

**TERMS OF REFERENCE FOR PREPARATION OF AN
ENVIRONMENTAL IMPACT STATEMENT**

PROPOSAL NAME **Daly River Road Pyrolysis
Plant Project**

LOCATION: **Coomalie**

PROPONENTS: **Mr Anthony Gurr and Ms Bao Huang**

ISSUED: **27 March 2020**

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PART 1. INTRODUCTION

1.1 Overview

The Daly River Road Pyrolysis Plant Project (the Proposal) is being assessed by the Northern Territory Environment Protection Authority (NT EPA) under the *Environmental Assessment Act 1982* (EA Act) at the level of an Environmental Impact Statement (EIS).

The assessment process in accordance with the EA Act will be modified following commencement of the *Environment Protection Act 2019* (EP Act). Section 296 of the EP Act will modify the timeframes and some public exhibition requirements in the assessment process that are specified in the Environmental Assessment Administrative Procedures 1984 (EAAP). Section 301 of the EP Act states that, following completion of the assessment under the EA Act, an environmental approval or refusal will be required for the Proposal under the EP Act.

These Terms of Reference (TOR) set out the matters relating to the environment that are to be addressed in the Draft EIS for this Proposal, in accordance with clause 8(3) of the EAAP. The matters relating to the environmental approval under the EP Act, that need to be addressed in the Draft EIS, are outlined in section 3.1 of this document.

The Draft EIS must also address all requirements in the NT EPA General Guidance for Proponents Preparing an EIS (2019a) and any relevant guidance published in relation to the commencement of the EP Act.

1.2 Background

Mr Anthony Gurr and Ms Bao Huang (the Proponents) referred a Notice of Intent for the Proposal to the NT EPA on 13 April 2017 for consideration under the *Environmental Assessment Act 1982*. The Proposal encompasses the construction and operation of prefabricated pyrolysis plants and supporting infrastructure that will process used tyres and plastic medical waste into crude oil, liquid propane gas, steel and carbon char. The proposed location of the facility is in the Silkwood Estate, approximately 30 kilometres south of Adelaide River.

The key components of the Proposal are:

- Pre-treatment – mulching/pre-conditioning tyres and plastic medical waste in preparation for processing
- Feed in system – loading waste into the pyrolysis reactor
- Heating waste in the reactor – until the waste reaches compostable temperatures
- End products – crude oil, liquid propane gas, steel and carbon char produced.

Approximately eight hectares of vegetation will be cleared to house two pyrolysis plants, ancillary infrastructure, input materials and resultant products.

The NT EPA decided on 12 September 2017 that the Proposal requires assessment at the level of an EIS. Further details on the Proposal and the reasons contributing to the NT EPA's decision are outlined in the Statement of Reasons (NT EPA, 2017) available at: <https://ntepa.nt.gov.au/environmental-assessments/register/daly-river-road-pyrolysis-plant-project>.

1.3 Structure of these Terms of Reference

- Part 1 – Introduction: an overview of the Proposal and decisions relating to its environmental impact assessment.
- Part 2 – Matters to be addressed in the Draft EIS: a description of the information requirements specific to this Proposal. The Proponents are required to address all these matters, relating to the Proposal and the surrounding environment, in its Draft EIS. This part must be read in conjunction with the NT EPA General Guidance for Proponents Preparing an EIS, which outlines the general information that is also required in the Draft EIS.
- Part 3 – Other requirements for the Draft EIS: a list of applicable guidelines and policies, and description of the public exhibition requirements.

PART 2. MATTERS TO BE ADDRESSED IN THE DRAFT EIS

2.1 Summary

A summary of the Draft EIS is required to provide a clear and concise overview of the Proposal, its environmental implications, the approvals process and the function of the EIS in the context of the approvals process. The summary should be written as a stand-alone document, able to be provided on request to interested parties who may not wish to read the full EIS. It should address the site selection process, existing environment including location of the nearest sensitive receptors, the proposed activities and closure outcomes, and the intended future use of the site.

2.2 Proposal description

2.2.1 Overview

Provide an overview of the objectives of the Proposal.

2.2.2 Site selection, design and alternatives

The EIS should describe any feasible alternatives to carrying out the Proposal. The choice of the preferred option(s) should be clearly explained and justified.

Discussion of site selection and design of the facility should include, but not be limited to:

- demonstrating that a thorough site selection process for the Proposal has been undertaken and clear justification for the proposed site is provided, including an assessment of:
 - the Proposal's compatibility with surrounding land use such as rural residential lifestyle and land use separation distances (refer to Recommended Land Use Separation Distances (NT EPA, 2017a))
 - potential impacts to existing visual and social amenity
 - site access and potential traffic effects
 - anticipated market demand, location and distance to the end user / customer / markets
 - any future development plans for the area
 - alternative locations that would have better Proposal outcomes.

