REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

It will generally be useful for a proponent to discuss the preparation of a Referral with the Impact Assessment Unit (IAU) at the Department of Environment, Land, Water and Planning (DELWP) before submitting the Referral.

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
    - a brief description of potential changes or risks to environmental assets resulting from the project;
    - available information on the likelihood and significance of such changes;
    - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A CD or DVD copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 2MB as they will be published on the Department's website.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address

Minister for Planning
GPO Box 2392
MELBOURNE VIC 3001

Couriers

Minister for Planning
Level 20, 1 Spring Street
MELBOURNE VIC 3001

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to ees.referrals@delwp.vic.gov.au is required. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	**Grampians Wimmera Mallee Water (GWMWater)**
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Graeme Dick Manager Project Delivery - GWMWater PO Box 481, Horsham 3402, Victoria, Australia Graeme.dick@gwmwater.org.au 03 5381 9804
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:**	Vic Buljubasic Associate Director AECOM Collins Square, Level 10, Tower 2, 727 Collins Street, Melbourne, 3008 vic.buljubasic@aecom.com 03 9653 8798
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	GWMWater has a long history of stock and domestic water supply pipeline developments. These include: • Stage One South West Loddon – 110km • Coonooer/Wartook – 15km • Landsborough Valley – 38km • Pella and Quambatook North – 66km • Wimmera Mallee Pipeline – over 9,000km • Five Towns pipeline – 117km • Northern Mallee Pipeline – 3,650km Over this history of rural pipeline construction, GWMWater has continued to refine its planning, environmental management and construction techniques to minimise the environmental impacts of our projects. We work collaboratively with regulators, customers and stakeholders to achieve best possible environmental outcomes by proactively risk assessing our impacts, adopting best practice techniques and encouraging application of technology in order to effectively minimise those impacts. GWMWater won an Australian Business Award for Environmental Sustainability in 2009 for its approach to planning and construction on the Wimmera Mallee Pipeline. GWMWater also won several Engineers Australia Victorian excellence awards for the same project, including an award in the environmental management category in 2011. The mature framework for proactive environmental management developed by GWMWater will be used on this project.

	The specialist consulting firms engaged to provide GWMWater with additional expertise for this Referral are: • AECOM: Planning and Environment • CNC Project Management: Planning and Environment • Sunraysia Environmental: Concept Ecology • Landskape: Concept Cultural Heritage • Cardno: Concept Geotechnical Assessment • W3 Plus Consulting: Concept Design As part of GWMWater's contracting strategy, we are prequalifying and shortlisting suitable Applicants who can not only plan and deliver construction projects of this scale but demonstrate that they have specific capabilities, experience and capacity in cultural heritage and environmental management. A single contractor will be engaged who will sub-contract environmental and cultural heritage services to consultants with a track record for working on projects of this size and complexity. Where insufficient experience or a poor track record in either of these areas was identified, the Applicants were not short listed for tendering the works. Three applicants have been shortlisted to tender for the works which will involve undertaking the design, seek relevant approvals and then ultimately construct the project.

2. Project – brief outline

Project title: South West Loddon Water Supply Project Stage 2 (SWLP)

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)

The project is located in Victoria's central north-west. The project connects rural stock and domestic water from just north of the township of St Arnaud and will supply water around the townships of Wedderburn, Korong Vale, Inglewood, Bridgewater, Newbridge, and a number of other smaller towns. The Project Extent as indicated in Appendix 1 covers an area of 2,898km^2 within the local government areas of Loddon and the Northern Grampians. The majority of the impact however will be limited to a small corridor of a maximum width of 15m with up to 1,300km's of stock and domestic water supply pipeline (not for irrigation). Table 01 provides the Project Extent coordinates.

Table 01: Project Extent Coordinates

Project Extent Coordinates			
Id	**X**	**Y**	**SYS**
1	*686560.115*	*5953803.721*	*AGD_1966_AMG_Zone_54*
2	*701124.998*	*5956008.175*	*AGD_1966_AMG_Zone_54*
3	*726727.327*	*5984487.365*	*AGD_1966_AMG_Zone_54*
4	*757821.168*	*5978305.012*	*AGD_1966_AMG_Zone_54*
5	*767877.905*	*5958346.228*	*AGD_1966_AMG_Zone_54*
6	*760332.232*	*5922927.117*	*AGD_1966_AMG_Zone_54*
7	*755562.514*	*5914032.82*	*AGD_1966_AMG_Zone_54*
8	*745745.039*	*5916239.425*	*AGD_1966_AMG_Zone_54*
9	*695510.641*	*5940642.291*	*AGD_1966_AMG_Zone_54*
10	*694492.439*	*5947131.743*	*AGD_1966_AMG_Zone_54*

Short project description (few sentences)**:**
The project will involve the construction of up to 1,300km of rural water pipeline network consisting of larger sized trunk mains (up to 450mm), distribution lines (up to 100mm), nine pump stations and a balancing storage. The project will provide a secure stock and domestic water supply to the farm gate for up to 630 landholders living in the climate stressed region of South West Loddon in North West Victoria.

The raw (untreated) water pipeline network will connect the West Waranga Channel with the Wimmera Mallee Pipeline to service rural farming enterprises and lifestyle properties over an area of up to 3,000km^2 with a reticulated, pressurised water supply. Connection to the scheme is voluntary; however, the scheme will be designed to accommodate all rural landholders.

The piped water supply will draw on GWMWater's existing Wimmera Mallee Pipeline storages (using water sourced from GWMWater reservoirs including Lake Bellfield) and from the Waranga Western Channel managed by Goulburn Murray Water.

3. Project description

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

Provision of a secure rural water supply to the south west Loddon area will deliver a suite of benefits across triple bottom line outcomes:

- Economic: Supporting activity and employment in farming and intensive livestock sectors which underpin the viability of the region and from reducing current reliance on water carting
- Social: Creation of a sustainable lifestyle regarding recreation and quality of life in what is an arid climate and from enhancing fire-fighting capacity
- Environmental: Reduction in interceptions from unregulated waterways from multiple small on-farm dams for the benefit of regional rivers and wetlands in line with regional priorities It has been estimated that up to 6,000 ML per year of additional water could be returned back to waterways as a long term result of this project
- Resource management: Providing interconnecting infrastructure to link the Wimmera-Glenelg system to the West with the larger Goulburn system in north central Victoria.

Taken together the Business Case for the project identified that the various outcomes generate an overall economic benefit of $114 million and create or protect 134 jobs. The increased agricultural production and intensive livestock activity will also promote wider regional flow-on effects with an increase in the goods and services purchased in the area. This is particularly true of the intensive livestock sector which will generate spin-off additional activities such as feed-mills and waste handling facilities, along with increased demand for transport and warehousing.

The project will also generate short-term benefits from the pipeline construction activity, with 22 jobs created as the works progress. This activity will also generate flow-on benefits for the wider regional economy from the purchase of plant, equipment and services. However, these benefits are not included in the analysis as it is assumed that they would be achieved in whichever location government funds are invested.

The proposal to construct a pipeline to supply stock and domestic supplies to a drought affected region is directly aligned with and implements clearly articulated government strategic policies and regional priorities. The Victorian Government has recently published its "*Water for Victoria"* strategy which sets out a framework and proposals for future water resource management and use across sectors and locations. The proposal for a piped stock and domestic supply for South West Loddon is directly aligned with the core principles and proposals in this paper and identified as a case study on page 79 of the document. The project directly responds to the following four areas:

- Water for agriculture
- Realising the potential of the grid and markets
- Recognising recreational values
- Recognising and managing for Aboriginal values

Background/rationale of project (describe the context / basis for the proposal, e.g. for siting):

The economy of the area is based on agriculture, primarily broad acre grain, intensive animal, seed, sheep and wool production. Farmers presently rely on rain-fed dams (with supplementary water carting in dry times) to supply their water needs.

Recent dry years have reduced this catchment dam water resource and so have challenged the viability of farming properties. The higher costs and time involved with water carting is exacerbated by lower income following de-stocking due to the lack of water availability.

In September 2014, following an extended dry period in the region, the Loddon Shire Council made a formal request to GWMWater for an investigation into the feasibility of a piped domestic and stock water supply to the south-west area in the Loddon Shire as an extension of the GWMWater rural pipeline network based on the Wimmera Mallee Pipeline (WMP).

The State Government indicated its initial recognition of the issues in November 2015 by partially

funding South West Loddon Water Supply Project, Stage 1: a 40.09km trunk main to provide drought relief into un-serviced areas adjoining the WMP. At that point in time, there were no plans to extend the system beyond this scope of work.

Since then, the Project has evolved to encompass a comprehensive integrated network solution, servicing the South West Loddon Shire area – now known as the South West Loddon Water Supply Project Stage 2 (SWLP – 'the Project').

This has now received $40 million from the State Budget fund (7 April 2016) and $20 million commitment from the National Infrastructure Development fund from the Commonwealth government funding (8 June 2016) with an expectation that construction commences in 2017/18. GWMWater will be contributing $15 million and landholders are expected to contribute $5.6 million collectively. The Project will connect any interested rural landholder in south-west Loddon Shire and sections of Northern Grampians Shire to the water grid for the first time, significantly increasing the region's water security and underpinning local farming.

The scheme is an opt-in project, not forcing any landholder to connect. The design of the system will accommodate all landholdings (~630) however early expressions of interest received from landholders indicate the likely connections to take place are closer to 300.This will therefore result in considerably less impact than planned for. The design is intended to allow progressive connections into the future and cater for any potential deferred impact under the one approval process.

Rural properties will be offered a piped water supply, avoiding the requirement to cart water through dry periods and improving water security, quality and reliability. Social benefits for recreational purposes at Skinners Flat Reservoir will also be provided along with enhanced water supply access for fire-fighting capacity.

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

Project Extent

The Project extent, detailed in Section 2 and identified in Appendix 1, comprises of the broader area that the SWLP has the potential to supply. The size of the supply area is contingent on the registration of interest from landholders. The system will be designed to cater for all landholders connecting, however, being an 'opt in' scheme, construction will only occur to ensure landholders signing up to the project are provided with a supply.

Appendix 1 identifies a concept trunk main that was designed for the purpose of securing funding. A 40m corridor has been used to assess the likely environmental effects that may be encountered during construction of this project.

Construction of the project will be confirmed during the detail design stage. The concept and business case identified the following construction activities:

Table 02: Construction works based on concept design

Works	Length	Width	Other/Comments
Trunk Main (up to)	360 km	15 m	100 mm to 450 mm diameter pipeline underground to a minimum depth of 600 mm
Distribution (up to)	1,000 km	15 m	Up to 100 mm diameter pipes underground to a minimum depth of 600 mm
Pump stations	20 m	30 m	Nine proposed in cleared paddocks
Storage for West Waranga	300 m	300 m	cleared private land adjacent to the channel on the west side of the Loddon River
Air valves and scour valves	10 m	3 m	Above ground infrastructure within the pipeline corridor
Power line extensions	250 m	10 m	Extension to the proposed pump station sites and booster sites (impact area associated with pole

			placements)
Connection to landholders	10 m	3 m	Up to 633 water meter installations at water supply points

This Referral is submitted before the detailed design of the overall system has taken place to manage multiple municipalities and stages of construction. The design and assessment of impact will occur under strict guidance of a government approved Construction Environmental Management Framework (CEMF) (draft in Appendix 2), Environmental Management Plan (EMP), Cultural Heritage Management Plans (CHMP) and Construction Environment Management Plans (CEMPs) when works commence. Whilst GWMWater remains ultimately responsible and accountable for the overall project, it will utilise the services of a competent contracting design and construction company to adhere to the approved environmental and cultural heritage management documentation along with GWMWater's own design requirements to redesign and realign infrastructure components. This will ensure key principles of avoidance and mitigation are designed into the planning phase, thus lowering the impact.

As documented in the section of this Referral dealing with potential environmental impacts, there is considerable flexibility in constructing the pipeline to avoid sensitive areas such as vegetation by diverting the route around such areas. This avoidance of sensitive areas along the alignment is the primary means of avoiding environmental impacts and means the project can be kept to a low level of overall impact.

The concept pipeline works will predominately occur at eight metres inside a property boundary to minimise construction occurring on often heavily vegetated road reserves. Where a property is vegetated within the 8 metre set back there is a large amount of flexibility to extend construction further into a property to avoid vegetation or sensitive sites. There is also the flexibility to regularly bore under roads and go back and forth either side of a road to avoid most vegetated areas.

Construction of the project, where on-ground assessment has identified sensitive sites, will involve a design response that enables protection of the sensitive site (e.g. vegetation, stream crossing) by measures such as diverting infrastructure away from the area, directional drilling and the like. It is for these reasons that GWMWater believes that it can avoid the need for an Environmental Effects Statement to be required for this project.

GWMWater SWLP Operational Works

The operation of the water pipelines network will involve a range of activities generally undertaken by operations staff of GWMWater. Common activities include:

- maintenance of the pipeline
- maintenance of associated facilities
- operation of the pump stations, storages and pipelines.

Project Delivery

GWMWater will deliver the intended work as part of a two phase contract. This will firstly involve the 'Design and Assess' phase to prepare an initial preliminary desktop design that will then be assessed on-ground to identify cultural and ecological values. The values identified will in turn inform detailed design which, once completed, will represent the final alignment for construction.

The second phase will involve 'Construction' of the SWLP. Construction will be staged according to the methodology proposed by the contractor and will not occur until all approvals have been provided and construction plans signed off.

Trunklines assessment

A trunkline system, developed as part of the Project business case involved a desktop assessment and consists of approximately 360km of trunklines.

The successful construction contractor will have a mandate to prepare a functional pressurised piped water system that minimises impact whilst fulfilling delivery requirements.

This will involve a review of the trunkline concept plan and corridors which will be realigned where required to achieve a better outcome across multiple design criteria (including avoidance of flora, fauna and cultural heritage sites identified on the ground during survey work).

Distribution pipeline system

The distribution pipeline system of up to 1,000km in length has not been designed and will follow similar design principles to the trunk mains.

Whilst the location of the distribution system is not yet known and contingent on trunk main design, the construction methodology and environmental safeguards required to recognise, avoid and minimise impacts on environmental and cultural assets are well known and understood. These will be applied at the design stage.

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

Ancillary works are identified in Table 3 below.

Table 03: Ancillary works

Works	Length	Width	Other/Comments
Laydown/ storage areas for pipe, machinery and equipment	200 m	185 m	One every 50 km
Access points/ temporary access	10 m	10 m	One every 800 m
Vehicle turn around	40 m	35 m	One every 2 km
Installation of pipeline marker signs	-	-	Negligible impact. To provide a visual above-ground indication of buried infrastructure

Ancillary works will utilise existing cleared land and can avoid impacting native vegetation. Where changes are required to the land (removal of fences and loss of crop, etc.), these will be rehabilitated to an acceptable standard. A land access agreement will be signed with each landholder regarding the satisfactory reinstatement of their land, requiring a signing-off that their property has not been left in worse condition. There are also conditions within the contract documentation with the tenderer that will require GWMWater to complete an inspection within 12 months of works with the release of security bonds contingent on the contractor rehabilitating land to the satisfaction of the landholder.

Key construction activities:

The standard sequence of pipeline construction activities will commence with securing access to the land and confirming access protocols, concluding with reinstatement of sites and commissioning of the pipeline. The process will generally consist of the following:

Ground Preparation

- Pre-construction walk through – appropriately qualified and informed project personnel will perform a 'walk through' whereby they locate and mark off identified areas of sensitivity.
- Where required, tree trimming will be undertaken by specialist crews appropriately marked in accordance with environmental conditions.
- Fence cutting – fences will be opened up and temporary access will be installed.
- Weed/pathogen hygiene areas – where identified, machinery hygiene stations will be set up to assist in management of regional and noxious weeds. Control prior to construction will also be considered as a method of reducing the risk of weed or pathogen spread.
- Laydown and storage – areas for laydown of pipe and associated materials and equipment will be cleared by removing the topsoil and installing temporary protective materials (i.e. crushed rock) as required.

- Installation of temporary access tracks to site as required.

- Service location – underground services will be located using non-destructive excavation and identified using markers or stakes.

- Topsoil Management – topsoil management is critical during construction, topsoil will be windrowed along the pipeline easement to maintain its integrity for reinstatement purposes. Topsoil will not be mixed or contaminated with subsoil at any stage during construction.

Trenching method

- Clear and grade – ground is prepared by grading or otherwise windrowing the topsoil to one side of the working area or RoW. This is performed in order to preserve the topsoil and the seed bank contained within it, in order to facilitate successful rehabilitation following reinstatement.

- Pipe stringing – pipe is 'strung out' or laid out along the RoW end to end, sitting on wooden stakes or bags of sawdust in preparation for joining. Regular breaks are made to allow for maintenance of access (for landholder or for stock as previously agreed) and also to allow for emergency services to get through should they require to.

- Trenching – a dedicated trenching machine (bucket wheel trencher) or excavator will dig the trench to the required depth. Excess from the trench or 'spoil' is heaped to the other side of the trench as that of the pipe strings. Spoil and topsoil are kept separate.

- Pipe laying – bedding sand may be required to protect the pipe. A truck with a modified trailer drives ahead of the pipe laying crew and dispenses a layer of sand into the trench.

- (PVC pipe) – pipe is lifted from the string into the trench using a 'sling' and an excavator. The pipe is joined together using industrial glue and manually fed through an 'O-ring' and joined.

- (PE pipe) – the PE pipe is fuse welded together using specialised equipment and lowered into the trench once it has cooled using a succession of excavators and slings.

- Backfill and compaction – the trench spoil is picked up, sifted to remove any sharp stones or objects and re-laid into the trench around the pipe using a padding machine that contains a mechanical sieve. The spoil is then compacted to ensure that there will be minimal settlement following construction.

- Hydrotest – all sections of installed pipe must be pressure tested to ensure that they are capable of operating at or above operational water pressures. Sections of pipe are progressively filled with water and tested, with any non-compliant sections dug up and repaired.

