EPBC Act referral

Australian Government
Department of Agriculture, Water and the Environment

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Title of proposal	2021/9049 - H2-Hub™ Gladstone - Export-class Green Hydrogen and Ammonia Complex

Section 1

Summary of your proposed action

1.1 Project industry type Manufacturing

1.2 Provide a detailed description of the proposed action, including all proposed activities

The H2-Hub™ Gladstone Project (hereinafter the Project) proposed by The Hydrogen Utility Pty Ltd (H2U) in conjunction with Gladstone Hydrogen Holdings Pty Ltd (GHH) is an industrial-scale complex for the production and export of green hydrogen and green ammonia to be established at Yarwun, in the Gladstone State Development Area (SDA).

The Project will integrate renewable energy from the Qld region of the National Electricity Market (NEM), sourced via a transmission-level Virtual Power Plant scheme, to generate the following products:

- green hydrogen, by means of Water Electrolysis powered by renewable energy;
- green nitrogen, by means of Cryogenic Air Separation powered by renewable energy; and
- green ammonia, by means of Haber-Bosch Synthesis using green hydrogen, and nitrogen.

The Project's proposed activities include the construction and operation of the following infrastructure:

- a Production Precinct (Yarwun),
- an Export Precinct (Fisherman's' Landing), and
- a Product Logistics and Infrastructure Corridor.

Construction of the Production Precinct (Yarwun) will involve clearing approximately 126ha of mostly remnants vegetation to facilitate the production infrastructure. The potential impacts from the land clearing and construction are likely to: the habitat and foraging area of native fauna in the impacted area; the watershed and drainage; dust and sediment generation. These potential impacts will be reduced or mitigated as outlined further in this referral.

The possible environmental effects of the Project operations include:

- accidental ammonia releases,
- wastewater discharges, and
- nitrogen oxides (NOx) emissions from power generation assets.

These effects and the environmental management measures adopted to minimize their impact are described further in this IAS submission (Att 1 pp8 and Sect 6 and Sect 7).

H2U is investigating the off-site construction of major plant components into pre-assembled modules. This would minimise potential construction impacts.

The Production facility will include:

A Utilities complex, including:

o high-voltage (HV) power connection facility, delivering renewable power to the precinct from the National Electricity Market via a new transmission substation for connected to existing HV transmission lines running through the property;

o medium- and low-voltage (MV/LV) distribution facilities, for the delivery of renewable power to the site facilities;

o water connection delivering up to 8 gigalitres per year (Gl/y) including a combination of water purchased from the Gladstone Area Water Board (GAWB), and water reclaimed from stormwater and, raw or treated wastewater from the neighbouring water treatment plant and/or wastewater treatment plant;

o water treatment, including water demineralisation and reverse osmosis (RO) to produce de-ionised water as the feedstock for the electrolyser plant facilities;

o water services, including cooling water, waste- and storm-water treatment and recovery, and firewater;

o other utilities, including communications, controls and safety systems.

A Hydrogen Supply complex, including

o hydrogen generation facilities, for co-production of hydrogen and oxygen through up to 2.96 GWe of Alkaline Water Electrolysers (AWE) equipment powered by renewable energy;

o hydrogen compression trains, for compression of hydrogen from generation to storage pressure; and

o hydrogen storage facilities, for the storage of compressed gaseous hydrogen.

A Nitrogen Supply complex, including:

o nitrogen generation facilities, for co-production of nitrogen, oxygen, and argon, through up to 2x2,600 tonnes per day (tpd) nitrogen cryogenic Air Separation Unit (ASU) equipment powered by renewable energy; and

o bulk storage facilities, for storage of liquified nitrogen, oxygen, and argon.

An Ammonia Production complex, including:

o ammonia synthesis facilities, up to 8x600 tpd of equipment for production of ammonia via Haber-Bosch synthesis; and

o bulk refrigerated ammonia storage facilities.

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A Product Logistic and Marketing Services, including:

- pipelines for delivery of hydrogen and nitrogen within the Production Precinct, from the Hydrogen Supply and Nitrogen Supply complex, respectively, to the Ammonia Production complex; and
- facilities for loading of products on tanker trucks or containerised delivery units for marketing to external customers.

A 30 m buffer zone will be established on the site perimeter and maintained as rehabilitated remnant vegetation. Site access will be off Reid Road an existing industrial road servicing the adjoining Orica ammonia nitrate facility.

The use of the facilities already established at the Fisherman's Landing Export Precinct is unlikely to have significant impacts with the construction of additional storage tanks to be on an existing cleared area within the established port precinct. The proposed action will result in the shipping of ammonia and hydrogen from the port however this will offset existing imports and is unlikely to increase number of vessel movements although the vessel size is likely to increase.

The Export Precinct (Fisherman's Landing), will leverage existing wharf infrastructure and ammonia import terminal facilities at Fisherman's Landing to establish an Ammonia and Liquefied Hydrogen Export Terminal, including the following infrastructure:

- Bulk Ammonia Storage, expanded from the existing 30,000 to a total of 180,000 tonnes with up to 3 additional 50,000 tanks for bulk storage of refrigerated ammonia at atmospheric pressure;
- Ammonia Loading Terminal, re-purposed from existing Unloading Terminal facilities;
- Hydrogen Liquefaction plant, a newly-built complex with up to 2x50 tpd liquefaction plant; and
- Bulk Liquefied Hydrogen Storage, a newly-built complex with up to 2x10,000 m3 spherical tanks, for a combined capacity of up to 1,500 tonnes of liquefied hydrogen.

The product and logistics corridor is unlikely to have a significant impact as the Project will leverage the existing infrastructure and any additional pipeline infrastructure if required will utilise the existing cleared easement.

The Product Logistics and Infrastructure Precinct, will leverage existing infrastructure, and service corridors to link Production and Export Precincts, via the following:

- Ammonia Pipeline, re-purposed from existing Ammonia Import operations, or new-build expansion over existing pipeline easement and service corridors; and
- Hydrogen Pipeline, new-build over existing pipeline easement and service corridors.

The proposed electrolysis plant will introduce significant additional load in the Queensland Region of the National Electricity Market, and underpin further development renewable energy resources in Central and North Queensland, for up to 10 GW of combined solar and wind capacity.

The Project will open up value added export avenues for Australian renewable energies in the form of ammonia as the hydrogen energy carrier underpinning further expansion in renewable energy whilst also providing grid stability and reliability due to the load flexibility of the electrolysers.

1.3 What is the extent and location of your proposed action?

See Appendix B

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)

The Project is located on Reid Road, Yarwun in the Gladstone State Development Area, bounded by Hanson Rd to the North, the North Coast Rail line and Mt Miller Rd along the SW boundary. There is a prominent hill at the northwest corner that is being retained by the Queensland Government as a common user source of clean fill (the 'borrow pit'). The site is located immediately west of the Orica ammonium nitrate and sodium cyanide manufacturing plant, approx 8 km west of Gladstone and 6 km south of Fisherman's Landing Wharf. The Rio Tinto Yarwun's alumina refinery is 2km NW of the site. The Great Barrier World Heritage Area is approximately 2 km NE and 200m south as it extends up the Calliope River. The site is gently sloping to the southeast with some ephemeral drainage and mostly remnant vegetation with some cleared areas and regrowth. A 100 m wide cleared powerline easement transects the site from the SE heading NW, with a branch heading SW approximately 500m into the property.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The site of the Production Precinct is under a Sale of Land Agreement with the Queensland Government being approximately 171 ha subject to survey. The disturbance footprint, developed for the work areas is estimated to be approximately 126 ha. The avoidance footprint including areas to be set aside for environmental buffers and existing infrastructure easements will be approximately 45 ha.