- demonstrating the design of the facility is consistent with the environmental decision-making hierarchy (avoid, mitigate, offset impacts) including elements built into the design to prevent major incidents and hazards that may result in significant spills, leaks or explosions and subsequent impacts to the environment
- demonstrating the design of the facility is consistent with the waste management hierarchy (avoid, minimise, re-use, recycle, recover, treat or dispose of wastes)
- demonstrating that the facility has been designed to prevent the site becoming a source of pollution (e.g. legacy waste stockpiles) if operations cease for any reason

2.2.3 Construction and operation

Provide a detailed description of all construction and operational aspects of the Proposal as outlined in Table 1.

Table 1: Minimum information required in the Proposal description

Topic	Required information
Site layout maps	<p>The description of the Proposal must include, but not be limited to, detailed maps and graphic illustrations of:</p> <ul style="list-style-type: none"> • the location and dimensions of existing disturbance, infrastructure and roads/tracks • the location and approximate dimensions of areas to be disturbed, infrastructure to be built, including (as relevant): <ul style="list-style-type: none"> ○ all areas to be cleared¹ or disturbed ○ pyrolysis plants ○ tyre mulching yard and equipment ○ holding area for plastic and medical waste ○ receiving and liquid storage/holding tanks ○ chemical storage ○ storage of end products ○ amenities/first aid block ○ office ○ caretakers accommodation ○ water storage facilities ○ stormwater infrastructure ○ wastewater infrastructure ○ power station and any transmission infrastructure ○ generators ○ access roads ○ car/vehicle parking ○ firefighting equipment and firebreaks.

¹ Clearing of native vegetation of more than 1 hectare in aggregate of land requires consent on unzoned land under the *NT Planning Scheme*.

Topic	Required information
	<ul style="list-style-type: none"> • the Proposal layout overlain with environmental values • the boundaries of the Proponent's private property; any overlapping or adjacent permits (mineral, petroleum or other); and any other interests in land including Native Title (claims or determined), Aboriginal freehold land, and pastoral land.
Construction	<p>Describe all elements of the construction phase, including:</p> <ul style="list-style-type: none"> • how the works are to be undertaken (including stages of development and timing) • the disturbance associated with all construction activities, such as vegetation clearing and earthworks • design parameters for structural aspects of the Proposal that have the potential to significantly impact the environment • any proposed water storage ponds, or basins, to be constructed • a construction timetable, hours of construction, proposed construction methods and planned start date • site preparation, including schedules and procedures for land clearing, laydown areas • construction materials required – major types, quantities, qualities, sources, storage requirements and potential hazards • construction waste – resulting from land clearing activities, construction material and packaging waste • storage and laydown areas on site.
Operation	<p>Describe all elements of the Proposal's operation, including:</p> <ul style="list-style-type: none"> • schematic of the operation • how the proposed pyrolysis plant technology meets best practice, and details regarding its track record of reliable operation (at a similar scale) in treating waste as proposed • an inventory of all waste streams • an emissions inventory • materials/waste mass balance, scheduled wastes under the <i>Waste Management and Pollution Control Act 1998</i> (WMPC Act), containment and disposal of contaminated wastewater and solids including ash storage requirements (including volumes and nature) for waste, tyres, chemicals and end products (crude oils / liquefied petroleum gas) • a description of proposed activities in relation to listed waste handling: collection, transport, storage treatment and/or disposal of listed wastes • controls to reduce fire risk e.g. from operational temperatures of plants and combustion of stockpiles • provisions for controlling major incidents, hazards and emergencies, including meeting licensing and regulation such as a Major Hazard Facility Licence for the Proposal if required under the <i>Work Health and Safety (National Uniform Legislation) Act 2011</i> (WHS Act), to reduce the risk of significant spills, leaks or explosion to an acceptable level • ongoing maintenance and servicing of infrastructure

Topic	Required information
	<ul style="list-style-type: none"> • storage and laydown areas on site • a description of the position of any intakes and discharges, volumes, water quality and frequency of all water discharges <p>Provide an estimate of the number of hours each year that the Proposal, or part thereof, could be in abnormal, unplanned shutdown or emergency shutdown conditions. This could be based on an industry average.</p>
Energy	<p>Provide relevant information with respect to energy during construction and operation, including but not limited to:</p> <ul style="list-style-type: none"> • energy requirements and sources • consideration of renewable sources of energy and justification of selected option • a comprehensive assessment and report on the Proposal's predicted greenhouse gases emissions (tCO₂e) by: <ul style="list-style-type: none"> a) direct emissions (scope 1 as defined by the Greenhouse Gas Protocol²); and b) indirect emissions from electricity (scope 2). • measures to maximise energy efficiency and avoid and/or reduce greenhouse gas emissions, particularly relating to source and consumption of energy, and consistent with the NT Government's aspirational target of achieving net zero greenhouse gas emissions by 2050 (NT Government 2019).
Traffic and transport	<p>Describe traffic and transport activities during construction and operation, including but not limited to:</p> <ul style="list-style-type: none"> • the types of waste to be transported to and from the Proposal site, product handling requirements, and an inventory of any scheduled waste types under the WMPC Act • identify which sections of public road would be used by the Proposal and whether any sections of public road may require upgrading (and summary of engagement with NT Government road authority stakeholder) • the type, size, number and frequency of vehicles travelling to and from site during both the construction and operational phases of the Proposal (including to the end user) • volumes of existing vehicles using the proposed transport routes • how low-carbon emission transport options have been considered.
Water Use	<p>Provide information on the Proposal's water use during construction and operation, including:</p> <ul style="list-style-type: none"> • water demand (volume, source and quality) requirements for each aspect of the Proposal (including water towers, condensers and heat exchangers, requirements for fire extinguishment, as well as dust suppression, drinking water, ablutions and any other uses) and any variance in demand such as dry season versus wet season demand

