Appendix 14


GAS
WATER
POTENTIAL FUTURE SERVICES
PROJECT IRON BOOMERANG CONTINENTAL RAIL CORRIDOR
OPTIC FIBRE
COMMUNICATIONS
PROJECT
IRON BOOMERANG
east west line parks limited

Environment Protection and Biodiversity Conservation Act 1999

Referral of proposed action

Project title: Galilee Infrastructure Corridor Project

1 Summary of proposed action

The Proponent East West Line Parks Limited (ABN 21 118 581 883), intends to build, own and operate a 600 km open access, multi user, multi-purpose infrastructure corridor (the Corridor) from the Port of Abbot Point to the coal mining regions of the Bowen and Galilee Basins.

The Corridor will be complete with rail and telecommunications infrastructure and be comprised of three elemental sections.

The Corridor will be used primarily to site a double track, standard gauge, heavy haul railway system and a carrier grade high availability communications network (for train control and general communications) with the capacity to provide coal and other freight services to current and future mining operations in the two coal mining regions, and other communities adjacent to the Corridor.

NOTE: You must also attach a map/plan(s) showing the location and approximate boundaries of the area in which the project is to occur. Maps in A4 size are preferred. You must also attach a map(s)/plan(s) showing the location and boundaries of the project area in respect to any features identified in 3.1 & 3.2, as well as the extent of any freehold, leasehold or other tenure identified in 3.3(i).

1.1 **Short description**

The three elemental sections of the Galilee Infrastructure Corridor are:-

1. a 390 kilometre length of corridor from the Abbot Point State Development Area to a junction north of North Goonyella in the Bowen Basin then continuing west to the northern end of the Galilee Basin;
2. a 210 kilometre length of corridor extending from the northern Galilee south along the length of the Galilee Basin and terminating near the town of Alpha to transport thermal coal from proposed mines; and
3. a junction near North Goonyella south to a narrow gauge transfer hub near Moranbah to service primarily the transport of metallurgical coal.

1.2 **Latitude and longitude**

Latitude and longitude details are used to accurately map the boundary of the proposed action. If these coordinates are inaccurate or insufficient it may delay the processing of your referral.

	Latitude			Longitude		
location point	degrees	minutes	seconds	degrees	minutes	seconds

In Appendix there are two drawings PIB-SKE-0226 and PIB-SKE-G-0227. These drawings provide visual as well as project coordinates of the Galilee Infrastructure Corridor project

The Interactive Mapping Tool may provide assistance in determining the coordinates for your project area.

If area less than 5 hectares, provide the location as a single pair of latitude and longitude references. If area greater than 5 hectares, provide bounding location points.

There should be no more than 50 sets of bounding location coordinate points per proposal area.

Bounding location coordinate points should be provided sequentially in either a clockwise or anticlockwise direction.

If the proposed action is linear (eg. a road or pipeline), provide coordinates for each turning point.

Do not use AMG coordinates.

1.3 With reference to drawings PIB-SKE-0226 and PIB-SKE-G-0227 that are enclosed in the Appendix the following paragraphs describe the Corridor route.

The Corridor from the northern Galilee Basin to the junction at North Goonyella (west to east) follows the foothills of higher land formations at relatively flat longitudinal grade and remains to the north of the major black soil areas and, to the greatest extent possible, out of flood plains. This route minimises impacts on valuable agricultural lands to the south of the Corridor and can comfortably generate an earthworks cut-to-fill balance on the railway formation, thereby minimising the potential need for imported fill and its impact on land forms and surrounding property.

Adopting a generally north-south alignment along the Galilee Basin, the Corridor bypasses agricultural zones and remains close to all of the Galilee Basin mining tenements. The various emerging and future mines in the Galilee Basin may then be joined to the Corridor by a localised rail loop connection. In this way, the Corridor not only minimises impacts on landholders but also provides all potential Galilee Basin mines with a ready access to a single high capacity Corridor of high flood immunity without the need to build lengthy inefficient spur lines that disrupt the community and the environment.

The Proponent proposes a rail transfer hub near Moranbah to enable new and existing mining operations in the Bowen Basin an option to haul metallurgical coal on an efficient heavy-haul standard gauge railway to Abbot Point. The rail transfer hub will link to the current and emerging Bowen Basin mines via a spur line which will be either narrow gauge or standard gauge or dual gauge. (i.e. a combined narrow gauge and standard gauge track) as preferred. Equally, should particular mining companies prefer, the dual gauge line may be extended through to the Galilee Basin.

The Corridor route between North Goonyella and Abbot Point may deviate at two locations from that shown subject to further detailed analysis and ongoing landowner discussions to be concluded during the EIS study period. From approximately 60 km north of Moranbah the alignment will either be to the west of the Q-Coal tenements (as shown) or on an alignment through those tenements.

From approximately 25 km south of Collinsville, the Corridor to Abbot Point will be selected from one of two routes: the western alignment (as shown), which meets the Proponent's maximum up-gradient criterion of 1 in 320, or a route through the Clark Ranges which, although being 30 km shorter, exceeds this gradient criteria at localised points. Further train simulations are being undertaken to determine which of these options has the better whole-of-life cost efficiency.

The current Corridor alignment design has attempted to avoid sterilisation of known mining tenements. During the EIS evaluation further design optimisation will be undertaken in consultation with the relevant mining companies to ensure the least impact on or complete avoidance of mining tenements is achieved.

1.4	**Size of the development footprint or work area (hectares)**	The nominal corridor width is projected to be 150m wide and the Corridor length is projected to be 600 km. And the Corridor area is projected to be 8,550 hectares.
1.5	**Street address of the site**	See the Appendix, drawings PIB-SKE-G-0226 and PIB-SKE-G-0227 for visual projection and coordinates

1.6 **Lot description**
Describe the lot numbers and title description, if known.

Not Applicable – refer to project coordinates on drawings PIB-SKE-G-0226 and PIB-SKE-G-0227

1.7 **Local Government Area and Council contact (if known)**
Please also review in the Appendix PIB-SKE-G-0228 for the General Electoral State Boundaries

Isaac Regional Council Area - Mayor Anne Baker and CEO Mark Crawley

Whitsunday Regional Council - Mayor Jennifer Whitney

Central Highlands Regional Council - Mayor Peter Maguire

If the project is subject to local government planning approval, provide the name of the relevant council contact officer.

1.8 **Time frame**

Specify the time frame in which the action will be taken including the estimated start date of construction/operation.

Proposed Schedule	
Milestones	**Dates**
Studies and Plans	
Complete environmental constraints assessment and cultural heritage plan	Q1, CY12
Prepare EIS draft Terms of Reference	Q2, CY12
Submit Environmental Impact Statement (EIS) to Federal Government	Q3, CY13
Complete Detailed Design and Planning Study	Q2, CY14
Final Government approvals	Q2, CY14
Order long-lead items (LLIs)	Q2, CY14
Construction	
Start construction of railroad from Abbot Point to Alpha via Moranbah	Q2, CY14
Complete railroad between Abbot Point and Moranbah	Q1, CY16
Complete railroad between Moranbah and Alpha	Q2, CY16
Operations	
Commence operations from Abbot Point to Bowen Basin	Q2, CY16
Commence operations from Abbot Point to Galilee Basin	Q3, CY16

1.9	**Alternatives to proposed action** Were any feasible alternatives to taking the proposed action (including not taking the action) considered but are not proposed?	**Yes**	Yes, you must also complete section 2.2
1.10	**Alternative time frames etc** Does the proposed action include alternative time frames, locations or activities?	**No**	
1.11	**State assessment** Is the action subject to a state or territory environmental impact assessment?	**Yes**	Yes, you must also complete Section 2.5
1.12	**Component of larger action** Is the proposed action a component of a larger action?	**No**	Yes, you must also complete Section 2.7
1.13	**Related actions/proposals** Is the proposed action related to other actions or proposals in the region (if known)?	**Yes**	Yes, provide details: The Galilee Infrastructure Corridor Project proposed action is similar to other current proposals (listed below) before various levels of Government. However from an environmental, flooding and waterways and social impact this

proposal has significantly fewer issues. Please refer to the Appendix drawing PIB-SKE-G-0099 for visual representation of the competing corridors, that are listed below:

1. Adani Corridor TOR for EIS
2. BHPB Corridor TOR for EIS
3. QR National TOR Central Qld Integrated Rail
4. Hancock GVK TOR for EIS
5. Waratah Coal TOR for EIS

The Galilee Infrastructure Corridor Project proposed action markedly contrasts with other actions and proposals in the region in that the Galilee Infrastructure Corridor unlike the above listed five proposals was designed from the outset to be particularly sensitive to the need:-

1. to preserve valuable cropping land and existing farming and other key established land uses in the parts of regional Queensland that it traverses;
2. planned minimum encroachment on valuable agricultural cropping, cattle grazing lands and black soil floodplains;
3. specially designed rolling stock to minimise required trip frequencies and avoid dust emissions; and
4. of the Corridor minimising environmental and community impact.

From its terminus at Abbot Point the Corridor alignment to the south and west maximises its proximity as far as practical to the existing Bowen Basin rail corridor. Heading west from the junction at North Goonyella to the northern Galilee Basin it follows the foothills of higher land formations at relatively flat longitudinal grade and remains to the north of the major black soil areas and out of flood plains. Its route therefore minimises impacts on valuable agricultural lands to the south of the Corridor. Then adopting a generally north-south alignment along the Galilee Basin back towards its point of origin near the town of Alpha, the Corridor continues to bypass agricultural zones whilst remaining strategically close to all of the mining tenements.

Community consultation on the Project concept commenced in 2006 in cooperation with the Mayors of the Whitsunday and Isaac Regional Councils. Regular presentations and information updates have been given at Council meetings, community meetings, with land owners, with farmers, and peak local groups including the Corridor to Coast group and economic development enterprise organisations.

1.14	**Australian Government funding** Has the person proposing to take the action received any Australian Government grant funding to undertake this project?	**No**	Yes, provide details:
1.15	**Great Barrier Reef Marine Park** Is the proposed action inside the Great Barrier Reef Marine Park?	**No**	Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

NOTE: It is important that the description is complete and includes all components and activities associated with the action. If certain related components are not intended to be included within the scope of the referral, this should be clearly explained in section 2.7.

2.1 Description of proposed action

This should be a detailed description outlining all activities and aspects of the proposed action and should reference figures and/or attachments, as appropriate.

In context to the Environmental, Flooding, Waterways and Social Impact issues please refer to the Appendix and in particular to the tabulated documents - Galilee Corridor Infrastructure Project Constraints. The constraints documents correlate with drawings PIB-SKE-0099, PIB-SKE-G-0226 and PIB-SKE-G-0227 in particular the latter two relate the 90 project coordinates to the constraints document relative to the Environmental Issues and the Waterways, Flooding and Social Impact issues are visualised and articulated in the drawing PIB-SKE-G-0099 and the following Section 2 of this document. Included in this submission is the Initial Ecological Constraints Analysis, this document is 9Mb and to avoid an email bounce has been forwarded in a separate email.

2.2 Alternatives to taking the proposed action

This should be a detailed description outlining any feasible alternatives to taking the proposed action (including not taking the action) that were considered but are not proposed (note, this is distinct from any proposed alternatives relating to location, time frames, or activities – see section 2.3).

The Proponent has analysed numerous alignment options (totalling more than 36,000 route kilometres), which it assessed against its 15 point selection criteria (see page 10). The focus of the criteria is to provide the optimum economic freight efficiency and the minimal ecological impact to ensure comparative economic benefit is returned to all parties using the railway alignment / Corridor and minimal environmental and social impact that provides the least possible cost per tonne hauled.

These studied options had many things in common with other freight corridor proposals from the Galilee and Bowen Basins currently in the public arena for consideration, of which there appear to be at least five in number. These include three proposed corridors from the Galilee which traverse generally from south-west to north-east, an additional corridor mooted as an east-west connection from the central Galilee to Moranbah, a new corridor traversing generally northwards from Moranbah to Abbot Point and a brown fields upgrade of the existing narrow gauge rail line from Moranbah to Abbot Point is also proposed.

These alternative proposals therefore serve as useful comparators.

From publicly available data the Proponent has applied its 15 point multi criteria risk assessment criteria (see page 10) to analyse each of these proposed rail corridor options for the region and to determine the potential suitability of each to meet the Proponent's essential project objective: namely, an open access freight Corridor of optimum economic efficiency for the long term benefit of all users and stakeholders.

With reference to PIB-SKE-G-0099 (refer Appendix), in which the Proponent's preferred Corridor is identified as Line 1, the proposed alternative rail corridors (Lines 2 to 6 inclusive) may be broadly categorised as follows:

Line 2 – Waratah Coal: 25 tonnes load per axle coal wagons operating on a 40 tonnes load per axle standard gauge rail track from a tenement in the southern Galilee generally in a north-easterly direction to Abbot Point;

Line 3 – Hancock GVK: 32 tonnes load per axle standard gauge rail from a tenement in the southern Galilee Basin, generally in a north-easterly direction to Abbot Point.

Line 4 – Adani: 20 – 25 tonnes load per axle potentially dual gauge line from a tenement in the central Galilee east to Moranbah, with connections to lines 2, 3 or 6;

Line 5 – BHPB: 20 – 26 tonnes load per axle narrow gauge rail from the Bowen Basin, near Moranbah, through to Abbot Point proposed as part of a wider open-access corridor.

Line 6 – QR National: 20 – 26 tonnes load per axle set of narrow gauge rail corridors including brown fields upgrade from Abbot Point to North Goonyella with a new connection that joins it to Line 4 and thereafter becomes a twinset of diverging corridors which overlay parts of both Line 4 and Line 2.

The Proponent considers that each of these alternative corridors presents comparative disadvantages, including the following:

- Each of the alternative corridors best serves the single tenement from which it originates, whereas the GIC is designed to service all Galilee Basin tenements equitably;
- the alternative corridors are not suited to the aggregation of all Galilee Basin freight into a coordinated, optimum efficiency solution of required high capacity, whereas the GIC is selected for this purpose;
- each of the alternative corridors requires a network of additional trunk and spur lines of significant length to fully serve the Galilee Basin, whereas the GIC achieves this outcome via a single corridor of minimum length;
- the alternative corridors are not configured for direct heavy haul extension to economically service the potential future expansion of the North West Minerals Province around Mt Isa, whereas the Galilee Infrastructure Corridor is configured for this;
- the alternative corridor alignments do not suit the Galilee Infrastructure Corridor's proposal for a heavy haul 40 tonnes load per axle track and rolling stock operations, whereas this criteria is essential to achieving optimum economic efficiency on long haul freight; and
- the alternative corridor alignments add significant capital cost and operational and maintenance risk in traversing significant tracts of black soil, floodplains and/or rugged terrain, whereas the Galilee Infrastructure Corridor alignment minimises exposure to unfavourable costly topography.

The Proponent considers each of the options it has reviewed, including the proposed alternative alignments in the public domain, does not suit all of its 15 point risk assessment criteria (see page 10) and therefore does not meet its essential project objective: namely, an open access freight Corridor of optimum economic efficiency for the long term benefit of all users and stakeholders.

A 'do nothing' option, whilst avoiding potential adverse impacts on landholders and the environment in the region, would leave the Galilee Basin coal resources stranded and the Bowen Basin coal reserves under developed and further delay the realisation of the development potential for the North West minerals province. It would also fail to adequately service the new Abbot Point cargo facility and adjacent State development Area special zones, which demands a modern high capacity rail service for its economic potential to be reached.

Summary of Key Strategic Benefits

The Project represents a unique opportunity to coordinate the Galilee coal transport requirements within a single Corridor by an efficient heavy haul railway system with maximum economic benefits to the Queensland economy, the broader community and the coal mining companies in the region well into the future.

The Project is of strategic significance in that it will:

- contribute to the Government's Infrastructure Policy, the promotion of domestic capital formation, and shape future infrastructure planning and development in Queensland;
- support the National Government's infrastructure priorities as outlined in the 2011 Report by Infrastructure Australia to the Council of Australian Governments including the delivery of Competitive International Gateways, A National Freight Network and a National Broadband Network;

- contribute to the long term employment sustainability in the regions for the existing industry sectors and open up upstream and downstream development opportunities realised by existing and potential industries utilising the Corridor;
- have the capacity to serve multiple sectors including agriculture and pastoral, not only the mining sector;
- significantly reduce disruption to landholders and to the valuable cropping and grazing lands with minimum environmental and social impact in the region;
- function as a trade Corridor and provide foundation customers in support of the Cargo Facility at the Port of Abbot Point;
- enable an efficient use of land and resources within the current corridors in the Abbot Point State Development Area and within the corridor owned by North Qld Bulk Ports;
- eliminate the need for multiple corridors connecting to the Galilee basin and thereby reduce financial costs involved in the development of a multiplicity of rail corridors currently proposed;
- have the capacity to provide for multiple uses into the future including water, energy and information and communication technology infrastructure to support regional development in Queensland;
- contribute to the utilisation of existing Government Owned Corporations (GOC) infrastructure and returns on such investments; and
- open up potential to service the North West minerals province and developments further afield.

The Corridor design criteria was sensitive to the need to preserve valuable cropping land and existing farming and other key established land uses in the parts of regional Queensland that it traverses. From its terminus at Abbot Point the Corridor alignment to the south and west maximises its proximity as far as practical to the existing Bowen Basin rail corridor. Heading west from the junction at North Goonyella to the northern Galilee Basin it follows the foothills of higher land formations at relatively flat longitudinal grade and remains to the north of the major black soil areas and out of flood plains. Its route therefore minimises impacts on valuable agricultural lands to the south of the Corridor. Then adopting a generally north-south alignment along the Galilee Basin back towards its point of origin near the town of Alpha, the Corridor continues to bypass agricultural zones whilst remaining strategically close to all of the mining tenements.

With its planned minimum encroachment on valuable agricultural cropping, cattle grazing lands and black soil floodplains, together with specially designed rolling stock to minimise required trip frequencies and avoid dust emissions, the Corridor therefore minimises environmental and community impact.

2.3 Alternative locations, time frames or activities that form part of the referred action

If you have identified that the proposed action includes alternative time frames, locations or activities (in section 1.10) you must complete this section.

Describe any alternatives related to the physical location of the action, time frames within which the action is to be taken and alternative methods or activities for undertaking the action. For each alternative location, time frame or activity identified, you must also complete (where relevant) the details in sections 1.2-1.9, 2.4-2.7, 3.3 and 4.

Please note, if the action that you propose to take is determined to be a controlled action, any alternative locations, time frames or activities that are identified here may be subject to environmental assessment and a decision on whether to approve the alternative.

The proposed Galilee Infrastructure Corridor is the preferred corridor which satisfies the Proponent's overall project objective: namely an open access freight Corridor of optimum economic efficiency for the long term benefit of all users and stakeholders.

The Corridor is the product of a refinement process by which the Proponent has applied multi-criteria risk assessment procedures to analyse numerous potential alignments (totalling approximately 36,000 route kilometres).

The Corridor will comprise a standard gauge, 40 tonnes load per axle heavy haul dual track rail freight system. The design criteria of a 40 tonnes load per axle rail design necessitates the selection of a flat corridor (nominal gradient of 1:320) on good foundation. This foundation is best found in the foot hills away from the flood plains and that in part was one of the 15 criteria applied to the Corridor selection.

