INLAND RAIL

Landscape and Rehabilitation Strategy

ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

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Revision History

REVISION	REVISION DATE	DESCRIPTION
A	28/11/2018	Draft for review
B	26/02/2019	Updated draft including template and changed policy documents
C	04/04/2019	Updated draft following additional review by wider team
0	20/05/2019	Issued as Approved
0.1	24/04/2020	Issued for Review. Updated stage gate terminology.
1	18/05/2020	Updated to include PleaseReview comments. Issued for use.

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Glossary

Specific terms and acronyms used throughout this strategy are listed and described in the table below.

TERM / ACRONYM / ABBREVIATION	DEFINITION
Australian Rail Track Corporation (ARTC)	Australian Government-owned corporation tasked with developing a 10-Year Program to implement Inland Rail.
CPTED	Crime Prevention Through Environmental Design
Conditions of Approval	The Conditions of Approval will include the QLD Coordinator-Generals and NSW Minister for Planning conditions and recommendations, conditions stipulated in the Victorian Planning Scheme Amendment, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) Conditions of Approval and the Commitments contained in relevant EIS (NSW and QLD) and EES (VIC) for each Project.
Construction Environment Management Plan (CEMP)	Plans and subplans prepared by the relevant contractor for each Project to implement the environmental management measures during the construction stage and establish the compliance reporting processes to demonstrate compliance with the Project commitments and Conditions of Approval.
Infrastructure Sustainability Council of Australia (ISCA)	ISCA is an independent third party that administers the IS rating tool which is an industry-compiled voluntary sustainability performance rating scheme.
Inland Rail (IR) Program	The Inland Rail Program encompasses the design and construction of a new inland rail connection between Melbourne and Brisbane, via Wagga, Parkes, Moree, and Toowoomba. The route for Inland Rail is about 1 700 km in length. Inland Rail will involve a combination of upgrades of existing rail track and the provision of new track.
Subject Matter Expert (SME)	SME is a specialist in a specific discipline. They provide specialist advice / assistance to Inland Rail when requested.
Technical Advisor (TA)	TA provides assurance to Inland Rail, especially through the Design and Primary Approval review process. The TA acts on behalf of Inland Rail as an embedded representative within the Inland Rail Project team.

1. Introduction

1.1 Inland Rail Program

The Melbourne to Brisbane Inland Rail (IR) Program comprises an alignment of approximately 1 700 kilometres of rail linking Melbourne and Brisbane, via Parkes, Moree and Toowoomba. IR will connect regional Australia to domestic and international markets, transforming the way we move freight around the country.

IR contains sections of varying levels of intervention and complexity in work types including:

- Enhancement works to enable double stacking;
- Missing links to provide standard gauge rail link, predominately in greenfield where there is currently no track and / or rail corridor protection; and
- Upgrade Projects to provide major upgrades to existing track within current rail corridor.

It is anticipated that IR will be constructed and operational by 2025, with sections progressively transitioning to operation during this period.

1.2 Purpose and Scope

This strategy aligns with the vision and commitments outlined within the Inland Rail Environment and Sustainability Policy（0-0000-900-ESS-00-PO-0001) and ARTC Environmental Policy (COR-POP_007)

IR has a legal, social and environmental responsibility to ensure that the design, construction and operation of IR Projects minimise adverse impacts to the environment. This strategy documents IR's approach to meeting these obligations and establishes governing landscape objectives and principles. This strategy also outlines landscape and rehabilitation treatment solutions for the various stages of the IR Program. This includes the rail corridor and ancillary infrastructure, as well as temporary works areas such as construction access, site compounds, workforce camps, borrow pits or other enabling works.

Successful and sustainable landscape and rehabilitation design relies on cross-discipline integration to create a positive lasting legacy. Requirements must respond to the scale and extent of the IR Project and local landscape context, in a reasonable and feasible manner, cognisant of constructability, costs and ongoing management for the life of the landscape infrastructure asset.

This strategy provides guidance to deliver a consistent approach to the integration of environmental management measures and design treatments through landscape design and establishment across all delivery stages of individual IR Projects and the Program. Individual IR Projects will be subject to different Project delivery models (such as design and construction, public-private partnership, construction only, etc). This strategy will inform these processes, providing Program-wide guidance, however, it does not override individual Project approvals, which, by law, take precedence over, and may vary the requirements identified in this strategy. Therefore, the user must refer to the relevant Project documentation, current for that Project's stage of delivery.

