Enforceable undertaking

Environmental Protection Act 1994 (Qld)

City of Gold Coast Council

September 2024

The commitments in this undertaking are offered to the Administering Authority by the above person or entity.

THIS ENFORCEABLE UNDERTAKING is made on 27 September 2024.

1. The commitments in this undertaking are offered to the Chief Executive administering the Environmental Protection Act 1994 by:

   City of Gold Coast Council
   Registered Office:
   City of Gold Coast Customer Service Centre (Nerang)
   833 Southport Nerang Road, Nerang QLD 4211

2. Definitions

The following definitions apply in this document.

Act means the *Environmental Protection Act 1994* (Qld).

AQP means appropriately qualified person who has professional qualifications, training, skills, and experience relevant to ecological restoration and rehabilitation. The person or persons, must be able to give authoritative assessment, advice and analysis using the relevant protocols, standards, methods and/or literature.

CoGC means City of Gold Coast Council.

department means the Department of Environment, Science and Innovation.

EA means environmental authority EPVX01812014.

ERA 63 means environmentally relevant activity 63 as prescribed under Schedule 2 of the *Environmental Protection Regulation 2019* (Qld).

Guideline means the *Guideline – Enforceable undertakings under the Environmental Protection Act 1994* ESR/2016/2272 Version 2.02

Incident means the release of sewage described in clause 5(b) to (c).

SCADA means Supervisory Control and Data Acquisition.

sewer network SCADA Monitoring Enhancement Project means CoGC's project to use diagnostic tools and software/algorithms to provide early detection of sewage leaks to the environment, as described in activity 10.6.

SPS means Sewage Pumping Station

SRM means Sewage Rising Main

STP means Sewage Treatment Plant

Undertaking means this enforceable undertaking made pursuant to Chapter 10, Part 5 of the Act.

AECOM investigation recommendations means recommendations listed in section 5.1, 5.2 and 5.3 in the *ICAM Investigation Report, Yatala BE35 Sewer Rising Main Incident 2024, AECOM, 02 July 2024,* and as attached in Appendix A.

3. Background

(a) CoGC is the holder of the EA, which has been issued in relation to the ERA 63(2) Sewage treatment -pumping stations(1)(b).

(b) The EA authorises the operation of pumping stations at various locations for the purposes of operating the pumping stations across CoGC's sewerage network.

(c) CoGC's sewerage network includes, but is not limited to, the sewage rising main infrastructure which transports sewage between pumping stations and to sewage treatment plants. CoGC owns and maintains the sewage rising mains within its local government area.

4. Alleged contraventions

(a) It is alleged by the department that:

(i) CoGC did unlawfully cause serious environmental harm, contrary to section 437(2) of the Act; and

(ii) CoGC did unlawfully deposit prescribed water contaminants to waters, contrary to section 440ZG of the Act. The prescribed water contaminant was sewage and the deposit was caused by the release to the Albert and Logan Rivers.

(iii) CoGC, being the holder of the EA, did contravene condition 10 of the EA by unlawfully releasing contaminants to waters, contrary to section 430(2) of the Act; the contravention relates to unlawful release of sewage to waters.

5. Circumstances of the alleged contraventions

(a) CoGC operates SPS BE35 under the EA, which pumps sewage from the Stapylton, Yatala and Ormeau catchments through duplicate SRMs to the Beenleigh STP operated by Logan City Council.

(b) On 11 January 2024, a break occurred on the BE35 DN450 (450mm) SRM at Yatala. Later investigations determined that approximately 450 ML of sewage was released to the Albert River from the broken SRM, affecting land at Yatala and Stapylton, without being detected until 8 April 2024.

(c) On 8 April 2024:

(i) at approximately 5.25pm, CoGC first became aware of the break via a call received by the CoGC Operations Centre from the Fire Service;

(ii) at approximately 8.00pm, the DN450 (450mm) SRM was isolated to allow rectification works to occur, and flows were diverted to the parallel BE35 DN300 (300mm) SRM;

(iii) due to flow constraints through the smaller DN300 SRM, a backup of sewage within the network occurred and this caused a secondary overflow of sewage from SPS BE35 into the stormwater drainage system and an unnamed creek (noting that SPS BE35 is engineered to overflow in a controlled manner when emergency storage is exceeded).

(d) On 9 April 2024, CoGC:

(i) notified the department of the Incident;

(ii) procured vacuum tankers both to prevent further overflows from the SPS BE35 and to clean up sewage that had overflowed into the stormwater drainage system. The stormwater drainage system was then flushed with potable water; and

(iii) constructed an access track to allow vehicles and equipment to gain access to the break location.

(iv) commenced water quality testing

(e) On 12 April 2024, CoGC:

(i) excavated and removed sewage residues and contaminated soil from the SRM break site;

(ii) reinstated the SRM with appropriate fill material (namely, rock material to stabilise overland flow on the nearby natural drainage path). Natural grass regrowth was chosen to rehabilitate the land surface (at the landowner's request);

(iii) confirmed the extent of the spill on 12 April 2024, after examining SCADA and cross-checking with Logan City Council for flows arriving at Beenleigh STP; and

(iv) notified the department of the estimated spill volume and duration.

(f) On 13 April 2024, an incident meeting was held with Gold Coast City Council, DESI and Safe Foods QLD to discuss risks to waterway users.

(g) Between 12 April 2024 – 18 April 2024, CoGC notified affected residents and businesses, erected signage along the river and undertook engagement with the media.

(h) Between 16 April 2024 – 19 April 2024, CoGC carried out clean-up, tankering, flushing and daily sampling of the unnamed creek.

(i) On 18 April 2024, CoGC erected floating signage near release point in Albert River notifying "catch and release fishing recommended".

(j) On 28 May 2024, Qld Health advised that based on results of sampling, the impacted area can be reopened to the public for recreational fishing and seafood consumption.

(k) During the spill there were significant negative impacts on water quality in the lower Albert River. Notably, concentrations of ammonia (a toxicant in aquatic environments) increased to levels previously unrecorded by the department's long-term Ecological Health Monitoring Program (EHMP) which occurs 8 times per year, while dissolved oxygen saturation decreased to the lowest concentrations monitored by EHMP. This is very likely to have negatively affected inactive animals (e.g., molluscs), and mobile animals (e.g., fish) would have moved away. Low dissolved oxygen concentrations may have prevented movement up and down the estuary of certain fish species known to migrate for spawning during this time including Australian bass, mullet and eels. Once the spill ceased, dissolved oxygen levels recovered within 1 month.

(l) During the spill (89 days), nutrient concentrations in the lower Albert River spiked higher, and an estimated 323 kg/day of additional nitrogen entered the river. Excessive nutrients can promote algal blooms, however, there was no indication of blooms based on chlorophyll a concentrations measured after the spill. The concentration of nitrogen has returned to levels typical for urban impacted river systems.

(m) In southern Moreton Bay and the northern Broadwater, where the Albert-Logan river water discharges, nitrogen concentrations were normal when monitored in July 2024. At that time there is no evidence of an ongoing impact of the spill on nutrient levels, however monitoring will continue.

(n) Metals were detected in the sediments of the lower Albert River. Mostly this contamination is below guidelines, and likely due to long-term accumulation rather than from the spill. Metal concentrations above relevant guidelines were found, however, they appear to be related to legacy sources rather than the spill.

(o) The spill contained low concentrations of most PFAS related chemicals. The concentration of PFOS (a type of PFAS) in spilled sewage itself was above the most conservative guidelines for fresh and marine waters, however, after dilution, would have posed a low risk to the environment. Concentrations measured in Albert River sediments were below ambient values

recorded in the region.

(p) Recreationally and commercially valuable fish and mud crabs collected immediately after the spill in the Albert River did not have high concentrations of PFAS chemicals or metal contaminants in their tissues, and concentrations were not significantly higher than comparable data previously collected in 2020. However, shore crabs sampled after the spill from the lower Albert River had higher levels of contaminant accumulation (particularly manganese) than those from upstream of the spill and from the upper Logan River. Contaminant concentrations in shore crabs from the lower Albert River were also higher than in comparable studies in urban estuaries elsewhere in southeast Queensland. The source of these contaminants cannot be explicitly linked to the spill, as there are multiple potential sources of contaminants in the Albert catchment. Bioaccumulation in shore crabs may be indirectly linked to spilled sewage. The low dissolved oxygen levels in the lower Albert River during the spill (a result of high organic matter and sulfur loads), could have increased the bioavailability of existing metal contaminants in the sediments.

6. Actions taken to prevent recurrence of the alleged contraventions

CoGC implemented the following initiatives to prevent the occurrence of a similar incident:

(a) On 18 April 2024 a flow totaliser was installed on the BE35 SRM at the Beenleigh STP to ensure daily total volumes are checked and compared to ensure a significant leak could be identified within 24-hours.

(b) On 24 April 2024 pressure sensors were installed on the BE35 DN450 and DN300 SRM pipes to help ensure that a break could be detected via pressure differential.

(c) On 14 June 2024 instantaneous low flow alarms were installed on the BE35 SRM at the Beenleigh STP to help ensure that a break could be detected via a flow differential.

(d) On 12 May 2024 CoGC commenced implementing a four-year plan for reviewing high risk/critical SRMs and SPSs that includes:

  (i) developing contingency plans for high risk/critical infrastructure;

  (ii) reviewing existing BE35 SRM condition assessments and conducting targeted renewals of infrastructure where required; and

  (iii) conducting new condition assessments for all identified extreme/high risk SRMs.

(e) On 12 May 2024 CoGC commenced implementing a plan for all STPs that includes:

  (i) investigating and planning the installation of flow meters and pressure sensors on all STP inflow pipelines and the installation flow totaliser alarms for all STPs;

  (ii) assessing the failure-risk of all SRMs at waterway crossings;

  (iii) installing pressure monitors on high-risk SRMs; and

  (iv) reviewing the extent and nature (material, pressure rating, coating, wrapping, construction certification) of 'Ductile Iron Cement Lined' pipes installed by the same contractor between 2003-2005 contract as the BE35 SRM.

7. Statement of regret

As a joint custodian of south-east Queensland's waterways, CoGC works hard to deliver catchment and river health outcomes as part of its core service to the Gold Coast community. CoGC understands the importance of minimising pollutant loads on our river systems and the regional connectedness between our catchments, estuaries and the important ecosystem of Moreton Bay. CoGC deeply and genuinely regrets the occurrence of the Incident, and the impacts of the Incident on the environment and local community.

8. Statement of commitment that the behaviour, activities, and other factors which caused or led to the alleged contraventions has ceased and will not reoccur

CoGC has publicly committed to implementing the AECOM investigation recommendations in full. CoGC reaffirms that commitment in making this Undertaking. CoGC is confident that implementing the recommendations will ensure that a similar incident does not occur in the future.

CoGC is committed to reducing the impact of sewage spills as far as possible. We recognise that improved monitoring of the sewer network is key to the prompt identification of sewage spills and reduces the reliance on third party notification. CoGC is undertaking an innovative SCADA monitoring enhancement project and recognises that this approach to monitoring critical assets will need to be rolled out across the entire water utility network to meet increasing community expectations.

9. Objectives

The objectives of this undertaking are to enhance the protection of the environment and secure compliance with the Act, including by:

(a) improving environmental performance of CoGC with respect to management of sewerage infrastructure;

(b) delivering benefits to the environment for the Albert-Logan River estuary, and the local community and industry;

(c) enhancing leak detection and monitoring sewerage systems;

(d) promoting the benefits of enhanced leak detection monitoring and alarms for sewer systems across the broader water sector;

(e) restoring community confidence in CoGC as a responsible environmental custodian;

(f) assisting with the department's investigation and understanding of environmental impacts; and

(g) promoting the objects of the Act.

10. Terms of the Undertaking

CoGC undertakes to carry out the following, within the specified timeframes:

ACTIVITIES		COST	TIMEFRAME
10.1	Complete 9 hectares of riparian restoration works including weed removal, native vegetation plantings and 4years' maintenance at August Burrow Park, Alberton in accordance with Appendix B, item B.3. This will deliver benefits to the Logan-Albert estuary by improving: (a) the condition of the wetlands, both lateral (connection to other wetland systems) and longitudinal connectivity (connection within the wetlands) within the Logan/Albert catchment; and (b) water quality from new riparian vegetation including palustrine wetlands. In addition, the size of the restoration area and the width of the buffer to the river will build on other CoGC natural area initiatives outside of this Undertaking. Together these initiatives enhance biodiversity, improve ecosystem resilience, provide better habitat connectivity, and offer greater climate and hydrological benefits.	$1.1M	By 31 July 2029
10.2	Complete 1 hectare riparian restoration works including weed removal and native vegetation plantings and 4 years maintenance at Halls Road Nature Reserve, Luscombe in accordance with Appendix B, item B.4.	$120,000	By 17 January 2028
10.3	Share CoGC's comprehensive receiving water quality model for the Albert and Logan rivers (developed by CoGC) with the department and any other interested parties, for example during a workshop to showcase/demonstrate its application (see Appendix B, item B.2). (*NB: The actual development of the model and associated costs does not form part of this Undertaking, however the cost of this program is estimated at $500,000.)	Workshop: $8,000 *Cost of model development: $500,000	By 31 March 2026
10.4	Share monitoring program data from CoGC's three-year baseline water quality monitoring program across 19 sites on the Albert-Logan rivers with the department annually, and with any other interested party, once completed (see Appendix B, item B.1). (*NB: The actual development of the monitoring program and associated costs does not form part of this undertaking, however the cost of this program is estimated at $1.2M. **The data is provided to the department annually and is included in the progress reports as listed in section 10.9 of this table)	Reporting: $2,000 *Cost of monitoring program: $1.2M	To the Department - by 30 September annually To Any interested party - by 17 December 2027

10.5	Develop an implementation plan with itemised actions and timeframes that give effect to the AECOM investigation recommendations in Appendix A and provide to the department.		$25,000	By 10 January 2025
10.6	Implement the sewer network SCADA Monitoring Enhancement Project, as below:			
	10.6.1	**Protocol Trial and Development Phase** Complete leak simulation trials using BE35 revised pressure sensor and flow monitoring. Develop flow balancing and system curve alarming protocols – assign 1 x L8 Specialist Engineer to develop, implement, and refine leak, break, and burst detection and alarming protocols based on BE35 trials and simulation results.	$180,000	By 30 September 2025
	10.6.2	**Design and Procurement Phase** Finalise design and specifications for 19 x pressure sensors and 7 x flow monitors. Procure all instrumentation required for flow balancing and system curve alarming protocols.	$346,000	By 30 September 2025
	10.6.3	**Installation and Commissioning Phase** Install 19 x pressure sensors and 7 x flow monitors. Test, calibrate, and integrate flow balancing and system curve alarming for 19 x pressure sensors and 7 x flow monitors in CoGC's sewer SCADA network.	$534,000	By 31 July 2026
10.7	Share a technical paper for the benefit of the water industry by, for example, presenting at a state or national conference outlining the outcomes of the sewer network SCADA Monitoring Enhancement Project.		$20,000	By 11 December 2026
10.8	CoGC agrees to pay the department's costs associated with the investigation into the Incident and this Undertaking.		$19,000	Payment is due 30 days after receipt of the department's invoice
10.9	Provide progress report(s) to the department in relation to the implementation of activities 10.1, 10.2 10.4 and 10.6.3.			By 30 September annually

11. Why Undertaking is a more appropriate response to the alleged contraventions than court proceedings

(a) As a local government organisation that exists to serve the community by delivering essential services such as water and sewerage, CoGC considers that it would be a more prudent spend of community resources to avoid court proceedings and instead invest in a series of undertakings to deliver direct environmental benefits for the Albert River and to drive an overall uplift in the management of the CoGC's sewerage network. Once aware of the spill, CoGC took immediate actions to isolate and repair the SRM break and clean up land affected by the Incident.

(b) CoGC notified the department of the Incident once aware of the spill in accordance with CoGC's compliance obligations.

(c) CoGC notified affected residents and businesses via doorknocking, letterbox drops, signage along the river and proactive engagement with the media. It worked with the department, Safe Food Queensland and Queensland Health to communicate with affected residents, business and the wider community.

(d) CoGC commissioned an independent investigation to understand the root causes of the Incident and has published the full investigation report.

(e) CoGC has commissioned independent, specialist support services by Water Technologies Pty Ltd and Griffith University to gain a detailed understanding of the spill impacts on water quality, the environment and public health. CoGC has also been working collaboratively with the State to draw conclusions based on best available data and specialist modelling. CoGC has committed to communicate the environmental impact findings to the public once finalised.

(f) CoGC acknowledges that the Incident had a significant negative impact on the water quality of parts of the Albert and Logan rivers and this was a matter of legitimate public concern from an environmental, recreational and public health perspective. Based on the environmental investigations carried out to date, the impact is understood to have been temporary and short-term due to flow and tidal effects and there are no ongoing human health concerns.

(g) CoGC has at all times actively cooperated in the department's investigation into the Incident.

(h) CoGC acknowledges that the risk of impact was foreseeable, and that the Incident may have been avoided or mitigated by a more comprehensive condition assessment of the SRM, the installation of a flow meter immediately downstream of SPS BE35, installation of pressure monitors on BE35 and the acceleration of the proposed project for its renewal. Nonetheless, the Incident was caused inadvertently. There were no causative or contributing acts or omissions by CoGC that were intentional (or otherwise 'wilful'), and there was no intention or motivation to derive a financial or material benefit.

(i) The department can be satisfied with CoGC's ongoing compliance with the Act because CoGC has committed to implementing the recommendations of its investigation in full and as a matter of priority to ensure that a similar incident does not occur in the future. CoGC has already commenced a range of initiatives (as detailed below).

(j) It is the Gold Coast community who would bear the cost of a prosecution and any penalty imposed as an outcome of those court proceedings. The department's Enforcement Guidelines state that with respect to liability of local government agencies, where regulatory intervention is required, consideration will be given to ensuring ratepayer monies remain in the local community while holding local governments accountable. This Undertaking works to achieve this purpose.

12. Acknowledgements

CoGC acknowledges that:

(a) it has read and understood the Guideline;

(b) this Undertaking will be published on the department's website and may be referred to or referenced in other ways;

(c) the department's acceptance of this Undertaking means that the department:

(i) will not commence proceedings against CoGC for the alleged contraventions described in clause 4, as long as CoGC is fully complying, or has fully complied, with the Undertaking;

(ii) the department's acceptance of this Undertaking does not affect the department's power to:

(A) bring proceedings against CoGC;

(B) issue penalty infringement notices; or

(C) take any other enforcement action against CoGC,

in relation to any subsequent contravention or alleged contravention of the Act, that is not the subject of this Undertaking or another undertaking;

(d) this Undertaking in no way derogates from the rights and remedies available to any other person or entity arising from any conduct described in this Undertaking or arising from subsequent conduct;

(e) any failure to meet the due date for an action under the terms of this Undertaking will result in the matter being escalated and may lead to enforcement action;

(f) the department may undertake other compliance monitoring activities to verify the evidence and compliance with a term of this Undertaking, and CoGC agrees to cooperate with the department in any investigation or compliance activity in respect of the Undertaking such as site access and provision of documents upon reasonable notice;

(g) it has offered an undertaking on terms consistent with the approved form and the Guideline; and

(h) the Undertaking does not take effect until the department gives CoGC notice of the decision to accept the Undertaking.

13. Ability to comply with the Undertaking

CoGC has the financial ability to comply with the terms of this Undertaking.

14. Contact details

(a) Any written notification to the department pursuant to this Undertaking is to be provided to:

Kate Harbert
Director Compliance
Department of Environment, Science and Innovation
Level 32, 400 George St, Brisbane, Queensland 4000
Kate.harbert@des.qld.gov.au; GoldCoast.es@des.qld.gov.au]

(b) Any written notification to CoGC pursuant to this Undertaking is to be provided to:

Michael Kahler
833 Southport Nerang Road, Nerang Queensland 4211
mkahler@goldcoast.qld.gov.au; mail@goldcoast.qld.gov.au; kbaker@goldcoast.qld.gov.au

15. Execution

Executed by **City of Gold Coast Council** in accordance with Section 236 of the *Local Government Act 2009*

Signature of delegate

Michael Kahler, Executive General Manager, Infrastructure Gold Coast

Name of delegate (print)

Accepted by Rob Lawrence on behalf of the **Department of Environment, Science and Innovation** in the presence of

Signature of witness

Rob Lawrence

Eva Coggins

Name of witness (print)

Appendix A. AECOM Investigation Recommendations

Included here is an excerpt of section 5.0 Recommendations as they appear in the *ICAM Investigation Report, Yatala BE35 Sewer Rising Main Incident 2024, AECOM, 02 July 2024*

5.0 Recommendations

AECOM has made three categories of recommendations. The first is support for actions CoGC has already commenced or implemented. The second is for organisational recommendations relevant to sewer rising mains (SRM). The third is for recommendations relevant to the Yatala BE35 SRM.

5.1 Actions that CoGC has already commenced

CoGC have already commenced a range of initiatives. A selection of actions supported by AECOM is listed below. Some of these measures are 'leading edge' for sewer pressure mains and could be applied more broadly to other critical assets, as recommended further below.

- Asset Management:
  - The Asset management Team has identified a critical sewerage pressure mains four-year plan. Key elements:
    - Development of high risk / critical SRM / SPS contingency plans
    - Build capacity in asset engineering team
    - Review of BE35 SRM condition assessment and targeted renewals
    - Targeted condition assessment of all extreme/high risk SRMs.
- Operations:
  - BE35 SRM:
    - Flow totaliser alarm on BE35 at Beenleigh STP
    - Alarm on instantaneous low flow into BE35 Beenleigh STP
    - Pressure sensors on DN450 and DN300 pipes at failure site
  - All CoGC sewage treatment plants (STPs) on a prioritized basis:
    - Investigation and planning for flow meters on all STP inflow pipelines
    - Flow totaliser alarms for all STPs
    - Investigation and planning for pressure sensors on STP inflow pipelines
  - All CoGC SRMs on a prioritized basis:
    - Sewer main waterway crossing review for assessment of SRM failure risks
    - Installation of pressure monitors on high-risk sewer rising mains
    - Modelled burst detection
  - A review of the extent and nature (material, pressure rating, coating, wrapping, construction certification) of DICL pipes installed with the 2003-2005 contract, which may support targeted risk and condition assessments.

5.2 *Additional recommendations – Organisational*

The following recommendations should be applied organisation-wide for SRMs and SPSs.

- Asset management
  - Review with a view to determining the resources required for satisfactory strategic and tactical asset management (whether staff or consultants) of SRMs and SPSs.
  - Address backlog or series of delayed SRM **condition assessments** – with consideration of the critical assets recommendations herein.
  - **Critical assets** are usually defined as those which have a high consequence of failure, but not necessarily a high probability of failure. By identifying critical assets, CoGC can target and refine investigation activities, maintenance plans and capital expenditure plans for the critical assets. CoGC can then:
    - Add critical aspects of the sewerage network to corporate risk register.
    - Review the probability of failure of critical assets or prolonged discharges across the City considering failure caused by issues that appear not to have been previously considered, including:
      - Internal corrosion due to microbiologically influenced corrosion (MIC)
      - External corrosion due to:
        - acid sulphate soils,
        - MIC
        - aggressive groundwater (e.g. low pH or high chloride content)
      - Failure in isolated areas such that it may not be immediately reported.
    - Refine the criticality ratings of SRMs to divide the assets into zones of high and low risk of failure associated with local exposure conditions and construction materials/corrosion protection systems.
- Operations:
  - In conjunction with the asset criticality review - and with consideration for SRMs that have sections which are **isolated** - prioritise active monitoring of flow and pressure monitoring and alarms in SRMs. Given the nature of SRM hydraulics, this will rely on automated data interpretation, algorithms and potentially machine learning routines.
  - **Control centre staffing** should be reviewed to support (a) progressive observation of instruments that are not presently alarmed until critical assets can be programmed and alarmed as above, and (b) responding to the new alarms arising when an array new instrumentation has been installed and alarmed as recommended herein.
  - In relation to the asset criticality review and implementation of alarms recommended herein, the Operations Centre's Incident Response Procedures should be reviewed and updated to reflect the new controls. The Operation Centre's Incident Response Procedures should include an adequate response to failures in isolated SRM's.
  - **SRMs in isolated areas**
    - Informed by the revised criticality of sewer rising mains, develop a programme of inspection of isolated sections of SRMs, including consideration of walk overs, drone inspections, sniffer dogs, etc. and the frequency of these inspections.
    - In conjunction with the asset criticality review and inspection programming, review the case for formed vehicle access along isolated SRM easements.