2.4 Context, planning framework and state/local government requirements

Explain the context in which the action is proposed, including any relevant planning framework at the state and/or local government level (e.g. within scope of a management plan, planning initiative or policy framework).

Potential Designations

Having regard to the multiple users and purposes for which the Corridor may be available to serve, the Government may, at the appropriate time, consider:

a) designating the Corridor as Community Infrastructure under the Sustainable Planning Act 2009 (Qld), or

b) declaring the Corridor as a State Development Area under the State Development and Public Works Organisation Act 1971 (Qld).

A Community Infrastructure designation, which can be made by the relevant Minister, would identify the Corridor land to facilitate the integration of land use and infrastructure planning, and the cost effective and efficient provision of the infrastructure.

Before designating land for Community Infrastructure, the designating Minister must be satisfied that:

- the proposal satisfied a public benefit test such that the project will contribute to environmental protection or ecological sustainability, or satisfy community expectations for the efficient and timely supply of infrastructure, and
- there has been adequate environmental assessment, including adequate public consultation, and also adequate account of issues raised in the public consultation.

Similarly, the potential for the Corridor to be declared a State Development Area could be given future consideration having regard to the potential uses of the Corridor land for purposes of strategic significance to the State's economic future. Such uses could include:

- communication network facilities;
- railway lines and associated facilities including general freight ;
- water infrastructure or infrastructure for water cycle management;
- energy infrastructure;
- waste management facilities;
- oil and gas pipelines;
- operating works under the Electricity Act (1994 (Qld);
- emergency services facilities; and

- storage and works depots and the like including administrative facilities associated with the provision or maintenance of any of the above infrastructure facilities.

The Proponent will engage with the Government and the community further on this matter in the course of the EIS as the potential of the corridor to meet the relevant criteria becomes clearer.

The Proponent's analysis acknowledged the following essential freight Corridor attributes as the appropriate 15 point criteria by which a Corridor to Abbot Point should be determined:

1. aggregates freight from all Galilee Basin mine tenements via a single Corridor of minimum length, inclusive of spurs (essential for optimum freight efficiency, and limit land use impact);
2. integrates with the Bowen Basin coalfields (essential for optimum efficiency and service utility);
3. incorporates state-of-the-art standard gauge rail (an essential starting point for Pilbara style freight efficiency);
4. enables 40 tonnes load per axle track and wagon capacity (essential for optimum freight efficiency rail and wagon capacity);
5. maximum 1:320 gradient against the loaded train consist (essential for optimum operational efficiency);
6. enabled for cost efficient duplication to >350 Mtpa capacity (essential for achieving full Galilee Basin capacity in a single Corridor or dual track);
7. incorporates state-of-the-art carrier grade telecommunications and wireless overlay network (essential to enable real time locomotive management and train control signalling for optimum operational efficiency);
8. incorporates advanced train control signalling on a common shared platform for optimal freight efficiency in a multi user environment (essential for an efficient environment to enable mining companies to be masters of their destiny);
9. accommodates future community utility services (essential for maximum shared community benefit);
10. minimum encroachment on valuable agricultural cropping and cattle lands (essential for minimum land use impact);
11. minimises foundations on black soil floodplains and other poor natural materials (essential for minimum capital cost and land use impact and to minimise long term operational risk);
12. minimum earthworks and rock excavation and optimum cut-fill balance (essential for minimum capital cost and land use impact);
13. minimum drainage and flood mitigation measures and the avoidance of floodplains (essential for minimum capital cost and risk of operational disruption due to flooding events);
14. suitably configured for direct heavy haul rail Corridor extension west to the Mt Isa region and the North West minerals province and beyond (to catalyse and promote its economic development); and
15. maximises practical alignment proximity to existing rail corridors (in order to reduce land use impact).

The Proponent's preferred Corridor, as shown in the Appendix see drawing PIB-SKE-G-0099, adheres to these criteria and has the following particular attributes:

- provides a single, multi user infrastructure Corridor to Abbot Point servicing the doorstep of all mining tenements in the entire Galilee Basin whilst minimising the required length of railway including spurs;
- simultaneously provides a standard gauge heavy haul freight solution to Abbot Point from an integrated rail location central to the Bowen Basin coalfields;
- builds in optimum economic operational efficiency for all users by having standard gauge, heavy haul railway line of 40 tonnes load per axle capacity with maximum up gradient of 1:320, duplicated as demand builds;
- enables the use of the latest generation of American heavy haul noise silenced locomotives;

- the proposed use of closed lid coal wagons that eliminate in transit dispersion of coal dust as well as being environmentally desirable with increased efficiencies through reduction in aerodynamic drag thereby reducing the usage of locomotive diesel fuel;
- enabled for cost efficient line duplication to 350Mtpa capacity;
- incorporates state-of-the-art, carrier grade, high availability communications technology;
- incorporates a train management strategy enabling optimal multi user freight density and efficiency;
- accommodates other potential future community utility services: e.g. water, gas, power, enhanced telecommunications etc;
- minimises land use impacts and encroachment on valuable agricultural cropping and cattle grazing lands;
- minimal floodplain encroachment (with reference to the Appendix see drawing PIB-SKE-G-0099), minimising costly drainage requirements with reduced risk of operational disruption due to flooding events;
- minimises areas of poor soil foundations and rugged rocky terrain, thereby minimising construction costs and operational risk;
- facilitates cut/fill balance with minimum earthworks and imported fill by selecting topographically suitable terrain;
- aligns adjacent to existing rail corridors, where practical to do so, to minimise land use impacts;
- aligns for direct heavy haul extension further west to service the development of the Mt Isa region and the North West Minerals Province;
- avoids townships (e.g., Collinsville) and minimises impacts on other recognised settlement areas and significant rural infrastructure (e.g. homesteads, stockyards, stock dams, bores);
- avoids environmentally sensitive areas such as National Parks and known declared nature reserves;
- avoids existing and planned mines and other infrastructure; and
- locates required ancillary infrastructure (e.g. unloading infrastructure and rail loops at Abbot Point) all within close proximity to existing key infrastructure.

With reference to the Appendix drawing PIB-SKE-G-0099, the extents of the flood plains illustrated is the most recent interim floodplain assessment overlay sourced from the Queensland Reconstruction Authority website.

Describe any Commonwealth or state legislation or policies under which approvals are required or will be considered against.

Approvals Required for the Project

The following approvals and triggers are a preliminary assessment having regard to the desktop work and preliminary surveys. It is expected that a complete list of approvals will be included in the draft Environmental Impact Statement.

Approvals required for all stages of the Project will include development approvals from local governments or other applicable assessing authorities, building and safety approvals relating to permanent and temporary structures, international standards, licences and permits for heavy lifts and loads, materials stored on site/transported to the site, emissions from construction machinery, operational works, disposal of waste, and all other impacts involved in the construction of a Corridor.

The legislation, policies and information on the likely approvals required for the Project, including ISOs, has been sourced from the Agency websites and from the State and Commonwealth Administrative Arrangements Orders.

Australian Government Approvals Required For The Project			
Activity/Approval Trigger	**Legislation, Policy, Standard, Permit, Licence**	**Administering Authority**	**Activity**

Australian Government Approvals Required For The Project			
Activity/Approval Trigger	**Legislation, Policy, Standard, Permit, Licence**	**Administering Authority**	**Activity**
Fauna and Flora of National Significance	Environment Protection and Biodiversity Conservation Act 1999 (Cth)	Department of Sustainability, Environment, Water, Population & Communities	Desktop survey work has been undertaken, survey work has been undertaken for other mining and corridor projects within the Study Area. It appears likely that ground truthing and survey work will reveal fauna and flora of national significance will be present within the survey area
Protection of Critical Infrastructure	Critical Infrastructure Protection National Strategy, /NZS 4360:2004 Risk Management, HB 167:2006 Security Risk Management, HB 221:2004 Business Continuity Management, HB 292-2006 & HB 293-2006 Business Continuity Management.	Attorney General's Department: National Security	Critical Infrastructure Protection National Strategy,
Native Title Act 1993 (Qld)	Approvals, agreements	Attorney General's Department	Negotiations and agreements with Traditional Owners and claimants regarding access to their land
Frequency Allocation for Rail Communications and Signalling	Telecommunications Act 1997 (Cth) subsection 56 (1)	Australian Communications and Media Authority and Attorney General's Department	Frequency Allocation for Rail Communications and Interception Capability Plans

Queensland Government Approvals Required For The Project			
Activity/Approval Trigger	**Legislation, Policy, Standard, Permit, Licence**	**Administering Authority**	**Activity**
Abbot Point State Development Area	State Development & Public Works Organisation Act 1971 (Qld)	Office of the Coordinator General	Not required for the construction of this Infrastructure Corridor, however, approval will be sought should set down areas be required for the machinery and equipment required to construct the Infrastructure Corridor
Security Response to Incidents	Queensland Counter-Terrorism Strategy Queensland Infrastructure Protection and Resilience	Office of the Coordinator General	Security Response to Incidents

Queensland Government Approvals Required For The Project			
Activity/Approval Trigger	**Legislation, Policy, Standard, Permit, Licence**	**Administering Authority**	**Activity**
	Framework Queensland Government Information Security Classification Framework		
Approval to clear vegetation	Vegetation Management Act 1999 (Qld)	Dept Environment & Resource Management	
Water permit to take water from a watercourse, lake or spring or groundwater if required for construction purposes	Water Act 2000 (Qld) Water Act Regulations	Water permit to take water from a watercourse, lake or spring or groundwater if required for construction purposes	
Watercourse Crossings	Water Act 2000 (Qld) Water Act Regulations	Dept Environment & Resource Management	
Removal of vegetation from a watercourse – Riverine Protection Permit	Water Act 2000 (Qld) Water Act Regulations	Dept Environment & Resource Management	
Road and infrastructure crossings	Transport Infrastructure Act 1994 (Qld)	Dept. Transport & Main Roads	
	Petroleum and Gas (Production & Safety) Act 2004 (Qld)	Dept. Employment, Economic Development and Innovation	
Use of State Controlled Roads	Transport Infrastructure Act 1994 (Qld)	Dept. Transport & Main Roads	
Use of Local Government Roads	Local Government Act 2009 (Qld)	All Councils	
Accreditation for Operator	Transport (Rail Safety) Act 2010 (Qld)	Dept. Transport & Main Roads	
Protection of fauna and flora	Nature Conservation Act 1992	Dept. Environment & Resource Management	
Environmentally Relevant Activities	Environment Protection Act 1994 (Qld) Schedule 2 Environment Protection Regulation	Dept. Environment & Resource Management	
Air Quality	Environment Protection (Air) Policy 2008 (Qld)	Dept. Environment & Resource Management	
Noise Emissions	Environment Protection (Noise) Policy 2008 (Qld)	Dept. Environment & Resource Management	
Water Quality	Environment Protection (Water) Policy 2009 (Qld)	Dept. Environment & Resource Management	
Waste Management	Environment Protection (Waste Management) Regulation 2000 (Qld)	Dept. Environment & Resource Management	
Waste Management	Environment Protection (Waste Management) Policy 2000 (Qld)	Dept. Environment & Resource Management	
Cultural Heritage, Cultural Heritage Management Plans	Aboriginal Cultural Heritage Act 2003 (Qld)	Dept. Environment & Resource Management	
Cultural Heritage	Queensland Heritage Act 1992 (Qld)	Qld Heritage Council	
Workers' health and safety	Workplace Health & Safety Act 1995 (Qld)	Dept. Justice & Attorney General	
Movements and storage of goods	Dangerous Goods Safety Management Act 2001	Dept. Justice & Attorney General	

Queensland Government Approvals Required For The Project			
Activity/Approval Trigger	**Legislation, Policy, Standard, Permit, Licence**	**Administering Authority**	**Activity**
	(Qld) & Regulation		
Purchase of land, right of way over land for location of Corridor	Negotiated agreements with land owner, change to title deed		
Land Title Practice Manual	Property Law Act 1974 (Qld)		

Local Government Approvals Required For The Project			
Activity/Approval Trigger	**Legislation, Policy, Standard, Permit, Licence**	**Administering Authority**	**Activity**
Development approval	Whitsunday Regional Council Planning Scheme	Whitsunday Regional Council	
Development approval	Isaac Regional Council Planning Scheme	Isaac Regional Council	
Development approval	Charters Towers Regional Council Planning Scheme	Charters Towers Regional Council	
Development approval	Barcaldine Regional Council Planning Scheme	Barcaldine Regional Council	
Development approval	Sustainable Planning Act (Qld) 2009	Department of Local Government & Planning	
Building approvals	Building Act 1975 (Qld) Building Act Regulations Building Code of Australia	Department of Local Government & Planning	
Blackwater & grey water on-site sewage systems for construction crews	Plumbing & Drainage Act 2002 (Qld) Standard Plumbing & Drainage Regulation Plumbing & Wastewater Code	Department of Local Government & Planning	
Potable water supply for construction crews	Water Allocation Register	Department of Environment & Resource Management	Approval may or not be required under the Water Act 2000 (Qld)
Water supply for wash down areas and for site construction watering needs	Water Allocation Register	Department of Environment & Resource Management	Approval may be required to use grey water for wash down and site construction watering needs
Local Government	Department of Environment & Resource Management	Approval may be required to use grey water for wash down and site construction watering needs	
Food handling, waste control for temporary site facilities	Local Govt approval for Environmentally Relevant Activities	Separate approvals from each Council	

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

If you have identified that the proposed action will be or has been subject to a state or territory environmental impact statement (in section 1.11) you must complete this section.

Describe any environmental assessment of the relevant impacts of the project that has been, is being, or will be carried out under state or territory legislation. Specify the type and nature of the assessment, the relevant legislation and the current status of any assessments or approvals. Where possible, provide contact details for the state/territory assessment contact officer.

Description of the Existing Environment

Natural Environment

This section sets out the key environmental factors relevant to the Project. **Potential Impacts of the Project** commencing on page 20, will identify the potential impacts of the Project.

A more detailed description and evaluation of its attributes in terms of potential impacts of the construction and operations of the railway will be provided in the detailed EIS to be prepared.

Land

The proposed Corridor for the preferred alignment traverses a variety of land forms and land uses.

The area of northern Galilee basin is in the Desert Uplands bioregion, which is characterised by plateau residuals, ridges and sand plains. Soils are of low fertility and land use is predominantly low intensity grazing of native pastures (approximately 94% of region). It is mainly a beef cattle area though some sheep are raised in the western parts.

Vegetation is mainly eucalypt woodlands with a grassy or spinifex understorey. Acacia spp. woodlands are widespread, especially where clearing has occurred and fire has been a feature. It has a semi-arid climate with seasonally highly variable rainfall (median rainfall of 450 mm approximately) which predominantly falls in the summer months.

The Corridor route crosses the Great Dividing Range and other significant catchment divides including Darkes Range, which confine drainage in the Belyando and associated tributaries, and two significant lake systems – Lake Galilee and Lake Buchanan.

The majority of the route from North Galilee to Moranbah and north to beyond Collinsville, as well as the southern spur line from North Galilee to Alpha, traverses a broad area known as the Brigalow Belt bioregion. This is an area of complex landforms and soils including extensive areas of cracking clays and sodic texture contrast soils with challenging properties for construction.

Landforms consist of undulating to rugged ranges and extensive areas of alluvial plains, the latter subject to widespread flooding in storm events. Vegetation is mainly Acacia harpophylla (Brigalow) and other Acacia spp., eucalypt woodlands and grasslands.

Climate ranges from semi-arid in the south and west to tropical in the northern parts above Collinsville. Median rainfall is about 590 mm and is summer dominant.

The route traverses much of the catchment area of the Burdekin Falls Dam and crosses the Belyando, Isaac and Bowen Rivers and their tributaries.

North-west of Collinsville, the route diverges around and through the Clarke Ranges and enters the coastal draining system of the Bogie River which flows to the ocean north of Abbot Point after skirting the Mt Aberdeen National Park. This area has a sub-tropical to tropical climate with strongly summer dominant rainfall (mean annual rainfall of 1,010 mm) and a moderate chance of cyclonic events. The area is unusual for north Queensland in that it is known as the dry tropics, being in a rain shadow to some degree though with an annual long term range of up to 2,000+ mm.

The route traverses several mountainous areas of the Clarke and Connors Ranges which are characterised by tall eucalypt forests and areas of evergreen rainforest and vine thicket. Modest earthquakes are known to occur in this area and as recent as mid-2011 and the final route alignment will factor in avoidance or mitigation measures through

earthquake zones. Coastal wetlands and mangroves within the Abbot Point State Development Area occur beyond the end of the Corridor.

The geology of the route covers a broad range of lithologies and unconsolidated sediments, including:

- large tracts of Quaternary Alluvium (sands, silts and clays);
- carboniferous pyroclastics, flows, quartzose sandstones and fine grained sediments, with some lateritised overlays of Tertiary clayey sandstones;
- devonian sediments and meta-sediments with minor volcanics;
- permian sediments and areas of Tertiary duricrust on the plateau surfaces;
- tertiary basalts;
- permian sediments to the west of the Clarke Range; and
- large areas of Upper Carboniferous to Lower Permian granitic rocks of the Clarke Range before descending to the coastal lowlands.

Hydrology

There are several major waterways intercepted along the route. The majority of the route lies within the Burdekin River catchment draining via mainly ephemeral systems including the Belyando, Suttor and Bowen/Broken Rivers.

The Corridor will require six major river crossings and 29 creek and watercourse crossings. The river crossings are at the following rivers and creeks, some of which will be crossed more than once: Elliot, Bogie, Bowen, Suttor, Belyando Carmichael, Splitters, Finley, Sandy, Glen Blazes, Capsize, Herbert, Johnnycake, Table Mountain, Pelican, Twelve Mile, Rosell, Suttor North, Eaglefield, Kennedy, Eaglefield again, Verbena, Serpentine, Black Wattle, Bull, Bully, Sandy, Eight Mile, Laglan Spring and Forrester creeks.

Two ephemeral lakes, namely Lake Galilee and Lake Buchanan, lie towards the western end of the Project area.

Further investigations may be needed into groundwater resources of the route area as the route lies to the east of the Great Artesian Basin (GAB) and overlies the shallower groundwater resources of the Tasman Basin. Bores are predominantly for stock water and domestic use and are of variable depth and salinity.

Air

The area is dominated by rural land use, with grazing of native pastures being the most extensive form and only smaller areas of cultivation. Cultivation is largely confined to heavy cracking clay soils deeper than 60 cm in the region as these are the only soils with sufficient water holding capacity to sustain rain-fed cropping in about 75% of years. Dust from both these sources is low and generally short-term associated with cultivation and mustering activities.

The existing airshed of the regions along the proposed route is not generally affected by dust from mining or other economic activity. The region is notable for having generally a very low to low incidence of dust storms. Hydrocarbon emissions are associated with mining and cultivation activities but the spatial distribution is such that impacts are relatively small.

Noise impacts in the rural area is low as there is little regular activity associated with heavy machinery, cultivation equipment or other noise generating sources. Noise emissions associated with operating mines are high, but these are well separated from likely areas of noise nuisance.

Ecosystems

The relevant regional ecosystems are set out above and in the Initial Ecological Constraints Assessment

There are a number of relevant matters listed under the Environmental Protection and Biodiversity Conservation Act 1999 (Cth). Threatened plant and animal species are dealt with in the following section. Other Matters of National Environmental Significance (MNES) identified from a Protected Matters database search are shown in Table 1.