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The Export Precinct (Fisherman's' Landing), to be established on existing cleared and levelled industrial port land at Fisherman's Landing Wharf, the development footprint will be co-located with existing ammonia storage and import facilities and contained within the already cleared and levelled port industrial land; and

The Product Logistics and Infrastructure Corridor, will leverage existing infrastructure, and cleared service corridors.

1.7 Proposed action location

Lot - subject to a new title being drawn over Lot 2 on Plan SP293584, and Lot 11 on Plan SP239343

1.8 Primary jurisdiction	Queensland

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☐ Yes ☑ No

1.10 Is the proposed action subject to local government planning approval?

☐ Yes ☑ No

1.11 Provide an estimated start and estimated end date for the proposed action	Start Date	30/01/2024
	End Date	31/12/2071

1.12 Provide details of the context, planning framework and state and/or local Government requirements

Under the Sale of Land Agreement executed in February 2020 with the Minister of Economic Development Queensland (MEDQ), Gladstone Hydrogen Holdings Pty Ltd (GHH) a related body corporate of H2U, agreed to apply; to the Commonwealth Minister (or the relevant federal government department) for a decision as to whether the Proposed Development is or is not a 'controlled action' (in accordance with the EPBC Act); and to the Queensland Coordinator-General for a decision as to whether the Proposed Development should be declared as a Co-ordinated Project under part 4, Division 2 of the State Development and Public Works Organisations Act 1971 (Qld) (SDWPO Act).

This referral and the Coordinated Project Initial Advice Statement are being lodged simultaneously.

Subject to the Co-ordinator General's decision, the Project will be assessed under the SDWPO Act and in accordance with Terms of Reference for an Environmental Impact Statement to be issued by the Coordinator General.

Should the Project not be declared a co-ordinated project the environmental and development approval will proceed through the relevant state and local government agencies.

Being located in the Medium-High Impact and Port Related Industry Precinct of the Gladstone SDA , the Project is therefore fully aligned with the preferred development intent indicated for this precinct in the Gladstone State Development Area Development Scheme (DSD 2015), as follows:

- Chemical manufacturing;
- Storage of dangerous goods, requiring separation from sensitive receptors; and
- Export of materials, requiring close proximity to port related infrastructure and services.

The areas to be dedicated to industrial operations – including plant and utilities – for the Production Precinct will require a Material Change of Use under the Gladstone State Development Area development scheme.

An application for the MCU approval will be made following the Coordinator General's declaration and approval.

Additional State approvals will be required as a hazardous materials facility for the operations of the process facility including the storage of bulk gases.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

H2U and its related entities place immense value on effective engagement and consultation with local communities, traditional owners, government, landholders, businesses and other stakeholders impacted upon by industrial scale developments for the production of Hydrogen and Hydrogen derivatives. We recognise that such development has an impact and we affirm the right of affected stakeholders to stay informed, have their say and be meaningfully involved in the development assessment process. It is H2U's goal to establish a respectful and cooperative working relationship with individual stakeholders, stakeholder groups and the wider community.

H2U aims to continuously refine and improve our community engagement and stakeholder management. We acknowledge there is a need to navigate through and make sense of an increasing abundance of information (as well as misinformation) relating to the production, transport and use of Hydrogen and Hydrogen derivative chemicals.

The Stakeholder Engagement and Consultation Plan framework has been developed and will be further developed, and informed by stakeholders in the region and the wider community as the project proceeds.

Our success and ongoing commercial development potential are critically determined by the stakeholders with whom we build relationships and, thus, we cannot emphasise enough our willingness for transparency and accountability in achieving the maximum social, environmental and economic gains through the development.

We therefore invite stakeholders to come forward, ask questions, submit requests, be open to negotiation and to suggest approaches that we may not have considered before, in accordance with the core principles of engagement presented in Table 16 in the following page.

To frame the Stakeholder Engagement Plan, initial early stage stakeholder engagements have been undertaken in Gladstone and Brisbane with:

- Regional communities' leadership – Local Members of Parliament,
- Industry leaders - Industry Consultation has been undertaken both on a one-on-one basis and at two invitation only industry forums held in Gladstone on 20 August 2018 and 21 August 2018, and both domestic and export customers, and
- Government - Consultations have occurred with the Department of State Development, Manufacturing, Infrastructure and Planning, the Coordinator-General's office, Gladstone Ports Corporation.

The Project has not encountered any adverse views in its Industry consultations.

No general public consultations have been undertaken to date on the proposed development.

There have been no consultations with the indigenous stakeholders to date but it is planned to engage Port Curtis Coral Coast Native Title Claimants (PCCCNTC) and develop a Cultural Heritage Management Plan (CHMP) for the site. There is a CHMP between the Minister Economic Development Queensland and the PCCCNTCs for the Gladstone State Development Area (GSDA) that covers the site. This provides an excellent basis for a specific CHMP between H2U and the PCCCNTCs covering the site and Project. The potential for aboriginal heritage impact is low however the company values its relationships with the traditional owners of the land on which it operates. H2U has developed excellent relationships with the traditional owners on its other project in South Australia.

There are no known Federally listed heritage places on the site or adjacent sites. The Project will not directly impact any National Heritage List (NHL) or Commonwealth Heritage List (CHL) sites and it is unlikely that there will be sites of sufficient social, historical, rarity, research, or aesthetic value to meet thresholds for inclusion on the NHL or CHL.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

An EIS was previously completed for a proposed nickel refinery on the Project site.

A full Project EIS will be undertaken by a specialist contractor as part of the environmental and development approvals process within the Coordinated Project assessment under the SDWPO Act or though the State Governments Environmental Approvals processes. It will include desktop and field assessments of the Project and adjacent areas to identify any State and Commonwealth listed environmental values, threatened ecological communities and species.

Assessments and field surveys to include vegetation ecosystems, mapping, habitat assessments, targeted fauna and bird surveys, will provide a detailed baseline of the ecosystems occurring on the Project site, the types and condition of fauna habitats and potential for listed species and communities to occur.

The EIS will identify the potential for significant impacts to matters of national environmental significance and remediation or

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mitigation needs.

1.15 Is this action part of a staged development (or a component of a larger project)?

☑ Yes ☐ No

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action

The Project will be established as a staged development with its construction and commissioning schedule designed to meet the needs of the following markets:

- in the near-term, providing import replacement options to domestic customers (Activation Stage); and
- in the medium-term, leveraging existing port facilities to export green hydrogen and green ammonia to North Asian economies, including Japan, South Korea and Singapore (Expansion Stage).

H2-Hub™ Gladstone is planned for a modular, staged-development approach, with up to 8 process trains, each with 600 tonnes per day (tpd) in ammonia production and 370 MW in electrolysis plant capacity,

The competed Project will have a total production capacity of 4,800 (8x600) tpd ammonia, and 2.96 (8x370) MW in electrolyser capacity.

It is anticipated that the first 4 process trains will be established as part of the initial, Activation Stage, and the other 4 process trains to be established as part of the latter, Expansion Stage.

This referral covers both stages of the development Activation Stage and Expansion Stage and will be developed from 2024 to 2030.

1.16 Is the proposed action related to other actions or proposals in the region?

☐ Yes ☑ No

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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☑ Yes ☐ No

Property

Great Barrier Reef World Heritage Area

Impact

The waters of Port Curtis and the Great Barrier Reef are approximately 2 km North East of the Project site and the south eastern portion of the site is approximately 200 m from the Calliope River which is contained within the Great Barrier Reef World Heritage Area (GBRWHA).

The EPBC Act protects the World Heritage values of the GBRWHA from actions which have, will have or are likely to have a significant impact on those values. The protection and management of World Heritage properties should ensure that their values at the time of inscription are sustained and enhanced over time. This is done primarily through the protection of a property's attributes of Outstanding Universal Value. Thus, the World Heritage values of the Great Barrier Reef World. Properties Impact Heritage Area are considered the same as the property's attributes of Outstanding Universal Value (OUV).

