ACT Government

ENVIRONMENTAL IMPACT STATEMENT ASSESSMENT REPORT

BELCONNEN TRUNK SEWER AUGMENTATION

OCTOBER 2020

Pursuant to Section 222 of the *Planning and Development Act 2007* (**PD Act**), this report evaluates the revised environmental impact statement for the following application:

Ref no: 201800022
Document no: 1-2018/11399
Project: Belconnen Trunk Sewer Augmentation
Date scoping document issued: 13 June 2018
Date draft EIS lodged: 22 May 2019
Date revised EIS lodged: 1 July 2020
Proponent: Icon Water
Applicant: Icon Water
Location: Trunk sewer main located to the north of Ginninderra Drive between Tillyard Drive, Charnwood and Copland Drive, Melba. Odour control unit located to the south of Ginninderra Drive opposite the intersection with Tillyard Drive, Latham.

As required by section 225A of PD Act, the planning and land authority (**the Authority**) has prepared this EIS Assessment Report (**the report**) for the Minister for Planning and Land Management. This report confirms that the Authority is satisfied that:

- each matter raised in the scoping document for this proposal is addressed;
- there is an account of timely representations; and
- the EIS demonstrates how timely representations have been taken into account.

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Glossary and definitions

Term	Definition
ACT	Australian Capital Territory
The Authority	The planning and land authority
CEMP	Construction Environmental Management Plan
DA	development application
EIS	Environmental impact statement: a document prepared to detail the expected environmental, social and economic effects of a development, and state commitments to avoid, mitigate or satisfactorily control and manage any potential adverse impacts of the development on the environment. In the ACT, an EIS is required for proposals in the impact track as per Section 127 of the Planning and Development Act 2007.
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
EPSDD	Environment, Planning and Sustainable Development Directorate
ESA	Emergency Services Agency
MNES	Matter of National Environmental Significance (as per the EPBC Act)
OCU	Odour Control Unit
PD Act	Planning and Development Act 2007 (ACT)
PD Regulation	Planning and Development Regulation 2008 (ACT)
the Project	the proposed Belconnen Trunk Sewer Augmentation project
TCCS	Transport Canberra and City Services

1. Introduction

This report is to the ACT Minister for Planning and Land Management on the assessment of the Environmental Impact Statement (EIS) in relation to the Belconnen Trunk Sewer Augmentation.

The Project is a development of a type that meets section 123 of the *Planning and Development Act 2007* as it involves an activity mentioned in Schedule 4 of the PD Act, and therefore requires an environmental impact statement (EIS). This EIS was submitted concurrently with a development application (DA). The DA will be determined once the EIS process is complete.

1.1. Project description

Icon Water proposes to construct and operate a new trunk sewer main between the eastern side of Tillyard Drive and the western side of Copland Drive. The alignment would include around 2.4 kilometres of new trunk sewer, the upgrade of sewer pipe diameter to 1200mm to provide for future proofing network capacity in line with the 2018 ACT Planning Strategy and a pipeline crossing of Ginninderra Creek via a new bridge structure to the west of Copland Drive. The new pipeline crossing would be around 230 metres in length.

The Project also includes the construction and operation of a new Odour Control Unit (OCU) at North Latham, south of Ginninderra Drive, to provide ventilation for the section of sewer upstream. The OCU would consist of extraction ductwork, a fan, activated carbon filter treatment, ventilation stack (up to 24 metres in height), associated ventilation connection pipework and driveway access from Ginninderra Drive.

In addition, a modulated penstock facility will be constructed at the eastern end of the proposed pipe bridge to improve effectiveness of pipe operations and reduce odour risks and access points to all new infrastructure.

Vegetation clearing and earthworks will be undertaken (up to approximately 10 metres either side of the proposed alignment). Relocation or adjustment/protection of any affected services including electricity, water supply mains, existing sewer, stormwater and telecommunications will occur if required.

1.2. Project purpose

The purpose of the Project is to allow Icon Water to comply with its commitment to contain all wastewater (no overflows) from the sewer network up to a 1 in 10-year rainfall event.

1.3. Project location

The Project is located across multiple blocks in Melba, Flynn and Latham, Belconnen (listed below in Table 1). The linear sewer alignment covers approximately 2.4km running approximately parallel to Ginninderra Drive, between the eastern side of Tillyard Drive and the western side of Copland Drive. The OCU is located in north Latham. The land is predominantly zoned PRZ1 Urban Open Space and includes crossing two road reserves (TSZ1 – Transport) of Companion Crescent and Kingsford Smith Drive and an access lane from Conley Drive that passes through the RZ1 Suburban zone. The Project location is shown in Figure 1.

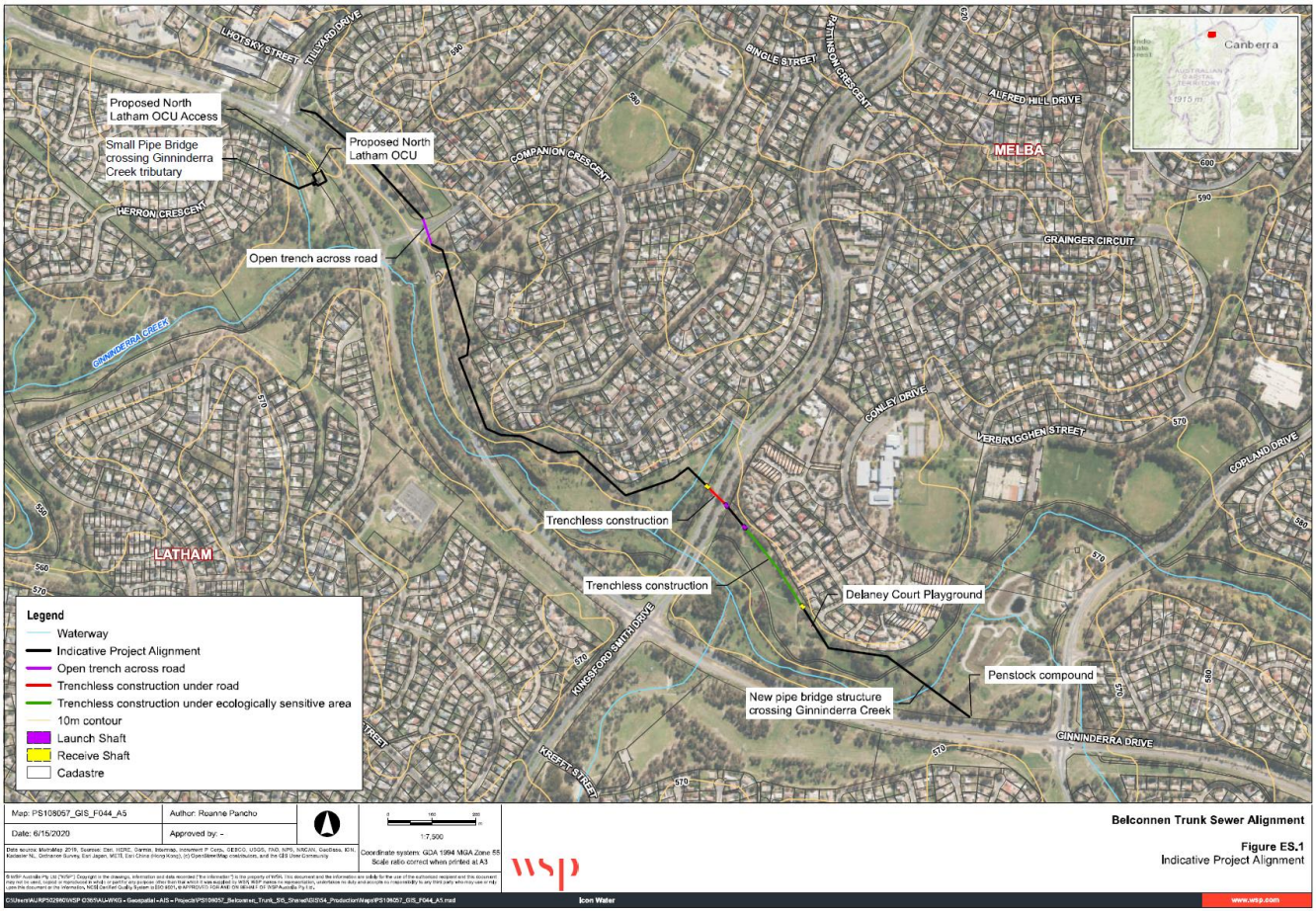

Figure 1 - Map and aerial photo of the Belconnen Trunk Sewer Augmentation location [source: Revised EIS, Icon Water]

1.3.1. Legal land description and tenancy

The Belconnen Trunk Sewer Augmentation will directly affect 8 blocks and two road easements. Table 1 shows the legal land description for each block affected by the proposal and the details of tenancy type and tenant.

Table 1 - Legal land description and tenancy

Block	Section	Division	Tenancy	Tenant
Directly affected lands				
1	66	Flynn	Unleased Territory Land	TCCS – City Presentation
1	71	Flynn	Unleased Territory Land	TCCS – City Presentation
9	74	Flynn	Unleased Territory Land	TCCS – City Presentation
1	67	Melba	Unleased Territory Land	TCCS – City Presentation
2	67	Melba	Unleased Territory Land	TCCS – City Presentation
3	67	Melba	Unleased Territory Land	TCCS – City Presentation
1	138	Latham	Unleased Territory Land	TCCS – City Presentation
2	147	Latham	Unleased Territory Land	TCCS – City Presentation
n/a	-	-	Companion Crescent	TCCS – Roads ACT
n/a	-	-	Kingsford Smith Drive	TCCS – Roads ACT

1.4. Alternatives to the Project

A range of scenarios were considered in the EIS as possible alternatives to the proposal. Of the options, the EIS identified the following 3 options as viable alternatives to the Belconnen Trunk Sewer Augmentation proposed by the EIS.

1) Overflow tank (10ML)

The EIS outlines an option to increase sewage overflow capacity with the construction of a 10ML tank, without upgrading the existing trunk sewer pipe. This option also includes construction of two OCUs at Florey and Latham. This option would require the construction of an additional 10ML overflow tank as a second stage in 2040. The EIS acknowledges sewage overflow events to Ginninderra Creek would still be likely.

2) Trunk sewer parallel to existing Belconnen trunk sewer

The EIS describes constructing a new trunk sewer parallel to the existing trunk sewer, with flow diversions at the upstream point and flows combining again at a point of higher capacity downstream. This option also includes construction of three OCUs (at Evatt, Florey and Latham) and upgrading capacity of an existing OCU at west Macgregor. This option requires an additional kilometre of pipeline to be constructed in approximately 20 years for high flow scenarios.

3) Trunk sewer north of Ginninderra Creek

The EIS considered a two-stage approach to build new sewer pipelines. The first stage would require 4.8km of new pipeline with extended sections near Ginninderra Creek, three new OCUs (Evatt, Florey and Latham) serving the existing sewer and two new OCUs (Melba and Latham) serving the new pipeline. The second stage, scheduled in 20 years, would require an additional 2.8km of pipeline and two new OCUs.

The proponent considered the above options with quantitative and qualitative assessment and determined that the proposal as described in the EIS was the preferred option. Further refinement was made during the EIS process including the decision to upsize pipe diameter from DN1100 to DN1200 to futureproof engineering design, inclusion of additional penstock infrastructure to minimise odour at the eastern end of the Project area, and refinement to sewer alignment in response to community concerns about impacts to natural temperate grasslands and tree removal.

2. The environmental impact assessment process

Environmental impact assessment processes are used to identify, predict, plan for and manage the impacts of development proposals before a decision is made about the Project going ahead. An environmental impact assessment process is required to be undertaken for projects in the impact track. Three options are available for environmental impact assessment – Environmental Impact Statement (EIS), EIS exemption and Environmental Significance Opinions (ESO), with the suitability of each option dependent on the type and scale of project.

An environmental impact assessment process is not an approval process. It ensures potential impacts and possible mitigation measures have been fully investigated and documented in accordance with the requirements of a scoping document.

The EIS is used as a key assessment tool for any development application lodged for the proposal. The EIS also recommends conditions to be imposed on a development application (if approved) for the proposal. Figure 2 outlines the EIS process.

Under section 127 of the PD Act, a development application for a development proposal in the impact track must include a completed EIS in relation to the proposal (unless the application is exempted under section 211 of the Act). Section 123 of the PD Act states that the impact track applies to a development if:

- the relevant development table states that the impact track applies;
- the proposal is of a kind mentioned in Schedule 4 of the PD Act;
- the Minister makes a declaration under section 124;
- section 125 or section 132 applies to the proposal; or
- the Commonwealth Minister responsible for the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) advises the Minister in writing that the development is a controlled action under the EPBC Act, section 76.

2.1. Impact track triggers

The Belconnen Trunk Sewer Augmentation project is in the impact track as it is a development of a kind mentioned in Schedule 4 of the PD Act. This proposal triggers the Schedule 4 items listed in Table 2.

Table 2 Impact track triggers per Schedule 4 of the PD Act

Item Number	Description	Project Component
Part 4.3, Item 1	*proposal that is likely to have a significant adverse environmental impact on a critically endangered species and a threatened ecological community*	The project is likely to clear 0.02 hectares of core habitat for Golden Sun Moth and 0.88 hectares of supplementary habitat. The project is likely to clear 0.15 hectares of Natural Temperate Grassland.

Part 4.3, item 2	*proposal involving—* *(a) the clearing of more than 0.5ha of native vegetation in a native vegetation area, other than on land that is designated as a future urban area under the territory plan, unless the conservator of flora and fauna produces an environmental significance opinion that the clearing is not likely to have a significant adverse environmental impact; or* *(b) the clearing of more than 5.0ha of native vegetation in a native vegetation area, on land that is designated as a future urban area under the territory plan, unless the conservator of flora and fauna produces an environmental significance opinion that the clearing is not likely to have a significant adverse environmental impact*	The proposal includes clearance of approximately 10.65ha of vegetation, of which 0.46ha is considered remnant native vegetation and 0.15ha is considered native natural temperate grassland.

2.2. EIS process

The flowchart below outlines the EIS application process.

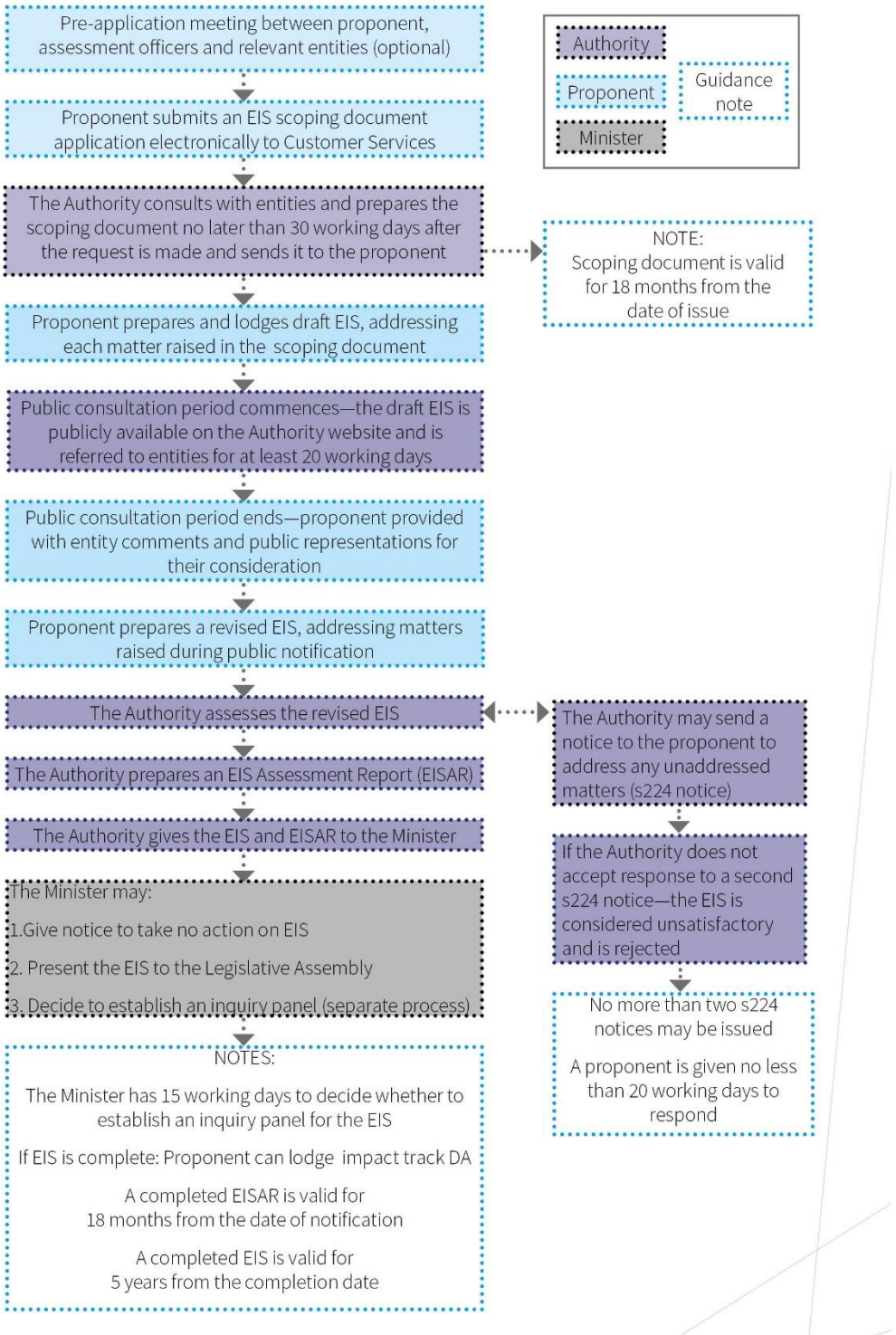

Figure 2 - The EIS process

2.3. Scoping Document

To guide the content of an EIS and therefore the investigations and research required, a scoping document is prepared. The planning and land authority (the Authority) within EPSDD prepares a scoping document in response to an application made for the proposal.

On 30 April 2018, Icon Water submitted a request for a scoping document for an EIS pursuant to section 212(1) of the PD Act.

The Authority must consult with entities prescribed in section 51 of the *Planning and Development Regulation 2008* (**PD Regulation**) about the scoping document application. The Authority may also seek advice from the ACT community and other entities. The Authority referred the scoping document application to the entities inviting written comments. The entities were given 15 working days to provide comment. The consulted entities and their responses are summarised in Table 3**.**

Table 3 Entity comments on scoping document application

Entity consulted	Entity response
ACT Health	21 May 2018
ACT Heritage Council	21 May 2018
Commonwealth Department of the Environment and Energy	6 June 2020
Conservator of Flora and Fauna	10 May 2018
Emergency Services Commissioner	7 June 2018
Environment Protection Authority	8 June 2018
Evoenergy	6 June 2018
Jemena	7 June 2018
Planning Policy Division (EPSDD)	31 May 2018
TCCS	5 June 2018
Utilities Technical Regulator (Access Canberra)	5 June 2018

In developing the scoping document, a risk-based approach was used so that the EIS could focus on those matters that potentially result in a significant environmental impact.

On 13 June 2018, the scoping document was issued by the Authority to the proponent pursuant to section 212(2) of the PD Act (**Appendix 1**). The scoping document set out the matters to be addressed in the EIS and contained, at a minimum, the requirements required in section 50 of the PD Act and section 54 of the PD Regulation.

The scoping document was notified on the ACT Legislation Register on 25 June 2018.

Pursuant to section 214 of the PD Act, the scoping document was issued within 30 working days after the application was made.

Under section 213 of the PD Act, the proponent was required to submit a draft EIS within 18 months from the day after the date on the scoping document. The draft EIS was to address each matter raised in the final scoping document and provide the draft EIS to the Authority for public notification.

2.4. Draft EIS

The purpose of the draft EIS is to identify and describe the potential environmental, social and economic impacts of the proposal, including cumulative, regional, temporal and spatial considerations. The draft EIS is required to fulfil the requirements of the scoping document.

On 30 April 2019, WSP Australia P/L gave the Authority a draft EIS, under section 216(2) of the PD Act.

2.4.1. Public notification of draft EIS

Pursuant to section 217 of the PD Act, the Authority publicly notified the draft EIS from 3 June 2019 to 22 July 2019, being 35 working days.

During the public consultation period, a copy of the draft EIS was made available on the Authority's website and at the EPSDD shopfront in Dickson. This public consultation process provided interested stakeholders and the community with the opportunity to make representations on the proposal or in respect of specific environmental issues of concern.

Two formal representations were received during the public consultation period. A summary of the key issues raised during public consultation were:

- adverse impacts to nearby wetlands;
- the pipeline bridge would impact the visual appeal of adjacent wetlands; and
- request for improved pedestrian access to wetlands which should include a new footbridge incorporated into the pipeline bridge design.

As required by section 220 of the PD Act, copies of all public representations were provided to the proponent and made available on the Authority's website. The representations will remain on the website until either the EIS is completed or the representations are withdrawn.

An overview of those comments received and the proponent's response to those comments during the public consultation process was provided by the proponent in the revised EIS and is detailed in Part B of the revised EIS.

2.4.2. Entity referral of EIS

On 24 May 2019 the draft EIS was referred to each of the entities who provided comments on the scoping document. The referral took place at the draft EIS stage so that the proponent could address entity comments in revising their EIS. On 1 September 2020 additional comments were sought on the revised EIS where the entity had requested further information from the proponent. Final comments on the EIS are summarised in Table 4.

Table 4 - Summary of entity comments on the EIS

Referred entity	Entity response	Entity response date
ACT Health	The design and construction of all sediment control basins must minimise the potential for them to become a local mosquito nuisance.	12 July 2019

	It is possible that per- and polyfluoroalkyl substances from the former Charnwood Fire Station may have impacted groundwater in the proposed alignment. The Health Protection Service (HPS) supports the need for further intrusive studies or sharing of collected data to determine PFAS impacts. The HPS also supports the preparation of a Construction Environmental Management Plan (CEMP) before construction works begin.	
ACT Heritage Council	The findings and recommendations of the Project's Cultural Heritage Assessment are endorsed. The proposed development as described in the revised EIS is unlikely to damage Aboriginal places and objects, subject to compliance with the following condition – water monitoring bores are not to be installed within the Umbagong Grinding Grooves heritage area.	15 July 2019
Conservator of Flora and Fauna	While the proposal has generally avoided and mitigated potentially significant impacts, some concerns still remain. Golden Sun Moth caterpillars along the alignment route outside the avoided core habitat will be destroyed and successful rehabilitation will require regular comprehensive control of African Love Grass. It is accepted that Striped Legless Lizard does not occur within the proposal area. The proposed pipeline route crosses through the middle of this patch (of NTG), the whole patch is likely to be degraded to a point where it is no longer NTG. Options that should be investigated in order of priority to protect Natural Temperate Grassland Patch 20, are: • the patch should be underbored; and • the pipeline should divert to skirt around the edges of the patch, either to the east – close to the powerline easement or to the west as close as possible to Ginninderra Drive; and the width of disturbance should be reduced in the vicinity of Patch 20 to less than 20m and preferably to 10m. This may involve use of different machinery and a change in construction methodology. See section 6 of this EISAR for recommended DA conditions.	10 July 2019

Emergency Services Commissioner	No comment	12 June 2019
Environment Protection Authority	Under Section 42 of the Environment Protection Act 1997 an Environmental Authorisation (or Waterway Work license) is required for the following activity: The acceptance by a lessee or occupier of land of more than 100m3 of soil for placement on that land in an area identified in: (I) the Territory Plan as 1 of the following: - Broadacre; Rural; Hills, Ridges and Buffer Areas; River Corridors; Mountains and Bushlands; Plantation Forestry; Similarly, the extraction of more than 100m3 of material from a waterway will require an Environmental Authorisation. All rain water that enters the site and pools in excavations during a rain storm event would be considered as a sediment control pond/dam, and must meet the following conditions: • No discharge from the pond unless sediment level is less than 60mg/litre. If sediment level is greater, then prior to discharge, the dam must be dosed with either Alum or Gypsum and allowed to settle until the sediment is less than 60 mg/litre. See section 6 of this EISAR for recommended DA conditions.	17 June 2019
Evoenergy	The proposed sewer main will pass beneath some existing overhead 11kV lines. Please contact Evoenergy at detailed design stage to ensure adequate clearance is maintained from power poles. Extra care will be required when working beneath overhead lines by earthworks machinery etc. Please contact Evoenergy before commencing any works to discuss working clearances and safety issues.	26 May 2019
TCCS	The main compound and laydown area at the corner of Copland Drive and Ginninderra Drive with alternate access from Conley Drive: • The proposed area may not be suitable due to the construction of water quality works at this location. The water quality works are under an extended landscape consolidation period	15 July 2019

	which may overlap with the construction of the trunk sewer. • Access to the proposed site on the eastern side of Kingsford Smith Drive will be restricted to left in/left out movements due to the dual carriageway configuration of Kingsford Smith Drive. Vehicular access within riparian areas is not encouraged. Alternate maintenance access should be considered. Land use permits will be required for compounds and parking areas associated with the construction phase. All affected areas will be subject to a Landscape Management and Protection Plan (LMPP) which includes a detailed dilapidation report. Any permanent changes to shared paths will require specific approval from TCCS. Temporary relocations/diversions during construction will require a Temporary Traffic Management Plan (TTMP) to be approved by Roads ACT. Access points will require a TTMP to be approved by Roads ACT. The site access points will also need to be included in the LMPP and any pavement damage caused by construction/delivery vehicles will need to be rectified on completion of the construction phase. Any proposed vehicular access points required for operation and maintenance activities will need to be located appropriately to minimise any impacts on traffic movements. Access points will also need to be designed to minimise any vehicular damage to vegetation on unleased land. Consideration for replacement tree species should include Acacia melanoxylon, Casuarina cunninghamiana, Eucalyptus melliodora, Eucalyptus rossii (on high and rocky areas), Eucalyptus rubida, Eucalyptus nortonii, Eucalyptus mannifera, Eucalyptus polyanthemos and Eucalyptus bridgesiana as these are some of the trees listed in Schedule 3 of Tree Protection (Approval criteria) Determination 2006 (No 2) as local ecologically beneficial species.	
Utilities Technical Regulator (Access Canberra)	No response	No response

The entity comments are included in this report where they relate to each potential impact. Any matters to be considered or conditions that have been recommended by a referral entity are included in Table 28 of this report.

2.4.3. Request for revision of draft EIS

The Authority provided their preliminary review of the draft EIS, entity comments and public representations to the proponent. The proponent was required to revise the draft EIS, to take into consideration all matters raised in representations made during public consultation, comments from EPSDD and to demonstrate how the matters have been taken into account in the revised EIS.

2.5. Revised EIS

On 15 June 2020, WSP Australia P/L submitted a revised EIS to the Authority pursuant to section 221 of the PD Act. A brief adequacy review was undertaken to confirm that all appropriate sections and appendices had been included. The revised application was circulated to selected entities to confirm their matters raised in earlier referrals has been addressed. Following this, the Authority commenced assessment of the EIS in accordance with section 222 of the Act. The Authority reviewed the revised EIS for:

- adherence to the final scoping document and legislative requirements;
- consideration and incorporation of the Authority's and entity comments provided on the draft EIS; and
- consideration and response to public representations received during notification of the draft and other consultation processes.

Matters to be considered during the assessment include possible conditions of approval for any subsequent DAs for this proposal, as identified in Table 28 of this report.

The Authority is satisfied that Icon Water adequately addressed each matter raised in the public representations received and the Authority's and entity comments.

2.6. Additional public consultation

The proponent conducted community and stakeholder consultation in line with the requirements of the scoping document by consulting with prescribed stakeholders, providing consultation method, considering community feedback in light of the proposal, considering public representations from Draft EIS notification, and inclusion of previous correspondence with relevant entities in relation to the requirements or support of the proposal.

In addition to the statutory notification performed by the Authority at draft EIS stage, the following consultation activities were undertaken by Icon Water and described in the EIS. In part B of the EIS, the proponent gives a description of how each issue raised by the community was considered in the EIS draft EIS stage.

Identification of stakeholders recognised by the EIS included land custodians, representative Aboriginal organisations, environmental groups, recreational groups, utility owners, ACT government, residents and homeowners, community council, local community centres, services and

clubs, local schools and child-care centres, local sporting clubs and facilities, local businesses and local places of worship.

The proponent organised the following public consultation activities:

- Meetings with Government and Agency stakeholders;
- Letters to stakeholders;
- Opt-in email Project updates;
- Icon Water webpage – Project specific page;
- Community mail out to 44 identified stakeholders;
- Presentation to Belconnen Community Council;
- Two community mail out events in November 2018 and January 2019 to approximately 8,500 and 5,000 households respectively;
- Media release;
- Community information sessions – drop in style Melba Copland College;
- Social media coverage by Utility Magazine online
- Facebook post by Belconnen Community Council and Belconnen Community Council meeting
- Twitter posts
- Community feedback via online, email, phone, post, community drop in sessions.

2.7. Giving the EIS to the Minister for Planning and Land Management

Following the proponent's response to issues raised through the draft EIS stage, the Authority accepted the revised EIS under section 222 of the PD Act. The findings and outcomes of the review of the EIS are included in this report, which is provided to the Minister for Planning and Land Management with the EIS in accordance with section 225. Once the Minister has received the EIS he/she may:

- under section 226 – choose to take no action on the EIS; or
- under section 227 – present the EIS to the Legislative Assembly; or
- under section 228 – establish an inquiry panel to inquire about the EIS. The Minister must make this decision within 15 workings day of receiving the EIS from the Authority. The requirements for establishing an inquiry panel are detailed under Part 8.3 of the PD Act.

Under section 209 of the PD Act, an EIS is completed if the Minister:

a) gives the Authority a notice of no action under section 226;
b) has not decided to establish an inquiry panel to inquire about the EIS;
c) has established an inquiry panel for the EIS and:

    (i) the Panel has reported the results of the inquiry; or
    (ii) the time for reporting under section 230 has ended.

The Authority's recommendation to the Minister can be found in Section 7 of this report.

2.8. Lodging a development application

Once the EIS has been completed the proponent can lodge a development application in the impact track. Any subsequent development application related to the EIS must include the completed EIS. The EIS expires five years after the day it is completed.

2.9. Documentation referenced in this report

The documentation referenced in the Authority's assessment report is summarised as follows:

(i) Revised EIS and supporting documentation;
(ii) Entity comments and public representations draft EIS; and
(iii) Correspondence or additional information received from proponent.

3. Assessment of impacts

This section summarises issues identified in the scoping document that had to be assessed in the EIS. For each set of identified issues, the results of the proponent's assessment are summarised under the following headings:

- impacts;
- key findings;
- public consultation;
- mitigation; and
- scoping document requirements.

3.1. Biodiversity

The proposed development has the potential to impact on the conservation values of the Project site, including native vegetation, patches of Natural Temperate Grassland listed as a critically endangered ecological community and Golden Sun Moth, listed as an endangered species.

The EIS included a Biodiversity Impact Assessment prepared by WSP Australia P/L which reviewed the existing flora and fauna on site and identified impacts during construction and operational phases. A detailed Tree Survey report prepared by ACT Tree Felling identified and assessed all trees impacted by the Project.

3.1.1. Impacts

The EIS identified the following impacts associated with biodiversity during construction:

- removal of 10.65 hectares of native vegetation and fauna habitat (0.46 hectares is remnant native vegetation and 0.15 hectares is Natural Temperate Grassland);
- removal of 826 trees with impacts on the urban treescape;
- removal of threatened species habitat; and
- potential for fauna injury or mortality.

3.1.2. Key findings

The Project site has been highly modified due to agricultural, residential and recreational development but retains native vegetation communities such as Natural Temperate Grassland of the South Eastern Highlands (comprised of patches of Tablelands Moist Tussock Grassland and Planted Native Canopy with Tablelands Moist Tussock Grassland Understorey). The EIS describes fauna habitat as low to moderate condition with 87 species of flora recorded in the Project study area, 29 (45%) of which were native species.

Within the Project study area, there are six threatened fauna species with potential habitat. Of these, three species (Golden Sun Moth, Grey-headed Flying-fox and Superb Parrot) are listed under both the *Nature Conservation Act 2014* and the *EPBC Act (Cwth)* and three species (Little Eagle, Scarlet Robin and the White-winged Triller) are listed only under the Nature Conservation Act 2014. Of these, the Golden Sun Moth was the only species recorded during targeted seasonal surveys. The EIS mapped 0.62 hectares of core Golden Sun Moth habitat and 1.32 hectares of supplementary

habitat. The EIS describes on-site revegetation of disturbed Golden Sun Moth habitat but does not include off-site external offset planting.

The EIS specified that the Project requires 10.65 hectares to be cleared for construction. 0.46 hectares of this consists of remnant native vegetation and 0.15 hectares supports the Natural Temperate Grassland threatened ecological community.

The proponent's Assessments of Significance for species listed under the EPBC Act concluded that the Project is not likely to have a significant impact on a Matter of National Environmental Significance and that impacts to *Nature Conservation Act 2014* listed species are unlikely to be significant.

The proponent has provided mitigation measures to minimise the impacts on biodiversity, including implementing a Construction Environmental Management Plan (CEMP) during the construction phase. This will contain a Rehabilitation and Replanting Plan as well as further mitigation measures.

3.1.3. Public consultation

During the public consultation process concerns about biodiversity impacts included:

- general impacts to flora and fauna resulting from vegetation clearing; and
- inadequate restoration of environment after construction works.

During the public notification process one community representation raised concerns of adverse impacts to nearby wetlands. The proponent considered the concern and responded that the Project is not expected to impact the wetlands.

Representations also highlighted a potential opportunity for ecological value in some areas to be improved from existing conditions through restoration practices.

The issues raised during public consultation were considered by the proponent. The proponent responded to these concerns by engaging WSP Australis P/L to prepare the Biodiversity Impact Assessment, which concluded that the Project is unlikely to have a significant impact on threatened biodiversity provided that appropriate mitigation measures are implemented.

3.1.4. Mitigation and avoidance

Error! Reference source not found. details the avoidance and mitigation measures associated with biodiversity as proposed in the EIS. A complete table of mitigation measures is available in the EIS in section 6.4.

Table 5 Avoidance and mitigation measures (biodiversity)

Proposed mitigation measures	Stage of implementation
Refine Project design to minimise biodiversity impacts.	Design
Site inductions to inform workers of environmental sensitivities.	Construction
Areas of ecological significance identified in CEMP.	Construction
Vegetation clearing limits defined prior to construction including fencing and signage.	Construction

On site fauna ecologist will survey tree and understory for animals/nests.	Construction
Open trenches will be fenced and backfilled to limit impact to terrestrial fauna access. Daily checks and relocation of animals found in trenches.	Construction
Rehabilitation and Replanting Plan including: • reuse of topsoil, rocks and timber; • a detailed tree planting plan (including a commitment of no net loss of number of trees replanted) and replacing groundcover vegetation with local native species in consultation with local experts; • revegetating Golden Sun Moth habitat with native species; and • minimum two-year revegetation & weed control consolidation period, including consultation with Ginninderra Catchment Group for ongoing management of grasslands.	Construction
The following measures would be undertaken to prevent the spread of invasive species and pathogens: • targeted control of African Lovegrass (Eragrostis curvula); • monitor potential new weed outbreaks and undertake control; • minimise soil movement between locations (footwear cleaning, vehicle/machinery inspection and washdown); and • ensure imported fill is pathogen and weed free.	Construction
Implement erosion and sediment controls to minimise sedimentation impacts to waterways.	Construction
Monitor compliance with approved vegetation clearance impacts.	Construction

3.1.5. Scoping document requirements

The table below details the risks associated with biodiversity as defined in the EIS.

Table 6 Scoping document requirements: residual biodiversity risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Impact on native vegetation, including protected ecological communities	High	Almost certain	Minimal	Medium
Impact on threatened fauna (including fauna habitat clearing) for: — Pink-tailed Worm Lizard — Striped Legless Lizard.	Medium	Unlikely	Minor	Very low
Impact on threatened fauna (including fauna habitat clearing) for: — Golden Sun Moth.	Medium	Likely	Minor	Medium
Impact on threatened fauna habitat (including fauna habitat clearing) for species with potential habitat	Very high	Likely	Minor	Medium

Impact on threatened flora species, including: **— Ginninderra Peppercress** **— Hoary Sunray** **— Small Purple Pea.**	Medium	Unlikely	Minor – within previously disturbed areas	Very low
Direct impacts to existing trees (not being ACT registered trees or trees under the TP Act)	Very high	Almost certain	Minor	High

3.2. Traffic and Transport

The Project passes through Companion Crescent and Kingsford Smith Drive, and primary access for construction activities will occur via Copland Drive, Kingsford Smith Drive, Ginninderra Drive and the suburban cul-de-sac of Homann Place. The alignment is bound between Ginninderra Drive and Ginninderra Creek to the south, and the suburbs of Melba and Flynn to the north.

The EIS describes existing road networks, shared path networks, public transport routes, crash data and traffic volume data.

The proposed trunk sewer main alignment would be constructed mostly by open trench method at a depth of 1.5 to 6 metres underground. Roads and shared use paths located within the pipeline alignment and construction footprint will be impacted. The EIS concludes that the proposed sewer needs to be upsized from DN1100 to DN1200, which requires open cut trenching through Companion Crescent and necessitates road closures and detours for general vehicle movements. Less intrusive trenchless horizontal boring will occur beneath Kingsford Smith Drive.

A pipe bridge is required for the trunk sewer main to cross over Ginninderra Creek to the west of Copland Drive to enable connection with the existing sewer. The construction phase of the pipeline may impact upon shared use paths.

Construction of an OCU on Block 1 Section 138 and Block 2 Section 147 in Latham will impact upon pedestrian/cyclist use of adjacent shared paths.

3.2.1. Impacts

Potential impacts identified in the EIS in relation to traffic and transport are summarised below.

- Increased traffic generation from equipment deliveries, earthworks, concrete deliveries, construction worker vehicles
- Increased cumulative truck volumes along affected roads
- 5-day road closure impact to Companion Crescent
- Heavy vehicle movements presenting a safety risk to existing vehicle use of Companion Crescent, Conley Drive, Vickers Crescent, Dobinson Place and Homann Place
- Temporary disruption to bus route 41 during road closure of Companion Crescent (only one lane open, traffic controllers allowing only buses and emergency vehicles access)
- Pedestrians and cyclists will be diverted via Charvin Circuit, Goldner Circuit and Lovelock Circuit during construction

- Inspection and maintenance activities during operation will result in additional traffic accessing the site

3.2.2. Key findings

The EIS highlights that most traffic and transport impacts will be temporary in nature, occurring during the construction phase. The operation of the sewer is not expected to result in ongoing or permanent traffic and transport impacts.

There will be temporary disruption to vehicle and pedestrian movements within Melba and Flynn as a result of constructing the sewer alignment and the OCU. Increased temporary impacts to traffic and transport will occur at the primary access points for the Project, including Copland Drive, Kingsford Smith Drive, Ginninderra Drive and Homann Place. Temporary impacts to pedestrian and cyclist thoroughfares will occur at various points along the sewer alignment and adjacent to the OCU.

Companion Crescent

The open trenching construction method through Companion Crescent will result in a 5 day road closure, which will have a localised impact on residents. The construction method for the open trench through Companion Crescent is designed to allow for only a single lane to be open for the exclusive use of emergency vehicles and buses. Other vehicles will be redirected via detours under TCCS approved temporary traffic management plans. Open trenching elsewhere will cross through several sections of shared use paths. This will require re-routing of pedestrians/cyclists via temporary traffic management plans.

Entity advice in relation to traffic and transport in the draft EIS was provided by TCCS recommending a range of mitigation measures which are included below.

3.2.3. Public consultation

During the public notification process, two representations were received, both requesting improved pedestrian access to the wetlands by a new pedestrian footbridge. The issue was considered by the proponent and a response was provided in table 4.8 of the revised EIS. In summary, the proponent investigated options to include a footbridge and concluded that a footbridge would not be considered further as part of this project because of additional cost, additional construction program time and increased backwater flooding impacts.

The EIS notes that the DA will detail alternate cycling and walking routes to be provided when sections of recreational paths need to be closed during construction.

3.2.4. Mitigation and avoidance

The EIS states that a Construction Environmental Management Plan (CEMP) would be prepared by Icon Water (and/or its nominated construction contractor) prior to construction to outline the construction conditions and temporary environmental protection measures to manage the impact of construction activities. The CEMP will be consistent with the EIS, planning approval conditions identified for the EIS and Development Application, and any other requirements or conditions within any licences or permits or as issued by government authorities.

The EIS specifically identifies that the CEMP would include a traffic and transport management plan.

Table 7 details the avoidance and mitigation measures associated with traffic and transport impacts as proposed in the EIS.

Table 7 Avoidance and mitigation measures (traffic and transport impacts)

Proposed mitigation measures	Stage of implementation
Final design and locations of the pedestrian/cycling paths to be reinstated following completion of construction activities, would be undertaken in consultation with TCCS to ensure compliance with current standards.	Detailed design phase
A Temporary Traffic Management Plan (TTMP) must be prepared for the proposal. See Table 28 for further details on required content.	Detailed design phase
A CEMP must be prepared for the proposal. See Table 28 for further details on required content.	Construction phase
Specific location of access points identified with signage to maintain sufficient sight distance for drivers.	Construction phase
A Dilapidation Report is required to notify TCCS of any existing damage to traffic and transport infrastructure. See Table 28 for further details of this condition.	Construction phase

3.2.5. Scoping document requirements

The table below details the risks associated with residual Traffic and Transport risks (with mitigation) as defined in the EIS.

Table 8 Scoping document requirements: residual traffic and transport risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Traffic impacts on the existing road network during construction from increase of heavy vehicle movements resulting in impacts to: **— local intersection performance from traffic volume increase;** **— local on street residential parking; and** **— road closures during the delivery of primary equipment.**	Medium	Possible (relating primarily to on-street parking impacts)	Moderate	Medium
Construction traffic, parking and access requirements resulting in potential for impacts to emergency services operations (ESA – West Belconnen Station).	Medium	Remote	Major	Low
Impacts to the existing	Medium	Possible	Moderate	Medium

pedestrian and cyclist thoroughfare as tracks are in the required construction area.		(bike and pedestrian paths would be impacted however alternate access routes would be provided)		

3.3. Materials and Waste

The EIS states that the Project has the potential to utilise a range of different resources and generate a number of different waste types throughout its construction phase and, to a much lesser extent, the operational phase.

3.3.1. Impacts

The EIS describes the following key impacts associated with materials and waste:

- waste generated from construction infrastructure and ancillary structures;
- increased demand/availability of resources such as electricity, fuel, concrete; and
- energy consumption and generation of waste from operation.

3.3.2. Key findings

Waste types identified during construction include excess spoil from trenching, green waste from vegetation clearance, general construction waste such as off-cuts and packaging, waste oil, grease and lubricant, and domestic waste from construction workers.

Materials and resources identified by the EIS for construction include steel, concrete, reinforced pipeline, plastics for conduits and instrumentation, and geofabrics for ground stabilisation. The EIS mentions that the materials required for construction are abundant and local shortages of materials are not expected to occur from Project activities.

Carbon media for filters will be required for the ongoing operational phase. No regular waste collection service is required by the Project. Irregular removal of waste will occur during operation.

3.3.3. Mitigation and avoidance

Table 9 details the avoidance and mitigation measures associated with materials and waste as proposed in the EIS.

Table 9 Avoidance and mitigation measures (materials and waste impacts)

Proposed mitigation measures	Stage of implementation
A Waste and Recycling Management Plan (WRMP) in accordance with the relevant revision of the Development Control Code for Best Practice Waste Management in the ACT must be submitted at the Design Review stage.	Design
CEMP to require:	Construction

• waste hierarchy to be applied and opportunities for re-use and recycling of waste to be investigated; • green waste disposed to green waste recycling facility; • tidy site and appropriate disposal of general litter; • waste management included in site induction; • all waste and soil disposed at licensed facility; and • where viable source locally available resources and materials.	
Locate stockpiles on level ground away from sites of ecological and heritage value and drainage lines, implementing erosion and sediment controls. Assess for beneficial reuse opportunities.	Construction
Rubbish bins provided within OCU and wastes disposed of in accordance with EPA guidelines.	Operational

3.3.4. Scoping document requirements

The table below details the risks associated with residual Materials and Waste impacts (with mitigation) as defined in the EIS.

Table 10 Scoping document requirements residual materials and waste risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Generation of waste from operation	Medium	Possible	Minor	Low

3.4. Soils and Geology

The underlying geology classification along the alignment is Late Silurian Deakin Volcanics. Topsoils from 0-0.4m were silty sand, subsoils were silty clayey sands and deeper weathered bedrock was fine to coarse grained rhyodacite.

The EIS states that up to 18,800 cubic metres of soil would need to be excavated during trenching for the new sewer line and OCU. The majority of the 2.4km pipeline alignment is underground, with the only above ground feature being the 230m pipeline to cross Ginninderra Creek.

Most of the underground sections will be constructed by open trench method. Several shorter underground sections will be constructed by directional horizontal underboring beneath a road asset (Kingsford Smith Drive) and to protect an ecological asset (Natural Temperate Grassland). The OCU located in the north of Latham will be an above ground feature but will require earthworks for site levelling and underground connection to the existing sewer network.

3.4.1. Impacts

The EIS describes the following unmitigated contamination and soil risks associated with the Project:

- encountering contaminated land (including groundwater with PFAS contamination);
- erosion and sedimentation causing pollution of Ginninderra Creek and other waterways resulting from trenching activities;
- impacts to soil during construction; and

- site contamination (such as liquid contaminant spills, hydrocarbons, chemicals etc.) from construction machinery.

3.4.2. Key findings

The EIS identified the potential for disturbance of contaminated soil and groundwater associated with existing and former land uses in the vicinity of the Project area. Risk of per- and polyfluoroalkyl substances (PFAS) contamination is potentially associated with the ACT Fire Brigade Facility in Charnwood and the former Charnwood fire station. Risk of contaminated uncontrolled soil fill is potentially associated with a BMX track and a playground in Melba.

Project earthworks also have the potential for dust generation, erosion and sediment transfer off site and the refuelling of construction vehicles could potentially result in hydrocarbon transfer to soil.

The EIS states that significant impact to geology is not anticipated.

Advice from ACT Health Protection Services supported the need for intrusive studies or sharing of data to determine contamination impacts from PFAS. The EPA also provided a number of conditions (see Table 28).

3.4.3. Mitigation and avoidance

Table 11 details the avoidance and mitigation measures associated with soil and geology as proposed in the EIS.

Table 11 Avoidance and mitigation measures (soils and geology)

Proposed mitigation measures	Stage of implementation
Preliminary Site Investigation to be provided to EPA to specify scope and requirement for intrusive PFAS testing.	Detailed design
Construction Environment Management Plan required (see further details in Table 28**).**	Construction
Erosion and Sediment Control Plan to be prepared and provided to EPA for approval prior to construction.	Construction
Onsite reuse of earthwork spoil and rock encountered during construction where practicable.	Construction
Earthwork spoil that cannot be reused on site will be tested for contamination and sent for recycling or disposal to a licensed facility in accordance with regulatory requirements.	Construction
Construction plant and vehicles cleaned of mud and soil prior to access onto public roads. Vehicles and equipment use existing roads and defined site access tracks.	Construction
Imported fill to be certified as pathogen and weed free Excavated Natural Material (ENM) or Virgin Excavated Natural Material (VENM).	Construction
Environmental spill kits accessible on site.	Construction
All chemicals or other hazardous substances will be stored in bunded (130% capacity) and weatherproof facilities away from drainage lines.	Construction
Protocols for management of spoil would be developed including:	Construction

• measures for stockpile management; and • testing and classification requirements prior to export offsite.	
Unexpected Finds Procedure (UFP) to manage any unexpected contamination identified during site works.	Construction

3.4.4. Scoping document requirements

The table below details the risks associated with residual soil and geology risks (with mitigation) as defined in the EIS.

Table 12 Scoping document requirements: residual soil and geology risks (with mitigation)

Potential Impact	Risk Assessment **Risk** (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Impacts to soil during construction and from vegetation material	Medium	Unlikely	Minor	Very Low

3.5. Landscape and Visual

The prominent existing landscape and visual features within and adjacent to the Project area are Ginninderra Creek and associated riparian vegetation, open space with shared paths and grasslands, electricity poles and cables, a fringe of urban residential dwellings, the dual carriageway of Ginninderra Drive and the two roads intersected by the sewer alignment which are Companion Crescent and Kingsford Smith Drive.

The majority of the 2.4km sewer alignment will be underground and generally follows alongside Ginninderra Creek. A pipeline bridge, spanning 230 metres and crossing Ginninderra Creek, will be the only above ground section of pipeline. The pipeline bridge is located at the eastern most section of the Project area.

The OCU to be built in the north of Latham will be in urban open space that is mostly grassland with several scattered trees. The OCU and ancillary small pipe bridge and driveway access will be situated between Ginninderra Drive and a stormwater tributary of Ginninderra Creek. Residential houses of Latham are approx. 70m to the west of the OCU.

3.5.1. Impacts

Landscape and visual impacts are both temporary (construction phase) and permanent (operational phase). Construction activities such as site compounds, materials and stockpiles, security fencing and the removal and reinstatement of vegetation for pipeline trenching will create temporary visual and landscape impact upon the normal urban open space vista.

The EIS describes permanent landscape and visual impacts from the finished operational pipeline bridge across Ginninderra Creek and the operational OCU structure in the north of Latham.

The pipeline bridge will have a high to moderate residual long term impact from the 230m horizontal line of the 1.1m diameter pipe bridge supported on reinforced concrete piers (Figure 3). High residual impacts are expected for existing houses adjacent to Lovelock Court and Charvin Court, Melba (Figure 4). The EIS outlined that moderate impacts are expected on pedestrians and cyclists and very low visual impacts are expected for motorists and commuters using Ginninderra Drive. Other aspects of the pipeline bridge such as the reinforced concrete headstock and the circular steel rod array for pedestrian access prevention, and the adjacent penstock facility with above ground electrical box and vent are expected to have low landscape and visual impacts.

The EIS identifies the OCU as a grey concrete building approximately 5m in height with a footprint of 25m x 11m (Figure 5). The building footprint includes concrete pavement 2m wide around the building edged with bollards on two sides of the building. An approximate 24m high vertical ventilation stack pipe will have a vertical line impact (Figure 6). High impacts are expected for existing urban fringe views, occupying a proportion of view for residents of McArthur Place and Macindoe Place Latham (Figure 7). Moderate impacts are expected for views from houses in the urban fringe of Flynn. Some parts of the concrete building and the ventilation stack will be mitigated by trees which provide screening. Moderate impact to views are expected for pedestrians, cyclists and people in motor vehicles passing through the area. A small pipe bridge across the adjacent stormwater channel and crushed rock driveway access from an existing carpark are ancillary to the OCU are not expected to have significant visual and landscape impact.

Graffiti and the OCU

The OCU design presented in the EIS includes very large flat concrete walls in an urban open space near Charnwood group centre with frequent pedestrian and vehicle traffic. This has potential as a graffiti target. Visual impacts of graffiti would impact adjacent residents and people travelling past the OCU. The EIS did not describe graffiti of the OCU as an impact. The EIS does describe use of anti-graffiti paint for OCU construction.

3.5.2. Key findings

Urban fringe residents in Melba, Latham and Flynn have the potential to experience ongoing landscape and visual impacts from the operational pipeline bridge in Melba and the OCU in Latham.

Figure 3: Artist impression of pipeline bridge (source: Icon Water revised EIS)

Figure 4: Location of sensitive receivers in Melba near pipeline bridge (source: Icon Water revised EIS)

Figure 5: Artist impression of OCU appearance without screening vegetation (source: Icon Water revised EIS)

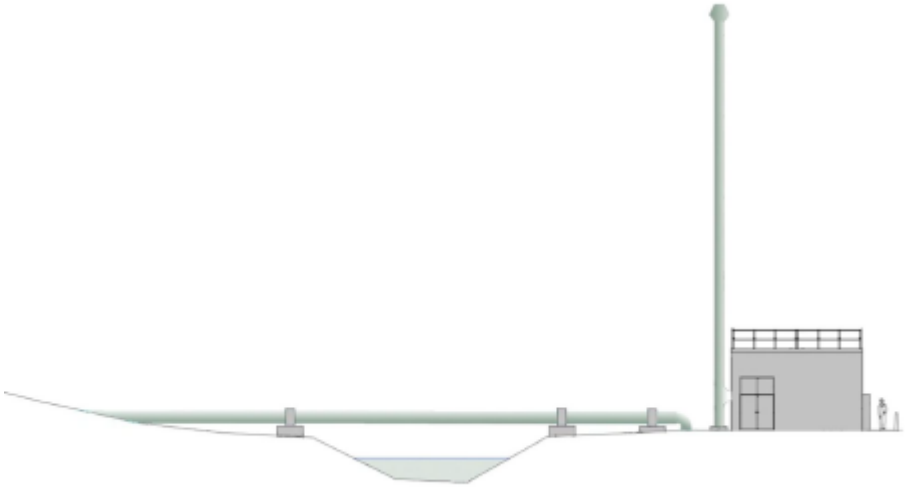

Figure 6: Scaled illustration of the 24-meter-high emissions tower (source: Icon Water revised EIS).

Figure 7: Location of sensitive receivers 1-4 near Latham OCU marked in black stencil (source: Icon Water revised EIS)

3.5.3. Public consultation

During the public notification process, two representations were received. Of these, one community representation raised concern that the pipeline bridge would impact the visual appeal of adjacent wetlands. The proponent responded that the Rehabilitation and Planting Plan includes tree planting and is proposed to mitigate visual impacts as far as practicable.

The issues raised during public consultation included the following:

- lack of influence that environmental groups can have over final design;
- potential visual and landscape impacts from the OCU; and
- potential visual impacts from tree removal.

The proponent's response to the concerns included:

- providing a technical report to analyse landscape and visual issues;
- noting that for the OCU, some engineering elements are guided by the Project team, but community involvement can help set methods to reduce visual impact through selection of materials and finishes, and minimising vegetation removal; and
- noting that the aim is to minimise visual impacts by minimising tree removal and replanting with appropriate native grassland species and trees.

3.5.4. Mitigation and avoidance

Table 13 details the proponent's landscape and visual impact mitigation and avoidance measures.

Table 13 Avoidance and mitigation measures (landscape and visual)

Proposed mitigation measures	Stage of implementation
Refine design of the OCU to minimise visual impacts.	Detailed Design
Select non-reflective, light, neutral coloured finishes for visible infrastructure.	Detailed Design
Locate the northern end of the pipe bridge as far from the Melba residential area as possible.	Detailed Design
For replanting and reestablishment of the area select grass, shrub and tree species consistent with those already in the urban open space but not recognised weeds. Confirm vegetation screening locations.	Detailed Design
Minimise soil and vegetation disturbance as far as practicable within the Project impact footprint.	Construction
Rehabilitate bare, disturbed areas as quickly as possible.	Construction
Keep work sites clean from debris and rubbish and as tidy as practicable.	Construction
Additional vegetation screening for the OCU.	Operational
Extended consolidation period for vegetation (OCU and pipe bridge).	Operational
Anti-graffiti paint to be used on the exterior walls of the OCU.	Operational

3.5.5. Scoping document requirements

The table below details the risks associated with landscape and visual impacts (residual) as defined in the EIS.

Table 14 Scoping document requirements: residual landscape and visual risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Visual impact during construction including: — loss of vegetation (including some established trees); — construction equipment; and — materials storage.	Medium	Likely	Minor	Medium
Visual impacts to surrounding receivers from the Project, including the North Latham OCU (including associated approximately 24metre high vent stack) and from the pipe bridge infrastructure.	High	Likely	Moderate	High

Note 1: High relates to closest visual receivers and those without screened views.

3.6. Water Quality and Hydrology

The Project area identified in the EIS is in close proximity to Ginninderra Creek and the recently constructed wetlands at Melba (ACT Government Healthy Waterways Project). The alignment of the proposed trunk sewer is approximately parallel to Ginninderra Creek and any run-off from the Project area would flow into Ginninderra Creek.

A Water Quality and Hydrology Impact Assessment, prepared by WSP Australia P/L (2019), was included with the EIS. The EIS notes that construction activity has the potential to impact upon water quality of Ginninderra Creek and underlying groundwater. Flooding of Ginninderra Creek also has the potential to impact upon the Project. Ginninderra Creek Flood Modelling prepared by Calibre (2019) was included with the EIS.

3.6.1. Impacts

A summary of the water quality and hydrology impacts from investigations and modelling presented in the EIS are provided below.

Construction phase

Potential impacts upon Ginninderra Creek water quality include increased runoff, sedimentation, pollutants, litter and dewatering of intercepted groundwater. Compaction of soils from construction may decrease permeability of soils and increase localised runoff. Some construction areas within the 1% flood interval extent may be impacted by floodwater inundation if there is a flood. The open trench method to depths of 6 metres for the pipeline means that encountering and disposing of groundwater is a reasonable possibility.

Operational phase

Potential surface water and groundwater contamination could occur if there are future pipeline leaks.

3.6.2. Key findings

The EIS identifies potential negative impacts to surface water and groundwater in construction and offers a range of mitigation measures to minimise this risk.

The EIS states the Project is likely to have a beneficial impact on water quality because it will reduce the risk of the Belconnen Trunk Sewer flooding during wet weather events and polluting nearby waterways.

Modelling investigation suggests minimal flooding impacts from the pipeline bridge construction.

In addition, the EPA requires the proponent to prepare a Contaminant Management Plan, an Erosion and Sediment Control Plan and to hold either an Environmental Authorisation or Environment Protection Agreement, prior to works commencing (see Table 28).

3.6.3. Public consultation

A concern was raised during public notification about potential for outflows from the Project to impact upon the recently constructed ACT Government Healthy Waterways Project at Melba. The proponent responded that once the Project was completed the Project would move the existing location of the overflow point which would negate potential impacts to the wetland.

3.6.4. Mitigation and avoidance

Table 15 details the avoidance and mitigation measures associated with water quality and hydrology impacts as proposed in the EIS.

Table 15 Avoidance and mitigation measures (water quality and hydrology)

Proposed mitigation measures	Stage of implementation
Water Management and Monitoring Plan (groundwater) will be prepared.	Detailed Design
Dewatering measures compliant with Ion STD-SPE-C-001 Technical Specification Civil and Structural Work will be applied.	Detailed Design
Soil and Water Management Plan will be prepared.	Construction
Stormwater drainage controls to be applied on site (drainage, sediment basins, re-use water on site).	Construction
Erosion and Sediment Control Plan to be prepared.	Construction
Management measures to be applied to minimise impacts to surface water from stockpiles, construction materials, material handling and spills.	Construction
Flood emergency plan prepared for pipeline work across Ginninderra Creek.	Construction
Water quality monitoring plan to be included in the CEMP.	Construction
Implement identified control measures to reduce potential impacts to groundwater.	Construction
Operational Environment Management Plan to be prepared.	Operational
Regular inspection of trunk sewer main for erosion or other structural instability.	Operational
Assessment of pipeline for impact on bridge scour, eddying and impact to ACT Healthy Waterways Melba site.	Operational
Water quality monitoring to occur monthly for first three months after construction works are complete.	Operational

3.6.5. Scoping document requirements

The table below details the risks associated with residual surface water and flooding risks (with mitigation) as defined in the EIS.

Table 16 Scoping document requirements: residual water quality and hydrology risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Impacts from construction on existing waterways such as	Medium	Unlikely	Moderate	Low

Ginninderra Creek.				
Ginninderra Creek flow changes. Potential for adverse impacts resulting from the installation of piles near the creek (1 in 2-year flood level) and the associated flood plain.	Medium	Remote	Moderate	Very Low
Impact on natural stormwater flow channels/paths from proposed infrastructure.	Medium	Unlikely	Moderate	Low

3.7. Climate Change and Air Quality

The Scoping Document required the proponent to consider ACT Government policies including the contribution of the Project to meeting legislated targets for net zero emissions, the ACT Climate Change Adaptation Strategy (2016) and AP2 – A new climate strategy and action plan for the Australian Capital Territory (2012). The EIS responded with a description of climate projections and a Climate Change and Greenhouse Gas Emissions Impact Assessment report prepared by WSP Australia P/L.

The EIS also included an Air Quality Impact Assessment prepared by WSP Australia P/L which reviewed particulate matter and odour emission impacts with respect to sensitive receivers near the Project area. The assessment focused on the OCU proposed for north Latham. The assessment also considered the future addition of 3 more odour control units that are not the subject of this Project proposal.

3.7.1. Impacts

Climate change

The potential impacts related to climate change and greenhouse gas identified in the EIS were:

- generation of greenhouse gas emissions during construction;
- potential impacts to the Project resulting from climate change impacts affecting aboveground infrastructure including:
    - predicted increased frequency, severity and duration of extreme temperature (days exceeding 35C);
    - predicted increased frequency and severity of extreme events; and
- severe storm events impacting operation.

Air quality

Construction phase air quality impacts described by the EIS include dust from exposed soil surfaces and vehicle/machinery exhaust emissions. Unfavourable meteorological conditions may exacerbate dust potential during construction.

The EIS notes the operational OCU at north Latham will contribute air emissions from the sewer to atmosphere which has potential for odour impacts. A small amount of gaseous emission may occur during maintenance works.

3.7.2. Key findings

Climate change

The EIS states that during the construction phase, no specific impacts or risks associated with climate change are expected. However, greenhouse gas emissions generated during the operational phase would be directly accountable to the 2050 net zero target.

During the construction phase, the proposal may contribute to climate change by producing greenhouse gas emissions. These would involve Scope 1 emissions (combustion of fuels in plant and equipment and land clearing for the pipeline and OCU), Scope 2 emissions (use of grid electricity during construction), and Scope 3 emissions (transport of construction materials and equipment, embodied emissions from construction materials, transport and disposal of construction waste, transport of works to site).

The greenhouse gas emissions during the Project's operation would involve Scope 1 emissions (emissions from fugitive emissions of methane and nitrous oxide from sewerage pipeline and combustion of fuels), Scope 2 emissions (operational electricity consumption of the Odour Control Unit facility), and Scope 3 emissions (upstream emissions of fuel supply, electricity import, and transport of workers to site).

The EIS identifies climate changes that are likely to affect the Project. These include increased minimum and maximum temperatures increasing up to 2C by 2070, a greater number of extreme hot days by 2070, increased runoff, increased risk of bushfires, increased wind strength and/or storms, and increased intensity of rainfall events.

Air quality

The EIS confirmed an absence of existing significant sources of odour or hydrogen sulfide in the local airshed. The EIS classifies the ambient air quality within the Project study area as being typical of a suburban area and emission sources include traffic on local road networks, domestic fuel burning (gas, liquid and solid), and residential activities (such as use of lawn mowers and barbecues).

Once the Project is operational, the EIS notes the OCU at north Latham will continuously contribute air emissions from the sewer to atmosphere. The Air Quality Impact Assessment report concluded that odour and hydrogen sulfide emissions are not expected to impact on the surrounding area during continuous operation.

3.7.3. Public consultation

Climate change

During the public notification process, one representation was related to climate change which raised the opportunity to modify the pipeline to include a footbridge which would reduce people's reliance on cars and have the subsequent effect of reducing greenhouse gas emissions

The issue was considered by the proponent, responding that a footbridge in the pipeline design would add 20 weeks to the construction program, 30% additional cost, and create an increased backwater effect during significant flood events.

Icon Water also received 31 representations during the public consultation process. The main concerns were about whether the Project will withstand future impacts from climate change.

The proponent responded to these concerns by:

- preparing a climate change assessment, which concluded that the main impact from future climate change is the increased likelihood of flooding;
- assessing the risk in the EIS which was rated 'low'; and
- stating that the Project should also reduce the risk of sewage overflow during high rainfall events due to the increased capacity of the Belconnen Trunk Sewer.

Air quality

The main concerns raised during consultation on air quality that were identified by the proponent included:

- potential odour impacts from the OCU; and
- confusion about the difference between passive or forced ventilation stacks and OCUs.

The proponent responded to these concerns by:

- preparing an odour impact assessment which concluded that nearby residents would not detect odour for 99.9 percent of the time during operation of the OCU; and
- publishing information on OCUs on their website, providing an OCU factsheet to stakeholders and community members, and providing detailed description of an OCU in the EIS.

3.7.4. Mitigation and avoidance

Table 17 details the avoidance and mitigation measures associated with climate change as proposed in the EIS.

Table 17 Avoidance and mitigation measures (climate change)

Proposed mitigation measures	Stage of implementation
Minimise solar radiation reflectivity from above ground structures with appropriate roof and cladding elements, vegetation shading and consider opportunities to reduce heat island effects.	Design
Pipe bridge and OCU design to consider flood immunity design elements, including future upgrade options.	Design
Suitable selection of heat, solar and bushfire-resistant materials for exterior materials. Design of operating plant equipment to consider prolonged heat exposure and energy/fuel efficiency.	Design
Optimise sewage flow ratios through augmented and existing BTS to prevent anaerobic gas production conditions.	Design
Assess renewable solar energy supply options for Project operation.	Design
Construction plant and equipment to consider energy and fuel efficiency and use of biofuels to minimise greenhouse gas emissions. Site compounds to consider solar panels instead of non-renewable energy. Consider 'green' travel for construction staff.	Construction

Reduce greenhouse gas emissions by sourcing construction materials close to Project site and materials with lower embodied emissions.	Construction
Maximise reuse of soil, excavated material and opportunities for construction waste recycling to minimise greenhouse gas emissions from unnecessary transport and/or waste disposal.	Construction
Maintenance inspection/requirements and working procedures to consider increase in heat and extreme climate events and use of energy and fuel-efficient vehicles.	Operational
Methane and nitrous oxide emission monitoring to be implemented.	Operational

Table 18 (below) details the avoidance and mitigation measures associated with air quality as proposed in the EIS.

Table 18 Avoidance and mitigation measures (air quality)

Proposed mitigation measures	Stage of implementation
OCU designed with Technical Specifications for Odour Control Units (Icon Water, 2017).	Design
Air quality management plan (AQMP) prepared for CEMP. AQMP management measures include engineering, planning and operational controls to minimise negative air quality impacts.	Construction
Diesel construction vehicles/machinery fitted with particulate filters and serviced to meet Diesel Vehicle Emissions NEPM requirements.	Construction
Dust emissions from construction vehicles minimised by imposing slow speed limits on construction sites and covering loads in transit. Vehicle movements limited by fixed entry, exit and parking locations.	Construction
Particulate Matter (PM) generating activities located away from sensitive receivers as far as practicable and reduced under adverse meteorological conditions.	Construction
Reduce dust emissions by minimising area of exposed land and revegetating as soon as practicable.	Construction
Dust prevention from stockpiles and excavated soils managed by limiting stockpile number, size and location (from sensitive receivers), covering or wetting stockpiles and wetting excavated soils.	Construction
Air quality maintenance of OCU by changing activated carbon adsorption system as per design life (approximately two years).	Operational
OCU hydrogen sulfide emissions – continuous monitoring and regular calibration of sensors as per manufacturer's specification.	Operational

3.7.5. Scoping document requirements

The table below details the risks associated with climate change as defined in the EIS.

Table 19 Scoping document requirements: residual climate change risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Event impacting on operation.	Medium	Unlikely	Moderate	Low

The table below details the risks associated with air quality as defined in the EIS.

Table 20 Scoping document requirements: residual air quality risks (with mitigation)

Potential Impact	Risk Assessment **Risk** (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Generation of odour impacts during construction.	Medium	Unlikely	Moderate	Low
Severe storm event impacting on construction.	Medium	Unlikely	Moderate	Low
Potential odour impacts for residential properties due to the proximity of North Latham OCU.	Medium	Remote	Moderate	Very low

3.8. Noise and Vibration

The construction activities to build the sewer pipeline and OCU, particularly the open trenching construction method of the sewer pipeline through Companion Crescent, will generate noise and vibration that will impact the amenity of sensitive receivers proximate to the Project.

3.8.1. Impacts

The potential impacts identified in the EIS include noise and vibration impacts during the construction phase such as:

- construction vehicle movements (up to 310 vehicle movement per day) including importation of materials; and
- earthworks and civil construction works (open cut trenching, tunnel boring machine, vibratory rollers, rock breaking hydraulic hammers, pipeline bridge construction, OCU construction).

The EIS recognises that noise and vibration impacts will adversely affect sensitive receivers in proximity to construction activities that occur where the sewer alignment passes through Companion Crescent.

Once constructed, the ongoing operation of the pipeline and the OCU are not expected to create noise and vibration impacts.

3.8.2. Key findings

The EIS includes a Noise and Vibration Impact Assessment Report prepared by WSP Australia P/L. An additional assessment was undertaken (see EIS Appendix K) to assess the potential for noise and vibration to impact adjacent sensitive receivers (Figure 8 *C*ompanion Crescent intersection with nearby residential sensitive receivers likely to be affected by noise and vibration (Source: EIS document, Appendix K, Figure 2.1)Figure 8) in response to the change in Project method from trenchless to open cut trenching through Companion Crescent to accommodate a larger diameter pipe. The assessment concluded that high levels of construction noise are predicted for the most exposed receivers during a five-day construction period.

Potential vibration impacts described by the EIS are expected to cause disturbance to human comfort for sensitive receivers that are located within 40m of the Companion Crescent construction area. The sensitive receivers include residential dwellings.

The EIS noise modelling predicts that worst case construction noise impacts are in excess of noise standards for sensitive receivers during construction hours (7am-5pm Monday to Friday and 7am to 1pm on Saturdays, and construction potentially outside of these hours). The EIS states noise levels will be exempt from compliance requirements provided that the proponent implements noise reduction measures mentioned in AS2436 for construction compliance (guidelines to noise control on construction, maintenance and demolition sites).

Reproduced with permission Near Map

Figure 8 Companion Crescent intersection with nearby residential sensitive receivers likely to be affected by noise and vibration (Source: EIS document, Appendix K, Figure 2.1)

3.8.3. Public consultation

Issues raised during public consultation regarding noise included potential noise impacts during construction and ongoing noise impacts from operation of the OCU. The proponent responded to these concerns stating:

- some noise and vibration impacts are anticipated during daytime construction activities;
- the operation of the OCU is expected to comply with zone noise standards; and
- additional information on noise and vibration impacts is accessible in the EIS at Appendix K and Technical Paper 2.

3.8.4. Mitigation and avoidance

Table 21 details the avoidance and mitigation measures associated with residual noise and vibration risks (with mitigation) as proposed in the EIS.

Table 21 Avoidance and mitigation measures: residual noise and vibration risks

Proposed mitigation measures	Stage of implementation
OCU design to include noise attenuation devices and acoustic assessment.	Detailed design
Penstock design to confirm compliance with night noise zone standards.	Detailed design
Develop a Construction Noise and Vibration Management Plan (CNVMP).	Pre-Construction
Notification to sensitive receivers at least 7 days before construction commences.	Pre-Construction
Site induction to include CNVMP, EIS conditions and sensitivities.	Construction
Construction works planned and carried out during standard construction hours wherever possible (i.e. 7.00 am to 5.00 pm Monday to Friday and 7:00 am to 1:00 pm on Saturday, excluding public holidays). Further assessment when works are required out of hours to confirm predicted impacts and appropriateness of mitigation measures. The assessment should consider factors such as the level of occupancy at any identified new residential estates and the locations of the proposed out of-hours works.	Construction
Localised temporary acoustic barriers to be used.	Construction
Use of quietest available plant or equipment.	Construction
Stage construction given the location of works near residential properties.	Construction
Implement noise reduction measures mentioned in AS2436 (guidelines to noise control on construction, maintenance and demolition sites).	Construction
Minimise use of vibratory rollers, monitor vibration levels and alter construction method if vibration limits are exceeded.	Construction
Noise attenuation measures installed for OCU.	Operation

3.8.5. Scoping document requirements

The table below details the risks associated with residual noise and vibration risks (with mitigation) as defined in the EIS.

Table 22 Scoping document requirements: residual noise and vibration risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**

Potential noise and vibration noise impacts due to construction activities (e.g. trucks, machinery).	High	Possible	Moderate	Medium
Potential noise and vibration impacts due to operation of North Latham OCU.	Medium	Unlikely	Minor	Very Low

3.9. Hazards and Risk

Hazards and risks relate to both construction and operation of the trunk sewer and OCU.

3.9.1. Impacts

The potential impacts identified in the EIS were:

- increased hazards from construction activity;
- injury or fatality to the public due to construction works;
- potential risk of bushfire during construction; and
- potential impact of bushfires affecting operation of the OCU.
- safety risks to the public during construction (including public access risks, hazards for pedestrians and cyclists, open trenching, vibration of sensitive structures);
- safety risks for Project workers during construction (including typical work health and safety risks to be expected for pipeline and OCU construction activity);
- danger to workers during operation/maintenance works (e.g. general work health and safety risks such as confined spaces, electrocution, trips and hazards); and
- dangers from hazardous materials and chemical use/storage on site.

3.9.2. Key findings

The EIS identified that the northern portion of the potential area of impact, generally to the west of Kingsford Smith Drive, is declared bushfire prone land. This includes a section of the proposed trunk sewer main and the proposed North Latham OCU. In terms of fuel load within the Project area, the EIS notes that the grassland is slashed for fire management and asset protection purposes. Examples of bushfire risks described by the EIS include ignition risks, fuel loads and asset loss.

Entity advice from the Emergency Services Agency (ESA) advises that the designated study area involves Regional Fire Management Zones which may or may not have an impact on the EIS or any associated works.

Other related hazards and risks such as encountering potential contaminated soils are described in the Soil and Geology section.

3.9.3. Public consultation

Issues raised during public consultation concerned bushfire risks relating to the Project. The proponent considered bushfire risk to and from the Project as a low risk.

3.9.4. Mitigation and avoidance

Table 23**Error! Reference source not found.** details the avoidance and mitigation measures associated with hazards and risk impacts as proposed in the EIS. Note that the ACT Emergency Services Agency did not provide additional comment during entity referral.

Table 23 Avoidance and mitigation measures: hazards and risk impacts

Proposed mitigation measures	Stage of implementation
Temporary paths for safe pedestrian/cyclist movements.	Detailed design
OCU detailed design to comply with fire risk standards.	Detailed design
OCU hazardous assessment to be undertaken.	Detailed design
Confirm asset protection zone for OCU.	Detailed design
Analysis of sewer gases and upstream users for hydrocarbon risks. Results may determine additional measures (monitoring, automatic shutdown, alarm).	Detailed design
Risk assessment – determine need for flame arrestor and other control measures.	Detailed design
Construction emergency response plan to be prepared.	Construction
Temporary hoarding/fencing to restrict public access.	Construction
Compliance with work health and safety regulatory requirements.	Construction
Document construction risks in Hazardous Materials Management Plan.	Construction
Standard construction mitigation measures (e.g. induction, standard operating procedures, fire extinguishers, machinery maintenance).	Construction
Hazardous material and chemical storage compliant with regulatory requirements.	Operational
Environmental spill kits containing suitable spill response materials are to be kept onsite at all times during construction.	Operational
Hazardous material procedures, maintenance schedules, Icon Water bushfire management mitigation measures.	Operational

3.9.5. Scoping document requirements

The table below details the risks associated with residual hazard and risks (with mitigation measures) as defined in the EIS.

Table 24 Scoping document requirements: residual hazard and risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Increased hazards from construction activities – general.	Medium	Unlikely	Minor	Low
Injury or fatality to the public due to undertaking construction works.	High	Remote	Catastrophic	Medium

3.10. Heritage

The Project area does not contain any registered or previously recorded heritage places or objects. There is one Aboriginal heritage site in the vicinity of the proposed works and one previously unrecorded Aboriginal heritage site, however neither site will be directly impacted by the Project.

3.10.1. Impacts

The EIS notes that the Project has the potential to impact both Aboriginal and non-Aboriginal cultural heritage.

3.10.2. Key findings

The EIS included a Cultural Heritage Assessment that identified two registered sites in the vicinity of the proposed works (480 metres and 950 metres away), but neither are likely to be affected by the proposal. One Aboriginal heritage site was recorded during the field survey but has low significance to the Aboriginal community and does not meet criteria for listing on the ACT Heritage Register.

The ACT Heritage Council endorsed the Cultural Heritage Assessment and recommended that water monitoring bores should not be established within the Umbagong Grinding Grooves heritage area. The EIS confirms that this activity will not occur and will be implemented as part of the Construction Environment Management Plan.

The EIS also includes an Unexpected Discovery Plan if an Aboriginal place or object is discovered during construction works.

3.10.3. Public consultation

During the public consultation process, Icon Water received several concerns about Heritage impacts, including potential impacts to nearby Umbagong Grinding Grooves and potential impacts to unexpected Aboriginal objects should any be discovered during construction works.

The proponent's response to these concerns is summarised below:

- no impacts are expected to occur to the Umbagong Grinding Grooves; and
- an Unexpected Discovery Protocol will be implemented as part of the Construction Environmental Management Plan.

3.10.4. Mitigation and avoidance

Table 25 details the avoidance and mitigation measures associated with heritage as proposed in the EIS. The ACT Heritage Council has recommended the same measures.

Table 25 Avoidance and mitigation measures (heritage)

Proposed mitigation measures	Stage of implementation
The CEMP will identify locations of heritage items and sites in the surrounding area. The CEMP will also identify that there will be no impacts to these items.	Construction

Implementation of the CEMP will include the Unexpected Discovery Plan for the Project, which will be followed if Aboriginal objects are encountered during works.	Construction
No water monitoring bores will be established within the Umbagong Grinding Grooves heritage area.	Construction

3.10.5. Scoping document requirements

The table below details the risks associated with heritage as defined in the EIS.

Table 26 Scoping document requirements: residual heritage risks (with mitigation)

Potential Impact	Risk Assessment			
	Risk (before mitigation)	**Likelihood** (after mitigation)	**Consequence** (after mitigation)	**Residual risk**
Loss or damage to Aboriginal archaeological potential or places with Aboriginal cultural values which are currently unknown (revised EIS).	Medium	Unlikely	Moderate	Low

3.11. Utilities

The Project interacts with the Belconnen sewer network. The Project will assist in managing increasing wastewater flows within the broader Belconnen region and comply with Icon Water's commitment to contain wastewater flows (no overflows) at a level that will manage a 1 in 10-year rainfall event.

Other existing utility infrastructure encountered in the Project vicinity include:

- existing sewer networks;
- water mains;
- stormwater;
- gas main;
- telecommunications;
- overhead and underground electricity cables; and
- streetlights and associated cabling.

3.11.1. Impacts

The impacts upon existing utility services identified by the EIS include temporary disruption to electrical services when connecting the OCU and penstock facility to the existing electricity network.

The Project activity will occur in close proximity to existing services, which may potentially create unplanned disruption to utility infrastructure such as sewer, stormwater, electricity, gas and telecommunications services.

3.11.2. Key findings

Potential utility risks associated with the Project are described in more detail in the EIS. The EIS risk assessment described risk level and significance as low for:

- disruption to or clash with existing utility services including potential damage to services and utilities during construction (including associated safety risks); and
- impacts on other future works within the vicinity of the Project.

The main concerns identified in the EIS were the protection and relocation of existing services and utilities. The EIS states that the relocation and protection of any existing utilities (including utilities very close to the proposed works) identified in the detailed design phase would be implemented prior to the commencement of main trenching or excavation works. Icon Water would engage a contractor experienced in performing works of this nature to manage the excavation works and protection of existing services.

Entity advice required the proponent to contact Evoenergy at the detailed design stage to ensure that adequate clearance is maintained from power poles and working clearances are maintained beneath overhead lines.

3.11.3. Public consultation

Issues raised during public consultation concerned the potential for interaction with existing underground electricity and communications assets in the area. The proponent responded that, where potential impacts to existing utilities are identified, measures would be put in place to protect or relocate utilities in accordance with relevant standards. Further mitigation measures are included below.

3.11.4. Mitigation and avoidance

Table 27 details the avoidance and mitigation measures proposed in the EIS for managing utilities risks.

Table 27 Avoidance and mitigation measures (utilities risks)

Proposed mitigation measures	Stage of implementation
Consult with affected utility providers in relation to relocation requirements and methodology, permits and access, and to ensure required service levels are maintained.	Design
Liaise with appropriate utility authorities to: • identify potential utility conflicts; • ensure Project design considers future planned infrastructure; • determine required service relocations; and • develop Utility Protection Plan for utility conflicts.	Design
Contingency management planning in case of service interruption or accidental strike(s) to existing utilities.	Design
Undertake further investigations to ensure December 2018 Dial Before You Dig mapping is still accurate and undertake a location of existing	Design and pre-construction

underground services search immediately prior to construction, including: • repeat Dial Before You Dig search; • acquire 'as built' drawings of utilities and services from relevant utility and government entities; • intrusive service locating performed through 'potholing' of underground services; • establishing minimum clearances; and • temporary protection works and/or relocation works identified, designed and agreed with utility or service providers prior to construction.	
Relocate any utilities if required.	Pre-construction
All utility services locations confirmed for on-site identification.	Pre-construction
Implement excavation permits.	Construction
Use of spotters to continually observe plant and excavation.	Construction
Specific construction techniques to minimise disturbance to services.	Construction
Apply indicative safe working distances for buried utilities to avoid vibration impact to underground services.	Construction

3.11.5. Scoping document requirements

Residual risk assessment is not required as the scoping document requires residual risk assessment where the significance of impact is determined as medium or above. It is noted that the pre-mitigation risk level was identified as low.

3.12. Conclusion of impact assessment

The EIS, supporting studies and comments of relevant entities provide sufficient information on all impacts of the proposal identified throughout section 3, above.

4. Policy considerations

A number of ACT policies were considered in the preparation of this EIS as outlined below.

4.1. ACT Planning Strategy

The ACT Planning Strategy provides long-term planning policy and goals to promote sustainable development, consistent with the social, environmental and economic aspirations of the people. The EIS states that it is considered to be consistent with the themes and goals outlined in the ACT Planning Strategy.

4.2. Territory Plan 2008

The EIS considers the proposal to be consistent with the Structure Plans related to the sustainable development and is overall considered to be consistent with the provisions of the Territory Plan.

4.2.1. Territory Plan Statement of Strategic Directions

The Statement of Strategic Directions sets out the principles to guide the planning and development of the ACT. These include principles relating to sustainable development relating to environmental, economic, and social sustainability as well as spatial planning and urban design principles.

Some of the key principles in the statement of strategic directions include a balanced approach to economic, social and environmental impacts to ensure sustainable practices.

The EIS documentation states that the proposal is considered to be consistent with the statement of strategic directions in the Territory Plan. Relevant principles have been considered in the EIS documentation.

4.2.2. Territory Plan codes

Various codes apply under the Territory Plan and are considered during the assessment of Development Applications. The Parks and Recreation Zones Development Code, the Residential Zones Development Code and the Transport and Services Zone Development Code are applicable to the proposal, in addition to various general codes. The EIS states that the development is generally consistent with the requirements of the Territory Plan. The EIS was submitted concurrently with a development application which will be determined only once the EIS is complete.

4.3. Sustainability Policies

People, Place, Prosperity: The ACT's Sustainability Policy

The 2009 policy mandates a triple bottom line approach to sustainability, incorporating social, economic, and environmental factors. The EIS has considered the environmental, social, and economic impacts in its planning and design phase and the EIS determined the proposal to be consistent with the policy.

Icon Water Sustainability and Environment Policy

Icon Water is the proponent of the Project and the EIS states that all work will be undertaken in accordance with this policy.

4.4. Transport for Canberra policy

The Transport for Canberra Policy sets the foundation for transport planning to achieve sustainable transport for Canberra. The EIS states that the Transport for Canberra policy does not contain planning objectives relevant to the Project and expects that impacts on traffic and transport will be minor.

4.5. Environment Protection Act 1997

The ACT Environment Protection Authority (ACT EPA) administers the Act which provides a framework for regulating polluting activities and protecting the environment in the ACT. The proponent has provided sufficiently detailed information to the ACT EPA and has demonstrated compliance with the Act.

4.6. Climate change policies

The ACT Climate Change Strategy 2019-2025 sets out the ACT Government's action plan to respond to climate change and its effects and manage the impacts on people, infrastructure and services. The EIS states that the Project will improve water quality in Ginninderra Creek and replace the trees removed during the construction phase. The EIS documentation has assessed the potential impacts of climate change and considered the proposal to be consistent with the ACT Climate Change Strategy 2019-2025.

4.7. National Capital Plan

The object of the National Capital Plan is to ensure that Canberra and the Territory are planned and developed in accordance with nationally significant planning objectives. The NCP provides guidance for the planning, design and development of Designated areas and other areas identified in the NCP with special requirements. The EIS states that the Project would meet the objectives of the NCP by improving the wastewater management system for the Belconnen, Gungahlin, and Hall catchments. The Project would not impact any current Designated Areas identified under the NCP.

4.8. Plans of Management for any public land

A Plan of Management for Belconnen's Urban Parks, Sportsgrounds and Lake Ginninderra (1998) establishes a policy framework for the management of Belconnen's urban parkland and sportsground. The EIS states the Project will comply with the Plan and is not expected to impact on the management of urban parkland during operation.

A Plan of Management for Canberra's Urban Lakes and Ponds (2001) establishes a framework to manage Canberra's urban lakes and ponds. The EIS states that the Project will not significantly increase flood and pollution risk at Lake Ginninderra and will reduce the risk of the Belconnen Trunk Sewer flooding.

4.9. Other policies addressed in the EIS

Other policies, outside the requirements of the Scoping Document, have been addressed in the EIS. These were included in the EIS by the proponent as part of consideration of general government policies. Information was detailed in the EIS against The Canberra Plan 2008.

5. Other considerations

5.1. Principles of ecologically sustainable development

The following ecologically sustainable development principles have been considered in the EIS documentation and by the Authority. It is considered that information has been provided against economic, environmental, social and equitable considerations which are contained within the EIS documentation and inform decision-making through the implementation of the following principles.

5.1.1. Economic, environmental, social and equitable considerations

The long-term and short-term economic, environmental, social, and equitable considerations have been considered by the Authority in the preparation of this assessment report. These included the cumulative impacts of past and present developments within the area, including known future proposals. The Authority is satisfied that information relating to the above considerations, and the cumulative impacts, have been provided in the EIS.

5.1.2. The precautionary principle

The precautionary principle has been addressed in the EIS and was considered by the Authority in the preparation of this assessment report.

The proponent has provided sufficient information relating to all potential environmental impacts and has proposed mitigation measures to be adopted during the construction and operation phases.

5.1.3. The principle of inter-generational equity

The principle of inter-generational equity has been addressed in the EIS and was considered by the Authority in the preparation of this assessment report.

The EIS and supporting documentation has considered short-term and long-term impacts and identified mitigation measures to minimise the impacts. The information provided to address the impacts will be considered in the assessment of the DA to determine whether these impacts have been reduced to a suitable level.

5.1.4. The conservation of biological diversity and ecological integrity

The conservation of biological diversity and ecological integrity has been addressed in the EIS and was considered by the Authority in the preparation of this assessment report (refer to the above section addressing biodiversity).

5.1.5. Improved valuation, pricing and incentive mechanisms

Improved valuation, pricing and incentive mechanisms have been addressed in the EIS and was considered by the planning and land authority in the preparation of this assessment report. The EIS has addressed impacts on local market supply effects and environmental impacts of the development and also took into account the overall costs of the proposal. The residual impacts have been summarised in this assessment report.

5.2. Proponent's environment history

The EIS states that there are no past or present proceedings in any jurisdiction regarding to the environmental practices of Icon Water.

6. Summary and Recommended conditions

After considering the revised EIS, the Authority recommends DA considerations and draft conditions of approval to assist with the avoidance and mitigation of adverse environmental impacts, as outlined in Table 28 below.

Any DA related to the completed EIS, including the concurrent DA submitted as part of this proposal, must include the DA considerations as part of the application. In deciding a DA in the impact track, the Authority must consider matters raised in the completed EIS and EIS Assessment Report. The information gathered through the EIS process is used to assist in the decision- making process for an impact track DA. Any matters highlighted in the EIS process as being critical for the decision-making process will need to be clearly addressed as part of the impact track DA.

Recommended conditions

The EIS states that a Construction Environmental Management Plan (CEMP) would be prepared by Icon Water (and/or its nominated construction contractor) prior to construction to outline the construction conditions and temporary environmental protection measures to manage the impact of construction activities. This CEMP is to be consistent with the EIS, planning approval conditions identified for the EIS and Development Application, and any other requirements or conditions within any licences or permits or as issued by government authorities.

The EIS states the CEMP would need to comply with the documentation requirements of AS ISO 14001 Environmental Management Systems and would be prepared in accordance with the ACT EPA Environmental guidelines for preparation of an Environment Management Plan (EPA, 2013) and other relevant policies and guidelines.

The CEMP described in the EIS will include a series of sub-management plans including, at a minimum, the following:

- traffic and transport management plan;
- noise and vibration management plan;
- air quality and odour management (including dust suppression);
- landscape rehabilitation plan;
- community and stakeholder involvement plan;
- erosion and sediment control plan;
- flora and fauna and weed management;
- contamination and waste management;
- hazardous materials management plan; and
- soil and water management plan.

See Table 28 below for draft conditions that have incorporated commitments from the EIS and matters required by referral entities.

Table 28 Draft Conditions of Development Approval for Belconnen Trunk Sewer Augmentation proposal

No.	Condition contents	Endorsement/approval	Construction stage	Draft condition of approval
1	Construction Environmental Management Plan (CEMP)	Planning and land authority	Prior to construction	Prior to construction, a construction environmental management plan (CEMP) is to be prepared by the proponent and endorsed by the planning and land authority. The CEMP must outline the construction conditions and temporary environmental protection measures to manage the impact of construction activities, consistent with the EIS. The CEMP must include all mitigation measures proposed in the EIS and can incorporate any other relevant management plans. The CEMP must include improved remedial measures consistent with the EIS. See previous page for listing of sub-plans required by the CEMP. Note: The CEMP will be referred to relevant entities for endorsement and therefore will need to incorporate their comments provided through the EIS and DA stage.
2	Letter of Design Review	TCCS	Design Review Stage	In order to obtain the Letter of Design Review, fully detailed drawings (civil, landscape) prepared by suitably qualified persons for all off-site works including roads, driveways, footpaths, street lighting, stormwater, landscaping (and any other issues that may be found by audit of the plans) and a design report in accordance with TCCS "REF-06 - Requirements for Design Review Submissions", must be certified by a Chartered Engineer/Landscape Architect and submitted to the relevant Senior Director of the TCCS Development Coordination Branch.
3	Notice of Commencement for the Works	TCCS	Prior to construction	A Notice of Commencement for the Works within Unleased Territory Land must be submitted to TCCS one week prior to the commencement of works. The notice must also include the

				confirmation of any protective measures installed in accordance with the approved LMPP and the programmed implementation of TTM.
4	Works approval – Public Unleased Land	TCCS	Prior to construction	In accordance with the *Public Unleased Land Act 2013* no works are to be undertaken without the approval of TCCS. Such approval must be obtained from the relevant Senior Director of the TCCS Development Coordination Branch by the ways of (1) a Letter of Early Works Approval for demolition and/or earthworks only; and/or (2) a Letter of Design Review, prior to the commencement of any Works. Fees and charges will apply for Early Works Approval as per TCCS "GEN-06 - Submissions and Inspections Guideline Principles and Related Fees and Charges for TCCS and Industry".
5	Works approval – Public Unleased Land	TCCS	Prior to construction	In accordance with the *Public Unleased Land Act 2013*, road verges and other unleased Territory land must not be used for carrying out of works, including storage of materials or waste, without prior approval from TCCS. If required, such approval can be obtained from TCCS Licensing and Compliance.
6	Temporary Traffic Management Plan	TCCS	Detailed design	A TTM plan approval from the Manager of TCCS Traffic Management & Safety, Roads ACT, must be obtained prior to commencement of works. This plan must prepared by a suitably qualified person and address, as a minimum, measures to be employed at all times during construction activities to manage all traffic, including construction and regular traffic in and around the site, provision of safe pedestrian movement around the site, the provision of parking for construction workers, and associated temporary traffic control devices.
7	Construction Traffic Management Plan (CTMP)	TCCS	Prior to construction	A Construction Traffic Management Plan must include the following measures: —temporary traffic management controls, including advisory signage to guide drivers and pedestrians/cyclists, etc. and highlight access points and increased number of vehicles turning;

				— traffic control where vehicles interface with pedestrians and cyclists and/or where footpath diversions result in this interaction; — dates and specific locations for overmass vehicle night-time deliveries (if required); — speed limits including consideration to reduced speed limits, particularly on the roads with speed limits above 60km/h where accesses are proposed; — procedures for managing unplanned incidents, accidents and atypical operations; — safety and amenity controls; — site access points and procedures; — transportation and equipment delivery procedures; — parking arrangements and management protocols; — directional signage to guide drivers and pedestrians/cyclists, etc.; — traffic management communications, community communications, complaints and enquiry procedures; — traffic mitigation measures at the access to the OCU, including installation of advisory and warning signage to remind drivers of the changed road conditions; — arrangements and procedures for the oversized delivery vehicles; — the use of flashing lights and alarms on vehicles; — restricting high vehicle generating activities to off-peak periods; and — car-pooling initiatives that reduce the reliance on single passenger private vehicles for all workers.
8	Dilapidation Report	TCCS	Prior to construction	Before the works commence TCCS must be notified of any existing damage to public assets via a Dilapidation Report. The applicant/lessee is held responsible for repairing any damage to ACT Government's assets, caused by the development activities, to the

				satisfaction of TCCS. If a Dilapidation Report is not provided, any pre-existing damage must also be repaired at the applicant/lessee's cost.
9	Landscape Management and Protection Plan (LMPP)	TCCS	Prior to construction	The Landscape Management and Protection Plant (LMPP) must be submitted for endorsement which must demonstrate how the existing trees surrounding the proposed works will be protected. For example: 1800mm chain mesh fencing along the corridor.
10	Landscape Management and Protection Plan (LMPP)	TCCS	Prior to construction	LMPP approval must be obtained from the relevant Senior Director of the TCCS Development Coordination Branch or the delegated authority. During construction, all existing vegetation (trees, shrubs and grass) located within the verge and unleased Territory land immediately adjacent to the development must be managed, protected and maintained in accordance with the approved LMPP. This plan must be implemented before the commencement of any works, including demolition on the site, and must be in accordance with TCCS "REF 04 - Requirements for the Protection of Public Landscape Assets Adjacent to Development Works".
11	Tree removal public notification	TCCS	Prior to construction	Provide signage along the alignment of the proposed works notifying the public of significant tree removal at least 14 days prior to the trees being scheduled for removal in line with TCCS public notification requirements and include on the signage that replacement trees will be planted at the end of the construction works. For any assistance that may be required on signage, Urban Treescapes will be contacted on TCCS.UrbanTreesDDCoord@act.gov.au or 62058679.
12	OCU fence	TCCS	Design Review Stage	Perimeter fencing must be provided around the OCU structure to prevent entry.
13	OCU anti-graffiti paint	TCCS	Design Review Stage	Anti-graffiti coating must be applied on OCU structure.

14	Waste and recycling Management Plan (WRMP)	TCCS	Design Review Stage	A WRMP in accordance with the relevant revision of the Development Control Code for Best Practice Waste Management in the ACT must also be submitted at the Design Review stage.
15	Erosion and Sediment Control Plan	EPA	Prior to construction	An erosion and sediment control plan must be submitted to and be endorsed by the EPA prior to works commencing.
16	Environmental Authorisation or Environment Protection Agreement	EPA	Prior to construction	As the site is greater than 0.3 hectares the construction is an activity listed in Schedule 1 as a Class B activity under the *Environment Protection Act 1997*. The contractor/builder developing the site must hold an Environmental Authorisation or enter into an Environment Protection Agreement with the Environment Protection Authority (EPA) in respect of that activity prior to works commencing.
17	Contaminant Management Plan (CMP)	EPA	Prior to construction	A site specific Contaminant Management Plan (CMP), incorporating an unexpected finds protocol, must be prepared by a suitably qualified environmental consultant and implemented during site development works. The CMP must include, amongst other things, appropriate procedures for the identification, assessment, management, validation and disposal of potential contamination at the site and contractor induction procedures into the use of the CMP.
18	Heritage fencing	ACT Heritage Council	Prior to construction	Protective fencing is to be installed around the BT1 Aboriginal heritage area prior to the commencement of works.
19	Heritage protection – Umbagong Grinding Grooves	ACT Heritage Council	During construction	No water monitoring bores are to be installed within the Umbagong Grinding Grooves heritage area.
20	Heritage protection - Unanticipated	ACT Heritage Council	During construction	If additional Aboriginal places or objects are encountered during construction, the Unanticipated Discovery Protocol set out in the 'Belconnen Trunk Sewer Augmentation Project – Aboriginal and

	Discovery Protocol			Historical Cultural Heritage Impact Assessment' (Past Traces, 2019) is to be implemented.
21	Soil disposal	EPA	During construction	All soil subject to disposal from the site must be assessed in accordance with EPA Information Sheet 4 - Requirements for the reuse and disposal of contaminated soil in the ACT. The ACT Health Protection Service notes this is particularly relevant for fill sourced in areas that may have been impacted from the former Charnwood Fire Station or other contaminated sites noted in the Preliminary Site Investigation.
22	Soil disposal	EPA	During construction	No soil is to be disposed from site without EPA approval.
23	CEMP requirement	Conservator for Flora and Fauna	During Construction	All works, machinery, vehicles and storage of materials occur within the 20m disturbance corridor and do not impact on native grassland and native woodland vegetation outside of this clearance corridor.
24	Rehabilitation and Replanting Plan	Conservator for Flora and Fauna	Post construction	The percentage of African Lovegrass and Serrated Tussock within the disturbed corridor where the trunk main is located will be less than 10% of the groundcover two years after the completion of works.
25	Rehabilitation and Replanting Plan	Conservator for Flora and Fauna	Post construction	A Rehabilitation and Replanting Plan must detail arrangements or commitments for the ongoing management of the restored area.
26	Rehabilitation and Replanting Plan	Conservator for Flora and Fauna	Post construction	The Rehabilitation and Replanting Plan must detail the measures that will indicate when the restoration of the native vegetation at Vogelsang Place is complete. Figures should include: a. no more than 15% of the disturbed corridor will remain as bare earth; b. no more than 5% of the vegetation cover will be of perennial exotic species; c. no more than 15% of the vegetation cover will be annual exotic species;

				d. at least 10% of the vegetation cover must comprise of indigenous herbs; and e. at least 60% of the vegetation cover must comprise of native indigenous species.
27	Certificate of Operational Acceptance	TCCS	Post Construction	On completion of the works a Certificate of Operational Acceptance is required from the relevant Senior Director of the TCCS Development Coordination Branch, prior to the issuance of a Certificate of Occupancy.
28	Certificate of Soft Landscape Consolidation Commencement	TCCS	Post Construction	Where required, a Certificate of Soft Landscape Consolidation Commencement must also be obtained from the relevant Senior Director of the TCCS Development Coordination Branch for the placement of soft landscape works on consolidation.
29	Operational Acceptance and/or Consolidation Commencement	TCCS	Post Construction	A Chartered Engineer/Landscape Architect must certify compliance with TCCS "REF 08 - Requirements for Works as Executed Quality Records Requirements" when the request for Operational Acceptance and/or Consolidation Commencement is made to the relevant Senior Director of the TCCS Development Coordination Branch on completion of all works.
30	Certificate of Final Acceptance	TCCS	Post Construction	A Certificate of Final Acceptance for all civil and hard landscape works must be obtained from the relevant Senior Director of the TCCS Development Coordination Branch at the end of the required Defects Liability Period (DLP) as noted in the Certificate of Operational Acceptance.
31	Certificate of Soft Landscape Handover	TCCS	Post Construction	A Certificate of Soft Landscape Handover for all soft landscape works must be obtained from the relevant Senior Director of the TCCS Development Coordination Branch at the end of the required Consolidation Period as noted in the Certificate of Consolidation Commencement.

7. Recommended action on this EIS

Having regard to the documentation and information provided, the Authority has assessed the Belconnen Trunk Sewer Augmentation revised EIS as meeting the requirements of Chapter 8 of the PD Act. Therefore, the Authority has accepted the EIS.

It is the Authority's assessment that the revised EIS has provided sufficient information to the ACT Government and the community to allow an informed evaluation of potential environmental impacts which could be attributed to the Belconnen Trunk Sewer Augmentation proposal. Icon Water, as the proponent, has proposed a range of avoidance, mitigation and management measures to reduce and avoid potential environmental impacts arising from construction and operational activities associated with the Project. The Authority has determined that sufficient information has been provided on the potential adverse impacts and the EIS has provided mitigation measures to make an informed decision on the development application. Draft conditions have been specified in Table 30 of this report to assist with the assessment of the concurrent development application and any subsequent application.

The construction activity associated with the proposed Belconnen Trunk Sewer Augmentation project, and the subsequent environmental performance attributable to its ongoing operation, will be monitored by a variety of public agencies including the Environment Protection Authority, planning and land authority and TCCS.

The Minister has the following options under the PD Act in relation to the EIS:

- **Option 1** - take no action on the EIS
  i. This option applies if the Minister decides not to establish an Inquiry Panel and decides not to present the EIS to the Legislative Assembly;

- **Option 2** - not establish an inquiry panel, but present the EIS to the Legislative Assembly; or
  i. The EIS process is complete upon the Minister's decision not to establish an Inquiry Panel.

- **Option 3** - establish an inquiry panel to inquire about the EIS
  i. The EIS process will be complete at the finalisation of the inquiry panel report.

Under s 228 of the PD Act, the Minister must decide to establish an inquiry panel within 15 working days of receiving this assessment report.

For options 2 and 3 above, the Minister may also choose to present the EIS to the Legislative Assembly under s 227 of the PD Act. However, this does not affect whether the EIS process is considered complete (see s 209(2) of the PD Act).

Appendix 1 – Final scoping document

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Appendix 2 – Cross reference table between EIS and the final scoping document

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