² Greenhouse Gas Protocol available at: <https://ghgprotocol.org/corporate-standard>

Topic	Required information
	<ul style="list-style-type: none"> • water balance including storage of water on site (location, size, capacity, concept design and standards), water efficiency, recycling, stormwater and any wastewater discharge.
Workforce	Provide a summary for each phase of the Proposal, of the: <ul style="list-style-type: none"> • estimated number of people to be employed • skills base required • likely sources (local, regional, overseas) • on-site facilities provided (including any accommodation).

2.2.4 Cessation of operation, decommissioning and rehabilitation

Include a conceptual plan covering planned and unplanned cessation of operation, decommissioning and rehabilitation that includes details as outlined in Table 2. This plan is to be framed by considering the assessment of potential environmental impacts from the Proposal into the long term future in accordance with the key environmental factors listed in section 2.3 below.

Table 2: Minimum information required in the conceptual cessation of operation, decommissioning and rehabilitation plan

Topic	Required information
Closure objectives	Provide information on: <ul style="list-style-type: none"> • proposal-specific closure objectives • intended future/next land-use.
General plans	Provide information on: <ul style="list-style-type: none"> • plans for management, monitoring and reporting in the case of unanticipated cessation of operation or early closure of the Proposal (such as plans for the removal of stockpiles of tyres, medical waste and prevention of significant environmental impacts) • plans for the removal or re-use of plants, machinery, infrastructure and other materials on site • plans for rehabilitation works including soil testing and remediation of soil contamination.
Risks to successful rehabilitation and closure	Provide a discussion on: <ul style="list-style-type: none"> • matters that could influence unanticipated or early closure of the Proposal and how this may affect closure objectives • the contingency and mitigation measures to be implemented to prevent the site becoming an environmental hazard • the potential risks to successful rehabilitation associated with earthquakes, rainfall events, weeds, fire, flood and climate change.

2.3 Key environmental factors

The NT EPA has identified the preliminary key environmental factors that must be addressed in the Draft EIS as they may be significantly impacted by the Proposal (Table 3). These have been selected from the NT EPA’s environmental factors and objectives (NT EPA 2018a).

Table 3: Preliminary key environmental factors that must be addressed in the Draft EIS

Theme	Key environmental factor	Objective
Air	Air quality and greenhouse gases	Maintain air quality and minimise emissions and their impact so that environmental values are protected.
People and communities	Social, economic and cultural surroundings	Protect the rich social, economic, cultural and heritage values of the Northern Territory.
	Human health	Ensure that risk to human health are identified, understood and adequately avoided and/or mitigated.
Land	Terrestrial environmental quality	Maintain the quality of land and soils so that environmental values are protected.
Water	Inland water environmental quality	Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.

For each of the preliminary key environmental factors listed in Table 3, the Draft EIS is to provide an assessment of how the NT EPA’s environmental objective would be met, as outlined in the NT EPA General Guidance for Proponents Preparing an EIS and detailed below.

A Proposal footprint (direct disturbance) and zone of influence (indirect disturbance) are to be established to identify the components of the environment (under each environmental factor) and their specific values that could be impacted by implementation of the Proposal.

The assessment of potential environmental impacts must consider, where relevant; normal operations, abnormal operations, unplanned shutdowns of part or all of the operations, and emergency shutdowns of part or all of the operations.

If additional potential environmental impacts are identified through the environmental impact assessment process, they must also be included in the Draft EIS, even if this requires addressing additional environmental factors not specified in Table 3.