The Project and associated activities is not expected to directly impact or have a detrimental impact on the GBRWHA.

Construction and operational activities may have the potential to impact water quality through changes in water quality, excessive sediment and pollutants if not managed and controlled appropriately. This could impact the GBRWHA through impacts on the water quality and runoff reaching the Calliope River and Port Curtis Bay. The introduction of paved areas is likely to increase the stormwater flows from the site. Mitigation and management measures will be designed into the project and Construction Environmental Management Plan to minimise any potential impact on water quality or the marine ecology.

A detailed Ammonia Safety Plan and a Stormwater and Runoff Management Plan will be completed as part of the EIS which will evaluate the potential impacts and mitigation measures for the containment of chemical spills as well as the mitigating any impacts on stormwater, including erosion on the site and surrounds and ensure that mitigation is implemented to minimise and eliminate these impacts.

The primary spillage and safety risk is ammonia leakage of a catastrophic spill. Appropriate ammonia detection and monitoring equipment will be integrated in the design, and the ammonia storage facilities will be double skinned, insulated and bunded. Emergency response plans will provide appropriate measures to prevent, manage and mitigate any potential spillage issues.

The Project will design the infrastructure and watershed to reduce any potential or indirect impacts on the GBRWHA, that could potentially affect the GBRWHA OUVs Watershed from production areas will be contained and managed to reduce sediment and pollutant impacts on water quality. Chemical spills could they occur in the process plant areas which will be contained and prevented from reaching the stormwater system.

Acid Sulphate Soils (ASS) are not expected to be encountered on the Project development. The site will be levelled to above the RL 5.0m AHD and lower-lying sections of the site will primarily be buffer land. If during detailed design, it is identified that construction activities are likely to intersect potential acid sulphate soil environments, a comprehensive acid sulfate soils management program will be implemented. see Att 3 pp16 and Att 7 pp8-10

There is a natural water flow and ephemeral drainage line from the 'Borrow Pit' to the east that ultimately reaches the Calliope River. As part of the Sale of Land Agreement a new Drainage Easement has been agreed to ensure the water flow is unimpeded and protected.

The Project will include a marine related activity in the form of shipping and ship loading.
The project is expected to mitigate the overall risk of catastrophic spill events by limiting the overall number of vessel movements from the Fisherman's Landing precinct to less than the existing baseline of 31 vessel movements per year in 2020/21 reported by Gladstone Port Corporation on their website (see Att 13).

The current operations for ammonia imports into Gladstone include deliveries of up to 250,000 tonnes per annum with vessels ranging from 5,000 to 25,000 dead weight tonnes (DWT).

The production capacity to be established for H2Hub Gladstone is expected to offset current imports.

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Future operations for ammonia exports from Gladstone are expected to adopt vessels with capacities ranging from 54,000 to 80,000 DWT, resulting in less vessel movements per annum.

2.1.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☑ Yes ☐ No

Place

Great Barrier Reef National Heritage Place

Impact

The proposed action is unlikely to have any significant impacts on the Great Barrier Reef National Heritage Place (GBRNHP) including its national heritage values.

The proposed action may indirectly have an effect on the following outstanding universal values, in particular in relation to scenic amenity. The Project is proposed within the existing industrial estate of the GSDA, with a number of existing, large developments including Fisherman's Landing Wharf, Rio Tinto Yarwun alumina refinery, Orica Yarwun chemical complex, Gladstone Power Station and Wiggins Island Coal Terminal all of which have an existing impact on scenic amenity for the surrounding area.

The project will maintain or plant a suitable buffer along the Hanson Road boundary so that from the GBRNHP coastline looking South West to the Project site, most the buildings and infrastructure will not be visible.

The vertical air separation units (ASU) are likely to be visible and will be up to 45m high, however this will be of clean lines and painted to minimise its visual impact and blend into the surrounding landscape.

The ASU will be comparable albeit slightly shorter in height than the 5 industrial towers on the Orica site or the two towers on the Rio Tinto site and significantly shorter than the three 153 m chimneys at the Gladstone Power Station. The surrounding towers will partially obscure the ASUs from various angles. Curtis Island will obscure the facility including the ASU from the majority of the Great Barrier Reef World Heritage area. The site will be partially visible only from the inner harbour of the Gladstone Port area or from sections of the Calliope River.

The new ammonia storage tanks to be constructed at the Fishermans Landing Wharf will potentially be visible from the GBRNHP however the new tanks will be near the existing ammonia storage tank at the wharf and the new and old tanks will partially mask each other from various viewpoints. Hence, the Project will not result in a significant increase to development in the area, or impacts on scenic amenity.

2.2.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☑ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☑ Yes ☐ No

Species or threatened ecological community

Petauroides volans (Greater Glider) - vulnerable

Impact

One mammal was identified on the site of the Project during the field studies undertaken by for the Gladstone Nickel Refinery EIS, noting that this EIS surveys included sampling locations outside the site for this proposed action. The Greater

Glider was noted as foraging in the area of the proposed action during those field surveys. (Att 9 pp L- 16: Att7 pp 8-80)

It is unknown at this stage if the proposal will have a direct impact on the Greater Glider. The clearing of some of the proposed production site for the proposal may have an indirect impact on the species through the removal of potential habitat or foraging areas. Further site assessments as part of the proposal will further assess the potential for impact on these species and any other EPBC or QNC listed species found on the site.

The construction of H2-Hub™ Gladstone will result in the removal of the majority of vegetation on the Project site. There is not likely to be any impact on threatened Regional Ecosystem communities, based on the field studies undertaken during the preparation of the Gladstone Nickel Refinery Project EIS.

No threatened flora species were detected during the vegetation field surveys and the vegetation present onsite is widespread and common to the region. A 60m vegetation buffer will be retained on the site perimeter and it is unlikely that the clearing activities will have a significant impact on the area's overall biological and habitat value. It is unlikely that the Project will result in the removal of any marine plants.

Apart from the production site of the proposal the project will utilise existing pipeline corridor from the production site to the Fisherman's Landing Wharf and the existing ammonia terminal and wharf infrastructure. The construction of additional tanka and facilities at the wharf will be on existing cleared and reclaimed land at the port within the existing industrial port facility and are unlikely to impact any threatened species.

Further targeted surveys will be undertaken by H2U to determine whether any threatened species occurs within the Project site and in what capacity. In the absence of such information it is difficult to make a determination on whether the proposed development is likely to have a significant impact on this species. Potential for significant impact is considered to be low but cannot be confirmed until further investigations have been completed. These will be completed as part of surveys and studies in the EIS.

The GPL EIS also noted some intertidal and supratidal communities that are likely outside of the construction area of the H2U Project. (Att 7 pp 8-31) Should there be a requirement to disturb these communities an application to clear these marine plants will be submitted in accordance with the requirements of Section 123 of the Fisheries Act 1994.

Species or threatened ecological community

Ninox strenua (Powerful Owl) – vulnerable QNC Act – noted as foraging in the area in the EIS

Impact

The Avarian species Ninox strenua (Powerful Owl) is considered vulnerable under the QNC Act although not listed under the EPBC Act and was noted foraging although uncommon in the Project area site during the field studies undertaken for the Gladstone Nickel Refinery EIS (Att 9 pp L-12; Att 6 ES-10)

It is unknown at this stage if the proposal will have a direct impact on the Powerful Owl. The clearing of some of the proposed production site for the proposal may have an indirect impact on the species through the removal of potential habitat or foraging areas. Further site assessments as part of the proposal will further assess the potential for impact on these species and any other EPBC listed species found on the site.

As noted in that EIS 'as the foraging habitat for the powerful owls at the site is a small component of a wider foraging area, which would include the adjacent Mount Stowe State Forest (SF) and the Calliope Conservation Park (CP), local populations are not likely to be significantly affected.