Appendix A describes a series of typical landscape scenarios that demonstrate how the range of components, including the rail engineering, road realignments, structures, and temporary works areas can be integrated through the landscape design, where required to achieve desired or conditioned outcomes. Enhancement or upgrade works as well as greenfield (new railways) are to be developed in context to their surroundings and in reference to the typical landscape scenarios.

1.3 Responsibilities / Accountabilities

The IR Program Environment Manager is the owner of the Landscape and Rehabilitation Strategy.

In addition, the following table outlines the roles and responsibilities related to landscape and rehabilitation and these include:

Table 1 – Roles and Responsibilities

ROLE	RESPONSIBILITIES
Project Director / Project Manager	▸ Overall responsibility to ensure implementation of this strategy for all works within the scope of this document. ▸ Ensure suitably experienced and qualified person/s are engaged in integrated assessment and design processes, with input from disciplines as required (e.g. landscape architects, ecologists, heritage, sustainability, and noise specialists). ▸ Ensure review of landscape assessment and designs prepared is conducted by a suitably qualified professional, and other personnel as required. ▸ Ensure ISCA requirements are addressed in the design and implementation of landscape treatments. ▸ Ensure appropriate landscape treatments are costed appropriately in design and tender documentation.
Project Environmental Lead	▸ Ensure the proposed mitigation measures are appropriate to the impacts identified in the preparation of the Primary Approval Documents. ▸ Ensure environmental management measures, commitments and approval conditions are appropriately addressed in the design and construction of landscape treatments.
Environmental Team	▸ Communicate the requirements contained within this strategy, and ensure they are captured in Project contractual information. ▸ Provide advice on the requirements contained within this strategy. ▸ Ensure that periodic reviews of measures contained within this strategy and updates occur as required.
Design Managers	▸ Support landscape design collaboration across multiple design disciplines, such as engineering, sustainability, noise, ecology, heritage, etc. ▸ Support the development of landscape treatments and lead design innovation. ▸ Ensure landscape design treatments/solutions are sustainable, practical and feasible.
Delivery / Construction Managers	▸ Ensure environmental management measures, commitments and Conditions of Approval are appropriately addressed in the construction of landscape treatments. ▸ Ensure the appropriate programming and coordination of landscape works to ensure the landscape design is undertaken during Project Implementation and Close out (i.e. Stages five and six).
Service Provider	▸ Undertake field investigation to inform Primary Approval or design must respond to the requirements of the relevant basis of assessment (SEARs, TOR or other guidelines) and the requirements of the IR Environmental Assessment Procedure. ▸ Deliver detailed design to ensure that the objectives and principles of this strategy are incorporated into the development of environmental design documentation; ▸ Provide the delivery of construction and/or maintenance during operations to ensure that the objectives and principles of this strategy are incorporated into the environmental management system and documentation and is compliant with relevant legislation and individual Project conditions of permits and approvals.
Technical Advisor (TA), including Landscape Subject Matter Expert	▸ Review Service Provider deliverables and provide technical advice to Project teams.
Operations team	▸ Ensure works are undertaken in accordance with the Inland Rail *Project Hand Over Guideline Function: Inland Rail Construction (0-0000-900-PMA-00-GU-1000)* and relevant Construction Service Providers Handover Management Plan. ▸ Ensure the objectives and principles of this strategy are incorporated into the ongoing operation and maintenance requirements and that documentation is compliant with relevant legislation and individual Project conditions of permits and approvals.

1.4 Relationships with other documents

This strategy is supported by the IR Landscape and Rehabilitation Framework, which further defines landscape technical requirements with regards to landscape treatments, delivery scenarios, performance criteria and ongoing management and maintenance requirements.

Table 2 lists other key supporting documents and references relevant to this strategy. Additional detailed standards, specifications and guidelines to support this strategy are detailed within the IR Landscape and Rehabilitation Framework.

