Referral of proposed action

Project title: Bannockburn Gas Pipeline Project (Stages 1–3), Bannockburn, Victoria.

1 Summary of proposed action

1.1 **Short description**

As part of the Victorian Government's 'Energy for the Regions' program a gas supply and reticulation pipeline is proposed to be installed as part of Stages 1 and 2 throughout the Township of Bannockburn, Victoria. The construction of a city gate is required as part of Stage 3 of the project, which regulates and measures gas pressure within the pipeline network at a proposed permanent site south of Bannockburn.

1.2 **Latitude and longitude**

Location points are shown on Figure 7.

location point	Latitude degrees minutes seconds	Longitude degrees minutes seconds
1	-38° 5' 18.949""	144° 14' 42.442""
2	-38° 4' 48.891""	144° 14' 17.330""
3	-38° 4' 30.353""	144° 13' 54.360""
4	-38° 4' 27.440""	144° 13' 50.796""
5	-38° 3' 15.578""	144° 12' 22.917""
6	-38° 2' 57.314""	144° 12' 0.834""
7	-38° 2' 40.274""	144° 10' 25.944""
8	-38° 2' 42.363""	144° 10' 22.397""
9	-38° 3' 3.425""	144° 10' 1.915""
10	-38° 3' 6.758""	144° 10' 22.526""
11	-38° 3' 26.128""	144° 10' 18.769""
12	-38° 3' 7.633""	144° 9' 47.992""
13	-38° 1' 43.679""	144° 10' 27.635""
14	-38° 2' 20.619""	144° 9' 47.270""
15	-38° 2' 15.503""	144° 9' 57.854""
16	-38° 2' 35.193""	144° 10' 14.043""
17	-38° 2' 47.330""	144° 10' 30.373""
18	-38° 2' 53.015""	144° 10' 24.935""
19	-38° 2' 59.346""	144° 10' 18.880""
20	-38° 2' 49.070""	144° 10' 2.369""
21	-38° 2' 29.256""	144° 9' 43.689""
22	-38° 2' 45.660""	144° 9' 39.504""
23	-38° 2' 43.324""	144° 9' 32.021""
24	-38° 2' 59.745""	144° 9' 41.196""
25	-38° 2' 47.242""	144° 9' 52.700""
26	-38° 2' 51.474""	144° 9' 57.385""
27	-38° 2' 57.721""	144° 8' 55.659""
28	-38° 3' 8.236""	144° 8' 58.383""
29	-38° 2' 59.522""	144° 9' 6.071""
30	-38° 3' 0.468""	144° 9' 23.223""
31	-38° 3' 6.046""	144° 9' 22.748""
32	-38° 3' 6.722""	144° 9' 40.505""
33	-38° 3' 24.884""	144° 9' 36.186""
34	-38° 3' 22.751""	144° 9' 50.859""
35	-38° 3' 28.131""	144° 10' 35.365""
36	-38° 3' 17.294""	144° 10' 44.890""
37	-38° 2' 57.404""	144° 10' 38.112""
38	-38° 3' 8.955""	144° 10' 46.799""
39	-38° 3' 11.491""	144° 10' 52.963""
40	-38° 3' 13.189""	144° 11' 6.777""
41	-38° 3' 51.201""	144° 11' 51.500""
42	-38° 3' 59.960""	144° 11' 22.189""
43	-38° 3' 59.224""	144° 11' 15.593""
44	-38° 4' 1.977""	144° 11' 7.437""
45	-38° 3' 51.269""	144° 10' 48.399""
46	-38° 3' 42.915""	144° 11' 23.346""
47	-38° 3' 31.401""	144° 11' 20.330""
48	-38° 2' 40.377""	144° 11' 15.538""
49	-38° 2' 32.879""	144° 11' 23.471""
50	-38° 2' 25.517""	144° 11' 9.711""

1.3 **Locality and property description**

The project is comprised of three stages:

Stage 1. Supply main
Stage 2. Reticulation main
Stage 3. City gate

The supply main and reticulation main are located in selected road reserves in Bannockburn, Victoria, approximately 20 kilometres north-west of the Geelong Central Business District (CBD). The city gate incorporates private land adjoining Fyansford-Gheringhap Road, approximately 12 kilometres north-west of the Geelong CBD.

1.4 **Size of the development footprint or work area (hectares)**

The pipeline is approximately 50.5 kilometres in length, assuming a maximum construction zone of eight meters width along the supply main and four metres along the reticulation main. The city gate site is 0.209 hectares in size.

1.5 **Street address of the site**

The supply main and reticulation main is located along sections of the following roads in Bannockburn and nearby region (Figure 1):

- Alice Mews;
- Alvista Court;
- Andrews Court;
- Avoca Court;
- Balmaha Avenue;
- Bournbank Avenue;
- Bracher Road;
- Bryan Place;
- Burns Street;
- Burnside Road;
- Byron Street;
- Camden Mews;
- Charlton Road;
- Chasseles Place;
- Clyde Road;
- Columbia Court;
- Connors Crescent;
- Cromwell Court;
- Cullen Court;
- Dalcruin Drive;
- Dardel Drive;
- Darriwell Drive;
- Doherty Street;
- Dora Court;
- Douglas Court;
- Earl Crescent;
- Edenborough Way;
- Elrae Court
- Ervin Court;
- Fedke Place;
- Fenwick Fairway;
- Fyansford-Gheringhap Road;
- Glastonbury Court;
- Glen Avon Drive;
- Glenbrae Court;
- Gurney Close;
- Hamish Drive;
- Harvey Road;
- Hermitage Place;
- Holder Road;
- High Street;
- Imperial Way;
- Inverlochy Drive;
- Jackson Court;
- James Place;
- Kintyre Court;
- Knowles Court;
- Levy Road;
- Lucien Place;
- Macrossan Avenue;
- Maras Lane;
- McKenna Street;
- McPhillps Street;
- Mellissa Way;
- Middleton Drive;
- Midland Highway;
- Milton Street;
- Moodie Court;
- Moore Street;
- Moreillion Boulevard;
- Oban Lane;
- Ormond Street;
- Pilloud Street;
- Pope Street;
- Rosemond Way;
- Sandhurst Court;
- Shekkleton Road;
- Shelford-Bannockburn Road;
- Sherry Court;
- Sindarin Court;
- Somerset Court;
- The Grange;
- Victor Street;
- Ware Street;
- Warwick Way;
- Wattle Gove;
- Willowbrae Way;
- Xavier Avenue; and,
- Yverdon Drive.

The city gate is located on private property (Lot 3, PS600595U), adjoining Fyansford-Gheringhap Road, Gheringhap.

1.6 **Lot description**

Lot 3, PS600595U, Fyansford-Gheringhap Road, Gheringhap**,** Victoria (for Stage 3 of the proposed action only).

1.7 **Local Government Area and Council contact (if known)**

Bram Muller (Natural Resources Officer)
Golden Plains Shire Council
Ph: 03 5220 7126
Email: bmuller@gplains.vic.gov.au

1.8 **Time frame**

Construction is expected to commence at the beginning of 2016 with the city gate and supply main installed first. The supply main will be installed using drilling and open cut techniques. The reticulation main will be progressively installed until the middle of 2017. Residents will be connected as each section of the network is built and commissioned.