The construction of H2-Hub™ Gladstone will result in the removal of the majority of vegetation on the Project site. There is not likely to be any impact on threatened Regional Ecosystem communities, based on the field studies undertaken during the preparation of the Gladstone Nickel Refinery Project EIS. (Att 6 pp ES-9; Att 7 pp 8-68 to 8-76)

2.4.2 Do you consider this impact to be significant?

☐ Yes ☑ No

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2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☐ Yes ☑ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☑ Yes ☐ No

2.6.1 Is the proposed action likely to have any direct or indirect impact on the Commonwealth marine environment?

☑ Yes ☐ No

2.6.2 Describe the nature and extent of the likely impact on the whole of the environment

The Project will include a marine related activity in the form of shipping and ship loading.

The potential impact would be from a leakage during loading or a catastrophic marine event. The Port loading facilities will be designed to minimise any leakage with full package of sensing and response plans to detect and address any ammonia leakage. The project is expected to mitigate the overall risk of catastrophic spill events by limiting the overall number of vessel movements from the Fisherman's Landing precinct to less than the existing baseline of 31 vessel movements per year in 2020/21 reported by Gladstone Port Corporation on their website (see Att 13).

The current operations for ammonia imports into Gladstone include deliveries of up to 250,000 tonnes per annum with vessels ranging from 5,000 to 25,000 dead weight tonnes (DWT).

The production capacity to be established for H2Hub Gladstone is expected to offset current imports.

Future operations for ammonia exports from Gladstone are expected to adopt vessels with capacities ranging from 54,000 to 80,000 DWT, resulting in less vessel movements per annum.

2.6.3 Do you consider this impact to be significant?

☐ Yes ☑ No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☐ Yes ☑ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☐ Yes ☑ No

2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

2.11 Is the proposed action to be taken by a Commonwealth agency?

☐ Yes ☑ No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ No

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2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☑ No

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Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

The current vegetation is mostly remnant vegetation with some cleared areas. 100-m Wide cleared power transmission line easements cut through the property. All the existing vegetation on the site have been disturbed or modified to some degree by cattle grazing, thinning clearing or weed invasion.

A Protected Matters Search Tool (PMST) was conducted on the Project site with a 1 km buffer to determine whether matters protected by the EPBC Act are likely to occur in the study area. The PMST report identified 1 World Heritage Property and 1 National Heritage Place, 5 threatened ecological communities, 52 threatened species and 55 migratory species as having potential to occur in the study area. (att 2 pp 2)

Field surveys undertaken in 2006 on behalf of Gladstone Nickel Project (GNP) for the area of the Project site plus additional areas required for their project were detailed in their EIS. (Att 7, 8 and 9) These studies identified a moderate floral diversity of 209 taxa 158 genera and 52 families, none of which were listed as threatened species under either the Qld Nature Conservation (wildlife) Regulations 1994 (QNC) or the EPBC Act and none of the flora species identified in the surveys have significance from a commercial or recreational perspective. Some of the species identified were those on the lower lying areas were outside the H2U Project site. The survey also identified 46 exotic species (two of which rubber vine and lantana are listed as Weeds of National Significance). (Att 7 pp 8-68 to 8-74)

No threatened flora species were detected during the vegetation field surveys conducted by GNPL as part of the Environmental Impact Statement developed for the project.

The south of the site is mixed open Eucalypt forest dominated by Eucalyptus tereticornis and Lophostemon suaveolens with an understory community varying from shrubby Melaleuca nervosa to open and grassy. The South West of the Site is bounded by the Mt Stowe State Forrest and Calliope Conservation Reserve with smaller areas of Eucalyptus crebra.

The GNP fauna survey of recorded 93 native and 5 introduced vertebrate species. 3 amphibian, 12 reptile, 61 bird and 17 mammal species. The echidna (Tachyglossus aculeatus) was listed as Special Cultural Significance under the QNC Act. Specific surveys were conducted to target Koala sp. but none were recorded.

The GNPL fauna survey of recorded 93 native and 5 introduced vertebrate species. 3 amphibian, 12 reptile, 61 bird and 17 mammal species. The echidna (Tachyglossus aculeatus) was listed as Special Cultural Significance under the QNC Act. Specific surveys were conducted to target Koala species. but none were recorded.

The following species were identified at sample locations or habitats included in the H2U Project site as part of the field investigations undertaken for the Gladstone Nickel Refinery EIS:

- Ninox strenua (Powerful Owl) – vulnerable QNC Act – noted as foraging in the area in the EIS
- Petauriodes volans (Greater Glider) – vulnerable EPBC Act - noted as foraging in the area in the EIS.

H2-Hub™ Gladstone is located on only a part of the land area proposed for the Gladstone Nickel Refinery and the EIS field survey area, it is unknown at this stage if the Project will have a direct impact on these species. Att 9 pp L-12 and L-16; Att 6 pp ES-10; Att 7 pp 8-80)

The clearing of some of the site for the proposal may have an indirect impact on the species through the removal of potential habitat or foraging area. Field surveys will be conducted as part of the EIS will further assess the potential for impact on these species and any other EPBC or QNC listed species found on the site.

It should be noted that Charadrius mongolus (Lesser Sand Plover) – endangered EPBC Act – noted as uncommon in the EIS was recorded at sample site 1 on the salt marsh and marine clay plains, an area and habitat not included in, although adjacent to, the H2U site. (Att 9 L-11)

No other critically endangered, endangered or vulnerable species are expected to occur in the study area. Exotic species identified in the Gladstone Nickle EIS field studies include fox, feral cat, dingo/dog, rabbit, rodents, water rats and cane toad.

3.2 Describe the hydrology relevant to the project area (including water flows)

The Project production site slopes gently from a prominent hill (with a footprint of approximately 27 hectares and a crest elevation of RL 66m AHD - approximately 48m in height from the surrounding area) at the South West end towards the Calliope River and Port Curtis.

Existing ephemeral drainage lines traverse the site from the south and west and into the Calliope River and the waters of

Port Curtis, conveying surface runoff to larger open channels. A channel draining north enters the site to the southwest from an existing culvert under Mount Miller Rd and the North Coast Rail Line and continues north adjacent to the western boundary of the Site along Reid Rd for minor storms before draining west adjacent to Hanson Rd to a bank of existing culverts that drain to Port Curtis.

During major storm events flood waters appear to be detained temporarily along Hanson Road and the bund walls adjacent to the site boundary, likely due to tailwater conditions in Port Curtis or local inlet conditions at the existing culverts. In major storm events some of the flow appears to also discharge to the east across the site towards Calliope Creek. A portion of the channel to the north of the project site is nominated as a moderate risk waterway by the Department of Fisheries Queensland, reflecting a moderate risk of affecting fish movement from waterway barrier works. Desktop assessment carried out by AECOM for Economic Development Queensland suggests a very low likelihood of this channel providing suitable fish habitat, mainly due to the downstream channel conditions and dry channel bed. (Att 4 pp 4)

The channel towards the southern end of the Site is difficult to define from Lidar and course survey grid data. The receiving catchment for the channel towards the southern end of the site predominantly extends to the southwest of the site. The channel enters the site towards the south and drains northeast to the Calliope River.

Groundwater is expected to flow towards Calliope River in the east and north, with saltwater intrusion expected towards the river and the tidal flats located to the north.

As part of the Sale of Land Agreement with the QLD Minister of Economic Development a new drainage Easement will be executed to protect the main drainage lines which run through the property.