2.3.1 Air quality and greenhouse gases

Provide sufficient information to enable assessment of whether the Proposal is likely to meet the NT EPA’s objective. Specific information requirements are outlined in Table 4. These should be read in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

Table 4: Minimum information required for assessment of air quality and greenhouse gases

Aspect	Specific information required
	Environmental objective: Maintain air quality and minimise emissions and their impact so that environmental values are protected.
Environmental values	<p>Describe the existing ambient air quality of the area, including any seasonal variations</p> <p>Provide information on geophysical form and land-uses, as well as local and regional prevailing meteorology</p> <p>Provide a map identifying the location of sensitive receptors in proximity to the Proposal and the property boundary</p> <p>Review all existing, recently approved and planned developments likely to contribute to cumulative air quality impacts.</p>
Potential impacts and risks	<p>Identify, quantify and/or discuss the potential impacts and risks (negative and positive) for all phases of the Proposal based on appropriate modelling, related to:</p> <ul style="list-style-type: none"> • a description of how the chosen pyrolysis technology meets best practice, its track record of reliable operation (at a similar scale) in treating the same waste types as proposed and describe any inbuilt pollution treatments • an assessment of air emission impacts during construction, start-up / pre-commissioning, operation and upset scenarios, based on air dispersion modelling (e.g. volatile organic compounds, odour). Describe how the expected emissions were predicted and include outputs of air modelling in the form of ground level concentration contour maps • a description of the risks and potential impacts to air quality from fire at the plants and stockpiles. Quantify the potential impact at neighbouring properties • a comparison with relevant environmental standards and target thresholds with reference to regulatory industry standards and safe limits <p>Provide the following:</p> <ul style="list-style-type: none"> • a block flow diagram showing details of feedstock fluid contents and flows, and emissions at all discharge points • identify all sources of air emissions, including mechanically generated, combustion and transport related emissions likely to be associated with the Proposal • estimate emissions of total suspended particulates, PM₁₀, PM₅, SO₂ and NO_x, (tonnes per year), at a minimum, for all identified sources during each key development stage • undertake atmospheric dispersion modelling in accordance with NSW EPA Approved Modelling Methods³. The model should predict at a minimum, incremental ground level concentrations/levels of the PM₁₀ and PM₅ (24-hour and annual averages), NO₂ (1 hour average), SO₂ (1 hour average) at the receptor sites • undertake a cumulative assessment of predicted impacts in accordance with the NSW EPA Approved Modelling Methods

³ NSW EPA Approved Modelling Methods available at: <https://www.epa.nsw.gov.au/your-environment/air/industrial-emissions/modelling-assessing-air-emissions/approved-methods-modelling-assessing-air-pollutants>

Aspect	Specific information required
	<ul style="list-style-type: none"> • investigate the emissions of other potential pollutants such as: hydrochloric acid (HCl), dioxins and furans, polycyclic aromatic hydrocarbons, mercury, zinc, lead, argon and benzene • a consideration of the Proposal in terms of the <i>Best Available Techniques Reference Document for Waste Incineration</i>⁴.
Mitigation and management	<p>Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above. These may be incorporated into management plans and address at a minimum:</p> <ul style="list-style-type: none"> • details on the design of the pyrolysis plants (e.g. pollution/emission treatment such as scrubbers) and point/s of emissions • a description of how the risks and potential impacts to air quality associated with fire at the plant or stockpiles, would be avoided, minimised and managed • an assessment of appropriateness and the expected effectiveness of the proposed measures • strategies for minimising emissions and consideration of offsetting emissions • measures proposed to avoid and/or reduce greenhouse gas emissions • how air quality will be managed, including information on how odours and emissions will be contained • strategies for managing dust • measures to maximise energy efficiency • document all air quality emission control techniques / practices proposed for implementation during the Proposal, including quantification and justification for their use • details on how the feedstock will be managed and how this will affect operations and subsequent emissions • the minimisation of waste generated and its discharge to the environment, in accordance with the waste management hierarchy (avoid, minimise, re-use, recycle, recover, treat or dispose of wastes). <p>Discuss adaptation to a changing climate including design and resultant viability of the Proposal.</p>
Monitoring and reporting	<p>Outline how the Proponents will monitor and report on potential impacts and risks to air quality and greenhouse gases as outlined above, including:</p> <ul style="list-style-type: none"> • a description of the methods that will be used to monitor impacts to air quality, in sufficient detail to enable an assessment as to whether the methods would effectively detect impacts, including: <ul style="list-style-type: none"> ○ nomination of control sites to compare with potential sites of impact ○ definition of clear thresholds that will enable early detection of potential negative impact and trigger remedial action • a description of how the results of monitoring programs will be reported to stakeholders

⁴ Best Available Techniques Reference Document for Waste Incineration available at: <https://eippcb.jrc.ec.europa.eu/reference/waste-incineration-0>

Aspect	Specific information required
	<ul style="list-style-type: none"> • monitoring triggers to ensure emissions stay within relevant environmental standards. Compliance with applicable guidelines is at the property boundary • frequency of reporting, intended audience and method of delivery.

2.3.2 Social, economic and cultural surroundings

Provide sufficient information to enable assessment of whether the Proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined in Table 5. These should be read in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

The description of values and assessment of potential impacts in this factor should take into account the community's views on these matters, as assessed by the Proponent from stakeholder and community engagement undertaken in accordance with section 3.2 below.