Table 1: Summary of MNES – EPBC Protected Matters search

Item	Number (10 km buffer around proposed corridor)	Description
World Heritage Properties	1	Great Barrier Reef
National Heritage Places	1	Great Barrier Reef
Wetlands of International significance (Ramsar Wetlands)	1	Coongie Lakes
Great Barrier Reef Marine Park	Relevant	General Use Zone and Habitat protection
Commonwealth Marine Areas	Relevant	General provision
Commonwealth Lands	None	-
Commonwealth Heritage Places	1	Great Barrier Reef Region
Commonwealth Reserves	None	-
World Heritage Properties	1	Great Barrier Reef

Additionally, seven nationally important wetlands have been identified, which apart from Lake Buchanan, largely occur in the northern and coastal vicinity of the Corridor.

Flora and Fauna

A preliminary review of public databases has indicated that there are several flora and fauna species likely within the Corridor that are listed under the Nature Conservation (NC Act) Act 1992 (Qld) and the EPBC Act. A summary of these, taken from the EPBC Protected Matters search, is shown in Table 2.

Table 2: Summary of scheduled species – EPBC Protected Matters search

Threatened species	Number (10 km buffer around proposed Corridor)
Ecological communities	4
Threatened species	41
Migratory species	45
Listed marine species	88
Whales and other cetaceans	12
Critical Habitats	None

It is likely that not all of these species as identified in the database search process will be found and impacted by the corridor. Nevertheless, the EIS will specifically target these identified species to assess the potential impacts and develop appropriate mitigating measures where needed.

Social and Economic Environment

The proposed Corridor traverses parts of Whitsunday, Charters Towers, Barcaldine and Isaac Regional Council local government areas. Significant towns within or near to Corridor include Bowen, Abbot Point, Charters Towers, Collinsville, Moranbah and Alpha. Outside of the towns, rural and agricultural activity dominates the social and economic character of the region.

Economic and Demographic Characterisation

Readily available regional statistics have been obtained from a search of the PIFU database using the Bowen Basin Population Report, 2010 (Office of Economic and Statistical Research, Qld Government, June 2010) and an OESR generated report for Central highlands and Charters Towers regions (www.oesr.qld.gov.au 23 October 2011)

The rural community is largely associated with extensive grazing properties and is broadly distributed while Moranbah and Bowen/Abbot Point are predominantly urban communities. A summary of key population statistics is provided in Table 3.

Table 3: FTE populations for the Bowen Basin, June 2010 (after OESR Bowen Basin Population report, 2010)

Statistical Local Area (SLA)*	Resident population estimated	Total non-resident workers	FTE population estimate	Percentage of non-resident workers
Belyando	12,091	3,278	15,369	21
Nebo	2,989	3,714	6,703	55
Bowen	14,442	479	14,921	3
Total	29,522	7,471	36,993	26
Belyando	12,091	3,278	15,369	21
Nebo	2,989	3,714	6,703	55

* These three SLAs represent the full route coverage

Belyando SLA covers the North Galilee to Moranbah area, while Nebo and Bowen SLAs cover the northern section through Collinsville to Abbot Point.

Accommodation and Housing

It is clear that a significant component of the SLAs that represent the mining provinces depend on non-resident workforce to the extent of 21% and 55% respectively, while Bowen (including Collinsville) is sufficiently close to the coast to attract a full time resident population. This highlights the importance of fly-in-fly-out (FIFO) and drive-in-drive-out (DIDO) populations to the mining industry. The lack of well distributed urban centres along the route highlights the critical need to establish attractive employment opportunities to encourage regional growth and development.

There is limited availability of commercial accommodation (houses, motels, boarding houses etc.) in the region with the great proportion of non-residents being housed in mine-supplied single person quarters (SPQs). A brief summary of accommodation options for the Bowen Basin or relevance to this proposal is provided in Table 4.

Table 4: Non-resident workers – accommodation sources for the Bowen Basin, June 2010 (after OESR Bowen Basin Population report, 2010)				
Statistical Local Area (SLA)*	**Number of non-resident workers**	**Hotels/motels**	**Caravan parks/other**	**Total**
Belyando	2,711	210	357	3,278
Nebo	3,607	62	45	3,714
Bowen	243	23	213	479
Total	6,561	295	615	7,471

*These three SLAs represent the full route coverage

The major source of accommodation is dependent on the provision of SPQs, which service both FIFO/DIDO and semi-permanent workforces. This restricts the ability of families to relocate to the region and to establish viable communities. EWLP recognises that the Queensland Government is seeking to limit the impact of FIFO/DIDO workforces and will investigate ways in which this may be achieved.

Social and Recreational Services

There are limited social and recreational facilities available in Collinsville and Moranbah to meet the needs of a largely temporary workforce while servicing the needs of the resident population. EWLP recognises the potential for large itinerant workforces to involve some adverse impacts on local communities.

Cultural Heritage (Indigenous and non-indigenous)

A number of Native Title claims are likely to be active over the route of the Corridor. The Jangga and Birri peoples have active claims in the region affected. Contact will be made with representatives of the local Traditional Owner groups to seek cultural heritage clearance for the route investigation and eventual construction process.

Consultation will include the nature and form of Indigenous Land Use Agreements (ILUA) where appropriate and the development of a Cultural Heritage Management Plan (as set out in Section 7.4 below of this IAS) as part of the construction process. It will be necessary to initiate discussions with the claimants at the appropriate time.

Landholders and local historical groups will be approached also to determine the European heritage values of the area. Given its interesting history of settlement and the long-standing of several homesteads, it will be desirable to ensure that these values are protected to the maximum extent possible. Detailed assessment will be initiated and appropriate consultation undertaken with representative bodies in the course of undertaking the EIS.

Built Environment

Townships near the route are Bowen, Collinsville, Moranbah and Alpha. The route does not go directly through these townships but passes close by some of the communities. The Corridor terminates at the Abbot Point State Development Area, which has been dedicated by the Queensland Government as an industrial and port complex and nearby and to the north west of the township of Alpha.

The principle infrastructure along the route consists of grazing and mining operations, roads, bridges and existing railways. Substantial mining operations already exist in the Bowen Basin and drilling is well underway within mining tenements of the Galilee Basin.

Infrastructure

The Corridor route traverses largely undeveloped country; however there is some infrastructure in the region that will be potentially impacted.

There are Council and State controlled roads in the region, and the Corridor is intended to approximately parallel the existing QR National corridor north of Moranbah. The Corridor will require measures to address crossings involving:

- Eight State Controlled Roads
- Sixteen unsealed Local Government Roads, and
- Nineteen Stock Routes

Ergon and Powerlink hold rights of way for power lines in the area of the Bruce Highway near Abbot Point State Development Area and transmission lines on several properties will cross the Corridor. Powerlink, in particular, has transmission lines which would cross the Corridor within the following properties: CeSalis, Strathalbyn (north west of Collinsville), Havilah, and Eastern Creek (south of Collinsville)

Numerous other crossings occur where there are low voltage power lines for local distribution of power.

A Sunwater Pipeline runs through the region. The Corridor is closely aligned beside the pipeline in several locations and crosses it once near the North Goonyella mine.

The North Queensland Gas Pipeline runs through the region. The Corridor runs close beside it in several locations and also crosses it once near the North Goonyella mine.

Traffic and Transport

The preferred Corridor will intersect the Bruce Highway and the Gregory, Suttor, Cerito and Bowen Development Roads, as well as numerous smaller shire roads.

Unsealed local government controlled roads potentially affected include: Glenore, Strathalbyn, Herbert Creek, Johnny Cake, Strathmore, Myuna North, Myuna South, Collinsville Elphinstone, Broadmeadow, Kilcummin-Diamond Downs, Stratford, Moray-Bulliwallah, Moray-Carmichael, Laglan Lou Lou Park, Jerico-Degulla, Degulla roads.

Detailed investigations will be undertaken for the preferred route during the EIS phase. It is likely that many internal property access tracks will also be impacted by the Corridor.

The remoteness of most of the route is unlikely to generate traffic management issues relevant to the Project.

Community Amenities

There are limited social and recreational facilities available in Collinsville and Moranbah to meet the needs of a largely temporary workforce while servicing the needs of the resident population. There are no key social amenities and services affected by the Project. Investment by the Proponent in social amenities for workers during the construction and operational phases will be addressed more fully in the EIS.

Land Use and Tenures

The dominant land use is beef cattle on leasehold lands and coal mining by open cut methods. Significant areas of rain-fed cropping land occur with smaller areas of irrigated cropping along the Bowen-Broken Rivers near Collinsville.

North-west of Collinsville, the route diverges around and through the Clarke Ranges and enters the coastal draining system of the Bogie River which flows to the ocean north of Abbot Point after skirting the Mt Aberdeen National Park. The predominant land use is cattle grazing and agricultural.

Key Local and Regional Land Uses

Key land uses, local government areas, protected areas and mining development areas have been addressed above. These include agricultural, mining, urban township, crown and environmental reserves and transport and utility infrastructure.

Key Local and Regional Land Tenures

Existing tenures in the region to be traversed by the Corridor include:

- Freehold;
- Crown land;
- Pastoral leases;
- Easements, covenants and rights of way; and
- Native title.

The regions west of Moranbah consist of lands predominantly used for beef cattle production. Current assessment indicates the following properties will be potentially affected by the Corridor.

- Eighteen grazing properties between Abbot Point and Moranbah
- Eleven grazing properties between Moranbah and North Galilee
- Nineteen grazing properties between Galilee North and Alpha

The Corridor terminates at Abbot Point State Development Area and associated coastal management zone. The port at Abbot Point will potentially affect the Great Barrier Reef World Heritage Area, however, the port development per se is not part of the Corridor within the scope of this Project. Four local government areas are affected and the Abbot Point State Development area will be subject to a development control plan.

The Proponent intends to acquire all land needed for the Corridor under either Freehold title or long term leases or by way of easement rights so as to provide security of tenure to users of the Corridor to meet their commercial requirements under long term contracts. Freehold title will also facilitate access to capital for development costs.

Where freehold title is not feasible, the Proponent proposes to discuss with government the availability of alternative tenure arrangements that will still ensure long term security for the Corridor, whether through alternative designations of Project land or under arrangements analogous to those provided for in the Transport Infrastructure Act 1994 (Qld) in relation to rail corridor land and acquisition of land for use as part of a rail transport corridor.

Native Title

The Native Title (NT) Act 1993 recognises the rights and interests of indigenous peoples with respect to their traditional laws and customs where they can demonstrate a continuing involvement with the land.

Claims have been registered over various parts of the overall route by the Birri People, Wiri People (core country claim) and the Jangga People (as per the Federal Court National Native Title Tribunal - 30 September 2011). Determinations of Native Title over these areas are pending.

Planning Instruments, Government Policies

There are a series of approvals required for significant project declaration and which are part of the Environment Impact Statement (EIS) process. The Coordinator-General has powers under the State Development and Public Works Organisation Act 1971 (Qld) (SDPWO Act) to direct that an EIS be undertaken for significant projects and these may involve referral to the Commonwealth Government for determination under the EPBC Act.

When an EIS is being conducted under the SDPWO Act, the Integrated Development Assessment System (IDAS) approvals under the Sustainable Planning Act 2009 (Qld) (SPA) as well as other approvals processes of other relevant Acts are suspended. This suspension remains in place until the Coordinator General's evaluation report is completed and sent to the IDAS assessment manager and other approval managers for their consideration.

Other legislation that may have relevance to the Project is set out below.

- Native Title (Queensland) Act 1993 (Qld);
- Aboriginal Cultural Heritage Act 2003 (Qld);
- Environmental Protection Act 1994 (Qld);
- Vegetation Management Act 1999 (Qld);
- Nature Conservation Act 1992 (Qld);
- Water Act 2000 (Qld);
- Dangerous Goods Safety Management Act 2001 (Qld);
- Petroleum and Gas (Production and Safety) Act 2004 (Qld);
- Transport Infrastructure Act 1994 (Qld); and
- Mineral Resources Act 1989;

There are also several Policies and Guidelines that must be complied with such as air, noise, water, waste and riverine protection permitting. The Project will be subject to several Environmentally Relevant Activities (ERA) requiring approvals by Department of Environment and Resource Management (DERM).

Potential Impacts of the Project

Natural Environment

Construction of the Corridor and rail lines will have potential impact on land and water resources. Regional vegetation communities affected include the Desert Uplands and Brigalow communities.

During clearing and earthworks operations required for the construction of the rail formation and site access roads and during excavation activities for culvert installations there are likely to be impacts associated with runoff from bare surfaces leading to sedimentation in streams. Similar impacts will arise from quarrying activities established within relative proximity external to the Corridor for the supply of suitable track formation and rail ballast materials and in relation to the establishment and operation of concrete batch plants.

Properly understanding the flow characteristics of streams in catchments upstream and downstream of the Corridor will be important to the design of Corridor infrastructure (rail, road, bridge, pipes and culverts) to minimise impacts on the catchments and downstream floodplains.

Coal dust contamination of areas adjacent to the Corridor will be averted by virtue of the need for only one rail transport Corridor and the proposal in this Project to use specially designed closed-lid coal freight wagons. This will protect nearby grazing pastures from contamination and also minimises the risk of fire outbreaks.

The on-site haulage of materials and the use of the site access roads to bring construction equipment and permanent materials including reinforcing steel and concrete materials to site are likely to have ongoing sediment runoff impacts. The road transport of construction materials from off-site locations to site may also have impacts on the integrity of the local road network.

Selection criteria for the Corridor route alignment included:

- avoiding known sensitive environmental areas, homesteads, townships and minimising the impact to other infrastructure;
- avoiding National Parks, existing mines and urban concentrations;
- reducing the risk within flood prone areas, major watercourses and difficult topography by locating the alignment in higher ground, positioning major watercourse crossings as upstream as conceivably possible whilst avoiding flood plains and avoiding mountainous terrain;
- grade separation of major road, rail and existing infrastructure crossings;
- a desktop geotechnical investigation of the proposed Corridor route identifying high risk areas such as poor foundation materials (black soil), sources of suitable borrow materials for embankment construction and rock areas for crushing for ballast supplies;
- optimising the Corridor route and width to accommodate a minimum of two railway lines to potentially service the greatest number of mines within a single Corridor and thereby minimise the land footprint;
- impose less social, biological and ecological impact than the multiple alternative corridors under consideration by minimising the amount of grazing and agricultural land sterilised for the transport of coal; and
- allow within the Corridor for expansion to four rail lines and extension to Mt Isa, the North West Minerals Province and beyond.

Such an innovative approach to infrastructure and resource management has the following advantages:

- minimises impacts on identified Strategic Cropping Land areas and other good quality agricultural land;
- minimises exposure to flood-prone areas risk of operational impairment of the railway during wet seasons;
- minimises impacts within black soil areas considered as high risk potential of substandard foundation conditions and instability;
- provides grade separated crossings to major arterial roads and railways removing risk of vehicular/train collisions and traffic delays to the public;
- minimises environmental impacts, including greenhouse gas emissions, by introducing heavy haul freight capacity rolling stock carrying significantly greater tonnages per travel event thereby requiring significantly fewer travel events for any given amount of product moved to port, compared to existing practices in Queensland ;
- provides covered/enclosed coal wagons, thus significantly reducing environmental impacts of dust loss on local communities adjacent to the Corridor; and
- allows mine operators to share costs and retain valuable capital funds to underwrite further development by avoiding a high level of investment in individual separate rail infrastructure.

Operation of the facility is likely to involve minimal impact on land resources however care will be needed to address impacts on overland water flows.

There are environmentally sensitive areas in the region and these will be subject to more detailed assessment as part of the EIS process. Final route selection will however avoid, for example, Blackwood and Mt Aberdeen National Parks and remnant forests associated with the Leichhardt Range and uncleared areas within the Burdekin Dam catchment.

Potential impacts on fauna and flora are likely to be confined to loss of habitat along the Corridor and indirect impacts where the Corridor may bisect faunal corridors or affect adjacent habitat/communities. Where vegetation is partially cleared, this may lead to edge effects and potential impacts on the sustainability of the smaller remnant plant community. During construction, there are also likely to be impacts from frequent vehicular movements between properties in regard to the potential spread of flora pest species.

Amenity – Including Noise, Air Quality, Vibration, Lighting, Urban Design and Visual Aesthetics

Construction and operation of the railway within the Corridor will involve some dust emissions associated with earthmoving machinery and other vehicular activity.

Though most of the Corridor is in remote or sparsely populated rural locations, rail operation will generate potential noise and vibration impacts which, will need to be managed, in particular where the route approaches or is adjacent to homesteads and townships.

A significant benefit of this proposed open access, heavy haul 40 tonnes load per axle railway compared to proposals to construct multiple less efficient lines and corridors is that significantly less train movements will be required resulting in correspondingly less noise and amenity impacts for the same tonnage of coal hauled.

Visual amenity is unlikely to be significantly affected by the Project however this will be assessed in more detail, in particular in relation to township development.

Social Environment – Beneficial and Adverse Potential Impacts

The social environment is characterised largely by rural communities and towns. The key issues in relation to social impact are potential impacts on social amenity, noise and vibration, construction impacts, employment, housing and accommodation and cultural heritage.

The issues relating to the construction workforce are discussed elsewhere in this document. Housing and accommodation will need to be addressed in the context of construction and ongoing operation of the Project.

Indigenous culture may be affected and this will need to be assessed and managed as part of the EIS.

Economic Effects

The Project will clearly have beneficial impacts on employment and attraction of a workforce to the area. This will in turn provide an injection of private expenditure into local economic activity which could and may assist in the revival or growth of regional townships.

The Corridor will also potentially enhance access to freight services for township and rural production outputs and provide a Corridor for delivery of fuel and other services to the regions through which the Corridor passes. As a multipurpose Corridor, the potential for upgraded communications and other utility services will be presented also.

Built Environment

The Project will involve the construction of several rail-over-river and road-over rail bridges to meet the needs of the Project and avoid impacts on the travelling public. Power, water and telecommunications will be provided as components of the construction, including state-of-the-art wireless communications and signalling technology.

The Proponent is already a licensed carrier under the Commonwealth Telecommunications Act, and as well as the digital wireless overlay system, plans to offer a best of breed Train Control System (TCS) to other operators so that all train command and control operations are on a single shared platform to facilitate maximum efficiency. The installation of this infrastructure will have minimal impacts due to its modest footprint.

The Corridor will intersect the Gregory, Suttor and Bowen Development Roads as well as several shire roads. A detailed inventory will be developed during the EIS of all likely impacts on established roads and farm tracks. This will include traffic studies to identify impacts on significant roads. Nevertheless, the Proponent intends to ensure there will be no impact on the general travelling public and will construct road-over-rail (or rail-over-road where landform enables it) to provide for continuity of operation and maximum public safety.

Matters of National Environment Significance

There are matters, including threatened species, listed under the Environmental Protection and Biodiversity Conservation Act 1999 (Cth). Other Matters of National Environmental Significance (MNES) identified from a Protected Matters database search are shown in Table 5 above. Several wetlands of national importance, largely in the northern and coastal vicinity of the Corridor, while not directly affected by the Corridor, will need to be assessed in the context of the EIS.

Environmental Management - Mitigation Measures

This proposed single, multi user infrastructure Corridor has many environmental benefits compared to alternative options which would require multiple corridors and its carefully selected route aims to eliminate their potentially divisive social impacts.