1.9	**Alternatives to proposed action**	✔	No
			Yes, you must also complete section 2.2
1.10	**Alternative time frames etc**	✔	No. The city gate cannot be located within private land on the opposite side of Fyansford-Gheringhap Road; this site was assessed and considered unsuitable as it is lower than the road and subject to regular flooding. The city gate cannot be located elsewhere on the same side of the road as proposed, as this would significantly increase the cost of the project.
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	**State assessment**	✔	No
			Yes, you must also complete Section 2.5
1.12	**Component of larger action** ?	✔	No.
			Yes, you must also complete Section 2.7
1.13	**Related actions/proposals**	✔	No
			Yes, provide details:
1.14	**Australian Government funding**		No
		✔	Yes, provide details: This project is a part of Regional Development Victoria's Energy for The Regions Program.
1.15	**Great Barrier Reef Marine Park**	✔	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

Bannockburn pipeline, general description

AusNet Services proposes to construct approximately 50.5 kilometres of gas pipeline in the road reserves of the Township of Bannockburn, which is located approximately 20 kilometres north-west of the Geelong CBD. The project is part of the Victorian Government's 'Energy for the Regions' program.

The project is divided into three Stages.

- **Stage 1** includes the installation of supply mains within selected locations along Fyansford-Gheringhap Road, Midland Highway, High Street, Bannockburn-Shelford Road, Burnside Road and Levy Road (Figure 2, Ecology and Heritage Partners Pty Ltd 2015a);
- **Stage 2** includes the installation of the reticulation mains network throughout the remaining roads within the study area (Figure 2, Ecology and Heritage Partners Pty Ltd 2015a); and,
- **Stage 3** includes the installation of the city gate gas regulator in private property (Lot 3, PS600595U, Fyansford-Gheringhap Road, Gheringhap) that will be acquired by AusNet Services (Figures 2 and 3, Ecology and Heritage Partners Pty Ltd 2015b).

Construction of Supply Main (Stage 1) and Reticulation Main (Stage 2)

Due to the extensive rock throughout the study area, installation of the pipe using an open trenching method will be used, although directional drilling will be attempted in the first instance. Disturbance will be confined to an eight (8) metre corridor within the supply main and a four (4) metre corridor within the reticulation main, except where the preliminary construction zone has been reduced to avoid impacts to native vegetation. Due to the rocky nature of the study area, the exact location of trenching in the supply main route is not known until construction is completed. However, construction activities will be confined within the identified preliminary construction zone (Figure 2, Ecology and Heritage Partners Pty Ltd 2015a). Strategic areas (rail crossings) will be installed using direct drilling.

The pipeline will also be directionally drilled under Bruce's Creek to a depth of at least 1.2 metres below the sediment level of the creek. Two bore holes will be drilled approximately 15 metres from the top of the eastern bank and 35 metres from the top of the western bank (Figure 2, Ecology and Heritage Partners Pty Ltd 2015a). Directional drilling will also be used in designated sections of Shelford-Bannockburn Road (Figures 2c and 2d, Ecology and Heritage Partners Pty Ltd 2015a) in order to avoid the area of Aboriginal archaeological likelihood, as per Recommendation 9 of the Cultural Heritage Management Plan (Ecology and Heritage Partners Pty Ltd 2014a, 2014b).

Construction of the City Gate (Stage 3)

The permanent city gate site comprises a 0.126 hectare area of a crushed rock hardstand. Key equipment (kiosk, meter installation, bath heater and Remote Telemetry Unit [RTU]) will be located on several concrete slabs on top of the crushed rock hardstand (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b). The city gate will be surrounded by a security fence which will have a 300 millimetre concrete plinth at the base. A second, outer fence will be installed within 10 metres from the inner fence. The area between the two fences (buffer area) will not contain any permanent structures. There will be no soil disturbance or rock removal in the buffer area. The grassed buffer area is required to be regularly mown or slashed for health and safety purposes. The purpose of the buffer area is to allow emergency egress from the site should the main gate be inaccessible, as well as provide access for works associated with connecting the city gate to the transmission pipeline and future city gate maintenance works if required.

The city gate will connect to the existing gas transmission pipeline within the easement to the north-west of the city gate site. This area is currently cropped and the current land use will continue post- construction. The connection will be facilitated by installing an additional pipe through trenching between the city gate meter unit and the transmission pipe (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b). Once completed, the connection point at the transmission pipeline will be fenced by an approximate 3x3 metre enclosure to protect any above-ground valves and other minor infrastructure. The work associated the transmission pipe connection will utilise the city gate site for vehicle movement and storage of materials, along with the additional area in the easement as shown in Figure 3 (Ecology and Heritage Partners Pty Ltd 2015b).

An access track will be installed to enable vehicle access between Fyansford-Gheringhap Road and the city gate site. The access track will comprise a concrete culvert and crushed rock within the vicinity of the roadside gutter to allow all-weather vehicle access. The access track closer to the city gate (along a length of approximately eight metres) will be maintained as mown grass in order to maintain the dispersal (as currently assumed) of Striped Legless Lizard *Delma impar* along the immediate roadside corridor adjoining the city gate site (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b).

Refer to Section 3 for details of potential impacts of the proposed activity to Matters of National Environmental Significance (NES).

2.2 Alternatives to taking the proposed action

The action is required to deliver natural gas to the Bannockburn Township as part of Victorian Government's 'Energy for the Regions' program. As such, there are no alternatives to taking the proposed action.

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

The city gate cannot be located within private land on the opposite side of Fyansford-Gheringhap Road as this side of the road is prone to flooding.

The Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) ecological community or Striped Legless Lizard habitat cannot be entirely avoided due to the requirement to connect the city gate to the existing high-pressure gas pipeline. The easement is surrounded by areas supporting the NTGVVP ecological community and associated Striped Legless Lizard habitat (Figures 2 and 3, Ecology and Heritage Partners Pty Ltd 2015b), therefore relocating the city gate is likely to result in potentially greater impacts to matters of NES.

The proposed city gate is also located along the north-east property boundary which will enable direct access by machinery into the site, without disturbance to additional areas of the NTGVVP ecological community or Striped Legless Lizard habitat to access the site. Micro-siting the city gate in another location may result in additional impacts to the NTGVVP community, as it may mean that machinery would impact on a greater extent of the ecological community (refer to Table 1). Micro-siting the city gate in another location will also significantly increase the cost of the project.

2.4 Context, planning framework and state/local government requirements

Ecological assessments, were undertaken within the study area. An evaluation of the implications arising from State environmental legislation and policy associated with the proposed development, and mitigation measures to minimise potential impacts to ecological values, were also provided (Ecology and Heritage Partners Pty Ltd 2015a, 2015b). Identification and discussion of any matters of NES is provided in Section 3.

State

Flora and Fauna Guarantee Act 1988

The primary legislation for the protection of flora and fauna in Victoria is the *Flora and Fauna Guarantee Act 1988* (FFG Act). The Act contains protection procedures such as the listing of threatened species and/or communities of flora and fauna, and the preparation of action statements to protect the long-term viability of these values. Reference to the FFG Act would also be made with regard to FFG listed 'potential threatening processes' before the commencement of works.

A permit is required for to remove Plains Grassland vegetation, which correlates with the FFG Act community *Western (Basalt) Plains Grassland,* as well as flora belonging to the protected family Asteraceae. An application for a permit under the FFG Act has been lodged and is currently under assessment pending the granting of a planning permit for the project.

Catchment and Land Protection Act 1994

The Catchment and Land Protection Act 1994 (CALP Act) contains provisions relating to catchment planning, land management, noxious weeds and pest animals.