Table 5: Minimum information required for assessment of social, economic and cultural surroundings

Aspect	Specific information required
Environmental objective: Protect the rich social, economic, cultural and heritage values of the Northern Territory.	
Environmental values	<p>Describe, using maps where appropriate, the existing social, economic and cultural values of the region, including:</p> <ul style="list-style-type: none"> • population and demographics of the Proposal area and nearby towns, using the most recent statistics • economy in the region such as tourism and recreation, commercial enterprises, pastoral and mineral industries • current usage and suitability of current roads (in particular, Dorat Road and Daly River Road) for servicing the Proposal • the current amenity and land use of the area including properties that have the potential to be significantly impacted visually, or by noise, air quality, light or traffic associated with the Proposal.
Potential impacts and risks	<p>Identify, quantify and/or discuss the potential impacts (negative and positive) for all phases of the Proposal, related to:</p> <ul style="list-style-type: none"> • social and economic benefits and impacts in the region, addressed in an Economic and Social Impact Assessment (ESIA) in accordance with NT EPA (2013e) that provides an independent analysis of the social and economic value and potential impacts of the Proposal on a local/regional, NT and national scale, including, but no limited to: <ul style="list-style-type: none"> ○ details of any stakeholder and public consultation activities undertaken, and their outcomes ○ projected economic costs and benefits of the Proposal, including the basis for their estimation through cost/benefit analysis or similar studies ○ risks of the Proposal not achieving its proposed economic and social benefits

Aspect	Specific information required
	<ul style="list-style-type: none"> ○ opportunities for local and regional businesses, including employment, expected to be generated by the Proposal (including both construction and operational phases) ○ impacts on existing and future transport infrastructure and road users from project transport requirements⁵ ○ any potential negative economic and social impacts on the local community such as impacts on amenity e.g. <ul style="list-style-type: none"> • changes in land use • visual impacts from plant and stockpiles • odour from plant, stockpiles and products from the pyrolysis plant • noise from construction, waste transfer and operation⁶ (include noise modelling if appropriate) • night-time lighting • provide baseline information on historic or cultural heritage values in or near the Proposal area or that could be impacted by Proposal activities including but not limited to: <ul style="list-style-type: none"> ○ provision of an Authority Certificate under the Northern Territory Aboriginal Sacred Sites Act 1984 or an application under the Act (if obtained or confirmation that an application has been lodged) ○ provision of information on the current status of any approvals, permits or clearances in relation to the protection of heritage items or places • identify risks and potential impacts to social values from fire, including combustible materials and bushfires.
Mitigation and management	<p>Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, and (where relevant) for enhancing or restoring environmental quality. These may be incorporated into management plans and address at a minimum:</p> <ul style="list-style-type: none"> • measures to avoid or mitigate significant economic and social risks and impacts • outcome and assessment criteria that will give early warning in the event that management and mitigation measures are not achieving the outcomes and benefits identified and expected by the Proponents • a stakeholder communications strategy including identification of, and ongoing consultation and negotiations with, all relevant stakeholders, ensuring community viewpoints are sought using culturally- and language-appropriate methods • an assessment of appropriateness and the expected effectiveness of the proposed measures • analysis of how the proposed mitigation measures compare to relevant statutory frameworks

⁵ A Traffic Impact Assessment and Traffic Management Plan is required to be developed in accordance with the Austroads Guide to Traffic Management

⁶ In accordance with the Northern Territory Noise Management Framework Guideline available at: <https://ntepa.nt.gov.au/waste-pollution/guidelines/guidelines>

Aspect	Specific information required
	<ul style="list-style-type: none"> • procedures that would be implemented in the event that any items or sites of heritage and/or cultural significance (additional to those identified in the EIS) are identified during implementation of the Proposal • measures to avoid impacts to sacred sites⁷, where relevant • describe the emergency plans and response procedures developed as a contingency in the event of a fire or incident that has the potential to impact neighbouring properties. Responsibilities and liabilities in such an event should be included • noise management measures (from pyrolysis process, generators, mulching/pre-conditioning tyres and plastic medical waste, transport) and timing of operations • any traffic management requirements. <p>Discuss adaptation to a changing climate including design and resultant viability of the Proposal.</p>
Monitoring and reporting	<p>Describe the metrics and methods that will be used to monitor any impacts, with:</p> <ul style="list-style-type: none"> • sufficient detail to enable an assessment as to whether the methods would effectively detect any impacts • clear thresholds that will enable early detection of potential negative impact and trigger remedial action. <p>Provide a description of how the monitoring results will be regularly reported to stakeholders on economic or social benefits or impacts and ongoing consultation with key stakeholders and associated decisions made.</p>

2.3.3 Human health

Provide sufficient information to enable assessment of whether the Proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined in Table 6. These should be read in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

Table 6: Minimum information required for assessment of human health

Aspect	Specific information required
	Environmental objective: Ensure that risk to human health are identified, understood and adequately avoided and/or mitigated.
Environmental values	Identify sensitive human health receptors, including their location, with the potential for exposure to the risks and hazards as a consequence of the Proposal.