Having the capacity to handle all coal freight from the Galilee Basin and significant quantities from the expanding Bowen Basin coalfields, it will obviate the need to construct any of the other multiple haulage routes proposed, which traverse in different directions from separate points along the Galilee Basin to Moranbah and/or Abbot Point.

It will also enable the development of all future mines in the Galilee coal basin by the addition of only short spur lines within the mining tenement areas, which other proposed multiple routes cannot facilitate due to their cross-country remoteness.

The proposed Corridor alignment substantially avoids floodplains and farm cropping lands thereby minimising the requirement for significant flood mitigation structures. In addition, by selecting a topographically suitable route, it generates reduced earthworks quantities thus minimising the requirement for imported fill.

For optimum economic freight efficiency the proposed Corridor adopts a maximum 1:320 loaded gradient and utilises 40 tonnes load per axle closed lid coal wagons rolling stock. This economic efficiency is gained hand in hand with fewer train movements with consequent reduction in environmental impact e.g. noise, coal dust and diesel exhaust emissions.

The Proponent proposes to produce an environmental management system for the construction and operational phases of the Corridor that is consistent with the principles of ISO14001 and is amenable to independent third party audit against accepted standards of performance.

Natural Environment

In the Environmental Management Plan for the Project, key measures to avoid or minimise environmental impact on the land, water and vegetation resources of the affected route will be addressed.

Impacts from clearing of vegetation will be minimised due to the largely open nature of the selected route. No burning of vegetative waste will be allowed and all material will be mulched and used for batter stabilisation.

Potential impacts with fauna and flora are likely to be confined to loss of habitat along the Corridor and indirect impacts where the Corridor may bisect faunal corridors or affect adjacent habitat/communities. Where appropriate, consideration will be given to providing underpass or overpass structures to aid Fauna and flora habitat connectivity. Where plant communities are partially cleared, this may lead to edge effects and potential risks to fauna reliant on the smaller community remnant. In such cases, appropriate offsets will be proposed and implemented. Detailed investigation of the Regional Ecosystems listed for the proposed route will validate existing mapping and be used to develop effective management approaches to impacts.

The construction EMP will establish procedures to avoid sedimentation of streams and impacts on ecosystems along the route. All areas disturbed by construction will be rehabilitated progressively on completion of activities in that section. Water will mainly be required for the construction period only and appropriate measures will be taken to acquire appropriate supplies with no impact on local demand for stock and domestic supplies.

The Project when operational will have minimal to no impact on surface and groundwater as flooding risk will be managed through design intervention and the covered wagons will prevent fugitive coal dust entering the surface water environment.

Thorough investigation will be undertaken of all MNES during preparation of the EIS. The database search results are indicative and not definitive for the Corridor and will be tested for validity. The Corridor has been selected to avoid all presently known environmentally sensitive areas and will be refined as detailed information comes to hand. Appropriate management or recovery plans will be developed as and if necessary. As the development does not drain to the Cooper Basin, there will be no impacts on the Ramsar Wetlands in the Coongie Lakes area.

Built Environment

A detailed inventory will be developed during the EIS of all likely impacts on established roads, stock routes and landholder access roads and tracks. This will include a traffic study to identify impacts on significant roads. Nevertheless, the Proponent has already determined that there should be no impact on the general travelling public and will construct road-over-rail (or rail-over-road where landform enables it) to provide for continuity of operation and maximum public safety.

In developing solutions on properties where internal tracks (and also traditional cattle movement to watering points or during mustering cycles) are disrupted, the Proponent will involve landholders in the process to ensure that property management is not impacted. Alternative thoroughfares either under or over the railway will be considered.

The Proponent proposes to provide social and recreational facilities at the construction accommodation villages, where appropriate, to ensure that the temporary workforce does not cause disruption to existing established communities. These amenities may be available to communities on completion of the construction project for their continued use.

Social Impact Management Plan

This proposal offers the reduction of multiple haulage routes to a single, carefully selected Corridor which will minimise the impact on land, the grazing industry and landholders. This will also greatly reduce the fragmentation of rural properties and disruption of normal daily farm management activities.

Air and noise emissions limits will be subject to the Construction EMP to be developed for the Project. Strategies to minimise long term emissions will include real time locomotive management via the wireless overlay network, and regular maintenance of locomotives to ensure the most efficient consumption of diesel fuel. Additionally, the use of covered coal wagons will avoid the release of coal dust to the atmosphere. The capacity to move larger volumes with fewer trains will help limit both air quality issues and noise emissions.

A social impact management plan (SIMP) addressing all the key issues outlined will be prepared in consultation with industry, the community and all levels of Government. The SIMP will be prepared in accordance with the Sustainable Resources Communities Policy, current environmental impact assessment and resource development legislation, policies and procedures. The SIMP will be submitted as part of the EIS prior to the public consultation period and updated with the final EIS to reflect the outcomes of consultation.

The SIMP will establish the roles and responsibilities of the Proponent, stakeholders and communities from project approval onwards throughout the life of the project, in mitigating social impacts and opportunities during the construction and operation of the GIC. In prescribed format, the SIMP will address the identification and analysis of impacts along with mitigation and management strategies; and establish monitoring, reporting and review mechanisms along with engagement strategies and dispute resolution mechanisms.

Cultural Heritage Management Plan (Indigenous)

The development of a Plan to address indigenous cultural heritage will be undertaken through discussions with the traditional owners and the outcomes of the current native title claims. Appropriate investigations will be undertaken in line with the EIS. A Cultural Heritage Management Plan (CHMP) and Indigenous Land Use Agreement (ILUA) as required will be entered into with the relevant Traditional Owners (TO) following negotiations.

Where significant artefacts, places and other areas of interest are identified these will be dealt with having regard to the desires of Traditional Owners.

Non-Indigenous Cultural Heritage Management

This will be addressed as part of the EIS although there do not appear to be any places registered on the Inventory of Heritage Places that will be affected by the Corridor. Landholders and local historical groups will be approached to determine the European heritage values of the area. European heritage will be preserved or relocated where required in situations where it cannot be avoided. Given its interesting history of settlement and the long-standing of several homesteads, it will be important that these values are protected to the maximum extent possible.

Greenhouse Gas Management Plan

Construction and operation of the Corridor will result in some greenhouse gas emissions. The Corridor design and operational configuration of the freight services using it are intended to optimise the efficiency of operation and minimise emissions substantially compared to all other currently proposed alternatives.

The EIS will estimate the quantum of emissions GHGe likely to be produced per year in line with standard estimating procedures using the Queensland Government's Guidelines for Preparing a Climate change Impact Statement (CCIS) (EPA 2008). Although a CCIS is normally only required for a proposal submitted to Cabinet, these guidelines provide a basis for assessing specific expectations regarding assessment of potential climate change impacts.

Emissions will be quantified as far as is practicable. Inputs such as embodied energy associated with steel manufacture for the rail lines and other materials to be used in construction will not be considered for the construction phase EIS.

The use of a much greater haulage capacity with the 40 tonnes load per axle wagons has potential to significantly reduce the volume of GHGe per unit of coal transported, making the Project more efficient in this respect. It is in the economic interest of the Project that the efficiencies, especially in energy use, will be optimised and an Energy Management Plan will be developed for the operational **phase of the Project.**

Waste Management

The construction phase of the Project will be likely to generate waste materials which require management. This will be coordinated as part of the Environmental Management System for the Project to ensure waste is minimised and where feasible recycled, given that most materials will need to be transported in to the construction site/s. Clear procedures to address these issues will be established as part of the Construction EMP.

As the route hugs the foothills of the ranges and avoids the clay plains, there will be sources of rock and spoil that can be used for rail embankment construction. Additionally, as there are significant outcrops of basalt and granitic rocks, it is likely that this material can be used for aggregate in concrete and ballast for the rail tracks, avoiding waste and the necessity for long haulage costs from existing sources.

Where earthworks are involved and particularly at river crossings, all site runoff water will be captured in detention basins to treat sediment loads and used for dust suppression. Discharge to land will only be permitted when sediment loads are within normal runoff limits. All wastes will be appropriately managed through treatment and disposal by approved methods and sites will be fully restored on completion.

Grey water generated from the camp population will either be treated on site and recycled on garden areas within the camp facilities or removed from site and disposed of in accordance with the Local Council Bylaws within approved disposal areas.

Hazard and Risk, and Health and Safety

Hazards and risks with the potential to adversely affect people, property or the environment will be fully assessed as part of the EIS for the Project. Key hazards relate to the construction phase of the Project, particularly in respect of workplace safety. Operational phase safety issues will be similar to that required of existing rail operations so far as potential operating workforce and third party impacts are concerned. Appropriate risk management strategies and tools will be developed as part of the EIS and the Workplace Health and Safety Plan for the Project.

Environmental Management

A series of sub-plans will constitute The EMS for the Project as follows:

- Construction Environmental Management Plan (CEMP)

During the EIS phase a Draft CEMP will be prepared identifying the environmental elements that will need to be addressed during construction. Once a head contractor has been appointed and a construction methodology is confirmed, this Draft CEMP will be expanded to accurately reflect specific aspects of the proposed delivery mechanisms. Detailed risk assessment will be undertaken by the project team to ensure that all likely impacts are identified and mitigated as far as possible. The CEMP will then target residual risks.

Key components of the CEMP will include for each element:

- likely impacts;
- responsible person/authority;
- corrective measures;
- reporting requirements;
- monitoring and review procedures;
- communications with personnel for updates; and
- continuous improvement strategy.

The Contractor will appoint staff responsible for the implementation of the CEMP and ensure that compliance with all procedures is achieved in line with conditions imposed by the regulating authorities.

- Operational Environmental Management Plan (OEMP)

A similar format will be adopted for the operational phase of the Project.

- Workplace Health and Safety Plan (WHSP)

A WHSP will be developed in conjunction with the CEMP and a responsible officer appointed to be charged with ensuring that all activities comply with State and Federal guidelines and standards. Safety of the workforce in a remote location is of critical importance where access to medical support faces significant time delays.

Regular toolbox talks and provision of adequate water, PPE, shade and sun protection cream will be key attributes of the WHSP. Officers will be trained in such measures as snake bite treatment given the rural and isolated nature of much of the construction route.

- Decommissioning Plan

As the Corridor is seen to have much wider potential than just the Corridor from the Galilee to Abbot Point, it is not critical at this juncture to plan for a decommissioning plan. It is understood that the expected life of several mines in the Galilee Basin alone is more than 150 years, though much of this depends on the world's future global patterns of continued use of fossil fuels for both thermal and manufacturing purposes.

Describe or summarise any public consultation undertaken, or to be undertaken, during the assessment. Attach copies of relevant assessment documentation and outcomes of public consultations (if available).

Community and Stakeholder Consultation

Stakeholder Engagement

The Proponent commenced its broad stakeholder communication and engagement Strategy in 2010.

Discussions were held with the Mayors of Whitsunday, Isaac, Cloncurry and Barcaldine Regional Councils to determine how the peak groups and individuals in their communities preferred to be briefed on the Project.

Upon their advice and information given by officers from the Office of the Coordinator General the following briefings were given. All issues raised at these briefings were documented with a view to ensuring that the issues are addressed as part of the environmental impact assessment process.

Table of Stakeholder Engagement			
Person/Group	**Type of Briefing**	**Place & Date**	**Issues Raised**
Mayor Mike Brunker, Bowen Shire Council Deanne Kelly, Local Member, Mark Gaudry, Councillor, David Nebauer, Bowen's Economic Development Manager, Les Cox, Burdekin Electorate's Media Liaison Officer, Matthew Magin, NQBP, Dr Paul Joice, Queensland Nationals candidate for Whitsunday	Introduction & Briefing on Project	05 Jul 06	Industrial park at Abbott Point
Indigenous representatives Joe Henaway, James Gaston, Chairman, Gudjuda Reference Group Aboriginal Corporation	Introduction & Briefing on Project	06 Jul 06	Sustainable benefits Job Training and Subsequent jobs Community development
Strategic Advisory Committee, Townsville Enterprise Ltd Representatives, Chamber of Commerce	Briefing on Project	11 Aug 08	Emission Trading Scheme (ETS) Feasibility Study(FS) Concerns over land acquisition processes
Mayor Lyn Mclaughlin, Burdekin Shire Council Ayr and Home Hill Chamber of Commerce	Briefing on Project	11 Aug 08	Federal & States govt approach Rail Link from Moranbah to Abbot Point
Mayor Brunker and Whitsunday Council	Briefing on Project	11 Aug 08	
Mackay Area Industry Network (MAIN) Chamber of Commerce	Briefing on Project	11 Aug 08	
Matthew Magin, NQBP	Briefing on current Project status	22 Jun 11	Interest by Meijin Energy EOI T4-T7 timing Coal wagon efficiencies
Keith Davies (CoG) Public Forum at Clermont	Community consultation and EWLP briefing of single Corridor	29 Jun 11	Concerns of multiplicity of rail corridors planned Concerns over land acquisition processes
Kate Weir/Peter Hughes, CoG APSDA Planning Group	Presentation on the Project proposal and impacts within APSDA	01 Jul 11	Impact of rail loops on APSDA Land parcels and location – planning perspective

Table of Stakeholder Engagement			
Person/Group	**Type of Briefing**	**Place & Date**	**Issues Raised**
			QR duplication of T1 NG rail entry, Rail entry into APSDA and stockpile areas T4-T7 Lack of rail access to multi-cargo berths
Bradley Chandler, Department of Transport	Briefing on Project status and land acquisition issues, corridor sharing with QRN	19 Jul 11	Current lease arrangements on QRN corridor, New corridor arrangement procedures
Mayor Marshall and Isaac Council	Updated briefing on the Project including outline of proposed route for our single Corridor open access multi user solution	20 Jul 11	
Mayor Brunker and Whitsunday Council	Updated briefing on the Project including outline of proposed route for our single Corridor open access multi user solution	02 Aug 11	Timing of Development Application and EIS submission
Business Council, Bowen	Updated briefing on the Project including outline of proposed route for our single Corridor open access multi user solution	02 Aug 11	
Meeting with Mining companies	Overview of the Project including outline of proposed route for our single Corridor open access multi user solution	Qtr 4 CY 2011	Timing for coal delivery
David Stolz, Office of Coordinator General	Overview of the Project including outline of proposed route for our single Corridor open access multi user solution	05 Sep 11	
NQBP Brad Fish	General Cargo Wharf discussion Timelines for port development	21 Sep 11	
Bill Schoch - Waratah	Infrastructure financing – EWLP – ATrade Use of EWLP MUIC	18 Nov 11	Time frames
Yogendra Sharma - Adani	Use of EWLP MUIC	15 Nov 11	Time frames

2.6 Public consultation (including with Indigenous stakeholders)

Your referral must include a description of any public consultation that has been, or is being, undertaken. Where Indigenous stakeholders are likely to be affected by your proposed action, your referral should describe any consultations undertaken with Indigenous stakeholders. Identify the relevant stakeholders and the status of consultations at the time of the referral. Where appropriate include copies of documents recording the outcomes of any consultations.

Please refer to the above Table of Stakeholder Engagement

2.7 A staged development or component of a larger project

If you have identified that the proposed action is a component of a larger action (in section 1.12) you must complete this section. Provide information about the larger action and details of any interdependency between the stages/components and the larger action. You may also provide justification as to why you believe it is reasonable for the referred action to be considered separately from the larger proposal (eg. the referred action is 'stand-alone' and viable in its own right, there are separate responsibilities for component actions or approvals have been split in a similar way at the state or local government levels).

The proposed action is not a component of a larger action; the referred action is 'stand-alone' and viable in its own right. By way of explanation the following are the reasons why GIC is a stand-alone project.

The Galilee Infrastructure Corridor project (GIC) project was created by East West Line Parks Limited (EWLP) in June 2011 as a separate project, in the same manner as other EWLP projects such as Project Iron Boomerang (PIB) and the Smart Materials project (SMP) were created, i.e. on a business case. The people behind the EWLP concept are eminent Australians that have the fundamental belief in realising the EWLP Vision is in the Nation's best interest. EWLP is entirely funded from non-government sources. As the GIC project evolved global and domain experts contributed to the fundamental design, including consulting global financiers connected to the international Capital markets.

While there appears to be recent State Government support for particular parts of the Galilee basin to be serviced by two other new rail corridors plus additional spur lines, the GIC project proposed by EWLP is a favourably located, single, heavy-haul freight corridor which will have far less impact on agricultural lands and the environment.

Further, a recently concluded independent Technical and Economic study commissioned by EWLP to assess and compare the freight efficiency, economic benefits and long term sustainability of the GIC over the other proposed rail lines from the Galilee Basin has demonstrated the significantly better comparative economic case for the GIC over the other proposed rail lines. The study also demonstrated the project can be delivered within the required timeframe to meet currently proposed increases in port capacity at Abbot Point.

While the Galilee basin has the potential for development of vast reserves of thermal coal, EWLP understands that the significant falls in the commodity's price in the first half of 2012 have drawn attention to the marginal economic case for the proposed developments and to the critical importance of the freight cost component. The GIC freight solution uniquely brings the essential economic freight advantage to lower input costs and promote long term sustainable development.

The GIC proposal thereby brings the potential to boost national economic productivity. At the same time its favourable agricultural and environmental credentials will benefit the important social elements of all proposed developments in the Galilee basin.

EWLP is the proponent of the GIC. EWLP is the entity behind the proposal to build one of Australia's largest infrastructure projects, Project Iron Boomerang (PIB). PIB consists of a transcontinental multi-user rail infrastructure corridor and steel manufacturing complexes, sustainably planned for the long term (100 years), which will revolutionise global steel manufacturing. If realised, PIB proposes to use a portion of the rail alignment in the GIC (refer to PIB-SKE-G-0099 in particular LINE 1- GALILEE INFRASTRUCTURE POSSIBLE FUTURE EXTENSION) to connect from the Abbot Point State Development Area to the Pilbara.

For all the aforementioned reasons, EWLP believes the GIC project deserves the strong support of all levels of Government and the community.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

Your assessment of likely impacts should refer to the following resources (available from the Department's web site):

- specific values of individual World Heritage properties and National Heritage places and the ecological character of Ramsar wetlands;
- profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*; and
- associated sectoral and species policy statements available on the web site, as relevant.

Note that even if your proposal will not be taken in a World Heritage area, Ramsar wetland, Commonwealth marine area, the Great Barrier Reef Marine Park or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

Please review Galilee Infrastructure Project Constraints Workshop for the Environmental, Flooding & Waterway and Social Impact Issues in the Appendix.

Nature and extent of likely impact

Address any impacts on the World Heritage values of any World Heritage property.

Please review the Appendix for the tabulated constraints output on Key Identified Issue, Issue Descriptor, Risk Category, Proposed Mitigation Strategy as well as the Initial Ecological Constraints Analysis document (9 Mb emailed separately)

3.1 (b) National Heritage Places

Description

Please review Galilee Infrastructure Project Constraints Workshop for the Environmental, Flooding & Waterway and Social Impact Issues in the Appendix.

Nature and extent of likely impact

Address any impacts on the National Heritage values of any National Heritage place.

Please review the Appendix for the tabulated constraints output on Key Identified Issue, Issue Descriptor, Risk Category, Proposed Mitigation Strategy as well as the Initial Ecological Constraints Analysis document (9 Mb emailed separately)

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

Please review Galilee Infrastructure Project Constraints Workshop for the Environmental, Flooding & Waterway and Social Impact Issues in the Appendix.