Different pipes are used dependent on equipment used, pressure classes and flow requirements. The Contractor will nominate preferred construction methodology for each section in their construction management plan. GWMWater will review and approve each plan before allowing the contractor to proceed to construction.

Pipeline construction disturbance corridor has a width of up to 15m wide for trenching due to the need to have haul roads parallel to trench excavation and spoil stockpiles. However, where it is practical and particularly for the smaller size pipes, the disturbance corridor shall be reduced. For this project a 450mm diameter pipe may require a depth of 1m however the maximum disturbance corridor will not to exceed 15m. Inspections of trenches left open overnight will occur first thing in the morning to ensure that fauna has not become trapped.

Plough in method

For trunk and distribution pipelines, 'plough-in' methodology can be used which involves a specialised 'plough' unit deep ripping lengths of polyethylene (PE) pipeline directly into the ground.

Lengths of PE are 'fuse welded', either by welding lengths together on the RoW prior to installation or by fuse welding 'in situ' where a bell hole is excavated every 500-800m to weld adjacent lengths of pipeline together. Once the pipeline has been installed, the area of disturbance is rolled flat with a few passes of a heavy wheeled vehicle. This is a quicker form of construction than traditional trenching and involves a narrower corridor of ground disturbance, but it is not always possible to adopt this method as it relies on the presence of appropriate soil conditions.

The plough-in technique can pull in pipeline in excess of 450mm diameter and requires a RoW of 4m width to allow one tracked machine to pass through with between 0.5m and 0.7m of soil disturbance from the plough tyne (depending on the size of the pipe being ploughed in). The soil is then wheel-rolled by a second machine prior to completion of construction.

Some plough units are vibratory which further reduces the volume of soil that is displaced at the ground surface.

Depending on the plough-in methodology used, 'bell holes' – vertical excavations to expose the pipeline – may be required to join the lengths of pipe. Bell holes are typically installed every 500m when they are required. Each bell hole has an 8m x 8m disturbance zone around the excavation where topsoil would be removed and stockpiled to the side of the disturbed area.

All bell holes and stock pile locations will be placed away from identified environmental and cultural sensitivities locations. Buffer areas around particular sensitivities will be specified within the CEMP and supporting procedural documentation.

To accommodate different types of plough-in technology, a RoW of 8m can be used instead of 15m using trenching technology.

Reducing Right of Way for sensitive sites

Where vegetation removal is authorised, the corridor shall be reduced to a maximum 8m width using plough technology.

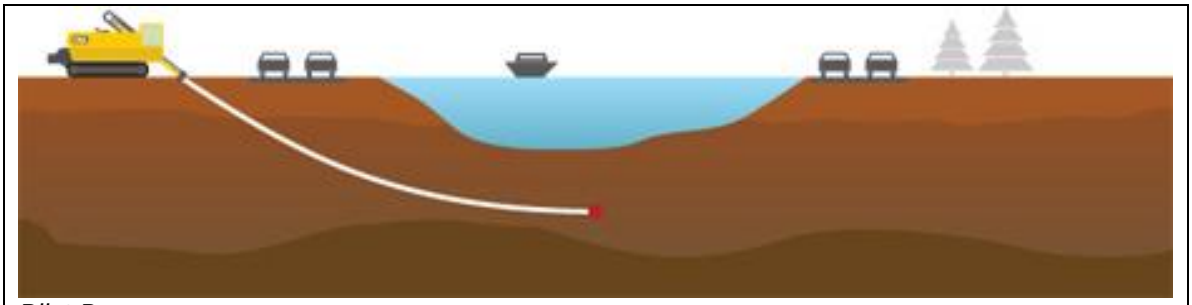
Determination of those areas holding significant environmental or cultural value will be made during the design and assessment phase of the project where studies and on-ground assessment will be undertaken. Survey outcomes will then be incorporated into pipeline design to avoid sensitive sites where possible or to otherwise minimise (and offset) impacts.

All areas of ecological significance will be identified as an Environmental Control Point by on-site investigations and assessments made under the approved EMP (approved by DELWP) in order to avoid and minimise impacts.

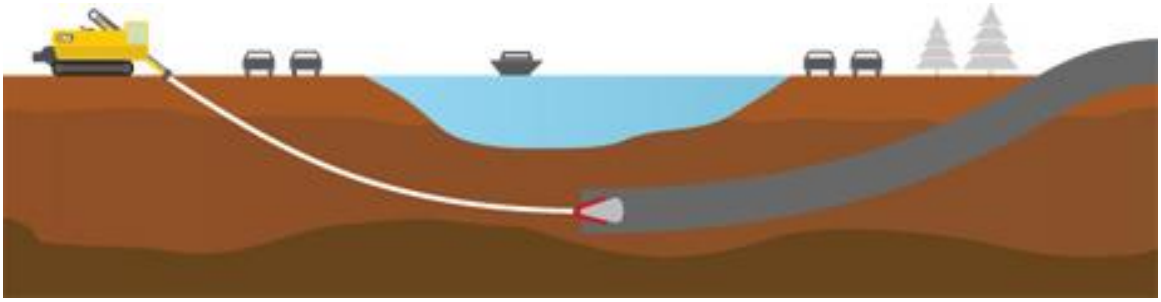
Culturally sensitive sites will also be identified following survey and assessment will be made by the relevant agreed stakeholders in order to avoid or minimise impacts to an agreed acceptable level, in accordance with the project Cultural Heritage Management Plan (CHMP).

Horizontal Directional Drilling (HDD)

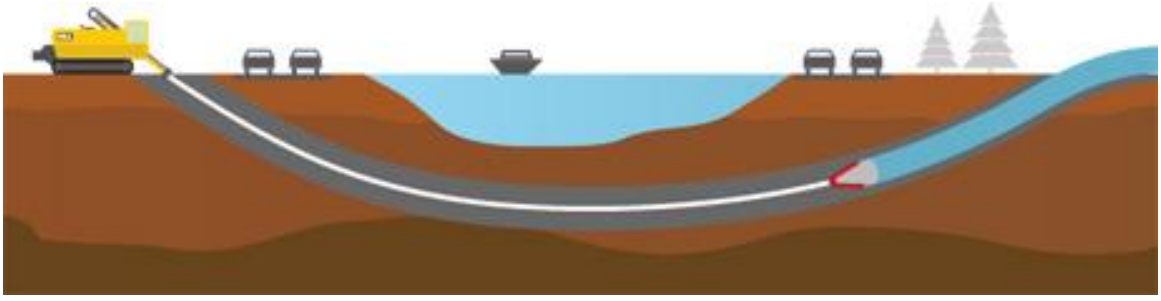
Horizontal Directional Drilling (trenchless technologies) techniques are used for the steerable installation of new pipelines. The term applies to a crossing in which a pilot bore is drilled, and then enlarged to the size required for the product pipe. The drill path may be straight or gradually curved, and the direction of the drilling head can be adjusted at any stage during the initial pilot bore to steer around or under obstacles. Normally launch and receipt pits are excavated so that top soil is stockpiled for a maximum of two days, drill slurry (water and soil is temporarily located beside the pit with excess removed from site before top soil is replaced. These pit dimensions vary according to the size of the rig and conduit to be installed.



Pilot Bore
Starting at the entry point a drill head, suitable for the ground conditions, is drilled along the predetermined route with depth and alignment monitored continuously.



Reaming Process
The pilot bore is enlarged in suitable steps by back reaming the hole with cutters designed for the ground conditions to a size that accommodates the product pipe.



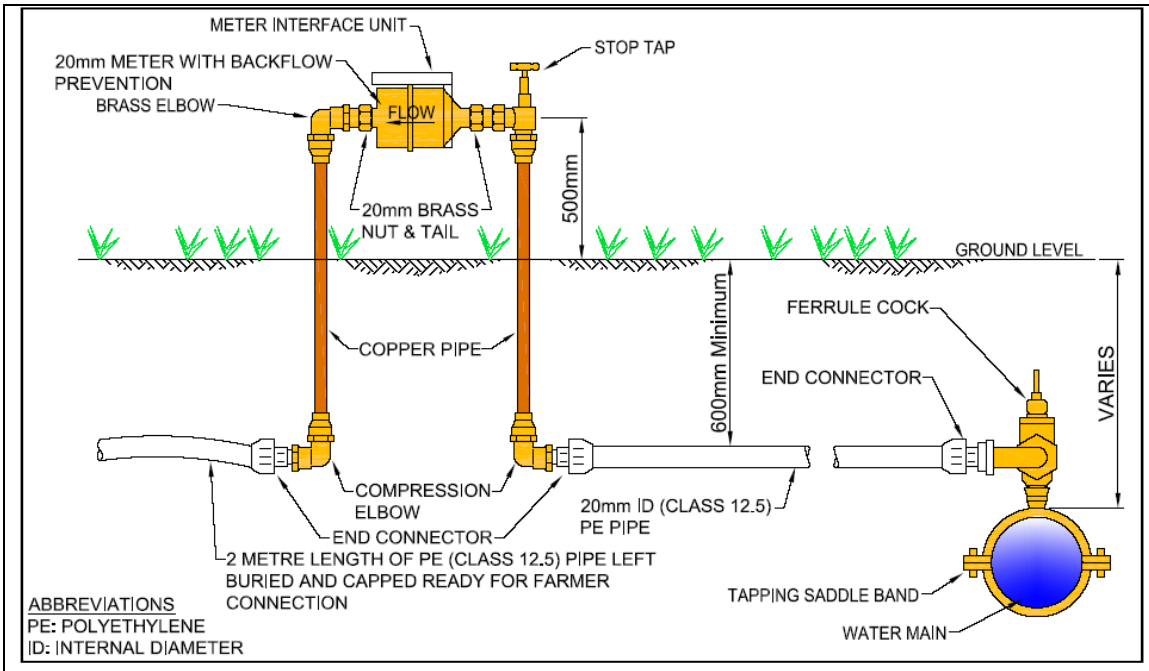
Pipe Installation
Once the drill string is connected to the pipe via a swivel pull back commences. In some instances the pipe can be pushed into place.

Bore Pits:
Where long lengths of HDD are required (greater than 100m) a bore pit with a disturbance of 1m x2m of soil will be dug to join up sections of pipe. Temporary vehicle access will be required to join the lengths of pipe however it is estimated that this method will reduce the impact area by 90 percent compared to trenching and ploughing technology. This approach was successfully used to avoid Gold Sun Moth habitat on a recent project, where 600m of HDD involved a total of 4 pits (an impact area of 8m^2), a measure that was endorsed by the Commonwealth as an acceptable mitigation measure.

For this project, all roads, waterways, rail and other obstructions will be completed using HDD unless other technologies are authorised by the relevant approval authority.

Meter Point Installation

The meter point installation process is carried out to connect landowners to the pipeline system. Tapping points (or meter points) will be positioned inside the landowner's paddock on fence lines. The figure below details the fittings that comprise each tapping point.



Once a section of pipeline has been laid and successfully pressure tested, the tapping points are marked out along the line, taking into account the presence of high quality native vegetation, weeds and sites of cultural heritage to minimise impacts at each location. Information about no-go areas and other sensitivities is passed on to the installation crew before they arrive at each tapping point. Excavations are required inside property fence lines to access the existing water main and to install the tapping and metering point. In each case, topsoil will be removed from a pad that is large enough to allow the excavated material to sit on subsoil. The landholder will then uncover an area of 0.5m x 0.5m to connect a 20mm polypipe that supplies their property.

In cases where a tapping point is required on the other side of the road from the pipeline, there are three possible methods of installing the 20mm pipeline across vegetated road reserves.

1. HDD shall be employed where roadside vegetation is of high quality. Sites for this construction technique shall be determined by the site manager and GWMWater environmental staff. This methodology shall be of minimal impact and will not have adverse impacts on the integrity of the site.

2. Excavation with a 100mm chain trencher may be employed through all other road reserves where vegetation is of a lower quality (or alternatively HDD). The trenching process involves the mixing of topsoil and subsoil over a narrow area (approximately 100mm) to the depth of the mains water pipe (generally 600mm-1200mm).

3. An excavator shall be used where the ground conditions are not suited to the chain trencher. In this instance, topsoil shall be removed over an area of four metres before excavation of the trench. The trench will be much wider using this technique and so complete separation of topsoil is required. Once the pipe has been installed in the trench, any excess spoil shall be removed and the topsoil shall be respread over the cleared area.

Installation of valves

Above ground air valves and scour valves will be installed at regular intervals throughout the piped areas. These will typically be contained inside of a cement casing to protect them. These are required to ensure efficient/sustainable operation of the pipeline system.

In hilly sections or areas such as creek crossings where the trench runs on a gradient, 'trench breakers' will be installed during construction. These are devices that have been designed to stop erosion caused by water running down and beneath the buried pipeline.

Water Storage

Construction of water storage facilities will involve the following activities:

Pre-Construction

- Identification of cleared site
- Preparation of a site management plan including provision for topsoil and drainage management.

During Construction

- Stripping the topsoil and storing it away from construction operations
- Construction of a sediment dam for on-site drainage to flow into during construction
- Importation of subsoil material and compaction to form each basin
- Installation of inlet/outlet pipes, connecting the storage to the rest of the pipeline system
- Importation of material to allow the formation and compaction of embankments
- Installation of HDPE liner, and
- Construction of access road into site.

Post Construction

- Reinstatement of topsoil, and
- Re-seeding topsoil if natural regeneration is insufficient.

An area on the west of the Waranga Channel has been identified on cleared land that will be confirmed by the contractor. The reason for this proximity is to accommodate sufficient availability of water while the channel system is turned off for maintenance each year from March to August. Suitable storage is required in order to meet landholder demands for this period. The contractor will need to confirm the preferred location and sizing of the storage.

Pump Stations

The pump stations are required to provide the appropriate delivery pressure to each rural customer once the network has been installed.

The location of each pump station will be selected to carefully minimise potential impacts on social, environmental and cultural values. An area of approximately 50m x 35m would be required for each site. Site selection will be dependent on a number of factors, including the presence of native vegetation and wildlife, cost of land purchase, the cost of supplying the site with power, the sensitivity of the site to noise receptors and the landscaping work required to screen the facilities so as not to affect the amenity of the neighbouring properties. Each pump station will be enclosed for noise and weather mitigation.

The nine notional locations of pump stations are also included in Appendix 1, along with indicative corridors to potential power sources. Each site and required power line connection alignment will be assessed in detail to minimise impact on identified environmental assets.

Offtake at Waranga West Channel

This location will occur adjacent to the channel on cleared land and will include the installation to a pump station to pump water to the storage on the other side of the Loddon river. The activity and impact area is largely the same as that identified in the section on pump stations above.

Waterway Crossings

All waterway crossing will use HDD technology to avoid impact, unless otherwise approved by the North Central Catchment Management Authority (NCCMA). Trenching method would only be considered where a designated waterway on a map is, following site investigation, proven to be a drainage line with little flora, fauna or cultural heritage concerns and no signs of ground disturbance.

The NCCMA will issue a Works on Waterways permit which will specify any additional conditions. These conditions will be adhered to during construction and rehabilitation of the crossings.

Road and Rail Crossings

Rail line and paved roads will be crossed using trenchless techniques. Unpaved roads will likely be crossed using an open cut trench where there are no or low native vegetation values. Asset owners and other stakeholders will be actively consulted during the design and assess stage of

the Project. The ecology assessment will assess the quality of vegetation within road reserves which will enable the most appropriate construction methodology to be selected for each crossing.

Where directional drilling of roads and rail crossings is to be employed, this will occur from paddock to paddock to avoid vegetation disturbance within road and rail corridors.

Access tracks, laydowns and turn arounds

Vehicles and construction machinery will require access to the construction RoW. This will be using existing access in the form of gates and roadways. There may be a requirement to form temporary access for construction, including pipe delivery to the RoW.

Where access does not exist at both ends of a pipeline section, a vehicle 'turn around' will have to be created to allow for vehicles and machinery to turn and exit from a dedicated access way. These 'turn arounds' are typically wider than the 15m RoW (40m x 35m). All turnaround areas can be located in areas away from environmental and cultural sensitivities.

Laydown areas will also be required at dedicated points along the construction corridor for equipment, machinery, pipe and other materials to be stored in advance of being taken to site. These will vary in size and there is a great deal of flexibility to allow them to be located in areas of no environmental or cultural value.

The location of vehicular turn-arounds, material laydown areas and drill pad location for trenchless crossings will be selected at the design phase based on locations having no environmental or cultural value. Locations will be written into CEMPs.

Reinstatement

Reinstatement methods will involve bringing topsoil progressively back across the RoW following backfill and compaction of the trench. Some sections may remain open while final parts are being installed around valves, etc. In this case, as much of the RoW will be reinstated as possible, leaving only the access and the site itself to be closed up following completion of the necessary work.

Erosion and sediment controls will be established in environmental management plans and will require installation to protect the RoW from subsequent rainfall events. The land is then either left to naturally regenerate, is actively re-seeded or re-worked by the landholder as per landowner requirements.

The CEMF (provided in Appendix 2), EMP and CEMPs will specify particular reinstatement measures required with public land including road reserves, conservation reserves, and stream side reserves. Reinstatement methods will be commensurate with the original vegetation type and quality as specified by the relevant public land management authority.

Key operational activities:

The operation of the water pipelines network will involve a range of activities generally undertaken by operations staff of GWMWater. Common activities include:

- maintenance of the pipeline; and
- operation of the pump stations, storages and pipelines
- maintenance of associated facilities such as air valves, scour valves, pump stations, storages and meter points.

The impact of these operational activities will be concentrated on sites of pre-existing ground disturbance.

Key decommissioning activities (if applicable):

N/A

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

☒ No ☐ Yes If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

Is the project related to any other past, current or mooted proposals in the region?

☐ No ☒ Yes If yes, please identify related proposals.

This package of work represents additional works on supplying domestic and stock water supply in this region. Stage one of the SWLP is currently undergoing construction. It was developed under an independent business case and at the time of its planning, there was no intention or commitment to expand the water supply project any further than the 110km that comprise the initial works package.

Subsequently, the Stage 2 package has been prepared using a distinct business case and funding model which introduced the 'Stage 1/ Stage 2' nomenclature that serves to act as a point of separation between the works. There is a clear point of separation between the funding, timing and delivery model of the two capital works projects and therefore should be viewed as separate projects from a planning perspective.

Stage 1 stands on its own however Stage 2 will connect to Stage 1 infrastructure to continue piped water into Stage 2.

4. Project alternatives

Brief description of key alternatives considered to date (e.g. locational, scale or design alternatives. If relevant, attach A4/A3 plans):

Whole of Project Options Assessment – Summary

The business case identified a number of options and endorsed the centralised Stock and Domestic water supply as the preferred option, based on socio-economic assessment. The alternatives considered during the feasibility stage of this project are identified below.

*Do nothing***:**
'Business as usual' would involve the community continuing with its current responses carting water in dry periods. This would be affordable in the short-term, however, it would maintain its current adverse impact on the environment from reliance on farm-dams and would not be resilient to any further climate drying. Most importantly it would be likely to see further retrenchment in farming and so would not generate a sustainable economic outcome.

Increased storages:
This option would involve constructing additional or enlarging current dams and storages either on-farm or at a regional scale. This option would be expensive to implement and not feasible because the existing storages already capture a significant proportion of the region's flows. The pipeline area is within the Murray Darling Basin so any increased water take would run counter to the need to reduce sustainable diversion limits. The approach would also be vulnerable to any further drying and would impact on already stressed catchments.

Water Carting:
This option would harness local private sector providers to supply a larger volume of water to replace rainfall in catchment dams. This would be technically feasible and have little impact on the environment. However, it would not be realistic as a medium-term solution as the costs of delivery are very high (at $10/Kl) so graziers de-stock rather than pay for raised watering costs. This would continue the decline in grazing, an industry which is vital to the regional economy.

Desalination:
This would be a climate resilient response. However, it is a costly approach and problematic in regional Victoria in locations away from the coastline due to the challenge of disposing of the resultant brine stream.

Demand management:
This option would involve promoting more water efficient farming practices. This is not easy to implement for the grazing sector where there is a basic volume of water required per head of stock. The major improvement in this regard would be to convert from a system of open catchment dams to a piped system with tanks and troughs as this would reduce losses and evaporation risks. However, unlike the Wimmera Mallee pipeline there is no current inefficient channel system to replace. The soil and land capability does not allow conversion to more intensive cropping so there are no alternative farming activities that could readily be adopted so the regional economy would be adversely impacted.

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

Following on from the business case options assessment as outlined above, no further consideration of project alternatives (design, location or timing) is proposed.

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:

GWMWater has identified three facilitated works that will be associated with the SWLP

construction work. GWMWater propose to exclude each of these ancillary activities from the project scope and this Referral document based on the rationale supplied.

On Farm Works:
On-farm installation of 20mm polyethylene pipeline by private landowners, in order to deliver water from their connection (metering) points at property boundaries to strategic delivery points (tank installations).

GWMWater propose to provide advice in an on-farm guidance document that will be provided to each landholder who registers an interest in connecting to the SWLP.

GWMWater propose to educate landholders on their responsibilities in relation to works on private land and will work with each individual landholder as well as the relevant local council and DELWP to provide a detailed description of the planning and permitting requirements if carrying out these on-farm works.

Decommissioning of Farm Dams:
With secure alternative water supply through a piped system, farmers and landholders may choose to decommission or cease to utilise their on-site dams. The switch to a permanent piped supply is expected to result in significant volumes of surface water being diverted away from farm dams back into natural catchments. This will occur over time, especially as many of the farm dams silt up quickly and are costly to empty out. It is anticipated that the benefits of water returning to the waterways will be incrementally experienced over 5-10 years after completion of the project.

The Project currently has no mandate to enforce or manage any dam related works on private landholdings.

Firefighting Access Points:
Installation of firefighting standpipes and/or tanks (on smaller diameter pipelines) that will be located at strategic points throughout the system for use and access by emergency services personnel during an emergency event.

The Country Fire Authority will be engaged with regard to installation of standpipes and/or tanks and creation of access points at strategic locations throughout the SWLP supply area to enhance fire response. These locations will be agreed in consultation with council and will adopt principles of avoidance and impact mitigation in their site selection, as well as line of sight where they are in proximity to road junctions.

6. Project implementation

Implementing organisation (ultimately responsible for project, i.e. not contractor)**:**
Grampians Wimmera Mallee Water Corporation ABN 35 584 588 263

Implementation timeframe:
Indicative project timing is highlighted in Table 4 below and is consistent with funding obligations and advice to government agencies.

Table 04: Timing of project

Works	Timing
Expression of Interest	Nov-16 to Feb-17
Tender	Feb - Apr 17
Early Works Contract Commences	June 17
Construction Works Commence	Nov-17
Landholder Connections commence	Jan-18
Completion of Construction	July -18
Defects liability	July - 19
Funding acquittal	30 June -19

Proposed staging (if applicable):
In order to meet the government and landholder expectations, the project will be staged. It is the responsibility of the contractor to determine the methodology for staging that will best achieve the construction timeframes imposed.

Staging will allow sections to commence under approved CEMPs and CHMPs instead of waiting for full approval across the full project footprint. Staging will assist approval authorities in reviewing smaller sections at a time.

Staging will also allow lessons learnt from initial stages to be carried over into the approval section of subsequent stages.

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.

If yes, please describe the preferred site in the next items (if practicable).

GWMWater has done considerable work defining and mapping the Project Extent across the entire notional trunkline length (refer to Appendix 1). A 40m corridor has been identified along the entire alignment although the requirement for construction works is typically a 15m wide corridor within the wider Project extent. As such, the final detailed alignment will be determined as the project progresses and will be informed by site specific surveys and assessments with the primary objective of avoiding environmentally and culturally sensitive areas. As can be seen from the maps contained in Appendix 3, the project site is predominantly on freehold land used for agriculture with the vast majority cleared of vegetation. Where the mapping identifies sensitive areas, this will be the focus of the detailed survey and design process to avoid these areas where possible. The benefit of the SWLP being linear infrastructure is that the eventual construction alignment can be sufficiently flexible to avoid most areas of environmental sensitivity such as vegetation or cultural heritage sites.

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):

General Description of the Study Area

Geology

The study area consists of bedrock hills of granite and surrounding Cambrian and Ordovician sandstones and metamorphosed areas along the interfaces. On the lower slopes there are outwash gravels and alluvial sediments deposited in valleys. Further from the hills, the valleys give way to rolling plains.

Soils

The soil within the Project Extent is dominated by Sodosols with Chromosols, Vertosols, Dermosols and Rudisols also contributing to the soil composition.

Climate

The nearest Bureau of Meteorology weather stations are at Charlton (BOM site number 0800006) and St Arnaud (BOM site number 07940). Charlton is in the semi-arid climatic zone while St Arnaud could be considered near the edge of semi-arid climatic zone. Climate statistics for St Arnaud and Charlton are shown in Table 5 and Table 6 respectively.

Table 05: Climate statistics for St Arnaud

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean max temp (°C)	29.4	29.1	25.8	20.7	16.1	13.0	12.3	13.9	16.9	20.3	24.3	27.5	20.8
Mean min temp (°C)	13.5	13.8	11.7	8.6	6.1	4.2	3.4	4.2	5.7	7.6	9.8	12.1	8.4
Mean rainfall (mm)	28.4	27.1	27.6	36.3	51.8	57.3	55.1	55.7	49.6	47.3	35.5	30.5	499.7

Table 06: Climate statistics for Charlton

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean max temp (°C)	30.4	30.2	26.7	21.9	17.4	13.9	13.4	15.0	17.9	21.4	25.5	28.7	21.9
Mean min temp (°C)	13.8	14.3	11.8	8.5	6.0	4.1	3.4	4.0	5.5	7.5	10.0	12.4	8.4
Mean rainfall (mm)	24.3	27.2	28.4	31.9	42.7	48.1	43.2	45.2	42.6	41.8	28.4	26.8	431.0

Topography
The elevation of the land in the study area varies from 400m at Mt Korong and Mt Kooyoora to 109m at the Loddon River in the north east corner of the study area (DELWP 2015a).

The Project extent is bordered by the Loddon River to the east and the Avoca river in the western section which comprise the two major waterways. Several hundred ephemeral drainage lines and waterways drain into these two river systems.

Public Land
The Environment Conservation Council completed a review of the use and management of public land that hosts the Box Ironbark forests and woodlands in Victoria in 2001. Most of the public land in the study area was covered in the review which resulted in elevating the conservation status of some State Forest and Reserves (ECC 2001).

The majority of Public Land within the Project Extent is vegetated with land use typically State Forest, State Park or other listed reserve or riparian corridor with a lesser area dedicated to recreational use and for public utility purposes. A public land map is provided in Appendix 3 indicating the relevant State Forests, State Parks and other listed reserves in or adjacent to the project area.

Vegetation Cover
Areas of rock outcrop and sand (i.e. typically poorer areas for agricultural development) tend to be covered by Box Ironbark forest and woodland. Away from those areas, the Project Extent has a large diversity of native grassland of differing quality and extent. Native vegetation is typically restricted to areas free from grazing or shelter belts in private property and public land areas such as riparian corridors, road and rail corridors and isolated reserves.

Data in this section sourced from:

- W3 Plus Consulting Report: SWLP Project Desktop Environmental Assessment (2015)
- Environment Conservation Council, Box-Ironbark Forests & Woodlands Investigation Report (2001)

Site area (if known): Refer to the SWLP Project Extent map in Appendix 1 which identifies the area of 2,898km^2.

Route length (for linear infrastructure) up to 360km of trunklines; up to 1,000km of distribution lines if every landholder wants to connect. Refer to the SWLP Project Extent Overview Map in Appendix 1. Trunk mains will be reconsidered in line with the approved principles highlighted in the CEMF and EMP and distribution lines will also be designed based on the principles of avoidance and mitigation.

Current land use and development:

Land Use
The latest available census data indicates that the Loddon Shire Council covers approximately 6,694.2km^2. 5,530km^2 of this land is used for agriculture with over 13% of the available agricultural land within the Shire reliant upon off farm irrigation water to maintain its primary land use.

The section between St Arnaud and Gower East incorporates Northern Grampians Shire is approximately 35km wide. Design of additional distribution lines off the trunk main in this shire will reach south of the Wimmera Highway to connect some large intensive users of water (piggeries) who have expressed an interest in a supply.

Current land use of the upper slopes in the Loddon Shire is generally reserved public land, with some private land comprising bush blocks and areas used for light grazing of domestic livestock. The lower slopes are a mixture of livestock grazing with some cropping. The lower slopes have in the past been subject to extensive gold mining activity with many of the trees cleared for fuel. The plains have been extensively modified and are largely cleared for agriculture, primarily mixed cropping and grazing.

Public land typically contains higher values and areas of sensitivity as it is less disturbed or cultivated. Some areas of public land within the Project extent are subject to active use through

water extraction, grazing licences or timber production whilst other parcels have additional protection provisions that limit the permitted use or activities that can be undertaken.

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

Major Roads
Two major arterial roads run within the Loddon Shire; the Calder Highway (A79) and the Wimmera Highway (B240). Several major connecting roads run between the two highways including the Wedderburn Logan Road (C273); Bridgwater Maldon Road (C282) and Bridgewater Dunolly (C274).

Railways
Within the wider project area four railway lines are currently operating, the Maryborough Mildura Railway; Dunolly Robinvale Railway; Eaglehawk Inglewood Railway and the Korong Vale Kulwin Railway. All railways will be crossed using boring technology to avoid impacting any of this infrastructure.

Townships
A total of six towns are located within a 1km buffer of the Project Extent. These towns include:

- St Arnaud
- Bridgewater On Loddon
- Inglewood
- Korong Vale
- Logan
- Wedderburn

This includes three regional centres; St Arnaud, Inglewood and Wedderburn.

St Arnaud: St Arnaud is located 244 kilometres north west of Melbourne and is in the south west of the Project Extent. It is in the Shire of Northern Grampians local government area. At the 2011 census, St Arnaud had a population of 2,619.

Wedderburn: Wedderburn is a rural town in Victoria, Australia on the Calder Highway, 214km north of Melbourne and is located in the north west of the Project Extent. At the 2011 census, Wedderburn had a population of 680. It is mainly a farming community but its early residents were gold miners and prospectors.

Inglewood: Inglewood is located on the Calder Highway, approximately 28km South east of Wedderburn in the Shire of Loddon. At the 2011 census Inglewood had a population of 1058 (up from 834 in 2006).

Given the pipeline is a rural water pipeline, impact on townships will be minimised, where possible and detailed design will attempt to reduce any impact on these areas.

Land Parcels
An analysis of land parcels indicates that 1,315 sites intersect with the Project Extent.

Planning context (e.g. strategic planning, zoning & overlays, management plans):

The proposed water supply extension will extend across the Local Government areas of Loddon and Northern Grampians.

Regional planning
The eastern section of the Project Extent forms part of the Loddon Mallee South Region and subsequently is included in the *Loddon Mallee South Regional Growth Plan, May 2014.* This plan considers utilities such as water pipeline corridors as significant to the state in terms of supporting the functioning of Victoria and its communities.

The western section of the Project Extent is predominately rural farm land reliant on catchment dams for their water supply. Some intensive piggery farms are established in this region with

local council encouraging further intensive developments where water and power is available.

Strategic and Local Policy Framework

The project covers land within the Loddon Planning Scheme and the Northern Grampians Planning Scheme. The Loddon and Northern Grampians Municipal Strategic Statements identify long-term strategic directions for land use and development in their respective municipalities. A number of clauses of the State Planning Policy Framework (SPPF) and Local Planning Policy Framework (LPPF) are of relevance to the project relating to biodiversity, significant environments and landscapes, natural resource management and economic development. Local Planning Policies are used to implement the objectives and strategies of the MSS. Those specifically relevant to this proposed project are described in Table 7.

Table 07: Key Planning Policy

SPPF Loddon Planning Scheme and Northern Grampians Municipal	
Loddon Mallee South Regional Growth ***11.12-4 Infrastructure***	The objective for Clause 11.12-4 is to improve infrastructure in the Loddon Mallee South regional growth area.
Wimmera Southern Mallee regional growth ***11.13-8 Infrastructure***	The objective for Clause 11.13-8 is to identify infrastructure to support growth in the Wimmera Southern Mallee regional growth area.
Development Infrastructure ***19.03-2***	The objective for clause 19.03-2 is to plan for the provision of water supply, sewerage and drainage services that efficiently and effectively meet State and community needs and protect the environment.
Loddon and Northern Grampians Shires- **Pipeline infrastructure** ***19.03-6***	Development of pipeline infrastructure is subject to the Pipelines Act 2005. This ensures that substances are safely delivered to users and through transit. Relevant strategies for planning of new pipelines include: • ensuring routes have adequate buffers from other developments and land uses, minimal impact on environments • provision of environmental management during construction and operation.
Municipal Strategic Statements (MSS)	
Loddon Shire ***21.04-5***	Key strategic objectives for Loddon Shire include encouraging population growth and encouraging development of attractive and functional townships along with sustainable rural living. Supporting strategies relevant to this proposed project include: supporting the improvement in quality and quantity of urban water supply and maintaining Inglewood reservoir as a supplementary local water supply.
Northern Grampians Shire ***21.03***	Does not contain any specific strategic objectives or strategies relating to a proposed water pipeline or more broadly the provision of infrastructure.

Local Planning Policy - applicable zones and overlays

Appendix 4 is provided to show the planning zones which apply to land within the project area. The vast majority (92.8%) of the Project Extent has been incorporated into the Farming Zone within the relevant Planning Schemes. Agriculture consists of broad acre cropping, grazing, intensive stock and fodder operations and a smaller amount of speciality/niche agricultural production.

2.5% of the Project Extent is dedicated as Public Conservation and Resource Zone and contains the greatest area of remaining Box Ironbark forests and woodland areas.

The remaining 4.7% of the Project Extent is divided into a number of zones for, industrial, public and residential use.

The local Planning Scheme maps from the Loddon Shire and Northern Grampians Shire are provided in Appendix 5 to highlight the presence or absence of key planning overlays.

Collectively, 7.3% of the Project Extent is subject to an overlay that has associated heritage or environmental value and should be avoided by the SWLP footprint. Where possible these areas will be avoided for the Project or measures such as horizontal directional drilling will be used to minimise the impact on these areas. There is no land within the Project extent that is subject to the Significant Landscape overlay.

45.3% of the Project Extent has an overlay that could be considered a threat to the Project (e.g. Land subject to inundation, salinity or erosion). At these locations, additional consideration will be given to the need for management measures to protect project assets, as appropriate.

Table 08: Planning scheme land use zone breakdown within the 40m wide trunklines assessment corridor

Zone	Area (ha)	%
Farming Zone	1454.3	92.8
Industrial 1 Zone	0.6	0.0
Low Density Residential Zone	2.2	0.1
Public Conservation & Resource Zone	39.6	2.5
Public Park & Recreation Zone	1.9	0.1
Public Use Zone 1	5.0	0.4
Public Use Zone 4	5.6	0.4
Road Zone 1	27.3	1.8
Rural Living Zone	19.1	1.2
Township Zone	10.7	0.7

Local government area(s):

The SWLP will be constructed within the following LGAs:

1. Loddon Shire Council
2. Northern Grampians Shire Council

Appendix 6 confirms both councils support for GWMWater to seek a Planning Scheme amendment for this this project.

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)**:**

In order to determine what level of potential environmental impact the proposed construction and operation activities of the Project (the 'threats') will have, it is necessary to identify what environmental assets currently exist within the Project Extent and where they are located.

Environmental assets may be described as:

Naturally occurring entities that provide environmental "functions" or services. These include those entities which have no economic values, but bring indirect uses, benefits, options and bequest benefits or simply existence benefits which cannot be translated into a present day monetary value.

Edited from: https://stats.oecd.org/glossary/detail.asp?ID=6421

Key environmental assets within the SWLP Project Extent
Environmental assets tend to be closely linked to areas of public land which will be avoided where possible. Native vegetation, threatened species and protective overlays tend to be overwhelmingly located within riparian corridors, road reserves, rough grazing areas and areas of Crown Land that have not been subjected to recent agricultural cultivation or forestry practices.

It is acknowledged that on-ground assessment of a preliminary trunkline design corridor is required to confirm this correlation as well as to identify any native vegetation patches or scattered trees that are not contained within the publicly available datasets. However, as a planning guidance tool, it is recommended that public land exposure is minimised during preliminary design in order to minimise potential environmental impacts. A public land map is provided in Appendix 3 indicating the relevant State Forests, State Parks and other listed reserves in or adjacent to the project area. The map identifies that the pipeline is likely to be constructed in areas of State Park and State Forest to the west of Inglewood.

Bioregions
The Project Extent covers the Goldfields, Victorian Riverina, Victorian Volcanic Plain, and Wimmera Bioregions.

Flora Assets
A desktop review of threatened flora species historically recorded within 5km of the Project Extent as well as flora species identified by the EPBC Act Protected Matters Search Tool has been undertaken. This included 110 flora species.

An assessment of the likelihood of species occurring within and surrounding the Project Extent was undertaken using criteria outlined in the Flora and Fauna section of this Referral. This assessment identified:

- One FFG listed species as known to occur within the Project Extent
- Four EPBC Act species considered likely to occur within / surrounding the Project Extent
- 11 FFG Act listed species considered likely to occur within / surrounding the Project Extent
- Three EPBC Act species considered possible to occur within / surrounding the Project Extent
- Eight FFG Act listed species considered possible to occur within / surrounding the Project Extent.

Additionally, 93 threatened flora species have been historically recorded within 5 km of the Project Extent. Records include:

- 44 species listed under the Victorian Rare or Threatened Species (VROTS) advisory lists (DEPI 2013)
- 22 FFG Act listed species
- Nine EPBC Act listed species.

Fauna Assets
A desktop review of threatened fauna species historically recorded within 5 km of the Project Extent as well as fauna species identified by the EPBC Act Protected Matters Search Tool has been undertaken. This included 77 fauna species.

An assessment of the likelihood of species occurring within and surrounding the Project Extent was undertaken using criteria outlined in the Flora and Fauna section of this Referral. This assessment identified:

- Five EPBC Act listed species considered likely to occur within/surrounding the Project Extent
- 15 FFG Act listed species considered likely to occur within/surrounding the Project Extent
- Five EPBC Act species considered possible to occur within/surrounding the Project Extent
- 12 FFG Act listed species considered possible to occur within/surrounding the Project Extent.

Additionally, 61 threatened fauna species have been historically recorded within 5 km of the Project Extent. Records include:

- 49 species listed under the Victorian Rare or Threatened Species (VROTS) advisory lists (DEPI 2013)
- 28 FFG Act listed species
- Eight EPBC Act listed species.

Ecological Community Assets
The EPBC Protected Matters Search identified five threatened ecological communities:

1. Buloke woodlands of the Riverina and Murray-Darling Depression Bioregions (endangered)
2. Grey Box (Eucalyptus macrocarpa) Grassy Woodlands (endangered)
3. Natural Grasslands of the Murray Valley Plains (critically endangered)
4. Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (critically endangered)
5. White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (critically endangered) within the wider Project Extent.

Refer to Part 2, Section 12 for further detail on Ecological Vegetation Class (EVC) composition within a 40m wide trunklines assessment corridor.

Landscape Assets
A total of 17 environmental, landscape and culturally significant planning overlays intersect the Project Extent. Additionally, significant parcels of Crown Land that occur within proximity to the Project Extent that have locally significant landscape value are provided below.

- Kooyoora State Park
- Glenalbyn State Forest
- Inglewood State Forest
- Wedderburn State Forest

It is not expected that the Project will have adverse impacts on landscape values due to its predominantly underground location.

Waterway Assets
Wetlands of national significance within the SWLP Project Extent are provided below.

Nationally significant wetlands include:

- Woolshed Swamp
- Bunguluke Wetlands
- Tyrrell Creek
- Lalbert Creek floodplains

Wetlands listed below are all of international significance (Table 9) and can be avoided.

Table 09: Water bodies to the Project Extent (as per desktop search)

Name	Project area Proximity
Kerang Wetlands	40 - 50km
Hattah-Kulkyne Lakes	200 - 300km
Banrock Station Wetland Complex	300 - 400km
Riverland	300 - 400km
The Coorong, Lake Alexandrina and Albert Wetland	300 - 400km

Locally significant water bodies

The following water bodies are locally significant within the Project Extent:

- Skinners Flat Reservoir
- Volcano Reservoir
- St Arnaud Reservoir
- Laanecoorie Reservoir

There are a total of seven waterways listed as 'high' or 'medium' hierarchy within the Project Extent (Table 10 outlines these). Detailed design will detail the number of times these waterways will require to be crossed.

The (Department of Sustainability and Environment) Vic Map Hydro dataset was referenced to determine the hierarchy of these watercourses within the Project Extent. The Vic Map Hydro dataset hierarchy uses a code to indicate the importance/size of a watercourse. This hierarchy is adequate at this stage of the planning process to be able to reasonably determine the significance of the watercourse in the absence of site based assessment of characteristics and values.

Table 10: Primary waterways within the Project Extent

Waterway Name	Hierarchy
Loddon River	High
Avoca River	High
Bullabul Creek	Medium
Strathfillan Creek	Medium
Campbell Creek	Medium
Bet Bet Creek	Medium
Waranga Western Channel	Medium

All the above mentioned waterways will either be avoided or require HDD technology to minimise impact. Works on Waterways permits will be required from the NCCMA for any crossing.

Cultural Heritage Assets

The planning overlay map in Appendix 5 identifies a number of heritage overlay areas that are located near the 40 meter corridor, however only five potential heritage sites immediately adjoining the concept works (trunkline) have been identified shown in the table below:

Table 11: Heritage Assets within immediately adjoining the concept trunkline

HO Number	Heritage Asset / Building	Town
HO114	Battery/cyanide works Old Inglewood Lead	Inglewood
HO162	Mechanics Institute Calder Hwy	Kurting
HO24	Fentons Creek School	Fentons Creek
HO171	Former "Avoca Forest" Hotel	Logan
HO23	Swanwater Homestead Ruins, Lot 2, LP61763, Parish of Swanwater	St Arnaud

These sites all occur within towns where the placement of the pipeline is likely to occur within existing established corridors of disturbance such as under existing roads.

Aboriginal cultural heritage may also be impacted by proposed pipeline which constitutes a 'high impact activity' that will be undertaken within 'an area of cultural heritage sensitivity' and therefore it is accepted that a Cultural Heritage Management Plan will be required for each stage of the project.

Interaction, engagement and proposed work has commenced in accordance with the *Aboriginal Heritage Act 2006* (Vic) and a Memorandum of Understanding (MoU) between GWMWater and the Dja Dja Wurrung Clans Aboriginal Corporation (DDWCAC). The MoU was officially signed by the two parties on the 6th of October 2016 and is discussed in further detail in Cultural Heritage section of this Referral.

A CHMP (or series of CHMPs if construction will be 'staged') will be prepared as part of Project Planning prior to the commencement of 'significant ground disturbance' activities. An on-ground survey consisting of standard and complex assessment will be undertaken and report prepared as part of the detailed design phase of works. Principles of avoidance and mitigation will be adopted with cultural heritage assessments along the same methodology as environmental impacts.

Findings from this survey will be used to prepare the CHMP that will outline the required minimisation of impacts to identified sites. The Dja Dja Wurrung Clans Aboriginal Corporation will be fully engaged throughout the process and are responsible for consideration and approval of each CHMP (provided it has been prepared to their satisfaction).

Social/ Amenity Assets
Several Nature Conservations Parks, Regional Parks and State Parks are located in proximity to the project area. These parks provide significant social amenity to the area and construction in these areas will be avoided where ever possible. Preliminary designs will be released to various stakeholders and landholders and any proposed impact areas will be further identified by locals. This will then provide an opportunity, prior to detailed final design to avoid or mitigate social amenity impacts.

St Arnaud Regional Park: St Arnaud Range National Park features mainly steep, forested terrain and is an ideal place to experience what the forests of Central Victoria were like before the gold rushes.

Kooyoora State Park: Kooyoora State Park is a 11,350ha reserve comprising box-ironbark forest and rocky granite outcrops, including the Melville Caves.

Mount Korong Scenic Reserve: Mt Korong is located approximately 15 kilometres south east of Wedderburn. At 364 metres above sea level, it is a dominant feature of the local landscape and is clearly visible from the Calder Highway and several other points around Wedderburn.

Inglewood Flora Reserve: The Inglewood Flora Reserve is a 1200ha conservation reserve adjacent to Inglewood.

Wychitella Nature Conservation Reserve: This 6905ha reserve is broken up into 13 different blocks surrounding the Wedderburn township. This reserve is home to significant flora and fauna, including 12 threatened species, Wychitella NCR is located in Victoria's Golden Triangle.

Public land within the 40m wide trunklines assessment corridor is summarised in Appendix 3.

Impacts to the public lands by the construction of the trunklines will be significantly reduced through further detailed analysis during the design phase with impacts to the higher order reserves being avoided altogether. These objectives are written into the design principles so where the contractor identifies areas of impact in higher order public land they must demonstrate that all other alternatives have been considered.

Soils and subsurface Assets
A desktop assessment of the soil types (as per Australian Soil Classifications) present within the Project Extent is presented in Part 2, Section 14.

9. Land availability and control

Is the proposal on, or partly on, Crown land?
☐ No ☒ Yes If yes, please provide details.

The SWLP will be constructed partly on Crown land. There will be a number of Crown land parcels impacted by the construction works, principally road and waterway crossings, that are crossed parallel to the Crown land corridor so as to form a consistent methodology where possible when crossing Crown land and to minimise the area of impact to each land parcel. In the rare case that values are lower within the Crown land corridor compared to adjacent private property, the Crown land will be favoured to form the pipeline alignment.

The majority of Crown land crossings will be via trenchless techniques although some crossings that have low or no value or significance may be trenched.

The trunklines assessment corridor intersects 35.82Ha of Crown land, 2.32% of the total corridor. It is expected that the distribution network will cross a number of Crown land parcels although the same crossing methodology will be adopted, it is not possible to provide further detail or clarity until the system has been designed.

Current land tenure (provide plan, if practicable):

Interpreting the land zone breakdown within the planning scheme, the land tenure within the trunklines assessment corridor consists of approximately 94.8% private property and 5.2% public land. The distribution system is likely to impact a similar ratio of private land to public land.

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

GWMWater intend to negotiate an easement over pipelines that are 300mm in diameter or greater. It is estimated that less than 70km of trunk main will require an easement with access to the remainder of the land negotiated via land access agreements with landowners.

GWMWater may acquire some land for the nine pump stations but prefers to acquire these through easements.

Land access agreements will provide GWMWater with permission to enter properties in order to undertake surveys, pre-clearing, construction and reinstatement; returning the property to a condition that is acceptable to the landholder following completion of construction.

Other interests in affected land (e.g. easements, native title claims):

Table 12 lists the tenements that are intersected by the 40m wide trunklines assessment corridor:

Table 12: Tenements intersected by the 40m wide trunklines assessment corridor.

Type	Tenement No.	Owner
Exploration Permit	GEP19	TBA
Exploration Permit	GEP1	TBA
Extractive Industry - Work Authority	WA622	Kevin Joseph Hewitt
Prospecting Licence	PL006255	Mark Williams
Exploration Licence	EL5503	Roger Ostrowski
Exploration Licence	EL5485	Castalian Exploration Pty Ltd
Exploration Licence	EL006312	Michael Feldman

Exploration Licence	EL006036	Ironbark Mining Pty Ltd
Exploration Licence	EL4363	Bora Bora Resources Ltd
Exploration Licence	EL006176	Dunolly Gold Developments Pty Ltd
Exploration Licence	EL3270	Dunolly Gold Developments Pty Ltd
Exploration Licence	EL5510	Terry Frerk
Exploration Licence	EL5384	Bora Bora Resources Ltd
Exploration Licence	EL5529	MG Gold Pty Ltd
Exploration Licence	EL4214	Ironbark Mining Pty Ltd

Each tenement holder will be consulted regarding the SWLP, following confirmation of the preliminary alignment, in order to inform them of the Project and identify any areas of concern.

There are likely to be several other easements, encumbrances and third party interests on land that will be within the SWLP construction corridor. These will be identified following confirmation of the preliminary alignment and those interests will be notified of the intended works with any additional location information or notification protocols being noted in advance of construction.

Crown land in the project area is subject to the Dja Dja Wurrung Clans Aboriginal Corporation Land Use Activity Agreement (LUAA). There is an agreed process to follow to notify or negotiate for works on Crown land which will be followed once the specific alignment is known. The South West Loddon Pipeline is likely to be a “negotiation” activity given that it is new infrastructure. GWMWater will work through the process with Dja Dja Wurrung in parallel to the CHMP process under the auspices of the MoU.

10. Required approvals

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

Commonwealth legislation

Table 13: Commonwealth Legislation

Act	Relevant agency	Implications	Stage
Native Title Act, 1993	Existing MoU between Dja Dja Wurrung Clans Aboriginal Corporation and GWMWater	Compliance for future acts is reached via the requirements of section 24 of the *Native Title Act 1993.*	Construction
Environment Protection and Biodiversity Conservation Act, 1999	Department of the Environment and Energy (DEE)	This Act provides a framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places of national environmental significance. Under this Act. GWMWater has commenced discussions with the Commonwealth and will refer under the EPBC Act if after flora and fauna surveys identify species and that planning and construction methods can't avoid impact. Previous experience indicates that avoidance can be achieved.	Planning / Early Works

State legislation

Table 14: State Legislation

Act	Relevant agency and other stakeholders	Implications	Stage
Aboriginal Heritage Act, 2006	Aboriginal Victoria is responsible for implementation of the Act.	This Act enables the protection, preservation and management of Victoria's Aboriginal (indigenous) heritage through *Registered Aboriginal Parties (RAPs)*. Under this Act, a Cultural Heritage Management Plan (CHMP) or a series of CHMPs are required to be prepared. Preparation of a CHMP, or series of CHMPs if construction will be 'staged', as part of Project Planning prior to the commencement of 'significant ground disturbance' activities.	Planning / Early Works/ Construction
Catchment and Land Protection Act, 1994 (CaLP Act)	Objective to provide for the control of noxious weeds and pest animals. Works on or affecting waterways will need to be compliant with the requirements of *Catchment and Land Protection Act 1989* and be consistent with strategies and policies flowing from the Act.	Weed and Pest species will be managed within the Construction Environmental Management Plan (CEMP). Works on Waterways permit will be obtained from North Central Catchment Management Authority as required	Early Works/ Construction
Crown Land (Reserves) Act	DELWP	Licence or consent may be required for Crown land occupation. Will depend on land tenure.	Early Works/ Construction
Environment Effects Act, 1978	Department of Environment, Land, Water and Planning (DELWP)	Assesses the proposed impact on Environmental Assets by the construction and operation of the SWLP. The Minister will consider the extent to which the Project is capable of having a significant effect on the environment. Preparation of a Referral of the Project (this document)	Planning
Environment	The Act provides a	Principles of the Act will be adopted during	Early Works/

al Protection Act, 1970	legal framework to protect the environment in the State of Victoria. It applies to noise emissions and the air, water and land in Victoria and to the discharge of waste from any premises in Victoria. Under the Act are a number of subordinate policies including state environment protection policies (SEPPs) and waste management policies (WMPs). The Project will comply with all relevant SEPPs and WMPs.	planning, design, construction and operation of the SWLP. Waste, Noise, Vibration and Air Quality Management will be managed within the CEMP	Construction
Fisheries Act 1995	The *Fisheries Act 1995* provides the legislative framework for the regulation, management and conservation of Victorian fisheries including aquatic habitats.	Permit required to take, injure, damage, destroy, possess, keep or display for reward any declared protected aquatic biota. Listed protected aquatic species include all fish or aquatic invertebrates listed under the *Flora and Fauna Guarantee Act 1988*.	Construction
Flora and Fauna Guarantee Act, 1988	Department of Environment, Land, Water and Planning (DELWP)	The *Flora and Fauna Guarantee Act* (FFG Act) is the primary Act for the protection of threatened native flora and fauna within Victoria. The FFG Act provides safeguards for the following: •Threatened native flora and fauna; •Threatened communities of native flora and fauna; •Protected flora; •Potentially threatening processes. The FFG Act applies to all public land. Permits are required under the FFG Act for the taking of listed (threatened or protected) species in these areas Proponent is required to manage any threatening process listed under the Act. Appropriate controls to manage the effects of the construction will be implemented. The extent to which this will be required will be determined during the design and assessment phase of the work.	Early Works / Construction
Heritage Act, 1995	Approval is required to undertake any works to a place listed.	To be confirmed once alignment is determined under a CHMP	Construction
Land Act 1958	Approval is required for buildings and works and to occupy permanently or temporarily unreserved Crown land (on a permanently or temporarily basis)	Consent to access land and to undertake investigations have been obtained to date.	Early Works / Construction
National Parks Act	Parks Victoria	Section 27 Consent required to occupy if NP is crossed.	Early Works /

			Construction
Planning and Environment Act, 1987	Minister for Planning	GWMWater will request that the Minister exercises his powers under section 20(4) of the *Planning and Environment Act* 1987 to prepare, adopt and approve a Planning Scheme Amendment (PSA).	Planning / Early Works
Roads Management Act, 2004	VicRoads or relevant local government authority	Requires the preparation of a Traffic Management Plan and consent to conduct works within a road corridor from the relevant authority, VicRoads or in the case of the local Council a works within road reserve permit. Prepare a Traffic Management Plan and consult with relevant authority. May require permit for works within road reserve.	Early Works / Construction
Traditional Owner Settlement Act 2010	The Victorian Department of Justice and Regulation is the lead agency. Existing MoU between Dja Dja Wurrung Clans Aboriginal Corporation and GWMWater.	Compliance for land use activities is reached via the requirements of the Dja Dja Wurrung Land Use Activity Agreement (LUAA) that exists between the Dja Dja Wurrung Clans Aboriginal Corporation and the State of Victoria, prepared under the State *Traditional Owner Settlement Act 2010.*	Early Works / Construction
Water Act, 1989	North Central Catchment Management Authority (CMA)	This Act governs water entitlements and establishes the mechanisms for managing Victoria's water resources. Works and activities within the bed and banks of designated waterways in the north central region of Victoria require a licence. Section 67 Requires a license for works and activities in waterways including beds and banks. Consult with CMA.	Early Works / Construction
Wildlife Act 1975	The Wildlife Act establishes the framework for the protection of the State's native wildlife. The inspection, removal or relocation of fauna species for the Project would require a permit under the Wildlife Act 1975.	Approval is required to remove habitat for fauna (if not already covered by approval to remove native vegetation).	Early Works / Construction

Public land owner consent

GWMWater or contractors will initiate the public land consent process as soon as a specific alignment is known and the responsible crown land managers can be identified. DELWP, as representative of the land owner, will be provided with all parcel details, a planning report for each parcel and appropriate mapping (including shapefiles). Crown land managers such as VicTrack and Parks Victoria will also be notified and provided with information as soon as the pipeline route is confirmed. Requests for crown land owner's and manager's consent will be forwarded in a bulk email to loddonmallee.planning@delwp.vic.gov.au for each stage. Approvals to proceed will be secured prior to commencement of works on each parcel of public land.

