Western Sydney Green Gas Project - Response to Submissions

Jemena Gas Networks (NSW) Limited

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Template 2.8.1

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Abbreviations

Abbreviation	Description
ACHA	Aboriginal Cultural Heritage Assessment
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
APZs	Asset Protection Zones
ARI	Average Recurrence Interval
AS	Australian Standard
AS 4564	AS 4564-2011 *Specification for general purpose natural gas*
BC Act	*Biodiversity Conservation Act 2016*
BC Regulation	*Biodiversity Conservation Regulation 2017*
BCA	Building Code of Australia
BCC	Blacktown City Council
BCD	Biodiversity Conservation Division
BDAR	Biodiversity Development Assessment Report
BFPL	Bush fire prone land
BPA	Bushfire Protection Assessment
CTMP	Construction Traffic Management Plan
DPIE	Department of Planning, Industry and Environment
EES	Environment, Energy and Science
EIS	Environmental Impact Statement
ELA	Eco Logical Australia
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPA	Environment Protection Authority
EPL	Environment Protection Licence
FCC	Fairfield City Council
HCl	Hydrochloric acid
HF	Hydrogen fluoride
HIPAPs	Hazardous Industry Planning and Assessment Papers
HRS	Hydrogen refuelling station
IPA	Inner Protection Area
Jemena	Jemena Gas Networks (NSW) Limited
LALC	Local Aboriginal Land Council
NCC	National Construction Code

Abbreviation	Description
NPfI	Noise Policy for Industry
NRAR	Natural Resources Access Regulator
NSW	New South Wales
OHL	Overhead line
P2G	Power to Gas
PBP	*Planning for Bush Fire Protection 2019*
PEM	Proton Exchange Membrane
PHA	Preliminary Hazard Assessment
PIRMP	Pollution Incident Response Management Plan
PMF	Probable Maximum Flood
POEO (Waste) Regulation	*Protection of the Environment Operations (Waste) Regulation 2014*
POEO Act	*Protection of the Environment Operations Act 1997*
SAOP	Safety and Operation Plan
SEARs	Secretary's Environmental Assessment Requirements
SES	State Emergency Services
SSDA	State Significant Development Application
State and Regional Development SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
UGOH	Underground to overhead connection
WSGG Project	Western Sydney Green Gas Project
WSP SEPP	*State Environmental Planning Policy (Western Sydney Parklands) 2009*
WSPT	Western Sydney Parklands Trust
WSUD	Water Sensitive Urban Design

1. Introduction

Jemena Gas Networks (NSW) Limited (Jemena) is seeking a State Significant Development Application (SSDA) to build and operate a trial Power to Gas (P2G) project to transform electrical energy into a combustible gas (hydrogen). The gas will be injected into the Sydney secondary gas distribution network and potentially supplied to an adjacent hydrogen bus refuelling facility, within Horsley Park, New South Wales (NSW). The proposal is referred to as the Western Sydney Green Gas Project (WSGG Project).

Under the *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP), development that has a capital investment value of more than $10 million on land identified as being within the Western Sydney Parklands on the Western Sydney Parklands Map within the meaning of *State Environmental Planning Policy (Western Sydney Parklands) 2009* (WSP SEPP) is classified as 'SSD' and requires approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) through the preparation of an Environmental Impact Statement (EIS). The WSGG Project has a capital investment value of $15 million AUD. As such, an EIS was prepared under Part 4 of the EP&A Act (SSD-10313), in accordance with the Secretary's Environmental Assessment Requirements (SEARs), dated 12 June 2019, and the requirements of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

The WSGG Project EIS (ELA, 2019) was publicly exhibited from 15 January 2020 – to 21 February 2020. A total of 14 submissions were received during the 37-day public exhibition period.

This document provides a response to the submissions made during the public exhibition period for the WSGG Project.

1.1 Approach to Response to Submissions

This report has been prepared by Eco Logical Australia (ELA) on behalf of Jemena as the Response to Submissions as received for the WSGG Project. This report provides:

i Additional technical studies completed to support the SSDA
ii A summary of the responses to the SSDA
iii A consolidated Response to Submissions received to the SSDA.

This Response to Submissions is structured to address submissions from Organisations and Public Authorities together, where similar submissions were raised.

Appendix A provides copies of all submissions received.

1.2 Proposed Development

The WSGG Project will require the construction of a power to gas (P2G) facility, which will house the following:

- Electrolyser (including final water treatment, electrolyser stack, purification & cooling systems)
- Hydrogen buffer store (buried carbon steel pipeline)
- Hydrogen gas control panel
- Hydrogen gas grid injection panel (to supply the Secondary Mains)
- Hydrogen microturbine
- Hydrogen refuelling station (HRS) (optional future scope)
- Site control hut
- Power grid connection, including transformer.

The WSGG Project will also require site piping and structural works, and site civil works, including a hardstand, foundations and footings. The existing access to Jemena's Horsley Park Facility will also be used and upgraded.

The WSGG Project has been designed for a production capacity of 100 Nm^3/h of hydrogen gas with a 500 kW Proton Exchange Membrane (PEM) electrolyser using purchased green electricity. Produced hydrogen gas will be injected into the existing natural gas distribution network at up to 2% by volume via a dedicated injection control panel. The WSGG Project also includes a gas-fuelled generator package (microturbine) that will initially be operated on natural gas to generate power on site. The microturbine will be converted to operate using hydrogen as its fuel source by end of 2020.

1.3 Amendments to the Proposed Development

A minor amendment has been made to the WSGG Project design during the public exhibition, as detailed design of the P2G facility continues to evolve. The minor amendment relates to the public utility adjustments outlined within the Section 3.6 of the WSGG Project EIS (ELA, 2019). The design amendment will include the installation of an underground to overhead (UGOH) connection to the existing overhead line (OHL) pole opposite the Horsley Park facility. An updated WSGG Project layout with this amendment can be found in **Appendix B**.

1.4 Submissions Received for the Proposed Development

The Department of Planning, Industry and Environment (DPIE) advised that a total of 14 submissions were received during the public exhibition period.

Of the 14 submissions received, two (2) were received from Organisations and twelve (12) were received from Public Authorities.

1.4.1 Organisation Submissions

Submissions from Organisations included:

- Sydney Water
- Austral Bricks.

Key issues raised by these Organisations included:

- Confirmation of proposed wastewater treatment
- Commentary on the use of recycled water
- Further commentary on on-site stormwater management
- The effects of changes to main gas composition on brickmaking such as energy costs and air emissions.

Issues raised in the Organisation submissions are addressed in detail in **Section 2** of this report, with **Appendix A** providing copies of all submissions received.

1.4.2 Public Authority Submissions

Submissions from Public Authorities included:

- Environment Protection Authority (EPA)
- Transport for NSW
- The Environment, Energy and Science (EES) Division within DPIE
- The Energy Networks Division within DPIE
- Fairfield City Council (FCC)
- Natural Resources Access Regulator (NRAR) and Water Division within DPIE
- WaterNSW
- Blacktown City Council (BCC)
- Western Sydney Parklands Trust (WSPT).

Key issues raised by these Public Authorities included:

- Traffic impacts such as safety concerns with construction vehicles using the intersection of Wallgrove Road and Chandos Road and the '5t and over' weight restriction on Chandos Road
- The need for the preparation and implementation of a Flood Evacuation Plan
- Confirmation on which elements of the WSGG Project will be incorporated within Jemena's Safety and Operation Plan (SAOP), including potential impacts the WSGG Project may have on customer installations and appliances
- The need for a Bushfire Protection Assessment (BPA)
- The need for an Aboriginal Cultural Heritage Assessment (ACHA)
- Commentary on how the WSGG Project fits with the Horsley Park Urban Farming Masterplan 2019
- The requirement for a Section 10.7 Planning Certificate
- The requirement for the preparation and implementation of a Construction Traffic Management Plan (CTMP), a Roadway Footpath Occupation Permit and a Dilapidation Report
- The requirement to consult with Western Sydney Airport Authority
- Further clarification for proposed on-site sewerage management and wastewater treatment
- Further assessment of potential impacts to threatened species in the form of a 'Test of Significance' in accordance with Section 7.3 of the *Biodiversity Conservation Act 2016* (BC Act)
- The preparation of a Pollution Incident Response Management Plan (PIRMP)
- The preparation of an Effluent Management Plan

- Potential dust and air quality impacts to Prospect Reservoir
- Safety concerns relating to the proximity of the proposed walking tracks (as outlined within the Horsley Park Urban Farming Masterplan 2019) to the WSGG Project.

Issues raised in the Public Authority submissions are addressed in detail in **Section 2** of this report, with **Appendix A** providing copies of all submissions received.

2. Response to Submissions

This section provides a detailed response to the submissions provided to the SSDA from both organisations and public authorities. The response to submissions has been categorised by environmental impact in order to address similar submissions in one response. Details provided within this section should be considered in addition to the information provided within the WSGG Project EIS (ELA, 2019) and relevant technical studies within the appendices.

2.1 Air Quality

The following considerations were requested to be addressed within the response to submissions in relation to impacts to air quality:

- The effects of using hydrogen gas in the brick manufacturing process and on potential air emissions
- Potential dust and air quality impacts on the nearby Prospect Reservoir
- Potential dust impacts using blue metal rock for the access road
- Discrepancy in the EIS regarding duration of operation of the microturbine on natural gas.

Detailed submissions can be found in **Table 1** and Jemena's response is outlined below.

Table 1: Public submissions regarding potential impacts to air quality

Organisation/Public Authority	Submission
Austral Bricks	Austral Bricks raised concerns regarding the use of hydrogen blend fuel on brick manufacturing, in particular regarding gas usage requirements and subsequent energy costs, potential air emissions emitted through the reaction between hydrogen and naturally occurring minerals in clay such as hydrochloric acid (HCI) and hydrogen fluoride (HF), as well as the ability to manufacture bricks that meet quality standards. Austral Bricks recommended that laboratory and kiln scale trials are undertaken to determine what impact the changes to mains gas composition on brickmaking might cause and that Jemena work with Austral Bricks to undertake a meaningful investigation prior to any approvals being granted for the release of hydrogen to the network.
WaterNSW	The subject site is within proximity (1 km) to WaterNSW owned and managed lands, being the Warragamba Pipelines and Upper Canal controlled area corridors, and Prospect Reservoir. All WaterNSW lands contain critical water supply infrastructure transporting raw water to the Prospect filtration plant. The water supply infrastructure is an integral component of Sydney's drinking water supply system and it is essential this water supply infrastructure is protected from the potential impacts of development. WaterNSW requested that the application consider Prospect Reservoir as a sensitive receiver, with the potential dust and air quality impacts on this sensitive receiver assessed and responded to.
Western Sydney Parklands Trust	The access road is currently constructed of blue metal rock, with this proposed to be upgraded to include a new turning circle. WSPT requested that the existing access road and proposed turning circle be upgraded to an all-weather sealed surface, to ensure that dust and erosion runoff from the access road and turning circle does not impact the adjacent urban farming land.
Blacktown City Council	There was a discrepancy regarding the length of time that the micro turbine is expected to emit nitrogen oxides while running on natural gas. The length of time will impact the

Organisation/Public Authority	Submission
	emissions level. The EIS states that the micro turbine would only run on natural gas during the first 6 months of operation and modelling was not warranted as the predicted emissions were negligible. However, the Air Quality Assessment prepared by Benbow Environmental additionally notes the transition to 100% hydrogen will occur at approximately 1 year of operation.

2.1.1 The Use of Hydrogen Gas within the Brick Manufacturing Process

It should be noted that the gas quality at Austral Bricks, and for all downstream users from the WSGG Project will continue to meet the gas specification as defined in Australian Standard (AS) 4564-2011 *Specification for general purpose natural gas* and Jemena's Reference Services Agreement, both in terms of composition and Wobbe Index, as no material change to the gas quality will occur.

As identified within the issue papers produced by the COAG Energy Council for the National Hydrogen Strategy (2019), the effect on industries that use natural gas as an input feedstock is not well researched. However, the average composition of hydrogen in the released natural gas will be 0.2%, with a peak blend of 2% by volume. Prior to the conversion to natural gas from towns gas, the gas composition consisted of up to 30-50% hydrogen by volume, with numerous brick kilns operating on towns gas at this time (Melaina *et al.* 2013). At the proposed 2% hydrogen blend, both current standards will be met, whilst remaining significantly below historical levels. Jemena will increase the blend ratio to 2% over time through several incremental steps.

Jemena is willing to work with Austral Bricks to inform them of any changes.

2.1.2 Potential Dust and Air Quality Impacts to Prospect Reservoir

An air quality assessment on the sensitive receptor Prospect Reservoir was undertaken by Benbow Environmental (2020) and is provided in **Appendix C**. The findings are summarised below.

2.1.2.1 Gases

As stated within the WSGG Project EIS (ELA, 2019), there are three sources of gas emissions to air in the current scope of the WSGG Project, including the generator, electrolyser and a buffer store blowdown vent. The future scope of the WSGG Project may also include an additional electrolyser and a hydrogen refuelling and dispensing station. The sources of emissions to air are summarised in Table 16 of the WSGG Project EIS (ELA, 2019).

The generator is the sole source of nitrogen oxide impacts from the WSGG Project, which is assumed to emit a maximum of 19 mg/m^3 of NO_x emissions at 15% O_2 at the stack exhaust point. It was concluded to be unlikely that there will be negative impacts on the health and environment of Prospect Reservoir for the following reasons (Benbow Environmental, 2020):

- The low stack concentration
- Limited daily operating time (2 hours per day, 5 days per week)
- The distance to Prospect Reservoir (approximately 1.1 km north-east of the WSGG Project facility)
- Not all NO_x emissions from the generator will be NO_2.

Hydrogen and oxygen are products of the electrolysis process. The hydrogen will be pumped into the buffer store for temporary on-site storage prior to distribution to the Jemena gas network, and the oxygen will be emitted to open air. This is not considered to be a significant risk to the surrounding environment and impacts at the Prospect Reservoir would not occur (Benbow Environmental, 2020).

A pipeline blowdown is required for the system to vent natural gas within the pressure system when necessary. This is not expected to be used for regular operation and is not considered a significant source of emissions. Emissions from the planned refuelling and dispensing station would be limited to fugitive emissions of hydrogen and are not considered significant.

In summary, impacts from gases at the WSGG Project would not occur at the Prospect Reservoir (Benbow Environmental, 2020).

2.1.2.2 Odours

The existing Jemena gas facility uses odorant in the natural gas. There are no new sources of odour for the WSGG Project. Odour emissions from fugitive emissions are considered insignificant. Odour impacts at the Prospect Reservoir would not occur due to the WSGG Project (Benbow Environmental, 2020).

2.1.2.3 Dust and Particles

There are no sources of dust and particulates associated with the operation of the WSGG Project. However, emissions to air may occur during the construction phase of the Project. Recommendations have been made within Table 33 of the WSGG Project EIS (ELA, 2019) to ensure construction impacts are mitigated.

Due to the significant distance between the WSGG Project Facility and the Prospect Reservoir, and the mitigation measures proposed during construction, dust and particle impacts at the Prospect Reservoir from the WSGG Project would be negligible (Benbow Environmental, 2020).

2.1.3 Potential Dust Impacts using Blue Metal Rock for the Access Road

Jemena proposes to single or double coat spray seal the existing access road as part of the WSGG Project. This will limit the potential for air quality or dust impacts as a result of vehicle use.

2.1.4 Discrepancy within the EIS

Jemena recognises the discrepancy whereby the WSGG Project EIS (ELA, 2019) states that the microturbine will only run on natural gas during the first 6 months of operation, whereas the Air Quality Assessment prepared by Benbow Environmental (Benbow Environmental, 2019) additionally notes the transition to 100% hydrogen will occur after approximately 1 year of operation. The driver for changeover from operation on natural gas to hydrogen is the certification process for the operation of the microturbine on hydrogen. Despite uncertainty around the exact timing of transition from natural gas, the expectation remains that this transition will be enabled (via the certification process being complete) within 6 – 12 months of operation, by the end 2021.

Additionally, Jemena commits that operation of the microturbine on natural gas will not exceed the equivalent of 2 hours per day, 5 days per week over 6 months. Hours of actual operation will be tracked and auditable, such that if the transition to hydrogen occurs later than at 6 months of operation, the hours of operation on natural gas will be monitored to ensure that the emissions calculated in the Benbow Air Quality Assessment (Benbow Environmental, 2019) will not be exceeded.

2.2 Hazards and Risk

The following considerations were requested to be addressed within the response to submissions in relation to impacts to hazards and risk:

- Appropriate updates to the existing SAOP
- Potential bushfire impacts
- Potential dangers to the public when utilising the proposed secondary parklands track as outlined within the Horsley Park Urban Farming Masterplan 2019.

Detailed submissions can be found in **Table 2** and Jemena's response is outlined below.

Table 2: Public submissions relating to potential hazards and risks

Organisation/Public Authority	Submission
Energy Networks Division within DPIE	The Energy Networks Division within DPIE noted that if the intent of the WSGG Project is to continue after the 5-year trial, Jemena will need to coordinate with the Energy Networks Division to ensure appropriate safety and technical regulation of the WSGG Project. The Energy Networks Division is seeking clarification on which aspects of the WSGG Project (just the hydrogen electrolyser and the hydrogen storage system with relevant safety shut off systems or the entire project including the possible refilling station and power generator) Jemena intends to include within the SAOP to be regulated. The SAOP will also be required to be updated and provided to the Secretary, with time for consideration, prior to any works commencing. It was also noted that the Energy Networks Division will be required to be consulted with if an increase of the hydrogen making capability of the facility is proposed. The Energy Networks Division also requested that impacts on customer installations and appliances be further examined.
Fairfield City Council	FCC have noted that the WSGG Project site is located 45 m east of mapped Category One Bushfire Prone Land, and Category Three Bushfire Prone Land is located to the west. Additionally, the WSGG Project site is affected by the mapped Vegetation Buffer. FCC have therefore requested the preparation and implementation of a Bushfire Protection Assessment, which includes considerations of perimeter fire access roads and Asset Protection Zones (APZs).
Western Sydney Parklands Trust	As raised in previous correspondence and meetings with Jemena the safe operation of the proposed facility is essential. This is particularly important with the proposed public walking tracks intended to be directly north, east and south of the property, as outlined in the Horsley Park Urban Farming Masterplan 2019. As the background studies for the proposal identify the refueller dispenser is the only part of the proposed design that can have any potential offsite consequences, if the refueller dispenser proceeds part of the project we request that appropriate preventative and mitigative safeguards to eliminate any potential offsite effects will be conditioned as part of the approval. It is noted that the existing 'outer' fence of the Jemena Horsley Park Facility will be upgraded to the Jemena EGP facility specifications with a 2.4m high anti-climb mesh with tiger tape barbed wire top. The Trust supports the proposed fence.

2.2.1 Safety and Operating Plan (SAOP)

Jemena agrees with the concerns raised and is committed to operating and managing the P2G facility and injection of hydrogen into the natural gas network under the existing network licence. Any

conditions and operating parameters relating to the network and hydrogen injection (such as blend ratio and validation) shall be referenced via the SAOP and reported to the technical regulator as agreed.

The peak volumetric injection rate of hydrogen into the gas stream will be 2%, although the annual average injection rate will be closer to 0.2%. In energy content this equates to 0.6% peak and annually an average of 0.06% of all gas will be hydrogen. Jemena has assessed the impact to all downstream users to be negligible on the basis that:

- The gas composition will remain well within the Wobbe Index and other gas quality requirements specified in AS 4564.
- Type A appliances are tested in Australia with test gas containing 13% hydrogen by volume.

Jemena does not consider that users will be impacted in any way, not withstanding, Jemena will address such concerns through the SAOP by provision of additional controls such as:

- Incremental injection blend volumes into the network over time, increasing up to 2% by volume once each iterative increase has been successfully completed
- Blend ratio proving, starting at 0.2% hydrogen by volume; Jemena will test downstream gas composition through analysis to ensure system controls are fully compliant with expectations
- Training and liaison with local plumbers and gas fitters to report any suspected impacts/concerns that could be related.

Prior to construction, Jemena will undertake a formal risk assessment, which will be referenced in the SAOP, formally acknowledging risks and mitigations considered.

2.2.2 Bushfire

A BPA has been prepared by ELA on behalf of Jemena and is provided in **Appendix D.** The BPA was prepared to support the SSDA and the upgrading of the Jemena Horsley Park Gas Facility to include the WSGG Project. The Jemena Horsley Park Gas Facility is located on land classified as bush fire prone on the FCC bush fire prone land (BFPL) map, however the WSGG Project footprint is located outside the BFPL as shown in Figure 2 of **Appendix D** (ELA, 2020).

2.2.2.1 Assessment Pathway

The WSGG Project has been assessed under *Planning for Bush Fire Protection 2019* (RFS, 2019), herein referred to as PBP, as requested by FCC. In consideration of how the WSGG Project was to be assessed under PBP, the following characteristics were considered:

- The WSGG Project is considered as 'hazardous industry', as such a Fire Safety Study has been prepared under Section 7.3 of the Environmental Impact Assessment (ELA, 2019) in accordance with the DPIE Hazardous Industry Planning and Assessment Papers (HIPAPs)
- The hazardous material (gas) is primarily located underground and the above ground infrastructure is for monitoring and control functions
- The new buildings are shipping containers (Class 10a structures) which PBP identifies as not requiring any bushfire protection measures if located > 6m from a residential building in a bush fire prone area

- Containers will only house electrical panels and be controlled automatically – no personnel will be on site except in case of maintenance
- The site is an existing Jemena gas facility
- Although the subject property is mapped as BFPL, the WSGG Project footprint is located outside of this (ELA, 2020).

In consideration off the above information, Section 8.3 (Other Development) and in particular 8.3.1 (Buildings of Class 5 to 8 under the National Construction Code (NCC)) of PBP was considered the appropriate pathway for assessment. Therefore, the following objectives for access, water supply, utilities and emergency evacuation planning apply:

- The general fire safety constructions provisions within the NCC are taken as acceptable solutions for all construction
- To provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation
- To provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development
- To provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building
- Provide for the storage of hazardous materials away from the hazard wherever possible (ELA, 2020).

To achieve the above objectives, Section 8.3.10 (Commercial and Industrial Development) of PBP was considered and Section 7 (Infill Development) of PBP has been used as the set of performance criteria and acceptable solutions to be assessed against which to demonstrate compliance and is considered to be a performance based assessment (ELA, 2020).

2.2.2.2 Bushfire Hazard Assessment

The bushfire hazard assessment, utilising the assessment methodology outlined in Appendix 1 of PBP, was undertaken to determine the required APZ and construction requirements for the WSGG Project. The bushfire hazard assessment identified the following:

- Vegetation to the west (mapped as Forest Red Gum – Rough-barked Apple grassy woodland on alluvial E flats of the Cumberland Plain, Sydney Basin Bioregion and Forest Red Gum grassy woodland on flats of the CE Cumberland Plain, Sydney Basin Bioregion), however this is not the predominant bushfire hazard
- The predominant bushfire hazard is the grassland adjoining the western boundary. This grassland is approximately 50 m wide and managed by the owner of the adjoining land, however as this land is not owned by Jemena, continual management cannot be guaranteed, therefore for the purposes of this assessment, is considered a bushfire hazard and classified as 'grassland' in accordance with PBP. The effective slope under this hazard falls within the PBP slope category of '>0-5 degrees downslope'

- The land to the east consists of grassland paddocks in various states of management, this land is considered a bushfire hazard and is classified as 'grassland' in accordance with PBP. The effective slope falls within the PBP slope category of 'all upslopes and flat land'
- In all other directions the land is managed (ELA, 2020).

2.2.2.3 Bushfire Protection Measures

Bushfire protection measures have been outlined within the BPA (**Appendix D**), and either comply or can comply with the requirements outlined within Section 7.4 of PBP. The WSGG Project complies with the objectives of Section 8.3.1 of PBP as summarised below in **Table 3**.

Table 3: Summary of objectives of PBP assessed (ELA, 2020)

Objective	Bushfire protection measures	Objective achieved	Appendix D – Report Section
Provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation	**The access complies with acceptable solutions of Table 7.4a of PBP** The proposed development is accessed off Chandos Road via a >6 m wide road that will be upgraded to be all-weather sealed, with turning circle suitable for a twin axle bus/truck. The proposed development also provides managed grass perimeter access approximately 15-25 m wide.	☑	3.2
Provide suitable emergency and evacuation and relocation arrangements for occupants of the development	Existing Bushfire Emergency Management and Evacuation Plan to be updated prior to occupation of the building.	☑	3.8
Provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building	**Water to comply with Table 74.a of PBP** It is recommended that either appropriate hydrants are installed within the facility (including existing infrastructure) OR a 20,000L static water supply be provided. **Gas and electricity supply to comply with Table 7.4.a of PBP** Gas and electricity are located underground. Gas pipes within proposed development shall be sealed.	☑	3.3, 3.4, 3.5
Provide for the storage of hazardous materials away from the hazard wherever possible	Compliance with industry standards is considered appropriate and to be assessed by others.	☑	3.5, 3.6
Additional Objectives	**Bushfire protection measures**	**Objective achieved**	**Report Section**
Asset Protection Zones	The entire property is to be managed to Inner Protection Area (IPA) standards in accordance with PBP. Fuel management specifications provided in **Appendix D**.	☑	3.1, Appendix A

Objective	Bushfire protection measures	Objective achieved	Appendix D – Report Section
Construction standard	The general fire safety constructions provisions within the NCC apply to the proposed development. The proposed development is exposed to BAL-12.5 to the eastern elevation and BAL-LOW to all other elevations however Section A1.8 of PBP states the construction requirements for a shielded elevation shall not be less than that required for BAL-12.5.	☑	3.1

2.2.3 Horsley Park Urban Farming Masterplan 2019

In accordance with the Horsley Park Master Plan, a secondary parklands track is proposed in proximity to the north, east and south boundaries of the WSGG Project site (Figure 1 and Figure 2). It is acknowledged that all proposed tracks are to conform with the WSPT's Parkland Design Manual.

The secondary parklands track is proposed to be situated approximately 50 m east of the HRS (Figure 2). The location of the secondary parklands track has been examined against the findings of the Preliminary Hazard Assessment (PHA), Section 7.3 and Appendix C of the WSGG Project EIS (ELA, 2019), and as such the secondary parklands track will be within the radiation contour as defined within the PHA.

Whilst the HRS is included within the current WSGG Project description, further viability assessments of the HRS will be undertaken and there is currently no certainty that the HRS will eventuate. Given this, Jemena will commit to an additional hazard assessment to reassess the risk to the secondary parklands track if the HRS is determined to be viable and proceeds. The additional hazard assessment would include considerations of additional mitigation measures if required.

It is also acknowledged that a design control for tracks and trails is to have indigenous shade trees in informal groups. Jemena requests that no additional shade trees are planted around the perimeter of the WSGG Project site so as not to create a future bushfire hazard.

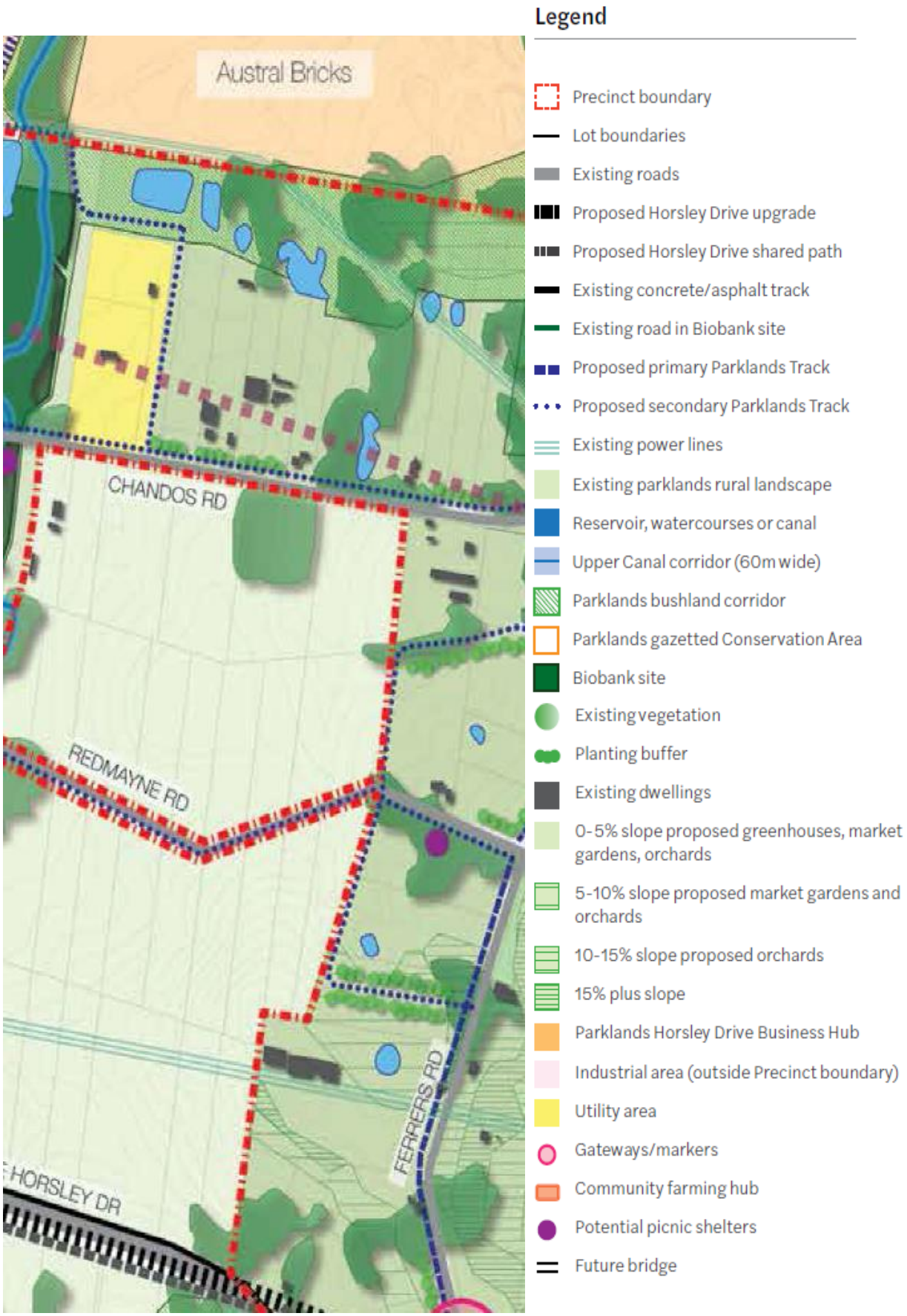

Figure 1: Horsley Park Master Plan (2019)

Figure 2: Proposed secondary parklands track is relation to the WSGG Project

2.3 Waste

The following considerations were requested to be addressed within the response to submissions in relation to impacts to waste:

- Ensure appropriate waste management plans are prepared and implemented.

Detailed submissions can be found in **Table 4** and Jemena's response is outlined below.

Table 4: Public submissions in relation to potential waste impacts

Organisation/Public Authority	Submission
Fairfield City Council	**Pollution Incident Response Management Plan** Prior to the construction of the facility, a Pollution Incident Response Management Plan (PIRMP) shall be submitted to Council for review and assessment.
Fairfield City Council	**Effluent Management Plan** Prior to the construction of the facility, an Effluent Management Plan shall be submitted to Council for review and assessment. The effluent management plan must include the "reject water" from the all processes.
Fairfield City Council	***Protection of the Environment Operations Act 1997*** **(POEO Act)** The use of the premises shall operate in accordance with the POEO Act. All activities and operations carried out shall not give rise to air pollution (including odour), offensive noise or pollution of land and/or water as defined under the POEO Act.

2.3.1 Waste Management Plans

It is noted that the preparation of a PIRMP is only required for holders of an Environment Protection Licence or licensees in accordance with section 153A of the POEO Act. Given the WSGG Project facility and operations do not satisfy this requirement, the preparation of a PIRMP is not required.

Jemena intends to utilise a Resource Recovery Exemption and Order to apply waste to land in accordance with the POEO Act. The authority will therefore be the EPA.

It is noted that in some cases, the EPA may give exemptions for the re-use of waste that is applied to land (as defined in Clause 92 of the *Protection of the Environment Operations (Waste) Regulation 2014* (POEO (Waste) Regulation), such as the proposed wastewater from the P2P Plant to be used for irrigation. Jemena intends to apply for and utilise a Resource Recovery Exemption and Order to apply waste to land under Clause 93 of the POEO (Waste) Regulation. The authority will therefore be the EPA and the preparation of an Effluent Management Plan is therefore, not required.

2.4 Noise and Vibration

The following considerations were requested to be addressed within the response to submissions in relation to impacts to noise and vibration:

- Ensure the microturbine only operates between the hours of 7 am – 10 pm
- The preparation of an acoustic report.

Detailed submissions can be found in **Table 5** and Jemena's response is outlined below.

Table 5: Public submissions in relation to potential noise impacts

Organisation/Public Authority	Submission
Environment Protection Authority	EPA have stated that the WSGG Project will not require an Environment Protection Licence (EPL) under the *Protection of the Environment Operations Act 1997* (POEO Act). However, the EPA potentially has a regulatory role in relation to the Act. The EPA recommended a condition of consent limiting the operating hours of the microturbine to between 7 am – 10 pm to ensure the WSGG Project complies with noise levels within the Noise Policy for Industry (NPfI).
Fairfield City Council	An acoustic report is to be prepared by an appropriate acoustical consultant and submitted to Council for its assessment and approval following the design phase of the development. The report shall include but is not limited to the following information: • Predicative analysis as per the relevant statutory and regulatory noise guidelines for the proposal. • Where the predictive noise assessment indicate that the relevant assessment criteria are exceeded, recommendations shall be provided in relation to how noise emissions can be satisfactorily reduced to comply with the assessment criteria. The subject site is within the flight path of Western Sydney Airport; therefore, a section on addressing aircraft noise will be required.
Blacktown City Council	The noise assessment indicated the need for some noise mitigation for the micro turbine unit and noise management during the construction phase.

2.4.1 Microturbine Operating Hours

As per mitigation measure NV06 detailed in Table 33 of the WSGG Project EIS (ELA, 2019), Jemena has accepted to limit the operating hours of the microturbine to 7 am – 10 pm, which is as per the installed specification is in accordance with the NPfI.

It is noted that the WSGG Project will also adhere to all other noise mitigation measures detailed in Table 33 of the WSGG Project EIS (ELA, 2019) as well as the Interim Construction Noise Guideline (DECC, 2009).

2.4.2 Acoustic Report

Jemena will prepare and submit an acoustic report to FCC prior to operation. The acoustic report will comply with the NPfI.

2.5 Visual

The following considerations were requested to be addressed within the response to submissions in relation to impacts to visual amenity:

- The design of the proposed WSGG Project facility should consider:
  - The requirements outlined within the Horsley Park Urban Farming Masterplan 2019
  - The character of the area
  - Carpark landscaping
  - Appropriate fencing design
  - The rural / residential interface.

Detailed submissions can be found in **Table 6** and Jemena's response is outlined below.

Table 6: Public submissions in relation to potential visual impacts

Organisation/Public Authority	Submission
Fairfield City Council	FCC have requested that the WSGG Project must take into account the Horsley Park Urban Farming Masterplan 2019. The Project Site is identified as being within a farming precinct and references front rear and side setbacks for rural farmhouses and outbuildings. FCC have recommended that the WSGG Project consider setback and layout requirements for the Horsley Park Urban Farming Precinct.
Fairfield City Council	**Character of the Area** The subject site is located within the Horsley Park rural precinct. The proposed buildings and structures shall comprise a variety of materials, colours and finishes that contribute to the visual interest of the streetscape whilst maintaining the rural character of the area. A minimum 10-metre landscape front setback shall be provided and dense perimeter landscaping comprising of a variety of native plant species shall be provided to screen the development.
Fairfield City Council	**Car Park Landscaping** A tree planting in the form of island planter beds should be provided at a rate of one planter bed per 10 spaces within car parks to reduce the heat effect and soften hard surfaces.
Fairfield City Council	**Fencing** Fencing along street frontages should provide open style palisade fencing, which does not obstruct views of landscaping from the street at a maximum height of 2.4 metres. Solid fencing should not be above 1 metre in height.
Fairfield City Council	**Rural / Residential Industrial Interface** The proposal shall consider potential impacts associated with noise, odour, vibration, overshadowing, privacy and excessive bulk. The development shall sympathetically relate to adjoining and nearby rural/ residential land. Given the close distance to the dwelling at No.203 Chandos Road, it is recommended that the landowners be consulted.
Fairfield City Council	**Building Code of Australia Assessment** A partial Building Code of Australia (BCA) assessment was undertaken relating to the BCA report submitted with the EIS. The standard conditions in attachment A are recommended to be imposed should a consent be issued.

2.5.1 Design of the WSGG Project Facility

Although the WSGG Project site is located within the Horsley Park rural precinct, the Project is not considered a rural development. The proposed buildings and structures will follow the character of the existing buildings within the Horsley Park Gas Facility.

A minimum 10 m landscape front setback can be applied to the boundary of Chandos Road for any future security fencing that Jemena will undertake separately to the WSGG Project. However, it is not feasible to provide for dense perimeter landscaping comprising of a variety of native plant species to screen the WSGG Project, as this may present safety issues on-site, including additional bushfire hazards and a risk to existing infrastructure assets.

No car parks have been proposed as part of the WSGG Project, therefore, the need for car park landscaping is not warranted.

The existing 'outer' fence of the Jemena Horsley Park Facility will be upgraded to the Jemena EGP facility specifications, 2.4m high anti-climb mesh with tiger tape barbed wire top. Gate access will be provided at emergency exit points to be determined during detailed design. All gates will be equipped with switches.

Potential impacts regarding noise, odour and vibration have been detailed within the EIS (ELA, 2019). The WSGG Project site will be setback from the site boundary by 10 m. Furthermore, the highest point proposed for the WSGG Project will be the blowdown pipe, which is 6.5 m. Therefore, it is unlikely that the WSGG Project will cause overshadowing or excessive bulk.

Targeted community consultation with adjoining and potentially affected landowners within a 500 m radius of the WSGG Project site was undertaken during the preparation of the EIS. Initially, Jemena distributed a flyer to 12 adjoining and potentially affected landowners to inform them of the direct consultation process for the WSGG Project and landowners were invited to call in order set up a face to face meeting time. Nine adjoining and potentially affected landowners responded, and face to face meetings were undertaken with six adjoining and potentially affected landowners between the 1 and 3 October 2019. The landowner of 203 Chandos Road did not respond to the flyer, therefore no face to face meeting was undertaken. Ongoing consultation is being undertaken by Jemena, and the landowner of 203 Chandos Rd will be contacted through of the consultation methods proposed in Appendix D (Stakeholder Management Plan) of the EIS (ELA, 2019).

2.6 Traffic and Transport

The following considerations were requested to be addressed within the response to submissions in relation to impacts to traffic and transport:

- Further details on how the Proponent intends to address safety issues along Chandos Road and the Wallgrove Road intersection and the vehicle weight restriction on Chandos Road
- The preparation of a CTMP, Roadways Footpath Occupation Permit and Dilapidation Report.

Detailed submissions can be found in **Table 7** and Jemena's response is outlined below.

Table 7: Public submissions in relation to potential traffic impacts

Organisation/Public Authority	Submission
Transport for NSW	Transport for NSW noted that the intersection of Wallgrove Road and Chandos Road is identified as a blackspot site. The speed limit has recently been reduced along this section of Wallgrove Road and concerns have been raised regarding safety with construction vehicles using this intersection. Transport for NSW requested that this vehicle route be further assessed. Transport for NSW noted that Chandos Road has a '5t and over' weight restriction. While Council is the responsible authority for this local road, it includes an overpass of the M7 Motorway. Transport for NSW have requested information on how Jemena plans to address this weight restriction.
Fairfield City Council	FCC requested that the following is prepared and submitted to FCC for assessment: • CTMP; • Roadways Footpath Occupation Permit; and • Dilapidation Report

Organisation/Public Authority	Submission
	FCC also raised concerns regarding the safety issues when turning into Chandos Road from Wallgrove Road. FCC recommended that construction vehicles and buses, shall exit on to the Horsley Drive from the M7 Motorway, travel eastbound turning left towards Ferrers Road, travel northbound on Ferrer's Road turning left on to the Chandos Road and turn right into the site access road. FCC also advised that that the turning area required for vehicles to pass each other shall be sealed.

Further investigation has been undertaken by TTM Consulting Pty Ltd (2020) in regard to light and heavy vehicular movements during the construction phase of the WSGG Project. After considering the submissions from Transport for NSW and FCC regarding the safety concerns for construction traffic using the intersection of Wallgrove Road and Chandos Road, a high level Traffic Management Plan (TMP) has been prepared by TTM to outline the proposed new route for light and heavy construction vehicles to access the Site (**Appendix E**).

In accordance with the revised route, all construction vehicles will exit the M7 Motorway on to Horsley Drive, travel eastbound turning left towards Ferrers Road, travel northbound on Ferrer's Road turning left on to the Chandos Road and turn right into the WSGG Project access road. Furthermore, a swept path analysis (**Appendix E**) has been undertaken by TTM for the intersections along this revised route, with no foreseeable issues arising from heavy vehicles utilising these intersections.

The revised route for construction vehicles negates the need to further analyse the overpass over the M7 along Chandos Rd, as this route will no longer be used by heavy vehicles to access the site.

Jemena will prepare a detailed CTMP for approval by FCC and a Roadways Footpath Occupation Permit at the completion of detailed design and prior to construction commencing. A Dilapidation Report will be prepared and submitted to FCC prior to the commissioning of the HRS and any bus movements along Chandos Rd. This is requested to be undertaken as a condition of consent.

2.7 Biodiversity

The following considerations were requested to be addressed within the response to submissions in relation to impacts to biodiversity:

- Further impact assessments for threatened ecological communities and species.

Detailed submissions can be found in **Table 8** and Jemena's response is outlined below.

Table 8: Public submissions in relation to potential visual impacts

Organisation/Public Authority	Submission
Fairfield City Council	Natural Resources recommends that the proponent applies the test of significance (5-part test) pursuant to section 7.3 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. The test of significance is to take into account noise and light pollution and potential impact on fauna based on multiple night surveys for birdlife and micro bats on the Western Sydney Parkland Site.

2.7.1 Tests of Significance

The Biodiversity Development Assessment Report (BDAR) Waiver, which was approved by the Biodiversity Conservation Division (BCD) within DPIE, assessed the habitat suitability of the WSGG Project site for threatened species.

Suitable habitat for threatened species is highly limited within the Project site. No threatened flora species were detected within the Project site during the inspection. Minimal foraging habitat is available for threatened fauna species. Considering the small amount of isolated vegetation present, the site does not contain sufficient foraging resources to sustain any threatened fauna species. No suitable roosting habitat is available within the Project site for hollow-dependent threatened fauna species due to the absence of hollow-bearing trees. The human made structures within the Project site are modern and do not consist of potential roosting habitat for threatened microbat species such as open roof crevices, culverts, bridges, railway tunnels or stormwater tunnels. The development will not compromise habitat suitability for threatened species.

The WSGG Project will therefore not impact upon any habitat specified under Clause 6.1 (1) (a) of the *Biodiversity Conservation Regulation 2017* (BC Regulation).

The BDAR Waiver Determinations for SSD and SSI Applications Fact Sheet (Planning and Environment, 2018) states that BDAR Waivers are only issued in circumstances where it is clearly demonstrated that the proposed development is not likely to have any significant impact on biodiversity values. Therefore, Tests of Significance in accordance with Section 7.3 of the BC Act are not warranted.

2.8 Aboriginal Heritage

The following considerations were requested to be addressed within the response to submissions in relation to impacts to Aboriginal heritage:

- The preparation of an ACHA.

Detailed submissions can be found in **Table 9** and Jemena's response is outlined below.

Table 9: Public submissions in relation to potential Aboriginal heritage impacts

Organisation/Public Authority	Submission
Fairfield City Council	FCC have noted that an Aboriginal heritage site, consisting of Silcrete (1 flake and 1 core) is located within 20-30 m of the WSGG Project site, within a market garden within a track, as noted within Section 7.9 of the EIS. The EIS concludes that because an Aboriginal heritage survey study was undertaken in 2014 for the metering facility upgrade, no further studies are required. FCC disagree with this conclusion and have requested that an ACHA is prepared.

2.8.1 Preparation of an ACHA

An Aboriginal Due Diligence was undertaken by Biosis Pty Ltd in 2014 in accordance with the requirements of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010) for development of the Horsley Park Facility.

It was concluded that the study area was generally located within an area of high archaeological potential for Aboriginal sites, as it is within 100 m of Eastern Creek. However, the level of potential for

intact archaeological deposits was downgraded to low due to the high-level ground disturbance from the installation of the existing gas meter station and associated infrastructure as well as the high levels of disturbance resulting from the twentieth century market gardening.

The recorded AHIMS site (45-5-2567), located approximately 20-30 m to the west of the western boundary of the proposal is not within the WSGG Project site and will not be impacted by the development.

Given it was determined that archaeological potential was considered to be low during the previous assessment, no Aboriginal objects were detected during the site inspection in 2014 and the Horsley Park Facility is now constructed and operating, it could be concluded that there is now as low or even lower potential for intact archaeological deposits to be present and impacted by the WSGG Project. Furthermore, the preparation of an ACHA was not required as part of the Project SEARs. Therefore, the preparation of an ACHA is not warranted.

Furthermore, the Deerubbin Local Aboriginal Land Council (LALC) were contacted by Jemena in October 2019 to discuss the WSGG Project. The Deerubbin LALC advised Jemena that they did not require a site visit and correspondence via email was sufficient for any future engagement with the Deerubbin LALC for the WSGG Project. Jemena will maintain ongoing project updates with the Deerubbin LALC for the WSGG Project.

Should the discovery of unsuspected Aboriginal objects occur during construction, mitigation measures AH02 and AH03 outlined in Table 33 of the WSGG Project EIS (ELA, 2019) will be adhered to.

2.9 Water and Land

The following considerations were requested to be addressed within the response to submissions in relation to impacts to water and land:

- The development and implementation of a Flood Evacuation Plan
- Application for a Section 10.7 (2) and (5) Planning Certificate and preparation of a Flood Risk Management Report, should it be required
- Consideration of access requirements to suitable treatment facilities for the disposal of wastewater, and contingency plans should this option not be available.

Detailed submissions can be found in **Table 10** and Jemena's response is outlined below.

Table 10: Public submissions in relation to potential impacts to water and land

Organisation/Public Authority	Submission
The Environment, Energy and Science Division within DPIE	The Environment, Energy and Science (EES) Division within DPIE noted that the WSGG Project site is outside the limit of a Probable Maximum Flood (PMF) event. However, it was also noted that the WSGG Project site is likely to be isolated as the culverts on Chandos Road (located on eastern and western sides of the Project Site) are expected to be submerged under major storm events including the PMF event. The floodwater depth would be up to 0.5 m above the road level for events up to 100 Year Average Recurrence Interval (ARI) and the duration of submergence would be around four hours. The floodwater depth and duration of inundation will be higher during a PMF event.

Organisation/Public Authority	Submission
	EES have requested that Jemena develop an evacuation plan, in consultation with Council and the NSW State Emergency Services (SES), for safe evacuation of personnel working at the facility. Jemena will need to evaluate the potential options for evacuation and emergency management and select the preferred option(s) in consultation with Council and the NSW SES.
Fairfield City Council	In Council's letter dated 14 May 2019 the applicant was advised to apply for a section 10.7 (2) and 10.7 (5) planning certificate prior to preparation of the EIS. This is important as it allows flooding to be properly addressed. The applicant did not do this. Therefore, the EIS does not address flooding accurately. The EIS shows that the proposed location of the WSGGP works are shown to be outside the Probable Maximum Flood (PMF), however this is not at a scale suitable to determine accuracy. After purchasing a 10.7 (2) and (5), the applicant should contact Council for a flood map which will show flood risk precincts across the entire site. This should be overlaid with the proposed works location to show the proposed works are outside the floodplain. If the Proposed works are shown to be within the floodplain, a flood risk management report shall be prepared by a qualified consultant to demonstrate that the proposal fully complies with Chapter 11 of Council's Fairfield City Wide DCP 2013.
Sydney Water	Sydney Water confirmed that there are currently no existing wastewater services to the facility. Therefore, if the option of transporting wastewater to a treatment facility is chosen, it is recommended that adequate consideration is given to understanding access requirements to a suitable treatment facility. It was also recommended that further consideration be given to contingency planning such as storage and/or back-up treatment facilities should the anticipated disposal route become unavailable. Sydney Water also recommended that Jemena ensure measures are put in place to adequately control the containment of wastewater onsite to prevent it becoming septic and identify a suitable disposal route should wastewater be stored onsite for 10 days prior to disposal.
Fairfield City Council	The subject site is not served by the reticulated sewerage system. On- site sewage management shall be designed in accordance with Fairfield City Council's on-site Sewerage Management Policy and any requirements required by the Environmental Protection Authority.
Western Sydney Parklands Trust	The proposal includes some offsite removal of wastewater. It is noted that Jemena is still assessing the options for wastewater removal. The Trust believes there is an opportunity to avoid offsite wastewater removal, through water quality treatment. The Trust supports the purification of surplus water, and for this water to be considered for irrigation purposes for adjacent urban farming lots owned by the Trust and tenanted by farmers and welcome the opportunity to discuss this opportunity with the assessment team and Jemena.
Sydney Water	Sydney Water requested that the use of recycled water is trialled within the 5-year trial to ensure the WSGG Project can utilise recycled water after the completion of the 5-year trial in the chance that recycled water is required to provide future volumetric supply.
Sydney Water	Sydney Water requested that satisfactory steps/measures are taken to protect existing stormwater assets, such as avoiding building over and/or adjacent to stormwater assets and building bridges over stormwater assets. It has also been requested that Jemena consider taking measures to minimise or eliminate potential flooding, degradation of water quality, and avoid adverse impacts on any heritage items, and create pipeline easements where required.

Organisation/Public Authority	Submission
Natural Resources Access Regulator and Water Division within DPIE	A condition of consent should be applied stating that if groundwater is intercepted during construction, NRAR should be contacted for advice regarding any necessary approvals/licences.

2.9.1 Wastewater Servicing

The lack of existing wastewater services to the facility has been noted, along with the in-principle support for the proposed wastewater solution. It should also be noted that Jemena is looking to beneficially re-use process water as irrigation on the site or within the Western Sydney Parklands. The wastewater stream is predicted to have a salinity of about 500ppm – suitable for most irrigation purposes – and therefore not susceptible to becoming septic.

Contaminant levels in the concentrate are anticipated to be below the Australian and New Zealand Environment Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) guidelines for irrigation waters and the sodium adsorption level (SAR) ratio will remain low at about 1.

Based on the proposed approach, which Sydney Water are supporting, access requirements have been considered. The proposed use of onsite irrigation forms part of Jemena's contingency planning and relevant approvals shall be sought, should the availability of the disposal route become unavailable.

As part of the detailed design, the use of additional (if required) onsite treatment and the re-use of the water by WSPT is being considered further with meetings held between all interested parties.

As identified within the Horsley Park Urban Farming Masterplan 2019, existing farms within the Horsley Park area rely on minimal annual mean rainfall, small farm dams and, overwhelmingly, potable water. It is acknowledged that these options will not be sustainable in the long term. It is therefore understood that a precinct-wide water management strategy will be undertaken to investigate alternative water sources. As identified within Section 7.11.2 of the WSGG Project EIS (ELA, 2019), the Project will generate approximately 535 L/day of wastewater, which would be suitable for irrigation purposes. If irrigation is the preferred option, a resource recovery exemption and order from the EPA waste department will be obtained, as it is considered a process waste.

2.9.2 Stormwater

If Sydney Water stormwater assets are identified on site, the detailed design of the facility will be such that these assets are protected.

To protect nearby environments, during detailed design stormwater runoff from the site will be captured and transferred using Water Sensitive Urban Design (WSUD) techniques, where applicable, prior to release into the wider environment to reduce the likelihood of water quality degradation and increased flooding from additional impervious surfaces.

2.9.3 Flooding

A Section 10.7 planning certificate has now been obtained and states in it the relevant flood levels for the PMF, 1 in 100 ARI and 1 in 20 ARI events, noting that the flood levels have been duplicated between the 1 in 20 and 1 in 100 ARI events for Lot 3 DP 1002746. As per the advice within the 10.7 planning certificate, flood maps were sought from Council (Figure 3 and Figure 4).

The levels provided in the 10.7 certificate and flood maps show that the area is subject to inundation under a range of flood conditions. Two flood categorisations occur on the sites – Low Flood Risk Precinct and Medium Flood Risk Precinct. The definitions of which, as per the 10.7 planning certificate are:

- Medium Risk Flood Risk Precinct: Land below the 100-year flood level that is not within a High Flood Risk Precinct. This is land that is not subject to high hydraulic hazard or where there are no significant evacuation difficulties.
  Low Risk Flood Risk Precinct: All land within the floodplain (within the PMF extent) above the 100-year flood event and not identified within either a High Flood Risk Precinct or Medium Flood Risk Precinct.

The proposed P2G facility encroaches upon the low flood risk precinct mapped within Lot 1 DP499001, however this encroachment is very minor, with the majority of the P2G facility outside of the mapped flood zones. As part of detailed design, should any of the works be wholly located within one of the flood zones, as per Figure 3 and Figure 4 below, a flood risk management report will need to be prepared to ensure flood risks are mitigated appropriately.

An Evacuation and Emergency Management Plan is already in place at the operational facility. This Plan will be updated to in consultation with FCC and the NSW SES to include a flood evacuation plan. This is requested to be completed as a Condition of Consent.

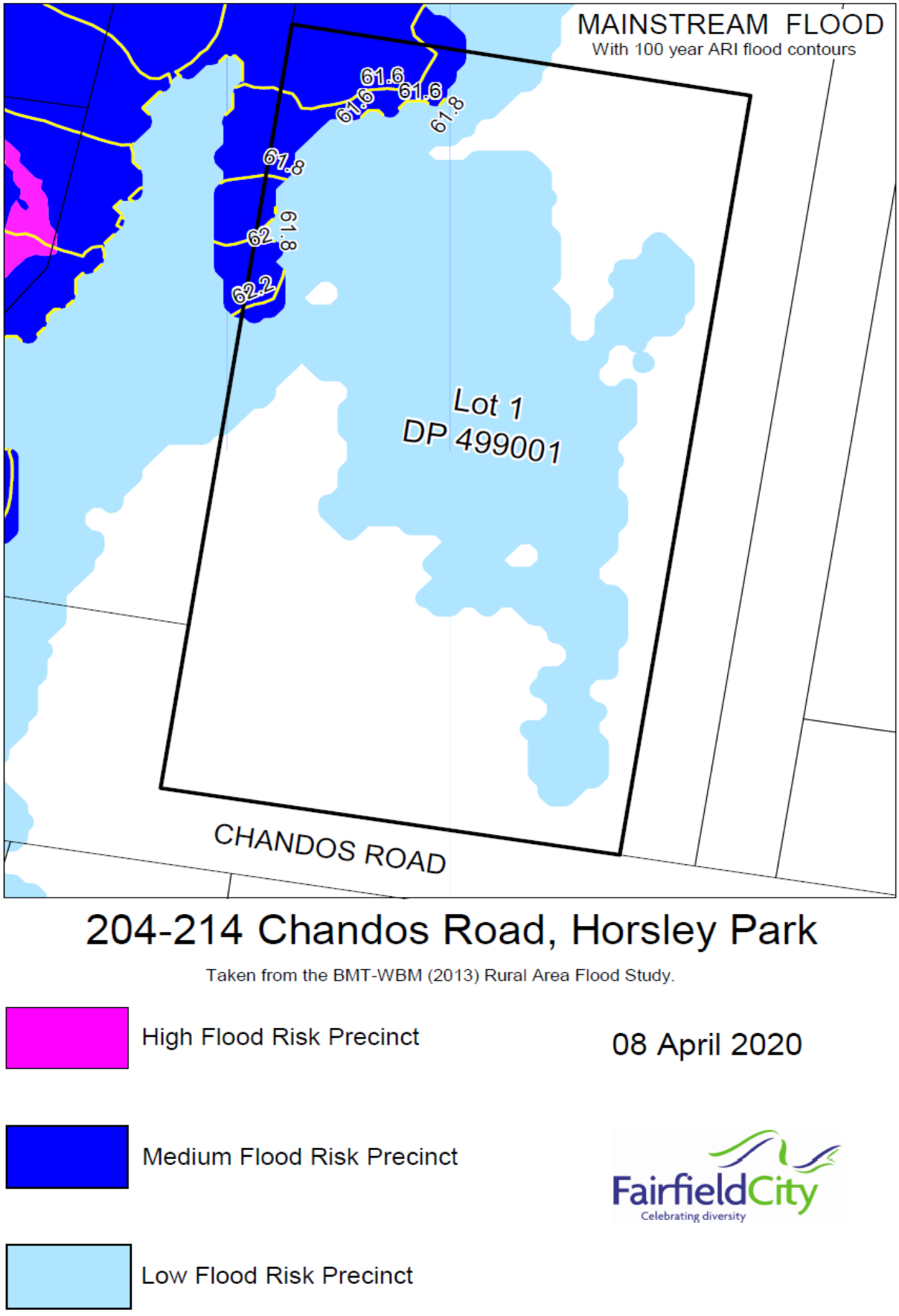

Figure 3: Mainstream Flood with 100 year ARI flood contours (Lot 1 DP 499001)

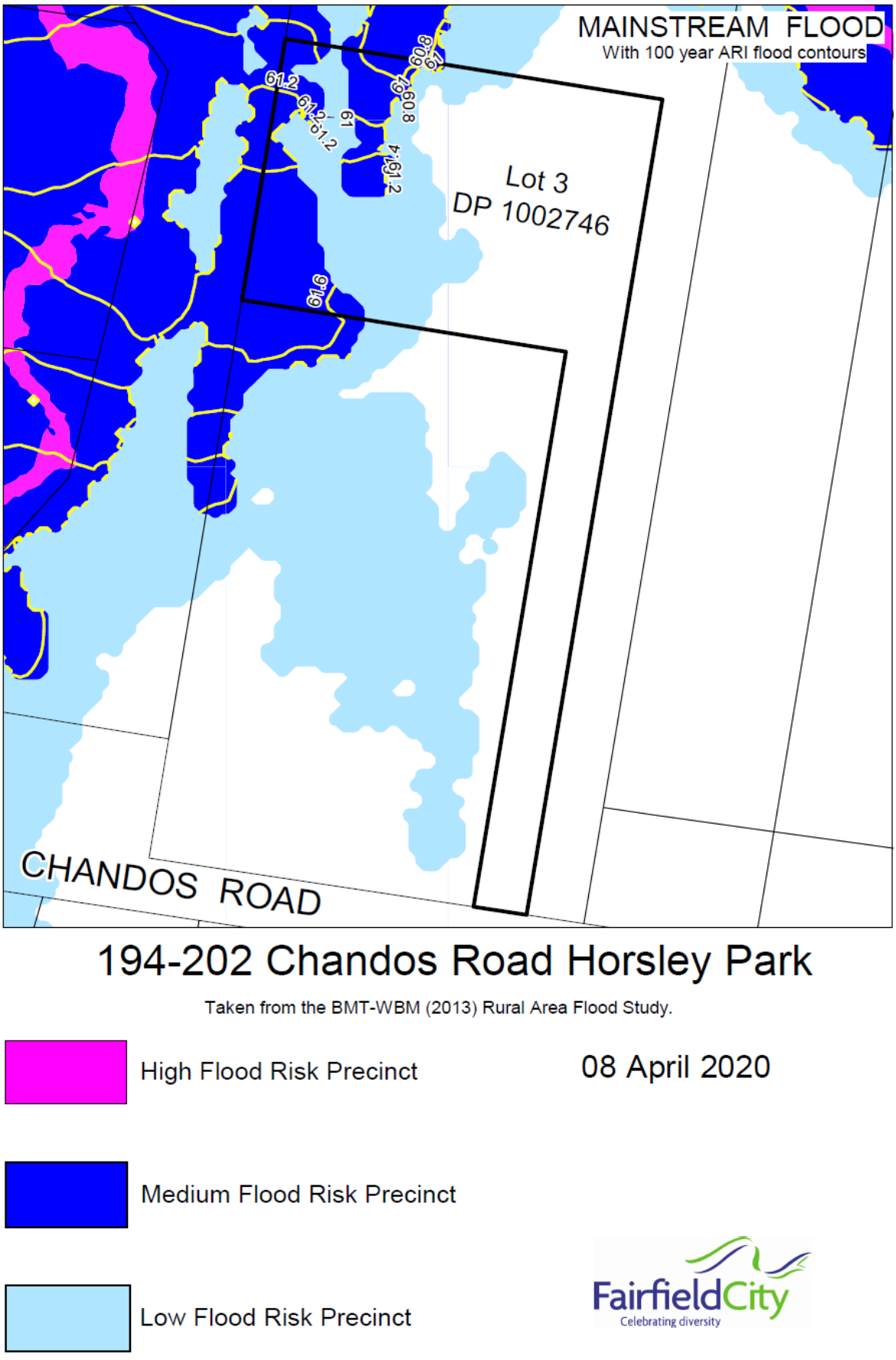

Figure 4: Mainstream Flood with 100 year ARI flood contours (Lot 3 DP 1002746)

2.10 Stakeholder Consultation

The following considerations were requested to be addressed within the response to submissions in relation to stakeholder consultation:

- Consultation with the Western Sydney Airport and WSPT is to be undertaken.

Detailed submissions can be found in **Table 11** and Jemena's response is outlined below.

Table 11: Public submissions in relation to stakeholder consultation

Organisation/Public Authority	Submission
Fairfield City Council	FCC acknowledged that the subject site is within the flight path for the Western Sydney Airport and requested that Western Sydney Airport be consulted with to determine if there are any impacts.
Fairfield City Council	FCC acknowledged that the site is subject to Western Sydney Parklands SEPP and requested that concurrence be sought from the Western Sydney Parklands Trust to determine whether the development is in accordance with the aims of Clause 17 of the Western Sydney Parklands SEPP.

2.10.1 Consultation with Western Sydney Airport

Jemena has undertaken consultation with the Western Sydney Airport in the form of a letter outlining the WSGG Project and providing them with the opportunity to meet to discuss the project in more detail (**Appendix F**).

2.10.2 Consultation with WSPT

Concurrence with WSPT was sought and is detailed within Section 5.1 of the EIS (ELA, 2019).

3. Statement of Commitments

A summary of commitments identified in this report is provided in **Table 12**.

Table 12: Statement of commitments

Impact	Potential Impacts / Concerns Raised in Public Submissions	Jemena Commitment
Air Quality	The effects of using hydrogen gas in the brick manufacturing process and the potential air emissions.	Jemena is willing to work with Austral Bricks to inform them of any changes.
	Dust impacts using blue metal rock for the access road.	Jemena proposes to single or double coat spray seal the existing access road as part of the WSGG Project. This will limit the potential for increased air quality or dust impacts as a result of vehicle use.
Hazards and Risk	Appropriate updates to the existing SAOP.	Jemena agrees with the concerns raised and is committed to operating and managing the P2G facility and injection of hydrogen into the natural gas network under the existing network licence. Any conditions and operating parameters relating to the network and hydrogen injection (such as blend ratio and validation) shall be referenced via the SAOP and reported to the technical regulator as agreed. Prior to construction, Jemena will undertake a formal risk assessment, which will be referenced in the SAOP, formally acknowledging risks and mitigations considered.
	Bushfire management.	Jemena will investigate and implement where appropriate the recommendations outlined within the BPA (ELA, 2020) within the Detailed Design of the WSGG Project and ongoing management onsite.
	Potential dangers to the public when utilising the proposed secondary parklands track as outlined within the Horsley Park Urban Farming Masterplan 2019.	Jemena commits to an additional hazard assessment to reassess the risk to the secondary parklands track if the HRS is determined to be viable and proceeds.
Waste	Ensure appropriate waste management plans are prepared and implemented.	Jemena intends to utilise a Resource Recovery Exemption and Order to apply wastewater to land in accordance with the POEO Act.

Impact	Potential Impacts / Concerns Raised in Public Submissions	Jemena Commitment
Noise and Vibration	Ensure the microturbine only operates between the hours of 7 am – 10 pm.	Noted and agreed.
	The preparation of an acoustic report.	Jemena will prepare and submit an acoustic report to FCC prior to operation. The acoustic report will comply with the NPfI.
Visual	The design of the proposed WSGG Project facility.	Jemena has agreed that a minimum 10 m landscape front setback can be applied to the boundary of Chandos Road for any future security fencing that Jemena will undertake separately to the WSGG Project.
Traffic and Transport	Further details on how the Proponent intends to address safety issues along Chandos Road and the Wallgrove Road intersection and the vehicle weight restriction on Chandos Road.	All construction vehicles and buses will exit the M7 Motorway on to Horsley Drive, travel eastbound turning left towards Ferrers Road, travel northbound on Ferrers Road turning left on to the Chandos Road and turning right into the WSGG Project access road.
	The preparation of a CTMP, Roadways Footpath Occupation Permit and Dilapidation Report.	Jemena will prepare a detailed CTMP for approval by FCC and a Roadways Footpath Occupation Permit at the completion of detailed design and prior to construction commencing. Jemena will prepare and submit a Dilapidation Report to FCC prior to the commissioning of the HRS and any bus movements along Chandos Rd.
Water and Land	The development and implementation of a Flood Evacuation Plan.	Jemena will update the existing Evacuation and Emergency Management Plan to include a flood evacuation plan in consultation with FCC and the NSW SES.
	Consideration of access requirements to suitable treatment facilities for the disposal of wastewater and contingency plans should this option not be available.	Jemena will look to work with the EPA on the potential re-use of wastewater on WSPT land, given the water quality would be suitable for use on the adjacent urban farming plots for irrigation purposes.
	If groundwater is intercepted during construction, NRAR should be contacted for advice regarding any necessary approvals/licences.	Noted and agreed.

4. References

Benbow Environmental. 2020. *Response to WaterNSW submission regarding the proposed Power to Gas project "Western Sydney Green Gas Trial" (WSGT) by Jemena Gas Networks (NSW) Ltd*. Prepared for Jemena Gas Networks (NSW) Ltd.

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NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Homeowners* - issued December 2019. Australian Government Publishing Service, Canberra.

TTM Consulting Pty Ltd. 2020. Traffic Management Plan – Western Sydney Green Gas Project. Prepared for Eco Logical Australia.

Appendix A Submissions Received

Public Authority / Organisation	Potential Impact	Section Addressed
Austral Bricks	Air Quality	2.1.1
WaterNSW	Air Quality	2.1.2
Western Sydney Parklands Trust	Air Quality	2.1.3
	Hazards and Risks	2.2.3
	Water and Land	2.9.1
Blacktown City Council	Air Quality	2.1.4
	Noise and Vibration	2.4.1
Energy Networks Division within DPIE	Hazards and Risks	2.2.1
Fairfield City Council	Hazards and Risks	2.2.2 and Appendix D
	Waste	2.3
	Noise and Vibration	2.4.2
	Visual	2.5
	Traffic and Transport	2.6
	Biodiversity	2.7
	Aboriginal Heritage	2.8
	Water and Land	2.9.1 and 2.9.3
	Stakeholder Consultation	2.10
Environment Protection Authority	Noise and Vibration	2.4.1
Transport for NSW	Traffic and Transport	2.6
The Environment, Energy and Science Division within DPIE	Water and Land	2.9.3
Sydney Water	Water and Land	2.9.1 and 2.9.2
Natural Resources Access Regulator and Water Division within DPIE	Water and Land	Table 12

A1 Austral Bricks

australbricks SINCE 1908

14 February 2020

ATT: Manager Major Projects
Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

To Whom it May Concern,

Re: Submission for SSD10313 - Western Sydney Green Gas Project Horsley Park

Austral Bricks is a large user of gas. The company owns three gas fired brick factories in Horsley Park, two of which are currently in operation and the third is undergoing a significant upgrade. Therefore, the company has significant interest in the Western Sydney Green Gas project.

Our understanding of the green gas proposal is to construct hydrogen plant, and add up to 2% hydrogen to the gas network, with a function to temporarily release 10% hydrogen blend into the network.

Austral Bricks recognises that hydrogen is a potential energy source that can aid in the decarbonisation of the gas network and stabilisation of the electricity grid. As a large gas user, this fuel is supported as it may assist our company to meet its target of reducing greenhouse gas emissions, however no trials or studies have been undertaken to understand the quality, cost and environmental impacts of hydrogen blend fuel on brick manufacturing.

The end user's ability to use the hydrogen blend fuel, energy costs and air emissions (other than greenhouse emissions) should be further investigated. The effect of hydrogen blend in the brickmaking process is unknown and may potentially increase gas usage requirements for the factory (due to reduced gas quality and heating values), increase the generation of air emissions such as HCl and HF (reaction between hydrogen and naturally occurring minerals in clay), and alter the ability to manufacture bricks that meet quality standards.

Austral Bricks recommends that changes to mains gas composition on brickmaking requires laboratory and kiln scale trials, and that the proponent should work with Austral Bricks to undertake a meaningful investigation prior to any approvals being granted for the release of hydrogen to the network.

Thank you for your consideration.

Yours sincerely

Greg Silvestri

Greg Silvestri
General Manager Austral Bricks NSW

The Austral Brick Company Pty Ltd
ABN 52 000 005 550

738 - 780 Wallgrove Road, Horsley Park NSW 2175
PO Box 6550, Wetherill Park NSW 1851

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infonsw@australbricks.com.au
australbricks.com.au

A2 WaterNSW

PO Box 398, Parramatta NSW 2124
Level 14, 169 Macquarie Street
Parramatta NSW 2150
www.waternsw.com.au
ABN 21 147 934 787

20 February 2020

Contact: *Justine Clarke*
Telephone: *02 9865 2402*
Our ref: *D2020/16569*

Mandana Mazaheri
Planning Officer
Industry Assessments
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Dear Mr Mazaheri

Input on Environmental Impact Assessment – Western Sydney Green Gas Project (SSD 10313)

Thank you for your email dated 15 January 2020 inviting WaterNSW to comment on the Environmental Impact Statement (EIS) for the Western Sydney Green Gas Project (SSD 10313). WaterNSW understands the applicant is seeking consent to build and operate a trial Power to Gas (P2G) project to transform renewable electrical energy into a combustible gas (hydrogen).

The subject site is within close proximity (approx. 1km) to WaterNSW owned and managed lands, being the Warragamba Pipelines and Upper Canal controlled area corridors, and Prospect Reservoir. All WaterNSW lands contains critical water supply infrastructure transporting raw water to the Prospect water filtration plant. The water supply infrastructure is an integral component of Sydney's drinking water supply system and it is essential this water supply infrastructure is protected from the potential impacts of development.

WaterNSW has reviewed the proposal and suggests the applicant consider Prospect Reservoir as a sensitive receiver, with the potential dust and air quality impacts on this sensitive receiver assessed and responded to in the 'Response to Submissions'.

Notwithstanding, WaterNSW has reviewed the EIS documents and assessed the likelihood of the proposal impacting WaterNSW critical water supply infrastructure as low.

WaterNSW requests the Department continue to consult with us on proposals that have the potential to impact on WaterNSW land, assets and infrastructure. All correspondence should be sent using the email address Environmental.Assessments@waternsw.com.au.

If you have any questions regarding this letter, please contact Justine Clarke at justine.clarke@waternsw.com.au.

Yours sincerely

ALISON KNIHA
Catchment Protection Planning Manager

A3 Western Sydney Parklands Trust

NSW GOVERNMENT | Western Sydney Parklands Trust

19 February 2020

Contact: Joshua French
Phone 0436 660 096
Email Joshua.french@wspt.nsw.gov.au

Mr Jim Betts
Secretary
Department of Planning, Industry and Environment
Resource & Energy Assessments Planning Services
320 Pitt Street
Sydney NSW 2001

Attention: Mandana Mazaheri

Dear Mandana

RE: SSD 10313 – Western Sydney Green Gas Project – 194-202 Chandos Road, Horsley Park

Thank you for the opportunity to provide comments on SSD 10313, the Western Sydney Green Gas Project at Horsley Park High Pressure Gas Facility located on Chandos Road, Horsley Park, lodged by Jemena Gas Networks (NSW) Ltd.

The subject site is located within the Western Sydney Parklands and adjacent to Western Sydney Parkland's urban farming lots, part of the Horsley Park Urban Farming Precinct. As such the following planning documents are relevant:

- **Western Sydney Parklands, Plan of Management 2030** - February 2019 - a plan that guides the development and operation of the Parklands towards 2030. This includes the desired future objectives and management priorities for Precinct 9 "Horsley Park Precinct" and the adjacent Precinct 6 "Wallgrove Precinct". (https://www.westernsydneyparklands.com.au/about-us/planning-the-parklands/plan-of- management-2030/)
- **Horsley Park Urban Farming Masterplan 2019** – a masterplan for what is currently the largest area of urban farming and rural land-use within the Parklands of 254 hectares and guides the leasing of the land for commercial farming in an urban context. (https://www.westernsydneyparklands.com.au/assets/Places-to-go/Urban-farms/Horsley-Park-Urban-Farming-Masterplan-2019-Final-low-res.pdf)

The subject site is directly adjacent to land owned by the Western Sydney Parklands Trust. The Trust has met with Jemena several times over the past year to discuss the project. We acknowledge the engagement with the Trust on this project that Jemena has led.

The Trust requests that safety of the facility, the ongoing stability of the access road and turning circle and opportunities to minimise surplus wastewater are considered in the assessment of the application.

Western Sydney Parklands Trust, Level 7, 10 Valentine Avenue, Parramatta NSW 2150
PO Box 3064, Parramatta NSW 2124 Phone: (02) 9895 7500 Fax (02) 9895 7580
www.westernsydneyparklands.com.au

Safety

As raised in previous correspondence and meetings with Jemena the safe operation of the proposed facility is essential. This is particularly important with the proposed public walking tracks intended to be directly north, east and south of the property, as outlined in the *Horsley Park Urban Farming Masterplan 2019*.

As the background studies for the proposal identify the refueller dispenser is the only part of the proposed design that can have any potential offsite consequences, if the refueller dispenser proceeds part of the project we request that appropriate preventative and mitigative safeguards to eliminate any potential offsite effects will be conditioned as part of the approval.

It is noted that the existing 'outer' fence of the Jemena Horsley Park Facility will be upgraded to the Jemena EGP facility specifications with a 2.4m high anti-climb mesh with tiger tape barbed wire top. The Trust supports the proposed fence.

Access road and turning circle

The access road is currently constructed of blue metal rock, with this proposed to be upgraded to include a new turning circle.

As raised in previous correspondence and meetings with Jemena the Trust considers that an all-weather sealed surface is necessary to ensure that dust and erosion runoff from the access road and turning circle does not impact the adjacent urban farming land.

Wastewater

The proposal includes some offsite removal of wastewater. It is noted that Jemena is still assessing the options for wastewater removal. The Trust believes there is an opportunity to avoid offsite waste water removal, through water quality treatment. The Trust supports the purification of surplus water, and for this water to be considered for irrigation purposes for adjacent urban farming lots owned by the Trust and tenanted by farmers and welcome the opportunity to discuss this opportunity with the assessment team and Jemena.

If you have any questions or wish to discuss the proposal, please feel free to contact me or Joshua French, Director Development and Strategy.

Sincerely

Suellen Fitzgerald

Suellen Fitzgerald
Executive Director
Western Sydney Parklands Trust

A4 Blacktown City Council

Blacktown City Council

PCU079182

7 February 2020

Planning Services
Department of Planning, Industry and Environment
GPO Box 39
Sydney NSW 2001

Department of Planning
Received
14 FEB 2020
Scanning Room

Attention: Dear Sir/Madam

SSD-10313 – Submission – Western Sydney Green Gas Project

Thank you for the opportunity to review the Western Sydney Green Gas Project - Environmental Impact Statement. The Environment section of Blacktown City Council has reviewed the relevant documents and provided some points to consider. Ultimately, we support the project and make no objections to the proposal.

The power to gas (P2G) facility by Jemena proposes to transform renewable electrical energy into a combustible gas, hydrogen, which is either injected at up to 2% by volume into the Sydney secondary gas distribution network, supplied to a micro turbine to generate electricity for export back to the grid, or potentially supplied to an adjacent hydrogen refuelling station (HRS) for bus refuelling.

We understand the proposal is a trial, and there are hopes to pave the way for the storage of excess renewable energy in the form of hydrogen gas. The storage of excess renewable energy is an issue of growing importance.

Blacktown City Council is committed to and supportive of cleaner energy initiatives. We are increasingly improving our energy efficiency and aim to transition to renewable energy. We are committed to achieving net-zero emissions from the electricity, fuel and gas we use in our operations by 2030. We also endeavour to work with our community to achieve the NSW target of net zero emissions by 2050.

Of particular interest to Council is the potential for a hydrogen refuelling station (HRS). We envisage that this potential component of the project would be of benefit to Council as a source of renewable energy for our fleet. We eagerly await further news on the progress of this component of the project.

We have reviewed the following documents:

- Eco Logical Australia 2019, *Western Sydney Green Gas Project - Environmental Impact Statement*. Prepared for Jemena Gas Networks (NSW) Limited'.
- Marshal Day Acoustics, *Western Sydney Green Gas Project Environmental Noise Assessment* (Rp 001 R01 20190608), dated 8 November 2019.
- Benbow Environmental, *Air Quality Assessment* (191211_AQIA_Rev4), dated

Connect - Create - Celebrate
Council Chambers - 62 Flushcombe Road - Blacktown NSW 2148
Telephone: 02 9839 6000 - DX 8117 Blacktown
Email: council@blacktown.nsw.gov.au - Website: www.blacktown.nsw.gov.au
All correspondence to: The Chief Executive Officer - PO Box 63 - Blacktown NSW 2148

November 2019

- GPA Engineering, *Preliminary Hazard Analysis* (18667-REP-017), dated October 2019.

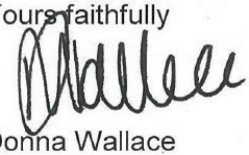
From this review, we note that:

- the noise assessment indicated the need for some noise mitigation for the micro turbine unit and noise management during the construction phase
- there was a discrepancy regarding the length of time that the micro turbine is expected to emit nitrogen oxides while running on natural gas. The length of time will impact the emissions level. The EIS states that the micro turbine would only run on natural gas during the first 6 months of operation and modelling was not warranted as the predicted emissions were negligible. However, the Air Quality Assessment prepared by Benbow Environmental additionally notes the transition to 100% hydrogen will occur at approximately 1 year of operation.

In summary, we have no objections to the proposal and welcome this project as a move in a positive direction.

If you would like to discuss this matter further, please contact Council's Senior Environmental Health Officer, Julia Thompson 9839 6295.

Yours faithfully



Donna Wallace
Manager Environment

A5 Energy Networks Division within DPIE

Planning, Industry & Environment

IRF20/5050
Senders ref major projects 11681

Ms Mandana Mazaheri
Acting Team Leader
Energy and Resources Planning and Assessments
320 Pitt Street
SYDNEY NSW 2001

Dear Ms Mazaheri

Environmental Impact Statement for Jemena's Western Sydney Green Gas Project

Thank you for the notification to the Energy Networks team of Jemena's Western Sydney Green Gas Project Environmental Impact Statement (EIS) being on public exhibition. I understand the Energy Networks team has been working with Jemena and the Planning and Assessments team as this project progresses through the planning assessment process.

After reviewing the EIS the Energy Networks team, as safety and technical regulator of gas networks, is seeking clarification on the scope and future processes for this project.

Following the initial scoping meetings it was our understanding that the project was proposed to be a trial with a maximum five-year life. Section 2.3 of the EIS indicates that the project has a minimum five-year life while section 3.5.4 on decommissioning states *"Upon completion of the WSGG Project, a decision will be made by Jemena for continued operations or to decommission the WSGG Project facility."* The Energy Networks team will coordinate with Jemena to ensure appropriate safety and technical regulation of the project over the longer period if this is the intent.

The Energy Networks team is seeking confirmation of this change and to understand that the conditions of consent will have a milestone/approval point for the decision on whether the project will be extended beyond five years.

Following on scoping discussions for this project we understand that the intent is that the project will be included in Jemena's existing Safety and Operating Plan (SAOP) which is regulated under the *Gas Supply Act 1996*. The EIS does not clearly indicate to us how much of the project will be within the SAOP.

The Energy Networks team is seeking a clear understanding of which aspects of the project (just the hydrogen electrolyser and the hydrogen storage system with relevant safety shut off systems or the entire project including the possible refilling station and power generator) Jemena intends to include within the SAOP to be regulated.

We note also that the EIS indicates that the project has a provision to double the hydrogen making capability (from 100m^3/hr to 200m^3/hr). If this facility falls within the scope of the SAOP, the Energy Networks team will require notification and consultation before an increase of the capability occurs.

The Energy Networks team is seeking to ensure the conditions of consent address this requirement.

323 Castlereagh Street, Sydney NSW 2000 | PO Box A2578, Sydney South NSW 1235 | planning.nsw.gov.au

The EIS does not appear to examine the impacts that this project may have on customer installations and appliances. The Energy Networks team has been in communication with NSW Fair Trading as the administrator of the technical safety for customer installations. Given the likely implications for customers downstream, it would be appropriate to place requirements on Jemena through the SAOP to address these implications. These requirements will be dependent on the duration of the project, delivery capabilities and network delivery aspects.

We acknowledge that this trial project, along with other similar hydrogen projects within Australia, will continue to develop as the construction, operation and maintenance of projects is undertaken and information sharing within the industry occurs.

The Energy Networks team is further seeking to ensure that Jemena is aware that commencement for works is conditional on the receipt of planning consent for this project. Additionally, any conditions of consent should include a requirement that works can only commence following the SAOP having been updated and provided to the Secretary, with time for consideration.

The Energy Networks team will inform Jemena directly of the expectations for the SAOP to ensure the technical safety of the project and the manner in which this will be monitored within the network.

If you have questions relating to these issues please contact Warren Woodhouse, Senior Technical Advisor 8275 1932 or email warren.woodhouse@planning.nsw.gov.au. The Energy Networks team is also available to meet to discuss these items if required.

Yours sincerely

Cameron OReilly
A/Executive Director
Energy Delivery & Coordination

6 February 2020

A6 Fairfield City Council

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FairfieldCity
Celebrating diversity

In reply please quote: 19/08983
Your Ref: SSD - 10313

Contact: Patrick Warren on 9725 0215

26 February 2020

Stephen O'Donoghue
Locked Bag 5022
Parramatta NSW 2124

Attention: Mazaheri Mandana

Dear Mr ODonoghue

FAIRFIELD CITY COUNCIL RESPONSE TO WESTERN SYDNEY GREEN GAS PROJECT – ENVIRONMENTAL IMPACT STATEMENT – SSD 10313

Background – On the 05 February 2019, Council held a Development Assessment (DAM) meeting with Jemena to discuss a Hydrogen facility and bus refuelling facility proposal at 204-214 Chandos Road, Horsley Park. A number of issues were noted regarding the proposal including.

- Planning Issues;
- Engineering Issues;
- Building Issues, and;
- Compliance with SEPP (Western Sydney Parklands) 2009

The applicant was also advised that the development would be considered as state significant development and an application should be lodged with the Department of Planning Industry and Environment (DPIE). The applicant lodged an SSD application to DPIE in April 2019 and input into the SEAR's was requested from Council on 01 May 2019.

On 06 May 2019 officers from Fairfield City Council attended site and were given a project scope and brief by the applicant. Key issues regarding traffic, ingress and egress, acoustic amenity, buffer distances from proposed green houses on the adjoining vacant lot and Council's concerns over the proposed gravel turning circle were verbally noted.

Council officers reviewed the scoping report that was prepared by Jemena dated 17 April 2019 and provided comments back to DPIE as input into the SEAR's requirements on the 14 May 2019. Key issues raised included:

- Ensuring the applicant provided the appropriate legislative context;
- Flooding;
- Proximity to Bushfire Prone land;
- Ecologically endangered communities;
- Sewer;

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www.fairfieldcity.nsw.gov.au
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- Inclusion of EPA comments into the SEAR's;
- Development engineering comments;
- Consideration of impacts to native vegetation, and;
- Traffic comments

Council officers note that DPIE issued the SEAR's on the 12 June 2019. A draft EIS has been subsequently lodged to DPIE. Council has been referred the draft EIS and this has been internally assessed against the relevant SEAR's criteria. The following teams where referred the application.

- Development Engineers;
- Environmental Management;
- Development Assessment;
- Catchment Planning;
- Natural Resources, and;
- Building Certifiers

Strategic Land Use Planning (SLUP) Comments

Council's Strategic Land Use Planning (SLUP) Comments have been incorporated into the SEAR's requirements issued on 12 June 2019. An assessment of the draft EIS against these criteria has been undertaken and is provided below.

Fairfield Council officers previously had input into the SEAR's requirements. These comments included a requirement for the proponent to address the following things in the EIS:

- Legislative context;
- Proximity To Bushfire Prone Land;
- Ecologically Endangered Communities
- Sewer;
- Environmental Management Constraints;
- Development Engineering Comments;
- Traffic Engineering Comments, and
- Native Vegetation

Legislative Context – The relevant legislative context has been appropriately addressed in the EIS under section 7.11. SLUP has undertaken an assessment of the legislation referenced and discussed in the EIS and raises no objection to the legislative context of the project.

Proximity to Bushfire Prone Land – Fairfield Council's Bushfire Prone land maps identify that the site is located 45 metres east of category 1 bushfire prone land at 672 Chandos Road Horsley park. The adjacent western site known as 216-226 Horsley Drive is classed category 3 bushfire prone land. The bushfire vegetation buffer affects the subject site. Council officers previously requested that the EIS address the development proximity to this land affectation.

The applicant has stated that no consideration will be given to Fairfield Council officer's previous concern in relation to Bushfire prone land and that bushfire prone management will be in accordance with existing management practises.

A bushfire protection assessment shall be carried out. The development may need to accommodate perimeter fire access roads and asset protection zones. Comprehensive consultation shall be undertaken with the NSW RFS prior to development application lodgement. Council officers consider this issue unresolved.

Aboriginal Heritage – Council officers acknowledged that section 7.9 of the EIS addresses Aboriginal Heritage. An aboriginal site consisting of Silcrete (1 flake and 1 core) is located within 20-30 metres of the site, within a market garden within a track. The EIS concludes that there is a low potential for other relics to be located onsite due to the level of ground disturbance because of the gas metre facility upgrade to the rear lot and the installation of associated infrastructure.

The proponent states that because an aboriginal heritage survey was undertaken for a metering facility upgrade to the rear lot in 2014 there is no need to undertake further studies.

Council officers do not concur with this assessment. The biodiversity conservation division with DPIE recommend that the proponent undertake an Aboriginal Cultural Heritage Report (ACHAR). This may include the need for surface survey and test excavation. Council officers concur with this recommendation, as the site is located within an Aboriginal heritage Potential Investigation Area layer. This issue remains unresolved.

Horsley Park Urban Farming Masterplan 2019 – Any development must take into account the Horsley Park Urban Farming Masterplan 2019. The site is identified as being within a farming precinct and references front rear and side setbacks for rural farmhouses and outbuildings. Although the development is not considered rural, residential in nature, it must keep in character with the future land use direction of the area. The development should generally consider setback and layout requirements for the Horsley Park Urban Farming Precinct.

Conditions of Consent – The recommendations of the relevant technical reports prepared as part of this application should be conditioned in the SSD approval, including construction and operational mitigation measures.

Catchment Planning Comments

Flooding – In Council's letter dated 14 May 2019 the applicant was advised to apply for a section 10.7 (2) and 10.7 (5) planning certificate prior to preparation of the EIS. This is important as it allows flooding to be properly addressed. The applicant did not do this. Therefore, the EIS does not address flooding accurately.

The EIS shows that the proposed location of the WSGGP works are shown to be outside the Probable Maximum Flood (PMF), however this is not at a scale suitable to determine accuracy. After purchasing a 10.7 (2) and (5), the applicant should contact Council for a

flood map which will show flood risk precincts across the entire site. This should be overlaid with the proposed works location to show the proposed works are outside the floodplain.

If the Proposed works are shown to be within the floodplain, a flood risk management report shall be prepared by a qualified consultant to demonstrate that the proposal fully complies with Chapter 11 of Council's Fairfield City Wide DCP 2013.

Traffic Engineering Comments

Construction Traffic Management Plan – Shall be submitted to Council for assessment. The Construction Traffic Management Plan (CTMP) shall include information such as construction vehicle routes, the type and the number of trucks, hours of operation, access arrangements and traffic control to be implemented at or near the site.

A Roadway Footpath Occupation Permit – is required to be obtained from Council's city Assets Branch and all Roadway/footpath applications require a traffic control plan (prepared by an accredited person) shall be submitted. In addition to Council's ROL, the applicant is required to apply for a temporary Speed Zone approval from Transport for NSW to alter any speed limits on local roads within Fairfield Local Government Area. Temporary speed zoning and speed limit selection must comply with the requirements of Transport for NSW.

A Dilapidation report – Is required to be submitted to Council's City Assets branch for assessment prior to commencement of construction.

Traffic Movement – Considering the safety issues when turning into Chandos Road from Wallgrove Road, construction vehicles and buses, shall exit on to the Horsley Drive from the M7 Motorway, travel eastbound turning left towards Ferrers Road, travel northbound on Ferrer's Road turning left on to the Chandos Road and turn right into the site access road. The turning area required for vehicles to pass each other shall be sealed. Issues raised by Transport for NSW (formerly RMS) shall be satisfactorily addressed.

Development Planning Comments

Consultation with Western Sydney Airport Authority – The subject site is within the flight path for the western Sydney airport. Western Sydney Airport must be consulted to determine if there are any impacts.

Consultation with Western Sydney Parklands – The site is subject to SEPP Western Sydney Parklands 2009. Concurrence must be sought from the Western Sydney Parklands Authority to determine whether the development is in accordance with the aims of Clause 17 of the western Sydney parkland SEPP.

On Site Sewerage Management – The subject site is not served by the reticulated sewerage system. On- site sewage management shall be designed in accordance with Fairfield City Council's on site Sewerage Management Policy and any requirements required by the Environmental Protection Authority.

Character of Area - The subject site is located within the Horsley Park rural precinct. The proposed buildings and structures shall comprise a variety of materials, colours and finishes that contribute to the visual interest of the streetscape whilst maintaining the rural character of the area.

A minimum 10-metre landscape front setback shall be provided and dense perimeter landscaping comprising of a variety of native plant species shall be provided to screen the development.

Car Park Landscaping – Further, a tree planting in the form of island planter beds should be provided at a rate of one planter bed per 10 spaces within car parks to reduce the heat effect and soften hard surfaces.

Fencing – Fencing along street frontages should provide open style palisade fencing, which does not obstruct views of landscaping from the street at a maximum height of 2.4 metres. Solid fencing should not be above 1 metre in height.

Rural/Residential and industrial interface – The proposal shall consider potential impacts associated with noise, odour, vibration, overshadowing, privacy and excessive bulk The development shall sympathetically relate to adjoining and nearby rural/ residential land.

Given the close distance to the dwelling at No.203 Chandos Road, it is recommended that the landowners be consulted comprehensively as part of the process.

Building Control Comments

Standard Conditions of Consent – A partial Building Code of Australia (BCA) assessment was undertaken relating to the BCA report submitted with the EIS. The standard conditions in **attachment A** are recommended to be imposed should a consent be issued

Natural Resources Comments

Test of Significance - Natural Resources recommends that the proponent applies the test of significance (5-part test) pursuant to section 7.3 of the Environmental Planning and Assessment Act 1979 (EP&A Act) to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats.

The test of significance is to take into account noise and light pollution and potential impact on Fauna based on multiple night surveys for birdlife and Micro bats on the Western Sydney Parkland Site.

Environmental Management Services Comments -

EMS has no objection to the project with the proviso that during the design phase the below matters are addressed and subsequent documentation submitted for review and

assessment by FCC EMS before construction begins.

Acoustics

An acoustic report is to be prepared by an appropriate acoustical consultant and submitted to Council for its assessment and approval following the design phase of the development. The report shall include but is not limited to the following information:

1. Predicative analysis as per the relevant statutory and regulatory noise guidelines for the proposal
2. Where the predictive noise assessment indicate that the relevant assessment criteria are exceeded, recommendations shall be provided in relation to how noise emissions can be satisfactorily reduced to comply with the assessment criteria.
3. The subject site is within the flight path of Western Sydney Airport; therefore, a section on addressing aircraft noise will be required.

Pollution Incident Response Management Plan (PIRMP)

Prior to the construction of the facility, a Pollution Incident Response Management Plan (PIRMP) shall be submitted to Council for review and assessment.

Effluent Management Plan

Prior to the construction of the facility, an Effluent Management Plan shall be submitted to Council for review and assessment. The effluent management plan must include the "reject water" from the all processes.

NSW Protection of the Environment Operations Act 1997

The use of the premises shall operate in accordance with the Protection of the Environment Operations Act (POEO) 1997. All activities and operations carried out shall not give rise to air pollution (including odour), offensive noise or pollution of land and/or water as defined under the Protection of the Environment Operations Act 1997.

Patrick Warren
SENIOR STRATEGIC LAND USE PLANNER

Fairfield City Council Administration Centre 86 Avoca Road, Wakeley NSW 2176
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A7 Environment Protection Authority

DOC20/18210-2
SSD-10313

Mandana Mazaheri
Team Leader
Department of Planning Industry and Environment
320 Pitt Street
SYDNEY NSW 2000

Dear Mandana

Request for comment on Western Sydney Green Gas Project (SSD-10313)

The Environment Protection Authority (EPA) has reviewed the Environmental Impact Statement (EIS) for the proposed Western Sydney Green Gas Project SSD-10313 at the Jemena Horsley Park Facility 194-202 Chandos Road, Horsley Park, 2175.

The EPA has reviewed the following documents:

Western Sydney Green Gas Project - Environmental Impact Statement, dated December 2019, prepared by Eco Logical Australia 2019 (EIS).

The EPA understand the proposal is for:

- production of hydrogen gas, 100 m³/h with a 500kW electrolyser
- gas fuelled generator (microturbine) converted to use hydrogen as its fuel source
- produce wastewater with salinity of approximately 500 ppm

Based on the information provided, the proposal will not require an environment protection licence under the *Protection of the Environment Operations Act 1997*. However, the EPA potentially has a regulatory role in relation to the Act.

The EPA has reviewed the EIS provided the information required by the Secretary's Environmental Assessment Requirements. The EPA has the following additional comments and recommendations:

Matters to be addressed with conditions

Noise

The EPA recommends a condition of consent limiting the operating hours of the microturbine to between 7 am – 10 pm.

The recommended condition is to ensure the Western Sydney Green Gas Project complies with noise levels within the Noise Policy for Industry (NPfI).

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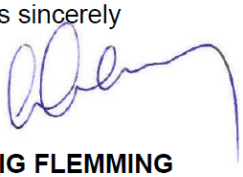
one +61 2 9995 5555 | TTY 133 677 | Parramatta | Parramatta NSW | info@epa.nsw.gov.au
om outside NSW) | ABN 43 692 285 758 | NSW 2124 Australia | 2150 Australia | www.epa.nsw.gov.au

The EIS states preliminary modelling found that noise contribution from the operation of the microturbine may result in noise levels exceeding the NPfI Project trigger levels during operation at night. The EIS also states noise levels can comply with the NPfI if the operating hours of the microturbine are limited to between 7 am – 10 pm.

If you wish to discuss this letter, please contact Kyle Browne, Operations Officer on 9995 6107.

Yours sincerely



29/01/2020

CRAIG FLEMMING
Unit Head Sydney Industry
Environment Protection Authority

A8 Transport for NSW

5 February 2020

TfNSW Reference: SYD19/00528/02
Department Reference: SSD 10313

Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Mandana Mazaheri

WESTERN SYDNEY GREEN GAS PROJECT – 194-202 CHANDOS ROAD, HORSELY PARK

Reference is made to Department's correspondence dated 6 January 2020, regarding the abovementioned application which was referred to Transport for NSW (TfNSW) for comment in accordance with Schedule 3 of the *State Environmental Planning Policy (Infrastructure) 2007.*

TfNSW has reviewed the submitted documentation and request the following information for further assessment prior to determination of the application:

1. The intersection of Wallgrove Road and Chandos Road has been identified as a blackspot site and TfNSW has recently reduced the speed limit along this section of Wallgrove Road. TfNSW has safety concerns with construction vehicles using this intersection. TfNSW requests that this vehicle route be further assessed.

2. It is noted that Chandos Road has a '5t and over' weight restriction. While Council is the responsible authority for this local road, it includes an overpass of the M7 Motorway. TfNSW requests information on how the applicant plans to address this weight restriction.

Following receipt of the above requested information, TfNSW will complete its assessment and advise its support (or) otherwise. Further information may be requested following completion of the review.

If you have any further questions, Sandra Grimes, Development Assessment Officer, would be pleased to take your call on (02) 9563 8651 or please email development.sydney@rms.nsw.gov.au. I hope this has been of assistance.

Yours sincerely

Laura van Putten
A/Senior Land Use Planner

Transport for NSW
27 Argyle Street, Parramatta NSW 2150 | Locked Bag 5085, Parramatta NSW 2124
P (02) 8849 2666 | W transport.nsw.gov.au | ABN 18 804 239 602

A9 The Environment, Energy and Science Division within DPIE

NSW GOVERNMENT | Planning, Industry & Environment

Our ref: DOC20/43579
Senders ref: SSD-10313

Ms Mandana Mazaheri

Planning and Assessment Group
Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Ms Mazaheri

Subject: EES comments on Environmental Impact Statement for Western Sydney Green Gas Project – SSD-10313 – 194 - 202 Chandos Road, Horsley Park

Thank you for your email of 6 January 2020 requesting advice on the Environmental Impact Statement (EIS) for this project.

The Environment, Energy and Science Group (EES) appreciates the Planning and Assessment group providing it with an extension in which to provide its comments. EES has reviewed the EIS and relevant technical report and provides its recommendations and comments at Attachment A.

If you have any queries regarding this matter, please do not hesitate to contact Janne Grose, Senior Conservation Planning Officer on 02 8837 6017 or at janne.grose@environment.nsw.gov.au

Yours sincerely

S. Harrison 19/02/20

Susan Harrison

Senior Team Leader Planning
Greater Sydney Branch
Environment, Energy and Science

A10 Sydney Water

Sydney WATER

17 January 2020 Our Ref: 183183

Mandana Mazaheri
A Team Leader, Energy and Resources
Department of Planning, Industry & Environment
GPO Box 39
Sydney, NSW 2001

RE: State Significant Development Application Jemena Gas Networks (NSW) Ltd, 194-202 Chandos Road, Horsley Park, SSD 10313

Dear Ms Mazaheri,

Thank you for notifying Sydney Water of the proposed State Significant Development Application SSD 10313 as listed above and comprising a 5-year trial involving the production, storage and utilisation of hydrogen gas. Sydney Water has been in liaison with Jemena Gas Networks to understand the water and wastewater requirements for the trial. We have reviewed the application based on the information supplied and provide the following comments to assist in planning the servicing needs of the proposed development.

Water Servicing

- The existing water services to the site have sufficient capacity to provide water for the trial, which we understand requires circa 1200L/day drawn across the 24-hour period and stored in the on-site storage system.

Wastewater Servicing

- There are no existing wastewater services to the facility. Sydney Water has no objections to the solution proposed in the SSD application of circa "wastewater production of up to a maximum of 500L/day…to be collected and transported to a wastewater treatment facility at a rate of approximately one tanker every ten days".
- Adequate consideration should be given to understanding access requirements to a suitable treatment facility. The proponent should consider contingency planning such as storage and/or a back-up treatment facility should their anticipated disposal route become unavailable.
- The proponent should ensure measures are put in place to adequately control the containment of wastewater onsite to prevent it becoming septic and identify a suitable disposal route should wastewater be stored onsite for 10 days prior to disposal.

Recycled water

- Sydney Water understands that the above SSDA relates only to a 5-year trial period with limited anticipated water demand during this time. Consideration should, however, be given to the longer term increased volumetric water demands and Sydney Water advocates that recycled water is trialled within the pilot as this may be required to provide future volumetric supply post trial. Sydney Water welcome discussions on recycled water supply opportunities as part of the longer-term trial objectives.

Sydney Water Corporation ABN 49 776 225 038
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au
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Sydney WATER

Stormwater

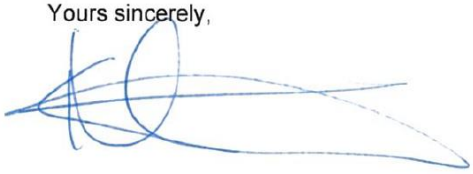
- Requirements for Sydney Water's stormwater assets (for certain types of development) may apply to this site. The proponent should ensure that satisfactory steps/measures are taken to protect existing stormwater assets, such as avoiding building over and/or adjacent to stormwater assets and building bridges over stormwater assets.
- The proponent should consider taking measures to minimise or eliminate potential flooding, degradation of water quality, and avoid adverse impacts on any heritage items, and create pipeline easements where required.

This advice is not formal approval of our servicing requirements. Detailed requirements, including any potential extensions, amplifications and/or adjustments will be provided once the development is referred to Sydney Water for a Section 73 application. More information about the Section 73 application process is available on our web page in the Land Development Manual.

Sydney Water requests that any changes to water demand during the trial are communicated to the City Growth and Development team as soon as anticipated, in order to ensure adequate provision of services can be maintained.

Further advice and requirements for this proposal are in attachments 1 & 2. If you require any further information, please contact the Growth Planning Team on 02 8849 4900 or email urbangrowth@sydneywater.com.au.

Yours sincerely,



Kristine Leitch
Growth Intelligence Manager
City Growth and Development

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Attachment 1

Sydney Water Servicing

A Section 73 Compliance Certificate under the Sydney Water Act 1994 must be obtained from Sydney Water.

The proponent is advised to make an early application for the certificate, as there may be water and wastewater pipes to be built that can take some time. This can also impact on other services and buildings, driveways or landscape designs.

Applications must be made through an authorised Water Servicing Coordinator. For help either visit www.sydneywater.com.au > Plumbing, building and developing > Developing > Land development or telephone 13 20 92.

Building Plan Approval

The approved plans must be submitted to the Sydney Water Tap in™ online service to determine whether the development will affect any Sydney Water sewer or water main, stormwater drains and/or easement, and if further requirements need to be met.

The Sydney Water Tap in™ online self-service replaces our Quick Check Agents as of 30 November 2015.

The Tap in™ service provides 24/7 access to a range of services, including:

- building plan approvals
- connection and disconnection approvals
- diagrams
- trade waste approvals
- pressure information
- water meter installations
- pressure boosting and pump approvals
- changes to an existing service or asset, e.g. relocating or moving an asset.

Sydney Water's Tap in™ online service is available at: https://www.sydneywater.com.au/SW/plumbing-building-developing/building/sydney-water-tap-in/index.htm

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Attachment 2

Requirements for **Business Customers for Commercial and Industrial Property Developments.**

Trade Wastewater Requirements

If this development is going to generate trade wastewater, the property owner must submit an application requesting permission to discharge trade wastewater to Sydney Water's sewerage system. You must obtain Sydney Water approval for this permit before any business activities can commence. It is illegal to discharge Trade Wastewater into the Sydney Water sewerage system without permission.

The permit application should be emailed to Sydney Water's Business Customer Services at businesscustomers@sydneywater.com.au

A Boundary Trap is required for all developments that discharge trade wastewater where arrestors and special units are installed for trade wastewater pre-treatment.

If the property development is for Industrial operations, the wastewater may discharge into a sewerage area that is subject to wastewater reuse. Find out from Business Customer Services if this is applicable to your development.

Backflow Prevention Requirements

Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply.

All properties connected to Sydney Water's supply must install a testable Backflow Prevention Containment Device appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum.

Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.

Before you install a backflow prevention device:

1. Get your hydraulic consultant or plumber to check the available water pressure versus the property's required pressure and flow requirements.
2. Conduct a site assessment to confirm the hazard rating of the property and its services. Contact PIAS at NSW Fair Trading on 1300 889 099.

For installation you will need to engage a licensed plumber with backflow accreditation who can be found on the Sydney Water website:

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http://www.sydneywater.com.au/Plumbing/BackflowPrevention/

Water Efficiency Recommendations

Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.

Some water efficiency measures that can be easily implemented in your business are:

- Install water efficiency fixtures to help increase your water efficiency, refer to WELS (Water Efficiency Labelling and Standards (WELS) Scheme, http://www.waterrating.gov.au/
- Consider installing rainwater tanks to capture rainwater runoff, and reusing it, where cost effective. Refer to http://www.sydneywater.com.au/Water4Life/InYourBusiness/RWTCalculator.cfm
- Install water-monitoring devices on your meter to identify water usage patterns and leaks.
- Develop a water efficiency plan for your business.

It is cheaper to install water efficiency appliances while you are developing than retrofitting them later.

Contingency Plan Recommendations

Under Sydney Water's customer contract Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs.

Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned.

Water supply is critical to some businesses and Sydney Water will treat vulnerable customers, such as hospitals, as a high priority.

Have you thought about a contingency plan for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.

For further information please visit the Sydney Water website at: http://www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/ or contact Business Customer Services on 1300 985 227 or businesscustomers@sydneywater.com.au.

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A11 Natural Resources Access Regulator and Water Division within DPIE

NSW GOVERNMENT | Planning, Industry & Environment

OUT20/272

Mandana Mazaheri
Environmental Assessment Officer
NSW Department of Planning, Industry and Environment

mandana.mazaheri@planning.nsw.gov.au

Dear Ms Mazaheri

Western Sydney Green Gas Project (10313)
EIS Exhibition

I refer to your email of 6 January 2020 to the Department of Planning, Industry and Environment (DPIE) Water and the Natural Resources Access Regulator (NRAR) about the above matter.

The following recommendation is provided by DPIE Water and NRAR. Please note Crown Lands, the Department of Primary Industries (DPI) – Fisheries and DPI - Agriculture all now provide a separate response directly to you.

- A condition of consent should be applied stating that if groundwater is intercepted during construction, NRAR should be contacted for advice regarding any necessary approvals/licences.

Any further referrals to DPIE – NRAR & Water can be sent by email to: landuse.enquiries@dpi.nsw.gov.au.

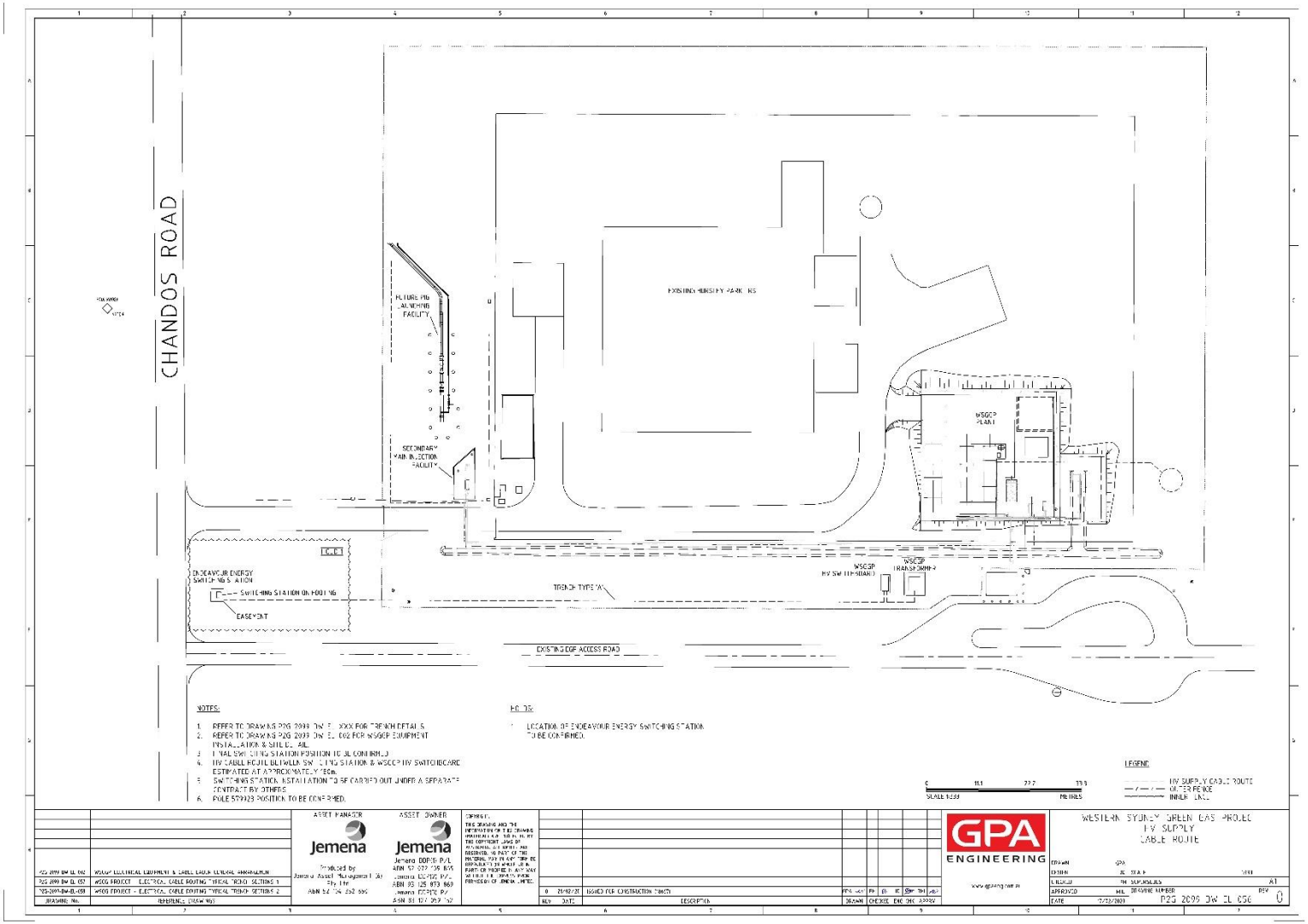
Any further referrals to (a) Crown Lands; (b) DPI – Fisheries; and (c) DPI – Agriculture can be sent by email to: (a) lands.ministerials@industry.nsw.gov.au; (b) ahp.central@dpi.nsw.gov.au; and (c) landuse.ag@dpi.nsw.gov.au respectively.

Yours sincerely

Simon Francis
Senior Project Officer, Assessments
Water – Strategic Relations
27 February 2020

NSW Department of Planning, Industry & Environment
Level 49 | 19 Martin Place | Sydney NSW 2000
landuse.enquiries@dpi.nsw.gov.au ABN: 72 189 919 072

Appendix B Updated WSGG Project Layout



Appendix C Air Quality Assessment on Prospect Reservoir (Benbow Environmental, 2020)

Benbow
ENVIRONMENTAL
A.B.N. 17 160 013 641

Head Office:
25-27 Sherwood Street
Northmead NSW 2152
Australia
Telephone: +61 2 9896 0399
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Visit our website at:
www.benbowenviro.com.au

E-mail:
admin@benbowenviro.com.au

RTB/KB
Ref: 201044_LetRep_Rev3
30 April 2020

Jemena Gas Networks (NSW) Limited
PO Box 1220
NORTH SYDNEY NSW 2060

Dear Jemena Gas Networks (NSW) Limited,

Re: Response to WaterNSW submission regarding the proposed Power to Gas project "Western Sydney Green Gas Project" (WSGG Project) by Jemena Gas Networks (NSW) Ltd.

An Air Quality Impact Assessment (Ref #: 191211_AQIA_Rev5) was prepared for the proposed Power to Gas "Western Sydney Green Gas Project" to be located at 194-202 Chandos Road, Horsley Park, NSW.

The following submission was received by Eco Logical Australia from WaterNSW:

> *'WaterNSW has reviewed the proposal and suggests the applicant consider Prospect Reservoir as a sensitive receiver, with the potential dust and air quality impacts on this sensitive receiver assessed and responded to in the 'Response to Submissions''.*

The proposed development is approximately 1.1 km south west of Prospect Reservoir and 1.5km west of the Prospect Water filtration plant. The original assessment considered seven (7) closer sensitive receptors in the direction of Prospect reservoir. The location of Prospect reservoir in context of the proposed development is shown in Figure 1.

The Prospect Reservoir is an integral part of Sydney's drinking water supply and supports the city during times of high demand for water. As such, this letter considers it as an additional sensitive receptor and potential impacts are discussed below.

AIR QUALITY IMPACTS ON THE SENSITIVE RECEPTOR "PROSPECT RESERVOIR"

Gases

There are three sources of gas emissions to air in the current scope of the WSGG Project. These include a generator, electrolyser and a buffer store blowdown vent. The future scope of the project includes an additional electrolyser and a hydrogen refuelling and dispensing station. There is also a waste water tank but it is not considered to be a source of emissions. The hydrogen production method uses distilled water as a feedstock and excess moisture is removed through the purification process, there are no emissions of concern or odour from this tank.

The sources of emissions to air of the WSGG Project are summarised in Table 1.

Table 1: Sources of Emissions to Air

Source	Scope	Emissions	Predicted Impacts
Capstone generator	Current	Nitrogen oxides, oxygen, carbon dioxide, water vapour, fugitive natural gas and odour	Low
Electrolyser (1)	Current	Oxygen and fugitive hydrogen	Very Low
Buffer store blowdown vent	Current	Fugitive hydrogen	Very Low
Electrolyser (2)	Future	Oxygen and fugitive hydrogen	Very Low
Hydrogen refuelling & dispensing station	Future	Fugitive hydrogen	Very Low
Capstone generator (after conversion to hydrogen fuel gas operation)	Future	Fugitive hydrogen and water	Very Low

The generator is the sole source of nitrogen oxide impacts from the proposed development. The manufacturer specifications of the generator state a maximum of 19 mg/m^3 of NO_x emissions at 15% O_2 (Attachment 1) at the stack exhaust point. The generator is expected to operate to the equivalent of 2 hours per day, 5 days per week over six months. The generator is designed to be operated on 100% natural gas for the commencement of the project and expected to be converted to 100% hydrogen within 6 to 12 months of operation. It would be conservative to assume that all emissions are NO_2. Considering the low stack concentration, limited daily operating time, the distance to Prospect Reservoir, and that not all NO_x emissions from the generator will be NO_2, it is unlikely that there will be negative impacts on the health and environment of Prospect Reservoir.

Hydrogen and oxygen are products of the electrolysis process. The hydrogen will be pumped into the buffer store for temporary on-site storage and distribution to gas injection and the oxygen will be emitted to open air. This is not considered to be a significant risk to the surrounding health and environment, and impacts at Prospect Reservoir would not occur due to normal operations from the proposed development.

A pipeline blowdown is required for the system to vent natural gas within the pressure system when necessary. This is not expected to be used for regular operation and is not considered a significant source of emissions. Emissions from the planned refuelling and dispensing station would be limited to fugitive emissions of hydrogen and are not considered significant.

In summary, impacts from gases at the proposed development would not occur at Prospect Reservoir.

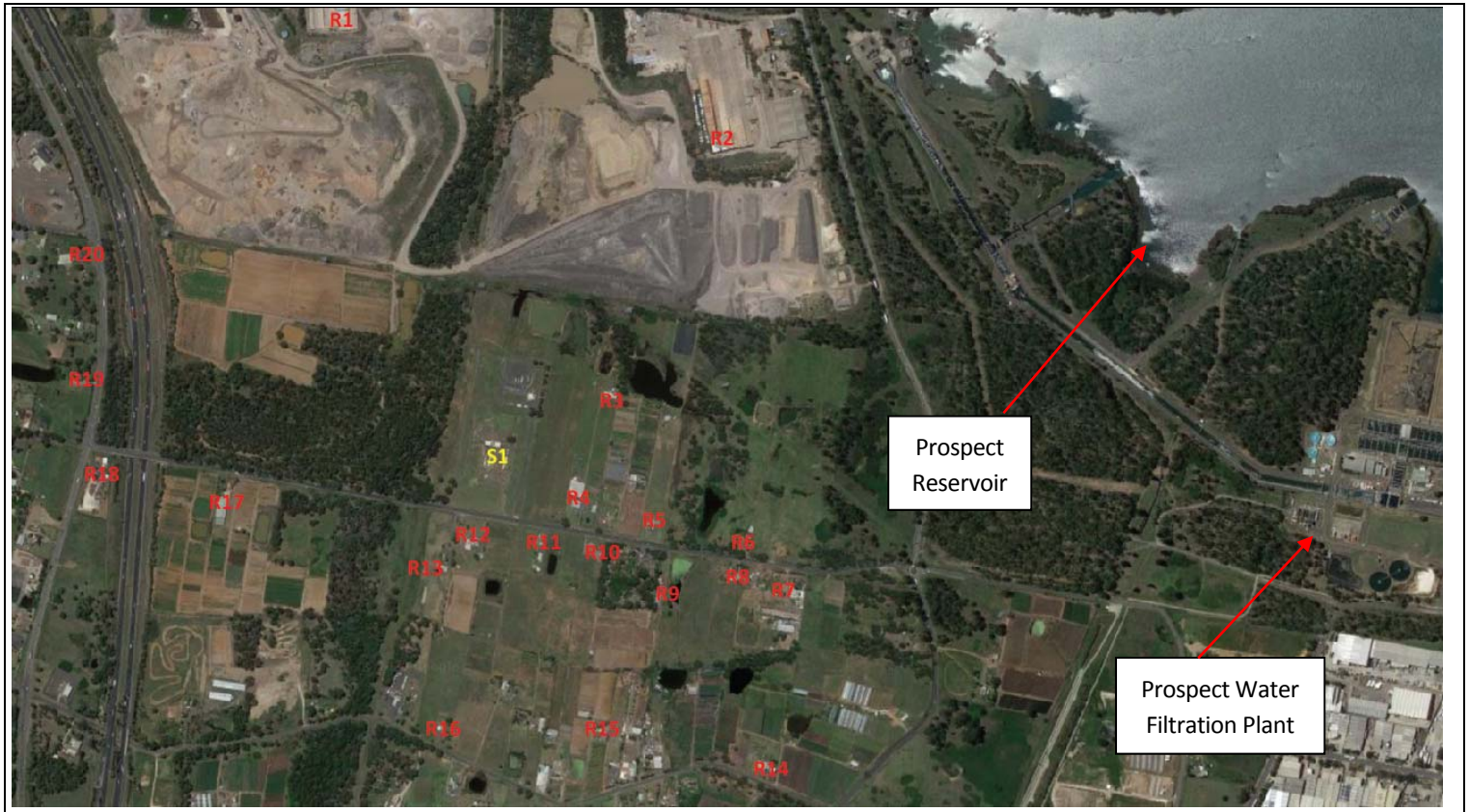
Odours

The existing Jemena gas facility uses odorant in the natural gas. There are no new sources of odour for the proposed development. Odour emissions from fugitive emissions are considered insignificant. Odour impacts at Prospect Reservoir would not occur due to the proposed development.

Dust and Particles

There are no sources of dust and particulates associated with the operation of the WSGG Project. However, emissions to air may occur during the construction phase of the project. Recommendations have been made to ensure construction impacts are mitigated. Due to the significant distance between the site Prospect Reservoir and the mitigation measures implemented proposed, dust and particle impacts at Prospect Reservoir from the proposed development would be negligible.

Figure 1: Location of the Nearest Sensitive Receptors, Prospect Reservoir and Prospect Water filtration Plant



Map data © Google 2020

N

Not to scale

LEGEND:

S1 = Source

R1-R20 = Receptors 1 to 20

Benbow Environmental
25-27 Sherwood Street,
Northmead NSW 2152

This concludes the report.

Kate Barker
Environmental Scientist

R T Benbow
Principal Consultant

Appendix D Bushfire Protection Assessment

Bushfire Protection Assessment

Western Sydney Green Gas Project

Jemena Gas Networks (NSW) Limited

ecological AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Bushfire Protection Assessment –Western Sydney Green Gas Project
Project Number	19SYD_13511
Project Manager	Daniel Magdi
Prepared by	Natalie South - Bushfire Consultant
Reviewed by	Bruce Horkings - Senior Bushfire Consultant
Approved by	Bruce Horkings - FPAA BPAD Accredited Practitioner No. BPAD29962-L3
Status	**Final**
Version Number	**2**
Last saved on	**1 May 2020**

This report should be cited as 'Eco Logical Australia April 2020. *Bushfire Protection Assessment –Western Sydney Green Gas Project*. Prepared for Jemena Gas Networks (NSW) Limited.'

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from GPA Engineering Pty Ltd.

Template 2.8.1

Contents

List of Figures

List of Tables

Abbreviations

Abbreviation	Description
AS 3959	Australian Standard AS 3959-2018 '*Construction of buildings in bushfire prone areas*'
AS 2419.1	Australian Standard AS 2419.1-2005 '*Fire hydrant installations - System design, installation and commissioning*'
APZ	Asset protection zone
BAL	Bushfire attack level
BFPL	Bush fire prone land
DPIE	Department of Planning, Industry and Environment
DA	Development application
EP&A Act	*Environmental Planning and Assessment Act 1979*
FCC	Fairfield City Council
FDI	Fire danger index
HIPAPs	Hazardous Industry Planning and Assessment Papers
IPA	Inner protection area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
OPA	Outer protection area
PBP	Planning for Bush fire Protection 2019
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SSDA	State Significant Development Application
WSP	Western Sydney Parklands

1. Property and proposal

The table below (**Table 1**) identifies the subject property and outlines the type of development proposed.

Table 1: Subject site and development proposal summary

Street address:	194-214 Chandos Street, Horsley Park
Postcode:	2175
Lot/DP no:	Lot 1 DP 499001 and Lot 3 DP 1002746
Local Government Area:	Fairfield City Council
Fire Danger Index (FDI):	100
Current land zoning:	Unzoned (according to Western Sydney Parklands (WSP) SEPP)
Type of development proposed:	Class 10a

1.1 Description of proposal

This Bushfire Protection Assessment (BPA) has been prepared by Eco Logical Australia (ELA) on behalf of Jemena Gas Networks (NSW) Limited (Jemena) as part of an Environmental Impact Statement (EIS) Response to Submissions to support a State Significant Development Application (SSD 10313). The proposal is referred to as the Western Sydney Green Gas Project (WSGG Project).

The proposal is for the construction and operation of a Power to Gas project to transform electrical energy into a combustible gas (hydrogen), within the existing Jemena Horsley Park Gas Facility (**Figure 1**) located wholly within Lot 1 DP 499001, consisting of:

- Construction of four (4) shipping containers and associated infrastructure to the north of the existing facility
- Construction of a turning circle/load out bay to the existing access road.

The proposed facility will transform renewable electrical energy into a combustible gas, hydrogen, which is either injected at up to 2% by volume into the Sydney secondary gas distribution network, supplied to a microturbine to generate electricity for export back to the grid, or potentially supplied to an adjacent hydrogen refuelling station (HRS) for bus refuelling.

The proposed development is located on land classified as bush fire prone on the Fairfield City Council (FCC) bush fire prone land, however the proposed development footprint is located outside the bush fire prone land as shown in **Figure 2**.

1.2 Assessment pathway

This report supports a State Significant Development Application (SSDA) submitted to the Department of Planning, Industry and Environment (DPIE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This assessment forms part of a response to the submissions made during the public exhibition period for the WSGG Project EIS, and has been prepared in accordance with the requirements of clauses 6 and

7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation). This proposal has been assessed under *Planning for Bush Fire Protection 2019* (RFS 2019), herein referred to as PBP, as requested by FCC.

There is no clear pathway of assessment under PBP for this proposed development and RFS was contacted via email (2 April 2020) for consultation and feedback. Response from RFS was received 3 April 2020 which stated they would register the matter for pre-DA advice and a draft bushfire report was to be submitted with the application.

In consideration of how the proposed development was to be assessed under PBP, the following characteristics were considered:

- The proposed development is considered as 'hazardous industry', as such a Fire Safety Study has been prepared under section 7.3 of the EIS (ELA 2019) in accordance with the DPIE Hazardous Industry Planning and Assessment Papers (HIPAPs)
- The hazardous material (gas) is primarily located underground and the above ground infrastructure is for monitoring and control functions
- The new buildings are shipping containers (Class 10a structures) which PBP identifies as not requiring any bushfire protection measures if located > 6m from a residential building in a bush fire prone area
- Containers will only house electrical panels and be controlled automatically – no personnel will be on site except in case of maintenance
- The site is an existing Jemena gas facility
- Although the subject property is mapped as BFPL, the development footprint is located outside of this category.

In consideration of the above information, Section 8.3 (Other Development) and in particular 8.3.1 (Buildings of Class 5 to 8 under the NCC) of PBP was considered the appropriate pathway for assessment. Therefore, the following objectives for access, water supply, utilities and emergency evacuation planning apply:

- The general fire safety constructions provisions within the NCC are taken as acceptable solutions for all construction
- To provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation
- To provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development
- To provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building
- Provide for the storage of hazardous materials away from the hazard wherever possible.

To achieve the above objectives, Section 8.3.10 (Commercial and Industrial Development) of PBP was considered and Section 7 (Infill Development) of PBP has been used as the set of performance criteria and acceptable solutions to be assessed against to demonstrate compliance and is considered to be a performance based assessment.

1.3 Significant environmental features

An assessment of significant environmental features, threatened species, populations or ecological communities under the *Biodiversity Conservation Act 2016* that may potentially be affected by the proposed bushfire protection measures has been undertaken as part of this development proposal and addressed in a separate report (ELA 2019).

1.4 Aboriginal cultural heritage

An assessment of any Aboriginal cultural heritage objects (within the meaning of the *National Parks and Wildlife Act 1974*) that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report however an Aboriginal Due Diligence Assessment was prepared for the existing facility in 2014 (Biosis 2014).

The impact footprint of the bushfire protection measures (e.g. APZ) is clearly identified within this report and therefore capable of being assessed by suitably qualified persons as required.

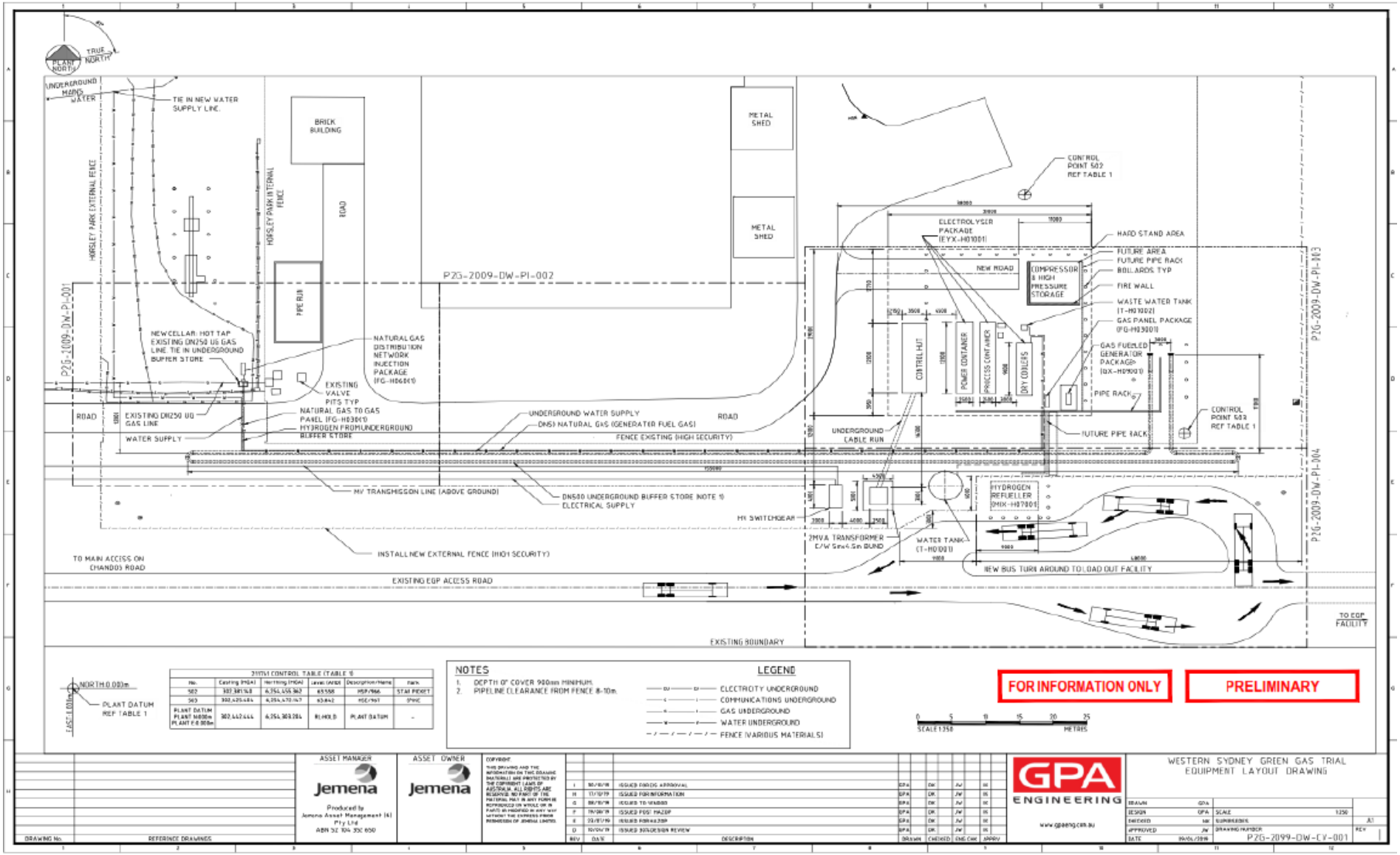


Figure 1: Proposed development

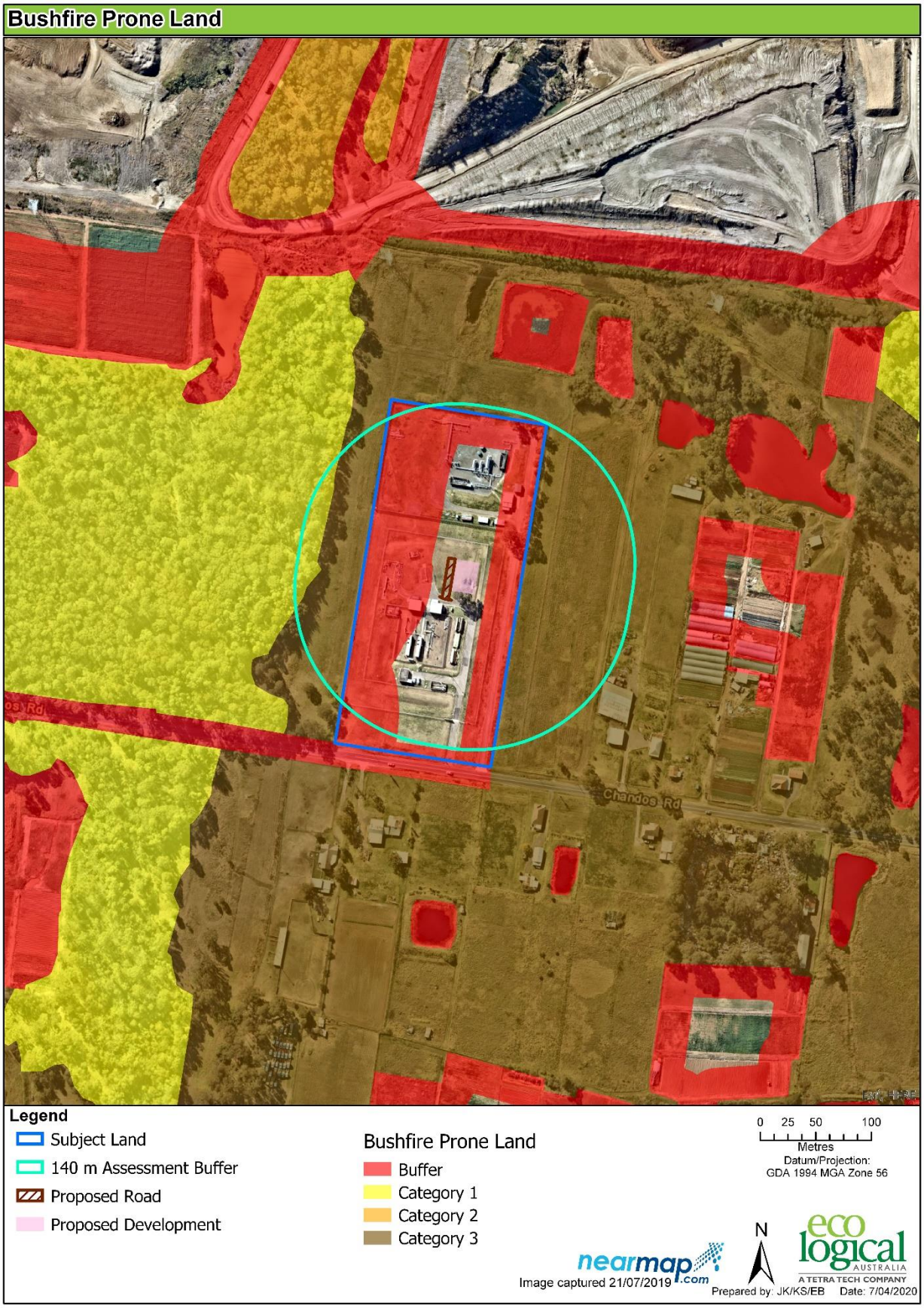


Figure 2: Bush Fire Prone Land (BFPL) Map

2. Bushfire hazard assessment

2.1 Process

The site assessment methodology set out in Appendix 1 of PBP has been utilised in this assessment to determine the required APZ and construction requirements.

Figure 3 and **Table 2** show the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the development from various directions.

2.2 Vegetation assessment

In accordance with PBP, the predominant vegetation formation has been assessed for a distance of at least 140 m from the subject land in all directions.

The predominant vegetation has been determined from the DPIE (DPIE 2016) vegetation maps.

2.3 Slope assessment

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development under the classified vegetation.

The effective slope has been determined from 2 m contour data.

2.4 Summary of assessment

As shown in **Figure 3** the vegetation to the west is mapped as *Forest Red Gum – Rough-barked Apple grassy woodland on alluvial E flats of the Cumberland Plain, Sydney Basin Bioregion* and *Forest Red Gum grassy woodland on flats of the CE Cumberland Plain, Sydney Basin Bioregion* however this is not the predominant bushfire hazard.

The predominant bushfire hazard is the grassland adjoining the western boundary. This grassland is approximately 50 m wide and managed by the owner of the adjoining land however as this land is not owned by the client continual management cannot be guaranteed therefore for the purposes of this assessment, is considered a bushfire hazard and classified as 'grassland' in accordance with PBP. The effective slope under this hazard falls within the PBP slope category of '>0-5 degrees downslope'.

The land to the east consists of grassland paddocks in various states of management, this land is considered a bushfire hazard and is classified as 'grassland' in accordance with PBP. The effective slope falls within the PBP slope category of 'all upslopes and flat land'.

In all other directions the land is managed.

Table 2: Bushfire hazard assessment, APZ requirements and BALs

Transect # (Figure 3)	Slope	Vegetation Formation	Required APZ	Proposed APZ	Bushfire Attack Level (BAL)	Comments
1 (west)	>0° to 5° downslope	Grassland	12 m	≥50 m	BAL-LOW	APZ provided wholly within subject land.
2 (east)	All upslope and flat land	Grassland	10 m	≥37 m	BAL-12.5	As above.
All other directions	Managed lands within subject land					

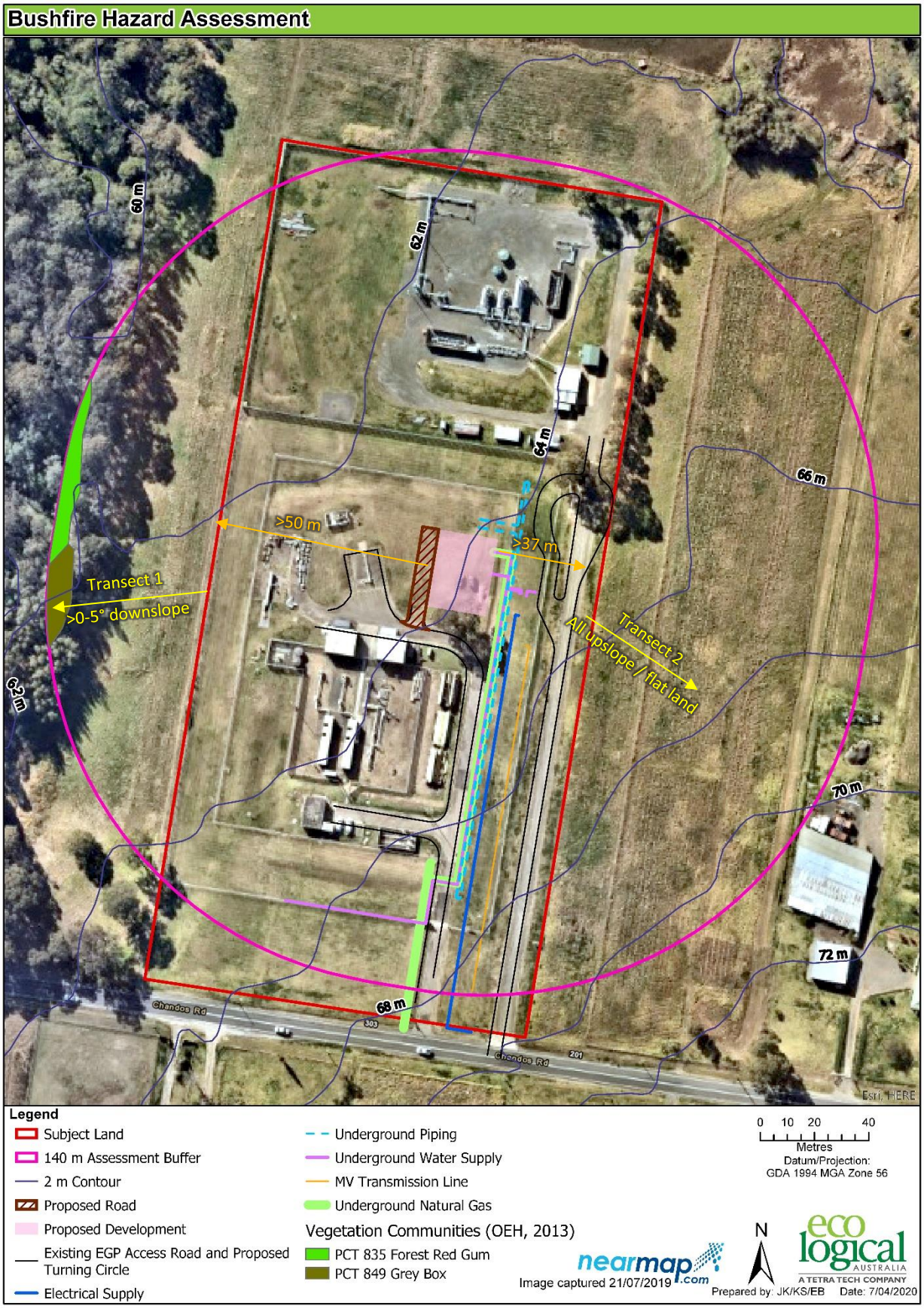


Figure 3: Bushfire hazard assessment

3. Bushfire protection measures

3.1 Asset Protection Zones

Table 2 shows the dimensions of the required APZ and where relevant, information on how the APZ is to be provided is included. The footprint of the APZ is also shown in **Figure 3**.

The compliance of the proposed APZ with Section 7.4 of PBP, is detailed in **Table 3**.

The existing APZ exceeds the minimum required APZ under PBP Section 7 requirements.

Table 3: APZ requirements and compliance (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
Potential building footprints will not be exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot.	APZs are provided in accordance with tables A1.12.5 and A1.12.6 based on the FDI.	**Complies** APZ exceeds identified dimensions within Table A1.12.5 as shown in **Table 2** and **Figure 3**.
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	**To comply** The entire property is to be managed to Inner Protection Area (IPA) standards in accordance with PBP. Fuel management specifications provided in **Appendix A**.
The APZ is provided in perpetuity.	APZs are wholly within the boundaries of the development site.	**Complies** APZ located wholly within development site.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are located on lands with a slope less than 18 degrees.	**Complies** APZ is not located on slopes greater than 18°.

3.2 Access

No additional public roads are proposed as access to the proposed development is via an existing driveway off Chandos Road.

As shown in **Figure 3**, the development also provides a managed grassland perimeter access approximately 15-25 m wide around the entire site, providing suitable defendable space for emergency services.

The compliance of the existing property access with Section 7.4 of PBP is detailed in **Table 4**.

Table 4: Property access requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance notes
The intent may be achieved where:		
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	**Complies** Development accessed via existing driveway that will be upgraded to be all-weather sealed as part of the project.
The capacity of access roads is adequate for firefighting vehicles	The capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.	**Can comply** The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and table 7.4a of PBP.
There is appropriate access to water supply.	Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	**Not applicable** **Can comply**
Firefighting vehicles can access the dwelling and exit the property safely.	At least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road;	**Not applicable** Property access is less than 200 m.
	There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles. In circumstances where this cannot occur, the following requirements apply:	
	Minimum 4m carriageway width;	**Complies** Exiting carriageway >6m wide.
	In forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay;	**Not applicable**
	A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;	**Complies** No trees along existing carriageway.
	Provide a suitable turning area in accordance with Appendix 3 of PBP;	**Complies** The proposal will include the

Performance Criteria	Acceptable Solutions	Compliance notes
		construction of a turning circle/load bay to the east of the development as shown in **Figure 1**, providing suitable turning area for emergency personnel.
	Curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;	**Can comply** The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and table 7.4a of PBP.
	The minimum distance between inner and outer curves is 6m;	
	The crossfall is not more than 10 degrees;	
	Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads;	
	A development comprising more than three dwellings has access by dedication of a road and not by right of way.	**Not Applicable**
	Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m), extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.	**Not Applicable**

3.3 Water supplies

The existing development is serviced by a reticulated water supply however, the nearest hydrant is located on Chandos Road approximately 160 m from the proposed development.

It is recommended that either appropriate hydrants are installed within the facility (including existing infrastructure) OR a 20,000L static water supply be provided.

The fire hydrants are to comply with Australian Standard (AS) 2419.1 *Fire hydrant installations - System design, installation and commissioning* (SA 2005) OR the static water supply is to comply with the following specifications (Table 7.4a of PBP):

- a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65mm Storz outlet with a ball valve is fitted to the outlet
- ball valve and pipes are adequate for water flow and are metal
- supply pipes from tank to ball valve have the same bore size to ensure flow volume
- underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank
- a hardened ground surface for truck access is supplied within 4m
- above-ground tanks are manufactured from concrete or metal

- raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959)
- unobstructed access can be provided at all times
- underground tanks are clearly marked
- tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters
- all exposed water pipes external to the building are metal, including any fittings
- where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; any hose and reel for firefighting connected to the pump shall be 19mm internal diameter
- fire hose reels are constructed in accordance with AS/NZS 1221:1997 and installed in accordance with the relevant clauses of AS 2441:2005.

3.4 Electricity services

The compliance of the proposed supply of electricity services with Section 7.4 of PBP is detailed in **Table 5**.

Table 5: Requirements for the supply of electricity services (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Where practicable, electrical transmission lines are underground; Where overhead, electrical transmission lines are proposed as follows: Lines are installed with short pole spacing (30 m), unless crossing gullies, gorges or riparian areas; and No part of a tree is closer to a power line than the distance set out in ISSC3 Guide for the Management of Vegetation in the Vicinity of Electricity Assets (ISSC3 2016).	**Complies** Electricity services to the subject site are located aboveground however electricity services to the proposed development are located underground. **Not applicable** - underground

3.5 Gas services

The compliance of the proposed supply of gas services (reticulated or bottle gas) with Section 7.4 of PBP is detailed in **Table 6**.

Table 6: Requirements for the supply of gas services (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 – The Storage and handling of LP gas, the requirements of relevant authorities, and metal piping is used;	**Not applicable** This relates to a residential standard not an industrial gas facility. Compliance with industry standards

Performance Criteria	Acceptable Solution	Compliance Notes
	All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 m and shielded on the hazard side; Connections to and from gas cylinders are metal; Polymer-sheathed flexible gas supply lines are not used; and Above-ground gas service pipes are metal, including and up to any outlets.	is considered appropriate and to be assessed by others.

3.6 Construction standards

The National Construction Code (NCC) does not require this type of building to comply with AS 3959-2018 'Construction of buildings in bushfire prone areas' (SA 2018) or NASH Standard: Steel Framed Construction in Bushfire Areas 2014 (NASH 2014).

The general fire safety constructions provisions within the NCC are taken as acceptable solutions for all construction.

3.7 Emergency management

The existing emergency evacuation procedure is the responsibility of Jemena and is to be updated consistent with the NSW Rural Fire Service 'Guide to developing a Bush Fire Emergency Management and Evacuation Plan' (RFS 2014).

A template for an Emergency Management and Evacuation Plan is available on the NSW Rural Fire Service website http://www.rfs.nsw.gov.au/__data/assets/pdf_file/0003/29271/Bush-Fire-Emergency-Management-and-Evacuation-Plan.pdf

3.7.1 Emergency response

Jemena responds to gas leaks and fires on assets by focusing on containing the flow of gas, not the flames from the gas. Emergency response is co-ordinated with the emergency services who normally maintain a perimeter and extinguish local fires caused by, or that could ignite the gas, but rarely the gas. Given the low inventory of flammable products on site (except the gas) the approach is in line with existing Jemena response of detection and isolation of flammable gas. All Jemena personnel are equipped with firefighting equipment sufficiently sized and specified to contain local fires (non-gas) on site.

It should be noted that typically should a flame be present from a gas escape, it is safer to NOT extinguish the flame, as the explosion risk of re-ignition is greater than the impact of the radiant and direct heat. Hence the focus is on stopping the flow of gas. Both the existing and new sites have been designed with separation distances and fire walls to limit the impact to personnel and public of fires due to gas releases.

4. Compliance with PBP

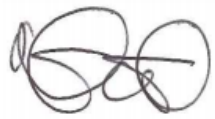
The proposed development complies with the objectives of Section 8.3.1 of 'Planning for Bush Fire Protection 2019' as summarised below in (**Table 7**).

Table 7: Summary of objectives of PBP assessed

Objective	Bushfire protection measures	Objective achieved	Report Section
Provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation	**The access complies with acceptable solutions of Table 7.4a of PBP**. The proposed development will be accessed off Chandos Road via a >6 m wide bitumen sealed road with turning circle suitable for a twin axle bus/truck. The proposed development also provides managed grass perimeter access approximately 15-25 m wide.	☑	3.2
Provide suitable emergency and evacuation and relocation arrangements for occupants of the development	Existing Bushfire Emergency Management and Evacuation Plan to be updated prior to occupation of the building.	☑	3.8
Provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building	**Water to comply with Table 74.a of PBP.** It is recommended that either appropriate hydrants are installed within the facility (including existing infrastructure) OR a 20,000L static water supply be provided. **Gas and electricity supply to comply with Table 7.4.a of PBP** Gas and electricity are located underground. Gas pipes within proposed development shall be sealed.	☑	3.3, 3.4, 3.5
Provide for the storage of hazardous materials away from the hazard wherever possible	Compliance with industry standards is considered appropriate and to be assessed by others.	☑	3.5, 3.6
Additional Objectives	**Bushfire protection measures**	**Objective achieved**	**Report Section**
Asset Protection Zones	The entire property is to be managed to Inner Protection Area (IPA) standards in accordance with PBP. Fuel management specifications provided in **Appendix A**.	☑	3.1
Construction standard	The general fire safety constructions provisions within the NCC apply to the proposed development. The proposed development is exposed to BAL-12.5 to the eastern elevation and BAL-LOW to all other elevations however Section A1.8 of PBP states the construction requirements for a shielded elevation shall not be less than that required for BAL-12.5.	☑	3.1

5. Recommendations

It is recommended that the proposed development be approved with consent conditions based on the findings in **Table 7**.



Natalie South
Bushfire Consultant

Bruce Horkings
Senior Bushfire Consultant
BPAD Number: 29962 Level 3

6. References

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Appendix A - Asset protection zone and landscaping standards

The following APZ management specifications in **Table 8** apply to the APZs specified in **Table 2** and shown in Figure 3. These APZ management specifications should be considered for any landscaping and ongoing management within the subject land.

The APZs identified in **Table 2** are to be maintained in perpetuity and management undertaken on an annual basis (as a minimum) and prior to the commencement of the fire season.

Further details on APZ implementation and management can be found on the NSW RFS website (https://www.rfs.nsw.gov.au/resources/publications).

Table 8: APZ management specifications

Vegetation Strata	Inner Protection Area (IPA)	Outer Protection Area (OPA)
Trees	Tree canopy cover should be less than 15% at maturity; Trees (at maturity) should not touch or overhang the building; Lower limbs should be removed up to a height of 2 m above ground; Canopies should be separated by 2 to 5 m; and Preference should be given to smooth barked and evergreen trees.	Tree canopy cover should be less than 30%; and Canopies should be separated by 2 to 5 m.
Shrubs	Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided; Shrubs should not be located under trees; Shrubs should not form more than 10% ground cover; and Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.	Shrubs should not form a continuous canopy; and Shrubs should form no more than 20% of ground cover.
Grass	Should be kept mown (as a guide grass should be kept to no more than 100 mm in height); and Leaves and vegetation debris should be removed.	Should be kept mown to a height less than 100 mm; and Leaf and other debris should be removed.

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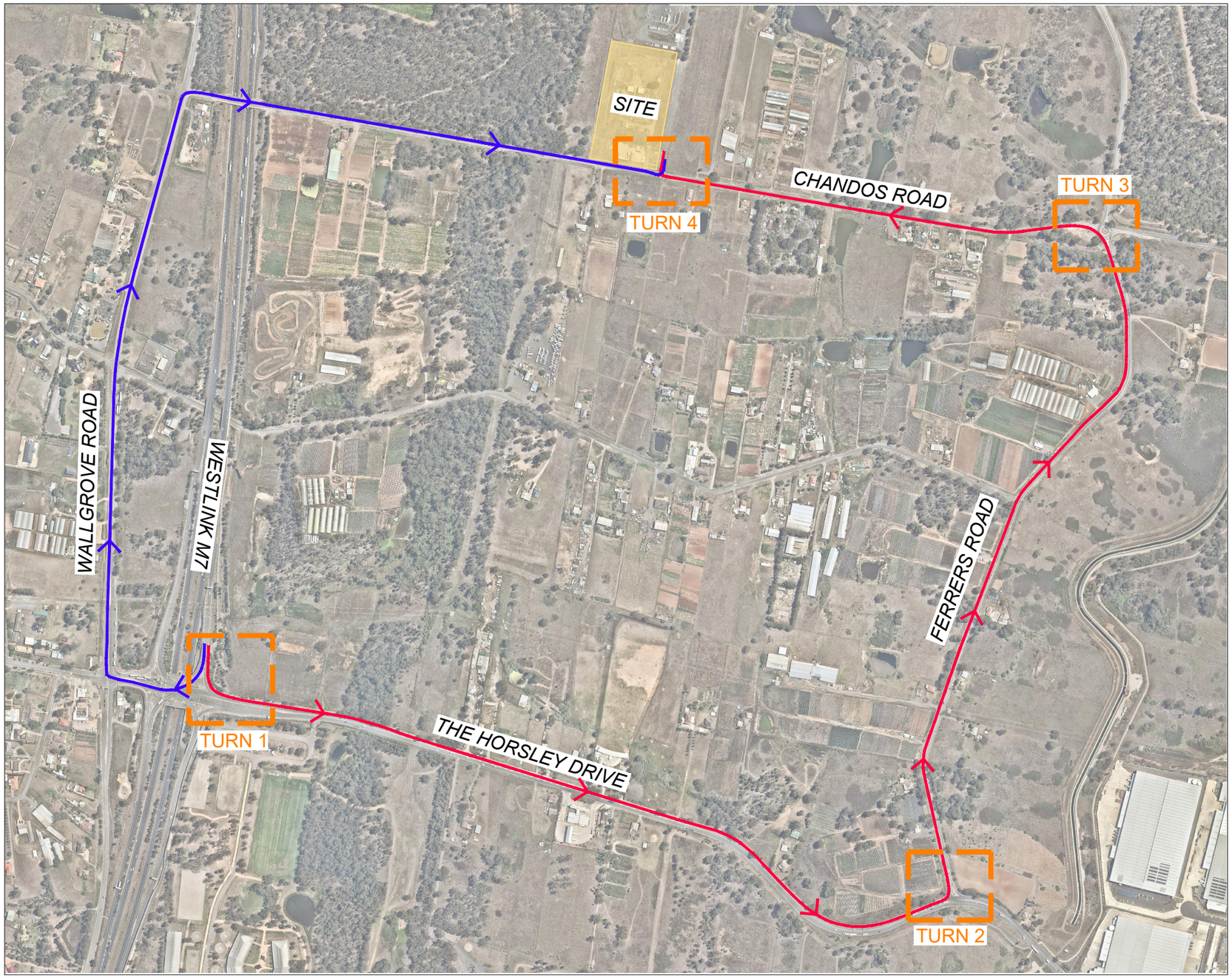
Appendix E Traffic Management Plan (TTM Consulting Pty Ltd, 2020)



PROPOSED 19m AV ROUTE INTO SITE

NOTES:

1. ALL CONSTRUCTION VEHICLES AND BUSES, SHALL EXIT ON TO THE HORSLEY DRIVE FROM THE M7 MOTORWAY, TRAVEL EASTBOUND TURING LEFT TOWARDS FERRERS ROAD, TRAVEL NORTHBOUND ON FERRER'S ROAD, TURNING LEFT ON TO THE CHANDOS ROAD AND TURN RIGHT INTO THE SITE ACCESS ROAD.

LEGEND

PREVIOUS ROUTE

PROPOSED ROUTE

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	30-04-20	ORIGINAL ISSUE	LD	BH	BH

SCALE 0 100 200 300 400 500m
SCALE 1:10,000 AT ORIGINAL SIZE

NORTH

CLIENT
ECOLOGICAL

TTM CONSULTING PTY LTD
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LEVEL 5, Suite 501, 174 Pacific Highway
Greenwich NSW 2065
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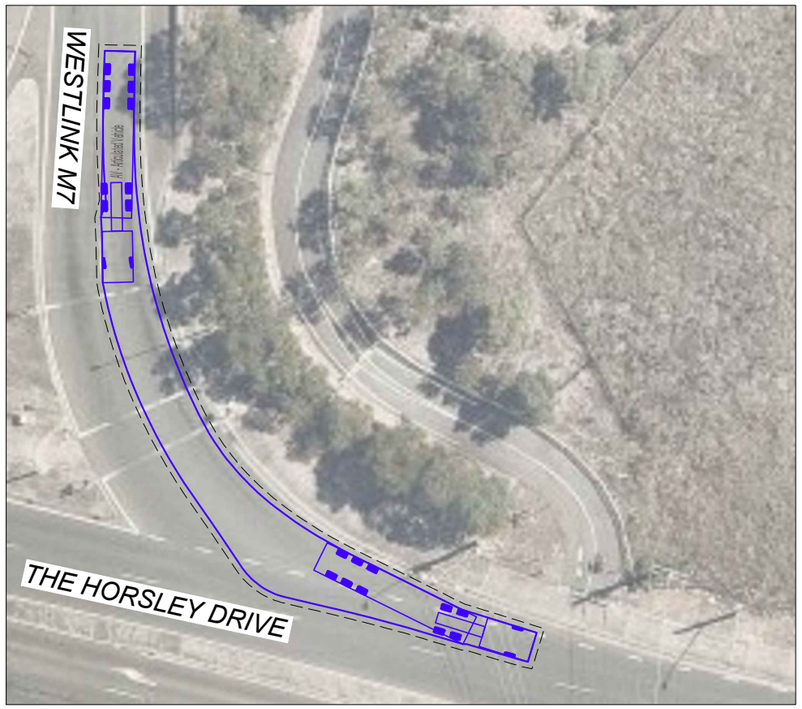
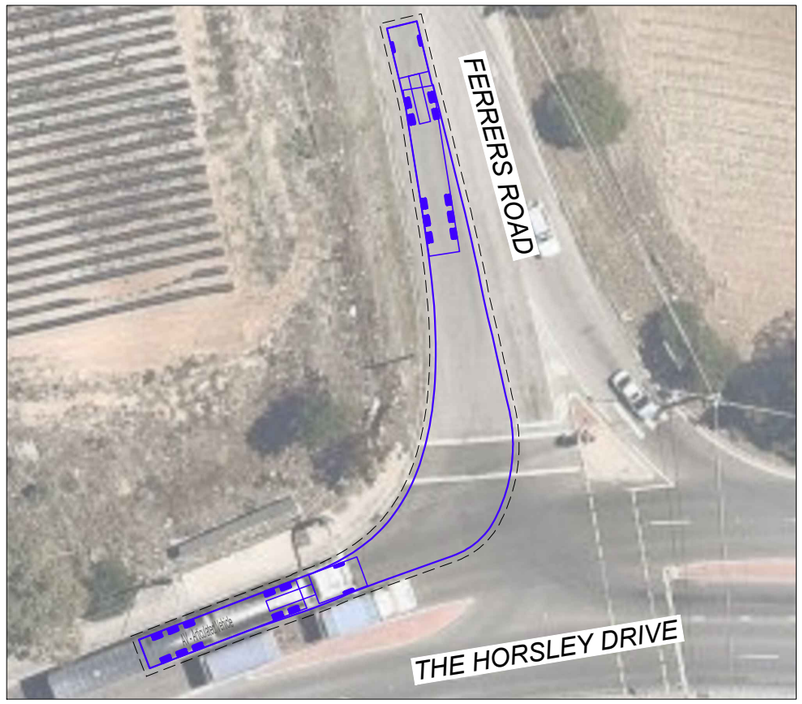
PROJECT
WESTERN SYDNEY GREEN GAS TRIAL HORSLEY PARK

DRAWING TITLE
TRAFFIC MANAGEMENT PLAN
VEHICLE ROUTE DIAGRAM

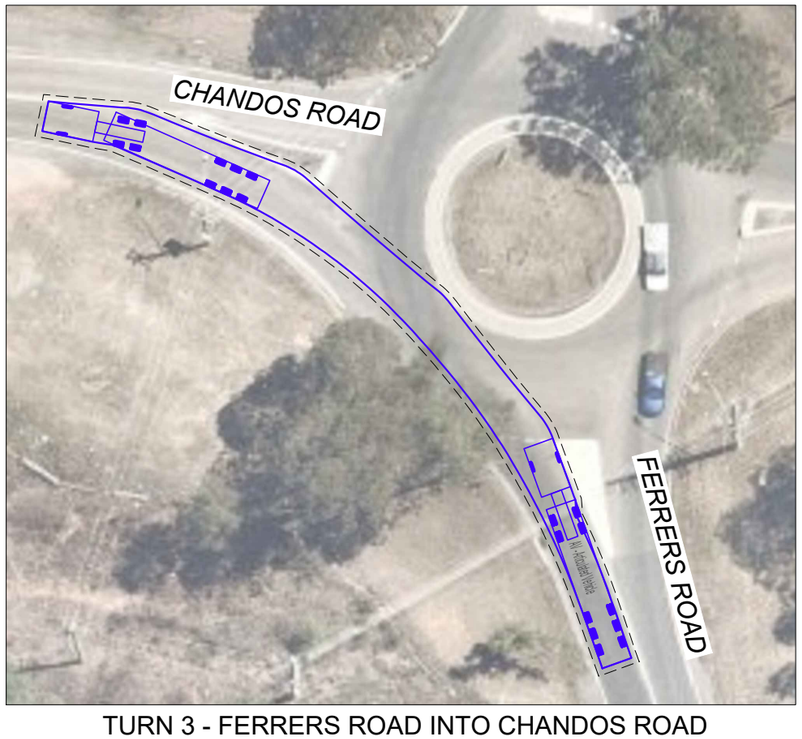
PROJECT NUMBER	ORIGINAL SIZE
19SYT0068	A3
DRAWING NUMBER	REVISION
18SYT0068-02	A
DATE	SHEET
30 Apr 2020	1 OF 1



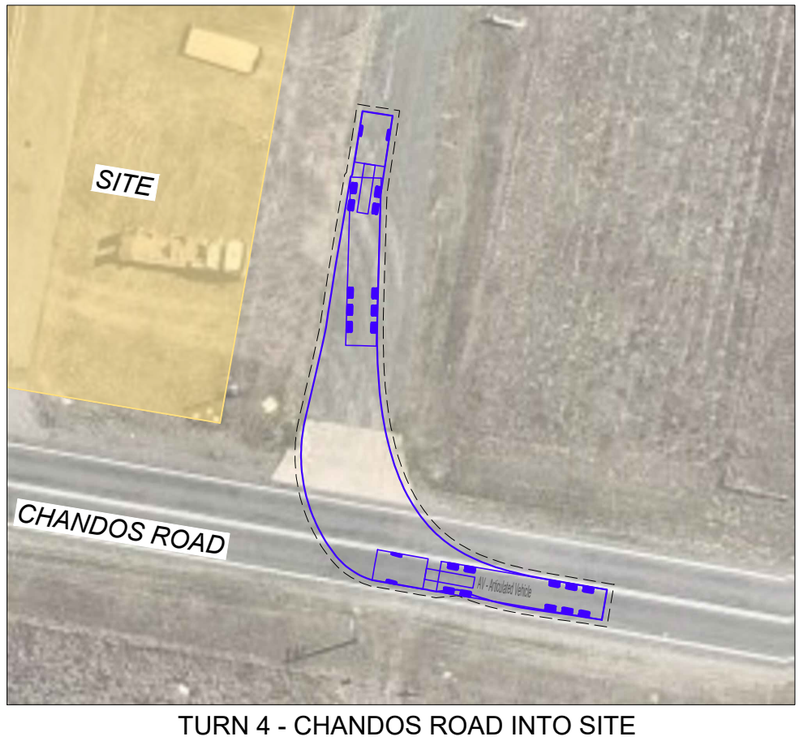
TURN 1 - WESTLINK M7 INTO THE HORSLEY DRIVE



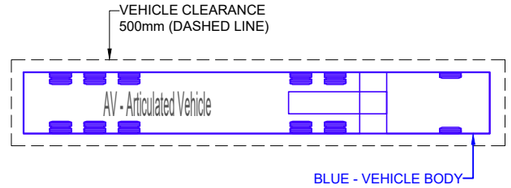
TURN 2 - THE HORSLEY DRIVE INTO FERRERS ROAD

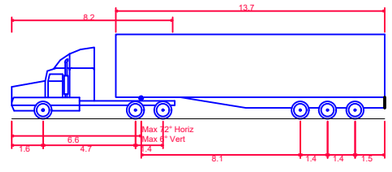


TURN 3 - FERRERS ROAD INTO CHANDOS ROAD



TURN 4 - CHANDOS ROAD INTO SITE





AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	30-04-20	ORIGINAL ISSUE	LD	BH	

SCALE 0 5 10 15 20 25m
SCALE 1:500 AT ORIGINAL SIZE
NORTH

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PROJECT
WESTERN SYDNEY GREEN GAS TRIAL HORSLEY PARK

DRAWING TITLE
TRAFFIC MANAGEMENT PLAN
SWEPT PATH ANALYSIS

PROJECT NUMBER	19SYT0068
ORIGINAL SIZE	A3
DRAWING NUMBER	18SYT0068-03
REVISION	A
DATE	30 Apr 2020
SHEET	1 OF 1

Appendix F Letter Provided to Western Sydney Airport

29 April 2020

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Liverpool NSW 1871

Email: info@wsaco.com.au

Dear WSA,

Western Sydney Airport Consultation

In accordance with the Jemena's State Significant Development (**SSD**) application requirements for the Western Sydney Green Gas Project, Jemena would like to inform Western Sydney Airport (**WSA**) of the proposed works to occur at its Horsley Park gas facility, located at 194 - 202 Chandos Road, Horsley Park, NSW.

The facility provides almost half of the gas consumed in NSW and the majority of Sydney and will be the site for the new Power to Gas trial utilising renewable grid electricity to produce and store hydrogen. The hydrogen will be used within the gas network, hydrogen refuelling for vehicles as well as electricity production for demand response.

The period of public consultation for the Environmental Impact Statement (**EIS**) was open from 15 January 2020 to 21 February 2020 with feedback provided to the Department of Planning Industry and Environment (**DPIE**). Jemena would like to notify WSA of the works given the potential for a future flight path which may lie within the vicinity of the facility, however, will likely not be impacted by activities during the trial. As such, WSA can find more information on the project below:

Location	Link
DPIE planning portal	https://www.planningportal.nsw.gov.au/major-projects/project/11681
Jemena's website	https://jemena.com.au/about/innovation/power-to-gas-trial

Given the current evolving situation around COVID-19, Jemena would be happy to organise a virtual meeting to discuss further if WSA deem it warranted, or we can add you to our stakeholder list and provide ongoing updates over the project development.

If you have any queries in relation to the contents of this letter, or require any further information about the project, please don't hesitate to contact the undersigned.

Yours sincerely,

Jarrod Irving
Project Manager
Western Sydney Green Gas Project
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