Nature and extent of likely impact

Address any impacts on the ecological character of any Ramsar wetlands.

Please review the Appendix for the tabulated constraints output on Key Identified Issue, Issue Descriptor, Risk Category, Proposed Mitigation Strategy as well as the Initial Ecological Constraints Analysis document (9 Mb emailed separately)

3.1 (d) Listed threatened species and ecological communities

Description

Please review Galilee Infrastructure Project Constraints Workshop for the Environmental, Flooding & Waterway and Social Impact Issues in the Appendix.

Nature and extent of likely impact

Address any impacts on the members of any listened threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat.

Please review the Appendix for the tabulated constraints output on Key Identified Issue, Issue Descriptor, Risk Category, Proposed Mitigation Strategy as well as the Initial Ecological Constraints Analysis document (9 Mb emailed separately)

3.1 (e) Listed migratory species

Description

Please review Galilee Infrastructure Project Constraints Workshop for the Environmental, Flooding & Waterway and Social Impact Issues in the Appendix.

Nature and extent of likely impact

Address any impacts on the members of any listed migratory species, or their habitat.

Please review the Appendix for the tabulated constraints output on Key Identified Issue, Issue Descriptor, Risk Category, Proposed Mitigation Strategy as well as the Initial Ecological Constraints Analysis document (9 Mb emailed separately)

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

Please review Galilee Infrastructure Project Constraints Workshop for the Environmental, Flooding & Waterway and Social Impact Issues in the Appendix.

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth marine area.

Please review the Appendix for the tabulated constraints output on Key Identified Issue, Issue Descriptor, Risk Category, Proposed Mitigation Strategy as well as the Initial Ecological Constraints Analysis document (9 Mb emailed separately)

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Not Applicable

Description

If the action will affect Commonwealth land also describe the more general environment. The Policy Statement titled *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* provides further details on the type of information needed. If applicable, identify any potential impacts from actions taken outside the Australian jurisdiction on the environment in a Commonwealth Heritage Place overseas.

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth land. Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.1 (h) The Great Barrier Reef Marine Park

Description

Not Applicable

Nature and extent of likely impact

Address any impacts on any part of the environment of the Great Barrier Reef Marine Park.

Note: If your action occurs in the Great Barrier Reef Marine Park you may also require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If so, section 37AB of the GBRMP Act provides that your referral under the EPBC Act is deemed to be an application under the GBRMP Act and Regulations for necessary permissions and a single integrated process will generally apply. Further information is available at www.gbrmpa.gov.au

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3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if your project:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area;
- will be taken on Commonwealth land; or
- will be taken in the Great Barrier Reef marine Park.

Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	**Is the proposed action a nuclear action?**	**No**	Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	**No**	Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	**No**	Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))		

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	**No**	Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))		

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	**No**	Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))		

3.3 Other important features of the environment

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed above). If at Section 2.3 you identified any alternative locations, time frames or activities for your proposed action, you must complete each of the details below (where relevant) for each alternative identified.

For a response to 3.3 (a) to 3.3 (m) inclusive please review the Appendix for the tabulated constraints output for the Galilee Corridor Infrastructure Project Constraints Workshop on Key Identified Issues, Issue Descriptor, Risk Category and Proposed Mitigation Strategy and the Initial Ecological Constraints Analysis (9Mb document emailed separately)

3.3 (a) Flora and fauna

3.3 (b) Hydrology, including water flows

3.3 (c) Soil and Vegetation characteristics

3.3 (d) Outstanding natural features

3.3 (e) Remnant native vegetation

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

3.3 (g) Current state of the environment

Include information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

3.3 (i) Indigenous heritage values

3.3 (j) Other important or unique values of the environment

Describe any other key features of the environment affected by, or in proximity to the proposed action (for example, any national parks, conservation reserves, wetlands of national significance etc).

3.3 (k) Tenure of the action area (eg freehold, leasehold)

3.3 (l) Existing land/marine uses of area

3.3 (m) Any proposed land/marine uses of area

4 Measures to avoid or reduce impacts

Note: If you have identified alternatives in relation to location, time frames or activities for the proposed action at Section 2.3 you will need to complete this section in relation to each of the alternatives identified.

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

For any measures intended to avoid or mitigate significant impacts on matters protected under the EPBC Act, specify:

- what the measure is,
- how the measure is expected to be effective, and
- the time frame or workplan for the measure.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

Provide information about the level of commitment by the person proposing to take the action to implement the proposed mitigation measures. For example, if the measures are preliminary suggestions only that have not been fully researched, or are dependent on a third party's agreement (e.g. council or landowner), you should state that, that is the case.

Note, the Australian Government Environment Minister may decide that a proposed action is not likely to have significant impacts on a protected matter, as long as the action is taken in a particular manner (section 77A of the EPBC Act). The particular manner of taking the action may avoid or reduce certain impacts, in such a way that those impacts will not be 'significant'. More detail is provided on the Department's web site.

For the Minister to make such a decision (under section 77A), the proposed measures to avoid or reduce impacts must:

- clearly form part of the referred action (eg be identified in the referral and fall within the responsibility of the person proposing to take the action),
- be must be clear, unambiguous, and provide certainty in relation to reducing or avoiding impacts on the matters protected, and
- must be realistic and practical in terms of reporting, auditing and enforcement.

More general commitments (eg preparation of management plans or monitoring) and measures aimed at providing environmental offsets, compensation or off-site benefits CANNOT be taken into account in making the initial decision about whether the proposal is likely to have a significant impact on a matter protected under the EPBC Act. (But those commitments may be relevant at the later assessment and approval stages, including the appropriate level of assessment, if your proposal proceeds to these stages).

5 Conclusion on the likelihood of significant impacts

Identify whether or not you believe the action is a controlled action (ie. whether you think that significant impacts on the matters protected under Part 3 of the EPBC Act are likely) and the reasons why.

5.1 Do you THINK your proposed action is a controlled action?

Yes	Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

Specify the key reasons why you think the proposed action is NOT LIKELY to have significant impacts on a matter protected under the EPBC Act.

5.3 Proposed action IS a controlled action

Type 'x' in the box for the matter(s) protected under the EPBC Act that you think are likely to be significantly impacted. (The 'sections' identified below are the relevant sections of the EPBC Act.)

	Matters likely to be impacted
	World Heritage values (sections 12 and 15A)
X	National Heritage places (sections 15B and 15C)
X	Wetlands of international importance (sections 16 and 17B)
X	Listed threatened species and communities (sections 18 and 18A)
X	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)
	Great Barrier Reef Marine Park (sections 24B and 24C)
X	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

Specify the key reasons why you think the proposed action is likely to have a significant adverse impact on the matters identified above.

6 Environmental record of the responsible party

NOTE: If a decision is made that a proposal needs approval under the EPBC Act, the Environment Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach.

		Yes	No
6.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details**		No
6.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		No
6.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework**	TBA	
6.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** **Provide name of proposal and EPBC reference number (if known)**		No

7 Information sources and attachments

(For the information provided above)

7.1 References

- List the references used in preparing the referral.
- Highlight documents that are available to the public, including web references if relevant.

Communicating the Imperative for Action: A report to the Council of Australian Governments. June 2011

http://www.infrastructureaustralia.gov.au/2011_coag/

Queensland Government, Community Engagement Guidelines

http://www.qld.gov.au/web/community-engagement/guides-factsheets/

Commonwealth Government, Administrative Arrangement Order

http://www.dpmc.gov.au/parliamentary/index.cfm

Environmental Protection Agency, 2008, Guidelines for Preparing a Climate change Impact Statement (CCIS)

Queensland Government, Guidelines for the Preparation of an Initial Advice Statement

http://www.deedi.qld.gov.au/cg/resources/guideline/guideline-initial-advice-statement.pdf

Queensland Government, Guidelines for the Preparation of Terms of Reference

http://www.deedi.qld.gov.au/cg/terms-of-reference-eis.html

Queensland Government, Guidelines for the Preparation of Social Impact Assessments

http://www.deedi.qld.gov.au/cg/resources/guideline/simp-guideline.pdf

Queensland Resources Council, Mineral and Energy Resources Sector in Queensland: Economic Impact Study

http://www.queenslandeconomy.com.au/economic-report

East West Line Parks Pty Ltd, Pre-Feasibility Study Report, October 2008

Queensland Government Administrative Arrangement Order

http://www.premiers.qld.gov.au/publications/categories/policies-and-codes/admin-arrange-order.aspx

Toward Q2: Tomorrow's Queensland

http://www.towardq2.qld.gov.au/tomorrow/strong-economy.aspx

7.2 Reliability and date of information

For information in section 3 specify:

- source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- any uncertainties in the information.

MWHGlobal (MWH) and Biodiversity Assessment And Management Pty Ltd (BAAM) were commissioned by EWLP to undertake the Initial Ecological Constraints Analysis and draft TOR's for the GIC project. The information is current as at May 2012 and has a high reliability as they follow the standards as required under legislation.

7.3 Attachments

Indicate the documents you have attached. All attachments must be less than two megabytes (2mb) so they can be published on the Department's website. Attachments larger than two megabytes (2mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	PIB-SKE-G-0099 EWLP GIC et al PIB-SKE-G-0226 GIC Coordinates PIB-SKE-G-0227 GIC Coordinates Initial Ecological Constraints Analysis
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	PIB-SKE-G-0099 EWLP GIC et al PIB-SKE-G-0226 GIC Coordinates PIB-SKE-G-0227 GIC Coordinates Initial Ecological Constraints Analysis
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)	✓	Galilee Infrastructure Corridor Constraints Workshop 1. Flooding & Waterway Issues 2. Environmental Issues 3. Social Impact Issues Initial Ecological Constraints Analysis
	copies of any flora and fauna investigations and surveys (section 3)	✓	Galilee Infrastructure Corridor Constraints Workshop 1. Flooding & Waterway Issues 2. Environmental Issues 3. Social Impact Issues Initial Ecological Constraints Analysis
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)	✓	Galilee Infrastructure Corridor Constraints Workshop 1. Flooding & Waterway Issues 2. Environmental Issues 3. Social Impact Issues Initial Ecological Constraints Analysis
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)	✓	See Table of Stakeholder Engagement – page 26

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, EPBC Act).

Under the EPBC Act a referral can only be made by:

- the person proposing to take the action (which can include a person acting on their behalf); or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action[1].

Project title: Galilee Infrastructure Corridor Project

8.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action.

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the Great Barrier Reef Marine Park Act[2], this is the person requiring the grant of a GBRMP permission.

The Minister may also request relevant additional information from this person.

If further assessment and approval for the action is required, any approval which may be granted will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions attached to the approval.

If the Minister decides that further assessment and approval is required, the Minister must designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action[3].

Name	Tom James
Title	Project Director Rail
Organisation	East West Line Parks Limited
ACN / ABN (if applicable)	21 118 581 883
Postal address	GPO Box 899 Brisbane Qld 4001
Telephone	07 3221 6966
Email	Tom.james@ewlp.com.au
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence. I agree to be the proponent for this action. I acknowledge that I may be liable for fees related to my proposed action following the introduction of cost recovery under the EPBC Act.
Signature	Date 29th July 2012

[1] *If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

[2] *If your referred action, or a component of it, is to be taken in the Great Barrier Reef Marine Park the Minister is required to provide a copy of your referral to the Great Barrier Reef Marine Park Authority (GBRMPA) (see section 73A,* EPBC Act*). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.*

[3] *If a person other than the person proposing to take action is to be nominated as the proponent, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

8.2 Person preparing the referral information (if different from 8.1)

Individual or organisation who has prepared the information contained in this referral form.

Name	
Title	
Organisation	Organisation name should match entity identified in ABN/ACN search
ACN / ABN (if applicable)	
Postal address	
Telephone	
Email	
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence.
Signature	Date

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ✓ Completed all required sections of the referral form?
- ✓ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ✓ Provided a map showing the location and approximate boundaries of the project area?
- ✓ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ✓ Provided complete contact details and signed the form?
- ✓ Provided copies of any documents referenced in the referral form?
- ✓ Ensured that all attachments are less than two megabytes (2mb)?
- ✓ Sent the referral to the Department (electronic and hard copy preferred)?

Appendix

LEGEND:

- LINE 1 - GALILEE INFRASTRUCTURE CORRIDOR
- LINE 1 - GALILEE INFRASTRUCTURE POSSIBLE FUTURE EXTENSION
- LINE 2 - WARATAH CORRIDOR
- LINE 3 - HANCOCK GVK CORRIDOR
- LINE 4 - ADANI CORRIDOR
- LINE 5 - BHPB CORRIDOR
- LINE 6 - QRN CORRIDOR
- EXISTING RAILWAY / ROAD
- INTERIM FLOODPLAIN ASSESSMENT
- POTENTIAL STRATEGIC CROPPING LAND
- TOWNS

LINES 2 TO 6, AS SHOWN, ARE INDICATIVE ONLY. THEY HAVE BEEN INTERPRETED FROM INFORMATION AVAILABLE IN THE PUBLIC DOMAIN.

THE EXTENTS OF THE FLOOD PLAINS SHOWN ON THIS DRAWING HAVE BEEN INTERPRETED FROM THE INTERIM FLOOD PLAIN ASSESSMENT OVERLAY FOR THE SUTTOR RIVER SUB-BASIN 2011 V1.0 AS SHOWN ON THE QUEENSLAND RECONSTRUCTION AUTHORITY WEBSITE.

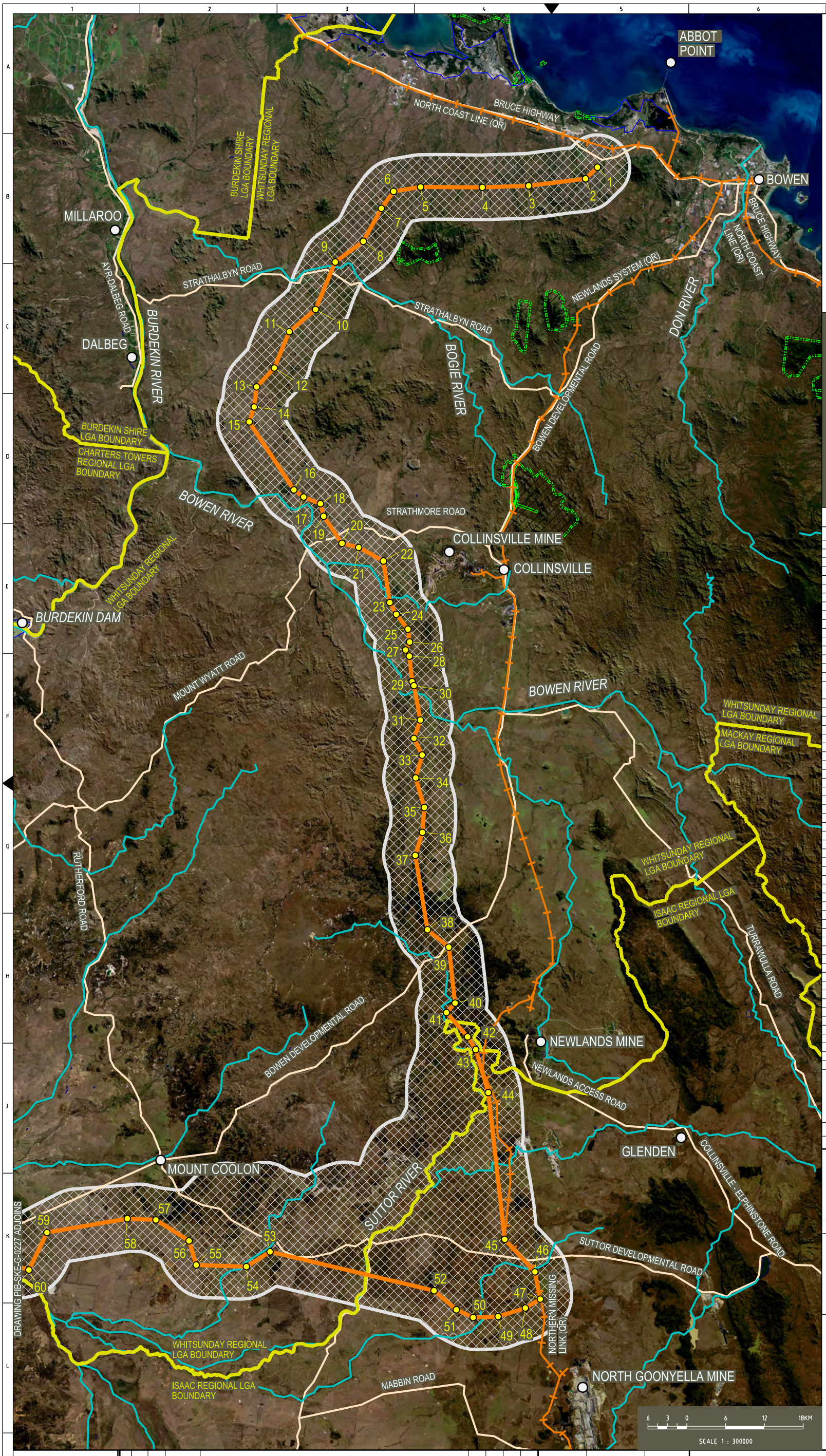
NORTH

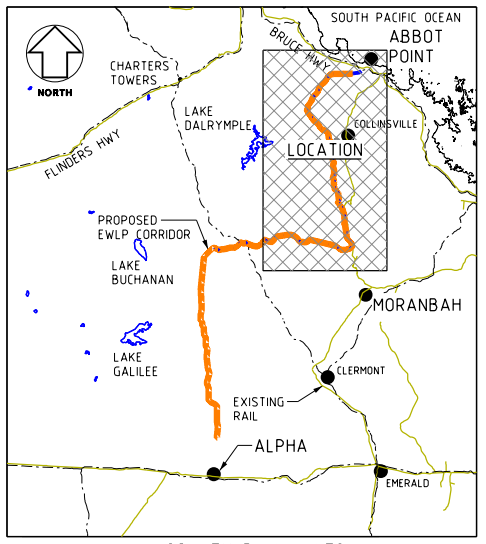
ABBOT POINT
BOWEN
BRUCE HWY
NORTH COAST LINE
BURDEKIN RIVER
LINE 3
BOGIE RIVER
DON RIVER
NEWLANDS LINE
COLLINSVILLE
LAKE DALRYMPLE
BURDEKIN DAM
BOWEN RIVER
Q COAL TENEMENTS
NEWLANDS MINE
NORTHERN MISSING LINK
NORTH GOONYELLA MINE
SUTTOR RIVER
LINE 5
DEVELOPMENT ROAD
MT COOLON
BOWEN DEVELOPMENT ROAD
BELYANDO RIVER
GREGORY DEVELOPMENT ROAD
LINE 1
NORTH GALILEE
LAKE BUCHANAN
CHINA STONE NORTH COAL PROJECT (MACMINES)
CHINA STONE SOUTH COAL PROJECT (MACMINES)
MISTAKE CREEK
LINE 6
LINE 4
MORANBAH
CARMICHAEL COAL PROJECT (ADANI)
CARMICHAEL EAST (WARATAH)
LINE 2
PEAK DOWNS HWY
LAKE GALILEE
DEGULLA COAL PROJECT (VALE)
LINE 3
DYSART MIDDLEMOUNT ROAD
CLERMONT
CLERMONT ALPHA ROAD
ALPHA NORTH (WARATAH)
KEVIN'S CORNER COAL PROJECT (GVK/HANCOCK)
ALPHA WEST PROJECT (WARATAH)
ALPHA COAL PROJECT (GVK/HANCOCK)
CAPELLA
GALILEE COAL (NORTHERN EXPORT FACILITY) (WARATAH
NATIVE COMPANION CREEK
BELYANDO RIVER
EMERALD
CAPRICORN HWY
JERICHO
ALPHA
SOUTH GALILEE COAL PROJECT (AMCI)