In the context of this proposed action the proponent is required to take appropriate measures to prevent and/or minimise the spread of noxious weeds, including but not limited to African Boxthorn *Lycium ferocissimum*, Chilean Needle-grass *Nassella neesiana*, Bridal Creeper *Asparagus asparagoides* and Sour-sob *Oxalis pes-caprae.* To meet CaLP Act requirements listed noxious weeds should be appropriately controlled throughout the study area to minimise their spread and impact on ecological values.

Planning and Environment Act 1987

In Victoria the control, use and development of land, including native vegetation removal, is managed under the *Planning and Environment Act 1987* and municipal planning schemes. Under the Victorian system each planning scheme contains State and local policy provisions as well as provisions that control the use and development of land.

The project is located within the Golden Plains Shire municipality. Under the Golden Plains Shire Planning Scheme, the following zoning and overlays apply:

- Schedule 2 Environmental Significance Overlay (ESO2), applying to Bruce's Creek and surrounds;
- Salinity Management Overlay (SMO), corner Russel Road and Midland Highway;
- Schedule 1 Development Plan Overlay (DPO1), western Township;
- Schedule 3 Development Plan Overlay (DPO3), Holder Road industrial precinct;
- Schedule 5 Design and Development Overlay (DDO5), Bannockburn Township;
- Land Subject to Inundation Overlay (LSIO), Bruce's Creek;
- Road – Category 1 (RDZ1);
- Farming Zone (FZ);
- Township Zone (TZ);
- Public Use Zone (PUZ);

- General Residential Zone (GUZ);
- Public Park and Recreation Zone (PPRZ); and,
- Industrial Zone – Category 1 (IN1Z).

The ESO2 largely relates to water quality, and a planning permit from the Golden Plains Shire is required for, among other items, the removal of any native vegetation under Clause 42.01-2 (Ecology and Heritage Partners Pty Ltd 2015a). Impacts to Bruce's Creek will be avoided by directional drilling under the creek.

A planning permit will be required from the Golden Shire Council to remove native vegetation for the proposed development under Clause 52.17 of the planning scheme.

Permitted Clearing of Native Vegetation: Biodiversity Assessment Guidelines

The State Planning Policy Framework, and Clauses 52.17 (Native Vegetation) and 12.01 (Environmental and Landscape values) of Victorian Planning Schemes, require Planning and Responsible Authorities to have regard for Permitted Clearing of Native Vegetation: Biodiversity Assessment Guidelines (the 'Guidelines') (DEPI 2013) when considering proposals involving native vegetation removal.

The planning permit application will be assessed under the High-risk based pathway, which requires a three step approach to avoid, minimise and offset vegetation losses. Any proposed removal of native vegetation is subject to the clauses and provisions of the Municipal Planning Scheme and the Guidelines.

The study area (all stages) contains 7.238 hectares of remnant vegetation, comprising 6.468 hectares of remnant patches and 11 scattered trees (equating to 0.770 hectares).

The total remnant native vegetation in each Stage is as follows:

- Stage 1 (supply main): 2.626 hectares;
- Stage 2 (reticulation main): 4.441 hectares; and,
- Stage 3 (city gate): 0.171 hectares.

A total of 0.848 hectares of native vegetation is proposed to be removed across all Stages of the project, including a maximum of 0.171 hectares of the NTGVVP ecological community in Stage 3 of the proposed action. The removal of remnant native vegetation requires an offset of is 0.124 General Biodiversity Equivalence Units (BEU) across all three Stages of the project.

Removal of native vegetation has been minimised far as practicable. As a result of the refinement to the preliminary development plan in Stages 1 and 2, 0.677 hectares of native vegetation will be removed out of a total of 7.067 hectares present (Ecology and Heritage Partners Pty Ltd 2015a). The majority of remnant native vegetation (6.399 hectares) will be retained as part of the project. Further avoidance of remnant native vegetation in the study area is not considered feasible as part of the project.

Measures to minimise impacts to native vegetation are detailed within Section 7.1 of Ecology and Heritage Partners Pty Ltd 2015a, Section 6 of Ecology and Heritage Partners Pty Ltd 2015b and in Section 5 of this referral.

The Guidelines sets out offset requirements for the removal of remnant vegetation (DEPI 2013). Offsets are currently being sourced for the project.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

N/A

2.6 Public consultation (including with Indigenous stakeholders)

Indigenous stakeholders (Wathaurung Aboriginal Corporation) were consulted during cultural heritage assessments and evaluation of the Cultural Heritage Management Plans for the project (Ecology and Heritage Partners 2014a, 2014b). The Cultural Heritage Management Plans for the project have been approved, including the proposed city gate site.

2.7 A staged development or component of a larger project

N/A

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description
There are no World Heritage properties that are likely to be directly or indirectly affected by the proposed action.

Nature and extent of likely impact

N/A

3.1 (b) National Heritage Places

Description
There are no National Heritage Places that are likely to be directly or indirectly affected by the proposed action.

Nature and extent of likely impact

N/A

Description
There are no wetlands of International Importance that are likely to be directly or indirectly affected by the proposed action.

Nature and extent of likely impact

N/A

3.1 (d) Listed threatened species and ecological communities

Description
All EPBC Act-listed species and communities that have the potential to occur within the area are discussed here. However, only those species recorded in the study area during the flora and fauna assessment, or those expected to b potentially impacted by the proposed action, are discussed under the subsequent section which addresses the nature and extent of the likely impact.

Nature and extent of likely impact

A brief due diligence assessment was conducted in August 2013 to broadly determine the presence and extent of ecological values in the study area and recommend further studies where required. Information obtained during the due diligence assessment, as well detailed ecological assessments were used to determine the final alignment of the pipeline to avoid or minimise impact to significant ecological values in the study area. The consideration of potential for Matters of NES as reported by the PMST and informed by field assessments (Ecology and Heritage Partners Pty Ltd 2015a, 2015b) is summarised below.

Flora

The Victorian Biodiversity Atlas (VBA, DELWP 2015) and Flora Information System (FIS, Viridans 2014a) contain records of eight EPBC Act listed flora species previously recorded within the local area (within 10 kilometres of the study area), and an additional four species have habitat that occurs, or is predicted to occur within the local area (DoE 2015). Potentially suitable habitat for the two nationally listed flora species, Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens* and Large-headed Fireweed *Senecio macrocarpus*, was identified within Stage 3 of the project. However, these species were not recorded during targeted surveys or other concurrent ecological assessments within the study area. As such, these species are considered unlikely to occur within the study area (for any of the stages) based on the results of the targeted surveys (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

Fauna

The VBA (DELWP 2015) and the Atlas Victorian Wildlife (AVW; Viridans 2014b) contain records of 13 nationally listed fauna species previously recorded within 10 kilometres of the study area. The PMST nominated an additional eight nationally significant species which have not been recorded in the locality but have the potential to occur. Potentially suitable habitat for the following species was identified (Ecology and Heritage Partners Pty Ltd 2015a, 2015b):

- Dwarf Galaxias G*alaxiella pusilla;*
- Grey-headed Flying-fox *Pteropus poliocephalus;*
- Growling Grass Frog *Litoria raniformis;*
- Striped Legless Lizard *Delma impar;* and,
- Yarra Pygmy Perch *Nannoperca obscura.*

Striped Legless Lizard

Striped Legless Lizard was recorded in the city gate site (Stage 3) and the adjacent road reserve during targeted surveys (Ecology and Heritage Partners Pty Ltd 2015a, 2015b). Given there is 4.75 hectares of NTGVVP and additional potential non-native habitat in the vicinity of the city gate site which is known habitat for Striped Legless Lizard, the population located at this site meets the criteria of an important population under the '*EBPC Act Referral Guidelines for the vulnerable Striped Legless Lizard, Delma impar*' (Table 2 in Section 6.2; DSEWPaC 2011).

