# PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

## 1. Information on proponent and person making Referral

| | |
|---|---|
| **Name of Proponent:** | **Barwon Water** |
| **Authorised person for proponent:**<br>**Position:**<br>**Postal address:**<br>**Email address:**<br>**Phone number:**<br>**Facsimile number:** | Paul Northey<br>**General Manager Capital Projects and Greenhouse**<br>**PO Box 659, Geelong, 3220**<br>paul.northey@barwonwater.vic.gov.au<br>**(03) 5226 2355**<br>**(03) 5226 2556** |
| **Person who prepared Referral:**<br>**Position:**<br>**Organisation:**<br>**Postal address:**<br>**Email address:**<br>**Phone number:**<br>**Facsimile number:** | Ruth Macdonald<br>**Environment and Community Lead**<br>**Kellogg Brown & Root Pty Ltd (KBR)**<br>**3/441 St Kilda Rd, Melbourne, 3004**<br>ruth.macdonald@kbr.com<br>**03 9828 5333**<br>**03 9820 0136** |
| **Available industry & environmental expertise:** (areas of 'in-house' expertise & consultancy firms engaged for project) | Barwon Water has experience in water infrastructure planning, project development, project implementation, environment management and consultation. Barwon Water has engaged suitably qualified consultants to undertake a range of investigations.<br>KBR has been responsible for undertaking or coordinating the following investigations and studies:<br>▪ engineering design<br>▪ environmental assessment and management<br>▪ geotechnical assessment<br>▪ terrestrial and aquatic flora and fauna assessment<br>▪ greenhouse gas assessment<br>▪ social impact assessment.<br>Andrew Long & Associates (cultural heritage archaeologists) have completed cultural heritage assessments for the project. Specialist sub consultants have undertaken targeted fauna assessments. |

## 2. Project – brief outline

**Project title:** Melbourne Geelong Interconnection

**Project location:** (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)

Barwon Region Water Corporation (Barwon Water) proposes the Melbourne Geelong Interconnection (MGI) (the project) pipeline to provide for the Geelong region's water supply. The project is located to the west of Melbourne, with the proposed pipeline commencing north-west of Werribee at the Cowies Hill Water Reservoir (Melbourne Water asset) and then heading in a general south-west direction where it would terminate in the northern Geelong suburbs at the Lovely Banks basin (Barwon Water asset). The pipeline traverses the Werribee Plains and is located in both the Port Phillip and Westernport and Corangamite Catchment Management Authority areas. The pipeline also partially intersects a proposed grassland reserve as documented in the Strategic Impact Assessment: Delivering Melbourne's Newest Sustainable Communities (DSE 2009).

To support the pipeline, a pump station is required at the Cowies Hill Reservoir. A surge tank will also be required at a site south of Ballan Road, near the intersection of Edgar and Ripley roads. The surge tank is proposed to be located on private land in an area with no remnant native vegetation or other flora, fauna or heritage values, but with suitable elevation.

The 56.4 km pipeline requires a maximum construction corridor of 30 m in width. For approximately 25 km, the pipeline is aligned within or directly adjacent to an existing 220 kV overhead power transmission easement. Another 25 km of the pipeline is within road reserves, with the remaining 6.4 km located in unencumbered private land.

Approximately 17 km of the pipeline intersects the State Government's proposed grassland reserve. Within the proposed reserve it has been agreed with the Department of Sustainability and Environment (DSE) that the maximum construction corridor will be 20 m. In areas of high environmental value and/or physical constraints a 10 m construction corridor may apply, where practicable from a constructability perspective.

Attachment A illustrates the locality, proposed corridor width and alignment. Bounding coordinates for the proposed pipeline corridor are presented in the Table 2-1.

**Table 2-1 Coordinates for proposed pipeline corridor**

| Key location points | Latitude | | | Longitude | | |
|---|---|---|---|---|---|---|
| | degrees | minutes | seconds | degrees | minutes | seconds |
| Lovely Banks Water Transfer Facility (end) | -38 | 3 | 51.228 | 144 | 19 | 47.388 |
| Heales Road | -38 | 2 | 47.071 | 144 | 20 | 43.526 |
| Hovell Creek/Peak School Road | -37 | 58 | 35.626 | 144 | 22 | 24.225 |
| Start of Farrars Road | -37 | 59 | 9.379 | 144 | 27 | 32.251 |
| Gifkins Road | -37 | 54 | 45.303 | 144 | 27 | 44.031 |
| Little River | -37 | 52 | 57.58 | 144 | 28 | 4.26 |
| Argoona Road | -37 | 52 | 8.82 | 144 | 28 | 20.59 |
| Werribee River | -37 | 49 | 13.53 | 144 | 34 | 51.87 |
| Start of Tarneit Road | -37 | 49 | 12.452 | 144 | 40 | 29.476 |
| End of Tarneit Road | -37 | 50 | 18.691 | 144 | 40 | 16.499 |
| Cowies Hill Water Transfer Facility (start) | -37 | 50 | 17.839 | 144 | 40 | 10.088 |

**Short project description:**

Barwon Water proposes the MGI pipeline to provide for the Geelong region's water supply. The pipeline is located between Cowies Hill, Werribee, in Melbourne's west and Lovely Banks in Geelong's north (see map in Attachment A). The 56.4 km underground pipeline will connect Geelong to Melbourne's water system by the end of 2011.

The project will ultimately have the capacity to deliver up to 16,000 million litres of water a year for the greater Geelong area, equivalent to half the current usage.

The project is a component of the Victorian Water Grid, which links water systems across the state by building new connections and pipelines. The connection to Melbourne will allow Geelong to share indirectly in the water created from the 150 billion litre desalination plant in the Wonthaggi region, as well as other water supply initiatives (e.g. Sugarloaf Pipeline) currently being delivered across the state.

## 3. Project description

**Aim/objectives of the project (what is its purpose / intended to achieve?):**

The objective of the project is to ensure the future of the water supply for Geelong and the surrounding area. The connection will assist in meeting the water supply demands of the Geelong region to the year 2055.

**Background/rationale of project**:

Barwon Water provides water and sewerage services to more than 270,000 customers on 122,000 properties spread over 8,100 square kilometres. The population increases from 195,000 up to 469,000 over holiday periods.

The service area stretches from Little River and the Bellarine Peninsula in the east to Colac in the west and from Meredith and Cressy in the north to Apollo Bay on Victoria's south-west coast. It incorporates the City of Geelong, Victoria's largest regional centre.

The last decade has seen a progressive decline in average stream flows in Barwon Water's catchments. Together with ongoing population growth, this means that supplies from regional surface and groundwater sources will need to be supplemented with water from a Melbourne to Geelong interconnection as a matter of priority.

The significant reduction in stream inflows over the last 10 years could be due to the impact of climate change. The current period of low rainfall and corresponding reservoir inflows is more severe than anything experienced over the past 100 years. Accordingly, in order for Barwon Water to fulfil its service obligations outlined in its Corporate Strategy, Barwon Water is basing its planning on the scenario that low inflows could continue into the future.

In June 2007, the State Government released Our Water Our Future – The Next Stage of the Government's Water Plan (DSE 2007). This plan involves $4.9 billion investment in major infrastructure projects to provide long-term solutions to secure water supplies, taking into account climate change. The plan includes:

- a new seawater desalination plant for Melbourne by late 2011;
- a major irrigation modernisation project in Victoria's food bowl region; and
- an expansion of Victoria's water grid, including a link between Melbourne and Geelong, to be completed by the end of 2011.

The plan includes $20 million of government funding for the Melbourne Geelong Interconnection. It involves constructing a pipeline to transfer up to 16,000 million litres a year from the Melbourne system to augment the potable water supplies for the greater Geelong region and the corresponding bulk purchase of this water from Melbourne Water.

A number of assessments of the study area have been conducted with the most relevant and current reports and maps attached to this referral:

| | |
|---|---|
| Attachment A | Locality Map and Proposed Corridor |
| Attachment B | Map of pipeline options considered |
| Attachment C | Detailed Flora and Fauna Assessment Report |
| Attachment D | Cultural Heritage Assessment |
| Attachment E | Social Impact Assessment Report |
| Attachment F | Pump Station Noise Limit Assessment |
| Attachment G | Targeted Golden Sun Moth Assessment |
| Attachment H | Second interim report of a field survey for the striped legless lizard and grassland earless dragon |
| Attachment I | Plains wanderer targeted survey |
| Attachment J | Significant landscape overlay map |

**Main components of the project** (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

The main components of the project include:

- a 56.4 km, 800 mm diameter pipeline connecting the Cowies Hill Reservoir (owned by Melbourne Water) to the Lovely Banks basin (owned by Barwon Water)
- a water pump station located at Cowies Hill
- a surge tank on private property south of Ballan Road.

The location of this infrastructure in shown in Attachment A.

For approximately 25 km, the pipeline is aligned within or adjacent to an existing 220 kV overhead power transmission easement. Another 25 km of the pipeline is within road reserves, with the remaining 6.4 km located in unencumbered private land.

Approximately 17 km of the pipeline intersects the State Government's proposed grassland reserve. Within the proposed grassland reserve it has been agreed with the Department of Sustainability and Environment (DSE) that the maximum construction corridor will be 20 m. In areas of high environmental value and/or physical constraints a 10 m construction corridor may apply, where practicable from a constructability perspective. Attachment A illustrates the proposed corridor width and alignment.

A pump station will be located on an existing Melbourne Water land that is already developed to support water supply infrastructure. The pump station will be located on previously disturbed land zoned for water infrastructure within an area approximately 40 m by 15 m. The installation of the pump station is likely to have minimal impacts on the natural environment.

A surge tank will be located within close proximity of the pipeline, with the current preferred location on private property south of Ballan Road near the intersection of Ripley and Edgars roads. The location has been selected to facilitate the hydraulic requirements of the pipeline, as well as selecting a site with minimal environmental or heritage values.

**Ancillary components of the project** (eg. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

Where possible, existing driveways and tracks are to be used for the delivery of pipes, materials and equipment. If new access points and roads are required, their location and approval for use will be determined in consultation with statutory authorities and the relevant landowners.

**Key construction activities:**

Construction activities associated with the project would include:

- installation of temporary fences, storage areas and vehicle access
- trench excavation, with a trench width of approximately 2 m
- laying of bedding material, pipeline and back fill
- boring for pipeline installation at selected locations
- reinstatement of the existing surface, including topsoil, grassing and fencing
- construction of pump station
- construction of a surge tank
- ancillary activities.

Construction of the pipeline would occur predominantly via open-cut trenching. Construction activities would be confined to a pre-determined 30 m construction corridor (generally consisting of a 10 m permanent easement with an additional 20 m for temporary construction area). For areas containing sensitive environmental, social or cultural heritage assets and road reserves the construction corridor will be confined to a narrower corridor. Proposed reductions to the construction corridor are illustrated in Attachment A. Underboring will also be used at locations where there is significant native vegetation or other environmental or heritage assets and at some road crossings.

Crossings of rivers, creeks and waterways will occur via trenching, with temporary flow diversions. The crossing points have been deliberately selected with low environmental values, therefore the current preference is to use trench construction. In principle support for this crossing technique at the selected crossing locations has been gained from Melbourne Water and Corangamite Catchment Management Authority.

The pipes will be delivered on trucks and will be stockpiled onsite at designated stockpile locations that contain little or no native vegetation and habitat values. The pipes are then strung along the corridor to be transferred directly into the trench. They will be laid on imported bedding material (sand or crushed rock) and the trench will be backfilled. The trench will be reinstated progressively and where possible, excavated spoil will be used as backfill and compacted. Topsoil will be replaced and the affected area will be reseeded and reinstated in all areas except the proposed grassland reserve which will be rehabilitated as part of the proposed grassland reserve management. A monitoring regime will be implemented to evaluate reinstatement works.

Construction is due to commence in mid-2010.

**Key operational activities:**

Once commissioned, the pipeline will require minimal servicing. Routine maintenance such as checking the operation of air valves and maintaining the easement will be undertaken.

**Key decommissioning activities**:

Not applicable.

**Is the project an element or stage in a larger project?**

☒ No ☐ Yes

**Is the project related to any other past, current or mooted proposals in the region?**
☒ No ☐ Yes

The Melbourne Geelong Interconnection project is a ‘stand-alone’ project and is not part of any other proposals in the region.

## 4. Project alternatives

**Brief description of key alternatives considered to date**:

**Do-nothing scenario**

Barwon Water has completed water supply modelling of the worst case scenario which shows that if the Barwon Water catchment area continues to experience the record low inflows of 2006/07 supply will be unable to keep up with demand from 2012 (even with full stage 4 restrictions and the delivery of committed augmentation projects supply). Therefore the Barwon Water Board determined that it must investigate additional, new sources of water to meet its identified service needs.