3.3 Describe the soil and vegetation characteristics relevant to the project area

The main geological units mapped across the site are as follows (Att 3 pp 5):

- Quaternary Residual Soils (Qrs) – found in the majority of locations across the site in the form of silty sand or sand, weathered from the underlying mudstones and cherts of the Doonside Formations. Colluvium transported from the hilly terrain at the south-west of the site may also present. Residual soils are generally less than 3 m thick.
- Quaternary Coastal Sediments (Qhe) – found beneath the low-lying tidal flats and mangrove swamps located at north-eastern boundary of the site near the WICET reclamation area. Sediments generally comprise soft silt or clay (estuarine mud) and often with a high organic content on the mangrove flats.
- Doonside Formation (DCcd) – located beneath the undulating and hilly terrain to the southern side of the site and generally consists of chert, mudstone, minor tuff, altered basalt and arenite.

A fault extends from the north-west corner to the south-east corner of the site.

The site soil types are predominantly medium to deep gravelly gradational red earth soils – Ferric Red Kandosols (ASS - Australian Soil Classification Isbell (1966)). There are small areas of medium to deep silt loamy surface duplex soils – Mottled Sodic Grey-Brown (ASS) at the northern area of the site near the corner of Reid Road and Hanson Road. There is a small area of spill over of disturbed land from the neighbouring Borrow Pit this is mostly overburden and weathered subsoil material. (Att 7 pp 8-1 to 8-5)

The site is included in the map of Acid Sulfate Soils in the Tannum Sands to Gladstone area of Central Queensland, published by the Department for Natural Resources, Mines and Energy (DNRME). (Att1 pp 51)

The survey of sulfidic materials for land with elevations below RL 5.0m AHD, identified actual acid sulfate soils on relatively undisturbed land on the north-east section of the site, at an actual depth of RL 2.0 m AHD, with potential acid sulfate soils below this layer, hence the depth code designation of AOS2 for this area. The remainder of the site, with an elevation above RL 5.0m AHD was not included. A later investigation of acid sulfate soils on the site was undertaken in 2006 by URS as part of the studies supporting the Environmental Impact Statement for the Gladstone Nickel project (Att 7 8-10).

The current vegetation is mostly remnant vegetation with some cleared areas. Cleared Power transmission line easements cut through the property. All the existing vegetation on the site have been disturbed or modified to some degree by cattle grazing, thinning clearing or weed invasion. The Project site is within the South-east Queensland bioregion and located in the Burnett-Curtis Hills and Ranges sub-section the Regional Ecosystems (RE) for the site are predominantly, RE 11.3.4 Eucalyptus tereticornis and/or Eucalyptus spp. Tall woodland on alluvial plains; and RE 12.3.11 Eucalyptus tereticornis, Lophostemon suaveolens, and Melaleuca nervosa Open Forrest Woodland on alluvial plains near coast. There is a pocket of RE 12.11.7 Eucalyptus crebra woodland on alluvial plains; located near the southern end of the site. There are no threatened ecological communities associated with these REs. (Att7 pp8-69 to pp 8-72)

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

The Project site, itself does not support any outstanding natural features or unique values. The Project and associated

activities are proposed in a dedicated industrial area of the Gladstone State Development Area.

The Mt Stowe State Forrest and Calliope Conservation Park located to the South West and Great Barrier Reef World Heritage Area located approximately 2 km north east and 200m south as it extends up the Calliope River are the closest outstanding natural features and unique values relevant to the project area.

3.5 Describe the status of native vegetation relevant to the project area

The current remnant vegetation on the site has a long history of disturbance including grazing, fires, weed invasion, thinning and other anthropogenic disturbance. Given the high degree of previous disturbance the overall ecological integrity of the remnant vegetation communities on the site are relatively moderate to low.

The dominant vegetation groups of the project site were mapped in 2017 at 1:1million (BVG1M) against Queensland Regional Ecosystem (RE) mapping framework, and as described in The Vegetation of Queensland Version 4.0, published by the Queensland Department of Environment and Science.

The Dominant Vegetation Groups occurring over the site are:

- BVG1M:10b Moist open forests to woodlands dominated by Corymbia citriodora (spotted gum), covering a limited area in the south-western section of Lot 2 on SP 293584, west of the WICET 'borrow-pit' and north of Mt Miller Rd; and
- BVG1M:18b Woodlands dominated Eucalyptus crebra (narrow-leaved red ironbark), frequently with Corymbia spp. or Callitris spp. on flat to undulating plains, covering the majority of the remnant vegetation on the site.

Non-dominant Vegetation Groups occurring within the project site include BVG1M:16c, and BVG1M:21a.
There are significant Non-remnant vegetation areas (as of 2017) covering significant sections of Lot 2 on SP 293584, including the WICET 'borrow-pit; transmission infrastructure easements; and internal roads.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area

The topography and contour detail of the area surrounding the project site is presented in the Initial Advice Statements included as an attachment to this referral. The terrain is gently undulating which has a general surface elevation of approximately RL 15 m descending to above RL 5 AHD with an overall slope of around 1% in an east north eat direction toward Hanson Road.

The highest area on the project site is a prominent hill in the south-west section of existing Lot 2 on Plan SP293584, known as the 'borrow pit'. This area, designated as the new Lot 2 (40.2 ha), will be initially retained by Economic Development Queensland (EDQ) as a common user source of clean fill. It raises from a reduced-level (RL) elevation of 33.0m AHD on the south-western corner of the site to a maximum elevation of RL 66.0m AHD, to then drop to an elevation of RL 18.0m AHD.

The area designated as the new Lot 1 (109.9 ha) is generally flat, with a gentle slope to the north, north-east from an elevation of RL of 18.0m AHD on the south-western boundary with new Lot 2, to an elevation of RL 2.0m AHD on the north-eastern boundary of the site.

The area designated as new Lot 3 (61.1 ha) is generally flat, with a gentle slope to the north, north-east from an elevation of RL 20.0m AHD on the south-eastern boundary of the site, to an elevation of RL 4.0m AHD on the easternmost corner of the site. Near level to gently inclined alluvial plains with slopes <2% occur in the eastern sector and slope towards the Calliope River.

3.7 Describe the current condition of the environment relevant to the project area

Previous site vegetation surveys confirmed the presence of remnant vegetation in the Project area which is dominated, RE 11.3.4 Eucalyptus tereticornis and/or Eucalyptus spp. Tall Woodland on alluvial plains; and RE 12.3.11 Eucalyptus tereticornis, Lophostemon suaveolens, and Melaleuca nervosa Open Forrest Woodland on alluvial plains near coast. None of the REs identified on the site are considered Endangered.
Vegetation across the site was found to be disturbed with significant populations of exotic weed species and widespread anthropogenic disturbance, including previous clearing and the dumping of rubbish.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

A search of the World Heritage List (WHL), National Heritage List (NHL), Commonwealth Heritage List (CHL) and non-statutory Register of the National Estate (RNE) indicates that there are no registered sites within the project area.

There is one Commonwealth Heritage Place within 2 km of the project area namely, The Great Barrier Reef World Heritage Place.

There are no known historical cultural heritage places in the Project area, and little to no potential for additional heritage places items of non-indigenous cultural heritage values to be present on the site. A Cultural Heritage Investigation as part of the EIS, will be undertaken to confirm these findings.

3.9 Describe any Indigenous heritage values relevant to the project area

There are no known Indigenous Heritage issues on the Project site. The cultural heritage assessment undertaken for the Gladstone Pacific Nickel Project did not identify any listed places under the Queensland Indigenous Cultural Heritage Database within the project site. It did however identify a range of places in the surrounding study area, including one located approximately 420m to the north-west of the project site (stone artefact scatter/possible hearth).

Searches of the National Native Title Tribunal indicates there are no past or current native title claims over the Project Site which is held freehold and advice obtained during the Sale of Land negotiations confirmed that Native Title has been wholly extinguished on both Lot 11 and Lot 2 or the Port land at Fisherman's Landing.

It is noted, however, that the Bailai (Byellee, Byelee), Gurang, Gooreng Gooreng, Taribelang Bunda People (now represented by the Port Curtis Coral Coast Native Title Claimants (PCCCNTC) have been granted native title over several parcels Crown Land in the Gladstone region, as a part of their successful 2001 claim (QCD2017/010).