The city gate site and immediately adjoining areas provide suitable habitat structure for Striped Legless Lizard as it contains a very high cover (>70%) of native tussock grasses dominated by Kangaroo Grass *Themeda triandra*. The site also consists of cracking soils and has a high cover (>40%) of embedded rock. The majority of the adjoining landscape is highly modified, as a result of previous land use practices including surface rock removal, cultivation and grazing. This was noticed between the two patches of remnant vegetation within an existing gas easement which has been cropped for agricultural purposes during the assessment (Ecology and Heritage Partners Pty Ltd 2015b).

Striped Legless Lizard was recorded in Tile Grids 1 and 4 within areas adjacent to the road reserve with a higher cover of the introduced Toowoomba Canary-grass than native tussock grasses. As such, it is likely that given the site characteristics and the presence of high quality habitat in the immediate locality, areas containing predominantly introduced pasture grasses in association with embedded rock and cracking soils is likely to provide habitat for this species. However, based on the field assessment and results of targeted surveys, areas closer to the road structure (between the drainage line and sealed road surface) which are regularly slashed and do not contain embedded rock, are unlikely to support the species on a permanent basis (at best used for periodic dispersal).

In addition, cropped areas between the two patches of remnant native vegetation within the existing gas easement (which are currently being used for agricultural purposes) are unlikely to be permanently occupied by Striped Legless Lizard (i.e. provide breeding habitat for the species). However, the easement is not likely to form a permanent barrier to the movement of Striped Legless Lizard between patches, and it is likely that individuals would disperse across the easement between higher quality patches of Plains Grassland (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b). The presence of Striped Legless Lizard within modified vegetation has been noted at other sites dominated by exotic grasses such as Toowoomba Canary Grass *Phalaris aquatica*, Serrated Tussock *Nassella trichotoma* and Flatweed *Hypochoeris radicata*, and may also include sites which have had significant historical ground disturbance (i.e. clearing for agricultural purposes) (Coulson 1990; O'Shea 1996; O'Shea 2005). This includes habitat which may now be considered as secondary grassland sites, indicating the species is not restricted to native or primary grasslands (SPRAT 2015). The species is also likely to disperse to and between other patches of high quality habitat to the south, west and north-west of the study area (i.e. there is currently habitat permeability through the immediate area), and therefore there are currently opportunities for ongoing population dynamics to occur over the life cycle of the species.

A total of 5.5 hectares of potential habitat (breeding and/or dispersal) for Striped Legless Lizard was identified in the study area and adjacent areas, of which 0.145 hectares occurs in the preliminary construction zone in the road reserve in Stage 1. An additional 0.270 hectares of habitat occurs within the construction zone of Stage 3 of the project (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b).

A **maximum of 0.415 hectares** of Striped Legless Lizard habitat is likely to be impacted by the proposed action. A maximum rather than an absolute area of impact is given as the final micrositing of the pipeline in the road reserve and lack of soil disturbance in the maintained grass areas of the city gate may result in the retention of Striped Legless Lizard habitat.

Dwarf Galaxias

Desktop analysis of the catchment reveals several historical records of Dwarf Galaxias (most recent from 2000) (Ecology and Heritage Partners Pty Ltd 2015a). These records are from waterbodies associated with the Baron River south of Hamilton Highway. While there is suitable habitat located within Bruce's Creek, Dwarf Galaxias were not detected during the current assessment.

Given the complete lack of previous survey effort in the study area's catchment, it is not possible to discount the species presence based on their absence from the current survey alone; however, if they were to occur it is likely their abundance is low. The risk to significant impacts to this species as part of construction works are considered low, provided appropriate mitigation measures are adhered to where water quality is concerned (Ecology and Heritage Partners Pty Ltd 2015a).

Yarra Pygmy Perch

The VBA lists eight records of Yarra Pygmy Perch within the local and neighbouring catchments (Ecology and Heritage Partners Pty Ltd 2015a). These records come from the Barwon River, south of Hamilton Highway, and in the neighbouring catchment of Sutherland Creek. While there is suitable habitat located within Bruce's Creek, Yarra Pygmy Perch were not detected during the current assessment. Given the complete lack of previous survey effort in the study area's catchment, it is not possible to discount the species presence based on their absence from the current survey alone; however, if they were to occur it is likely to be in low abundance. The risk to significant impacts to this species as part of construction works are considered low, provided appropriate mitigation measures are adhered to where water quality is concerned (Ecology and

Heritage Partners Pty Ltd 2015a).

Growling Grass Frog

The VBA lists five records of Growling Grass Frog within a 10 kilometre radius of the study area (Ecology and Heritage Partners Pty Ltd 2015a). While sections of Bruce's Creek may provide suitable breeding habitat for this species, the proposed works (utilising the existing bridge) along the Shelford–Bannockburn Road which intersect this waterway are unlikely to provide significant breeding habitat for Growling Grass Frog. Therefore, there is a low likelihood this species would be impacted by construction works associated with the pipeline at Bruce's Creek Ecology and (Heritage Partners Pty Ltd 2015a).

Grey-Headed Flying -fox

The VBA lists two records of Grey-Headed Flying-fox within a 10 kilometre radius of the study area (Ecology and Heritage Partners Pty Ltd 2015a). While Grey-Headed Flying-fox may visit remnant or planted vegetation within the study area on an occasional basis for foraging purposes, this species is unlikely to make significant use of these habitats for breeding or permanent roosting purposes (Ecology and Heritage Partners Pty Ltd 2015a).

Communities

The PMST listed five ecological communities as potentially occurring within the study area:

- Grassy Eucalypt Woodland of the Victorian Volcanic Plain;
- Natural Temperate Grassland of the Victorian Volcanic Plain;
- Natural Damp Grassland of the Victorian Coastal Plains;
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains; and,
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

The nationally significant NTGVVP ecological community was recorded within the city gate site and adjacent areas in the private property. The remainder of the study area was generally degraded and no other nationally listed communities were identified (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

A maximum of **0.171 hectares** of NTGVVP is proposed for removal as part of the proposed action (Ecology and Heritage Partners Pty Ltd 2015b).

No additional EPBC Act listed flora or fauna species or ecological communities are considered likely to occur within the study area, as no suitable habitat is present.

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

3.1 (e) Listed migratory species

Description
Numerous Migratory and/or Marine species have been recorded within 10 kilometres of the study area (Ecology and Heritage Partners Pty Ltd 2015a). However, the study area would not be classed as an 'important habitat' as defined under the EPBC Act Policy Statement 1.1 Principal Significant Impact Guidelines (DoE 2013).

Nature and extent of likely impact

The proposed action is not predicted to have an impact on any listed migratory species.

3.1 (f) Commonwealth marine area

Description
The proposed action is not predicted to have an impact on any Commonwealth marine area.

Nature and extent of likely impact

N/A

3.1 (g) Commonwealth land

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

Description
The proposed action is not predicted to have an impact on any Commonwealth land.

Nature and extent of likely impact

N/A

3.1 (h) The Great Barrier Reef Marine Park

Description
The proposed action is not predicted to have an impact on the Great Barrier Reef Marine Park.

Nature and extent of likely impact

N/A

3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development

Description
The proposed action is not a coal seam gas development or large coal mining development that has, or is likely to have, a significant impact on water resources.