**Other water supply augmentation options**

Chapter 3 of the Central Region Sustainable Water Strategy outlines the Government's action plans to meet our future water needs. The four major strategies are as follows:

- Conservation and Efficiency—reducing the amount of water used by eliminating wastage, the introduction of more efficient appliances and/or processes and reducing demand
- Alternative Sources of Water—reusing and recycling water, collection and treatment of wastewater and stormwater for non potable use
- Interconnecting water supply systems and expanding water markets—interconnecting systems does not create water, but provides greater flexibility in water management, allowing water to be moved from areas with high supply and excess demand to areas where demand exceeds supply
- Augmenting Current Urban Supply Systems—includes actions such as reintroduction of existing infrastructure, harvesting more water from rivers, harvesting more water from ground water sources, or utilising seawater treated by desalination plants.

Barwon Water has investigated a range of projects and actions under each of these broad strategies, as a part of the project Business Case. These include the MGI project, local desalination, aquifer storage and recovery, and West Barwon supply augmentation. Through a strategic options analysis the MGI was identified as the preferred option, based on an assessment of timing, cost, volume, reliability risk, environment and stakeholder acceptability.

**Alternative pipeline routes**

A range of pipeline route options have been considered for the project as illustrated in Attachment B. Route alignment investigations commenced in 2006 with a focus on optimising alignments that may be co-located with existing infrastructure easements, such as road and rail reserves and powerline easements, or other previously disturbed or modified areas. The underlying principle in route selection was to avoid and minimise environmental impacts, as well as minimising disturbance on landowners.

Early in the route selection process major transport corridors in the region were excluded from the potential alignment options due to:

- VicRoads advice that traffic impacts on the Princes Highway would be prohibitive, as well as limitations on space
- known ecological values, including significant vegetation reserves, on the Melbourne-Geelong rail reserve

In selecting the preferred alignment, six alignment options were identified, with a detailed options analysis conducted on each route, incorporating:

- a desktop environmental assessment to provide a simple comparison of the likely environmental impacts arising from each pipeline option. The assessment included a preliminary assessment of flora and fauna values.
- a triple bottom line analysis using assessment criterion for a range of economic, social and environmental parameters in consultation with designers, scientists, planners, stakeholders and landholders.
- a comparative risk assessment. URS Australia Pty Ltd facilitated a risk workshop with

representatives from KBR and Barwon Water. Risks were identified and grouped under the criteria of: Planning and Engineering, Construction, Environmental and Social.

There was very little difference between options in terms of lifecycle costs (less than 10% between cheapest and most expensive option), hence the non-financial criteria were used to identify the preferred option.

The modified northern route (which generally followed the existing SPAusnet 220 kv overhead powerline) achieved the highest triple bottom line score and was identified as having the lowest risk profile, while being the second-ranked option in terms of the environmental assessment (i.e. second lowest environmental impact).

The far northern option had the best environmental assessment ranking, but the lowest triple bottom line score and risk ranking and hence was discounted. This was primarily due to the fact that the far northern option was co-located with a high voltage overhead transmission easement. Due to the high risk of electricity transmission to the proposed pipeline, this became an essentially non-viable option.

On the basis of the options analysis, the project team recommended the modified northern route for endorsement by the Barwon Water Board. This recommendation was endorsed by the Board on 15 November 2007.

Subsequent to the Board endorsement, the pipeline alignment has also been modified to deviate from the powerline easement into road reserves to avoid areas identified in the Strategic Impact Assessment (DSE 2009) as having high quality plains grassland native vegetation.

**Brief description of key alternatives to be further investigated** (if known)**:**

No further alternatives are being investigated for this project.

## 5. Proposed exclusions

**Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:**

The following activities are excluded from this referral:

- geotechnical sampling (drilling boreholes and test pits)
- cultural heritage surface and subsurface investigations.

These activities are related to necessary investigations within the 30 m construction corridor required to inform project decision making, including siting of the pipeline. These activities are unlikely to have any significant environmental effects and need to be commenced prior to the completion of environmental assessment and approval processes.

As a separate works package Barwon Water is constructing a new additional water transfer station at the site of the Lovely Banks basin. The pump station will pump water south to Montpellier basin to further increase the distribution capacity of the water being sourced from the Melbourne Geelong Interconnection pipeline. There is an existing adequately sized pipeline connecting Lovely Banks basin to Montpellier basin.

## 6. Project implementation

**Implementing organisation:**

Barwon Water is the proponent for this project.

**Implementation timeframe:**

- Detailed design commenced February 2009
- Detailed environmental assessments commenced February 2009
- Statutory and environmental approvals February 2010 to April 2010
- Detailed design to be complete by March 2010
- Construction to commence mid-2010
- Construction completed by December 2011

**Proposed staging** (if applicable):

N/A

## 7. Description of proposed site or area of investigation

**Has a preferred site for the project been selected?**

☐ No ☒ Yes If no, please describe area for investigation.

**General description of preferred site,** (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):

**Topography and Soils**

The topography of the study area is a generally flat or a slightly undulating landscape, being located on the open basalt plains to the west of Melbourne. However, several escarpments are present along the alignment, associated around waterways and drainage lines. The elevation on the pipeline alignment changes from 20 m to 90 m (AHD), with an elevation of 80 m at Lovely Banks and 60 m at Cowies Hill.

The soils in the region are generally made up of newer volcanic soils and the proposed route contains approximately 80% of newer volcanics with the remaining 20% being mainly quaternary sediment. The basalt is relatively young and has experienced weathering and sedimentation forming a variable soil profile that contains a large amount of boulders and rocks.

The variable soil material and depth and the presence of boulders will influence the constructability and methods for laying the pipeline.

**Waterways and catchments**

The pipeline alignment is within the Werribee and Moorabool River basin catchment areas. Twenty-one mapped watercourses are intersected by the proposed alignment (DSE 2009). Of these, four are major waterways: the Werribee River, Little River, Lollypop Creek and Hovell Creek. The remaining watercourses consist of eight minor tributaries to these major waterways and nine unnamed watercourses that can be characterised as small depressions and/or drains.

At the point of intersection with the alignment, the Werribee River is at the base of an escarpment at Cobbledicks Ford crossing. The river contains intact native riparian vegetation. Index of Stream Condition (ISC 2004) ratings for the river classify the condition of this reach of the waterway as poor.

The crossing point of the pipeline with the Little River is located within a small escarpment and contains minimal native riparian vegetation. The ISC rating for this reach of the river is very poor. The pipeline alignment has been selected at this point to avoid two localised rocky escarpment areas.

Hovell Creek is a dry channel at the crossing point, which supports some sparse scattered river red gums surrounding the waterway. The ISC rating for this reach of the waterway is poor. The pipeline intersection with Lollypop Creek occurs near the source of the creek and at this point the creek is a drainage depression, located within a grazed paddock.

**Vegetation**

The pipeline alignment is within the Victorian Volcanic Plain Bioregion. The most common ecological vegetation class (EVC) for the region is plains grassland (EVC 132) which has an endangered bioregional conservation status. Other EVCs with current records within the study area include plains grassy woodland (EVC 55), floodplain riparian woodland (EVC 56), creekline grassy woodland (EVC 68), stream bank shrubland (EVC 851) and hills herb-rich woodland (EVC 71). The EVCs all have a conservation significance of endangered in the Victorian Volcanic Plain bioregion.

Within the proposed grassland reserve, vegetation is predominantly remnant plains grassland (EVC 132) which has been extensively grazed (DSE 2009).

Native vegetation outside of the proposed grassland reserve area is generally present as scattered patches of native grassland that have regenerated from previous disturbance, for example grazing, soil disturbance and construction of the power lines. Some remnant patches of native vegetation are present that have not been substantially disturbed, mostly restricted to road reserves and the Werribee River, and with some areas on private land. Large areas are dominated by exotic pasture grasses used for cropping and grazing. Several paddocks also contain large patches of noxious weeds.

**Habitat**
The degraded state of the habitat along the pipeline corridor supports mainly highly mobile species, such as birds that frequent open landscapes with little vegetative structure. The main types of fauna habitats present are associated with the landforms that have impeded agricultural development, including stony knolls, watercourses and wetland areas.

Several areas of natural rock and rocky outcrops occur throughout the area. These areas may provide potential habitat for striped legless lizard (*Delma impar*), grassland earless dragon (*Tympanocryptis pinguicolla*), plains wanderer (*Pedionomus torquatus*) and golden sun moth (*Synemon plana*), particularly where indigenous grasses occur within natural rocky areas.

**Built form and infrastructure**
As the proposed pipeline is located predominantly adjacent to an overhead power line and/or road reserves or property boundaries, built structures are minimal.

Along the alignment, the pipeline would cross various types of infrastructure, as described in Table 7.1.

**Table 7.1 Buildings or other infrastructure in the investigation corridor**

| Infrastructure type | Occurrence |
|---|---|
| Roads | Numerous roads are located within the project area. Key roads which the proposed pipeline intersects/aligns with are:<br>• Tarneit Road, Tarneit<br>• Doherty's Road, Tarneit<br>• Little River-Ripley Road, Little River<br>• Farrars Road, Lara<br>• Peak School Road, Lara<br>• Ballan Road<br>• (future) outer metropolitan ring road, Werribee. |
| Railways | The pipeline corridor crosses the alignment option for the (future) Regional Rail Link.<br>The Melbourne–Geelong railway line is located immediately south-east of the proposed pipeline alignment at the intersection of Peak School Road and Farrars Road, Lara; however, the pipeline alignment does not intersect the rail reserve. |
| Water utilities | Water mains and sewer mains at various locations. |
| Power lines | The Melbourne Geelong Interconnection pipeline is partially aligned with the SPAusnet 220 kV overhead power transmission easement. Typical residential power lines also occur in the project area. |
| Other utilities | Various Gasnet gas lines, Optus telecommunication lines and SPAusnet gas lines. |

**Site area** (if known):

**Route length** 56.4 km **and maximum width** 30 m construction corridor equal to 169 ha

**Current land use and development:**

General land uses are predominantly agricultural or rural living on smaller properties near townships along the proposed alignment. A network of arterial roads and minor unsurfaced roads service the larger agricultural properties and an unsurfaced vehicle access track usually occurs along the power line easement through the agricultural areas. In many areas the non rocky components of the landscape have been cropped or sown with exotic pasture species, leaving the rocky areas with the majority of native vegetation cover and habitat values.

The majority of the existing power line easement passes through agricultural land used for grazing and cropping.

The proposed pipeline traverses developed residential areas at the Werribee end and near Lovely Banks. The area surrounding Cowies Hill and Lovely Banks basin is subject to residential development and growth

**Description of local setting** (eg. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):

Adjoining land uses are described above.

The pipeline alignment starts on the edge of the township of Werribee, near the growing community of Tarneit, and is within the proximity of the townships of Lara, Little River and Lovely Banks located to the north of Geelong.

The permanent pipeline easement will traverse approximately 93 land parcels with 83 affected landholders. Residences that are in close proximity to the proposed alignment are generally located north of Geelong and west of Lara, near the Lovely Banks basin.

The proposed pipeline alignment has been deliberately located in several road reserves to minimise potential significant environmental and social impacts. These roads include Tarneit Road, Little River-Ripley Road, Farrars Road, Peak School Road, Plantation Road, and Eva Place.

**Planning context**: (eg. strategic planning, zoning & overlays, management plans):

The Victorian Government's Central Region Sustainable Water Strategy (DSE 2006) identified that Geelong and the surrounding region faces a long-term water supply shortfall. There are a range of possible options to provide water to meet this future water shortfall, including connection to the Melbourne water supply. The Victorian government announced as part of the Next Stage of the Water Plan (DSE 2007) that it intends to build a potable water connection between Melbourne and Geelong by the end of 2011—the Melbourne Geelong Interconnection.

The project is subject to the *Planning and Environment Act 1987* (the relevant planning framework) and requires approval for land use and development. Two local planning schemes are applicable to the project area: Wyndham Planning Scheme and the Greater Geelong Planning Scheme.

A range of zones apply to the investigation corridor, with the most common being the Farming Zone. Several overlays also apply including:

- design and development
- development plan
- public acquisition
- land subject to inundation
- significant landscape
- environmental significance
- flood.

In accordance with the land use definitions of Clause 74 of the Geelong and Wyndham Planning Schemes, the proposed pipeline is defined as a 'minor utility installation', which includes land used for the distribution of water.

Relevant authorisations and consents under the *Planning and Environment Act 1987* are required, including the establishment of the pipeline infrastructure and the removal of native vegetation.