Table 2 – Supporting Documents

DOCUMENT NUMBER / TITLE	DOC. TYPE	DESCIRPTION
ARTC Environment Policy (COR-PO-007)	Policy	Provides a framework for continual improvement of ARTC's Environmental Management System and sets out commitments for managing potential environmental risks.
Environment and Sustainability Policy (0-0000-900-ESS-00-PO-0001)	Policy	Policy statement outlines ARTC's commitment to sustainable delivery of the IR Program.
Inland Rail Programme Environmental Management Plan (0-0000-900-EEC-00-PL-0001)	Management Plan	Provides a framework for environmental management across all IR Projects.
Environmental Assessment Procedure (2-9000-PEN-00-PR-1001)	Procedure	Outlines ARTC's requirements for preparation of Primary Approval Document for Projects in the Inland Rail Program.
Inland Rail Landscape and Rehabilitation Framework (0-0000-900-ELE-00-GU-0001)	Framework	Supersedes *the Inland Rail – Landform Construction Specification (0-9000-0000-PEN-SP-0001).* Outlines the final landform requirements, relating to reinstatement and stabilisation, and minimum requirements on how to achieve these. The document also provides details on typical landscape treatments.
Infrastructure Sustainability Technical Manual Version 1.2 (Infrastructure Sustainability Council of Australia, 2016)	Technical Manual	Outlines what is required to achieve ISCA credits. The relevant credits to be considered are Urb-1 Urban design and Urb-2 Implementation.

2. Objectives and Principles

The following objectives and principles support design development, statutory approval processes and ISCA requirements in relation to landscape and rehabilitation across the IR Program.

Objective: Conserve and connect

Principles:

The design and construction of IR Projects must:

- respond to the natural landscape, topography and landform, incorporating slope and stabilisation measures that are appropriate to the surrounding landscape and land use context, whilst complying with IR engineering design standards, legislative requirements and individual Project Conditions of Approval.

- maintain or enhance ecological connections and protect natural assets, including cultural heritage sites (both Indigenous and non-Indigenous) and areas of environmental conservation.
- protect and enhance the character, form and function of the public areas and heritage buildings within and adjacent to individual Projects with regards to the existing landscape.
- realise opportunities for beneficial reuse of materials including the use of local materials to minimise resource consumption, reduce waste generation, enhance landscape setting, habitat values and recreate locally distinctive landscape features.
- minimise environmental footprint and impacts on land, water and ecosystems, with consideration of sensitive receiving environments and receptors.
- connect footpaths and cycle routes, where contextual to surrounding land uses and planning intent.
- deliver a safe design and environment through implementing a CPTED approach, minimising vandalism or anti-social behaviour opportunities.

Objective: Self-sustaining solutions

Principles:

The design and construction of IR Projects must:

- incorporate efficient and durable materials for both the hard and soft landscape.
- respond to identified climate change risks through appropriate integration of climate change resilience measures in design.
- result in a minimal maintenance landscape, including requirements for weed and pest control.
- address both permanent (rail corridor), and temporary works (construction areas, borrow pits etc).
- be designed and constructed in accordance with the requirements of the ISCA Infrastructure Sustainability rating scheme standards, in accordance with the Program ISCA approach.

Objective: Integrated outcomes

Principles:

Successful design and construction of IR Projects will:

- be the result of collaboration across multiple design disciplines, such as noise, ecology, heritage, sustainability, engineering, etc, to deliver a sensitive, informed and integrated design outcome.
- respond to operational and maintenance requirements, whilst adopting a holistic design ethos.
- appropriately utilise spatial data, budget accounting and asset management tools to manage design, construction, monitoring and handover of constructed landscapes or rehabilitated areas.

Objective: Beyond delivery

Principles:

The design and construction of IR Projects will deliver a positive lasting legacy, empowering design and construction teams to:

- appropriately respond to the scale and extent of IR infrastructure and its interface with the local landscape context.
- demonstrate continuous improvement as the delivery Program progresses.

3. Strategy Implementation

The following key processes have been defined for each stage of IR Project delivery, to be adopted as appropriate to the scope and scale of each individual Project. These processes have been defined with consideration of the Program level requirements outlined in the IR Environmental Assessment Procedure, IR Programme Environmental Management Plan.

3.1 Stage One – Concept Design - Complete

The objective of stage one includes outlining a broad definition of each Project's landscape context (i.e. existing baseline conditions). This is achieved through the completion of desktop stage one studies and investigations, supported by discrete site visits, which inform scoping and delivery of stage two activities.

3.2 Stage Two – Reference Design

The objective of stage two includes the identification of constraints and opportunities for landscape, responding to statutory basis of assessments (SEARs, TOR, etc.) and documented in Primary Approval documents. Stage two requirements are defined in the Environmental Assessment Procedure and stage two Technical and approvals Consultancy Services briefs and contracts. This includes consideration of ISCA requirements, and Project specific mitigation measures.