The Aboriginal Cultural Heritage Act (ACHA) 2003 requires a Cultural Heritage Management Plan (CHMP) if an EIS is required. An existing CHMP between the PCCCNTC and the Minister of Economic Development covers the site and a wider area of the Gladstone SDA. It is envisaged a CHMP similar to that one would be developed between H2U and the PCCCNTCs.

Although unlikely, should any previously unknown cultural heritage material be uncovered during construction H2U is committed to protecting the cultural heritage and the sensitive handling of any accidental discoveries on the site and implement mitigation measures as defined in the CHMP. A pre-existing Cultural Heritage Management Plan (CHMP) has been developed between the (PCCCNTC) and the Department of State Development (DSD). AFE will develop a cultural heritage management plan in accordance with s87 of the Aboriginal Cultural Heritage Act 2003.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

The site for the production precinct is under a Sale of Land Agreement between Gladstone Hydrogen Holdings Pty Ltd a related entity of H2U and part of the H2U Group, with the QLD Minister of Economic Development with completion at the Financial Close of the Project. Post Financial Close the land will be held Freehold.

Land at the Fisherman's Landing Wharf area will be leased on long term basis from the Gladstone Ports Corporation.

3.11 Describe any existing or any proposed uses relevant to the project area

The Project is proposed within the existing industrial estate of the GSDA, with a number of existing, large developments including Fisherman's Landing Wharf, Rio Tinto Yarwun alumina refinery, Orica Yarwun chemical complex, Gladstone Power Station and Wiggins Island Coal Terminal.

The site was previously used by Gladstone Pacific Nickel with a Nickel refinery proposed for the site around 2008. Some industrial process testing has been undertaken on the site and any remediation required to remove any contamination will be undertaken before the Project is constructed.

There is material being quarried from a 'Borrow Pit' controlled by the State government at the southern end of the site.

The proposed infrastructure corridor is used for an ammonia pipeline form the Fisherman's Landing area to the neighbouring Orica facility and the proposed port precinct area is currently used as port facilities.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

During the design phase of the Project a rigorous environmental studies will be undertaken to inform the EIS. Mitigation measures identified during the EIS will be considered in the detailed design, construction and operations of the Project. This will result in a package of measures developed to avoid, minimise and compensate for impacts resulting from the Project, based on the significance of the impacts on Matters of National Environmental Significance (and other sensitive environmental values) identified by the assessment.

The Initial Advice Statement prepared for the Qld Coordinator General provided further definition to the management plans. (Att 1 pp 81)

Environmental Management Plans to minimise potential impacts, including monitoring, reporting and corrective actions will be developed in consultation with the relevant Authorities and through consideration of the environmental management framework, environmental management plans and specific sub-plans for each of the following environmental aspects:

- Management and mitigation measures will be developed Natural environment (flora, fauna, soils, water etc.);
- Built environment (e.g. Traffic Management Plan);
- Indigenous cultural heritage
- Non-Indigenous Cultural heritage
- Amenity
- Social/economic;
- Waste management
- Hazard, risk, health and safety

A strategy to mitigate impacts will comprise of:
Avoid: Site infrastructure locations will aim to avoid areas of high value and sensitive areas
Mitigate: Pre clearance surveys prior to clearing and fauna spotter catcher
Manage: Aus/ Int Standard Haz Chem Storage and Bunding, Emergency and Spill management Plan, Construction Management Plan, Operational Management Plan

Measures that will be undertaken to reduce impact of the proposed action include:

- bunded storage tanks and washdown areas
- capture and treatment of stormwater runoff;
- night lights redirected away from adjacent vegetation and minimised;
- cowl shades on directional night lights; and
- a vegetation management plan outlining management measures for weeds, feral animals and fire management;
- completing pre-clearance ecology surveys to confirm presence of any listed flora, animal breeding places and fauna habitats prior to clearing;
- presence of a fauna spotter catcher prior to, and during clearing, to ensure impacts on fauna are minimised.

A detailed Ammonia Safety Plan and a Stormwater and Runoff Management Plan will be completed as part of the EIS which will evaluate the potential impacts and mitigation measures for the containment of chemical spills as well as the mitigating any impacts on stormwater, including erosion on the site and surrounds and ensure that mitigation is implemented to minimise and eliminate these impacts.

Watershed from production will be contained within the bunds and stormwater containment and settlement ponds will be provided with low permeability surfaces to minimise the risk of seepage.

The Project ammonia plant and storage tanks will be built on bunded concrete slabs, which will prevent any direct migration into the groundwater beneath the site.

Any H2U pipelines will be designed in accordance with AS 2885 Pipelines – gas and liquid petroleum. This will ensure pipeline integrity equivalent to a natural gas pipeline. Extensive construction safeguards and testing procedures will be implemented to ensure minimal impact during construction.

The site will be levelled to above the RL 5.0m AHD and lower-lying sections of the site will primarily be buffer land. If during detailed design, it is identified that construction activities are likely to intersect potential acid sulphate soil environments, a comprehensive acid sulfate soils management program will be implemented.

The RO wastewater will be the only significant industrial waste produced on site and will be disposed appropriately through the neighbouring Gladstone Regional Council (GRC) wastewater treatment facility.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

The intention is to utilise as much low grade water as possible before drawing on higher grade waters. It is intended in collaboration with the GRC to process their industrial wastewater and excess runoff through the Projects RO plant. This process will concentrate the mineral load in the wastewater from the RO plant but will not add any further contaminants that would otherwise be discharged from the GRC wastewater treatment plant.

The major mineral contamination being an increase in salinity which will be keep at a level lower than seawater ensuring any discharge into the ocean outfall will not impact the environment. The wastewater treatment through the GRC facility will, as it currently does, reduce the biological contaminant load from any wastewater streams. Apart from workforce ablutions the Project will not add any additional biological contaminants.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

As the Project is still at a preliminary stage, whilst a certain level of information on ecological values has already been collected, there are a number of areas where additional information would be required on the ecological values of the site as well as the final development impact, in order to accurately assess whether the Project is likely to have a significant impact on relevant MNES.

A suitably qualified ecologist will be engaged to undertake a pre-clearance ecology survey prior to any disturbance of confirmed impact areas. This will include a survey to check for the presence of listed flora species, identification of weeds, listed fauna species and animal (terrestrial, avian or aquatic) breeding places.

This survey will be undertaken closer to the time of disturbance to ensure findings reflect current conditions at the site. Immediately prior to any disturbance or clearing a fauna spotter catcher will check the area for any fauna and/or breeding places. No-go areas will be established and marked prior to clearing. A fauna spotter catcher will be present during the clearing works to ensure no harm of fauna occurs and to assist in the relocation of species if they occur on site.

If preclearance surveys identify animal breeding places such as hollow bearing trees these will be avoided to the greatest extent possible and fragmentation of habitat will be minimised through retaining tracts of remnant vegetation along the eastern, northern and southern site boundaries along with the drainage Easement to run through the site to maintain wildlife connectivity across the site and to the South West Calliope Conservation Park.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ World Heritage properties
- ☐ National Heritage places
- ☐ Wetlands of international importance (declared Ramsar wetlands)
- ☐ Listed threatened species or any threatened ecological community
- ☐ Listed migratory species
- ☐ Marine environment outside Commonwealth marine areas
- ☐ Protection of the environment from actions involving Commonwealth land
- ☐ Great Barrier Reef Marine Park
- ☐ A water resource, in relation to coal seam gas development and large coal mining development
- ☐ Protection of the environment from nuclear actions
- ☐ Protection of the environment from Commonwealth actions
- ☐ Commonwealth Heritage places overseas
- ☐ Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

It is not anticipated the proposed action will have a significant impact on the Matters of National Environmental Significance (MNES) and appropriate measures will be enacted to ensure minimal impact.

During the design stage of the Project comprehensive studies will be undertaken to map and survey the site to identify any species (flora or fauna) at risk and to ensure any disturbance is in line with the protections of the EPBC Act.

Mitigation measures will be implemented to reduce direct and indirect impacts on MNES including undertaking pre-clearance ecology surveys of proposed disturbance areas to confirm the presence of any listed flora species and assess fauna habitats and identify presence of animal breeding places. Wildlife buffers will be retained to mitigate any loss of habitat.

A review of habitat loss, retention and species impact assessments will occur in the next round of ecology works for the Project. A fauna spotter catcher will also be present prior to, and during, any clearing of native vegetation. This will ensure no fauna species are harmed during clearing, identified areas of significance are flagged and exclusion zones put in place, animal breeding places are avoided where possible.

Clearing of the site will be managed to minimise the clearing to retain wildlife corridors and buffer zones. These will be managed under ongoing management plans to minimise the impact of invasive species (flora or fauna) and manage fire risk and provide an improved habitat for fauna species.

Soil and site surveys will identify any contamination from previous activities, in particular industrial process trials conducted by Australian Magnesium Corporation, will be appropriately remediated and therefore improve the site amenity and reduce the environmental risk from any contamination.

Additional management measures to reduce potential impacts on MNES such as the Great Barrier Reef WHA will include site and stormwater management.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

The Hydrogen Utility Pty Ltd (H2U) has one other similar development underway in South Australia. As a new company there is no record for the company however the key executives have a significant combined experience of responsible environmental management in government; energy/renewable energy; oil and gas; resources construction and agricultural sectors including the construction of major projects.

Tier 1 and specialist environmental consultants with appropriate technical expertise and competencies are being engaged to complete the Environmental Impact Statement and associated studies.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

None

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☑ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

The Hydrogen Utility Pty Ltd (H2U), has adopted the UN Sustainable Development Goals (SDG) as the basis of its Corporate and Social Responsibility (CSR) policies, as well as the guiding principles along which it focuses its business activities.

Their mission is to drive deep decarbonisation in the global industrial, chemicals, energy and mobility markets and therefore we aim to bring direct, long-lasting impacts on the following; SDGs: SDG7. Affordable and Clean Energy; SDG9. Industry, Innovation and Infrastructure; SDG11. Sustainable Cities and Communities; SDG12. Responsible Consumption and Production; and SDG13. Climate Action.

As part of the development of the Project, H2U will develop and Environmental Management System that engages professional expertise in the delivery and operations of the Project to ensure environmental impacts are minimised and where achievable mitigated or offset.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☐ Yes ☑ No

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

DoE EPBC Act referral guidelines for the Outstanding Universal Value of the Great Barrier Reef World Heritage Area

Reliability

High reliability

Uncertainties

Low uncertainty as prepared by Commonwealth to inform impact assessments for activities that may impact on Great Barrier Reef

Reference source

EPBC Act Protected Matters Report (Att 2)

Reliability

High reliability

Uncertainties

Low uncertainty as prepared by Commonwealth to inform general guidance on matters of national environmental Significance and other matters protected by the EPBC Act. impact assessments for activities that may impact on Great Barrier Reef

Reference source

Gladstone Yarwun Development (Att 5)
Lot 2 Flood Study

Reliability

High reliability

Uncertainties

Low uncertainty as prepared by AECOM 2018 for Qld Government to inform the Development impacts for part of the Project Site.

Reference source

Gladstone Yarwun Development Investigation - Stage 1
Lot on Plan: 2/SP250148, 11/SP239343, 12/SP239343 (Att 3)

Reliability

High reliability

Uncertainties

Low uncertainty as prepared by AECOM 2016 for Qld Government to inform the Development impacts for part of the Project Site.

Reference source

Gladstone Yarwun Development
Investigation - Stage 1 - Lot Configuration, Earthworks, Drainage and Flooding
Lot on Plan: 2/SP250148, 11/SP239343, 12/SP239343, 2/SP245935, 1/SP225922 (Att 4)

Reliability

High reliability

Uncertainties

Low uncertainty as prepared by AECOM 2016 for Qld Government to inform the Development impacts for part of the

Project Site.

Reference source

Gladstone Nickel Project Environmental Impact Statement Sections
Executive Summary (Att 6) This document is publicly available at https://eisdocs.dsdip.qld.gov.au/Gladstone%20Nickel/eis/EIS%20Apr%202007/executive-summary.pdf
Section 8 Environmental Effects (Att 7) is publicly available at https://eisdocs.dsdip.qld.gov.au/Gladstone%20Nickel/eis/EIS%20Apr%202007/08-environmental-effects-of-refinery.pdf
Appendix K – Flora (Att 8) This document is publicly available at https://eisdocs.dsdip.qld.gov.au/Gladstone%20Nickel/eis/Appendices/appendix-k-flora.pdf
Appendix L - Fauna and Aquatic biology (Att 9) This document is publicly available at https://eisdocs.dsdip.qld.gov.au/Gladstone%20Nickel/eis/Appendices/appendix-l-fauna-and-aquatic-ecology.pdf
Section 11 Cultural Heritage (Att10) this document is publicly available at https://eisdocs.dsdip.qld.gov.au/Gladstone%20Nickel/eis/EIS%20Apr%202007/11-cultural-heritage.pdf

Reliability

High reliability

Uncertainties

Medium uncertainty due to the age. The report was prepared 2007 by URS for Gladstone Nickel as required by the Queensland Government.

Reference source

Australian Magnesium Corporation (AMC) Preliminary Contaminated Site Assessment (Att11)

Reliability

Moderate reliability

Uncertainties

Medium uncertainty due to the age. The report was prepared 2004 by GHD for AMC as required to identify any potential contamination issues prior to the site being transferred back the Queensland Government.

Reference source

Environmental Baseline Report Ministry for Industrial Development Queensland Land Lot 1 on SP 245935. Gladstone QLD (Att 12)

Reliability

Moderate reliability

Uncertainties

Medium uncertainty in some areas due to age, was prepared in Nov 2011 by Gilbert and Sutherland for Wiggins Island Coal Export Terminal Pty Ltd, Gladstone Nickel Project and the Minister for Industrial Development of Queensland (MIDQ)

Reference source

H2-Hub™ Gladstone Initial Advice Statement (IAS) (Att1)

Reliability

High Reliability

Uncertainties

Low uncertainty as prepared for Qld Government to inform the Coordinator General (CG) of the proposed Project and potential impacts of the proposed action in order to enable the CG:

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

- to make a decision as to whether the Project meets the criteria for declaration as a coordinated project under Section 27 (2)(b) of the SDPWO Act;
- to determine if the Project will require and Environmental Impact Statement (EIS) or an Impact Assessment Report (IAR) under Section 26 of the SDPWO Act
- Advisory agencies and other stakeholders to determine the Terms of Reference (ToR) if an EIS is to be developed for the Project; and
- to inform stakeholders and the general public about the definition, scope, value and key environmental issues to be investigated through an EIS process for the proposed development.

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Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

Yes ☑ No

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action a member of an organisation?

☒ Yes ☐ No

Organisation

Organisation name	The Hydrogen Utility Pty Ltd
Business name	H2U
ABN	95635889164
ACN	
Business address	Level 13, 664 Collins Street Docklands VIC 3008
Postal address	GPO Box 700 Hobart TAS 7001
Main Phone number	0418129426
Fax	
Primary email address	tristram@hydrogenutility.com
Secondary email address	attilio@hydrogenutility.com

9.1.2 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

☒ Small business
☐ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations *

☒ Yes ☐ No

9.1.3 Contact

First name	Tristram
Last name	Travers
Job title	Executive Director – Strategy and Commercial
Phone	0418129426
Mobile	0418129426
Fax	
Email	Tristram@hydrogenutility.com
Primary address	2 Terminus Row Hobart TAS 7000
Postal Address	GPO Box 700 Hobart TAS 7001

Declaration: Person proposing the action

I, Tristram Travers on behalf of The Hydrogen Utility Pty Ltd t/a H2U, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity.

