. Water Quality Monitoring

The Project is required to undertake water quality monitoring in accordance with the Project's Water Quality Environmental Control Plan. The plan requires the Project to monitor numerous water quality parameters at various locations both up and downstream of the project, including the creeks that cross the Project. This monitoring occurs at least weekly, prior to construction water discharges and during rain events.

This monitoring ensures that the project does not negatively impact on the surrounding creeks and river ecosystems that flow to Trinity Inlet Estuarine Conservation Zone and the Great Barrier Reef Marine Park.

#### 6.8.3.2. Noise and Vibration

The Project has developed and implemented a Construction Noise and Vibration Environmental Control Plan to ensure emission impacts associated with the Project are appropriately managed in accordance with DTMR's Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration and legislated requirements. The below initiatives have been implemented to minimise noise and vibration disturbance to the community:

- Only conducting works during standard construction hours i.e. Monday to Saturday 7am to 6pm, where feasible. Any construction works conducted outside these times require further assessment, notification and approvals prior to commencing.
- Conducting noise and vibration monitoring to confirm that the level of emissions from the Project do not exceed approved levels.
- Conducting high noise and/or vibration generating activities during specific times periods to reduce impact on sensitive receptors.
- The Project is consulting with the community to inform them of the activities being completed
- Noise attenuation measures, like noise mats, implemented at specific sensitive receptors, i.e. schools and places of worship.

- Specific “Low Vibrations” and “Sensitive Receptor” areas have been defined and sign posted on the Project where compaction vibration and high noise generating activities are to be minimised, where feasible, refer to Figure 16 Figure 17 below.



Figure 16: "Low Vibration Area" signage deployed on the Project



Figure 17: "Sensitive Receptor Area" signage deployed on the Project

The Project is using SiteHive Hexanodes to continually monitor noise generation on site at various locations. This system takes noise measurements every 15 minutes and allows the project to proactively manage noise generation before it impacts nearby residents, refer to Figure 18. Furthermore, the when the Hexanodes detect an  $L_{Amax}$  noise above the set criteria it takes a photo and audio file. This helps the Project identify the causes of noise prior to the  $L_{Aeq}$  exceeding the set criteria. The Project is operating four SiteHives and moves them with the program of works to monitor activities near sensitive receptors, refer to Figure 19.

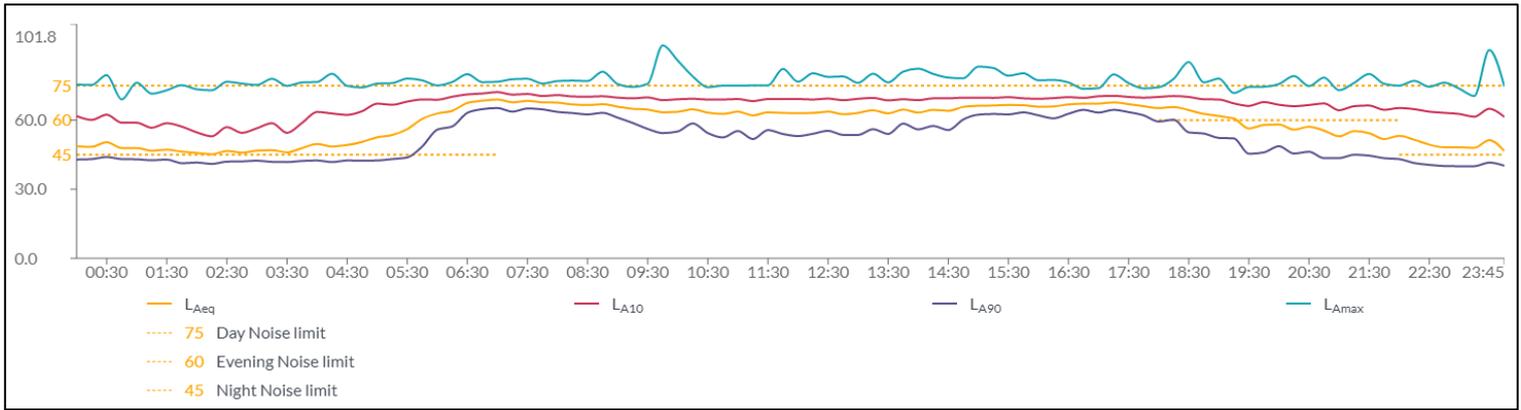


Figure 18: SiteHive Noise Data - 8<sup>th</sup> March 2022

Figure 19: Weather, Photo and Audio Files of  $L_{Amax}$  Exceedances from the 8<sup>th</sup> March 2022