Nature and extent of likely impact

N/A

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

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

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

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

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

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	✔	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

3.3 Other important features of the environment

3.3 (a) Flora and fauna

Sixty-six (66) flora species (32 indigenous and 34 non-indigenous) were recorded within the study area during the field assessment across all stages of the project. No nationally listed flora species were recorded during the field assessment and none were considered likely to occur. One State significant flora species, Melbourne Yellow-gum *Eucalyptus leucoxylon* subsp. *connata*, was recorded within the study area during the field assessments.

Fifty-four (54) fauna species were recorded within the study area during the field assessment across all stages of the project, including: four mammals (one native, three introduced), 45 birds (37 native, eight introduced), three reptiles (native), two native frog species (native).

A list of the flora and fauna species recorded within the study area is provided in the ecological assessment reports (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

3.3 (b) Hydrology, including water flows

One main waterway, Bruce's Creek, occurs within in the study area. An extensive network of drainage lines is also located within road reserves and immediate surrounds throughout the study area.

3.3 (c) Soil and Vegetation characteristics

The landform of the study area is characterised by Newer Volcanic lava flows (tholeiitic to minor alkaline and basaltic lavas), formed between the Holocene and Miocene, with corestones ('basalt floaters') often seen on the surface; these areas generally have poor drainage. However, Bruce's Creek runs through the study area providing drainage to the nearby volcanic plains.

3.3 (d) Outstanding natural features

No outstanding natural features were recorded on the site.

3.3 (e) Remnant native vegetation

Based on the field assessments, remnant native vegetation within the study area is consistent with Plains Grassy Woodland (EVC 55), Creekline Grassy Woodland (EVC 68), Grassy Woodland (EVC 175) and Heavier Soils Plains Grassland (EVC 132_61) Ecological Vegetation Classes (EVCs) ranging from poor to good condition (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

Plains Grassland within the city gate site was in good condition and met the condition thresholds for the nationally listed NTGVVP ecological community. The community was dominated by a dense coverage of Kangaroo Grass *Themeda triandra*, with occasional Sheep's Burr *Acaena echinata*, Finger Rush *Juncus subsecundus*, Blue Devil *Eryngium ovinum*, Slender Speedwell *Veronica gracilis*, Kneed Spear-grass *Austrostipa bigeniculata*, Common Rice-flower *Pimelea humilis*, Milky Beauty-heads *Calocephalus lacteus*, Grassland Wood-sorrel *Oxalis perennans* and Blue Bells *Wahlenbergia* spp. Plains Grassland in Stages 1 and 2 is in comparatively poorer condition, dominated mainly by recolonising species such as Windmill Grass *Chloris truncata* and Wallaby-grass *Rytidosperma* spp., with occasional Kangaroo Grass (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

A total of 0.848 hectares of native vegetation is proposed to be removed or impacted, comprising:

- 0.677 hectares within the supply main and reticulation main (vegetation does not meet condition thresholds of any nationally listed communities (Ecology and Heritage Partners Pty Ltd 2015a); and,
- 0.171 hectares within the city gate site (corresponding with the nationally listed NTGVVP ecological community [Ecology and Heritage Partners Pty Ltd 2015b]).

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

The study area is flat to undulating.

3.3 (g) Current state of the environment

The majority of the study area is within low-moderate density residential development within the Bannockburn Township (Ecology and Heritage Partners Pty Ltd 2015a). However, the city gate site is within an uncropped area within private land. No significant erosion was recorded during previous assessments. Weed cover ranged from moderate to high cover. High threat weeds included Chilean Needle-grass *Nassella neesiana*, Serrated Tussock *Nassella trichotoma* and Toowoomba Canary-grass *Phalaris aquatica*. A moderate cover of Serrated Tussock and Toowoomba Canary-grass was present within the city gate site (Ecology and Heritage Partners Pty Ltd 2015b).

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

No Commonwealth Heritage Places occur within the study area.

3.3 (i) Indigenous heritage values

Six Aboriginal archaeological sites were recorded, or have previously been recorded, within the activity area (Ecology and Heritage Partners Pty Ltd 2014a, 2014b);

- VAHR 7721-1261 (Pullouds Bridge 1);
- VAHR 7721-1269 (Bannockburn-Shelford Road AS);
- VAHR 7721-0947 (Milton Street 3);
- VAHR 7721-0952 (Milton Street 8);
- VAHR 7721-1267 (Rosemond Way LDAD); and,
- VAHR 7721-1270 (Bannockburn-Shelford Road LDAD).

VAHR 7721-0952 (Milton Street 8) and VAHR 7721-0947 (Milton Street 3) are previously recorded sites and were found to be completely destroyed by the residential development in the area during the recent assessment (Ecology and Heritage Partners 2014b).

VAHR 7721-1261 (Pullouds Bridge 1) comprises 12 artefacts found in both surface (n=4) and subsurface contexts (n=8). The place is a Low Density Artefact Distribution contained by an artificial landform composed of earthen fill introduced for construction of the Bannockburn-Shelford Road. Subsurface testing demonstrated that the artefacts do not extend to any natural surface and therefore must have been introduced with the earthen fill from an unknown source outside the proposed activity area (Ecology and Heritage Partners 2014a).

VAHR 7721-1269 (Bannockburn-Shelford Road AS) comprises 15 artefacts made from common materials and representing commonly-found artefact types (Ecology and Heritage Partners 2014b).

VAHR 7721-1267 (Rosemond Way LDAD) consists of a low density artefact scatter (n=5) in a secondary context, representing common artefact types made from materials commonly found in the surrounding region (Ecology and Heritage Partners 2014a).

VAHR 7721-1270 (Bannockburn-Shelford Road LDAD) consists of a low density artefact scatter (n=2) in a secondary context, representing common artefact types made from materials commonly found in the surrounding region (Ecology and Heritage Partners 2014b).

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

No important or unique values of the environment such as national parks, conservation reserves or wetlands of national significance were recorded on the site or are known from the vicinity of the site which may be affected (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

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

The majority of the study area is within public road reserves, with exception of the city gate which is freehold (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

3.3 (l) Existing land/marine uses of area

The majority of the study area is within public road reserves, with exception of the city gate which is an unutilised area with a cropping paddock (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

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

The land use will not change within the majority of the study area, with exception of the city gate site in which a gas regulator will be installed (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

4 Environmental outcomes

The proposed action has been designed to avoid a significant impact to the NTGVVP ecological community and Striped Legless Lizard, and therefore the existing ecological functionality of the community and Striped Legless Lizard population associated with the proposed action will be maintained and will not be significantly impacted. Notwithstanding this, several measure to avoid and reduce impacts to matters of NES have been considered and will be implemented during construction.

5 Measures to avoid or reduce impacts

Reduction of Impacts

Reduction of impacts was considered during the project design phase and subsequently during numerous iterations and micrositing to avoid impacts to ecological values in the study area. For the city gate construction and pipeline installation within the adjacent road reserve and existing easement, the design incorporated measures to maintain the existing connectivity and movement potential for the Striped Legless Lizard population and associated NTGVVP ecological community in the vicinity of the city gate site. These measures include:

- The city gate is located along the north-east property boundary which will enable direct access by machinery into the site, without having to disturb additional areas of the NTGVVP ecological community to access the site. Micrositing the city gate in another location may result in additional impacts to the ecological community and Striped Legless Lizard habitat, as it may mean that machinery would impact on a greater extent of the ecological community; and,
- Maintaining a grassed area around the permanent city gate site to contribute to connectivity of Striped Legless Lizard habitat with surrounding habitat. This includes leaving the soil and habitat features such as embedded rock intact. The grassed area around the city gate is adjacent to a permanently grassed area extending approximately five metres from a stone wall in the easement, and also connects the two patches of good quality Striped Legless Lizard habitat. The outer boundary fence delineating the city gate site is designed to allow the passage of lizards and small animals.