Signature: ..... **Date:** 30 September 2021

I, Tristram Travers on behalf of The Hydrogen Utility Pty Ltd t/a H2U, the person proposing the action, consent to the designation of myself on behalf of The Hydrogen Utility Pty Ltd as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:.....**Date:** 30 September 2021

In making this declaration I acknowledge that it is intended that this action is proposed to be undertaken with Gladstone Hydrogen Holdings Pty Ltd as multiple persons proposing the action.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action a member of an organisation?

☒ Yes ☐ No

Organisation

Organisation name	Gladstone Hydrogen Holdings Pty Ltd
Business name	Gladstone Hydrogen Holdings
ABN	52635892152
ACN	
Business address	Level 13, 664 Collins Street Docklands VIC 3008
Postal address	GPO Box 700 Hobart TAS 7001
Main Phone number	0418129426
Fax	
Primary email address	attilio@hydrogenutility.com
Secondary email address	tristram@hydrogenutility.com

9.1.2 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

☒ Small business
☐ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations *

☒ Yes ☐ No

9.1.3 Contact

First name	Attilio
Last name	Pigneri
Job title	CEO
Phone	0405740355
Mobile	0405740355
Fax	
Email	Attilio@hydrogenutility.com
Primary address	2 Terminus Row Hobart TAS 7000
Postal Address	GPO Box 700 Hobart TAS 7001

Declaration: Person proposing the action

I, Attilio Pigneri on behalf of Gladstone Hydrogen Holdings Pty Ltd, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity.

Signature: ..... **Date:** 30 September 2021

I, Attilio Pigneri on behalf of Gladstone Hydrogen Holdings Pty Ltd, the person proposing the action, consent to the designation of myself on behalf of Gladstone Hydrogen Holdings Pty Ltd as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: .....**Date:** 30 September 2021

In making this declaration I acknowledge that it is intended that this action is proposed to be undertaken with The Hydrogen Utility Pty Ltd as multiple persons proposing the action.

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent

9.2.1 Is the proposed designated proponent a member of an organisation?

☒ Yes ☐ No

Organisation

Organisation name	The Hydrogen Utility Pty Ltd
Business name	H2U
ABN	95635889164
ACN	
Business address	Level 13, 664 Collins Street Docklands VIC 3008
Postal address	GPO Box 700 Hobart TAS 7001
Main Phone number	0418129426
Fax	
Primary email address	tristram@hydrogenutility.com
Secondary email address	attilio@hydrogenutility.com

9.2.2 Contact

First name	Tristram
Last name	Travers
Job title	Executive Director – Strategy and Commercial
Phone	0418129426
Mobile	0418129426
Fax	
Email	Tristram@hydrogenutility.com
Primary address	2 Terminus Row Hobart TAS 7000
Address	GPO Box 700 Hobart TAS 7001

Declaration: Proposed Designated Proponent

I, Tristram Travers on behalf of The Hydrogen Utility Pty Ltd ,the proposed designated proponent, consent to the designation of myself on behalf of The Hydrogen Utility Pty Ltd as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: ..... **Date:** 30 September 2021

In making this declaration I acknowledge that it is intended that this action is proposed to be undertaken with Gladstone Hydrogen Holdings Pty Ltd as multiple proponents for the action.

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent

9.2.1 Is the proposed designated proponent a member of an organisation?

☒ Yes ☐ No

Organisation

Organisation name	Gladstone Hydrogen Holdings Pty Ltd
Business name	Gladstone Hydrogen Holdings
ABN	52635892152
ACN	
Business address	Level 13, 664 Collins Street Docklands VIC 3008
Postal address	GPO Box 700 Hobart TAS 7001
Main Phone number	0418129426
Fax	
Primary email address	attilio@hydrogenutility.com
Secondary email address	tristram@hydrogenutility.com

9.2.2 Contact

First name	Attilio
Last name	Pigneri
Job title	CEO
Phone	0405740355
Mobile	0405740355
Fax	
Email	Attilio@hydrogenutility.com
Primary address	2 Terminus Row Hobart TAS 7000
Address	GPO Box 700 Hobart TAS 7001

Declaration: Proposed Designated Proponent

I, Attilio Pigneri on behalf of Gladstone Hydrogen Holdings Pty Ltd ,the proposed designated proponent, consent to the designation of myself on behalf of Gladstone Hydrogen Holdings Pty Ltd as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: ..... **Date:** 30 September 2021

In making this declaration I acknowledge that it is intended that this action is proposed to be undertaken with The Hydrogen Utility Pty Ltd as multiple proponents for the action.

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)

9.3.1 Is the referring party (person preparing the information) a member of an organisation?

☒ Yes ☐ No

Organisation

Organisation name	The Hydrogen Utility Pty Ltd
Business name	H2U
ABN	95635889164
ACN	
Business address	Level 13, 664 Collins Street Docklands VIC 3008
Postal address	GPO Box 700 Hobart TAS 7001
Main Phone number	0418129426
Fax	
Primary email address	tristram@hydrogenutility.com
Secondary email address	attilio@hydrogenutility.com

9.3.2 Contact

First name	Tristram
Last name	Travers
Job title	Executive Director – Strategy and Commercial
Phone	0418129426
Mobile	0418129426
Fax	
Email	Tristram@hydrogenutility.com
Primary address	2 Terminus Row Hobart TAS 7000
Address	GPO Box 700 Hobart TAS 7001

Declaration: Referring party (person preparing the information)

I, Tristram Travers on behalf of The Hydrogen Utility Pty Ltd, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: ..... **Date:** 30 September 2021

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Appendix A

Attachment

Document Type	File Name
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_LandParcels.pdf
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_Localities.pdf
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_PlanAreas.pdf
action_area_images	HUB-p002_Countours and Survey Detail.pdf
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_SurfaceGeology.pdf
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_Water.pdf
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_Landzones.pdf
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_Remnant Vegitation Groups.pdf
action_area_images	HUB-p002_ProductionPrecinct_QGlobe_FloodModelling.pdf
govt_approval_conditions	*Att1 - HUB-p002_PLAN_IAS_v1.5_FINAL_LoRes.pdf
supporting_tech_reports	*Att 6 - GNP EIS Eexecutive Summary.pdf
supporting_tech_reports	Att 2 - PMST Report _2021.pdf
supporting_tech_reports	*Att 10 - GNP EIS Section 11-Cultural Heritage.pdf
supporting_tech_reports	Att 11 - Site - contamination report.pdf
supporting_tech_reports	Att 12 - Environmental Baseline Report_2018.pdf
supporting_tech_reports	Att 13 Gladstone Origin_Destination of Cargoes 2020_21.pdf
flora_fauna_investigation	*Att 8 - GNP EIS appendix-k-flora.pdf
flora_fauna_investigation	*Att 9 - GNP EIS appendix-l-fauna-and-aquatic-ecology.pdf
hydro_investigation_files	Att 3 - Gladstone Yarwun Development Investigation - Stage 1 2016.pdf
hydro_investigation_files	Att 4 - Investigations_Earthworks Drainage and Flooding.pdf
hydro_investigation_files	Att 5 - Yarwun Development_ Flood Study 2016.pdf

* NOT PUBLISHED - SENSITIVE

Appendix B

Coordinates

Area 1
-23.834984697099,151.17701873144
-23.837732533898,151.17719039281
-23.838635381852,151.17787703832
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Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

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-23.785984925324,151.16972312292
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-23.796469604206,151.1612688001
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