### 6.8.3.3. Light Escape

The Project has developed and implemented a Construction Light Escape Environmental Control Plan to ensure light emission impacts associated with the Project are appropriately managed in accordance with DTMR and legislated requirements. The below initiatives have been implemented to minimise disturbance to the community and increase safety at particular traffic and pedestrian location. To ensure disturbance is minimised and public safety is maximised the Project completes specific light spill and CPTED inspection regularly. These inspections including night drone inspections to visually measure the impacts the Project’s lighting is having on the community and environment, refer to Figure 20, Figure 21 and Figure 22 below.



Figure 20: Riverstone Rd intersection during night shift



Figure 21: QR North (Northern Tie-In) Easter Rail Slew 24hr Operations



Figure 22: Castlereagh St Intersection Temporary Traffic Lighting

#### 6.8.3.4. Air Quality

The Project has developed and implemented an Air Quality Environmental Control Plan to ensure that air quality is appropriately managed throughout construction. In particular, dust is monitored utilising a number of dust gauges located within the local area. To minimise the dust generation during construction, the Project has adopted the following measures:

- Progressive vegetation clearing to minimise the amount of exposed surfaces
- Progressive stabilisation of exposed areas by revegetation, use of geofabrics, polymer, effective stockpile management and mulch blankets
- Utilising water carts to wet down haul roads, exposed areas and stockpiles.

The Project is also using SiteHive Hexanodes to continually monitor dust generation on site. This system takes particulate measurements every 15 minutes and allows the project to proactively manage dust before it becomes an impact on the nearby residents, refer to Figure 23. The Project are operating four SiteHives and moves them with the program of works to monitor activities near sensitive receptors.