Mitigation Measures

The following mitigation measures for the NTGVVP ecological community and associated Striped Legless Lizard habitat will be undertaken:

- The existing easement will not have any above-ground structures that could form a permanent barrier to movement of Striped Legless Lizard, such as fences, hardstands, paved access tracks etc. and other structures that would prevent movement of Striped Legless Lizard,. Therefore, there are no permanent barriers that would prevent movement of Striped Legless Lizard across the easement;
- Immediate reinstatement of soil, rocks and allowing natural recolonisation of grasses in the disturbed areas of the road reserve during the installation of the pipeline in the road reserve. The combination of these measures would progressively reinstate habitat for Striped Legless Lizard and allow for the area to be used for dispersal of individuals. The restoration of habitat features will encourage dispersal of animals into the road reserve and provide additional connectivity between the two grassland patches.
    - It is important to note that the previous installation of a 675 millimetre diameter water pipeline in the road reserve in the 1970's involved the disturbance of the entire road reserve to install the pipeline via trenching (Golden Plains Shire Council and Barwon Water, pers. comm. 28 September 2015). However, the reinstatement of rock and eventual recolonisation of grasses provided habitat for the species and also allowed for their dispersal. Striped Legless Lizard were recorded in the road reserve during targeted surveys in 2014, demonstrating that previously disturbed habitat can support Striped Legless Lizard (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).
- The area of the ecological community and potential Striped Legless Lizard habitat within the study area (Figures 2 and 3, Ecology and Heritage Partners Pty Ltd 2015b) proposed to be removed will be clearly signposted as a construction zone and delineated with sedimentation fencing or other suitable means as appropriate.
    - This measure will be applied to prevent the risk of inadvertent disturbance, soil stockpiling and encroachment by machinery or damage to the ecological community that occurs adjacent to the study area.
    - This measure will be implemented prior to the commencement of any works on site and fencing and signage will not be removed for the duration of the project;
- All personnel and visitors to the site will be informed of the location and extent of the ecological community and areas of potential Striped Legless Lizard habitat within the study area and adjoining areas prior to the commencement of any works (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b). On-site meetings (daily toolbox meetings) with all relevant personnel will be undertaken prior to the start of works to ensure appropriate areas of work and procedures are clear to all staff;
- The extent of the ecological community and potential Striped Legless Lizard habitat in the study area and adjacent areas (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b), will be included on all relevant work plans/detailed

designs of the pipeline to ensure awareness of the presence of the ecological community and potential Striped Legless Lizard habitat;
- Machinery, soil stockpiles and other equipment required for the installation of the city gate will not encroach into adjacent areas supporting the ecological community or potential Striped Legless Lizard habitat (Figure 3, Ecology and Heritage Partners Pty Ltd 2015b). Construction personnel will not encroach into these areas as these will be clearly defined as No-Go Zones.
- Prior to entering the study area, machinery will be washed down and clear of grass seeds / soil debris to minimise the spread of weed seed, and/or pathogens into areas of the ecological community.
- All work associated with the gas pipeline near the ecological community and potential Striped Legless Lizard habitat will be confined to the specified study area and will not extend outside designated construction areas; and
- The implementation of the mitigations measures will be supervised by a qualified ecologist.

The following measures to protect known and potential Striped Legless Lizard habitat will be implemented:

- The avoidance of direct and/or indirect impacts to retained areas of habitat adjacent to the study area through fencing or bunting, and areas adequately signed as 'no go' areas or exclusion areas;
- The access track has been designed and will be constructed to facilitate the ongoing dispersal of Striped Legless Lizard along the roadside corridor. The access track will comprise a concrete culvert and crushed rock within the vicinity of the roadside gutter to allow all-weather vehicle access (this area is unlikely to currently provide dispersal habitat). The access track closer to the city gate (along a length of approximately eight metres) will be maintained as mown grass in order to allow dispersal of Striped Legless Lizards along the roadside corridor;
- Any rocks removed from the stone wall between the city gate site and Fyansford-Gheringhap Road during construction will be placed at appropriate locations in the easement and/or the road reserve following construction to provide potential additional shelter for Striped Legless Lizard; and
- Prior to the commencement of ground disturbance, an induction on the requirements of the Salvage and Relocation Plan (SRP) must be provided to all staff on site prior to any works commencing to relocate any individuals at risk during ground disturbance (Ecology and Heritage Partners Pty Ltd 2015a, 2015b).

6 Conclusion on the likelihood of significant impacts

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

✔	No, complete section 6.2
	Yes, complete section 6.3

6.2 Proposed action IS NOT a controlled action.

Further discussions on why the proposed development is not likely to have a Significant Impact on matters of NES, including NTGVVP and Striped Legless Lizard are provided in Tables 1 and 2.

Likelihood of Significant Impact to NTGVVP

The proposed action will not have a significant impact to the NTGVVP ecological community given the action will result in a very small and isolated reduction in the extent of the ecological community. That is, a maximum **0.171 hectares** (out of approximately 4.75 hectares) of the community is proposed to be disturbed (DoE 2013; DSEWPaC 2011).

Table 1. Assessment against the Significant Impact Guidelines for Endangered or Critically Endangered Ecological Communities: NTGVVP ecological community.

Significant Impact Guidelines 1.1 – Significant Impact Criteria for Endangered or Critically Endangered Ecological Communities (NTGVVP)	
Significant impact Criteria	**Comment**
1. Reduce the extent of an ecological community.	The proposed action will result in a minor reduction in extent of the ecological community, with the proposed removal of a maximum of 0.171 hectares out of approximately 4.75 hectares of the ecological community. Due to the very small area of impact and the retention of the remainder of the community adjacent to the study area, the proposed action will not have a significant impact on the ecological community. A recent EPBC Act referral decision approved the removal of 0.775 hectares of NTGVVP, with the proposal being assessed as a non-controlled action (reference number EPBC 2015/7504, Ecology and Heritage Partners Pty Ltd 2015c). The city gate (0.209 hectares in size) also incorporates a 10 metre buffer around the city gate site to allow an adequate buffer for machinery and storage of equipment to ensure that there are no direct or indirect impacts to adjacent areas supporting the community. All construction activities will be confined to the boundary of the study area and will not encroach outside of these areas. The ecological community cannot be entirely avoided due to the requirement to connect the city gate to the existing high-pressure gas pipeline easement. The easement is surrounded by areas supporting the ecological community (Figure 2) therefore relocating the city gate is likely to result in similar impacts to the ecological community. The proposed city gate is also located along the north-east property boundary which will enable direct access by machinery into the site, without having to disturb additional areas of the community to access the site. Micrositing the city gate in another location may result in additional impacts to the community, as it may mean that machinery would impact on a greater extent of the ecological community.
2. Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines.	The overall 4.75 hectare area of the ecological community occurs within a modified agricultural landscape. As such, the proposed action will not result in further fragmentation of the ecological community, given that only a small area of the community is proposed for removal. The small area to be removed occurs on the north-east edge of the community, so the community will not be bisected or its ecological function significantly altered as a result of the proposed action.
3. Adversely affect habitat critical to the survival of an ecological community.	The proposed action is not likely to adversely affect the long-term survival of the ecological community, given that the majority of the community is being avoided by the proposed action.