The Department of Sustainability and Environment (DSE) has released a strategic impact assessment report under the *Environment Protection and Biodiversity Conservation Act 1999* for the Victorian government's Delivering Melbourne's Newest Sustainable Communities program. The report considers:

- designation of the expanded urban growth boundary
- the proposed outer metropolitan ring road/E6 transport corridor
- the Tarneit section of the Regional Rail Link project.

As a part of this program the Victorian government has proposed to protect two significant areas of native grassland to the west of Melbourne totalling approximately 15,000 ha. These areas will be used to offset any unavoidable losses of native vegetation and habitat associated with the government program (DSE 2009).

Barwon Water and DSE have been involved in extensive consultation over the intersection of the proposed grassland reserve with the proposed pipeline for approximately 17 km of the pipeline length. DSE and Barwon Water have reached agreement over the location of the pipeline which has resulted in some alignment changes through the proposed grassland reserve. In these locations the pipeline has been realigned from the powerline easement to the road reserve areas where the vegetation is of lower quality. DSE advised at a meeting on 03/12/2009 that all required native vegetation and biodiversity offsets for this project will be able to be sourced from within the proposed grassland reserve area.

**Local government area(s):**

The pipeline option would traverse land through two council areas—City of Greater Geelong and Wyndham City Council.

## 8. Existing environment

**Overview of key environmental assets/sensitivities in project area and vicinity**
(cf. general description of project site/study area under section 7)**:**

Key environmental assets/sensitivities in the project area and vicinity are listed below:

- twenty-one watercourses are intersected by the proposed alignment. Of these, four are named waterways: the Werribee River, Little River, Lollypop Creek and Hovell Creek.
- the pipeline intersects with a grassland reserve proposed by the DSE for approximately 17 km of the pipeline length.
- a number of ecological assets have been identified in the proposed pipeline corridor including:
    - remnant areas of native vegetation, including remnant grassland patches
    - threatened flora species, including the endangered spiny rice-flower
    - known and potential habitat for several threatened flora and fauna species
    - threatened vegetation communities, specifically grasslands as listed under the *Flora and Fauna Guarantee Act 1988* (FFG Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- recorded Aboriginal cultural heritage places are located within the activity area. These consist of isolated or diffuse artefact scatters with silcrete and quartz the predominant raw material type identified.
- historical heritage places such as dry stone walls and Cobbledicks Ford crossing over the Werribee River
- dispersed rural/residential dwellings.

## 9. Land availability and control

**Is the proposal on, or partly on, Crown land?**

☐ No **X** Yes If yes, please provide details.

Crown land is found at the following locations:

- at the Werribee River crossing the pipeline crosses through Cobbledicks Streamside Reserve. The land manager is Wyndham City Council.

**Current land tenure** (provide plan, if practicable):

The pipeline will be located on road reserves, freehold private land and a crown land parcels (refer to Attachment A).

**Intended land tenure** (tenure over or access to project land):

An easement will be applied to the permanent pipeline alignment where it is located on freehold land. The creation of easements for the pipeline across individual land titles will be undertaken under an acquisition process and will be subject to the provisions of the *Land Acquisition and Compensation Act 1986*, and other associated legislation such as the *Crown Land (Reserves) Act 1978* and the *Land Act 1958*.

Where the pipeline is located in road reserves, authorisation for the pipeline will occur under the provisions of the *Road Management Act 2004.*

**Other interests in affected land** (eg. easements, native title claims):

Where the pipeline is located within the existing powerline easement, the intention is that a 10 m wide easement will be co-located within the existing SP Ausnet powerline easement.

DSE has indicated that it may compulsorily acquire land within the proposed grassland reserve and also for the proposed Regional Rail Link and Outer Metropolitan Ring Road projects which this project proposes to cross. The public acquisition overlays have not been gazetted.

The search of the Native Title register indicates that there are no overlaps of the MGI with any:

- determination of native title as per the National Native Title Register
- registered application as per the Register of Native Title Claims
- scheduled application as filed with the Federal Court
- indigenous land use agreements notified (but not registered) by the Tribunal.

## 10. Required approvals

**State and Commonwealth approvals required for project components** (if known):

The following Victorian state approvals and consents are required:

- a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006*
- planning authorisation under the *Planning and Environment Act 1987*
- permits to take protected native flora under the *Flora and Fauna Guarantee Act 1988*
- consents to disturb historical features under the *Heritage Act 1995*
- works on waterways permits under the *Water Act 1989*
- consents under various legislative instruments to enable access to and use of public land and for the project infrastructure
- consents may also be required under the *Wildlife Act 1975* and the *Fisheries Act 1995*.

A referral under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* has been submitted. The project is being referred based on potential impacts on one matter of national environmental significance being listed threatened species and ecological communities. The referral concludes that this action will not have significant impacts on matters of national environmental significance and is not a controlled action.

**Have any applications for approval been lodged?**

**X** Yes If yes, please provide details.

A referral under the EPBC Act was submitted on 1 March 2010.

Key Victorian approvals will be lodged in early 2010, subject to the outcomes of this EES referral.

**Approval agency consultation**:

The project has been discussed with the Department of Environment, Water, Heritage and the Arts with regard to potential impacts on matters of national environmental significance.

Given the range of approvals required for the project, Barwon Water has established an Agency Reference Group (ARG) comprising representatives from the following agencies/authorities:

- Department of Sustainability and Environment (Biodiversity and Ecosystems)
- Department of Planning and Community Development (Planning Services)
- Corangamite Catchment Management Authority
- Melbourne Water
- SPAusnet
- Aboriginal Affairs Victoria
- Environment Protection Authority
- Department of Primary Industries
- Victorian Growth Areas Authority
- City of Greater Geelong
- City of Wyndham
- Wathaurung Aboriginal Corporation

The ARG has been established to allow regular agency input and communication between key agencies to facilitate an efficient statutory approval process through the delivery of the project. Consultation has occurred through the ARG as well as targeted meetings.

The ARG representatives will play the lead role in providing input into the scope and content of the Framework Environmental Management Plan (EMP) to be prepared for the project.

**Other agencies consulted:**

VicRoads—regarding road crossings
Department of Transport—regarding interactions with the Regional Rail Link project
Department of Sustainability and Environment (Office of Water)—regarding the project scope and interface with other regional water projects.

## PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

### 11. Potentially significant environmental effects

**Overview of potentially significant environmental effects** (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):

**Land use**
Key land use effects likely to occur are:

- short term disruption to land use activities, in particular agricultural land uses.
- application of permanent easements to a number of properties which will restrict future use and development.

**Native Vegetation**:
Potentially significant effects on native vegetation include:

- loss of areas of the endangered plains grassland ecological vegetation class (EVC)
- damage to other EVCs present in the study area, including the endangered EVCs plains grassland/plains grassy woodland mosaic and plains grassy woodland.

The loss of small areas of the endangered plains grassland EVC and minor damage to other EVCs present in the study area is unavoidable. A maximum loss of 18.76 hectares of native vegetation is proposed. In selecting the proposed pipeline corridor, all efforts have been made to avoid and minimise this impact particularly through selection of the alignment and width of the construction corridor. Within the proposed grassland reserve, vegetation is predominantly remnant plains grassland (EVC 132) which has been extensively grazed (DSE 2009). Impacts on native vegetation in the proposed reserve have been minimised by utilising disturbed road reserves and reducing the width of the construction footprint.

**Threatened flora**
Two threatened flora species, *Pimelea spinescens* subsp. *spinescens* (spiny rice-flower) and *Dianella amoena* (matted flax-lily), were observed in several locations along the proposed route. Modifications to the pipeline alignment have been made to avoid impacts on matted flax-lily and to minimise impacts on spiny-rice flower. As a result the pipeline is likely to impact on

- a maximum of 1 to 2 individuals of one population of spiny rice flower, this is the worst case scenario.

This level of impact falls below the Federal Government's significant impact guidelines threshold for the subspecies.

The ecological assessments completed for the project have identified that potential habitat exists throughout the project area for state listed *Rhagodia parabolica* (fragrant saltbush), *Pterostylis truncata* (brittle greenhood) and federally listed *Glycine latrobeana* (clover glycine). While these flora species have not been recorded during project surveys, there remains a low likelihood that undetected individuals may occur.

Potential impacts on threatened flora are further discussed in Section 12.

**Threatened fauna**
Targeted surveys for threatened fauna species considered to have potential habitat within the proposed alignment have been completed or are currently underway. As a result of project surveys, two threatened fauna species, *Pedionomus torquatus* (plains wanderer) and *Synemon plana* (golden sun moth), listed under state and federal legislation, have been observed.

The project is likely to have the following effects:

- disturbance to habitat for *Synemon plana* (golden sun moth) in four locations where a total of 7 individuals of this species were identified. The proposed pipeline development represents a small area of habitat that is available to this species, and therefore is expected to impact the species on a local level, and not on a State or National level (refer to Attachment G).
- localised and temporary disturbance to potential habitat for *Tympanocryptis pinguicolla* (grassland earless dragon), *Delma impar* (striped legless lizard),

*Pedionomus torquatus* (plains wanderer) and *Litoria raniformis* (growling grass frog).

Targeted survey assessment results are pending for the grassland earless and striped legless lizard, however the interim report states that neither species has yet been detected (Attachment H).

Potential impacts on threatened fauna are further discussed in Section 12.

**Threatened communities**
Areas of the federally listed Natural Temperate Grassland of the Victorian Volcanic Plain community were recorded within the construction corridor during field surveys completed for the project. The community is also listed as a threatened community under the Victorian FFG Act as the Western (Basalt) Plains Grassland Community.

The project will result in the loss of a small area (maximum 12.8 ha) of medium quality natural temperate grassland ecological community. Within the proposed grassland reserve boundary, all plains grassland EVC (EVC 132) is assumed to be natural temperate grassland, in accordance with DSE's Strategic Impact Assessment (DSE 2009). Outside of the proposed grassland reserve seven patches of the community were identified within the alignment along the road reserves of Ballan Road, within a property adjacent to Little River–Ripley Road, and in several properties south of Dohertys Road.

The effect on the threatened community will not result in a long term impact on the survival of this community. The Victorian Government currently has a proposal to protect 15,000 ha of this community in an area directly adjacent to the proposed pipeline, therefore the project will not impact on habitat critical to the survival of this ecological community.

Potential impacts on threatened communities are further discussed in Section 12.

**Cultural Heritage**
***Aboriginal cultural heritage***
It is likely that a number of identified Aboriginal places will be disturbed by construction of the pipeline. Further detail on these impacts and how they will be managed is discussed in Section 15. The magnitude of this impact and its cultural significance will be evaluated through the development of the Cultural Heritage Management Plan (CHMP) for the project.

***Historic heritage***
The most significant heritage feature in the vicinity of the pipeline alignment is Cobbledicks Ford Crossing, at Mount Cottrell. The ford crossing will be dismantled prior to construction, and reinstated to its current condition at the completion of works. Heritage Victoria has been consulted regarding management of this heritage place and support the proposed approach to management and restoration.

**Waterways**
The following named waterways are crossed by the project:

- Werribee River
- Little River
- Hovell Creek
- Lollypop Creek.

Potential impacts to waterways would include:

- reduction of the quality of surface water runoff into surrounding waterways, hence reducing the water quality of the waterways
- a requirement for temporary flow diversion, largely at Werribee River and Little River
- increased erosion and sedimentation into the waterways
- loss of riparian vegetation and habitat due to construction of the project
- a reduction in bank stability as a result of the loss of vegetation and ground disturbance.

The selected waterways crossing points are currently in a degraded state, containing little water and with vegetation consisting mainly of exotic vegetation. With reinstatement and construction management these impacts are likely to be short term and of low significance.

## 12. Native vegetation, flora and fauna

### Native vegetation

**Is any native vegetation likely to be cleared or otherwise affected by the project?**

☐ NYD ☐ No ☒ Yes If yes, answer the following questions and attach details.

**What investigation of native vegetation in the project area has been done?** (briefly describe)

The following flora and native vegetation investigations have been completed for the project:

- Preliminary flora and fauna assessment (2007)
- Detailed flora and fauna assessment (Spring 2007)
- Targeted flora survey (Spring 2007)
- Detailed flora and fauna assessment (Spring 2009).

The scopes of these and other ecological investigations are described further in the Flora and Fauna section of this referral.

The 2009 flora and fauna assessment is provided as Attachment C.

**What is the maximum area of native vegetation that may need to be cleared?**

☐ NYD Estimated area 18.76 hectares

Estimates of impacts on native vegetation are based on the maximum 30 m construction corridor, except within the proposed grassland reserve where it has been agreed with the DSE that the maximum construction corridor will be 20 m. In other areas outside the proposed grassland reserve the construction corridor has been reduced to avoid areas of environmental, cultural or social sensitivity.