3.3 Stage Three – Market Readiness

The objective of stage three is to develop integrated landscape design solutions, to evaluate appropriate treatment options and refine the design. The Landscape and Rehabilitation Framework establishes ARTC requirements for both detailed design and implementation during construction. The following actions support this objective:

- Develop landscaping and rehabilitation requirements in response to commitments in the Primary Approval Document, Feasibility Design documentation and Conditions of Approval (where imposed).
- Consult with IR, applicable ARTC operational business units, and relevant stakeholders, to ensure proposed outcomes are feasible, practical and achievable and satisfy relevant engineering design standards, legislative requirements and Conditions of Approval (where imposed).
- Develop integrated design solutions collaboratively across the Project team, involving all relevant disciplines e.g. engineering, architecture, sustainability, rail, ecology, drainage, noise, recreation, agriculture and heritage, etc.
- Management measures must be cost-effective, with solutions appropriate to the scale of the Project and value of the landscape context. Landscape treatments types shall be developed with consideration of the scale, maintenance and cost of implementing across the length of the IR Program.
- Landscape treatments shall be classified by type and documented in accordance with the ARTC data management specifications, to enable ongoing data management for the life of the Project i.e. beyond design.

3.4 Stage Four – Delivery Readiness

Stage four includes obtaining secondary Project approvals and ensuring consistency with the Primary Approval document. This may require further consultation with relevant State and Commonwealth agencies, Local Governments and other stakeholders / entities. Project specific landscape and rehabilitation documentation may be required to support these processes.

3.5 Stage Five – Construction and Commissioning

The objective of stage five is to construct and commission the Project or Project elements in accordance with the landscape design, Conditions of Approval and progressively close out construction activities in accordance

with Conditions of Approval and contractual performance / handover criteria. Tasks relevant to landscape and rehabilitation are detailed below and supported by the IR Landscape and Rehabilitation Framework:

- Detailed landscape and rehabilitation treatment strategies to be incorporated into the construction documentation. These strategies shall be supported in the documentation by criteria for successful establishment / implementation and handover of the corridor to the operator.
- Provide evidence of meeting each of the below elements:
  - Clearing and vegetation management.
  - Practical soil treatment and management.
  - Proactive pest and weed management.
  - Contamination, resource recovery and waste management.
  - Reinstatement of watercourses.
- Condition or dilapidation surveys of structures, such as heritage listed buildings/structures, to enable return to pre-works conditions, where applicable.
- Where temporary construction facilities and / or borrow pits are required, land shall be returned to stable condition that meets conditions of any landowner agreements and regulatory approvals.
- Constructed landscape treatments shall be classified by type and documented in accordance with the ARTC data management specifications, to enable ongoing data management for the life of the Project i.e. beyond design.

3.6 Stage Six – Close out and Operations.

The objective of stage six is to confirm the site complies with the Conditions of Approval, handover criteria and applicable licences. This includes undertaking the following tasks:

- Prior to handover to operations and in accordance with contract requirements, there shall be a monitoring activity, of scope and duration approved by IR, to ensure that an approved minimum standard of establishment is achieved. The monitoring activity shall verify that pre-determined success criteria as per the landscape scenarios (Appendix A), which are further detailed within the Landscape and Rehabilitation Framework, have been met. Ongoing monitoring to ensure that the established landscape strategies being achieved and implemented continue to be successful. Additional maintenance or intervention works may be required if monitoring demonstrates that landscape and rehabilitation criteria is not being achieved.
- For any IR Project, following practical completion of required construction works and agreed defect liability period, individual Project areas shall be handed over, in accordance with any applicable agreements and / or procedures, to the relevant operations team (nominated by IR) for ongoing operational management and maintenance. The operations team to be responsible for managing the reinstated areas to ensure the long-term landscape objectives are achieved.
- IR and its contractors shall ensure long term management and monitoring commitments are reasonable and appropriate for an operational railway corridor, in liaison with a suitably qualified Landscape professional, and can be adequately budgeted and captured in asset management systems and agreed upon with the operating business units.
- The ongoing maintenance of these sites shall include management of weeds, pests and vegetation (e.g. for bushfire and safe access), as well as ensuring an ongoing safe and stable non-polluting landform. These works shall be managed in accordance with operational environmental management documentation.