Significant Impact Guidelines 1.1 – Significant Impact Criteria for Endangered or Critically Endangered Ecological Communities (NTGVVP)	
Significant impact Criteria	**Comment**
4. Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns.	The proposed action will result in the removal of surface soil and embedded rock within the study area to facilitate construction of the city gate. Soil and rock removal will only be taken to the extent necessary to level the ground to facilitate construction of the city gate. Soil will not be stockpiled outside of the study area and will be reinstated as soon as possible. Given the small, localised nature of the proposed action, groundwater levels, water drainage patterns and nutrient loads are unlikely to be affected by the proposed action.
5. Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting.	The overall functionality of the community is not likely to be affected by the proposed action. This is due to the small, localised nature of the proposed action.
6. Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:	The overall quality of the ecological community is not likely to be affected by the proposed action. Appropriate management of the construction process and machinery will be used to ensure that any weed species, pollutants and/or pathogens are not inadvertently spread into areas supporting the ecological community (see Section 6).
a. assisting invasive species, that are harmful to the listed ecological community, to become established or;	
b. causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community.	
7. Interfere with the recovery of an ecological community.	The proposed action is not likely to interfere with the ecological processes or recovery of the ecological community, due to the retention of the larger, adjacent patch of the ecological community.

Likelihood of a Significant Impact to Striped Legless Lizard
There are no significant barriers (e.g. roads, hard infrastructure) to dispersal between remnant grassland patches surrounding the development / disturbance footprint (e.g. animals are expected to move through the existing easement between the patches of remnant grassland). Appropriate mitigation measures will be undertaken (e.g. maintenance of habitat connectivity and the implementation of *in-situ* salvage and relocation), and therefore the proposed development will not have a significant impact on the Striped Legless Lizard (Table 2).

Table 2. Assessment against the Significant Impact Guidelines for vulnerable species: Striped Legless Lizard.

Significant Impact Guidelines 1.1 – Significant Impact Criteria for a Vulnerable Species (Striped Legless Lizard)	
Significant Impact Criteria	**Comment**
1. Disrupt the breeding cycle of an 'important population', defined as: i) key source populations either for breeding or dispersal ii) populations that are necessary for maintaining genetic diversity iii) populations that are near the limit of the species range. iv) Sites less than 0.5 hectares v) Small isolated areas of habitat which are currently under pressure, or are likely to experience long-term pressures (for example sites located within urban settings, such as adjacent to factories or in residential subdivisions)	The study area supports an important population of Striped Legless Lizard based on its occurrence within suitable habitat that is greater than 0.5 hectares in size. However, the proposed action will result in a very small reduction in the extent of potential Striped Legless Lizard habitat, with the proposed removal of a maximum of 0.415 hectares (for Stages 1–3) out of 5.5 hectares of habitat considered to be potentially suitable for the species. The overall area surrounding the construction site is greater than 0.5 hectares and is likely to support the species breeding requirements into the future, given the presence of connected high quality habitat containing high tussock cover (>70%), embedded rocks and cracking soils. Therefore, the ongoing breeding and dispersal capabilities of the population are unlikely to be affected or compromised by the proposed development given the localised area (<0.5 hectares) of the proposed works. Given the location of the site, this population is not considered to be near the limit of the species range. In addition, only a small proportion of the population may be affected during the removal of suitable habitat providing appropriate mitigation measures are implemented, which will include the measures outlined within an approved Salvage and Relocation Plan (Ecology and Heritage Partners Pty Ltd 2015a; 2015b).
2. Lead to a long-term decrease in the size of an important population of a species	Given the small area of proposed disturbance, and the availability of connected habitat that is equally or higher in quality and importance for the species, it is highly unlikely that the action will lead to a long-term decrease in the size of the population.
3. Reduce the area of occupancy of an important population	The 5.5 hectares of potential habitat occurs within a modified agricultural landscape. The proposed action will not result in any further fragmentation of this habitat. The small area to be removed adjoins an area which has been cleared for agricultural purpose (i.e. cropping). There is considered to be suitable dispersal habitat within the road reserve and movement between the patches of higher quality Plains Grassland habitat will also remain possible for the species across the existing easement (Figure 3). As such, the construction of the city gate will not form a permanent, long-term barrier to Striped Legless Lizard movement between patches and adjacent areas of potentially suitable habitat. The restoration of the road reserve (through the reinstatement of soils, rock and grass cover) will also allow the species to utilise dispersal opportunities within the road reserve. The existing rock wall will only be removed at the point of access to the city gate site and reinstated or used to provide additional refuge along the frontage of the site within the road reserve. The retained/rehabilitated frontage would connect to the maintained grassy buffer in the south-east and south-west of the city gate site.
4. Fragment an existing important population into two or more populations	
5. Adversely affect habitat critical to the survival of a species	The proposed action will not adversely affect habitat critical to the survival of the species.

Significant Impact Guidelines 1.1 – Significant Impact Criteria for a Vulnerable Species (Striped Legless Lizard)	
	The proposed action will result in the removal of surface soil and embedded rock to facilitate construction of the city gate. Similar or higher quality habitat for the species is present surrounding the proposed impact site. Soil and rock removal will only be taken to the extent necessary to level the ground to facilitate construction of the city gate under the supervision of qualified Zoologist and in accordance with the Salvage and Relocation Plan (Appendix 3). The soil and habitat features such as embedded rocks in the maintained grassed areas will remain intact.
6. Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Although a maximum of 0.415 hectares of potential habitat is likely to be removed a result of the proposed action, the extent and overall quality of surrounding areas of Striped Legless Lizard habitat is not likely to be affected by the proposed action. Appropriate management during the construction process will be undertaken to ensure that any individuals unearthed / disturbed are relocated safely into areas of suitable grassland habitat in the vicinity of the construction footprint (Appendix 3). Appropriate construction methods will ensure weed species, pollutants and/or pathogens are not inadvertently spread into areas supporting potential Striped Legless Lizard habitat (Section 6).
7. Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The proposed action will not interfere with the ecological processes or recovery of areas considered to be potential habitat for Striped Legless Lizard, due to the retention of the larger, adjacent patch of suitable habitat.
8. Introduce disease that may cause the species to decline, or	
9. Interfere substantially with the recovery of the species.	

6.3 Proposed action IS a controlled action

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

7 Environmental record of the responsible party

		Yes	No
7.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** AusNet Services recently undertook similar projects in Avoca and Winchelsea with all activities completed as anticipated. Although these projects did not involve EPBC Act considerations, a number of State based FFG Act issues were managed as expected with no adverse outcomes. In June 2014 AusNet Services completed the installation of a new natural gas network in Huntly, Victoria. This region contained flora issues that were managed in accordance with the approved EPBC Act referral (reference number EPBC 2013/6888).	✔	
7.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		✔
7.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework** A customised Construction Environmental Management Plan (CEMP) will be developed for the site which reflects AusNet Services' care and concern for the environment and the specific measures to be followed to ensure a minimum impact to the area.	✔	
7.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** **Provide name of proposal and EPBC reference number (if known)** Huntly Gas Pipeline Project (reference number EPBC 2013/6888).	✔	

8 Information sources and attachments

(**Please note**: the references cited in Section 8.1 are for the information provided in this referral only. Additional references are cited in the ecological reports accompanying the referral [Ecology and Heritage Partners Pty Ltd 2015a; 2015b]).

8.1 References

Coulson, G. 1990. Conservation biology of the Striped Legless Lizard (*Delma impar*) an initial investigation. Arthur Rylah Institute for Environmental Research. Victoria: National Parks & Wildlife Division, Department of Conservation & Environment.