⁷ Provide evidence that an Authority Certificate has been obtained or is under application in accordance with the Northern Territory Aboriginal Sacred Sites Act (NTASS Act)

Aspect	Specific information required
Potential impacts and risks	<p>Identify, quantify and/or discuss the potential impacts (negative and positive) for all phases of the Proposal, related to:</p> <ul style="list-style-type: none"> • health risks for the workforce and the general public for the duration of the Proposal • potential for increased risk of mosquito-borne diseases • potential for soil or water contamination to impact human health • potential for air emissions to impact human health, including air quality modelling and if required, pending outcome of the air emissions modelling and demonstrated ability to meet criteria (required under the Air Quality and Greenhouse Gases factor), conduct a human health impact assessment or justify why a human health impact assessment is not required.
Mitigation and management	<p>Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, and (where relevant) for enhancing or restoring environmental quality. These may be incorporated into management plans and address at a minimum:</p> <ul style="list-style-type: none"> • how solid wastes produced from the pyrolysis process, including sodium sulfate and calcium sulfate will be disposed of safely • how waste will be stored in the wet season to avoid breeding mosquitos • mitigation and management procedures to prevent health impacts from air emissions and potential soil and water contamination. <p>Discuss adaptation to a changing climate including design and resultant viability of the Proposal.</p>
Monitoring and reporting	<p>Address at a minimum:</p> <ul style="list-style-type: none"> • how potential impacts and risks to human health will be monitored and reported. • frequency of reporting, intended audience and method of delivery.

2.3.4 Terrestrial environmental quality

Provide sufficient information to enable assessment of whether the Proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined in Table 7. These should be read in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

Table 7: Minimum information required for assessment of terrestrial environmental quality

Aspect	Specific information required
Environmental objective: Maintain the quality of land and soils so that environmental values are protected.	
Environmental values	<p>Describe the physical environment including a description and map/s of:</p> <ul style="list-style-type: none"> • soil types, areas vulnerable to erosion and land units within the Proposal site.
Potential impacts and risks	<p>Identify, quantify and/or discuss all potential impacts and risks (negative and positive) for all phases of the Proposal, related to:</p> <ul style="list-style-type: none"> • the potential impacts and risks to land and soils as a result of the Proposal, demonstrate the significance of potential impacts and risks

Aspect	Specific information required
	<ul style="list-style-type: none"> • spread of weeds⁸ • a list of all hazardous substances to be used/stored on site (and maximum volumes to stored), analyse potential spill scenarios and the potential impacts to land and soils should a spill occur.
Mitigation and management	<p>Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, and (where relevant) for enhancing or restoring environmental quality. These may be incorporated into management plans and address at a minimum:</p> <ul style="list-style-type: none"> • details of both temporary and permanent erosion and sediment control methods and treatments to be implemented during construction and operation of the Proposal • a description of the measures for preventing loss of containment of wastes and hazardous substances and mitigating and managing impacts to land and soils from loss of containment • the minimisation of waste generated and its discharge to the environment, in accordance with the waste management hierarchy (avoid, minimise, re-use, recycle, recover, treat or dispose of wastes). • weed management measures to be employed during construction and operation⁹ • erosion and sediment controls in place during construction and operation. <p>Discuss adaptation to a changing climate including design and resultant viability of the Proposal.</p>
Monitoring and reporting	<p>Outline how the Proponents will monitor and report on potential impacts and risks to terrestrial environmental quality as outlined above, including:</p> <ul style="list-style-type: none"> • a description of the methods that will be used to monitor impacts to land and soils, in sufficient detail to enable an assessment as to whether the methods would effectively detect impacts, including: <ul style="list-style-type: none"> ○ providing sufficient detail to enable an assessment as to whether the methods would effectively detect any impacts ○ nominating any control sites to compare with potential sites of impact ○ defining clear thresholds that will enable early detection of potential negative impact and trigger remedial action • a maintenance schedule for checking the facility and vehicles for leakages or spills of hazardous substances • a description of how the results of monitoring programs will be reported to stakeholders • frequency of reporting, intended audience and method of delivery.

⁸ Guidelines for the prevention of weed spread are outlined in Preventing Weed Spread is Everybody's Business available at: <https://denr.nt.gov.au/rangelands/publications2/weed-management-publications/weed-notes/prevent-weeds-spreading>

⁹ Gamba grass and perennial mission grass, pose a significant risk to the operation, especially stockpiled items pre and post processing. Targeted actions that prevent them from establishing adjacent to stockpiles of pre and post processed items (used tyres) and/or on site generally must be employed.