Table 12.1 details the estimated amount of vegetation to be cleared with implementation of avoidance and minimisation measures. The exact figures on losses will be finalised through further design and with construction input.

Impacts on threatened communities, included estimated losses, is described in detail on pages 24-25 of this referral.

**Table 12.1 Estimated native vegetation impacts and offset requirements**

| Conservation significance | Number of habitat zones | EVC Name | Total area of loss (ha) | Total losses (hha) | Gain target (hha) |
|---|---|---|---|---|---|
| Very high | 6 | 132: Plains grassland | 0.89 | 0.38 | 0.76 |
| Very high | 2 | 897: Plains grassland/ plains grassy woodland | 0.17 | 0.06 | 0.12 |
| Very high | DSE proposed grassland reserve | 132: Plains grassland | 12.02 | 5.32 | 10.64 |
| High | 45 | 132: Plains grassland | 5.44 | 1.68 | 2.46 |
| High | 2 | 897: Plains grassland/ plains grassy woodland | 0.24 | 0.08 | 0.12 |
| **Total** | | | **18.76** | **7.52** | **14.10** |

**How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?**

☒ N/A

None.

**Which Ecological Vegetation Classes may be affected?**

☐ NYD ☒ Preliminary/detailed assessment completed. If assessed, please list.

The Ecological Vegetation Classes predicted to be affected are:

- Plains grassland (EVC 132)
- Plains grassland/Plains grassy woodland mosaic (EVC 897).

DSE has agreed that offsets required under state (*Planning and Environment Act 1987*) and federal (EPBC Act) legislation can be sourced from within the proposed grassland reserve. The native vegetation offsets required under state legislation would be developed in conjunction with any offsets required under the federal legislation, so that an optimum biodiversity outcome is achieved. The project has also identified alternative offset sites should alternative sources be required.

**Other information/comments?** (eg. accuracy of information)

Once the construction method is finalised offset targets will need to be refined for each EVC, with further refinement possible of the total losses and gain targets associated with the expected avoidance and minimisation identified for the project.

Limitations associated with the flora and fauna assessments are described in Section 2.4 of Attachment C.

Within the proposed grassland reserve DSE's extent and quality data on native vegetation has been relied upon. This information is documented in the Strategic Impact Assessment (DSE 2009).

## Flora and fauna

**What investigations of flora and fauna in the project area have been done?**
(provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)

**Preliminary flora and fauna assessment (2007)**
The key purpose of the preliminary flora and fauna assessment, involving a desktop and field based survey, was to clarify the flora and fauna issues for the proposed alignment, in particular regarding the extent of intact remnant native vegetation likely to be impacted.

The preliminary flora and fauna assessment stated that the proposed pipeline placement was not expected to significantly impact upon native vegetation, vegetation communities or threatened species. The potential impacts would be further reduced if avoidance measures were taken to reduce the impact on patches of native vegetation, particularly along road reserves and important ecological features, such as waterways.

As a result, changes to the proposed pipeline alignment were made to reduce the loss of significant roadside vegetation and numerous large trees.

**Detailed flora and fauna assessment (2007)**
In November 2007 a detailed flora and fauna survey was undertaken on the modified alignment. The detailed flora and fauna assessment outlined the impacts that the construction of the proposed alignment would have on native vegetation, significant flora and fauna species and habitat. A number of management recommendations were outlined in the report to mitigate the impacts of the proposed alignment.

During this assessment, a nationally and state listed flora species was recorded within the proposed alignment, *Pimelea spinescens* subsp. *spinescens* (spiny rice-flower). The species was observed in several locations, within two populations, over the proposed alignment.

**Targeted Flora Survey (2007)**
A targeted assessment was undertaken due to the presence of spiny rice-flower along the proposed alignment in spring 2007. The results of this targeted survey are documented in the 2007 flora and fauna assessment (Attachment C).

A targeted search for the species was undertaken in the area surrounding observed locations of

the species. Following recommendations outlined in the 2007 detailed assessment, the alignment was moved to the northern side of Peak School Road and to the western side of Farrars Road to avoid greater numbers of spiny rice-flower.

**Flora and Fauna Assessment (2009)—(refer to Attachment C)**
The 2009 flora and fauna assessment was undertaken to qualify the findings of the 2007 report, to assess any change in the condition of the vegetation and habitat and to assess areas not assessed in 2007 due to changes in the location of the alignment.

The report noted that the condition of the vegetation and habitat within the alignment had increased in cover of native grasses through areas previously assessed in 2007. There was also an increase in the amount of remnant vegetation through areas not assessed in 2007, as these areas have been subject to fewer disturbances.

During this assessment, one nationally and state listed fauna species, *Pedionomus torquatus* (plains wanderer), was recorded in a single location within the proposed alignment. A suspected individual *Dianella amoena* (matted flax-lily) was observed in one location, along Peak School Road. Locations of previously recorded *Pimelea spinescens* ssp. *spinescens* (spiny rice-flower) were also confirmed. The survey also assessed possible alignment changes where the spiny rice-flower and matted flax-lily are present, for example, on the opposite side of the road reserve to where the species was located.

Several habitat areas that may potentially be used by threatened flora and fauna species were also identified along the proposed alignment (See Attachment C).

**Targeted Fauna Surveys**

***Golden Sun Moth (refer to Attachment G)***
A targeted survey along the alignment has been completed to determine absence/presence of the *Synemon plana* (golden sun moth). This was completed between mid-November 2009 and January 2010 in accordance with the guidelines in EPBC Policy Statement 3.12 (DEWHA 2009). Seven male moths were recorded at a total of four locations within two properties along the alignment.

***Striped legless lizard/Grassland earless dragon (refer to Attachment H)***
Targeted fauna species searches are presently being conducted along the alignment to determine absence/presence for *Delma impar* (striped legless lizard) and *Tympanocryptis pinguicolla* (grassland earless dragon) and are due to be completed at the end of March 2010. Preliminary results of this survey work are available and to date no individuals of these species have been detected.

***Plains Wanderer (refer to Attachment I)***
A targeted survey of potential habitat areas along the alignment has been completed to determine the likely presence of *Pedionomus torquatus* (plains wanderer). The survey was completed in December 2009 in accordance with the guidelines in the DEWHA species profile and threats database (DEWHA 2010). The survey failed to identify any individual occurrences of species but documents areas of suitable habitat.

**Strategic Impact Assessment for EPBC Act (DSE 2009)**
The DSE has released a strategic impact assessment report for the *Environment Protection and Biodiversity Conservation Act 1999* for the Victorian government's program, Delivering Melbourne's Newest Sustainable Communities. The assessment is of relevance to the MGI project due to the intersection with the proposed grassland reserve, outer metropolitan ring road and the Regional Rail Link. The native vegetation quality and extent data collected within the proposed grassland reserve for the Strategic Impact Assessment has been used for this project.

**Have any threatened or migratory species or listed communities been recorded from the local area?**

☒ NYD ☒ No ☒ Yes If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.

Searches of the DSE databases (Flora Information System (FIS) and Atlas of Victorian Wildlife (AVW)) and the DEWHA online EPBC protected matters search tool (PMST) have been completed for the project area. Results of these searches are described in Attachment C.

Of the threatened species and communities recorded or predicted to occur in accordance with these databases, the following have been recorded during project assessments:

- Natural Temperate Grassland of the Victorian Volcanic Plain ecological community
- *Pimelea spinescens* subsp. *spinescens* (spiny rice-flower)
- *Dianella amoena* (matted flax-lily)
- *Pedionomus torquatus (*plains wanderer*)*
- *Synemon plana (*golden sun moth*)*.

**Listed Communities**

The critically endangered and nationally listed community natural temperate grassland of the Victorian volcanic plain has been recorded within the project area. The identified community is consistent with the *Flora and Fauna Guarantee Act* listed community Western (basalt) plains grassland.

Within the proposed grassland reserve, plains grassland ecological vegetation class (EVC 132) has been assumed to be consistent with the natural temperate grassland community in accordance with the Strategic Impact Assessment (DSE 2009). Outside of the reserve, the community was recorded during field survey in a number of discrete patches.

**Threatened Flora**

Results from the FIS database show that five species listed under the FFG Act and the EPBC Act have previous records within 1 km of the alignment. A search of the EPBC PMST predicted that an additional three nationally listed flora species may occur along the proposed alignment. See Attachment C for significant flora species that may occur in the general study area. Results from searches of the FIS also indicate records for five species listed under the advisory list of Victorian rare or threatened species (VROT, DSE 2005) that are not listed under the FFG Act or EPBC Act.

Two listed flora species have been recorded during project assessments of the alignment, being *Pimelea spinescens* subsp. *spinescens* (spiny rice-flower) and *Dianella amoena* (matted flax-lily). 64 individuals of *Pimelea spinescens subsp. spinescens* (spiny rice-flower) have been recorded within the road reserves proposed to be utilised by the pipeline alignment. The species has been found in three road reserves, Peak School Road, Farrars Road and Tarneit Road. One individual of *Dianella amoena* (matted flax-lily) has been recorded in the Peak School Road reserve. A single VROT species, *Rhagodia parabolica* (fragrant saltbush), was also recorded during the project assessments.

Numerous records of the FFG Act listed *Pterostylis truncata* (brittle greenhood), recorded in 2002 and 2003, are present within the vicinity of the study area but this species was not recorded during assessments for the project. No other listed species with previous records in the study area have been recorded within the last 20 years.

**Threatened Fauna**

A total of 23 species listed under the FFG Act and the EPBC Act have been recorded or are predicted to occur within 1 km of the study area. An additional 14 species, listed under the DSE advisory list of VROT species (DSE 2007) have also been recorded within 1 km of the study area. These species are listed in Attachment C.

Of the 14 species predicted to occur from the PMST, four of these species have previous records within 1 km of the study area (AVW data):

- *Litoria raniformis* (Growling grass frog) (recorded 2005, 2001, 1990, 1980, 1979, 1964)
- *Pedionomus torquatus* (Plains wanderer) (1987, 1986, 1978)
- *Delma impar* (Striped legless lizard) (1992)
- *Tympanocryptis pinguicolla* (Grassland earless dragon) (1990)

Based on project assessments, potential habitat is available for the following additional threatened fauna species:

- *Synemon plana* (Golden sun moth)
- *Rostratula australis* (Australian painted snipe)
- *Galaxiella pusilla* (Dwarf galaxias)
- *Prototroctes maraena* (Australian grayling).

Two threatened fauna species, plains wanderer and golden sun moth have been recorded during the project assessments. According to the AVW data the plains wanderer had not been recorded recently (within the last 10 years) within the vicinity of the project area, but has three previous records within 5 km, with the most recent of these records from 1987. There are no historical records for golden sun moth in the vicinity of the project, however during the targeted survey seven male moths were recorded at four locations along the project corridor.

Of the FFG Act listed species that have previous records in the surrounding area only two species, both bird species, the *Pyrrholaemus sagittatus* (speckled warbler) and *Ardea modesta* (eastern great egret) have been recorded within the last 10 years.

Other threatened species may occur in the study area however, due to constant impacts on the majority of the habitat, for example mowing of road reserves, grazing by stock, and maintenance of the power line easement, it is most likely that occurrences of threatened species would be limited to over flying of the study area and movement between more suitable areas.

**Migratory Species**
Results from the PMST predicted that 13 migratory species may occur near the study area. However, no records of these species (only including those that are listed threatened species under the EPBC and FFG Acts and VROT species) have been observed in the AVW database.

Port Phillip Bay (western shoreline) and Bellarine Peninsula Ramsar wetland is located approximately 4 km north of the alignment at its closest point. This site would provide the most suitable habitat for wetland and marine migratory species. As the alignment is situated directly north of the extent of the wetland, it is likely that migratory birds would fly over the study area however, it is unlikely that these species would utilise the habitat present. The most likely species to potentially occur is considered to be Australian painted snipe, however the species prefers freshwater ephemeral or permanent shallow inland wetlands with dense vegetation near water. Ephemeral wetland areas near the alignment are currently dry and therefore do not provide appropriate habitat conditions, although this could change if sufficient rainfall occurs prior to or during construction.

**If known, what threatening processes affecting these species or communities may be exacerbated by the project?** Please describe briefly.

The following threatening processes, particularly for grassland habitats, will potentially be exacerbated by the project:

- clearing and habitat destruction
- soil disturbance and promotion of exotic species invasion
- loss of key grassland species.

**Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?**

☐ NYD ☐ No ☒ Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

**Threatened Communities**

Likely impacts on the natural temperate grassland community have been discussed extensively with DSE. As a result, the extent of impact has been determined via two methods; for areas within the proposed grassland reserve data from the Strategic Impact Assessment (DSE 2009) has

been adopted, and for areas outside the proposed grassland reserve field survey data has been utilised (KBR 2009). In addition due to the significance of the proposed grassland reserve a 20 m construction corridor has been applied as a maximum within the reserve area, with further reductions in this corridor at environmentally sensitive locations.

In the Strategic Impact Assessment (DSE 2009), plains grassland ecological vegetation class (EVC 132) has been assumed to be consistent with the natural temperate grassland community. The vegetation where the pipeline intersects the proposed grassland reserve is dominated by medium quality grassland (99% of total), with the remainder classified as high quality. The maximum loss of natural temperate grassland within the proposed grassland reserve is 12.02 ha based on a 20 m construction corridor, with a short length (200 m) of 10 m width through a sensitive location. Actual losses are expected to be further minimised through constraining the construction corridor. This will be determined through pre-construction ecological assessments involving the constructor.

In areas outside the proposed grassland reserve, seven remnants considered of sufficient quality to be included within the definition of the threatened community have been identified during field survey. Of these, three have been avoided through selection and refinement of the proposed construction corridor. However, four areas south of Dohertys Road are proposed to be impacted by the project, amounting to a maximum of 1.75 ha based on a standard construction corridor of 30 m. To minimise impacts, it is proposed that in these four areas the construction corridor be reduced to 10 m, wherever practicable, thereby limiting the affected area to 0.78 ha.

Therefore for the entire pipeline alignment the maximum loss of natural temperate grassland community is expected to be 12.8 ha with actual losses expected to be less than this figure.

The effect on the threatened community will not result in a long term impact on the survival of this community. The impact on the extent of this ecological community will be temporary in nature as the impacted areas will be reinstated with native grasses on completion of the pipeline installation. In addition the Victorian Government currently has a proposal to protect 15,000 ha of this community in an area directly adjacent to the proposed pipeline, therefore the action will not impact on habitat critical to the survival of this ecological community. As a part of the route selection process disturbed areas such as road reserves and powerline easements were selected to reduce impacts on native vegetation and biodiversity values, therefore the potential for fragmentation has been reduced.

**Threatened Flora**

The following species have the potential to be affected by the project:

- *Pimelea spinescens* subsp. *spinescens* (spiny rice-flower) (FFG and EPBC listed)
- *Dianella amoena* (matted flax-lily) (FFG and EPBC listed)
- *Rhagodia parabolica* (fragrant saltbush) (VROT)
- *Scleroleana murticata* (five-spined saltbush) (VROT)
- *Austrodanthonia richardsonii* (straw wallaby-grass) (VROT)
- *Pterostylis truncata* (brittle greenhood) (FFG listed)

The areas containing the largest numbers of spiny rice-flower have been avoided by moving the pipeline to the north side of Peak School Road and to the west of Farrars Road. The remaining individuals are proposed to be avoided by micro-siting of the pipeline alignment or reduction of the construction corridor, where viable. There may be impacts where it is not possible to deviate the pipeline, due to the constricted construction corridor and spacing of individual plants. Most of the individuals are close to the boundary fence line of the road reserve and are easier to avoid, however an occasional individual maybe positioned closer to the pipeline. This will result in an impact on a maximum of 1-2 individuals in one population and therefore will not constitute a significant impact, according to the EPBC policy statement for this species.

Translocation of this species has had limited success in the past, and will only be undertaken in consultation with DSE and DEWHA.

A recorded immature individual, considered to be a matted flax-lily (*Dianella amoena*) plant has been avoided by deviation of the alignment. Therefore there will be no significant impact on the size of the population of this species.

Three VROT species were also recorded during the project assessments, *Rhagodia parabolica* (fragrant saltbush), *Scleroleana murticata* (five-spined saltbush) and *Austrodanthonia richardsonii* (straw wallaby-grass). Individuals of the above species may be impacted by the project, with minimal individuals (less than five) of *Rhagodia parabolica* (fragrant saltbush) and *Austrodanthonia richardsonii* (straw wallaby-grass). Several individuals of *Scleroleana murticata* (five-spined saltbush) are present throughout the alignment and are likely to be affected. The project area does not support genetically important populations of these flora species and a significant impact is unlikely.

*Pterostylis truncata* (brittle greenhood) has several records (in 2002) along the alignment but was not recorded during the detailed assessment. The species is a winter-flowering orchid, which may not have been flowering during the assessments that occurred in autumn and spring. Targeted surveys have occurred for the species during optimal flowering times and the species was not observed. The species is unlikely to be present along the alignment; however pre-construction surveys are proposed to be conducted in suitable areas to determine the presence of the species. If identified, micro-deviation of the pipe or translocation of individuals may be required.

**Threatened Fauna**

The following fauna species, all state and federally listed, have potential to be affected by the project:

- *Pedionomus torquatus* (plains wanderer)
- *Synemon plana* (golden sun moth)
- *Litoria raniformis* (growling grass frog)
- *Delma impar* (striped legless lizard),
- *Tympanocryptis pinguicolla* (grassland earless dragon)
- *Rostratula australis* (Australian painted snipe).

Targeted surveys for threatened fauna species considered to have potential habitat within the proposed alignment have been completed or are currently underway. As a result of project surveys, two threatened fauna species, *Pedionomus torquatus* (plains wanderer) and *Synemon plana* (golden sun moth), listed under state and federal legislation, have been recorded.

An individual plains wanderer was recorded during project assessments (Attachments C and I). Impacts on habitat of this species will be minimal as high quality habitat has been avoided where possible through route selection focussing on disturbed sites with lower habitat values. The species is also known to avoid objects that obstruct the skyline by a distance of approximately 200 m, including trees and structures such as fences, sheds and houses and may therefore avoid sections of the pipeline alignment that are co-located with the existing overhead power lines or where temporary construction zone fencing is in place. The species has a large home range 7-21 ha (DEWHA 2009) therefore the construction of the pipeline through potential habitat areas will have a temporary impact on this mobile species. This project will not have a significant impact on the species as it is unlikely that significant habitat loss or fragmentation will occur, and impacts to the breeding season will be minimised through construction planning.

The proposed pipeline corridor represents a small area of habitat that is available to the golden sun moth, and therefore is expected to impact the species on a local level, and not on a state or national level (refer to Attachment G). Construction of the pipeline will create a temporary loss and degradation of habitat, which can be reinstated with indigenous native species and managed post construction to prevent weed establishment to minimise impact. The pipeline trench will cause a direct loss of habitat, with lower level impacts within the remainder of the construction corridor caused by actions such as traffic and ground disturbance.

The growling grass frog is likely to use ephemeral and aquatic environments that cross through the pipeline corridor or the surrounding area during their movement periods. Areas most likely to be used are in the vicinity of the Little River and Werribee River. All waterways are proposed to be trenched. The crossing points have been based on selecting areas of low habitat value, in particular Werribee River, where an existing vehicle crossing is to be used and Little River, where there are only exotic grasses within the riparian zone and a small channel dominated by common reed (*Phragmites australis*). Trenching of the crossings will result in temporary changes in hydrology and alteration of aquatic habitat corridors, but it will also mean the works can occur

more rapidly as opposed to boring. Accordingly, impacts are likely to be temporary and localised and therefore will not have a significant impact on this species.

Targeted surveys are presently being conducted for striped legless lizard and grassland earless dragons throughout potential habitat areas within the construction corridor. Preliminary reports (Appendix H) show that neither species has been detected to date. Once targeted surveys are complete the impacts of the pipeline construction will be reviewed and discussed with DSE and DEWHA. The project activities may impact on the species over a short term, with temporary soil disturbance, removal of rock from the trench and a short period during which bare ground will be exposed. Impacts will be minimised by reinstating the soil and vegetation and reusing removed rock as habitat in suitable locations. Vegetation in the suitable habitat areas has largely been grazed and loss of vegetation within the impact zone should be temporary. Direct effects are likely to be minimal for each species however; habitat areas are likely to be disturbed.

Impacts on potential habitat of Australian painted snipe will be minimal as high quality habitat has been avoided through selection of disturbed sites with the lowest habitat value for waterway crossings. This includes using an existing vehicle crossing at the Werribee River and crossing at sites with lower quality in-stream and riparian vegetation at Little River and Hovell Creek. Therefore impacts, including habitat degradation and fragmentation are likely to be localised and temporary and will not constitute a major impact.

**Migratory Species**

No migratory species are predicted to be significantly affected by the project. The current environment of the proposed alignment contains minimal habitat for migratory species. The most suitable habitat is present along the construction corridor is the Werribee River, where impacts have been minimised by selecting areas of low habitat values. Rabbiter's Lake biosite, located adjacent to the construction corridor also provides suitable habitat for migratory species when wet, however this area is avoided by the proposed pipeline alignment.

**Is mitigation of potential effects on indigenous flora and fauna proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

A number of mitigation measures have been adopted to avoid or minimise potentially adverse effects on indigenous flora and fauna. If negative effects on indigenous flora and fauna cannot be practically avoided, then they will be minimised to a reasonable level. If the neither of these are able to occur then appropriate offsets are required.

A key method to avoid and minimise impacts to flora and fauna is the appropriate selection of the construction corridor. Examples already incorporated into the planning phase of the project are:

- modification of the alignment through the proposed grassland reserve: in consultation with DSE the preferred construction corridor was modified to more closely follow the local road network to reduce potential impacts through the proposed grassland reserve, thereby reducing impacts on the natural temperate grassland of the Victorian volcanic plain.
- the construction corridor has been switched from the south to the north side reserve of Peak School Road to avoid larger numbers of the recorded spiny rice-flower (Pimelea spinescens subsp. spinescens)
- the construction corridor has been switched from the east to the west side reserve of Little River–Ripley Road to avoid all of the recorded spiny rice-flower within that road reserve
- the construction corridor has been moved into the adjacent property on Tarneit Road to avoid all of the recorded spiny rice-flower within that road reserve
- the construction corridor is to be restricted to the road reserve along Little River–Ripley Road, to avoid patches of natural temperate grassland of the Victorian volcanic plain which occur in adjoining land.
- the width of boring beneath Ballan Road has been increased to avoid the patches of natural temperate grassland of the Victorian volcanic plain located within the road reserves. Access to the boring site via construction vehicles is to occur through the adjacent properties.
- the proposed construction corridor is 30 m; however for sensitive areas, including

where EPBC Act listed flora, fauna or vegetation communities are recorded during project assessments, a 10 or 20 m wide construction corridor, wherever practicable, will apply.

- where avoidance of habitat areas is not possible, such as the Werribee River and Little River crossings, an alignment has been selected based on an existing vehicle ford at Werribee River and a degraded area of Little River. Habitat at these waterways will be protected by minimising access to a single crossing point.

In addition, targeted survey for a range of species has been completed. The aim of the targeted surveys has been to obtain accurate information on the likelihood of threatened flora, fauna or communities occurring in the project area. Design and construction management measures have then been applied at a fine scale to avoid and reduce impacts on known habitat and/or areas with suitable habitat. The construction contractor will be required to engage a qualified ecologist to conduct searches of the construction corridor at least two days prior to the commencement of works with the aim of capturing and translocating any native or threatened fauna in the construction zone. Similarly, any threatened flora that cannot be avoided would be subject to translocation, in consultation with DSE.

Measures to minimise impacts on flora and fauna include:

- diverting the alignment through the lowest quality sections of remnant vegetation or habitat areas that cannot be avoided
- reducing the construction impact zone through sensitive areas
- direct trenching through waterways with few habitat values to reduce the construction time within a confined area that will be required by boring
- fencing the construction zone where open trenches are present to prevent fauna from falling into the open trench
- developing a construction schedule to time works to avoid breeding and high activity periods of threatened fauna, as well as periods of flow or higher flow in waterways.

The project is required to obtain native vegetation offsets as required under the *Planning and Environment Act 1987*. Table 12.1 summarises the proposed losses for the whole of project. The losses are based on the application of avoidance and minimisation measures documented in this referral and the proposed reductions in the construction corridor as illustrated in Attachment A, including reducing the construction corridor to a maximum of 20 m through the proposed grassland reserve. The offset calculations are detailed in the Flora and Fauna Assessment (Attachment C).