DELWP 2015. Victorian Biodiversity Atlas. Sourced from : 'VBA FLORA25, VBA FLORA100, 'VBA FAUNA25' and VBA FAUNA100'. Melbourne, Victoria: Victorian Department of Environment, Land, Water and Planning.

DEPI 2013. Permitted clearing of native vegetation biodiversity assessment guidelines. East Melbourne, Victoria: Department of Environment of Primary Industries. *

DEWHA 2009. EPBC Act Policy Statement 3.11 - Significant Impact Guidelines for the Critically Endangered Spiny Rice-flower (*Pimelea spinescens* subsp. *spinescens*). [Online]. Available from: https://www.environment.gov.au/system/files/resources/431ef46a-27ac-43d8-9311-d63764d63e43/files/spiny-rice-flower.pdf. Department of Environment, Water, Heritage and the Arts, Canberra. *

DSEWPaC 2011. Environment Protection and Biodiversity Conservation Act 1999: Referral guidelines for the vulnerable Striped Legless Lizard, Delma impar. Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT. *

DoE 2013. Significant Impact Guidelines 1.1. Matters of National Environmental Significance. Federal Department of the Environment, Water, Heritage and the Arts, Canberra. *

DoE 2015. Protected Matters Search Tool: Interactive Map [WWW Document]. URL http://www.environment.gov.au/arcgis-framework/apps/pmst/pmst.jsf (accessed 07/10/15). Federal Department of the Environment, Canberra. *

Dorrough, J. (1995). Past and present habitat of the Striped Legless Lizard, *Delma impar* (Pygopodidae), in the Australian Capital Territory. ACT Parks & Conservation Service, Canberra.

Ecology and Heritage Partners Pty Ltd 2013. Ecological due diligence assessment: Avoca, Bannockburn and Winchelsea gas pipeline projects. Unpublished report for SP-AusNet.

Ecology and Heritage Partners Pty Ltd, 2014a. Bannockburn Gas Development, Stage 1 Supply Mains, Bannockburn, Victoria: Aboriginal Cultural Heritage Management Plan #13073.

Ecology and Heritage Partners Pty Ltd, 2014b. Bannockburn Gas Development, Stage 2 Reticulation Mains, Bannockburn Victoria: Aboriginal Cultural Heritage Management Plan #13120.

Ecology and Heritage Partners Pty Ltd 2015a. Detailed Ecological Assessments: Bannockburn Gas Pipeline Project, Bannockburn, Victoria: Stages 1 and 2 (Supply Main and Reticulation Main). Unpublished report for AusNet Services.

Ecology and Heritage Partners Pty Ltd 2015b. Biodiversity Assessment and Targeted Flora and Fauna Surveys For the Proposed City Gate Site, Bannockburn Gas Pipeline Project (Stage 3), Victoria. Unpublished report for AusNet Services.

Ecology and Heritage Partners Pty Ltd 2015c. EPBC Act Referral: Residential Development, 99A Furlong Road Cairnlea Victoria (EPBC 2015/7504). *

Golden Plains Shire Council and Barwon Water, 28 September 2015. Barwon Water Mains: Fyansford-Gheringhap Road. Personal Communication.

O'Shea, M. 1996. An Ecological Study of the Population of Striped Legless Lizards Delma impar (Fischer, 1882) Inhabiting Native and Exotic Grasslands in the North-east Corner of the Albion Explosives Factory Site (St. Albans, Victoria). Hons. Thesis. Victoria University of Technology. St Albans, Victoria: Victoria University of Technology.

O'Shea, M. 2005. Methods for assessment and techniques for management of Striped Legless Lizard Delma impar populations in south-eastern Australia. Ph.D. Thesis. Victoria: Victoria University.

Species Profile and Threats Database (SPRAT) 2015. *Delma impar*-Striped Legless Lizard. Federal Department of the Environment, Canberra. *

Viridans 2014a. Flora Information System. Viridans Biological Databases.

Viridans 2014b. Victorian Fauna Database. Viridans Biological Databases.

Notes: (*) Denotes publicly available documents.

8.2 Reliability and date of information

Data and information held within the ecological databases and mapping programs reviewed in the desktop assessment (e.g. Victorian Biodiversity Atlas 2015, Protected Matters Search Tool 2015; Section 8.1) are unlikely to represent all flora and fauna observations within and surrounding the study area. It is therefore important to acknowledge that a lack of documented records does not necessarily indicate that a species or community is absent, rather it may reflect a lack of previous survey effort or data confirmation.

A desktop assessment was conducted to review published ecological data, as well as all documents, literature, legislation and policies relevant to the proposed action and the study area and to provide background information prior to conducting the field assessment.

The results of the desktop assessment were verified by multiple field assessments between June 2013 and July 2015, as well as to document ecological values in the study area. The seasonal constraints and mowing did not significantly impede the identification of native and non-native vegetation or the determination of native vegetation extent and percentage cover required to inform the multiple field assessments. Assessment limitations are detailed in Section 2.7 of Ecology and Heritage Partners Pty Ltd 2015a and 3.6 of Ecology and Heritage Partners Pty Ltd 2015b.

All targeted flora and fauna surveys adhered to the relevant survey guidelines where these are available for particular species, such as Spiny Rice-flower and Striped Legless Lizard (DEWHA 2009; DSEWPaC 2011).

8.3 Attachments

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Figure 1: Study Area Figure 7: EPBC Referral Co-ordinates Bannockburn Gas pipeline Project - EPBC Act Spatial Data
	GIS file delineating the boundary of the referral area (section 1)		
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figure 1: Study Area Figure 2: Ecological Features Figure 3: Targeted Striped Legless Lizard Survey Results Figure 4: Significant flora Figure 5: Significant fauna Figure 6: Aquatic Surveys
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)	N/A	
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)	N/A	
	copies of any flora and fauna investigations and surveys (section 3)	✓	1. Detailed Ecological Assessments: Bannockburn Gas Pipeline Project, Bannockburn, Victoria: Stages 1 and 2 (Supply Main and Reticulation Main). 2. Biodiversity Assessment and Targeted Flora and Fauna Surveys For the Proposed City Gate Site, Bannockburn Gas Pipeline Project Victoria: Stage 3.
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)	✓	As above.
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)	N/A	

9 Contacts, signatures and declarations

Project title:

9.1 Person proposing to take action

1. Name and Title:	Geoff Thorn Project Manager, Energy for the Regions
2. Organisation**:**	AusNet Gas Services Pty Ltd
3. EPBC Referral Number:	To be advised
4: ACN / ABN**:**	43 086 015 036
5. Postal address	Locked Bag 14051, Melbourne City Mail Centre VIC 8001
6. Telephone:	03 9695-6631
7. Email:	geoff.thorn@ausnetservices.com.au
8. Name of designated proponent (if not the same person at item 1 above:	
9. ACN/ABN of designated proponent (if not the same person named at item 1 above):	

COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE FEE(S) THAT WOULD OTHERWISE BE PAYABLE

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

□ an individual; OR

□ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*).

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations. Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.

I agree to be the proponent for this action.
I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature  Date 19 October 2015

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

Name	Sandra Mijatovic
Title	Botanist
Organisation	Ecology and Heritage Partners Pty Ltd
ACN / ABN (if applicable)	ACN: 111 427 920; ABN: 65 685 233 760
Postal address	292 Mount Alexander Road, Ascot Vale
Telephone	03 9377 0100
Email	smijatovic@ehpartners.com.au
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature  Date 19 October 2015