2.3.5 Inland water environmental quality

Provide sufficient information to enable assessment of whether the Proposal is likely to meet the NT EPA’s objective. Specific information requirements are outlined in Table 8. These should be read in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

Table 8: Minimum information required for assessment of inland water environmental quality

Aspect	Specific information required
Environmental objective: Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.	
Environmental values	<p>Describe the environmental values with respect to inland water environmental quality of the Proposal, including:</p> <ul style="list-style-type: none"> • a description of the values associated with the quality of surface water and groundwater in the vicinity of the Proposal that could be potentially impacted by the Proposal (e.g. drinking water, agricultural and pastoral use of water) • a description and mapping of the existing users of surface waters and/or groundwater resources in the vicinity of the Proposal including environmental and cultural use of water (provide the location of any surface water offtake points and groundwater bores) ¹⁰ • details of the monitoring program and analysis used to characterise baseline water quality, including timing (seasons) and sampling site locations, to demonstrate appropriate and sufficient survey effort.
Potential impacts and risks	<p>Identify, quantify and/or discuss the potential impacts (negative and positive) for all phases of the Proposal, related to:</p> <ul style="list-style-type: none"> • potential contamination from leakages or spills of hazardous substances, combined with wastewater run-off / surface water run-off will be avoided • impacts to downstream users (drinking water supplies, bores) will be avoided • erosion leading to increased flows/turbidity (surface water) will be avoided • the location, estimated volume capacities and expected water quality of any proposed water storage ponds or basins to be constructed. Explain what circumstances, if any, that these storages would be discharged or overtop, and identify the receiving environment for any discharges.
Mitigation and management	<p>Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, and (where relevant) for enhancing or restoring environmental quality. These may be incorporated into management plans and address at a minimum:</p> <ul style="list-style-type: none"> • strategies for avoiding and/or managing possible discharges of contamination, pollutants and toxicants via stormwater into the environment • strategies and controls for avoiding and/or managing the risks associated with the transportation of hazardous materials within the Proposal area • strategies for managing wastewater including stormwater drainage infrastructure

¹⁰ Including the potential Adelaide River Off-stream Water Storage (AROWS), its catchment area and offtake point

Aspect	Specific information required
	<ul style="list-style-type: none"> • the minimisation of waste generated and its discharge to the environment, in accordance with the waste management hierarchy (avoid, minimise, re-use, recycle, recover, treat or dispose of wastes). <p>Discuss adaptation to a changing climate including design and resultant viability of the Proposal.</p>
Monitoring and reporting	<p>Outline a program for monitoring surface water and groundwater quality through the life of the Proposal which includes the following:</p> <ul style="list-style-type: none"> • definition of trigger values or thresholds for all relevant analytes, based on appropriate guidelines and/or standards • the timing of sampling as well as the methods and parameters for the collection of surface and groundwater quality information • contingency measures that would be implemented in the event that the identified water quality triggers are exceeded during operation of the Proposal • identification of potential contamination pathways from storage and usage of hazardous materials • inspection and maintenance schedule of plants • frequency of reporting, intended audience and method of delivery.

PART 3. OTHER REQUIREMENTS FOR THE DRAFT EIS

3.1 Addressing transition requirements relating to the *Environment Protection Act 2019*

The NT EPA's assessment of the Proposal will not be complete prior to the anticipated commencement of the EP Act in May 2020. Transition arrangements allow for the environmental impact assessment to continue under the EA Act with a modified process as defined in section 296 of the EP Act.

Also, following the completion of the assessment, the requirement for an environmental approval would apply in accordance with section 301 and Part 5 of the EP Act. The purpose of the environmental approval is to manage the potentially significant environmental impacts of the Proposal. The decision on whether to grant or refuse an environmental approval is made by the Minister, based on advice from the NT EPA including a draft environmental approval or draft statement of unacceptable impact.

The Minister is required to take certain matters into account when making the decision. To inform the Minister in making a decision on an environmental approval for the Proposal the Draft EIS should demonstrate how the matters at section 73 of the EP Act have been taken into account. Matters that are additional to those outlined elsewhere in these Terms of Reference are:

- principles of ecologically sustainable development and management hierarchies, as outlined in Part 2 of the EP Act
- the objects of the EP Act (section 3), especially object 3(e) to recognise the role that Aboriginal people have as stewards of their country as conferred under their traditions and recognised in law, and the importance of participation by Aboriginal

people and communities in environmental decision-making processes. Other objects of the EP Act (section 3) are addressed within this TOR

- that any proposed environmental offsets that form part of this Proposal and/or the EIS can be provided in accordance with the EP Act
- a signed declaration that the Proponent is a fit and proper person to hold an environmental approval in accordance with section 62 of the EP Act.

3.2 Stakeholder engagement and consultation

The Proponents must engage and consult with stakeholders who are affected by, or are interested in the Proposal. This includes the statutory decision-makers, other relevant state (and Commonwealth) government agencies and local government authorities, the local community and environmental non-government organisations. Further guidance is given in section 2.4 of the NT EPA General Guidance for Proponents Preparing an EIS (NT EPA 2019a) and the NT EPA Guidance for Proponents – Stakeholder Engagement (NT EPA 2019b). The Proponents must document the following in the EIS:

- identified stakeholders
- the stakeholder consultation undertaken and the outcomes, including decision-making
- agencies' or authorities' specific regulatory approvals
- any adjustments to the proposal as a result of consultation
- any future plans for consultation.