Direct impacts on threatened species, communities and habitats will generally be localised and temporary. However, offsets to compensate for those impacts which cannot be reduced further through avoidance and mitigation may be required. It is recognised that direct losses of the threatened grassland community will occur and for 1-2 individuals of spiny rice flower may also occur. There will be a loss of a small amount of golden sun moth habitat and a temporary degradation of a small area of habitat. Some temporary significant impacts may also occur for the striped legless lizard and growling grass frog and possibly grassland earless dragon, depending on the results of the targeted surveys. In consultation with DEWHA and DSE, Barwon Water will prepare an offset proposal prior to construction commencing The offset proposal would be developed in accordance with DEWHA's draft guidelines (DEWR 2007). It is expected that this offset proposal would incorporate both direct and indirect offset actions.

The construction contractor will be required to adopt the following management measures to avoid/minimise impacts on threatened fauna and habitat during the construction phase:

- construction activities are to avoid, where practicable, areas of remnant vegetation and potential habitat for threatened species, particularly stony knolls, which provide the most suitable habitat for species such as the striped legless lizard, golden sun moth and the grassland earless dragon.
- minimise the length of trenches left open overnight.
- inspect all open trenches in the morning, prior to the commencement of works.
- utilise wildlife specialists to handle, salvage and translocate any trapped fauna.
- establish designated machinery areas and no-go zones which will restrict the movement of construction vehicles and the potential for ground disturbance.
- native vegetation removal is to be kept to a minimum and avoided where possible.
- use clean construction techniques to restrict the movement of weeds within and

beyond the construction area. Initial weed control should target WONS to reduce the chance of spreading seed through the site.
- only use clean materials and machinery on site. All machinery and materials are to be free of weed seed and pathogens.
- rehabilitate the construction corridor at the completion of works, including the reinstatement of natural ground cover vegetation, except within the proposed grassland reserve which will be reinstated by DSE.
- rehabilitate waterway crossings at the completion of works.
- comply with translocation protocols for any threatened species located in the construction zone, at all times.

**Other information/comments?** (eg. accuracy of information)

Limitations associated with the flora and fauna assessments are described in Section 2.4 of Attachment C. Information in this referral reflects the outcomes of survey and assessment conducted between early 2007 and January 2010.

Within the proposed grassland reserve DSE's extent and quality data on native vegetation and ecological communities has been relied upon. This information is documented and has been provided previously to DEWHA in the Strategic Impact Assessment (DSE 2009).

## 13. Water environments

**Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?**
☐ NYD ☒ No ☐ Yes If yes, indicate approximate volume and likely source.

The project will supply 16,000 million litres of water per year from the Melbourne water supply to the Geelong region. This water will come from a range of sources within Melbourne Water's water supply system.

**Will the project discharge waste water or runoff to water environments?**
☐ NYD ☒ No ☐ Yes If yes, specify types of discharges and which environments.

Not applicable.

**Are any waterways, wetlands, estuaries or marine environments likely to be affected?**
☐ NYD ☐ No ☒ Yes If yes, specify which water environments, answer the following questions and attach any relevant details.

Twenty-one watercourses are intersected by the proposed alignment. Of these, four are major waterways: the Werribee River, Little River, Lollypop Creek and Hovell Creek. The remaining watercourses consist of eight minor tributaries to these major waterways and nine unnamed watercourses that can be characterised as small depressions and/or drains.

The pipeline alignment is within the Werribee and Moorabool River basin catchment areas.

Two wetlands, both biosites, are located in proximity to the construction corridor—Rabbiters Lake (100 m form the corridor) and Sewells Road dams/Leakes Road (the construction corridor passes through the mapped biosite extent).

**Are any of these water environments likely to support threatened or migratory species?**
☐ NYD ☐ No ☒ Yes If yes, specify which water environments.

The ecological assessments completed for the project identify that:

- potential habitat areas for growling grass frog include the waterway crossings at Werribee River, Little River, Hovell Creek and Lollypop Creek and their associated drainage lines and surrounding wetlands such as Rabbiters Lake and Sewells Road dam
- potential habitat for Australian painted snipe is limited to the immediate area surrounding the crossing points of Werribee River, Little River and Hovell Creek and Rabbiters Lake.
- potential habitat within the alignment for dwarf galaxias and Australian grayling is limited to the waterway crossing points at Hovell Creek, Little River and Werribee River.
- various historical records for a threatened and migratory species occur at each of the wetlands, including a record for plains wanderer at Rabbiters Lake.

**Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?**
☐ NYD ☒ No ☐ Yes If yes, please specify.

The two wetlands identified above are not listed under the Ramsar Convention or in A Directory of Important Wetlands in Australia.

No Ramsar Wetland will be directly impacted by the pipeline. The Port Phillip (western shoreline) and Bellarine Peninsula Ramsar wetland is located approximately 4 km south of the pipeline alignment, at its closest point. There is a low likelihood of potential indirect impacts on the wetland through construction across waterways.

**Could the project affect streamflows?**

☐ NYD ☐ No ☒ Yes If yes, briefly describe implications for streamflows.

Impacts on streamflows are expected to be limited and minimised through the application of appropriate construction management techniques.

The project plans to trench through all waterways including the four named waterways: Little River, Hovell Creek, Lollypop Creek and the Werribee River. Hovell Creek and Lollypop Creek do not appear to have conveyed water recently. However, these waterways may, during or near construction, flow as a result of a significant rain event. The Index of Stream Condition (ISC) 2004 ratings for each waterway classify the condition of the reach of the waterway as poor to very poor.

Installation of the pipe through waterways by trenching will require a contingency plan in case the waterways flow during and immediately after installing the pipe. Flows will need to be diverted during the trenching of the waterways and sediment controls will need to be installed.

**Could regional groundwater resources be affected by the project?**

☒ NYD ☐ No ☐ Yes If yes, describe in what way.

The project is unlikely to affect regional groundwater resources as the pipeline will be constructed within a shallow trench, generally at 1.6 m to 2.0 m depth.

No groundwater has been encountered during geotechnical investigations completed to date. It is anticipated that groundwater may be encountered at the major river/creek crossings and may be locally present at depth in alluvial units. Where groundwater inflows occur into the pipeline trench these would be managed by pumping/dewatering.

**Could environmental values (beneficial uses) of water environments be affected?**

☐ NYD ☐ No ☒ Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

Beneficial uses relevant to the waterways within the project area include:

- aquatic ecosystems
- recreation
- cultural heritage.

In selecting appropriate crossing points at each major waterway, the environmental values have been a key consideration in the selection process. Further discussion on aquatic ecosystems values is provided below and on cultural heritage in Section 15. As each waterway crossing has limited public access, impacts on recreational values due to the project are negligible.

Site inspections of the major waterways have been conducted in conjunction with Melbourne Water and the Corangamite Catchment Management Authority who have both provided in principle support for trenching and the proposed crossing point of each waterway.

If the waterways contain water during trenching activities, water quality may be impacted such as through release of contaminants and turbidity. It is unlikely that these waterways are contaminated due to a lack of heavy industry and urbanisation within the catchment areas.

Any potential impacts on waterways will be managed through the Construction Environment Management Plan and consultation with Corangamite Catchment Management Authority and Melbourne Water. Where possible the trenching will occur when these waterways are dry to minimise impacts on the water environments.

**Could aquatic, estuarine or marine ecosystems be affected by the project?**

☐ NYD ☐ No ☒ Yes If yes, describe in what way.

Short term impacts may occur to aquatic ecosystems during construction via installation of the pipeline through waterways and potentially through impacts at nearby wetlands. A key focus of selection of the pipeline alignment has been minimising impacts on waterway ecosystems. A description of the aquatic habitat values at each of the major waterway crossing points is provided below.

**Werribee River**
The proposed crossing point of the Werribee River is through Cobbledicks Ford. The Werribee River contained flowing water at the time of assessment. The river contains several native in-stream species and intact riparian vegetation that continues upstream and downstream of the proposed crossing site on both sides of the river channel. Several large trees were also present along the river upstream and downstream of the proposed crossing point, with the majority present on the west side of the river.

At the point of intersection within the proposed alignment, the Werribee River is at the base of a steep escarpment at Cobbledicks Ford. It is proposed to construct the pipeline trench within the cobblestone ford crossing, reinstating the ford following construction. Cobbledicks Ford is considered the most suitable crossing location of the Werribee River as it is a gentler slope than other options considered and therefore has reduced risks of sedimentation during construction and reinstatement, consequently minimising the impact on habitat for native fish and amphibian species.

**Little River**
The pipeline crossing point at Little River is located between two rocky outcrops and contains minimal riparian native vegetation. The crossing point has been aligned to avoid these two rocky outcrops. The river channel is at the base of a small, sloping escarpment that is generally rocky. Native vegetation at the site is limited to some scattered shrubs at the top of the northern escarpment, which are likely to be avoided, and in-stream vegetation dominated by *Phragmites australis* (common reed).

Very little riparian vegetation and habitat is present in and surrounding the proposed crossing point. Habitat is mainly restricted to common reed in the channel of the creek. The channel is approximately 2 m wide from toe to toe and 15 m wide from the top of the bank. The sloping escarpment currently shows no sign of erosion and has a stable bank. During construction, both sides are likely to be subject to erosion as the banks of the river are likely to be rocky beneath the soil.

The installation of the proposed pipeline is not predicted to significantly impact on vegetation or instream habitat at the site. At the crossing point of the river it generally holds a small amount of water and provides limited habitat that is predicted to recolonise relatively quickly. Erosion is a risk if a heavy rainfall event occurs before the site is adequately rehabilitated.

**Lollypop Creek**
The pipeline intersection with Lollypop Creek occurs near the source of the creek. At this point the creek is an indefinable drainage area, located within a grazed paddock which contains low quality grassland, in which the most dominant native species is spear-grass (*Austrostipa* sp.) amongst a rocky outcrop. The native vegetation is indicative of drier areas and the site is only likely to hold water very occasionally, as no species typical of wetter or poorly drained areas have been identified at the site. The installation of the proposed pipeline is not predicted to significantly impact on vegetation or habitat at the site.

**Hovell Creek**
Hovell Creek is currently a dry channel at the crossing point which supports some sparse scattered river red gums surrounding the waterway. Native vegetation at the site is mainly limited to sparse shrubs and small trees and only extends to 2-3 m from the creek. The ground layer is dominated by *Galenia pubescens* (galenia). The proposed crossing point has stable banks, with a sandy base and little evidence of erosion. At this location, there is minimal in-stream vegetation and habitat, with only a few small branches and sticks present.

The installation of the pipeline at this point is not predicted to impact significantly on the vegetation or habitat at the creek as the major habitat feature, scattered large *Eucalyptus camaldulensis* (river red gum) occur at greater than 15 m from the proposed crossing point. Some small shrubs either side of the creek are likely to be affected by the proposed works.

**Wetlands**
Rabbiters Lake, a biosite of national significance, is located approximately 100 m from the

pipeline alignment. The lake is buffered from the alignment by approximately 100 m of grazed paddock. This site has several records for threatened species. The area is dry at present and the installation of the proposed pipeline is not predicted to significantly impact the site. With suitable erosion management employed, the construction of the pipeline is not predicted to significantly impact on the vegetation and habitat present at the lake.

Sewells Road dams–Leakes Road biosite is a biosite of local significance. The area is a shallow depression and is currently dry. The installation of the proposed pipeline will cross the broader biosite area and is not predicted to significantly impact on vegetation or habitat at the site as part of the site intersected by the pipeline is a cultivated agricultural paddock and the remainder of the area consisting of grassland. The impact through this area will be minimised through constraining the width of the construction footprint.

**Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?**

☒ No ☐ Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

Potential effects on the health and biodiversity of aquatic ecosystems within the project area are expected to be limited and are summarised above and fully documented in the ecological assessments completed for the project (refer to Attachment C).

**Is mitigation of potential effects on water environments proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Management and mitigation measures have been outlined in the Flora and Fauna Assessment report (Attachment C). The EMP will incorporate conditions and recommendations of CCMA and Melbourne Water.

An assessment of streamside zone and physical form for each major waterway crossing along the proposed alignment has been conducted. The results of this are incorporated in the detailed flora and fauna assessment. The assessment was based on the Victorian River Health Works Monitoring Method.

The purpose of this assessment is intended to demonstrate the effectiveness of rehabilitation works (including revegetation, erosion control, in-stream habitat) following construction. Two indices, streamside zone and physical form, were be assessed along each bank. Streamside zone assesses riparian vegetation while physical form assesses bank condition and in-stream habitat. In accordance with the method, it is envisaged that post-construction assessments will be conducted periodically following on-ground rehabilitation works.

**Other information/comments?** (eg. accuracy of information)

## 14. Landscape and soils

### Landscape

**Has a preliminary landscape assessment been prepared?**

☐ No ☒ Yes If yes, please attach.

A preliminary landscape assessment has not been prepared as:

- impacts from the project are localised and largely confined to the construction phase
- the pipeline will be underground.