4. Review and Continual Improvement

Evaluating that the outcomes of the Landscape and Rehabilitation Strategy have been met will include several measures, such as:

- Monitoring.

- Inspections.
- Auditing.
- Reporting.

This strategy shall be reviewed annually and updated based on performance outcomes and changes across the Program as it evolves.

The review process shall also identify opportunities to improve management measures, incorporate learnings and innovation to ensure continual improvement.

Appendix A Typical Landscape Scenarios

This section describes a series of typical landscape scenarios that demonstrate how the range of components, including the rail engineering, road realignments, structures, and temporary works areas can be integrated through the landscape design, where required, to achieve desired or conditioned outcomes.

These scenarios complement information presented above and will be further detailed within the Landscape and Rehabilitation Framework.

1 Rural landscapes

The landscape design shall respect and enhance the rural landscapes. This includes identified nationally, regionally and locally significant landscape areas. Landscape treatment shall differ in rural landscape areas that have established rail corridors located within them, as opposed to undisturbed greenfield sites with no rail corridor.

- Design of the landscape earthworks and planting shall effectively screen and integrate the railway and associated structures and features, where practicable.
- The landscape design to seek to enhance the features and qualities that give the landscape its particular characteristic, ensuring the design responds to the natural patterns of the rural landscape.
- Operational maintenance requirements will be an important consideration in retaining and enhancing local landscape character. The design of landscape treatments shall ensure that operational maintenance is cost effective and easily managed.
- Consultation with local stakeholders shall be undertaken during design and construction in order to understand the landscape context and the particular qualities of protected landscapes.

2 Ecologically sensitive areas

The design of IR shall seek to provide opportunities for ecological gain to benefit biodiversity. This is most relevant to greenfield (new railway) Projects, however, where possible, opportunities should be investigated for upgrade and enhancement work Project.

Diverse planting and seed mixes shall be developed in areas of the Project to maximise and connect habitat types for ecological gain. Ecological links across the landscape, in particular near watercourses, shall be improved by joining or re-joining fragmented areas of habitat to encourage the movement of wildlife. This may be aided by fauna furniture and fauna fencing to encourage fauna movement through these fauna crossings (such as underpasses) and reduce fauna interacting with the active rail corridor.

Landscape design and planting shall incorporate ecological requirements to benefit the characteristic and visual amenity of local landscapes. Revegetation of locally indigenous species shall match the adjacent/nearby landscape.

3 Townships

Good design creates landscape settings that enhance or complement the local context. The design approach for townships that interface with IR shall include microclimatic design, green infrastructure, multifunctional design, permeable surfacing and sustainable water systems to build in climate change resilience and deliver social, environmental and economic benefits to local communities.

- The designers to assess all components in an urban context including the appearance and careful integration and alignment of new buildings, structures, fencing and noise barriers.
- To undertake local community collaboration in the land management and restoration of footpath and cycle route connections. Maintaining and, where possible, improving connectivity to provide access to open spaces including recreational areas.

- Provide enhanced planting and habitat creation to benefit the local community and support health and well-being.

4 Temporary treatments

Temporary treatments (such as hoardings and screens) to site compounds and rehabilitation of borrow pits assist in reducing visual impacts, erosion and sediment run-off, may provide acoustic and ecological benefits, may be informative to passing visitors and also provide a foundation for more permanent design treatments during operation. Designers shall consider local stakeholder involvement in their formation and management. The below treatments to be investigated in liaison with relevant stakeholders, as appropriate to the location conditions and amenity values, in response to temporary impacts associated with construction:

- Site compounds – opportunities to utilise features on temporary fencing / hoarding. This may include art-based treatments to assist with screening the works from the public; using information boards (or similar) to educate the public about the construction works; or providing visual platforms / viewing window. These opportunities are likely to be more relevant to urban environments.
- Borrow pits – opportunities to enhance areas where spoil has been removed, in agreement with landowner. This may include rehabilitation and revegetation around borrow pits to be in keeping with the existing vegetation that is indigenous to the area. Land shall be returned to a stable condition that meets conditions of any landowner agreements and regulatory approvals

If any of these treatments contradict or do not align with any statutory, licence or compliance requirements, the statutory, licence and compliance requirements take precedence.