All other Public Land stakeholders (including Dja Dja Wurrung Clans Aboriginal Lands Corporation) will be contacted once the preliminary alignment has been confirmed and will be fully briefed with regard to planned infrastructure. Compliance for future acts is reached via the requirements of section 24 of the *Native Title Act 1993*.

GWMWater or contractors will work collaboratively with crown land owners and managers to

obtain the relevant permissions required for construction and operation of the SWLP.

Rail authority consent/ other 3rd party consent
Contractors will seek approvals from VicTrack and other third parties once the specific alignment is known. Approvals to proceed will be secured before works start on particular areas of land requiring additional consents.

Other
Through the design phase of the project planning, all relevant approvals will be obtained. No construction will take place until approvals and compliance with relevant legislation can be demonstrated.

Have any applications for approval been lodged?
☒ No ☐ Yes If yes, please provide details.

Approval agency consultation (agencies with whom the proposal has been discussed):

Commonwealth Department of Environment and Energy
The Project team held a pre-referral meeting with representatives of the Department of Energy and Environment on 8 March, 2017. Whilst through detailed design and application of avoidance and mitigation measures it is highly unlikely that GWMWater will require a referral, GWMWater is considering an early referral. Based on discussions this could be useful to consider contingencies for the management of species if a situation of impact cannot be avoided later in the design phase.

DELWP engagement
GWMWater has been in consultation fortnightly with DELWP since the start of September, 2016 and had been in discussions six months prior, when the business case was being developed.

Other agencies consulted:
The project has a project steering committee that has met regularly since June 2015. The Project Steering Committee consists of the following agencies:

- Loddon Shire Council
- Coliban Water
- Goulburn Murray Water
- North Central CMA
- Regional Development Victoria
- Landholders
- DDWCAC

A customer committee has also been established and discusses local issues relevant to the community and landholders. Members of this group consist of:

- Landholders
- Victorian Farmers Federation
- Wedderburn Conservation Management Network
- Trust for Nature (regarding their properties within the Project Extent)

The Northern Grampians Shire Council has also been engaged for their support in connecting landholders to the project in their community and for pursuing a Planning Scheme amendment (Appendix 6)

The remaining approval agencies will be consulted when details of locations are known. At this point in the Project there is not enough information to properly engage with these agencies.

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):

In respect of potential environmental impacts associated with construction of the proposed pipeline, it is important to note that the construction process provides for a high degree of flexibility. In terms of the pipeline, there is considerable potential to realign the route during the design process to avoid sensitive areas such as vegetation. Similarly, ancillary infrastructure can be specifically located in areas which do not have sensitive environmental, cultural or social values as this infrastructure is not tied to a specific location. Additionally, where sensitive areas such as vegetation or watercourses cannot be avoided, HDD can be used to place the pipeline beneath the sensitive area.

Based on evidence from a comparable project and experience across 10,000km of pipelaying, GWMWater expects that a very large percentage of vegetation clearance can be avoided from that required under the 'worst case scenario' with design and realignment intervention.

While there are likely to be sites along the alignment where some level of impact is unavoidable, active management during the design and construction phases should enable these impacts to be minimised.

An early part of the planning process for the SWLP is to identify potentially significant areas of sensitivity and assess the potential environmental effects.

To do this, a desktop environmental risk assessment session was conducted to assess the, environmental assets/values likely to be located within the 40m corridor identified for the trunk mains.

The environmental risk assessment identified that the Project has the potential to impact the following assets:

- Cultural heritage
- Non-aboriginal Cultural Heritage
- Native vegetation
- Threatened flora and fauna species.
- Waterways and water environments
- Landscapes and soils
- Social environments

'Worst Case' concept

Mapping of the trunklines has been prepared as part of the reference material of this Referral (Appendix 1). The pipeline has been placed within a 40m assessment corridor which has been prepared to reflect a 'worst case' concept. Disturbance during construction will not exceed 15m and will be reduced further where species or sensitive activities have been identified that cannot be avoided using plough in methodology or HDD. Vehicle turn-arounds, material laydown areas and drill pad location for trenchless crossings will require a greater corridor width but these locations are flexible and can be located in areas of no environmental or cultural value.

Values presented in this Referral concentrate on the 40m wide trunklines assessment corridor that traverses the Project Extent. This assessment provides an assessment of potential effects across a large area and it has been assumed for this Referral that the identified habitat would also be located in the planned distribution system that is yet to be designed or assessed.

The key sources of potential impacts were identified as:

- Disturbance caused by the construction process, specifically:
    - Soil movement and replacement
    - Vehicle and machinery movement
    - Formation of temporary site access

- Laydown and vehicular turnaround preparation
- Installation of valves and meters
- Construction of storages and pump stations
- Power lines upgrade connections.

Summarised in Table 15 below are the key construction activities and maximum ground disturbance areas.

Table 15: Key Construction activities and maximum ground disturbance areas

Construction Element	Maximum Construction Length (m)	Maximum Construction Width (m)	Maximum Number	Total Ground Disturbance Area (Ha)
Trunk lines	360,000	15	1	540
Distribution lines	1,000,000	15	1	1,500
Storage	300	300	1	9
Pump stations (incl. booster pump stations *	30	20	9	0.54
Offtake at Waranga West Channel *	50	35	1	0.175
Laydown/storage (1 per 50km) *	200	185	27.2	100
Access points/ temporary access (1 per 800m) *	10	10	1,700	17
Installation of air valves (from pipeline to fence line)	10	3	1,700	5.1
Vehicular turnarounds (1 per 2km) *	40	35	680	95.2
Water meter installation*	10	3	633	1.9
Power line installation to pump stations*	250	10	9	2.25
Total Maximum Project Ground Disturbance Area				**2,271.2**
Total % Ground Disturbance Area within Project Extent (289,794Ha)				**0.78%**

At this point in time, the extent of impact within the ground disturbance area cannot be confirmed. The assessments conducted to date however provide a relatively high level of confidence that the species identified in the trunk line assessments can largely be avoided as outlined above. Items with an asterisk (*) shown above have the flexibility of being located in areas of cleared land and will largely have no species or habitats impact. The majority of the impact would be confirmed to the trunk and distribution lines.

The key potential impacts that construction and operation of the SWLP may have on the natural environment were identified as:

Vegetation, flora, fauna

- Proposed native vegetation removal from endangered Ecological Vegetation Classes (EVCs) or very high conservation significance vegetation will exceed regulatory triggers in relation to Environmental Effects or EPBC that would deem the Project to have a 'significant' impact on environmental assets and values
- Activities associated with construction damage or destroy protected habitat, listed species or threatened/ endangered vegetative communities

Water environments

- Uncontrolled ground disturbance activities impact listed aquatic species and habitat
- Ineffective site based controls lead to sedimentation of waterway and transport of silt/soil off site
- Ineffective reinstatement leads to long term impact on waterway crossing location
- Ineffective scheduling leads to water flow in ephemeral waterways prior to reinstatement of work
- HDD - uncontrolled discharge or drilling fluids.

Landscape and soils

- Disturbance to high value/sensitive landscapes during construction phase
- Intermediate disturbance to high value sites caused by vegetation removal
- Permanent alteration of landscape features through disturbance during construction (i.e. benching through rock areas)
- Permanent introduction of new above ground infrastructure (pump stations, storages, valves, signage markers) impact surrounding landscape
- Erosion/ mixing of topsoil and subsoils; sedimentation of waterway; sub-standard reinstatement/rehabilitation in problem soil areas.

Social environments

- Excessive impact on local roads, road users and adjacent landholders/ residents from traffic during construction
- Excessive dust, mud, noise, odour causes off-site impact and complaint
- Change in land use through construction of above ground infrastructure
- Weed transfer caused by construction vehicles, machinery and personnel movement between properties
- Disturbance to known and unknown sites of aboriginal and non-aboriginal significance.
- Harm to cultural heritage artefacts and landmarks.

Energy, waste and greenhouse gas

- Emissions during construction generate exceedances. Inefficient design, equipment and energy use lead to a more costly operation of the SWLP
- Waste generated by the project cannot be disposed in an efficient way/ causes environmental and social nuisance
- Sustainability value of the SWLP is scrutinised by Government.

Facilitated activities

- Disturbance of threatened species, communities, native vegetation, areas of cultural significance and other areas of sensitivity.

Key uncertainties

Whilst mapping has identified potential environmental values that may be encountered during the Project (Appendix 8), the extent of impact will not be known until on-ground survey work, including seasonal surveys, has been undertaken and the principles of environmental management applied to the project in line with the approved CEMF and EMP. On similar projects from first survey to final alignment on a RoW assessment corridor of 15m (not 40m) a reduction of 90 per cent of the potential impact on vegetation removal had been achieved with no specific offsets being required. That is, required general biodiversity units for offsetting were reduced by 90 per cent after avoidance and mitigation practices were employed.

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.

In order to identify likely areas of native vegetation presence and value, Environmental Control Points (ECPs) have been prepared and appear on the supporting mapping of trunklines corridor for this Referral (Refer to Appendix 8).

ECPs have been identified by referencing the existing desktop Ecological Vegetation Class (EVC) mapping dataset for areas that overlap the 40m wide assessment corridor and also by visually reviewing aerial imagery and highlighting locations that are outside of the mapped EVC layer but look highly likely to contain native vegetation. Any reference to trenchless crossing within Appendix 8 is provisional and will be confirmed by on-site inspection.

A summary of the extent of each EVC within the Project Extent is provided in Table 16 below. This table also includes which bioregion the EVC occurs in along with its bioregional conservation status.

In order to understand the potential impacts on native vegetation under a worst case scenario and the likely vegetation offset requirements, a Biodiversity Impact Offset Requirement (BIOR) report has been prepared by DELWP based on a worst case scenario of native vegetation loss (Appendix 10). This was achieved by using DELWP's EnSym Native Vegetation Regulation Tool to understand the quantum of biodiversity offsets required for this project under a worst case scenario. The EnSym Tool uses DELWP's 2013 Native vegetation extent mapping across the entire 40m corridor Project Extent and has also used a Strategic Biodiversity Score of 0.374 across the Project Extent. The results of the BIOR report indicated that under a worst case scenario there would be a biodiversity offset requirement of 3.729 General Biodiversity Equivalence Units and Specific Biodiversity Equivalence Units (SBEU) for 42 species.

Appendix 9 provides a worst case scenario of native vegetation loss for this project, i.e. no controls identified in the CEMF, EMP or CEMPs. It also provides a list of species triggering a specific offset along with the proportional impact threshold for particular species. The proportional threshold is the amount of clearance of a species important habitat (modelled) to trigger a specific offset requirement. When the proportional impact on a species is above the set threshold of 0.005%, a specific offset is required.

Clearance of remnant vegetation in areas that trigger a specific biodiversity offset will be reduced to below the 0.005 proportional threshold of remaining modelled habitat (DELWP habitat importance map) for that species. Where this cannot be achieved, specific biodiversity offset will be sought in accordance with the Permitted clearance of native vegetation - Biodiversity assessment guidelines.

The Project will minimise impacts on native vegetation by undertaking a detailed on ground ecological assessment of all ECPs that have been identified by desktop mapping provided in Appendix 8.

Surveys will be conducted by qualified and experienced personnel, independent yet in parallel with the design phase. GWMWater will determine which recommendations, based on the avoidance and minimisation principles, are incorporated into the design phase to avoid a conflict. The recommendations will be adopted and incorporated into the CEMP.

Another deliverable of the ecological survey will be the preparation of an Offset Management Plan that will determine the type and quantity of offsets required for each phase of construction.

A key planning commitment for the Project is to apply the principles of avoidance and minimisation in pipeline alignment selection. This will be achieved by designating buffer zone for different types/ qualities and environmental assets, including:

a) 1m buffer around vegetation with VQA score <20
b) 1.5m buffer around vegetation with VQA score <20 and /or TPZ of trees within remnant patch- whichever is greater.

and via:

- Re-alignment around environmental assets
- Horizontal Directional Drill (HDD) – or other trenchless technology - underneath environmental assets
- Prioritising 'plough-in' methodology through sensitive areas.

A separate Arborist assessment may be required in order to assess the impacts of construction on trees adjacent to the proposed construction alignment with Tree Protection Zones (TPZ) being determined for trees that will be retained.

These principles will be incorporated into the EMP and CEMPs for each stage.

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

Refer to the above section.

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

☒ NYD Estimated area ……(hectares)

As discussed in previous sections, detailed on-ground assessment is required to determine the full extent of native vegetation that will require removal. Detailed survey and design is also required in order to confirm proposed construction methodology where trenchless crossings have been nominated on the concept plan. This Referral has utilised the worst case scenario approach, across a 40m corridor on trunk mains to assess vegetation clearance noting that this level of loss will not eventuate due to the avoidance measures outlined in previous sections.

Based on comparable projects on a maximum corridor desktop assessment of 15m, a reduction of up to 90 per cent of vegetation clearance can be avoided by realignment of the pipeline to avoid the vegetation at identified ECPs and or adoption of different trenching technology (reducing the RoW to less than 8m) and application of HDD.

In order to determine the maximum area of native vegetation that may need to be cleared, the total extent of each Ecological Vegetation Class (EVC) within the Project Extent for the trunk main is summarised in Table 16 and includes the bioregion in which the EVC is located along with its bioregional conservation status. It serves as a worst case scenario of native vegetation loss for this project across the trunk mains.

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

☒ N/A …… approx. percent (if applicable)

Which Ecological Vegetation Classes may be affected? (if not authorised as above)

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

Ecological Vegetation Class Analysis

The trunklines assessment corridor contains 402.45ha of mapped Ecological Vegetation Class (EVC) (Table 16). Of this, 20.2% of the total corridor, or approximately 291.18ha, is categorised as either Vulnerable or Endangered EVCs.

Applying an estimate of potential EVC across the possible 1,360km of pipeline (trunk and distribution), within the 40m assessment corridor, there could be up to 1,100ha of EVCs classified as either Vulnerable or Endangered to manage.

The construction methodology and design will avoid impacting the vast majority of EVC as indicated in various sections of this referral and in accordance with the CEMF located in Appendix 2.

Table 16: Significance, Bioregion and indicative area of Ecological Vegetation Classes contained within the

40m SWLP Concept Trunklines assessment corridor.

EVC Name	Status	Bioregion	Area (Ha)
Box Ironbark Forest	Depleted	Goldfields	46.471
Heathy Woodland	Depleted	Goldfields	8.750
Hillcrest Herb-rich Woodland	Depleted	Goldfields	2.102
Hills Herb-rich Woodland	Depleted	Goldfields	3.924
Creekline Grassy Woodland	Endangered	Victorian Riverina	5.169
Creekline Grassy Woodland	Endangered	Goldfields	9.866
Floodplain Riparian Woodland	Endangered	Goldfields	4.032
Grassy Woodland/Alluvial Terraces Herb-rich Woodland Mosaic	Endangered	Victorian Riverina	0.330
Grassy Woodland/Alluvial Terraces Herb-rich Woodland Mosaic	Endangered	Goldfields	28.420
Plains Grassland	Endangered	Victorian Riverina	13.961
Plains Woodland	Endangered	Victorian Riverina	62.174
Plains Woodland	Endangered	Wimmera	0.410
Plains Woodland	Endangered	Goldfields	28.729
Riverine Chenopod Woodland/Lignum Swamp Mosaic	Endangered	Wimmera	1.050
Wetland Formation	Endangered	Goldfields	1.771
Sandstone Ridge Shrubland	Least Concern	Goldfields	50.026
Floodplain Riparian Woodland	Vulnerable	Victorian Riverina	0.137
Grassy Woodland	Vulnerable Endangered	Victorian Riverina	0.000
Grassy Woodland	Vulnerable	Goldfields	130.101
Grassy Woodland/Heathy Woodland Mosaic	Vulnerable	Goldfields	1.447
Lignum Swamp	Vulnerable	Victorian Riverina	1.687
Sandstone Ridge Shrubland/Low Rises Woodland Mosaic	Vulnerable	Goldfields	1.896
		EVC Total Area (Ha)	**402.453**
		EVC Total Area (Ha) for trunk and distribution lines (1,360km x 40m)	**1,520.38**

Have potential vegetation offsets been identified as yet?

☒ NYD ☒ Yes If yes, please briefly describe.

An Offset Management Strategy has been drafted as part of the draft CEMF (Appendix 2) and once approved, will guide the project in how offsets will be managed throughout the project.