PIB-SKE-G-0099
23/07/2012

PROJECT IRON BOOMERANG
east west line parks limited

EAST WEST LINE PARKS
GALILEE INFRASTRUCTURE CORRIDOR





LOCALITY PLAN - NTS

LEGEND:

- PROPOSED EWLP INFRASTRUCTURE CORRIDOR
- STUDY CORRIDOR 10KM MIN
- SETOUT POINT AND NUMBER (2)
- TOWN / POINT OF INTEREST
- EXISTING RAIL
- ROADS
- CREEK / RIVER / WATERCOURSE
- PROTECTED AREAS (NATIONAL PARKS / STATE FOREST)
- LOCAL GOVERNMENT BOUNDARY

PROJECT COORDINATES TABLE

POINT NUMBER	LONGITUDE	LATITUDE
1	E 147°58'57.36"	S 19°59'42.36"
2	E 147°57'54.72"	S 20°0'40.68"
3	E 147°52'51.6"	S 20°1'18.12"
4	E 147°48'45.36"	S 20°1'26.76"
5	E 147°43'16.68"	S 20°1'26.4"
6	E 147°40'53.04"	S 20°1'49.44"
7	E 147°39'48.24"	S 20°3'15.12"
8	E 147°38'12.48"	S 20°6'1.44"
9	E 147°35'43.8"	S 20°7'46.2"
10	E 147°33'59.4"	S 20°11'45.24"
11	E 147°31'39.72"	S 20°13'37.56"
12	E 147°30'20.88"	S 20°16'40.08"
13	E 147°28'46.56"	S 20°18'15.84"
14	E 147°28'34.32"	S 20°19'57"
15	E 147°28'7.68"	S 20°21'12.24"
16	E 147°32'7.44"	S 20°26'53.88"
17	E 147°32'59.28"	S 20°27'29.52"
18	E 147°34'29.28"	S 20°28'3"
19	E 147°34'46.56"	S 20°29'6.36"
20	E 147°36'24.84"	S 20°31'22.08"
21	E 147°37'54.48"	S 20°31'42.24"
22	E 147°40'6.6"	S 20°32'50.28"
23	E 147°40'41.88"	S 20°36'19.08"
24	E 147°41'16.8"	S 20°37'18.12"
25	E 147°42'19.44"	S 20°38'33"
26	E 147°42'28.8"	S 20°39'37.08"
27	E 147°42'7.2"	S 20°40'17.4"
28	E 147°42'27.72"	S 20°40'48.36"
29	E 147°42'42.84"	S 20°42'56.52"
30	E 147°42'52.92"	S 20°43'17.04"
31	E 147°43'28.2"	S 20°46'9.84"
32	E 147°42'54"	S 20°47'42.36"
33	E 147°43'38.28"	S 20°49'6.24"
34	E 147°43'4.44"	S 20°51'1.08"
35	E 147°43'51.6"	S 20°53'29.76"
36	E 147°43'41.52"	S 20°55'35.4"
37	E 147°43'4.08"	S 20°57'31.32"
38	E 147°44'11.4"	S 21°3'45"
39	E 147°46'5.88"	S 21°5'12.48"
40	E 147°46'41.16"	S 21°9'54"
41	E 147°45'55.08"	S 21°10'41.52"
42	E 147°47'48.84"	S 21°12'43.2"
43	E 147°48'33.12"	S 21°13'47.28"
44	E 147°49'41.52"	S 21°17'23.28"
45	E 147°51'14.4"	S 21°29'41.64"
46	E 147°53'57.48"	S 21°32'24.36"
47	E 147°54'27.36"	S 21°34'41.52"
48	E 147°53'7.08"	S 21°35'26.52"
49	E 147°50'40.56"	S 21°36'10.44"
50	E 147°48'26.64"	S 21°36'15.84"
51	E 147°46'55.92"	S 21°35'37.32"
52	E 147°44'55.32"	S 21°34'1.56"
53	E 147°30'12.96"	S 21°30'48.96"
54	E 147°28'6.24"	S 21°32'4.56"
55	E 147°23'35.88"	S 21°31'57"
56	E 147°22'57.36"	S 21°29'55.68"
57	E 147°19'58.44"	S 21°28'10.2"
58	E 147°17'24.72"	S 21°28'4.44"
59	E 147°10'13.08"	S 21°29'15"
60	E 147°8'36.24"	S 21°32'23.64"

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STANDARD NOTES

SURVEY

COORDINATE REFERENCE SYSTEM	MAP GRID OF AUSTRALIA (MGA94,ZONE 55)
HEIGHT DATUM	AUSTRALIAN HEIGHT DATUM (AHD)
SCALE FACTOR	THE DESIGN COORDINATES SHOWN ARE IN TERMS OF MGA94. DISTANCES SHOWN ARE GRID DISTANCES.

GENERAL

1. ALL DIMENSIONS IN METRES UNO.
2. CONTOUR INTERVAL 10m.
3. DESIGN SURVEY DATA - SHUTTLE RADAR TOPOGRAPHY MISSION (SRTM) VERTICAL ACCURACY +/- 10m APPROX.
4. EWLP CORRIDORS SHOWN ARE PRELIMINARY CONCEPTS AND SUBJECT TO FURTHER DESIGN.
5. TOPOGRPHICAL BACK GROUND MAPPING PROVIDED UNDER COPYRIGHT COMMENWEALTH OF AUSTRALIA GEOSCIENCE AUSTRALIA 2008.

6 3 0 6 12 18KM

SCALE 1 : 300000

PROJECT IRON BOOMERANG
east west line parks limited

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REVISIONS

REV	DRN	DATE	DESCRIPTION	CHK	DE	PM	CM
B	CMF	20.07.12	BOUNDARIES REVISED TO INCLUDE ALTERNATE CORRIDOR OPTIONS				
A	CMF	12.07.12	ISSUED FOR REVIEW				

	SIGNATURE	DATE
DRAWN	CMF	12.07.12
CHECKED		
DISCIPLINE ENG		
PROJECT MGR		
ENG. MGR		
CLIENT MGR		

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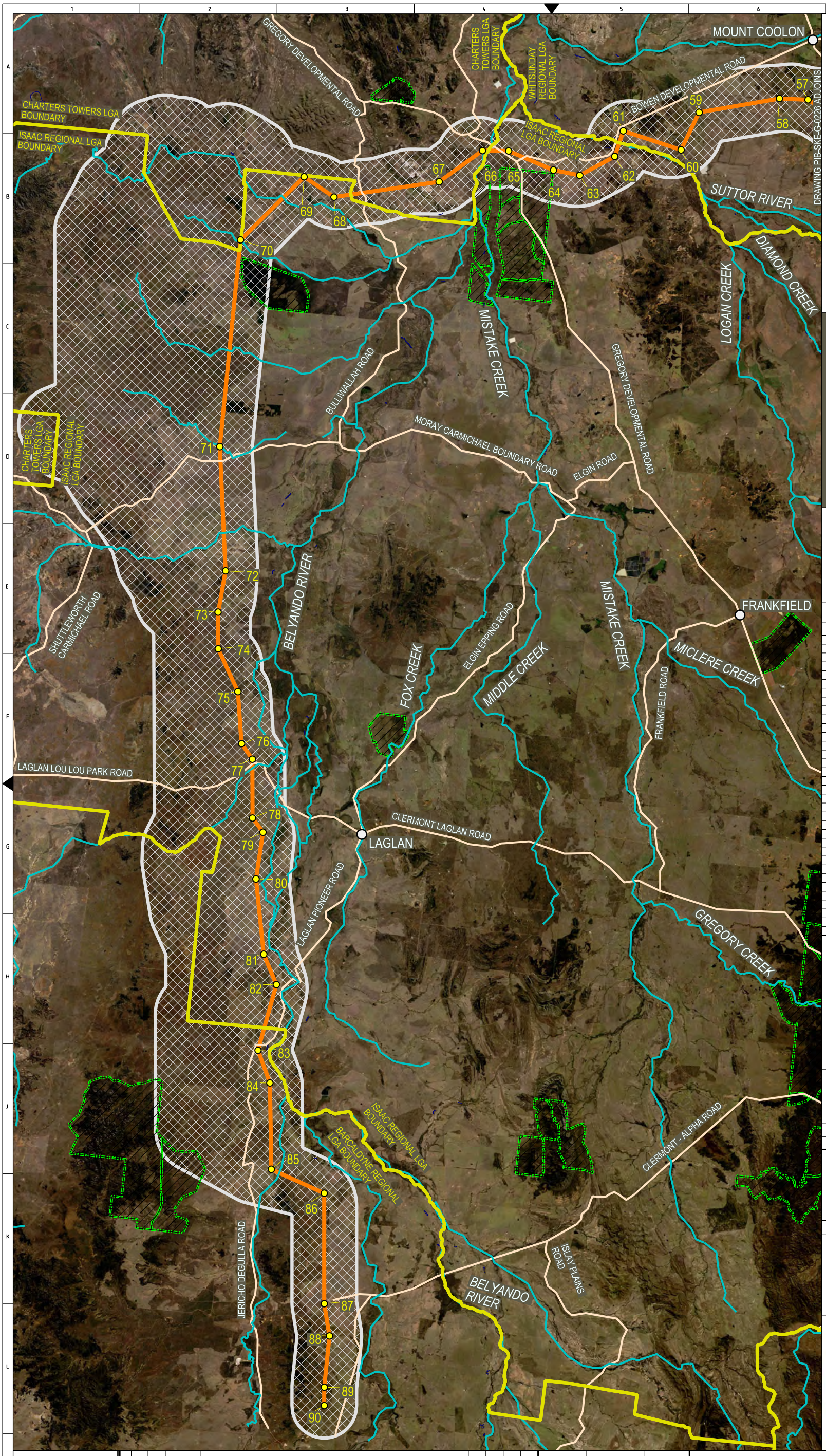
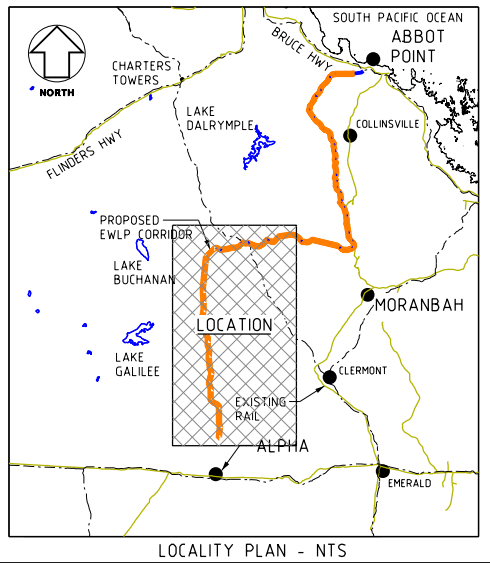
Tel: +61 8 6460 0300
Fax: +61 8 6460 0391
www.engenium.com.au

EAST WEST LINE PARKS LIMITED
GALILEE INFRASTRUCTURE CORRIDOR PROJECT
PROJECT COORDINATES
SHEET 1 OF 2

SCALE: 1:300000 AT A1 | SIZE: A1
DRAWING No: PIB-SKE-G-0226 | REV: B
PROJECT No: 9069B





LOCALITY PLAN - NTS

DRAWING PIB-SKE-G-0226 ADJOINS

LEGEND:

- PROPOSED EWLP INFRASTRUCTURE CORRIDOR
- STUDY CORRIDOR 10KM MIN
- SETOUT POINT AND NUMBER (2)
- TOWN / POINT OF INTEREST
- EXISTING RAIL
- ROADS
- CREEK / RIVER / WATERCOURSE
- PROTECTED AREAS (NATIONAL PARKS / STATE FOREST)
- LOCAL GOVERNMENT BOUNDARY

PROJECT COORDINATES TABLE

POINT NUMBER	LONGITUDE	LATITUDE
57	E 147°19'58.44"	S 21°28'10.2"
58	E 147°17'24.72"	S 21°28'4.44"
59	E 147°10'13.08"	S 21°29'15"
60	E 147°8'36.24"	S 21°32'23.64"
61	E 147°3'25.56"	S 21°30'48.24"
62	E 147°2'39.84"	S 21°32'56.76"
63	E 146°59'31.2"	S 21°34'32.16"
64	E 146°57'10.08"	S 21°34'5.52"
65	E 146°53'8.88"	S 21°32'29.04"
66	E 146°50'48.48"	S 21°32'27.24"
67	E 146°46'55.2"	S 21°35'3.84"
68	E 146°37'29.28"	S 21°36'20.16"
69	E 146°34'48.72"	S 21°34'37.2"
70	E 146°29'5.28"	S 21°39'54"
71	E 146°27'10.08"	S 21°57'13.68"
72	E 146°27'38.88"	S 22°7'38.64"
73	E 146°26'57.48"	S 22°11'6.36"
74	E 146°26'57.48"	S 22°14'10.68"
75	E 146°28'42.96"	S 22°17'46.68"
76	E 146°29'2.04"	S 22°22'8.4"
77	E 146°30'0.36"	S 22°23'26.88"
78	E 146°29'59.64"	S 22°28'23.16"
79	E 146°30'56.16"	S 22°29'34.8"
80	E 146°30'17.64"	S 22°33'29.52"
81	E 146°30'58.32"	S 22°39'48.6"
82	E 146°32'6.36"	S 22°42'21.24"
83	E 146°30'25.56"	S 22°47'51.72"
84	E 146°31'29.28"	S 22°50'35.88"
85	E 146°31'35.76"	S 22°57'50.4"
86	E 146°36'22.68"	S 22°59'51.72"
87	E 146°36'21.24"	S 23°9'7.2"
88	E 146°36'49.32"	S 23°11'49.92"
89	E 146°36'19.8"	S 23°16'7.68"
90	E 146°36'19.8"	S 23°17'39.84"

6 3 0 6 12 18KM

SCALE 1 : 300000

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STANDARD NOTES

SURVEY

COORDINATE REFERENCE SYSTEM	MAP GRID OF AUSTRALIA (MGA94,ZONE 55)
HEIGHT DATUM	AUSTRALIAN HEIGHT DATUM (AHD)
SCALE FACTOR	THE DESIGN COORDINATES SHOWN ARE IN TERMS OF MGA94. DISTANCES SHOWN ARE GRID DISTANCES.

GENERAL

1. ALL DIMENSIONS IN METRES UNO.
2. CONTOUR INTERVAL 10m.
3. DESIGN SURVEY DATA - SHUTTLE RADAR TOPOGRAPHY MISSION (SRTM) VERTICAL ACCURACY +/- 10m APPROX.
4. EWLP CORRIDORS SHOWN ARE PRELIMINARY CONCEPTS AND SUBJECT TO FURTHER DESIGN.
5. TOPOGRPHICAL BACK GROUND MAPPING PROVIDED UNDER COPYRIGHT COMMENWEALTH OF AUSTRALIA GEOSCIENCE AUSTRALIA 2008.

PROJECT IRON BOOMERANG
east west line parks limited

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REVISIONS

REV	DRN	DATE	DESCRIPTION	CHK	DE	PM	CM
B	CMF	20.07.12	BOUNDARY REVISED TO INCLUDE ALTERNATE CORRIDOR OPTIONS				
A	CMF	12.07.12	ISSUED FOR REVIEW				

	SIGNATURE	DATE
DRAWN	CMF	12.07.12
CHECKED		
DISCIPLINE ENG		
PROJECT MGR		
ENG. MGR		
CLIENT MGR		

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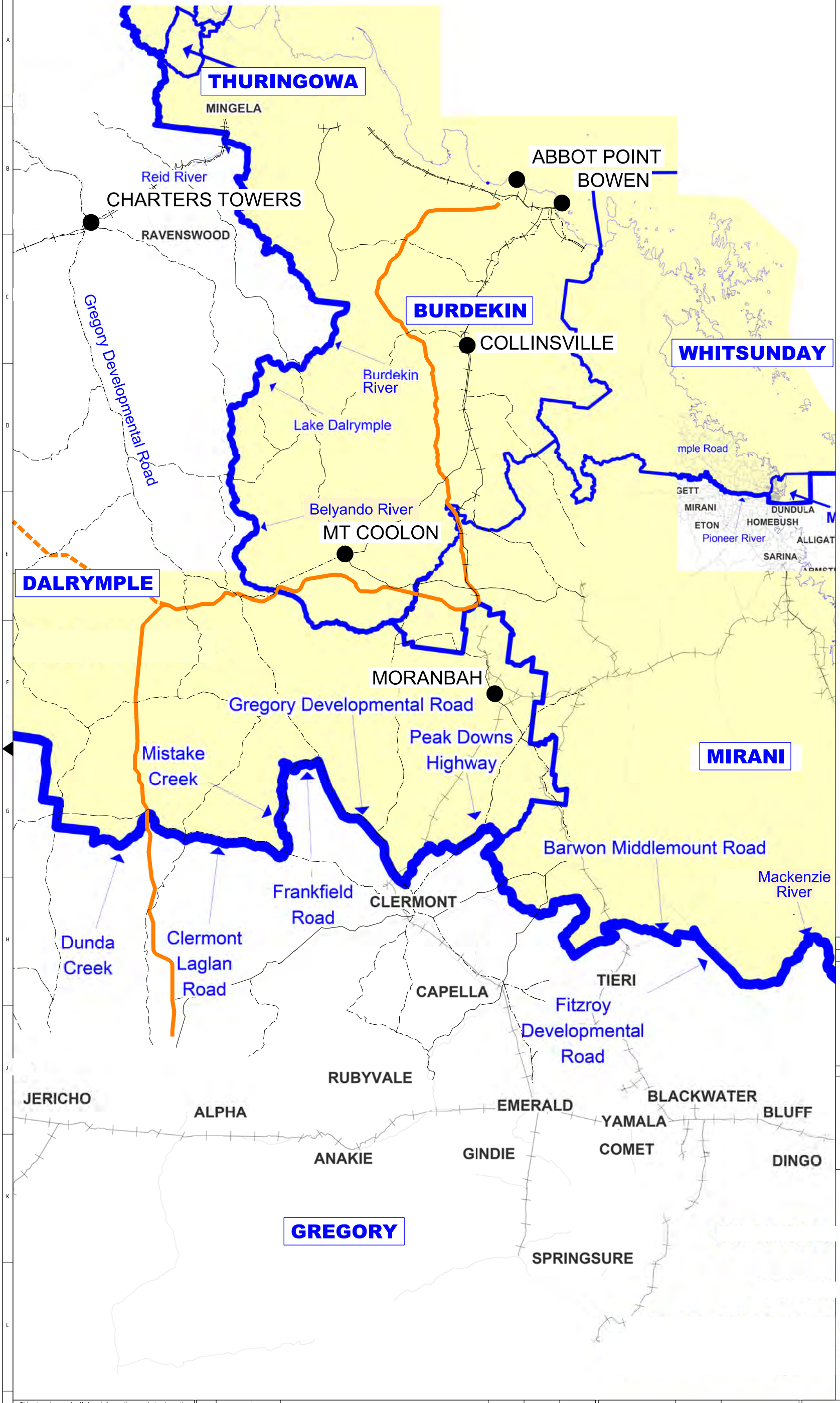
EAST WEST LINE PARKS LIMITED
GALILEE INFRASTRUCTURE CORRIDOR PROJECT
PROJECT COORDINATES
SHEET 2 OF 2

SCALE: 1:300000 AT A1 | SIZE: A1
DRAWING No: PIB-SKE-G-0227 | REV: B
PROJECT No: 9069B



LOCALITY PLAN - NTS

LEGEND

- EWLP RAIL ALIGNMENT
- ELECTORAL BOUNDARY
- MIRANI — ELECTORATE NAME
- EXISTING RAIL
- EXISTING ROAD

BASED ON OR CONTAINS DATA PROVIDED BY THE STATE OF QLD (DERM) (2010). IN CONSIDERATION OF THE STATE PERMITTING USE OF THIS DATA YOU ACKNOWLEDGE AND AGREE THAT THE STATE GIVES NO WARRANTY IN RELATION TO THE DATA (INCLUDING ACCURACY, RELIABILITY, COMPLETENESS, CURRENCY OR SUITABILITY) AND ACCEPTS NO LIABILITY (INCLUDING WITHOUT LIMITATION, LIABILITY IN NEGLIGENCE) FOR ANY LOSS, DAMAGE OR COSTS (INCLUDING CONSEQUENTIAL DAMAGE) RELATING TO ANY USE OF THE DATA. DATA MUST NOT BE USED FOR MARKETING OR BE USED IN BREACH OF THE PRIVACY LAWS.