**Is the project to be located either within or near an area that is:**

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**

☐ NYD ☐ No ☒ Yes If yes, provide plan showing footprint relative to overlay.

Greater Geelong Planning Scheme

Significant Landscape Overlay—Schedule 1(Foothills of the You Yangs) applies at two locations:

- east side of Little River-Ripley Road between Gifkins Road and Kirks Road
- either side of Peak School Road between Bacchus Marsh-Geelong Road and Blairs Road, where Hovell Creek crosses Peak School Road.

Wyndham Planning Scheme

Environmental Significance Overlay—Schedule 1(Waterway Corridors) applies to all points of the Werribee River, Lollypop Creek and Little River where the pipeline crosses these watercourses.

Maps showing the location these overlays are included in Appendix J.

- **Identified as of regional or State significance in a reputable study of landscape values?**

☐ NYD ☒ No ☐ Yes If yes, please specify.

Not applicable.

- **Within or adjoining land reserved under the *National Parks Act 1975* ?**

☐ NYD ☒ No ☐ Yes If yes, please specify.

Not applicable.

- **Within or adjoining other public land used for conservation or recreational purposes ?**

☐ NYD ☐ No ☒ Yes If yes, please specify.

Approximately 1.3 km of the pipeline traverses the land zoned Public Park and Recreation Zone (PPRZ) either side of the Werribee River, south of Dohertys Road, between Dukelows Road and Cobbledicks Ford Road. This is within the Wyndham local government area.

Within the City of Greater Geelong the pipeline intersects the PPRZ which applies to 125-135 Elcho Road, Lara (Lot 1 TP706341), otherwise known as Elcho Park (incorporating Elcho Park golf course). The land is located on the east side of Bacchus Marsh Road between Elcho Road and Gibbons Road, Lara.

**Is any clearing vegetation or alteration of landforms likely to affect landscape values?**

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Not applicable.

**Is there a potential for effects on landscape values of regional or State importance?**

☐ NYD ☒ No ☐ Yes Please briefly explain response.

The You Yangs Regional Park is located to the west of the project area. The granite peaks of the You Yangs rise from the surrounding Werribee plains between Melbourne and Geelong. The highest peak—Flinders Peak—stands at 342 m high. The You Yangs dominate the landscape in this region. The project will not impact on public views or landscape values of the You Yangs.

A limited amount of above ground infrastructure is required to support the pipeline. The most significant of these is a surge tank (approximately 6 m in height) located on the Werribee Plains. Mitigation of impacts associated with this structure are described below.

**Is mitigation of potential landscape effects proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

To mitigate impacts of the limited above ground structures associated with project, the following is proposed:

- muted colour schemes will be used for all structures subject to consultation with statutory authorities.
- screening plantings will be used around the surge tank and pump stations, as appropriate.

**Other information/comments?** (eg. accuracy of information)

***Note:*** *A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:*

- *The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;*
- *The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;*
- *Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.*

## Soils

**Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?**

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Department of Primary Industries (DPI) in conjunction with the Department of Sustainability and Environment (DSE) have developed a series of maps (scale 1:100 000) identifying potential coastal acid sulphate soils in Victoria. According to Map series 3—Central Coast, the proposed pipeline route is not within the land area that has the potential to contain coastal acid sulphate soils.

No erosion management overlays are present along the proposed alignment. However the geotechnical investigations indicated that the soils near the Werribee River crossing are susceptible to erosion. There is evidence of erosion surrounding the river, in particular tunnel erosion.

**Are there geotechnical hazards that may either affect the project or be affected by it?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

The study area is dominated by younger volcanic basalt with minor sections of Quaternary sedimentary deposits and Devonian granite.

The basalt formations are a result of a series of lava flows with layers ranging between 0.5m to 10 m in depth. The soil profile is relatively thin due to the young age of the basalt flows. It is expected that the basalt will provide challenges during trenching for the pipeline due to the following factors:

- high variability in thickness of the residual soil (basaltic clay)
- presence of boulders (corestones) within the residual soils
- shallow depth of slightly weathered to fresh rock with wide joint spacing.

It is in envisaged that the highly jointed rock mass with a joint spacing of 0.3 to 1.0 m will be

rippable along weak joints. However, the confined space in trenches will aggravate the difficulty in breaking up the corestones (in larger size) and hard ripping rock mass. At locations where large boulders are encountered, localised large excavation or rock breaking operations may need to be carried out.

Sedimentary deposits are localised across the whole study area. The main locations of sedimentary deposits are:

- deltaic deposits of silts, sand and gravel at the Werribee River
- fluvial deposits and post newer volcanics hillwash surrounding the You Yangs, consisting of gravel, sand and silt.

These sedimentary deposits do not present a problem for trenching.

Devonian granite at the You Yangs is coarse grained, but expected to have undergone an extensive weathering process forming a typical granitic residual soil profile. It is expected the granitic soil profile will be manageable for trenching, but corestones may occur at shallow depths and would require rock breaking.

**Other information/comments?** (eg. accuracy of information)

This is based on preliminary geotechnical information and draft geotechnical investigations as the assessments are currently being finalised.

## 15. Social environments

**Is the project likely to generate significant volumes of road traffic, during construction or operation?**

☐ NYD ☒ No ☐ Yes If yes, provide estimate of traffic volume(s) if practicable.

Standard construction traffic would marginally increase volumes on the local road network. Traffic management plans will be prepared where construction activities impact roads. Management plans are to be prepared in accordance with relevant Australian Standards and approval of the plan sought from the relevant road authority prior to commencement of construction.

Routine maintenance checks of the pipeline would generate minimal additional road traffic during operation.

**Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?**

☐ NYD ☒ No ☐ Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

**Air emissions (dust and odour)**

No odorous emissions would be generated by the project.

The main impact on air quality from the project would be as a result of dust generation during construction. This will be mitigated through application of appropriate dust generation avoidance and/or suppression techniques such as the use of water trucks, designated haulage roads, restricted speed limits and staged revegetation of cleared areas. Mitigation measures will be detailed in the Environmental Management Plan (EMP) and all contractors will be required to comply with the EMP. Construction works will comply with State Environment Protection Policy (Air Quality Management).

**Visual impacts**

The pipeline will be installed underground and therefore largely invisible from public or private views. The only visual evidence of the pipeline would be air valves, scour valves manholes and small signage indicating the presence of the pipeline.

A surge tank approximately 6 m high and 8 m in diameter will be located within a property located east of Edgars Road Quandong, adjacent to the pipeline easement. The surge tank will be designed with a low profile and have a shape, profile and colour to blend with the local environment. The requirement for vegetated bunds will be assessed as part of the detailed design stage.

**Noise**

During construction temporary noise generating activities are likely to occur, including rock breaking, drilling, machinery use, vehicle use and general construction personnel activities. EPA Publication 1294—Control of noise, provides guidelines for the management of noise from large construction sites. All construction contractors will be required to comply with these guidelines and implement appropriate noise mitigation measures.

Cowies Hill pump station will be designed to comply with the noise limit criteria of 41dBA as per stated in the Noise Report provided in Attachment F. The pump station building will be lined with high acoustical absorption materials and acoustically rated to prevent excess noise impact to surrounding land uses. The noise impact of the pump station is to be verified during detailed design. The outcomes of this assessment are to be communicated to potentially affected residents.

**Traffic**

Potential traffic impacts during construction include

- increased traffic and road use by vehicles and machinery

- road closures for installation of the pipeline within road reserves

As a substantial proportion of the pipeline is located within local road reserves, partial and full closure of roads will be required during the construction phase. The main construction contractor, once appointed, is to investigate the optimum method for managing the construction activities, so that road closures have minimal impacts on local road users and do not sever access to community facilities.

The construction contractors will be required to comply with the relevant road authority requirements regarding traffic management, including obtaining consents to occupy road reserves and the preparation of Traffic Management Plans, to minimise such impacts on the community.

An EMP will be developed prior to commencement of construction and specify in further detail the requirements for the environmental impacts including dust, noise and visual amenities. All contractors will be required to comply with the EMP during the construction phase.

**Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?**

☐ NYD ☐ No ☒ Yes

Potential community health and safety hazards would include dust and increased traffic movements during the construction phase. Mitigation measures for these hazards will be developed and incorporated into the relevant project specific plans.

**Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?**

☐ NYD ☒ No ☐ Yes If yes, briefly describe potential effects.

During construction, road closures have the potential to temporarily restrict residential access to community resources; however this can be managed through appropriate traffic management planning including appropriate notifications to the community. No permanent restrictions would occur and there is no planned displacement of residences.

**Are non-residential land use activities likely to be displaced as a result of the project?**

☐ NYD ☒ No ☐ Yes If yes, briefly describe the likely effects.

The proposed alignment is predominately aligned with a power line easement or road reserves; however there is some potential for non-residential land use activities to be disrupted by the project activities. No permanent displacement would occur.

Some agricultural activities will be temporarily disrupted during installation of the pipeline until the land can be reinstated to its previous condition. However, the majority of agricultural activities along the alignment are for grazing, which are not predicted to be significantly affected by project. Some cropping and vegetable paddocks occur along the alignment, extending into the power line easement will be temporarily affected by the project.

Consultation with appropriate landholders will occur to minimise disturbance during the construction phase and with regards to reinstate of the affected land.

**Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?**

☐ NYD ☒ No ☐ Yes

**Is mitigation of potential social effects proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

A range of management measures are proposed to mitigate social effects on the community and relevant stakeholders. These are documented in the Social Impact Assessment (Attachment E).

Key commitments include:

- adherence to property access protocols
- ongoing engagement with landowners affected by the application of a permanent

easement
- developing Property Access Agreements with each landowner, prior to the commencement of construction, covering management of construction activities and site reinstatement
- construction contractor to develop and implement appropriate measures to manage dust, noise, traffic and site reinstatement.

**Other information/comments?**

A Community Engagement Strategy has been developed and implemented by Barwon Water during the design phase of the project to inform stakeholders and the community of the project activities. Ongoing engagement will occur through the construction phase to ensure potential social effects are identified and appropriately managed.

## Cultural heritage

**Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?**

☐ No If no, list any organisations that it is proposed to consult.
☒ Yes If yes, list the organisations so far consulted.

Relevant Indigenous stakeholders have and will be actively consulted with during the development of the project including:
- Wathaurung Aboriginal Corporation
- Bunurong Land Council Aboriginal Corporation
- Boon Wurrung Foundation Ltd
- Wandoon Estate Aboriginal Corporation
- Wurundjeri Tribe Land Compensation and Cultural Heritage Council
- Wathaurong Aboriginal Co-operative.

The project team has also consulted with Aboriginal Affairs Victoria.

**What investigations of cultural heritage in the project area have been done?**

***Aboriginal cultural heritage***

A desktop and standard assessment, as prescribed by the *Aboriginal Heritage Act 2006*, has been completed to date (Attachment D). This involved both a desktop review and site investigations including sub-surface testing, in consultation with Aboriginal stakeholders. The desktop assessment does not include recent changes to the alignment through the proposed grassland reserve.

A complex archaeological assessment is currently being completed, with sub-surface excavation, as part of the preparation of a Cultural Heritage Management Plan (CHMP).

All landowners relevant to the project were notified of the intention to conduct a CHMP and an additional process of consultation was undertaken prior to access of the property. Extensive consultation has also been undertaken with the Registered Aboriginal Parties and applicants as part of the CHMP process and will be continued.

***Historic cultural heritage***

An historic archaeological desktop assessment was completed during the pipeline route selection process.

**Is any Aboriginal cultural heritage known from the project area?**

☐ NYD ☐ No ☒ Yes If yes, briefly describe:
- Any sites listed on the AAV Site Register
- Sites or areas of sensitivity recorded in recent surveys from the project site or nearby
- Sites or areas of sensitivity identified by representatives of Indigenous organisations

A total of five previously recorded Aboriginal cultural heritage places, recorded on the AAV Site Register, are known to be located within the project area. These sites mainly consist of isolated or diffuse artefacts and scatters of mainly quartz and silcrete. Many of these sites have since been destroyed through housing and infrastructure development.

Sixty one registered cultural heritage places are located within 1 km of the project area and mainly consist of isolated or diffuse artefacts and scatters of silcrete, quartz, basalt, chert, hornfels, siltstone, crystal quartz and quartzite.

Two scarred trees (Site numbers 7822-0095 and 7822-0096) and an earth feature (7822-0461) are also present within 1 km of the project area, but outside of the pipeline corridor.