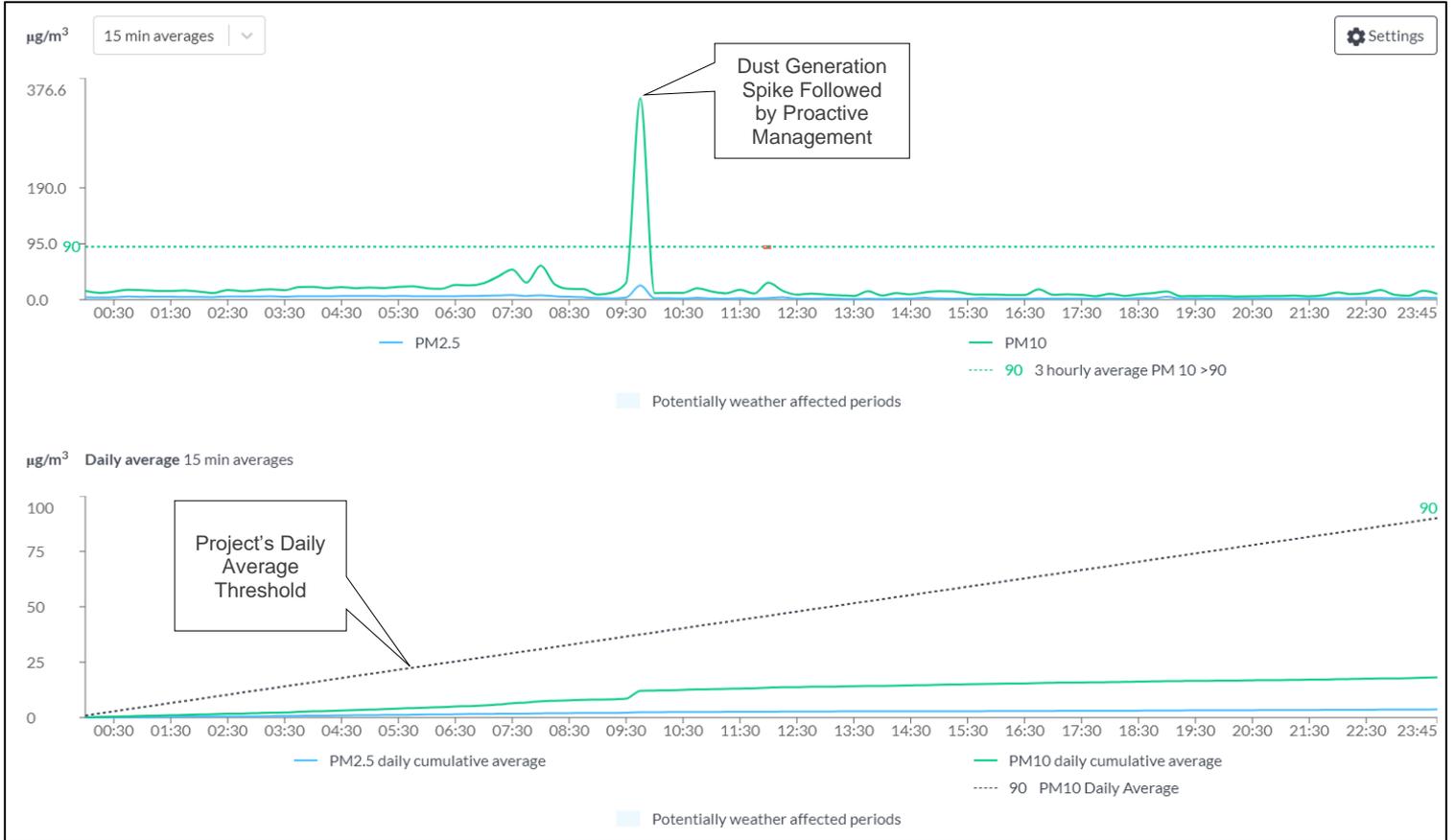


Figure 23: SiteHive Dust Data - 8<sup>th</sup> March 2022

## 7. Socio-Economic Aspects and Performance

### 7.1. At a Glance

| Key Targets   | Status                  |
|---|-------------------------|
| Total number of suppliers engaged                               | Suppliers – 25          |
|   | Sub-contractors – 54    |
|   | Hire – 38               |
|   | Consultants – 32        |
| % of expenditure in Queensland                                  | 94%                     |
| % of expenditure on Local suppliers (125km radius) (BPP Zone 1) | 60.3%                   |
| % of expenditure on Region suppliers (FNQ) (BPP Zone 2)         | 6.9%                    |
| Indigenous Enterprises engaged                                  | 6, Value to date \$7.9m |

| Social Aspect  | Target                 | Achieved                | Maintained Since Last Report?   |
|--|------------------------|-------------------------|---|
| % of women in workforce  | 10%                    | 28% at end of period    |   |
| % indigenous in workforce  | 5%                     | 21%                     |  |
| Hours of the Workforce vocational training placements                    | 90,025 hours           | 53,299 hours<br>59.2%   |  |
| Hours of the Workforce engaged in Workforce Skills Development Training. | 60,016 hours           | 121,253 hours<br>202%   |  |
| Total ATSI hours engaged in Workforce Skills Development Training        | N/A                    | 77,862 hours            |  |
| New Entrants   | 19 pax or 4273 Hrs/mth | 35 pax and 15,060 hours |  |

#### 7.1.1. Legacy Aspects

The Project is committed to positively contributing to communities in which it operates and creating outcomes that support community priorities. These priorities are divided into non-negotiables and negotiables. These project community priorities have been developed through consultation with the community, stakeholders and the infrastructure owners.

The Project non-negotiable that have been identified are:

- Safety
- Speed zones and travel time
- Traffic management

- Road alignment
- Reduced access to Bruce Highway

Priority negotiable have been ranks in order of priority. This ranking is based on program impacts, impacts to residents (during construction and operation), design factors, latent conditions and cost. These rankings will be reviewed at least annually to ensure the highest priority negotiables are being managed appropriately.:

| Priority Negotiables  | Priority Ranking |
|---|------------------|
| Accommodation works   | 1 – High         |
| Castlereagh Street connection   | 2 - Moderate     |
| Stanley Street upgrade  | 2 - Moderate     |
| Queen Street cycleway   | 3 - Low          |
| Cane Rail timing and design   | 1 – High         |
| Private road design   | 2 - Moderate     |
| Construction techniques that may reduce impact to directly affected residents | 1 – High         |

### 7.1.2. Community & Stakeholder Engagement

To ensure the impacts of the project on the community are appropriately managed a Community and Engagement Management Plan has been developed and implemented on the Project. The plan aims to foster communication and co-operation with the community and stakeholders, including DTMR, Cairns Regional Council, MSF Sugar , Sugar Research Australia, Cane Grower Association and the local community.

This plan was developed using local context and social risk through consultation, targets specific strategies for each stakeholder and sets out negotiable and non-negotiable aspects of the Project and the design. This plan sets the foundation on how the Project interacts with stakeholders and the community and how the feedback from these interactions influence the design and construction of the Project.

To date the Project has consulted with residents all along the alignment. This consultation has led to significant changes in the design. For example, Castlereagh St changed from an on ramp to a cul-de-sac due to resident’s concerns about Stanley St becoming a “Rat Run” to avoid the Draper Rd intersection.

## 8. Innovations and Initiatives

The project is targeting a number of innovations and initiatives, particularly focusing on value engineering and closing the loop. These include:

- Existing Innovations
  - o E-Mesh
  - o DTMR Waste Tracking
- Glass sand bedding material – Market Transformation
- E-Mesh Cycleway placed via paving machine – Australian First
- ISC ISupply Challenge
- ISC V2.0 Credits Challenge
- Topsoil Trial - Market Transformation
- Reuse of Street Lighting – Market Transformation
- Solar Hybrid Generators – World First

## 9. Awards and Recognition

Nil to Date

## 10. Review and Comments

This report was reviewed by HSA Group Senior Management (Contractor) and Department of Transport and Main Roads (Client). Management & Stakeholder Review allows reviewers to take a holistic and strategic approach at the continuing suitability, adequacy and effectiveness of the projects sustainability management system and consequently the sustainability performance of the project.

| Date         | Reviewed By  | Signature   | Comments   |
|--------------|--|---|--|
| Jul 1, 2022  | Tom Ryzak<br>Project Manager<br>HSA Group                                | <i>Tom Ryzak</i>  | The team is on track to exceed the required ISCA score.                          |
| Jul 2, 2022  | Vince Jourde<br>Construction Manager<br>HSA Group                        | <i>V Jourde</i><br><a href="#">V Jourde (Jul 2, 2022 12:03 GMT+1)</a>             | The project is maintaining high levels   |
| Jul 28, 2022 | Cameron Slack<br>Environmental and Sustainability Representative<br>DTMR | <i>Cameron Slack</i><br><a href="#">Cameron Slack (Jul 28, 2022 09:54 GMT+10)</a> | Great implementation of purchasing procedures to ensure sustainability practices |
| Jul 19, 2022 | Mike Tait<br>Administrator<br>St George Project Services                 | <i>Mike Tait</i><br><a href="#">Mike Tait (Jul 19, 2022 07:37 GMT+10)</a>         | The project team is maintaining a focus on innovation                            |
| Aug 3, 2022  | Sumit Khadka<br>Principal Engineer (Civil)<br>DTMR                       | <i>Sumit Khadka</i><br><a href="#">Sumit Khadka (Aug 3, 2022 21:56 GMT+10)</a>    | The project's sustainability performance continues to be high.                   |

# E2G IS Annual Report Apr21 - Apr22

Final Audit Report

2022-08-03

|                 |   |
|-----------------|---|
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| By:             | Aaron Sacagio (aaron.sacagio@e2gfv.com.au)  |
| Status:         | Signed                                      |
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