STANDARD NOTES	
SURVEY	
COORDINATE REFERENCE SYSTEM	MAP GRID OF AUSTRALIA (MGA94, ZONE 55)
HEIGHT DATUM	AUSTRALIAN HEIGHT DATUM (AHD)
SCALE FACTOR	THE DESIGN COORDINATES SHOWN ARE IN TERMS OF MGA94. DISTANCES SHOWN ARE GRID DISTANCES.

GENERAL

1. ALL DIMENSIONS IN METRES UNO.
2. MINING LEASE TENURE INTERPRETED SUBJECT TO FURTHER DEFINITION.
3. DESIGN SURVEY DATA - SHUTTLE RADAR TOPOGRAPHY MISSION (SRTM) VERTICAL ACCURACY +/- 10m APPROX.
4. EWLP CORRIDORS SHOWN ARE PRELIMINARY CONCEPTS AND SUBJECT TO FURTHER DESIGN.

PROJECT IRON BOOMERANG
east west line parks limited

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REV	DATE	DRN	DESCRIPTION	CHKD	APPR	PROJ
A	12.07.12	GBM	ISSUED FOR INFORMATION			

DRAWING REVISION

	DATE	NAME
DRAWN BY	11.07.12	G.MOLLOY
CHECKED BY		
APPROVED BY		
ENG MGR		

SCALE: NTS
FORMAT SIZE: A4

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EAST WEST LINE PARKS LIMITED
PROJECT IRON BOOMERANG
GENERAL ARRANGEMENT
STATE ELECTORAL BOUNDARIES

DRAWING No. PIB-SKE-G-0228
REV. A

Environmental issues

Galilee Corridor Infrastructure Project Constraints Workshop

	Key identified issues	Issue descriptor	Issue risk category	Proposed mitigation strategy	Comments and notes
	Soils and Geology				
Alpha to North Galilee Section	Soil types to be traversed	- Desert uplands (deep sands) - Variability - Difficulty with rehabilitation with dispersive subsoils present leading to erosion risk - Poor materials for cutting/embankments - High resolution soil data will be difficult to obtain given terrain and access issues	**High**	- Undertake detailed soil survey to improve on existing small scale data for whole of route/corridor - Additional geotechnical survey to target areas identified by soils mapping as higher risk	- Sandy soils will have low shrink/swell properties - The scale of soil survey and overlap with geotechnical investigation should be clarified
	Erosion	- Erodible in areas of high/moderate slope	**Low**	- Implement controls as per standard practices	Erosion is likely to be an issue during construction and in the rehabilitation process. Low annual rainfall with seasonal storms will make achieving ground cover an issue.
	Salinity/sodicity	- Texture contrast soils expected to be associated with salinity and sodicity - Sandy soils not expected to be susceptible	**Medium**	- Identification of problem areas is important - Minimise exposure of subsoils	
	Fill materials (availability, transport)	- Cut and fill section associated with Desert Uplands means generally local sources and short transport distances - A material balance has not yet been undertaken	**Medium**	- Balancing of cut/fill is likely to be reasonable through this section but suitability for fill materials unknown	Some fill materials maybe sodic and subject to dispersion when exposed to rainfall
	Spoil management	If cut to fill does not balance then may be issues with disposal of unwanted spoil and its stabilisation	**Medium**	Plan for spoil disposal in suitable sites and apply appropriate erosion control measures	
	Lithology	- Sedimentary rocks present, though some metamorphics '- should not present excavation difficulties but stability of embankments may be a risk	**Low**	- Desert uplands reasonably stable	
	Seismic activity	- Seismic issues largely unknown at this point	**Low**	- Desert uplands reasonably stable	- Geotechnical report to be assessed by MWH
	Landform	- Areas near Macmines/Carmichael are relatively steep, cut of 10-20 m noted '- Embankment stability may be an issue with soils	**Medium**	- Realignment to minimise impacts on mining tenement	- Steep areas caused by avoiding mining tenements. Realignment may be possible.
North Galilee to Goonyella Hub	Soil types to be traversed	- A lot more variability in soils across this section than for Desert Uplands area - Shrink/swell soils common on floodplains - Mapping scale is too small for accurate delination of soil types for the alignment	**High**	- Detailed soil survey required to satisfy both planning/design needs and expectation of the regulator - Additional geotechnical survey	- sands, texture contrast, and shrink/swell clays (~20-30% clays by area)
	Erosion	- Landform change (steepness) presents greater risk of erosion - Flood erosion risk and waterway crossings	**Low**	- Implement controls as per standard practices	Alignment of route generally at right angles to flow direction will minimise risks on floodplains
	Salinity/sodicity	- Texture contrast soils are likely to be sodic and saline in subsoils - Clay soils not expected to present problems	**Medium**	do not expose subsoils and separate topsoil for subsequent replacement over shaped fill areas during rehabilitation	
	Fill materials (availability, transport)	as above but may be an issue where the floodplain is not bridged and embankment fill is needed	**Medium**	Need to investigate sources of fill materials. May be able to acquire from suitable mine spoil stockpiles?	
	Spoil management	- Likely to be balanced cut/fill across the section	**Low**	Needs confirmation	
	Lithology	- Variability etc. as per soil types, particularly with alluvia on floodplains	**Low**	No excavation difficulties anticipated	
	Seismic activity	- Information not currently available	**Low**	Nevertheless, region has been largely stable for recorded history	
	Landform	- More detailed topo data required - Generally low gradient in the western portion. Steeper grades in the eastern extremity - Watercourses present in the western end of the section - Alignment crosses several floodplains	**Medium**	Issues to be considered more closely during field investigations for detailed design and route refinement phase	
Goonyella Hub to Abbot Point (Includes Moranbah link)	Soil types to be traversed	- Gap in soils mapping in a small portion of the alignment	**High**	- Several EIS undertaken in the same areas with potentially a lot of information publically available. Nevertheless, detailed route assessment required to fill gaps. Some potential for ASS in near coastal areas when approaching SDA dependig on actual route.	- Cracking clays and texture contrast in the Bowen alluvium - North of the Bowen River - Cracking clays (shallow), texture contrast further north - Bogey River - texture contrast soils - Northern section - old alluvium
	Erosion	- Higher risk of erosion occurring in this section, however considered to be manageable	**Low**	Apply appropriate soil erosion measures	
	Salinity/sodicity	- Highest risk of salinity in this section - Detailed information may be available through existing EISs	**Medium**	Use EIS data and published Government soil and land use mapping where available	- Bogey River - texture contrast soils (sodic and quite dispersive)
	Fill materials (availability, transport)	- Cut/fill balance likely to be reasonably equal - High likelihood of suitable fill materials, except in the area around Q Coal	**Low**	Requires more detailed investigation during final design planning	
	Spoil management	If cut to fill does not balance then may be issues with disposal of unwanted spoil and its stabilisation due to constrained spatial options	**Medium**	Plan for spoil disposal in suitable sites and apply appropriate erosion control measures	
	Lithology	More variable in this area, particularly in vicinity of the ranges and the near coastal section	**Medium**	Needs to be factored into rehabilitation plan for erosion control and plant selection for revegetation	
	Seismic activity	- Event recorded in 2011 in vicinity of Clarke Range '- Seismic records adequate	**Low**	Needs geotechnical assessment for incorporation into detailed design	

Environmental issues

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	Key identified issues	Issue descriptor	Issue risk category	Proposed mitigation strategy	Comments and notes
	Landform	- Alignment traverses steeper area, as well as some floodplains - Several large watercourse crossings (associated with floodplains) - Additional topo data are needed and refinement of alignment will likely occur, This will affect the corridor assessment for the EIS. Route options somewhat more confined in this section by landform constraints	High	Detailed field investigations required to refine route to account for landform and land use constraints	
	Land use				
Alpha to North Galilee Section	Mines	- Impacting mining tenements depending on whether western or eastern option adopted '- Information on potential tenements is a large gap that may affect western route alignment selection	High	- Mining tenement spatial data gathering required - Stakeholder liaison needed to gain agreement on preferred western option to minimise impacts on mines and avoid constraints of eastern option	
	Grazing (low intensity)	- Low intensity grazing dominates as native pastures have low stocking capacity and pasture improvement only limited success	Low	Low impacts on land use and alignment on eastern property boundaries likely to be more acceptable to landowneers	- Western alignment thought to present less risk to grazing than the eastern alignment
	Cropping	- No cropping is known or likely	Low		
North Galilee to Goonyella Hub	Mines	- No impact on existing mining tenements	Low	Traverses grazing and minor agricultural land only	
	Grazing	- Higher value grazing land compared to desert uplands	Low	Alignment to minimise impacts on property operations and stock movement will be important.	
	Cropping	- Some SCL present, particularly in the eastern end of the section	Low		
	Remnant vegetation	- Large areas of uncleared land, though generally lesser status under the VMA. Some potential for grassland issues	Medium	Detailed field investigations required to refine route to account for vegetation constraints and to determine any need for formal offsets	
Goonyella Hub to Abbot Point	Mines	- Running adjacent to several mine tenements	Medium	May be confined to existing corridor in part	
	Grazing	- Highest value grazing lands of the route	Medium	Some arable lands also and grazing lands limited in extent due to limited lateral extent of land available	
	Cropping	- More cropping land present including irrigated cropping and pastures)	Medium	See comments re SCL later	
	Remnant vegetation	- More likely to occur in the western alignment	Medium	Most likely associated with route option to the west of Collinsville	
	Land tenure				
Alpha to North Galilee Section	Leasehold	Predominantly Leasehold	Low		
	Mining leases	Affected mainly only if eastern route option used (H) as western route sits outside mining tenements (L) and only connecting spur liines would be impacted - these would be the responsibility of the individual mines	Low	Western route most likely	
	Freehold	No Freehold Lots known for this route	Low	To be determined with detailed route assessment	
	Land purchase vs easements	- Government to decide approach to corridor 'acquisition' - Not seen as a significant issue for the purposes of environmental investigation	High	May be High risk for corridor acquisition (i.e. Business risk) but will not affect environmental assessment provided access is available for assessment	- EWLP's preference is to acquire land for the corridor
North Galilee to Goonyella Hub	Mining leases	- None present (as currently known)	Low	Route may just intersect mine lease in north of route	
	Leasehold	- Mainly leasehold land	Low	To be determined with detailed route assessment	- 12-14 landholders identified
	Land purchase vs easements	- Government to decide approach to corridor 'acquisition' - Not seen as a significant issue for the purposes of environmental investigation	High	As above	
Goonyella Hub to Abbot Point	Mining leases	- The alignment avoids mining tenements	Low		
	Leasehold/Freehold	- More freehold land occurs in this section - Still relatively low number of landholders (~20)	Medium	Issues depends on resolution of next risk	
	Land purchase vs easements	- Government to decide approach to corridor 'acquisition' - Not seen as a significant issue for the purposes of environmental investigation	High	As above	
	Groundwater				
Alpha to North Galilee Section	Stock and domestic bores	- Information of groundwater status along the corridor is slim - Watertable likely to be deep	High	Groundwater in Desert Uplands limits grazing development so maybe a sensitive issue	
	Construction water supplies	- Water supply for construction is likely to be an issue due to lack of groundwater in the desert uplands	Low	Likely to be a low environmental risk but a High construction risk due to paucity of good supplies. Risk of impacts on groundwater supplies for stock and domestic users	
	Eastern alignment issues	- On the Belyando floodplain and likely to have a relatively high watertable	Medium	For eastern alignment, there could be riosk of construction and operational risks on floodplain shallow watertables where present. Needs further investigation.	
North Galilee to Goonyella Hub	Stock and domestic bores	- Minimal information known - Higher potential for groundwater impacts around the floodplains - Risk of interference with groundwater flow if embankment loading on alluvial soils impedes shallow groundwater systems, especially in flood events	Medium	For eastern alignment, there could be riosk of construction and operational risks on floodplain shallow watertables where present. Needs further investigation.	

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Draft Outline Issues

	Key identified issues	Issue descriptor	Issue risk category	Proposed mitigation strategy	Comments and notes
Goonyella Hub to Abbot Point	Groundwater occurrence	- Shallow groundwater present in a number of places, though deeper in others - May be an increase in stock and domestic bores closer to Collinsville and the near coastal route sections (M)	**Low**	Needs further field investigations to determine extent of impact	
	Strategic cropping land				
Alpha to North Galilee Section	N/A	No SCL identified and this section lies west of Western Cropping Management Zone for both route options	No risk identified		
North Galilee to Goonyella Hub	SCL	- Eastern end of section impacts on mapped SCL '- Soil mapping is currently insufficient to address SCL assessments	**Medium**	Requires detailed field assessment to determine extent of SCL and potential for direct impact by final route	
Goonyella Hub to Abbot Point	SCL	- Highest frequency of SCL in this section - Most SCL in southern section near Goonyella and in Collinsville option	**Medium**	Route refinement should be able to avoid any impacts	
	Infrastructure issues				
Alpha to North Galilee Section	Roads	- Carmichael Highway will be crossed - Local gravel roads with low traffic volume - Unlikely to be a major issue	**Low**	all road crossings will be engineered with either at grade or overpasses depending on approaching landform, need and frequency of road traffic	
	Powerlines	- No major powerlines known in the area	**Low**	To be confirmed	
	Pipelines (gas, water)	- No major pipelines known in the area	**Low**	To be confirmed	
	Mine infrastructure (existing and proposed)	- Interface with other mines (particularly proposed infrastructure) difficult to assess	**Medium**	Level of impact depends on route with eastern option (H) and western option (L). Impact on future tenements unknown at this stage	
	Stockroutes	- At least one known stockroute will be affected by the alignment	**Low**	Managed with underpass if required or alternative design to allow for infrequent use	
	Railways	- No known lines present in this section	**Low**	No current plans for further rail lines in this section	
	Properties (homesteads, yards, fences, dams)	Anticipated to be L for western option as route hugs their eastern property boundaries but M-H for eastern route option	**Low**	Need detailed field assessment to determine actual impacts on property assets and need for relocation/reinstatement	
North Galilee to Goonyella Hub	Roads	Gregory Highway, Bowen Development Road, Suttor Development Road	**Low**	Satisfactory engineering solutions available for major road crossings either at grade or as overpasses	
	Powerlines	- Several powerlines likely to be crossed, but limited information currently available	**Low**	Satisfactory engineering solutions available for major lines	
	Pipelines (gas, water)	- Gas and water pipelines expected to be affected in the eastern extent - No significant environmental risk areas	**Low**	To be accommodated within corridor if possible or route refined to avoid	
	Mine infrastructure (existing and proposed)	- Not known currently	**Low**	To be determined with final route selection	
	Stockroutes	- Several stockroutes are affected by alignment	**Medium**	Will require coordinated approach to ensure regional stock movement and drought access not impeded by route	
	Railways	- Potential for other proposed coal rail lines	**Medium**	May be avoided if government decides on a single route or single corridor to accommodate both standard (new) and narrow gauge (existing) lines	
	Properties (homesteads, yards, fences, dams)	Impact likely to increase in both southern section and sections beyond Collinsville through to coast	**Medium**	May require relocation and/or reinstatement of assets so as not to impede normal property management inputs	
Goonyella Hub to Abbot Point	Roads	Bowen Development Road, Suttor Development Road, and many local roads in the Moranbah section	**Medium**	Apply standard design solutions	
	Powerlines	- HV powerlines present in the north of the alignment (north of Bowen River)	**Medium**	Should not require relocation but will coordinate with Powerlink if towers need to be raised or moved	
	Pipelines (gas, water)	- Water and gas pipelines crossed	**Medium**	Apply standard design solutions	
	Mine infrastructure (existing and proposed)	Potential to impact on existing hub or need for connection if western diversions are used - Will avoid Qcoal site	**Low**	Level of impact depends on final route selection	
	State Development Area (Abbot Point)	Impacts within SDA not considered for this EIS at this stage. Impacts will depend on how eventual project develops	**Low**	Depends on government decision re SDA development	
	Stockroutes	- Several present crossed by alignment	**Medium**	Measures as above	
	Railways	Potential for co-location of narrow gauge (existing) and standard gauge (proposed) in same corridor for this section. Impact depends on width of corridor in this more constrained area.	**Medium**	Depends on government decision re final option	
	Properties (homesteads, yards, fences, dams)	- Increased number of properties along alignment compared to other sections - Properties generally smaller in extent to other two sections leading to highr potential for more frequent intersection with property assets	**Medium**	Extent of impact will require detailed assessment of final route at design stage	
	Flora/Fauna				
	EPBC				
	TECs	- Brigalow TEC is present for the eastern alignment, and far northern portion of western alignment '- Native grassland TECs present in the shared alignment in the far south near Alpha	**High**	- Groundtruthing and offsetting strategies are required	- TECs will likely impact on the eastern alignment - Minimal effect on western alignment