The Offset Management Strategy identifies that GWMWater will rely on a pool of offsets to meet any offset requirements of this project. The pool is periodically reviewed against forecast offset requirements.

A register of all offset credits owned by GWMWater is maintained, including where offsets have been allocated to account for native vegetation losses associated with completed works.

First and third party offsets are sporadically purchased on an as needs basis, if offsets are not available within the existing pool to meet requirements.

An Offset Management Plan will be developed as part of the CEMP prior to each stage of construction.

Where suitable offsets are not available through any of the methods mentioned, DELWP is consulted as to an appropriate solution for meeting approval requirements of the Project.

Other information/comments? (e.g. accuracy of information)

Accuracy of information is heavily dependent on desktop spatial datasets presently. It is acknowledged that detailed on-ground assessment of likely sensitive environmental and cultural areas along the concept pipeline corridor is required to determine the presence or absence of environmental and cultural assets.

It is also acknowledged that no detailed desktop assessment has been undertaken for the distribution lines, however the potential to encounter similar sensitives areas to the 40m trunk main corridor assessment is likely.

NYD = not yet determined

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 Desktop Assessment

A preliminary desktop assessment of the SWLP has been undertaken using available GIS spatial datasets. The purpose of this was to refine pipeline alignments to avoid impacts on known protected flora locations and fauna habitat based on DELWP data sets. This will be further verified during the design and assess phase prior to on-ground survey of the assessment corridor.

Desktop assessment of the wider Project Extent has been undertaken to provide an accurate reflection of the type of flora, fauna and vegetative communities that may be present within the broader survey corridor. This included an EPBC Act Protected Matters Search as well as interrogation of all valid State spatial datasets.

Data extracts from the Victorian Biodiversity Atlas (VBA) have been based on a 5km search buffer surrounding the Project Extent. A 1km buffer was applied to the Project Extent for the EPBC Protected Matters Search Tool (PMST). The extensive search areas applied during the flora and fauna database search are used to compensate for a potential lack of historical surveys within the Project Extent and its immediate surrounds. This approach also allows for the identification of mobile species such as birds which may have the potential to interact with the Project Extent on an intermittent and opportunistic manner. Analysis of this data has taken into consideration the ecological value and attributes of the Project Extent when compared to the broader landscape.

An assessment has been undertaken to assess the likelihood of Commonwealth and State listed threatened species occurring within proximity of the Project Extent based on desktop information. This method considers the habitat requirements of threatened species, as identified by desktop searches, along with how recently the species has been recorded within the search extent and quantities of past records.

The following criteria were applied to determine the likelihood of species occurring within the Project Extent:

- Known: Species recorded within the Project Extent within the last 5 years
- Likely: Species recorded within or near the project in last 20 years and suitable habitat is likely to occur within the Project Extent
- Possible: Species recorded within or near the Project Extent with records >20 years old and/or little/low quality suitable habitat occurs within the Project Extent
- Unlikely: Very old records (>40 years) and/or little/low/no suitable habitat within the Project Extent and/or other reason the species is unlikely to occur.

Threatened Flora Analysis

A desktop review of threatened flora species historically recorded within 5 km of the Project Extent as well as flora species identified by the EPBC Act Protected Matters Search Tool was undertaken. This identified 110 flora species.

An assessment of the likelihood of species occurring within and surrounding the Project Extent was undertaken using criteria stated above. This assessment identified:

- One FFG Act listed species as known to occur within the Project Extent.
- Four EPBC Act species considered likely to occur within/surrounding the Project Extent
- 11 FFG Act listed species considered likely to occur within/surrounding the Project Extent
- Three EPBC Act species considered 'possible' to occur within/surrounding the Project Extent
- Eight FFG Act listed species considered 'possible' to occur within/surrounding the Project Extent.

Additionally, 93 threatened flora species have been historically recorded within 5 km of the Project

Extent. Records include:

- 44 species listed under the Victorian Rare or Threatened Species (VROTS) advisory lists (DEPI 2013)
- 22 FFG Act listed species
- 9 EPBC Act listed species.

Threatened flora species records and likely presence within the project extent is included in Appendix 11.

Based on the findings of the threatened flora analysis, it is known that one flora species listed under the FFG Act is known to occur within the Project Extent. This is Kamarooka Mallee *Eucalyptus froggattii,* a Mallee tree to 9 m tall identified by its dark, rough box-type bark and glossy crown. This species has been recorded 27 times within 5km of the Project Extent with the most recent recoding in 2012 within the Wedderburn – Serpentine road reserve within the Project Extent. It is likely this species may occur elsewhere within the Project Extent. The species is restricted to Mallee-type vegetation in central and western parts of Victoria.

A threatened flora analysis is included in Appendix 12.

Suitable habitat for the threatened species shown in Appendix 12 is likely to be restricted to areas within the Project Extent that contain moderate to good quality vegetation (i.e. HabHa condition score $\geq$40) which is likely to be limited to areas of public land including public reserves, road reserves, waterways and some areas of private land containing remnant vegetation. As a result, Vegetation Quality Assessments will be undertaken along the entire Project Extent to identify areas of high quality vegetation.

High quality vegetation areas will be avoided either by realigning or reducing the Project Extent to avoid such areas or by implementing trenchless construction methods. Additionally, the species listed above will be the subject of targeted flora surveys undertaken as part of Phase 1 of the project (Assess and design) to identify the presence of significant species within the Project Extent. If EPBC or FFG listed species area identified, these species will be avoided by applying environmental management practices identified in section 18.

Clearance of remnant vegetation in areas that trigger a specific biodiversity offset will be reduced to below the 0.005 proportional threshold of remaining modelled habitat (DELWP habitat importance map) for that species. Where this cannot be achieved, specific biodiversity offset will be sought in accordance with the Permitted Clearance of Native Vegetation- Biodiversity Assessment Guidelines.

Threatened Fauna Analysis

A desktop review of threatened fauna species historically recorded within 5 km of the Project Extent as well as fauna species identified by the EPBC Act Protected Matters Search Tool was undertaken. This identified 77 fauna species.

An assessment of the likelihood of species occurring within and surrounding the Project Extent was undertaken using criteria stated in the above. This assessment identified:

- Five EPBC Act listed species considered likely to occur within/surrounding the Project Extent
- 15 FFG Act listed species considered likely to occur within/surrounding the Project Extent
- Five EPBC Act species considered possible to occur within/surrounding the Project Extent
- 12 FFG Act listed species considered possible to occur within/surrounding the Project Extent.

Additionally, 61 threatened fauna species have been historically recorded within 5 km of the Project Extent. Records include:

- 49 species listed under the Victorian Rare or Threatened Species (VROTS) advisory lists (DEPI 2013)
- 28 FFG Act listed species

- 8 EPBC Act listed species.

Threatened fauna species records within the project extent are listed in Appendix 13.

Based on the findings of the threatened fauna analysis, two fauna species listed under the FFG Act are known to occur within the Project Extent and have been recorded within the last 20 years. These are:

- Crested Bellbird Oreoica gutturalis gutturalis
- Hooded Robin Melanodryas cucullata cucullata

The Barking Owl has been recorded within the Project Extent greater than 20 years ago.

The Crested Bellbird is a medium-sized bird. It is endemic to mainland Australia and occurs from semi-arid coastlines to the Australian interior. This species has been recorded 98 times within 5km of the Project Extent with the most recent recoding in 2006. The species has been recorded once within the Project Extent in 1999 adjacent to Brenenah – Kurting Road. After reviewing this record, it appears likely that the sighting occurred within the adjoining road reserve, not within the Project Extent. It is likely this species may frequent habitat elsewhere within the Project Extent. The species is found in eucalypt woodlands, spinifex, acacia scrublands and saltbush plains or dunes.

The Hooded Robin is a medium-large sized bird. It is found all over mainland Australia, except for on the Nullarbor Plain, south of the Kimberley Ranges, Cape York, eastern Gulf of Carpentaria or inland around the Simpson Desert. This species has been recorded 101 times within 5km of the Project Extent with the most recent recoding in 2010. The species has been recorded once within the Project Extent in 1999 adjacent to Brenenah – Kurting Road. After reviewing this record, it appears likely that the sighting occurred within the adjoining road reserve, not within the Project Extent. It is likely this species may frequent habitat elsewhere within the Project Extent. The species is found in lightly timbered woodland, mainly dominated by a eucalypts and/or acacia.

A threatened fauna analysis is included in Appendix 14.

Although suitable habitat for these species is likely to occur within the Project Extent, this will most likely be restricted to woodland areas of moderate to good quality that provide a range of feeding options. These areas are likely to be restricted to areas of public land including public reserves, road reserves, waterways and few areas of private land containing remnant vegetation. Areas of high to moderately high quality vegetation will be avoided either by realigning or reducing the Project Extent to avoid such areas or by implementing trenchless construction methods (as described in Section 3). This will result in most areas that may provide suitable habitat of threatened fauna species being avoided.

As such, the Project should not have unacceptable adverse impacts on fauna species found along the pipeline alignment.

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.

Listed Flora and Fauna species have been identified within the Project Extent through the desktop assessment. Species on the Victorian Advisory List have also been identified. Threatened species of flora and fauna are listed in Appendix 11 and 13.

Where there is the potential for impact, ground-truth surveys will determine the presence or absence of these species prior to construction. If these listed species or any others are located within or adjacent to the construction footprint then principles of avoidance or impact minimisation will be applied.

As part of the CEMF, GWMWater will prepare a threatened species management framework for the construction contractor to apply during construction. This will contain principles that shall be applied through detailed design and assessment to protect identified species and their habitat.

Listed migratory species and their likelihood of occurring within the Project Extent are listed in Appendix 15.

Ecological Communities

The EPBC Protected Matters Search identified five threatened ecological communities:

1. Buloke woodlands of the Riverina and Murray-Darling Depression Bioregions (endangered)
2. Grey Box (Eucalyptus macrocarpa) Grassy Woodlands (endangered)
3. Natural Grasslands of the Murray Valley Plains (critically endangered)
4. Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (critically endangered)
5. White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (critically endangered) within the wider Project Extent.

The following communities of Flora and Fauna on the FFG Threatened List may be impacted by the project:

- Butterfly Community No. 1
- Creekline Grassy Woodland (Goldfields) Community
- Grey Box - Buloke Grassy Woodland Community
- Lowland Riverine Fish Community of the Southern Murray-Darling Basin
- Northern Plains Grassland Community
- Red Gum Swamp Community No. 1
- Semi-arid Herbaceous Pine Woodland Community
- Semi-arid Herbaceous Pine-Buloke Woodland Community
- Semi-arid Northwest Plains Buloke Grassy Woodland Community
- Semi-arid Shrubby Pine-Buloke Woodland Community
- Victorian Mallee Bird Community
- Victorian Temperate Woodland Bird Community

An assessment of the likelihood of the above EPBC Act ecological communities (Appendix 16) and FFG Act flora and fauna communities (Appendix 17) occurring within and surrounding the Project Extent was undertaken using criteria stated under the subheading 'Preliminary Desktop Assessment' above.

An assessment of the likelihood of these communities occurring within the Project Extent identified that that four EPBC Act Ecological Communities and eight FFG Act Flora and Fauna Communities are likely to occur within the Project Extent. One FFG Act community was considered as possible to occur within the Project Extent. These communities are included in Appendix 18.

As part of Phase 1 (assess and design), a Vegetation Quality Assessment using the Habitat Hectares assessment methodology will be undertaken throughout the entire Project Extent. This process will identify the various EVC that occur within the Project Extent and areas of vegetation that are of sufficient quality to be considered either EPBC Act and/or FFG Act ecological communities. Areas that are identified as meeting the EPBC Act and/or FFG Act ecological community thresholds will be avoided by either by realigning or reducing the Project Extent to avoid such areas or by implementing trenchless construction methods.

If known, what threatening processes affecting these species or communities may be exacerbated by the project? (e.g. loss or fragmentation of habitats) Please describe briefly.

Eleven threatening processes listed under the FFG Act could be applicable to the project if appropriate management measures are not implemented to avoid or minimise the potential impacts:

- Alteration to the natural flow regimes of rivers and streams.
- Degradation of native riparian vegetation along Victorian rivers and streams
- Habitat fragmentation as a threatening process for fauna in Victoria
- Increase in sediment input into Victorian rivers and streams due to human activities
- Infection of amphibians with Chytrid fungus resulting in chytridiomycosis
- Invasion of native vegetation by 'environmental weeds'

- Invasion of native vegetation communities by Tall Wheat-grass Lophopyrum ponticum.
- Loss of coarse woody debris from Victorian native forests and woodlands
- Loss of hollow-bearing trees from Victorian native forests
- Removal of woody debris from Victorian streams.
- Spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority.

All potential threatening processes can be adequately managed by avoidance and impact minimisation through adherence to the planning commitments, onsite ecological assessment to inform design and construction method.

Avoiding vegetation clearance through realignment of the pipeline where necessary removes the highest potential threatening process. CEMP's for the project will include protocols for reinstatement of disturbed areas, erosion and sedimentation control and measures for controlling the potential spread of pest species and diseases.

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.

Flora and Fauna species listed as threatened have been identified within the Project extent through the desktop assessment. Species on the Victorian Advisory List have also been identified.

Where there is potential for the Project to impact on areas or species of environmental significance, detailed ecological survey will be undertaken to ground-truth the presence or absence of these species prior to construction. If these listed species or any others are located within or adjacent the construction footprint then principles of avoidance or impact minimisation will be applied.

Where initial surveys are undertaken at sub-optimal seasonal times for certain species, potential habitats will be identified during the initial survey and followed up in the appropriate season. This may require the construction of certain areas to be put on hold until the presence or absence of species is known.

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

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

GWMWater will ensure application of the following planning commitments:

- A Site Specific Ecology Survey will be undertaken during design and assess phase to identify listed State and Federal Species and their likely habitat. Seasonal survey requirement will be identified only for areas where initial avoidance is not ideal to better inform site specific alignment selection in order to avoid and minimise impacts.

- Apply the principles of 'Avoid' and 'Minimise' in pipeline alignment selection. Avoid via:

  1. Re-alignment around environmental assets or use of trenchless techniques underneath environmental assets

  2. Minimise by prioritising 'plough-in' methodology through sensitive areas; minimise vehicular trafficking through sensitive areas.

- As part of the EMP, GWMWater will prepare a Threatened Species Management Plan for the construction contractor to apply during construction. This will contain principles that shall be applied through detailed design and assessment to protect identified species and their habitat.

- The construction contractor must design and construct the SWLP in accordance with the CEMF
- Where trenchless techniques are required, drill length will extend from 'paddock to paddock' where native vegetation is present.
- Construction contractors will be required to prepare a CEMP that will quantify proposed impacts identified through detailed survey of flora, fauna and habitat values and detail how proposed impacts will be avoided or minimised to meet the requirements of the EMP.

Other information/comments? (e.g. accuracy of information)

13. Water environments

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

Relatively small quantities of water will be required during construction. This water will typically be used for:

- Dust suppression
- Use in trenchless installation techniques
- Use in road upgrades or rehabilitation of road surfaces disturbed during construction
- Hydrotesting of the proposed pipeline which will occur in small sections.

This volume will be significantly lower than 1Gl/yr. Water will be supplied from the Grampians catchment (Lake Bellfield) and West Waranga channel supplied from Goulburn Murray Water. Demand information for farming and lifestyle use across the Project Extent has been modelled at a maximum of 750 ML/yr. This is based on full connections and limited existing intensive users in the area.

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

During construction, the Project will discharge water - either stormwater that has accumulated in the trench (trench dewatering) or hydrotesting water to agricultural land.

Water for the hydrostatic testing will be disposed of following completion of testing onto agricultural land.

The location of discharge will be selected in accordance with the CEMP and logged. Release of water will not cause erosion to the landscape or pooling of water.

Water will not be discharged straight into aquatic environments.

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.

<u>Waterways</u>

The 40m wide trunklines assessment corridor will intercept waterways at 427 locations, 418 of which are low value drainage lines and two of which are crossing the High value Avoca and Loddon Rivers. Table 17 shows a summary overview of intersected waterways. Site specific Environmental Control Plans will be developed which will outline specific control measures that will be put in place prior to construction at sites categorised as High and Medium or where ecological values assessed during the on ground survey determine that a plan is required.

The (Department of Sustainability and Environment) Vic Map Hydro dataset was referenced to determine the hierarchy of these watercourses within the Project Extent. The Vic Map Hydro dataset hierarchy uses a code to indicate the importance/size of a watercourse, as shown in Table 17. This hierarchy is adequate at this stage of the planning process to be able to reasonably determine the significance of the watercourse in the absence of site based assessment of characteristics and values.

Table 17: Waterway crossings

Category	Crossings
High	Two crossings of the Avoca River and one at Loddon River
Medium	Seven crossings, six of Bullabul Creek and one of Waranga Western Chanel
Low	418 crossings

All locations will use HDD unless authorised by the NCCMA under a Works on Waterways permit can use alternative technology on smaller low value ‘drainage lines’. Project CEMPs will specify

required controls to avoid sedimentation or spills entering waterways at intersection points.

Wetlands
Wetlands will not be impacted by the Project

Marine Environments
Marine environments will not be impacted by the Project.

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

The desktop assessment has indicated that 10 migratory fauna species have the potential to occur within the Project Extent. These species are included in Appendix 15.

Sixteen Listed Marine Species also have the potential to occur within the Project Extent. Although marine and other migratory species are identified in the EPBC Protected Matters Search Tool, by undertaking a desktop assessment on the likelihood of these species occurring within proximity to the Project Extent, habitat suitability for these species along with historical records are considered and in most cases these species are considered unlikely to occur within proximity to the Project.

A Site Specific Ecological Survey will be undertaken during detailed design phase to determine precise impacts on waterway/riparian corridors.

Any locations with high value or erosion risk will be avoided or crossed using HDD.

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.

Not Applicable

Could the project affect streamflows?
☐ NYD ☐ No ☒ Yes If yes, briefly describe implications for streamflows.

All waterways will be crossed using HDD unless approved through a Works on Waterway Permit by the NCCMA. A CEMP and Works on Waterway permit will still be required for all crossings. The proposed construction method means streamflows are not likely to be affected at any waterway.

Could regional groundwater resources be affected by the project?
☐ NYD ☒ No ☐ Yes If yes, describe in what way.

Temporary and minor reduction of groundwater levels may be experienced during pipeline construction, however, the pipeline depth is considered unlikely to affect groundwater flows or recharge. Construction depth requires a minimum cover of 600mm so impact on groundwater is assumed to be negligible on this project.

The use of the plough in method will further reduce ground water impact by ensuring less disturbance and limiting sections where the trench is open and able to recharge with groundwater where the groundwater depth may be intercepted.

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)

The State Environment Protection Policy (Waters of Victoria) (SEPP) identifies a range of beneficial uses of water environments. These include:

- Aquatic ecosystems
- Water suitable for aquaculture
- Water based recreation
- Water suitable for human consumption
- Cultural and spiritual values
- Water suitable for industrial and commercial use
- Water suitable for agriculture
- Water suitable for the consumption of fish, crustacea and molluscs.

The proposed pipeline is being constructed to aid in beneficial use of water for industrial, commercial and agricultural uses. However during its construction through waterways it has the potential to negatively affect the following beneficial uses:

- Aquatic ecosystems
- Water suitable for agriculture.

Impacts on beneficial use will be mitigated by:

- Appropriate selection of major waterway crossings using trenchless techniques
- Construction of trenched waterways will occur during no flow or low flow
- Appropriate sediment and control measures will be implemented for all waterways
- All trenched waterways will be reinstated in accordance with the CEMP and works on waterways permits.

With a piped system, landholders will gradually decommission dams and allow natural flows to return to waterways as reliance on catchment dams will not be critical to farm enterprises which represent a positive outcome for waterways.

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

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

Potential impacts on aquatic ecosystems will not occur as all waterways will be horizontally directionally drilled. Concept design and geological assessment has identified the risk of not being able to use HDD is low risk within the project footprint.

Open cut crossings may occur on small crossings where erosion, significant vegetation or cultural heritage impacts are negligible. This would not be considered unless approved by the NCCMA. No impacts are anticipated at estuarine or marine ecosystems.

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.

The business case identifies a potential to return up to 6,000 ML of water to the natural environment through the gradual return of water currently captured by on farm dams. This is a major positive effect for ecosystems in the Project area and has the potential to improve the health and biodiversity of these ecosytems.

Is mitigation of potential effects on water environments proposed?

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

GWMWater will comply with the following planning commitments:

- A Site Specific Ecological Survey will be undertaken during the design and assess phase to determine precise impacts on waterway/riparian corridors.
- Detailed design will minimise the number of crossings of high and medium sensitivity.
- Waterway crossing locations will favour sites of existing disturbance where practical.
- Waterway crossing will use HDD. Undertake all crossings in accordance with standard works on waterway conditions from North Central Catchment Management Authority.
- Construction contractors will be required to prepare a CEMP that will outline how they propose to comply with the nominated water environment commitments and the conditions

of the North Central Catchment Management Authority.

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 is not considered necessary as the visual impact of construction will be temporary, the pipeline will be buried, and there will be minimal above ground infrastructure.

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.

- **Identified as of regional or State significance in a reputable study of landscape values?**
  ☒ NYD ☐ No ☐ Yes If yes, please specify.

- **Within or adjoining land reserved under the *National Parks Act 1975*?**
  ☐ NYD ☒ No ☐ Yes If yes, please specify.

- **Within or adjoining other public land used for conservation or recreational purposes?**
  ☐ NYD ☐ No ☒ Yes If yes, please specify.

3.91Ha of the 40m wide trunklines assessment corridor is within Kooyoora State Park. A key requirement of the detail design phase will be to avoid any land reserved under the National Parks Act 1975 under the assumption that there is also likely to be significant flora and fauna located within these areas. This will be re-designed and avoided during the design and assess phase or HDD will be adopted.

1.9Ha of the 40m wide trunklines assessment corridor is within a Public Park and Recreation Zone. 39.6Ha falls within a Public Conservation and Resource Zone. It is intended that impact to public land that is used for conservation and recreation will be avoided. Pipeline construction requires temporary ground disturbance to install the pipeline, following which it is possible to resume land use. Where it is not possible to avoid pubic conservation or recreational land, land managers will be actively consulted and the proposed pipeline alignment will be designed to minimise impact on identified areas of importance or value. GWMW has consulted with DELWP on potential effects on adjoining public land.

Is any clearing vegetation or alteration of landforms likely to affect landscape values?
☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Construction and operation of the trunklines is unlikely to materially impact on landscape values as it will predominantly be constructed in pre-disturbed agricultural land. Clearing of vegetation will be minimised and alteration of landform will be temporary.

Activities that may create temporary visual impacts from construction include the following:

- Clearing vegetation and stripping of topsoil to allow construction
- Vehicle/machinery turn-around areas
- Temporary stockpiles of excavated soil, pipeline or construction materials
- Temporary storage facilities.

The Construction ROW will be reinstated following construction so that there will be no significant change or alteration to landscape values.

Is there a potential for effects on landscape values of regional or State importance?
☐ NYD ☒ No ☐ Yes Please briefly explain response.

It is not anticipated that landscape values of regional or State importance will be effected during the design phase.

Is mitigation of potential landscape effects proposed?
☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

GWMWater will comply with the following planning commitments:

- GWMWater will prepare landscape planning principles that will be provided to the successful contractor to adopt during design and construction to ensure that landscape values within the SWLP are thoroughly considered and impacts minimised.
- A site specific assessment will be undertaken during the design and assess phase to determine precise impacts on any identified landscape values and site specific significance.
- GWMWater will prepare soil management guidelines that are consistent with best practice (International Erosion Control Association (IECA) Guidelines, APGA CoEP) for the construction contractor to comply with during planning and construction of the proposed work.
- GWMWater will identify 'problem' soils through available mapping sources and include specific management measures in the soil management guidelines for the construction contractor to comply with during planning and construction of the proposed work.
- Construction contractors will be required to prepare a CEMP that will outline how they propose to comply with nominated landscape planning principles.

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.

A desktop assessment of the Australian Soil Classifications within the 40m wide trunklines assessment corridor is presented in Appendix 19. It is highly likely that the distribution system will contain a similar proportionate composition of soil types.

Sodosol's have the greatest mapped extent and generally exhibit very low agricultural potential with high sodicity leading to high erodibility, poor structure and low permeability.

These soils have low to moderate chemical fertility and can be associated with soil salinity. These characteristics pose a high erosion risk during construction and may require increased effort during rehabilitation to establish vegetation comparable to pre-construction condition.

Soil considered to have moderate to high agricultural potential will be encountered in Vertosols, Dermosols and Chromosols. Pipeline and other construction will be managed to minimise impacts on all soil types. Management options include ensuring no mixing of topsoil with sub-surface soil and minimising traffic.

Whilst the composition and distribution of soils present within the SWLP Project Extent vary, they are no different to those encountered within the SWLP Stage 1 and Wimmera Mallee pipeline areas previously. GWMWater is confident that with the requisite planning and management during construction, soils and erosion and sediment control will be effectively managed.

Management options for acid sulphate soils include:

1. Avoidance
2. Prevention of oxidation (usually reburial below permanent water-table with monitoring, e.g. sand mines)
3. Neutralisation
4. Oxidation and leaching, and
5. Pyrite removal. The Project CEMP will contain measures to be implemented in the event that acid sulphate soils are encountered.

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

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

A desktop Geotechnical Assessment was conducted in December 2015. This assessment determined that the site is suitable for the proposed pipeline construction. However, given the size of the area, length of the pipeline alignments under consideration and numerous geologies, significant variation in stratigraphic profile can be expected along the alignment on a larger scale.

A further on-ground geotechnical survey will be conducted during the design and assess phase to confirm the findings of the desktop assessment. This will also verify constructability around key crossings by determining suitability for the use of trenchless technologies.

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

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.

There will be localised traffic impacts on roads in the vicinity of the Project.

Pipeline materials, equipment and machinery will be delivered to the construction RoW by road transport, resulting in an increased number of traffic movements across local road networks during the construction phase. This is likely to involve several operational machinery and half a dozen passenger vehicles for short periods of time. Construction can achieve several kilometres of pipe laying per day and the majority of work will be constructed inside land holders properties.

Pipe laying will occur predominately within private property, requiring minimal road closures, with all road crossings undertaken by HDD. Entry and exit pits will be located on the other side of the road reserve, thus no crossing will occur on the shoulder of roads.

GWMWater will incorporate social impact planning principles into the design and construction of the project to ensure that social environments within the SWLP are thoroughly considered and impacts minimised.

A Traffic Management Plan (TMP) will be developed for heavy vehicle movements and routes including all requisite safety protocols for large trucks accessing local roads. The TMP will be developed in consultation with VicRoads and the relevant local councils in order to satisfy requirements around delivery schedules, access and road closures (where required).

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.

Construction activities are likely to produce minor short term impacts to local residents due to the nature of pipeline construction. Whilst the Project Extent is located primarily within rural areas further limiting the likelihood of negative impacts on residents, the potential pipeline alignment also passes through the towns of Wedderburn, Korong Vale, Inglewood and Bridgewater.

The following activities will be incorporated into the CEMP.

<u>Air Emissions</u>

Construction activities have the potential to impact on air quality of the local area and sensitive receptors, including residential and farming properties. Activities potentially affecting air quality can include:

- emissions generated by the use of machinery and equipment
- wind action on stockpiles and disturbed areas creating dust
- drilling activity that may create dust from dry soils
- topsoil stripping, rock extraction and transportation (e.g. earth moving machinery, materials digging, loading, dumping, haul truck tyre/unsealed road interaction, unsealed roads, bench and face areas and materials spillage from haul trucks).

Key air environmental issues:

- Odour emissions
- Temporary reduction of amenity associated with dust
- Soil erosion and sedimentation of land and water
- Depletion of water resources
- Impacts on sensitive flora and fauna
- Inconvenience to sensitive receptors such as residents and construction workforce
- Generation of greenhouse gases and other reportable emissions

Construction will be planned and designed in accordance with the following industry standards and reference material:

- EPA Publication 480: Environmental Guidelines for Major Construction Sites (EPA, 1996)
- Australian Pipelines and Gas Association Code of Environmental Practice – Onshore Pipelines (APGA, 2013).

Outcomes:

- Minimal impacts on the community and the construction workforce
- Minimal impacts on flora and fauna

Visual, Noise and Vibration

Construction activities will generate noise and vibration (from machinery), creating the potential to cause 'nuisance impact' to adjoining properties. Major noise sources that may potentially generate 'nuisance' noise include:

- construction truck and vehicle movements
- earth moving equipment
- pumps and generators
- ancillary plant and equipment
- reversing beepers

As the work progresses along the construction ROW, noise impacts will be relatively short lived at any one location. Construction moves several kilometres a day so individual properties will be impacted for one or two days. All landholders are required to sign land access agreements and part of that agreement outlines communication channels for any issues and a commitment from GWMWater that any land disturbance will be rehabilitated to the satisfaction of the landholder. They are required to sign a release form stating they are happy their property is returned to their satisfaction. GWMWater also has a farm liaison officer where landholders can communicate any issues and they will endeavour to address.

Key Environmental Issues:

- Disturbance to local residents and other land users
- Disturbance to livestock and wildlife

Industry Standards and Reference Material:

- EPA Publications 1411: Noise from Industry in Regional Victoria (Oct 2011)
- AS1055.1-1997 Acoustics: Description and measurement of environmental noise
- AS 2436-1981 Guide to noise control on construction, maintenance and demolition site

Outcomes:

- Minimal construction and operational noise and vibration impacts on adjacent residents and other land users
- Minimal construction and operational noise impacts on wildlife and livestock

Traffic

Traffic assessment and management is an important component of pipeline planning and construction as pipeline projects have the potential to significantly alter local traffic regimes.

Key Environmental Issues:

- Safety hazard resulting from increased traffic
- Traffic impact on flora, fauna and cultural heritage
- Soil erosion and degradation on the RoW and on access tracks
- Reduction in air quality and visual amenity
- Increased noise and vibration from increased traffic

Industry Standards and Reference Material:

- Approved Traffic Management Plan
- EPA Publication 480: Environmental Guidelines for Major Construction Sites (EPA, 1996)
- Australian Pipelines and Gas Association Code of Environmental Practice – Onshore Pipelines (APGA, 2013).
- Civil Contractor's Federation guidelines 'A Guide for Machinery Hygiene for Civil Construction' (CCF, 2011).

Outcomes:

- Minimal disturbance from traffic to flora, fauna and cultural heritage
- Minimal soil erosion and degradation
- Collaboration with road authorities, councils and communities to develop appropriate traffic management strategies

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 If yes, briefly describe the hazards and possible implications.

Chemicals used during pipeline construction will not be present in quantities to cause any significant impacts to human health. They will be stored, handled and disposed of in accordance with the Safety Data Sheets that accompany each chemical (copies will be held on site) and the CEMP.

Emphasis is then placed on the safe and secure transport, storage and application of chemicals to prevent harm to the environment, and on effective response capacity should spills occur.

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.

Due to the nature of pipeline construction, impacts to nearby residences will be limited and short in duration. Access along the construction RoW and roads in some areas may be temporarily restricted or subject to traffic management measures during construction. GWMWater will negotiate the acquisition of suitable land from private landholders for pump stations and the water storage if crown land is not available. Under a crown land arrangement GWMWater would become the committee of management.

Major sealed road will be crossed using trenchless techniques, or other trenchless method. Where temporary road closure is proposed, permits will be sought from the relevant road authority. Affected residences will receive notification in accordance with permit requirements.

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 pipeline will be located predominantly on agricultural land. Prompt reinstatement of the construction RoW will ensure that that land use activities can resume soon after completion of construction. Where possible, timing of construction will be considerate of landholders land use activities.

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 If yes, briefly describe the potential effects.

Changes to non-residential land use activities will be temporary only and are not expected to permanently affect local residences/communities, social groups or industries.

Is mitigation of potential social effects proposed?

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

GWMWater will ensure compliance of the following planning commitments:

- GWMWater will prepare social impact planning principles that will be provided to the successful contractor to adopt during design and construction to ensure that social environments within the SWLP are thoroughly considered and impacts minimised.

- Construction contractors will be required to prepare a CEMP that will outline how they

propose to comply with nominated social impact planning principles.

- Pre-construction walk through will be undertaken immediately prior to construction to identify any obvious locations of noxious weeds that can be controlled.
- The construction contractor will prevent the spread of weeds and disease pathogens in work corridors through implementation of established, effective management practices.
- Construction contractors will be required to prepare a CEMP that will outline how they propose to comply with nominated social impact planning principles.

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

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.

The Dja Dja Wurrung Clans Aboriginal Corporation (DDWCAC) is both Registered Aboriginal Party and recognised Traditional Owner within the SWLP Project Extent.

The SWLP will be planned and delivered in accordance with the requirements of the Aboriginal Heritage Act, 2006, the Aboriginal Heritage Regulations, 2007.

It is recognised that Cultural Heritage Management Plans will be required for all stages of the project. These plans have not yet been prepared, however, a Memorandum of Understanding (MoU) has been signed between GWMWater and the Dja Dja Wurrung Clans Aboriginal Corporation to help facilitate this process (Appendix 20). The MoU was officially signed between the two parties on the 6th of October 2016.

Intent of the MoU

The intent of the MoU is to form the basis for cooperative relationships between the parties, in particular to:

- Recognise the role of the DDWCAC in management, protection and promoting cultural heritage within the area
- Address the impacts of construction works for the South West Loddon Pipeline Project on Cultural Heritage through appropriate mechanisms in accordance with the Aboriginal Heritage Act 2006
- Provide for open communication, collaboration and cooperation to effectively deliver the South West Loddon Project without adversely impacting the cultural heritage of the region.

The overriding principles of the MoU will be to:

- To use the learnings and discovery that will occur through the development of the cultural heritage management plans and oversight of the project to expand the narrative of Aboriginal relationships on Dja Dja Wurrung Country
- Strengthen our understanding of Aboriginal cultural heritage on Dja Dja Wurrung country;
- Protect and manage cultural heritage values
- Comply with the conditions of approved CHMPs

- Facilitate the outcomes of collaboration to promote healing and reconciliation, to enable teaching Dja Dja Wurrung people about their country and laws, and to raise cultural awareness among their community.

The MoU does not replace legislative requirements but supports the achievement of these obligations.

CHMP's will be prepared as part of project planning prior to the commencement of 'significant ground disturbance' activities. An on-ground survey consisting of standard and complex assessment will be undertaken and reports prepared as part of the detailed design phase of works. Principles of avoidance and mitigation will be adopted with cultural heritage assessments along the same methodology as environmental impacts.

Findings from this survey will be used to prepare the CHMP that will outline the proposed minimisation of impacts to identified sites. The Dja Dja Wurrung Clans Aboriginal Corporation will be fully engaged throughout the process and are responsible for consideration and approval of each CHMP (provided it has been prepared to their satisfaction).

What investigations of cultural heritage in the project area have been done?
(attach details of method and results of any surveys for the project & describe their accuracy)

Landskape Natural and Cultural Heritage Management undertook a Cultural Heritage and Constraints Assessment in December 2015. The objective of the assessment was to conduct a preliminary investigation to identify possible Aboriginal and historical cultural heritage constraints to the proposed works.

The assessment concluded that the concept corridor for the pipeline contains areas of 'cultural heritage sensitivity' as defined by the Aboriginal Heritage Regulations 2007, requiring GWMWater to lodge an approved Aboriginal Cultural Heritage Management Plan for the Project.

GWMWater has also engaged Dja Dja Wurrung Clans Aboriginal Corporation to undertake a cultural heritage sensitivity assessment that is currently in draft but has identified 251 known sites that should be avoided during the planning and construction phase. This investigation will feed into desktop assessments required for CHMP's.

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 Cultural Heritage Sensitivity Assessment undertaken by Dja Dja Wurrung Aboriginal Corporation on behalf of GWMWater for this project has identified 251 places of interested. These sites are concentrated in six locations, four of which are located in State Park or conservation reserves that the project will aim to avoid. The remaining two sites involve a high concentration of scarred trees predominately in road reserves and Mt Egbert which is on the border of the Stage 2 project area in the north.

Listed sites will be identified in the design and desktop assessment phase of each Cultural Heritage Management Plan. Primarily, existing registered sites will be identified through desktop interrogation of the AAV site register by the dedicated Cultural Heritage Advisor.

Any sites intersecting the preliminary alignment will be identified and avoided prior to survey. During the survey period, the assessment corridor will be assessed and any new sites that are found will be registered as part of the survey close out.

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.

Victoria's heritage database will be interrogated in order to identify any sites that fall within the pipeline assessment corridor. Sites that are located will be avoided in advance of survey. Archaeological survey will also include any sites of non-aboriginal heritage which, if identified, will be recorded and registered with the Heritage Council of Victoria as part of the deliverables of the survey.

Is mitigation of potential cultural heritage effects proposed?

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

GWMWater will ensure compliance of the following planning commitments:

- Interaction, Engagement and Proposed work will be undertaken in accordance with the MoU with the Dja Dja Wurrung Clans Aboriginal Corporation.
- A CHMP will be required as part of Project Planning prior to the commencement of 'significant ground disturbance' activities. Standard and complex assessment will be included in the on-ground survey as part of the design and assess phase of works. Findings from this survey will be used to prepare the CHMP to the satisfaction of the Dja Dja Wurrung Clans Aboriginal Corporation.
- Non-aboriginal heritage will be identified as part of the archaeological assessment with any new identified sites being added to the Victorian heritage register (if required, permits under the Heritage Act will be sought). These will be incorporated into the CHMP to mitigate
- The construction contractor will be required to implement recommendations and management measures from the CHMP into the Project CEMP.

Other information/comments? (e.g. accuracy of information)

16. Energy, wastes & greenhouse gas emissions

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

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

Please add any relevant additional information.

Diesel - This will be the main source of energy used during the construction of this project, for vehicles, plant and machinery etc.

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.

All waste associated with pipeline construction and operation will be managed in accordance with procedures and practices detailed in the CEMP. The detailed procedures will address waste classification and segregation, labelling, storage, transport regulations and disposal.

Waste streams include:

- General contractor produced waste (e.g. litter, food scraps, cigarette butts);
- Waste construction material (e.g. concrete, off-cuts, pipe coverings etc);
- Temporary structures (e.g. fencing and signage);
- Waste soil / spoil.

All personnel are required to conform to State regulations for waste management and litter control. Waste management procedures will be based on the following EPA Waste Management Principles listed in order of priority:

- Avoid receiving waste at point of purchase;
- Reduce wastes at the point of use;
- Reuse materials where possible;
- Recycle wastes where practicable; and
- Dispose of wastes appropriately and responsibly.

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

Please add any relevant additional information, including any identified mitigation options.

Emissions produced from maintenance vehicles, pumping stations, equipment and activities during operation of the pipeline will be recorded in GWMWater's quarterly Business-Performance Report and formally reported in Annual Reports.

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?
☒ No ☒ Yes If yes, briefly describe.

All environmental impacts related to pipeline construction will be adequately addressed within the project CEMP and EMP and subordinate documentation.

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: Please describe briefly

The project will be located where possible within pre-disturbed agricultural land. Pipe laying is very flexible in that it can cross under roads, rail, sensitive vegetation very regularly without impact on the performance of flows and pressure. The siting of pipelines will be where ever reasonable, within pre-disturbed agricultural landscapes. The siting of pump stations, storage and ancillary work areas do not have to be sited in any particular location. There is greater flexibility in the location of these works and therefore with a high level of confidence, these works will be located in pre-disturbed agricultural landscapes to avoid flora, fauna and cultural heritage assets. The majority of environmental and cultural impacts identified in this Referral will be avoided through the adoption of planning principles such as locating pipelines 8m within a property boundary, to avoid construction through vegetated road reserves. At the time of referral, the location of the Volcano storage off-take, connections to Stage 1 pipes and the off-take at the West Waranga channel are the only known/fixed locations for the works. There are currently no vegetation or cultural heritage concerns at these locations. The remaining elements will be designed with a preference to avoid environmental or cultural impacts.

☒ Design: Please describe briefly

In order to manage these risks GWMWater have successfully delivered a number of water pipeline systems in recent years resulting in improved water security for regions and enhanced environmental outcomes. GWMWater intends to implement the most effective planning control measures for the design and construction of the SWLP in order to replicate the successes of those previous projects.

The following control measures will form the backbone of environmental management system and project delivery for the SWLP.

Environmental Management Framework

GWMWater will have a Construction Environmental Management Framework (CEMF) that provides a transparent and integrated governance framework to manage all identified environmental aspects identified within the Project Extent for the design, construction and operational phases of the project.

This CEMF will be prepared to provide the expected performance measures that are required to identify environmental assets and values and to ensure their due consideration and effective management in accordance with applicable Commonwealth and State regulatory requirements during the design, construction and operation of the Project. The CEMF will need to be signed off by the relevant regulatory authority.

Environmental Management Plan
The Environmental Management Plan (EMP) will detail how environmental aspects of the project will be managed and cover all aspects of potential impact. It will largely focus on the hierarchy of avoidance, mitigate and if required, offset.

Accompanying the EMP will be subsidiary documentation including:

- Threatened Species Management Framework (TSMF):

The TSMF will provide the construction contractor with the guidance required to adequately address the requirements of the various Commonwealth and State legislation governing flora and fauna that may be present within the Project Extent. The framework will govern the approach to identifying and protecting threatened species during the planning and construction of the SWLP.

- Offset Management Strategy:

The GWMWater Offset Management Strategy will outline the Project approach to offsets and how the removal off native vegetation must be managed through construction. The strategy will ensure the Project compliance with the Permitted clearing of native vegetation – Biodiversity assessment guidelines. The Strategy is discussed in more detail later in this Referral and forms part of the CEMF.

☒ Environmental management: Please describe briefly.

Construction Environmental Management Plan

Following detailed on-ground assessment for each stage, a comprehensive risk assessment will be completed involving relevant personnel from GWMWater, the construction contractor, in consultation with GWMWater's environmental consultants.

The risk assessment will focus on all identified environmental and cultural heritage assets that planned disturbance activities associated with construction of the SWLP are likely to impact.

The likelihood and consequence of each plausible impact will be assessed and construction mitigation measures that will avoid or reduce the level of impact will be identified and incorporated into the Construction Environmental Management Plan (CEMP). Mitigation measures will be appropriate to the nature and scale of the proposed impact activity and will have the stated aim of minimising residual environmental impact.

A CEMP will be developed for each stage of construction in accordance with the approved CEMF and EMP. GWMWater will require the construction contractor to consider the following when developing the detailed design CEMP:

- CEMF
- EMP
- Detailed analysis of the existing environment
- Ecology survey results, analysis and management recommendations
- Native Vegetation management requirements
- Cultural heritage survey results, analysis and management recommendations
- Geotechnical survey results, analysis and management recommendations
- Consideration of the North Central Catchment Management Authority waterway requirements
- Any other specialist report as identified or required
- Project Overview
- Legislative Requirements
- Roles and Responsibilities
- Construction Methodology
- Identification of environmental and cultural values
- Identification of suitable Mitigation Measures
- Training Requirements
- Monitoring and Reporting Requirements

Environmental Control Plans

Environmental Control Plans (ECPs) will be developed by the construction contractor which will outline specific controls that must be in place during construction at any site identified as having a high environmental value. These will be incorporated into each CEMP.

A ECP will include as relevant:

- Site layout including approximate dimensions of the construction footprint

- Construction methodology
- 'No go' areas i.e. native fauna habitat, MNES or indigenous native vegetation requiring protection; any cultural heritage sensitivity areas (or as defined in a CHMP)
- Any indigenous native vegetation / trees approved for removal (including exotic or nonindigenous trees)
- Any declared weed / disease / acid sulfate soil areas.
- Site access
- Any laydown or silt disposal areas
- Any wash / clean down or refuelling areas
- Site drainage or intended erosion and sediment controls
- Contingencies for wet weather or other plausible risks identified by the contractor
- Any council or VicRoads road reserve or Crown Land areas (marked up with any relevant items above).

Waterway Crossing

All waterways will use HDD technology to avoid impact unless approved through a Works on Waterway Permit by the NCCMA. The conditions for which this might apply is where a designated waterway is only a drainage line with little ground disturbance and no identified environmental or cultural heritage impact.

Environmental Management Tools

- Identify the location of sensitive environmental and cultural heritage sites and management measures (environmental line lists) or 'no/go areas' to guide construction crews during construction through (or in proximity to) the area.
- Inspection Checklists will be used by the construction contractor to ensure that all environmental commitments are being met in the field
- An Audit Program will be used by GWMWater and the construction contractor to ensure compliance with the project documentation and identify opportunities for continual improvement.

The Audit Program, including 3rd party verification, will also be approved by regulators to ensure compliance with the CEMF, EMP, and CEMPs.

General principles to be adopted through the design and construction stages are summarised below:

Eliminate the risk by:

- Conducting detailed survey of the preliminary system alignment to identify areas of sensitivity and verify presence or absence of environmental assets.
- Reviewing the requirement for impact (i.e. is the section of pipeline really required or can other parts of the system be re-designed to meet the need of supply?)
- Re-alignment around an identified environmental asset by re-design
- Changing the proposed construction methodology by selecting HDD technology
- Re-scheduling planned works to avoid the risk (i.e. plan works to avoid seasonal risks – breeding season, fish habitat in ephemeral waterway, etc.)

Substitute the risk by:

- Adopting a less intrusive construction methodology (i.e. use a 'poor boy' crew that can work slowly through a narrower construction width over discrete lengths of pipeline; use 'plough-in' methodology to rip the pipeline in to reduce trafficking and ground disturbance width, use of horizontal directional drilling, etc.)

Isolate the risk by:

- Preparing planning controls to protect identified environmental assets from construction impacts
- Installing physical barriers and separation to shield active construction work from adjacent sensitive receptors.

Use engineering controls by:

- Modifying detailed design to reduce impact (e.g. removing the need for placement of above ground valves within waterways)

Use administrative controls by:

- Preparing a CEMP with specific commitments regarding environmental protection, monitoring and performance.
- Ensuring regular formalised communication during construction of identified assets and protective measures required to avoid or reduce impacts.

☒ Other: Please describe briefly

Add any relevant additional information.

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.

GWMWater has identified three facilitated works that will be associated with the SWLP construction work which may have a potential for cumulative effect.

On Farm Works: On-farm installation of 20mm polyethylene pipeline by private landowners in order to deliver water from their connection (metering) points at property boundaries to strategic delivery points (tank installations).

GWMWater propose to provide advice in an on-farm guidance document that will be provided to each landholder who registers an interest in connecting to the SWLP.

GWMWater propose to educate landholders on their responsibilities in relation to works on private land and will work with each individual landholder as well as the relevant local council and DELWP to provide a detailed description of the planning and permitting requirements if carrying out these on-farm works.

Whilst the system will be designed for connections to individual properties, the current level of interest is closer to 300 landholders. This is likely to increase during the detailed design and construction phases. This Referral is based on 100% of landholder connections.

Decommissioning of Farm Dams: With secure alternative water supply through a piped system, farmers and landholders may choose to decommission or cease to utilise their on-site dams. The switch to a permanent piped supply is expected to result in significant volumes of surface water being diverted away from farm dams back into natural catchments.

The Project currently has no mandate to enforce or manage any dam related works on private landholdings.

Firefighting Access Points: Installation of firefighting standpipes and/or tanks (on smaller diameter pipelines) that will be located at strategic points throughout the system for use and access by emergency services personnel during an emergency event.

The Country Fire Authority will be engaged with regard to their requirements in relation to installation of standpipes and/or tanks and creation of access points at strategic locations throughout the SWLP supply area to enhance fire response. These locations and the proposed footprint to meet their operational requirements will be agreed in consultation with council and will adopt principles of avoidance and impact mitigation in their site selection, as well as line of sight where they are in proximity to road junctions.

Please also see Section 6 for GWMWater's proposed stance on these facilitated works.

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.

Has a program for future environmental studies been developed?
☐ No ☒ Yes If yes, briefly describe.

It is proposed to undertake the following detailed on-ground studies during the design and assess phase (between April and December 2017).

- Ecology survey (terrestrial and aquatic)
- Targeted seasonal species survey
- Offset Management Strategy
- Cultural heritage survey (Aboriginal and non-Aboriginal heritage)
- Geotechnical survey
- Waterway crossing assessment
- Any other specialist report as identified or required

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.

The proposed south west Loddon water supply pipeline is a whole of region initiative. A wide range of interested and concerned parties have been involved in the development of the initiative over the last two years. The pipeline project is being developed, constructed and delivered under a robust governance structure with a consortium of skilled partners. This structure and approach provide the skills, project management and accountability to ensure effective delivery of the project.

Project Steering Committee: In March 2015, GWMWater facilitated a workshop with relevant stakeholders to facilitate the development of an Investment Logic Map. An outcome of the workshop was the establishment of a governance framework to further advance the South West Loddon Water Supply Project. The project is overseen by a Steering Committee, with Peter Vogel, the Chair of GWMWater as the chair of the Committee. The membership of the Committee comprises:

Loddon Shire Council: The Council is representing the community and was the auspicing agent for funding. This grounds the project in the local community to ensure strong regional and political credibility, engagement and support - supported by a local Community Consultative Committee. Appendix 6 supports GWMWater's approach to planning for the construction of this project.

GWMWater as the delivery agent: GWMWater is a corporatised water authority with proven skills and capacity in the design, construction and operation of rural water supply pipelines. GWMWater has the overall responsibility for delivery of the wider project. This entails the design, procurement and construction of the pipeline. It will then own and operate the pipeline as part of the existing Wimmera Mallee Pipeline with established protocols for tariffs and charges to cover ongoing operational and maintenance costs. That ensures the viability and ongoing sustainability of the proposal

Agencies: Relevant regional and state agencies are engaged including: Coliban Water as the water supply agency for urban centres in the region; Goulburn-Murray Water as the water supply agency with responsibility for the Goulburn System and the Waranga Western Channel; the Department of Environment, Land, Water and Planning (DELWP); Regional Development Victoria

(RDV) and the North Central Catchment Management Authority; and Dja Dja Wurrung. This approach ensures that the project engages all interested agencies, is coordinated with wider regional developments, meets relevant national and state policies and strategies and is delivered within appropriate procurement guidelines. The Project Steering Committee has met 8 times up until January 2017.

Community Consultative Committee: To complement the workings of the Project Steering Committee, Loddon Shire Council assumed responsibility for landowner engagement through a Community Consultative Committee. The Community Consultative Committee's role is to support the Steering Committee in the investigation and development of the proposed pipeline layout and service standards, specifically in respect to the views of potential customers and issues that may impact on them as a result of a water supply scheme. The council invited nominations from a wide range of community groups and organisations, with all nominees accepted and appointed to the Committee by Council at its meeting on 23 February 2016. Membership on the Community Consultative Committee has been extended to representatives of the Wedderburn Conservation Management Network. This ensures a process to promote community engagement, understanding and support for the pipeline at a whole of project scale. However, GWMWater will be responsible for all landholder contacts at an individual property scale regarding, for example, contracts, pipeline construction and alignment and easements.

Landholder engagement: The Victorian Farmers Federation has been a central player in the development of the proposal, given its representation of landowners in the region, and has heavily promoted the proposed extension of the rural pipeline network into the Loddon Shire. A Landowner Consultation Meeting was held in December 2015 to assess the level of landowner interest in a reticulated water supply. Indicative costs were provided on new customer contribution charges based on recent rural pipeline extensions by GWMWater. The indicative landowner contributions were considered to be within the realms of affordability by those present. The only concern about the level of contribution was whether the price would be acceptable to the lifestyle property owners clustered around Wedderburn. GWMWater has also sent letters out to all rural ratepayers in the project area of Loddon Shire seeking their interest in connecting to the pipeline. Factsheets and website information (www.gwmwater.org.au/swlp), advertising in regional media and a series of tours in the region has been the main methods of communicating the project to landholders. GWMWater staff visited 14 locations in October 2016, visiting over 120 landholders to discuss details about the proposed project. A communication engagement strategy (available on request) has also been developed to ensure ongoing communication and engagement occurs with all stakeholders at key points throughout the project.

Northern Grampians Shire: The Northern Grampians Shire landholders in this area have been consulted in a public meeting in July 2016 as the proposed trunk line will traverse the top of the shire boundary. Council has also been approached and they see this as a good opportunity for landholders in this area to receive a more secure water supply and high levels of interest have been received from landholders in this area seeking a connection. The Northern Grampians Shire Council has endorsed its support for GWMWater in seeking a planning scheme amendment.

Has a program for future consultation been developed?
☐ NYD ☐ No ☒ Yes If yes, briefly describe.

GWMWater will remain in control of all communication and engagement with landholders, the community and stakeholders throughout the project. The Community engagement strategy highlights the public engagement.

The Project Steering Committee (consisting of representatives from GWMWater, Loddon Shire, Coliban Water, Goulburn Murray Water, North Central CMA, Department of Environment, Land Water and Planning, Regional Development Victoria, Dja Dja Wurrung), Customer Consultation Committee and Technical committee will oversee the design and construction of the project.

Where the pipeline crosses a landholder's property, GWMWater staff will discuss the impact and process of construction and request that a land access agreement is signed before any contractor can enter their property. Access agreements will be received by all landholders prior to works commencing.

Authorised person for proponent:

I, Simon Coutts, Manager Rural Pipelines Investigations, of GWMWater, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature 

Date 23/03/2017

Person who prepared this referral:

I, Vic Buljubasic, Associate Director – Environmental Planning, of AECOM, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature 

Date 23/03/2017