The standard and partially completed complex assessment for the project area identified 27 Aboriginal heritage places. The majority of these sites are located close to watercourses or rises within the project area. The area comprising the highest number of artefacts was located at Little River. The assessment also determined that the areas considered to have the highest archaeological potential are associated with the Werribee River and tributaries. The remainder of the Aboriginal heritage places represent sites of low scientific significance.
Further details regarding the description and location of these sites are provided in Attachment D - Cultural Heritage Assessment.

**Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?**

☐ NYD ☐ No ☒ Yes If yes, please list.

There are no cultural heritage places listed on the Victorian Heritage Register within the project area.

Cobbledicks Ford crossing is a bluestone ford through the Werribee River and is listed on the Victorian Heritage Inventory (Site Record 7822-0830). The bluestone pavers form a roadway approximately 3 m wide. The ford was first built in 1862 and provided an important river crossing between Melbourne and the Werribee Plains. The surrounding reserve has been an important public recreation reserve since the 1960s.

Dry stone walls were identified during the heritage assessment but are not listed with Heritage Victoria. They are regarded as having local historical significance.

**Is mitigation of potential cultural heritage effects proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

The approved CHMP will include recommendations to avoid and mitigate impacts on Aboriginal cultural heritage. This is likely to include:

- reducing construction footprints
- salvage of known sites, where impacts are unavoidable
- contingency plans in the event of the discovery of new Aboriginal heritage sites.

In addition the heritage assessment will provide recommendations to avoid and mitigate impacts on historic cultural heritage and reconstruction of the dry stone walls and the Cobbledicks Ford crossing after works.

**Other information/comments?** (eg. accuracy of information)

The complex Aboriginal heritage assessment has not yet been completed. This will further inform the heritage impact assessment. Impacts will be managed through the approved CHMP.

## 16. Energy, wastes & greenhouse gas emissions

**What are the main sources of energy that the project facility would consume/generate?**

- ☒ Electricity network. 5404190 kWh/year
- ☒ Natural gas network. If possible, estimate gas requirement/output……...
- ☒ Generated on-site. If possible, estimate power capacity/output …….
- ☒ Other. Please describe.

This quantity is based on the power usage for the peak scenario.

**What are the main forms of waste that would be generated by the project facility?**

- ☒ Wastewater. Describe briefly.
- ☒ Solid chemical wastes. Describe briefly.
- ☒ Excavated material. Describe briefly.
- ☒ Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

Excavated material, including some boulders may be used as backfill where possible during the construction of the pipeline. Any excess material will be relocated or disposed of appropriately. Preliminary discussions with local quarries of the region indicate they would be willing to accept such excavated materials. Some boulders will be retained on site to reinstate habitat areas.

Solid waste will be generated from the clearing of vegetation and additional spoil from construction activities (which may include steel, pipe off-cuts, timber, plastic packaging, containers and wooden pallets).

All wastes will be managed in accordance with the EMP. Waste management procedures within the EMP will be developed around the waste management hierarchy of avoid reduce, reuse and recycle. The EMP will also comply with all relevant EPA guidelines and policies.

**What level of greenhouse gas emissions is expected to result directly from operation of the project facility?**

- ☒ Less than 50,000 tonnes of $CO_2$ equivalent per annum
- ☒ Between 50,000 and 100,000 tonnes of $CO_2$ equivalent per annum
- ☒ Between 100,000 and 200,000 tonnes of $CO_2$ equivalent per annum
- ☒ More than 200,000 tonnes of $CO_2$ equivalent per annum

The main greenhouse gas emitter is the pump station. At peak operation the pump station is expected to produce approximately 5,405 tonnes of $CO_2$ per annum. This usage is the peak production as it is based on the smallest pipe bore being used and the most conservative hydraulic loss design criteria.

## 17. Other environmental issues

**Are there any other environmental issues arising from the proposed project?**

☒ No ☐ Yes If yes, briefly describe.

Not applicable.

## 18. Environmental management

**What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects?** (if not already described above)

☒ Siting:

The proposed construction corridor has been sited to avoid environmental and health and safety issues present in non-preferred options. In addition to the siting considerations already discussed in this referral, the following actions are proposed:

- micro-siting of the pipeline within the proposed construction corridor to avoid habitat areas for threatened species, particularly stony knolls and rocky outcrops
- in areas of high environmental value and/or physical constraints a 10 m construction corridor may apply, where practicable from a constructability perspective.

☒ Design:

In addition to the design considerations already discussed, the following actions will be investigated during detailed design:

- boring beneath significant environmental features, threatened species or endangered vegetation communities
- review the outcomes of the cultural heritage assessments and ongoing targeted species surveys for improved design options.

☒ Environmental management: Please describe briefly.

Environmental management for the project will be governed by a range of statutory authorisations and subsequent management plans. It is the responsibility of Barwon Water to obtain necessary authorisations under the following:

- Environment Protection and Biodiversity Conservation Act
- Planning and Environment Act
- Aboriginal Heritage Act
- Heritage Act
- Land Acquisition and Compensation Act

As a minimum, the following management plans will be developed for the project:

- framework environmental management plan (EMP), and subsequent construction environment management plan
- Aboriginal cultural heritage management plan
- native vegetation offset plan (addressing Victorian offset requirements)
- threatened species management plan (addressing both federal and state listed species).

The framework EMP will be developed by the proponent, Barwon Water, setting out objectives, requirements, auditing and monitoring, and performance measures for the project. This will include a formal process for identifying stockpile or site compound locations, as well as a process for approving alterations of the construction corridor.

The CHMP, offset plan and threatened species management plan are to be developed by Barwon Water. Each plan will be subject to approval by the relevant agency.

As a construction contractor is not yet engaged for the project, it will be a requirement of the constructor's contract with Barwon Water to comply with the approved/endorsed versions of each management plan and prepare activity-specific construction environmental management plans (CEMP) and work method statements, consistent with the management plans, prior to the commencement of works.

The constructors CEMP will as a minimum address the following:

- pre-construction surveys
- flora and fauna, including compliance with the threatened species management plan

and the offset plant
- revegetation and rehabilitation
- cultural heritage management, including compliance with the approved CHMP
- waterways, surface water and groundwater,
- soil and erosion
- noise, air quality, weeds, fire, traffic and waste.

A key management measure for the construction contractor is the preparation of a construction schedule with respect to avoiding/minimising impacts on threatened fauna. The schedule is to time construction activities in sensitive habitat areas to occur between April and November, with appropriate strategic scheduling in habitat areas to avoid the key breeding and activity periods for the growling grass frog (*Litoria raniformis*), striped legless lizard (*Delma impar*), grassland earless dragon (*Tympanocryptis pinguicolla*), plains wanderer (*Pedionomus torquatus*) and golden sun moth (*Synemon plana*) (note: breeding season for plains wanderer can commence in late August and this needs to be taken into consideration in developing the construction schedule). Large areas of the pipeline corridor, mainly south of Kirks Bridge Road, does not contain habitat for the above species and can be targeted for construction activities during the sensitive seasons for threatened species. Modifications to the construction schedule are to be reviewed in the context of potential impacts on threatened species. DEWHA and DSE are to be consulted regarding any extension to the construction period.

Stakeholder and community consultation throughout the life of the project will remain the primary responsibility of Barwon Water; however the construction contractor will be expected to engage appropriately with the community throughout the construction period.

☒ Other: Please describe briefly

Monitoring activities to gauge the effectiveness of the environmental management measures is an important activity and will include:
- construction and post-construction monitoring of the status of identified threatened species and communities will be required to gauge the effectiveness of the various management strategies. Where necessary, any translocated flora species will be subject to a post-construction monitoring plan to evaluate the success of the translocation program.
- water quality monitoring at Werribee River and Little River will be undertaken prior to construction works and regularly throughout construction, including immediately following a rain event. The parameters to be analysed include pH, turbidity and temperature. This will be in accordance with State Environment Protection Policy Waters of Victoria requirements.
- the constructor's contract shall also include requirements to undertake monitoring and auditing of project activities to ensure compliance with the various management plans and any project approvals.
- Barwon Water will complete regular audits of the constructor's compliance.
- DSE, DEHWA and other statutory authorities may inspect and audit the project at any time to ensure that it is completed in accordance the information provided in this referral.

## 19. Other activities

**Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?**

☐ NYD ☒ No ☐ Yes If yes, briefly describe.

Not applicable.

## 20. Investigation program

### Study program

**Have any environmental studies not referred to above been conducted for the project?**

☒ No ☐ Yes If yes, please list here and attach if relevant.

Not applicable.

**Has a program for future environmental studies been developed?**

☐ No ☒ Yes If yes, briefly describe.

The following studies are designated for the project:

Ecological assessment

- targeted surveys for striped legless lizard – due for completion March 2010
- targeted surveys for grassland earless dragon – due for completion March 2010
- targeted pre-construction survey for the brittle greenhood
- pre-construction surveys for threatened fauna species.

Cultural heritage

- complex cultural heritage assessment (Aboriginal)– due for completion April 2010.

### Consultation program

**Has a consultation program conducted to date for the project?**

☐ No ☒ Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

Maloney Field Services Pty Ltd has been commissioned by Barwon Water to undertake consultation activities with landholders that may be affected by the project. Landholders are currently notified when site inspections are being undertaken on their property. A total of 137 landholders have been consulted with throughout the project, of which 83 will be directly affected. Further consultation will occur to discuss construction impacts and the process for creating easements.

A summary of agency and stakeholder consultation is detailed in Table 20.1 below. In addition to these meetings extensive consultation has occurred with DSE on the impact of the pipeline on the proposed grassland reserve.

**Table 20.1 Summary of agency and stakeholder consultation**

| Date of Meeting | Agency / Stakeholder | Meeting purpose |
|---|---|---|
| 18 June 2009 | Wyndham City Council | Provide a briefing on the MGI pipeline project - primarily environment, cultural heritage and planning components. To gain an understanding of Wyndham City Council requirements for the project. |
| 25 June 2009 | DSE Geelong | Brief DSE on MGI project, in particular native vegetation and biodiversity impacts. |
| 26 June 2009 | City of Greater Geelong | Provide a briefing on the MGI pipeline project - primarily environment, cultural heritage and planning components. To gain an understanding of City of Greater Geelong requirements for the project. |
| 30 June 2009 | DPCD Northern & Western Region | Provide a briefing on the MGI project to DPCD Northern & Western Region - primarily the environment and planning components |
| 3 July 2009 | DPCD Geelong region | Provide a briefing on the MGI project to DPCD Northern & Western Region - primarily the environment and planning components |
| *12 August 2009* | *Inaugural ARG* | |

| Date of Meeting | Agency / Stakeholder | Meeting purpose |
|---|---|---|
| 22 July 2009 | DSE Head office | Brief DSE on MGI. To discuss implications resulting form the overlap of pipeline with the proposed grassland reserve. |
| 26 August 2009 | DoT-Regional Rail Link (RRL) team | Provide a briefing on the MGI project to DoT-RRL and discuss potential crossing issues |
| 15 September 2009 | Melbourne Water | Provide a briefing on the MGI project to Melbourne Water and discuss Werribee River and Lollypop Creek crossings |
| *17 September 2009* | *Second ARG* | |
| 22 September 2009 | Peet and CPG Global (developers / owners of Tarneit Rise) | To discuss MGI alignment form Cowies Hill Reservoir to Tarneit Road |
| 8 October 2009 | Wathaurung Aboriginal Corporation | Discuss progress of CHMP |
| 9 October 2009 | Wyndham City Council (on-site) | Discuss Wyndham City Council requirements and expectations regarding MGI project. |
| 13 October 2009 | Corangamite Catchment Management Authority | Provide a briefing on the MGI project to Corangamite CMA and to discuss waterway crossings |
| 15 October 2009 | Land Titles Office | To discuss easement creation process |
| 25 September 2009 | Melbourne Water | To discus and seek agreement on the recommendations for Cowies Hill infrastructure |
| 10 December 2009 | DoT - Regional Rail Link | Discuss interface between RRL and MGI |
| 15 December 2009 | DPCD / DSE | EES referral - discuss environmental assessment and approvals, explanation of options considered and rationale in pipeline route selection |
| 12 January 2010 | Heritage Victoria | To discuss heritage values and work method at Cobbledicks Ford |

**Has a program for future consultation been developed?**

☐ NYD ☐ No ☒ Yes If yes, briefly describe.

Further consultation will occur through the ARG as well as targeted stakeholder meetings.

A planned consultation process is in place to discuss pipeline construction with affected landholders.

**Authorised person for proponent:**

I, Paul Northey (full name),
General Manager Capital Projects Greenhouse (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____

Date 11/03/10

**Person who prepared this referral:**

I, Ruth Macdonald (full name),
Environment + Community Lead (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature Ruth Macdonald

Date 11/03/10