Environmental issues

Galilee Corridor Infrastructure Project Constraints Workshop

	Key identified issues	Issue descriptor	Issue risk category	Proposed mitigation strategy	Comments and notes
Alpha to North Galilee Section	Listed species	- Few records of listed threatened species likely reflects limited past survey effort in this section - Existing mapping of habitat areas for these species is generally poor	**High**	- Detailed mapping exercise needed (based on RE and species' records), and then targetted field studies - Follow DSEWPC survey guidelines as far as practicable	
	Offsets	- Information required to determine offsets (residuals) - This is tied to the above information requirements - Finding equivalent offsets	**High**	Can only be determined once field investigations define extent of offsets required. Can accumulate total offset needs and seek one-site solution rather than looking for multiple sites for offset along the route.	- High for eastern alignment - Medium for western alignment
	VM Act				
	REs	- More endangered RE in the eastern alignment - More least concern RE (and remnant vegetation generally) on the western alignment - More of concern RE in the western alignment	**High**	More detailed survey required to document field condition	
	Threshold REs	- Limited occurrence in both alignments except in the far southern portion near Alpha	**Medium**	More detailed survey required to document field condition	
	HVR	- Minor areas on both routes - Relatively low across section	**Medium**	More detailed survey required to document field condition	
	Offsets		**Medium**	Area needed to be determined by field assessment	
	Essential Habitat	-None present (as mapped currently)	**Low**	To be confirmed by field assessment	
	NC Act				
	Listed Species	- Few records of listed threatened species likely reflects limited past survey effort in this section	**High**		
	Referable Wetlands	- Generally not present but wesern alignment crosses Bingeringo Aggregation, a DIWA wetland of National Importance - Some along Belyando country	**Medium**	Level of actual impact to be determined by field investigation	
	Coastal Protection	N/A			
	BPA	- Much remnant vegetation, particularly on western alignment is regarded as having State biodiversity value - Small portion of State corridor in the far north-east of this section	**Medium**	Level of actual impact to be determined by field investigation	
North Galilee to Goonyella Hub	**EPBC**				
	TECs	- Greater occurrence of TECs (compared to Alpha to North Galilee) - Western end - moderate occurrence of TEC on alignment (M) - In the eastern extent, the northern option (M) has fewer constraints than southern (H)	- risks as per individual (..)	Level of actual impact to be determined by field investigation	
	Listed species	- Few records of listed threatened species likely reflects limited past surveyeffort, but records of Ornamental Snake suggest habitat for this species is likely to be present - Eastern end - Southern option (H) will likely present more habitat than the north (M)	- risks as per individual (..)	Level of actual impact to be determined by field investigation	
	Offsets	- As above		Level of actual impact to be determined by field investigation	
	VM Act				
	REs	- Eastern end - southern option will impact on more endangered RE, whereas the northern option will impact on more remnant vegetation (but mostly least concern)	**High**	Level of actual impact to be determined by field investigation	
	Threshold REs	- Western end traverses large areas of threshold RE (least concern)	**Medium**	Level of actual impact to be determined by field investigation	
	HVR	- Eastern end - Southern option traverses large portions of Brigalow and grassland regrowth (H), whereas Northern option traverses little HVR (L)	**Medium**	Level of actual impact to be determined by field investigation	
	Offsets	- Cumulative issues are significant	**High**	Level of actual impact to be determined by field investigation	
	Essential Habitat	- Very little mapped essential habitat present	**Low**	Level of actual impact to be determined by field investigation	
	NC Act				
	Listed Species	- Few records of listed threatened species likely reflects limited past survey effort int his section, but records of Ornamental Snake suggest habitat for this species is likely to be present - Eastern end - Southern option (H) will present more habitat for listed species than the northern section (M)	- risks as per individual (..)	Level of actual impact to be determined by field investigation	
	Referable Wetlands	- Route traverses major river lines (i.e. riparian vegetation)	**High**	To be managed through avoidance where possible and by design and construction methodology where impact is unavoidable	
	Coastal Protection	N/A			
	BPA	- Alignment traverses a State significant biodiversity corridor - Eastern end - northern option largely misses the corridor (L)	**Medium**	To be managed through avoidance where possible and by design and construction methodology where impact is unavoidable	
	EPBC				
	TECs	- All options similar for impacts on TECs	**High**	Level of actual impact to be determined by field investigation	
	Listed species	- More records of listed threatened species likely reflects greater survey effort in this section - habitat for the listed species is likely to present a constraint throughout the alignment	**High**	Level of actual impact to be determined by field investigation	- Noxious weeds have not been considered but will be an issue for all routes during construction and rehabilitation phases

Environmental issues

Galilee Corridor Infrastructure Project Constraints Workshop					
	Key identified issues	**Issue descriptor**	**Issue risk category**	**Proposed mitigation strategy**	**Comments and notes**
Goonyella to Abbot Point	Offsets	- TECs likely to be impacted and offsets required - The Semi-evergreen vine thicket TEC also appears in this section, and this is harder to offset because of specific landform and habitat requirements	**High**	Level of actual impact to be determined by field investigation	
	VM Act				
	REs	- Mapped REs affect both alignments - more endangered RE on eastern but more of concern RE on westeern alignment - Western option traverses more remnant	**High**	Level of actual impact to be determined by field investigation	
	Threshold REs	- Threshold RE areas are minimal in this section - Similar areas traversed by both options	**Low**	Level of actual impact to be determined by field investigation	
	HVR	- Predominantly occurs in the south of the alignment - Similar HVR by both alignments	**Medium**	Level of actual impact to be determined by field investigation	
	Offsets	- Extent of RE and TEC, likely to have large cumulative affect for requiring and finding offsets	**High**	Level of actual impact to be determined by field investigation	
	Essential Habitat	- Most essential habitat of all the sections, though still a relatively small amount - Western (M), Eastern (L)	**Medium**	Level of actual impact to be determined by field investigation	
	NC Act				
	Listed Species	- Better survey along this area, with improved mapping - habitat for the listed species is likely to present a constraint throughout the alignment	**High**	Level of actual impact to be determined by field investigation	
	Referable Wetlands	- Several large watercourses, with dispersed wetlands - Similar for both alignment options	**Medium**	Level of actual impact to be determined by field investigation	
	Coastal Protection	- Both options traverse areas of High Ecological significance close to Abbot Point	**High**	Level of actual impact to be determined by field investigation	
	BPA	- Western alignment option traverses greater area of State significant biodiversity corridor, lesser for the eastern alignment	**Medium**	Level of actual impact to be determined by field investigation	
	Approvals				
Alpha to North Galilee Section	EPBC Act referral	Referral required under EPBC Act as set out above under flora/fauna assessment	**High**	Likely to be a 'controlled action'. Referral needs to document issues under EPBC Act jurisdiction clearly and concisely to facilitate a determination early in the process	
	State legislation	- Range of ERAs under the EP Act for construction and operation - Likely approvals under VM Act and other Acts to be determined during actual EIS process - EIS may be conducted for EPBC Act under the State process	**High**	EIS investigations should target the level of information and detail on issues to be addressed in the various approvals applications required for project approval	
	Local government	- Local roads (access, and maintenance - temporary infrastructure and camps	**Medium**	- Range of Local Authorities involved will determine number and type of permits and licences etc required as Council requirements vary across jurisdictions. - Meet with all relevant Councils early in investigation process to define range of permits etc required	
North Galilee to Goonyella Hub	As above				
Goonyella Hub to Abbot Point	As above	- Difficulty of coordinating with other projects - Interaction with government delays decision making	**Medium**	Open channels for corrdination early in project	
	Waste management issues				
Alpha to North Galilee Section	Camps	Need for both temporary and permanent sites during construction and operational phases	**High**	- Careful siting to avoid sensitive areas while meeting needs of project for location, travel times, servicing, access etc - May require landholder agreement, easements, land purchase or other options - need to implement separation of putrescible, recyclables and other solid wastes for disposal - treatment of sewage and management of effluent will be critical	
	Construction phase	Issues such as management of wastes from concrete, steel offcuts, timber containers (e.g. paints, oils and greases, and chemicals)	**High**	Incorporate all management measures in comprehensive draft EMP	
	Operational phase	Management of permanent operational areas such as workshops, stockpiles, servicing centres, loading equipment, fuel storage, hubs with other mines	**High**	Ensure SBMP for operation addresses all ongoing issues and provides for regular review and update	
North Galilee to Goonyella Hub	As above				
Goonyella Hub to Abbot Point	As above - Only differs with respect to management of interface with SDA operations	- Coordinate with other plans for SDA management - Recent withdrawal of government funding support for port development may impact delivery of overall project support infrastructure	**High**	- Open channels for coordination early in project - Initiate discussions with government to assess timing and funding implications	

Flooding and Waterway issues

Galilee Corridor Infrastructure Project Constraints Workshop					
	Key identified issues	**Issue descriptor**	**Issue risk category**	**Proposed mitigation strategy**	**Comments and notes**
	Floodplains				
Alpha to North Galilee Section	Belyando Floodplain	- Belyando floodplain is quite wide in the vicinity of Carmichael ML (up to 15 km) - This presents difficulty in hydrological studies due to definitioon of flow paths and prediction of depth and velocity - The two proposed alignments are relatively low impact, but the western alignment (not on the floodplain) is preferred to the eastern one that skirts the floodplain - Afflux management is important, but due to the remoteness of the area, the hydrology impacts are of lesser impact than in a more developed area - In the northern section, where the options traverse the floodplain, it's thought that the eastern alignment management is relatively low because the alignment does not skew across the direction of flow - WQ issues minimal, likely to be more of an issue for the eastern alignment due to the possible influence on the floodplain	**Low**	- Align bridges/culverts at right angles to all stream crossings - ensure adequate protection of all abutments, particularly in dispersive soils - Prepare comprehensive environment management plans to cater for all sections of the route in respect to specific issues and ensure compliance with EMPs to avoid off-site impacts	- The Belyando floodplain option is considered to not have a great impact on afflux/flow diversion because it is running parallel to the watercourse
	Water Quality	- Water Quality Objectives are not available for the area and will need to be developed from Queensland Water Quality Guidelines	**Medium**	Processes exist for allocation of WQ guidelines where published values not available	
North Galilee to Goonyella Hub	Belyando Floodplain	- Narrow floodplains intersected perpendicular to stream direction	**Low**	Hydrological and hydraulic impacts minimised and residual impacts more easily managed by aligning bridges/culverts at right angles to flow path to avoid turbulence etc	
	Suttor Floodplain	- As above	**Low**	As above	
	Waterway crossings	- Crossings are perpendicular to flow direction (both Belyando and Suttor) - - Construction water quality issues (dealt with by management processes) - Likely to be crossing major streams at defined channel (higher velocity floods). Easier to manage than lower velocity, large flood plane areas. - Sufficiently detailed ARR data are not likely to be available for modelling/design - Unlikely to be much stream water quality data available	**Low**	As above	- Note that stream guages are present in the vicinity of the proposed stream crossings - Note that catchment definition may be an issue for data collection and flood AEP design, where catchments can join and produce higher flows
Goonyella Hub to Abbot Point	Suttor Floodplain				
	Bowen Floodplain	- Occurs in the cyclone belt, but this is well known and information is available. - Some embankments will be required in lower areas around the Bowen River	**Medium**	- If alignments skew across floodplain, which may present some issues and will need to be studied; particularly wrt embankments that may impede flows	
	Bogie Floodplain	As above	**Medium**	As above	
	Elliot Floodplain	As above	**Medium**	As above	
	Waterway crossings	- Comments as above -	**Medium**	As above	
	Coastal estuaries	- Need to understand if any small estuaries are encountered prior to the State Development Area	**Medium**	Detailed investigation required to define extent of issues	
	Waterways				
Alpha to North Galilee Section	Waterway barriers (fish passage)	- Detailed information of minor streams (including ephemeral), stream order >1, will be required to determine waterway barrier (fish passage) requirements for assessment of the EIS '- LiDAR imagery (~20 cm contours) will be required to provide mapping. Ground truthing will likely be required for at least some areas.	**High**	- Detailed design requires accurate and detailed imagery for planning and design, and so LiDAR topography is likely to be needed for other aspects	
North Galilee to Goonyella Hub	As above				
Goonyella Hub to Abbot Point	As above				
	Climate Change				
All areas	Impact on AEPs (rainfall intensity)	- Climate change assessment guidelines (rainfall intensity escalation etc.) are readily available	**Medium**	Investigations and consideration of impacts needs to be based on a range of scenarios (i.e. both anticipated and then less than and more than) to take account of different outcomes to modelled change.	* Note - Climate change impacts on flora/fauna - typically involves maintaining fauna corridors and biodiversity
	Potential impact on plant and animal communities and particularly on rehabilitation success	Actual impacts at present speculative and any planning for potential impacts needs to be adaptive to take account of projected changes	**Medium**	As above	

Social Impact issues

Galilee Corridor Infrastructure Project Constraints Workshop					
	Key identified issues	**Issue descriptor**	**Issue risk category**	**Proposed mitigation strategy**	**Comments and notes**
	Social Impacts				
Project factors - general	EIS Consultation	- Requires early management and consultation - Information will be required regarding landholders, nearby towns, and any other special stakeholders - Landowners may already be tired/annoyed by consultation associated with other projects and have a preconceived attitude or alternatively be more receptive due to likely lower impact of EWLP - availability of and access to public venues for landholder meeetings may be very restricted	**Medium**	- Carefully plan comunication strategy to give maximum opportunity for full range of means of communication about the project - Isolated and low density landholder locations to be catered for - comprehensive stakeholder ID process - undertake several rounds of consultation and maintain open means of contact, particularly for out of hours to account for property managment availability - ensure a 'no surprises' approach to information dissemination	
	Communication	- Risk of over-consultation due to number of other concurrent projects - Landholders may be confused by multiple projects and not easily differentiate advantages of EWLP	**High**	- Clarity of communication vital - clarify consultation process and procedures to all stakeholders - advise of timeframes for consultation and range of opportunities at various stages of project	
	Landowners	- Consultation and landholder dealings will need to be managed - Landholders often widely separated and public venues/opportunities may be few leading to difficulties with coverage - Potential opposition to easement acquisition or purchase of land for corridor and rejection of access for investigation	**Medium**	- Manage one-on-one interaction to deal with reduced availability of group meeting opportunities - adopt strongly respectful and open consultative approach to all negotiations	
	Worker behaviour/community interaction	- Concerns about public safety, mixing with locals, drug and alcohol usage. - Potential for adverse reaction of fly in fly out non-residents with locals	**Medium**	- Lack of existing towns for accommodation along majority of route minimises this risk. Mackay and other large coastal towns less of a risk but accommodation opportunities scarce - establish a code of contact for workforce - consider wet vs dry camp and provision of leisure activities in camps	
	Traffic and Transport	- FIFO/DIDO issues re access and impacts on towns and transport demands affecting local usage - Lack of good local road network and impacts on local usage, particularly during times of cattle movement - Increased traffic and damage to road network - Interaction with safety risks such as school bus travel times and heavy vehicle movement	**High**	- Plan appropriate mitigation measures to manage risk - Regularly enforce protocols with workforce to manage possible community impacts - Provide bussing and other measures to avoid traffic impacts and schedule heavy haulage so as not to affect cattle movements at peak times	
	Cost of living and Community Services	- Isolation and scattered communities may reduce impacts on services as much of activity may be self-contained to camps and not affect local demand - may affect house/rental costs in larger coastal cities for non-resident workforce	**Medium**	- Coastal towns already under these pressures from other existing and planned projects - Opportunities for proponent to introduce measures to meet own demands as well as offset local impacts by providing access to services, transport of goods etc as a tradeoff	
	Social factors	- Impacts on social resources (i.e. education, medical, commercial, accommodation, recreation ...) - Impacts on community ethos and culture	**Low**	- Reduce impacts on local communities by provision of dedicated services to workforce - Offer local communities and individuals to have shared access to Proponent provided services	
	Indigenous	- Multiple TO groups to deal with - Multiple NT claims to be managed - Consultation process delays	**Medium**	- Allow adequate time to negotiate with all groups - Establish ILUAs with all groups and CHMPs should be in place prior to starting field investigations and detailed planning - Agree communication strategies for all phases - Involve all TO groups in construction phase as well as investigation phase for CH clearance - Offer employment and apprentice opportunities to TO groups to gain commitment to project	
	Reputation	Reputation of project suffers through poor public image for a range of reasons	**High**	- Be proactive with general community, all stakeholders and landowners as well as workforce to promote a positive image of the project - promote project benefits and plan with community for project legacies	
	Cumulative impacts	Risk of broader community along complete route having multiple impacts from several projects affecting larger areas of properties	**High**	- Promote value of single corridor to eliminate/minimise cumulative impacts - undertake benchmark studies to identify possible trends and manage avoidance of increased impacts - promote benefits of covered haulage to reduce cumulative ipmacts of coal dust on human health	

Social Impact issues

Galilee Corridor Infrastructure Project Constraints Workshop					
	Key identified issues	**Issue descriptor**	**Issue risk category**	**Proposed mitigation strategy**	**Comments and notes**
Construction phase	Communication	- Mis-communication leads to adverse community reaction to project	**Medium**	- Ensure all communications are vetted for accuracy and content before releasing - Manage information release through key personnel only - Provide regular community update through a number of media and set up opportunities for local groups to visit site when appropriate to understand the nature and progress of the project	
	Air quality and dust	- Adverse impact on landholders and road users	**Low**	- Identify locations along the corridor where residences, towns or roads occur and implement construction management to minimise stirring up dust (including tracking dirt onto sealed roads) - Liaise with stakeholders in the area about construction timings - establish monitoring program	
	Noise/vibration	- Construction noise causes annoyance to landholders and towns - Blasting rock impacts on landholders and cattle	**Low**	- Landholders and towns are very low density along most of the corridor - Liaise with stakeholders in the vicinity of construction works (particularly regarding blasting) - establish mon itoring program - undertake pre-condition reports where necessary	
	Traffic, transport and access	- Landholder nuisance due to need for private property access, use of gates etc. - Damage to landholder property due to heavy vehicle access	**Medium**	- Understand needs of individual stakeholders in the vicinity of construction works in terms of access through their property - Manage private property access to turning radii, implement erosion and sediment control where needed and agree on any repair needs with landholder - undertake condition reports prior to construction starting and at end of construction period	
	Project Legacies	Risk of project 'taking' and not 'giving' anything in return from a community that is traditionally pastoral and about to be the centre of a mining province	**Medium**	Ensure that Proponent implements a range of community projects to provide community with social and service needs that are currently not being met in the region	
	Non-resident workforce	- size and location of camps - rostering procedures and rate of movements - transport arrangements and impacts on local road traffic - impacts on public transport services	**Medium**	- plan appropriate management to avoid identifiable impacts - provide recreational opportunities for FIDO/DIDO workforce	
Operation phase	Air quality	- Air emission impacts at loading/unloading facilities on landholders and customer staff - Air emission nuisance in transit	**Low**	- Implementation of engineered controls to minimise dust and procedures to minimise worker exposure to dust at loading/unloading facilities - Transit air emisions will be minimised through covered wagons and modern specification locomotives	
	Noise/Vibration	- Noise/vibration impacts at loading/unloading facilities to landholders and customer staff - Noise nuisance in transit	**Low**	- Implementation of engineered controls to minimise noise and procedures to minimise worker exposure to noise at loading/unloading facilities - Noise levels from moving trains is relatively minor and the corridor traverses remote areas	
	Landowners	- Maintenance works could impact on landholders access and operations	**Low**	- Utilise road access within rail corridor - Liaise with landholders in the vicinity of maintenance works and access points to notify of the works and identify possible needs - establish land access protocols and compensation as necessary	
	Traffic	Long-term impacts on local roads and property management due to frequent train traffic both across properties as well as on lesser Council roads crossed at grade	**Medium**	- Plan to minimise issues through design and operational timing of movements - Base maintenance/repairs on pre-condition reports	
	Project legacies	Risk that legacies are handed over to the LGAs/local communities without funds to sustain them in the long-term	**Medium**	- Ensure that legacies have sustainable measures incorporated so that they do not become a drain on LGA or community funding ability - legacies may include bores and campsite facilities established as part of construction program as well as purpose built/provided facilities/services	