3.3 Relevant guidance material / references

As outlined in the NT EPA General Guidance for Proponents Preparing an EIS (section 3.2.1), the Proponents are expected to refer to guidance material considered relevant to the Proposal. A list of such material is provided below, but is not exhaustive. The NT EPA expects the Proponents to refer to the most up-to-date and relevant evidence-based information.

- ANZG, 2018. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia.
- Australian Government, Clean Energy Regulator. National Greenhouse and Energy Reporting. Available at: <http://www.cleanenergyregulator.gov.au/NGER/Pages/default.aspx>
- Australian Government, Department of Agriculture, Water and the Environment. National Pollutant Inventory. Available at: <http://www.npi.gov.au/>
- Austroads, 2019. *Guide to Traffic Management Part 12: Traffic Impacts of Development*.
- Department of Environment and Natural Resources' NT Flora and Fauna Atlases at: <http://www.lrm.nt.gov.au/nrmapsnt>
- DoH, 2018. Health requirements for mining and construction camps. Department of Health, Environmental Health Branch. Available at: <https://www.nt.gov.au/property/building-and-development/health-and-safety/health-requirements-mining-construction-projects>. Last updated 1 March 2018.

- DoH, 2014. *Code of Practice for On-Site Wastewater Management*. Department of Health, Northern Territory Government.
- IECA, 2008. *Best Practice Erosion and Sediment Control Guidelines*. International Erosion Control Association.
- NSW EPA, 2016. *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (as amended) (AMMA). State of NSW and Environment Protection Authority.
- NSW EPA, 2007. *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (as amended) (AMSA). Department of Environment and Conservation NSW.
- NT EPA approvals and licences: <https://ntepa.nt.gov.au/waste-pollution/approvals-licences/activities-requiring-an-approval-or-licence>.
- NT EPA, 2019a. *General Guidance for Proponents Preparing an Environmental Impact Statement*. Northern Territory Environment Protection Authority.
- NT EPA, 2019b. *Guidance for Proponents – Stakeholder Engagement*. Northern Territory Environment Protection Authority.
- NT EPA, 2018a. *Environmental Factors and Objectives*. Northern Territory Environment Protection Authority.
- NT EPA, 2018b. *Guidance on Adaptive Management*. Northern Territory Environment Protection Authority.
- NT EPA, 2018c. *Northern Territory Noise Management Framework Guideline*. Northern Territory Environment Protection Authority.
- NT EPA, 2018d. *Opportunities and Timeframes for Community Engagement in the Environmental Impact Assessment Process: Information for Proponents and the Public*. Northern Territory Environment Protection Authority.
- NT EPA, 2017. *Statement of Reasons: Mr Anthony Gurr and Ms Bao Huang – Daly River Road Pyrolysis Plant Project*. Northern Territory Environment Protection Authority.
- NT EPA, 2017a. *Recommended Land Use Separation Distances Guideline*. Northern Territory Environment Protection Authority.
- NT EPA, 2016. *Guideline for Reporting on Environmental Monitoring*. Northern Territory Environment Protection Authority.
- NT EPA, 2015. *Guidelines for the Preparation of an Environmental Management Plan*. Northern Territory Environment Protection Authority.
- NT EPA, 2014. *Noise Guidelines for Development Sites in the Northern Territory*. Northern Territory Environment Protection Authority.
- NT EPA, 2013a. *Guide for Completing Controlled Waste Consignment Authorisation (CWCA) Form*. Northern Territory Environment Protection Authority.
- NT EPA, 2013b. *Guide for Completing Waste Transport Certificate (WTC)*. Northern Territory Environment Protection Authority.
- NT EPA, 2013c. *Guideline on Conceptual Site Models*. Northern Territory Environment Protection Authority.
- NT EPA, 2013d. *Guideline for Disposal of Waste by Incineration*. Northern Territory Environment Protection Authority.

- NT EPA, 2013e. *Guidelines for the Preparation of an Economic and Social Impact Assessment*. Northern Territory Environment Protection Authority.
- NT EPA, 2013f. *Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the NT*. Northern Territory Environment Protection Authority.
- NT Government, 2019. *Northern Territory climate change Response - towards 2050*. <https://haveyoursay.nt.gov.au/climate-change-response> .

3.4 Public exhibition requirements

The public exhibition requirements are outlined in section 3.6.3 of the NT EPA General Guidance for Proponents Preparing an EIS. Additional specific details are provided below.

3.4.1 Exhibition period

Recognising the TOR are released at an early stage of the assessment of this Proposal, the NT EPA proposes an eight week public exhibition period for the Draft EIS. This will be confirmed or adjusted during the Draft EIS pre-lodgement phase.

3.4.2 Exhibition locations

The Draft EIS should be provided to and be made available for public exhibition at:

- NT Environment Protection Authority, Level 1, Arnhemica House, 16 Parap Road, Parap NT 0820
- Northern Territory Library, Parliament House, Darwin
- Adelaide River Post Office Store, 1 Stuart Highway, Adelaide River
- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin.