

Review of Environmental Factors Addendum



Thompsons Creek and South Creek Catchments Wastewater Network

1 Determination

This Review of Environmental Factors Addendum (REFA) assesses potential environmental impacts associated with a project change to the Thompsons Creek and South Creek Catchments Wastewater Network Review of Environmental Factors, January 2025 (REF). It was prepared under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), with Sydney Water both the proponent and determining authority.

The Sydney Water Project Manager is accountable to ensure the project is carried out as described in this REFA and the REF. If the scope of work or work methods described in this REFA change significantly following determination, additional environmental impact assessment may be required.

Decision Statement

During construction, the main potential environmental impacts of the project change are typical construction impacts such as noise pollution, traffic, and soil disturbance. During operation, the main impacts are associated with scheduled maintenance and infrequent site access. The project change will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats. Accordingly, a Species Impact Statement (SIS) and/or Biodiversity Development Assessment Report (BDAR) is not required.

It is considered that, given the nature, scale and extent of impacts and implementation of the safeguards outlined in both this REFA and the REF, the project is unlikely to have a significant impact on the environment. Accordingly, we do not require an Environmental Impact Statement (EIS) and the project may proceed.

Certification

I certify that I have reviewed and endorsed the contents of this REFA document and, to the best of my knowledge, it is in accordance with the EP&A Act and the *Environmental Planning and Assessment Regulation* (EP&A Regulation). The project change has been considered against matters listed in section 171 (**Appendix A**) and the Guidelines approved under section 170 of the EP&A Regulation.

Prepared by:	Reviewed by:	Endorsed by:	Approved by:
Elizabeth Cocks	John Eames	Will Watts	Murray Johnson
REFA author	Snr Env Scientist	Project Manager	Snr Mgr Environment
CreekConnect	Sydney Water	Sydney Water	and Heritage
Date: 13 January 2025	Date: 14 January 2025	Date: 20 January 2025	Sydney Water
2 a.c. 10 candary 2020			Date: 30/01/2025





2 Project Summary

Sydney Water will deliver five wastewater infrastructure projects within the Upper South Creek Catchment region as part of the Upper South Creek Network (USCN) Program. These include Badgerys Creek, South Creek, Thompsons Creek, Cosgrove and Agribusiness, and Lowes Creek. These works will be delivered in a series of stages. The objective of the first stage is to connect Western Sydney Airport (WSA) wastewater systems to Sydney Water's Upper South Creek Advanced Water Recycling Centre (AWRC) by mid-2026.

Sydney Water has refined the USCN concept designs for the individual catchments by adopting an innovative 'program-wide' network design philosophy. The network optimisation provides a more flexible and efficient network solution that can be scaled to meet demand. The South Creek Catchment is now critical to delivering the first stage. The project change will add a connection to an existing repurposed recycled watermain and includes re-alignment of a section of the South Creek rising main. The re-alignment would use part of the pipeline corridor assessed in the AWRC Environmental Impact Statement (EIS).

Sydney Water requires approval to construct this component of the network optimisation. This Addendum seeks to amend the REF, it is not reliant on the AWRC EIS approval and is not required to comply with any management measures associated with it. See **Table 1** below for more information about the approved project and project change.

Table 1 Project Information

Project information		
Project location	The project is located within the South West Growth Centre, about 40 km south west of the Sydney CBD in the suburbs of Badgerys Creek, Bradfield, Rossmore, and Kemps Creek. It is in the local government areas (LGA) of Liverpool City Council (south of Elizabeth Drive) and Penrith City Council (north of Elizabeth Drive). SP1228 (interim) will be located at	
	SP1243 will be located at , which forms part of Mirvac's Elizabeth Enterprise Precinct.	
Approved REF	Thompsons Creek and South Creek Catchments Wastewater Network Review of Environmental Factors, 10 January 2025	
Project scope	 The proposal consists of the construction and operation of: Two new wastewater pump stations SP1228 (including overflows to South Creek via DN450) SP1243 (including overflows to South Creek via DN500) Wastewater mains Pressure mains (5.5 km) 	
	§ TCPM01 (3.1 km) § SCPM01 (2.4 km)	
	 Gravity pipelines (9 km) TOOOOT (0.15 km) 	
	§ TCGC01 (2.45 km)	





- § TCGC02 (3.76 km)
- § SCGC01 (2.73 km)

These major components are shown in Figure 1.

There will be vent shafts, maintenance holes, scour pits and air valves at various locations along the alignment.

Project changeThe project change will modify SCPM01. Currently, the pressure main follows
the western bank of South Creek from proposed pumping station SP1243,
crossing under the new M12 and then turning eastwards to cross under
South Creek close to the AWRC. The proposed change is to cross under
South Creek shortly after SP1243 and follow the AWRC treated water and
brine pipeline corridor to the connection point south of the AWRC.
Specifically, the project change will:

- Upsize pressure main from DN450 to 1 x DN1000.
- Change alignment from SP1243 to the AWRC, to include horizontal directional drill (HDD) under South Creek (reducing the length of pipeline required from about 2.5 km to 1.2 km). The entry point will be located within the REF construction corridor south of South Creek and the exit point will be located to the north of South Creek within the AWRC EIS impact assessment area. There will be a vent shaft at the entry and exit points, which will be visible during operation. Vent shafts will be about DN300 and will allow ventilation of odours from the mains at an indicative height of 18 metres. The remainder of the pipeline will be open trench and follow the 50-metre-wide AWRC EIS impact assessment area.
- An additional DN1000 pipe will be constructed in the HDD section to minimize future ground disturbance in this area. This second pipe would not be operational until a later stage of the project and these future works would be the subject of a separate REF.

Impacts associated with the new alignment will be limited to the REFA construction corridor that has already been assessed under the AWRC EIS and the REF.

These project changes are shown in Figure 2.

The project change will also add a connection to the existing recycled watermain which will be repurposed to convey sewerage from the Western Sydney Airport. This connection is located in the southern portion of SCGC01. This project change is within the REF construction corridor.

This project change is shown in Figure 1.

Justification for project	The network optimisation provides significant CAPEX savings for the broader
change	Upper South Creek Network by:







- reducing the quantity of pipework and number of pump stations
- eliminating the need to construct temporary infrastructure
- allowing the network to be built incrementally to match demand
- standardising designs across the network.

These changes contribute to a more efficient wastewater management system by reducing the project's material waste, resource consumption, and environmental footprint. It also streamlines the construction process and avoids the risk of overbuilding.

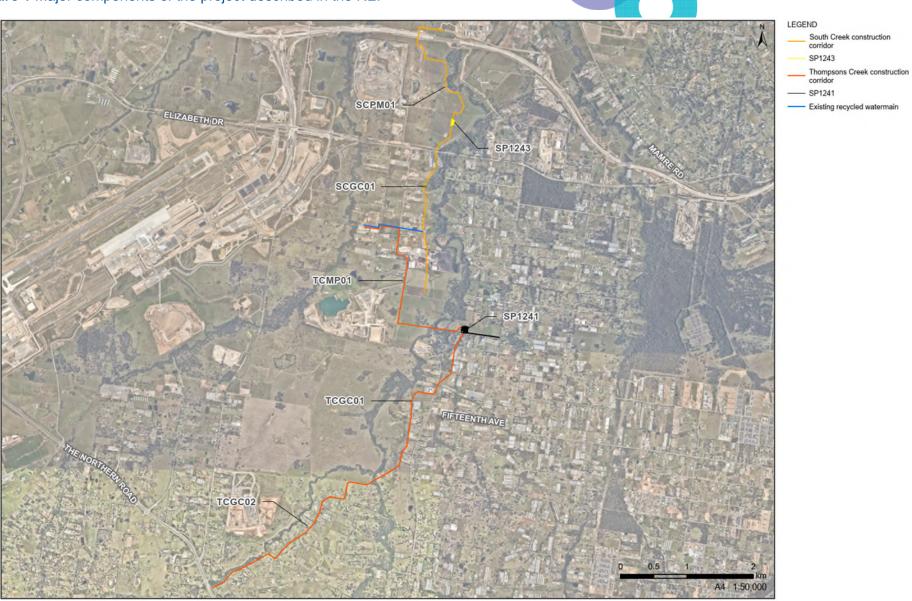
The project change reduces the duration of the first stage and better enables Sydney Water to meet the deadline for connecting the Western Sydney Airport wastewater system to the AWRC.

This project change will reduce potential impacts on:

- Aboriginal heritage by removing the need to construct in close proximity to sites determined to have high archaeological significance and high cultural significance.
- Protected species by avoiding High Biodiversity Value vegetation, Threatened Ecological Communities and fauna habitats.



Figure 1 Major components of the project described in the REF













There are no additional legislative requirements above those already assessed in the REF (January 2025). The project change is required to facilitate development for the purpose of a 'sewerage reticulation system'. Section 2.126(6) of the State Environmental Planning Policy (Transport and Infrastructure) 2021 permits development for sewage reticulation systems without consent on any land in the prescribed circumstances. Development is carried out in the prescribed circumstances if the development is carried out by a public authority.

Accordingly, this REF Addendum has been assessed under Division 5.1 of the EP&A Act and Sydney Water can self-determine the project.

4 Consultation

Sydney Water must consult with councils and other authorities for work in sensitive locations or where the work may impact other agencies' infrastructure or land. This is specified in the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP). As specified in **Appendix B**, no consultation under TISEPP is required.

Notification to Fisheries is required under s199 of the *Fisheries Management Act 1994* as the work involves crossing a waterway classified as 'Key Fish Habitat'. Fisheries was consulted on 11 November 2024 regarding sections of the alignment that cross South Creek. Fisheries response is provided in **Appendix E**. The additional mitigation measures proposed by Fisheries were included in the REF.

Notification to the Department of Planning, Housing and Infrastructure (DPHI) is required under section 201A of the *Environmental Planning and Assessment Amendment (Avoided Land) Regulation 2022* (the Regulation) as the work involves development on avoided land mapped under the Cumberland Plain Conservation Plan (CPCP). According to section 30A of the Regulation, the notification and the REF Addendum must be accompanied by a Consistency Statement. DPHI will be notified prior to works commencing.

As the works are within the Elizabeth Enterprise Precinct, Mirvac was advised of the project changes. No concerns were raised.

5 Additional environmental impacts and mitigation measures

Additional environmental impacts as a result of the project change have been considered through a desktop assessment, site walkover and Aboriginal Due Diligence Assessment.

Desktop research conducted on 13 January 2025 indicated that threatened species and Threatened Ecological Communities may occur in the alignment. An Addendum Biodiversity Assessment Report (BAR) was not prepared as the existing environment is heavily disturbed and comprises mainly areas of nonnative vegetation in certified - urban capable and avoided land. As such, there are no significant impacts associated with the project change. This finding was based on:

- a site walkover conducted on 8 November 2024
- available ecology data from surveys completed in 2020 for the AWRC EIS
- clearing from previous construction activity in the proposed corridor starting October 2023.





Vegetation disturbance associated with the project change would be confined to areas recently disturbed for the AWRC pipelines and there would be no significant biodiversity impacts. An Aboriginal Due Diligence Assessment was undertaken, due to the proximity to known areas of high heritage potential.

Existing Environment

The pipeline will be built to the AWRC connection point just south of the new M12. The REFA construction corridor was defined as approximately 50 metres in diameter. The existing environment within the REFA construction corridor is heavily disturbed with some regrowth of exotic vegetation. The existing environment (as of the site walkover completed on 8 November 2024) is depicted in **Picture 1** and **Picture 2** below. The REFA construction corridor (excluding the HDD section) has recently been cleared for the AWRC treated water and brine water pipelines. Further pipeline works are proposed in this area, and it is anticipated that the corridor will continue to be cleared and trenched over the next 5 years.



Picture 1 View from southern end of the constructionPicture 2 View at the northern end of the constructioncorridor looking north towards the AWRCcorridor looking north towards the M12

Flora and Fauna Impact Assessment

A search using the *Environmental Protection and Biodiversity Conservation Act* (EPBC) Protected Matters Search Tool (PMST) was conducted on 13 January 2025. The likelihood of protected species being present within the REFA construction corridor is indicated in general terms. It was found that the following may or are likely to be present within the REFA construction corridor:

- six Threatened Ecological Communities (TECs)
- 51 threatened flora and fauna species





- 11 migratory species
- 22 listed marine species (birds).

These findings were verified using the ecology data from the AWRC EIS Biodiversity Development Assessment Report (BDAR). This assessment was completed in 2021 and was updated in 2022 as part of an Amendment Report. The REFA construction corridor falls within the 50-metre-wide AWRC EIS impact assessment area. Areas that fall outside the surveyed impact assessment areas shown in the AWRC EIS or REF will be constructed through HDD methods and will not require surface impacts. Additional ecology surveying was not considered necessary as aerial imagery and a site walkover confirmed the findings in the AWRC EIS BDAR.

The new alignment has been cleared with some areas of exotic vegetation regrowth. Any potential impacts to areas of native vegetation have been avoided by excluding them from the REFA construction corridor. Biodiversity offsets are not required under the *Biodiversity Conservation Act 2016* (NSW) as no native vegetation will be cleared.

A fauna habitat assessment was undertaken as part of the AWRC EIS to determine the presence of microhabitats and other critical habitat components suitable for threatened fauna species. No threatened fauna habitat was present within the REFA construction corridor. Based on the field surveys, there is no known habitat for threatened flora species, or individual plants present within the REFA construction corridor. The distribution of PCTs and key biodiversity constraints are illustrated in **Figure 3**.

There will be no significant impacts to biodiversity within the REFA construction corridor as:

- the area has previously been heavily disturbed by development associated with the AWRC
- no native vegetation will be cleared
- it is unlikely that protected fauna species would be present due to the absence of habitat.









Aboriginal Heritage Impact Assessment

An Aboriginal Due Diligence Assessment was prepared by qualified heritage consultant, Kelleher Nightingale Consulting Pty Ltd (KNC) in November 2024 (see **Appendix C**). An AHIMS search was conducted on 21 November 2024 to identify registered (known) Aboriginal sites or declared Aboriginal places within or adjacent to the REFA construction corridor. A second AHIMS search was completed on 13 January 2025 (see **Appendix D**). No Aboriginal sites or declared Aboriginal places were found within the REFA construction corridor. Previous Aboriginal archaeological assessments undertaken for the REF, AWRC EIS and M12 Motorway EIS identified one moderate-high significance Aboriginal site in the REFA construction corridor (South Creek West T1 (SCW T1) (AHIMS 45-5-5307)).

A visual inspection conducted by KNC on 8 November 2024 confirmed that no additional Aboriginal objects or areas of Aboriginal archaeological potential were located within the REFA construction corridor. Archaeological evidence suggests that whilst Aboriginal objects are known to occur in and near the REFA construction corridor, the likelihood of intact subsurface deposit will vary significantly based on the level of environmental and anthropomorphic disturbance. The area has been subject to land use disturbance, leading to a low likelihood of any intact archaeological deposit remaining within the REFA construction corridor.

The location of the identified Aboriginal site, South Creek West T1 (SCW T1) is illustrated in **Figure 4**. An Aboriginal heritage impact permit (AHIP) is being sought for the REF. The HDD entry pit south of the creek will be located within the REF construction corridor and any activities will need to comply with the AHIP. The section of pipeline north of the REF construction corridor under South Creek would be built using HDD construction methods to avoid the SCW T1 site.





Figure 4 Location of South Creek West T1 archaeological site

This information has been redacted to protect sensitive Aboriginal heritage information





Additional Mitigation Measures

The environmental impacts associated with the project change are minimal and consistent with the those identified and addressed in the REF. Additional mitigation measures are not required.

The table below lists the environmental impacts that could result from the proposed change compared to the REF. All other environmental impacts and mitigation measures identified in the REF (January 2025) remain the same and will be incorporated into the Contractor's CEMP.

Environmental impacts table			
Aspect	Additional impacts	Additional mitigation measures	
Topography, geology and soils	The project change will require the pipeline to be constructed through bushfire prone land (Category 3). Bushfire risk is considered low as there is no above ground infrastructure (other than vent shafts).	The proposed change can be managed using the environmental safeguards specified in the REF.	
Water and drainage	There will be minimal dewatering associated with the trenching and HDD under South Creek. It is not anticipated that the project change will have a significant impact on the groundwater.	Prepare Drilling Fluid Management Plan, including measures to:	
	There is a risk that frac-outs may occur during HDD installation (where drilling fluid is accidentally released to the surface due to excessive down hole pressure).	 contain and monitor drilling fluids at entry/ exit points, 	
		 identify and manage frac-outs. 	
		Include monitoring of the pressure of the drilling fluid to determine if there is a sudden decrease in pressure which indicates that a frac-out has occurred. Prepared and include contingency measures to be implemented to respond to a frac-out.	
		Ensure all entry and exit pits are located outside of key fish habitat.	
		Additional groundwater dewatering to be included in project WSWA application.	
Flora and fauna	The project change will not result in any native vegetation removal in addition to what has been identified in the REF. There is a low likelihood that protected species would occur within the REFA construction corridor.	The proposed change can be managed using the environmental safeguards specified in the REF.	









Heritage	 The project change will not result in any impacts to Aboriginal heritage in addition to that in the REF. No impacts to SCW T1 site in areas outside the future AHIP for the Thompsons Creek/South Creek alignment are proposed and any works undertaken within the site extent of South Creek West T1 (SCW T1) will be undertaken within future Thompsons Creek/South Creek alignment AHIP corridor. Connection to recycled watermain will be in an area disturbed by creation of the original asset. As such, no additional impacts to Aboriginal heritage are anticipated, in addition works will be undertaken within future Thompsons Creek/South Creek alignment AHIP corridor. 	Additional works in the Thompsons Creek/South Creek alignment corridor will be undertaken in accordance with future AHIP conditions.
Noise and vibration	The relevant landholders have been consulted as part of the AWRC EIS development. The closest infrastructure is a non-residential warehouse located next to a private airstrip. The closest residential property is about 160 metres south-west of the impact assessment corridor. Given the proximity to the AWRC (about 550 metres), and M12 (about 50 metres) construction sites, it is unlikely that any noise and vibration associated with the project change would have a significant impact on these receivers.	The proposed change can be managed using the environmental safeguards specified in the REF.
Traffic and access	Construction will generate small numbers of vehicle movements over a short period. Pipeline operation would generate infrequent traffic associated with periodic maintenance. The site can be accessed from the south by a dirt track off Western Road. The section of Western Road north of Elizabeth Drive is unsealed. There is also a dirt road from the north that follows the M12 and connects to Clifton Avenue. Clifton Avenue is a closed paved road.	The proposed change can be managed using the environmental safeguards specified in the REF.
Visual	There will be a vent shaft located at the entry and exit pits for the HDD pipeline. These will cause minimal visual impact due to their design and location.	The proposed change can be managed using the environmental safeguards specified in the REF.

6 Conclusion

This REFA outlines potential environmental impacts associated with connecting to the AWRC via a realignment crossing under South Creek shortly after SP1243. It allows for a connection to an existing repurposed recycled watermain. Any additional environmental impacts are considered negligible and potential impacts can be mitigated through implementation of the measures outlined in the REF. The proposed works are not likely to significantly impact the environment.







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Appendix A – Section 171 checklist

air

There are no requirements in addition to those considered in the REF.









Section 171 checklist	REF finding
Any degradation of the quality of the environment	The proposed work will not cause the degradation of the quality of the environment. The existing environment is largely disturbed land with some areas of non-native vegetation.
Any risk to the safety of the environment	The proposed work will not increase risk to the safety of the environment. Any exotic vegetation that is cleared will be stabilised with grass to prevent soil erosion and manage run-off.
Any reduction in the range of beneficial uses of the environment	The proposed work will not have any reduction in the range of beneficial uses of the environment.
Any pollution of the environment	Environmental safeguards will mitigate the potential for the proposed work to pollute the environment. No pollution of the environment is expected as any risk of frac-outs would be managed in accordance with the REF mitigation measures. The proposal will operate in accordance with EPL 21919.
Any environmental problems associated with the disposal of waste	The disposal of wastes will be conducted in accordance with the environmental safeguards, and no environmental problems associated with the disposal of waste are expected.
Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	The proposed work will not increase demand on resources, that are, or are likely to become, in short supply.
Any cumulative environmental effect with other existing or likely future activities	The proposed work will not have any cumulative environmental effect with other existing or likely future activities.
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	The proposed work will not have any impact on coastal processes or hazards, and coastal processes and coastal hazards will not have any impact on the proposed activity.
Any applicable local strategic planning statements, regional strategic plans or district strategic plans made under the EP&A Act, Division 3.1	The proposed works are to service growth and the applicable strategic planning statements or plans have been considered in the system planning and options selection process including Greater Sydney Region Plan – A Metropolis of Three Cities (Greater Sydney Commission, 2018), and the Liverpool City Council and Penrith City Council Local Strategic Planning Statements.
Any other relevant environmental factors.	The proposed work has been assessed against the factors listed above, and there are no other relevant environmental factors to

consider.





Appendix B – Consideration of TISEPP consultation



TISEPP section	Yes	No
Section 2.10, council related infrastructure or services – consultation with council		
Will the work:		
Potentially have a substantial impact on stormwater management services provided by council?		Х
Be likely to generate traffic that will strain the capacity of the road system in the LGA?		Х
Involve connection to, and have a substantial impact on, the capacity of a council owned sewerage system?		х
Involve connection to, and use of a substantial volume of water from a council owned water supply system?		х
Involve installation of a temporary structure on, or enclosing, a public space under council's control that will cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential?		x
Involve excavation of the surface of, or a footpath adjacent to, a road for which the council is the roads authority that is not minor or inconsequential?		х
Section 2.11, local heritage – consultation with council		1
Is the work likely to affect the heritage significance of a local heritage item, or of a heritage conservation area (not also a State heritage item) more than a minor or inconsequential amount?		Х
Section 2.12, flood liable land – consultation with council		
Will the work be located on flood liable land (that is land that is susceptible to flooding by the probable maximum flood event) and will they alter flood patterns other than to a minor extent?		х
Section 2.13, flood liable land – consultation with State Emergency Services		
Will the work be located on flood liable land (ie. land that is susceptible to flooding by the probable maximum flood event) and undertaken under a relevant provision*, but not the carrying out of minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance? * (e) Div.14 (Public admin buildings), (g) Div. 16 (Research/ monitoring stations), (i) Div. 20 (Stormwater systems)?		X
Section 2.14, development with impacts on certain land within the coastal zone- council consultation		
ls the work on land mapped as coastal vulnerability area and inconsistent with a certified coastal management program?		Х
Section 2.15, consultation with public authorities other than councils		•
Will the proposal be located on land adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 11 of that Act? If so, consult with DPIE (NPWS).		х
Will the proposal be located on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone? <i>If so, consult with DPIE (NPWS)</i>		x
Will the proposal comprise a fixed or floating structure in or over navigable waters? If so, consult <i>TfNSW</i>		Х
Will the proposal be located on land in a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017? If so, consult with Subsidence Advisory NSW.		х
Will the proposal involve clearing of native vegetation on land that is not subject land (ie non-certified land)? If so, notify DPIE at least 21 days prior to work commencing. (Requirement under s3.24 Chapter 3 Sydney Region Growth Centres - of the SEPP (Precincts – Central River City) 2021.		Х





Appendix C– Aboriginal Heritage Due Diligence Report











Your Ref/PO Number : AWRC EIS Assessment Area Client Service ID : 965058

Date: 13 January 2025



Dear Sir or Madam:

AHIMS Web Service search for the following area at Search using shape-file.

USCN AWRC ImpactAssessmentArea with a buffer of 0 meters. Additional Info : Due Diligence. conducted by Elizabeth Cocks on 13 January 2025.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

This information has been redacted to protect sensitive Aboriginal heritage information







[External] RE: CM: Sydney Water Thompsons Creek and South Creek Wastewater Project - DPI - Fisheries section 199 standard notification

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 Fri 22/11/2024 10:12 AN

CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe. Hi Etten,

Thank you for your notification. DPIRD Fisheries suggests the following additional mitigation measures be included in the REF if they haven't been already -

- Prepare Drilling Fluid Management Plan, including measures to:
 - o contain and monitor drilling fluids at entry/exit points,
 - idenify and manage frac-outs.
- Include monitoring of the pressure of the drilling fluid to determine if there is a sudden decrease in pressure which indicates that a frac-out has occurred. Prepared and include contingency measures to be implemented to respond to a frac-out.
- Ensure all entry and exit pits are located outside of key fish habitat.

Thank you,

•

Jess

Jess Hyland (she/her) Fisheries Manager Coastal Systems | Fisheries Department of Primary Industries and Regional Development

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Department of Primary Industries
 and Regional Development