- It is recommended that the arrangement between CoGC and Logan City for the BE35 SRM and Beenleigh STP be revised to ensure both parties to communicate with each other when a significant change is observed, such as a notable reduction in flow, for each party to confirm the reason for the observed change promptly and collaboratively.

- Engineering
  - Provide guidance to developers and to contractors and service providers on the extent and nature of **aggressive environments / soils and groundwater** in the CoGC by:
    - Making available information on these risks to support SEQ WS&S D&C Code[7] clause 4.2.3 Metallic Materials which includes "*In soils subject to electrical conductivity, ductile iron pipes shall be validated by the pipe supplier or a specialist corrosion consultant for their suitability.*"
    - Amend Council's Water and Sewerage Connections Policy Attachment A - Procedure to inform CoGC's contracted service providers of the durability risks associated with acid sulphate soils, MIC, and aggressive groundwater (e.g. low pH or high chloride content).
  - Review the acceptance of **metallic pipe materials** in aggressive environments. Limit the use of metallic pipes in areas of the city that have or potentially have acid sulphate soils, MIC, or aggressive groundwater. This should include a review of CoGC's design standards, standard specifications, and SEQ WS&S D&C Code Infrastructure Products and Materials (IPAM) register.
  - Undertake a review of CoGC's requirements and procedures for the inspection of works under construction, including:
    - Application of the requirement of the Professional Engineers Act including the need for registered professional engineers undertake or directly supervise professional engineering services for design and construction.
    - Development and implementation of inspection and test plans, including observation of the construction works by the design engineer.
  - **Sewer Pump Stations due diligence.** Based on the revised criticality of sewer rising mains, review and update CoGC's due diligence provisions at critical SRMs and SPSs. The review and update should refer to both:
    - WSA 04-2022-3.1 section 2.5 Due Diligence Requirements.
    - Permit Number EPVX01812014 including *Code of environmental compliance for certain aspects of sewage treatment activities (ERA 63).*

    BE35 does not conform in many aspects of these requirements.

- Environment
  - Undertake a **review** of Integrated Environmental Management System (or equivalent).
  - **Finalise the review of incident response** actions and procedures – including staff resourcing / training / plant and equipment.
  - **Tanker response** - resorting to tankering of overflows is low (not effective) on the hierarchy of controls. Nevertheless, until more effective controls of SRM failures can be implemented, it is recommended that the tankering responsiveness be improved. CoGC should consider a dedicated contract, or use of City owned resources.

[7] The *SEQ Water Supply and Sewerage Design & Construction Code (SEQ WS&S D&C Code)* is an *Amendment to Sewage Pumping Station Code of Australia (WSA04 – 2005 V2.1)*

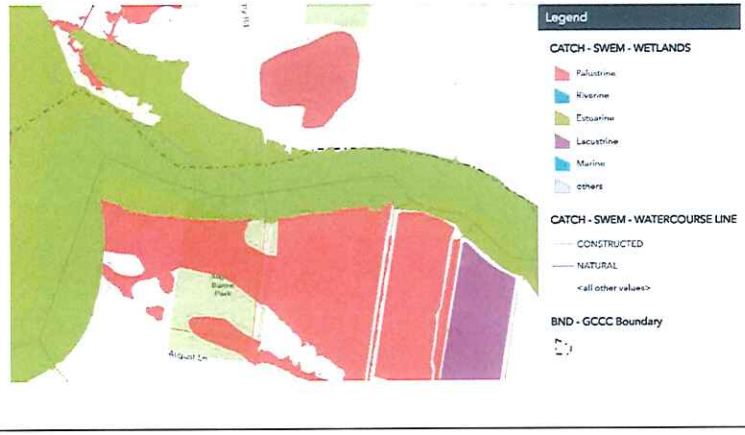
5.3 *Additional recommendations – specific to Yatala BE35 SRM*

The following recommendations are specific to the Yatala BE35 SPS and SRM:

- Asset Management:
  - In the context of the factors listed below, review the criticality of this SRM relative to other SRMs, and implement investigation activities, maintenance plans and capital expenditure plans as necessary.
    - This SRM having several isolated sections.
    - The receiving environment is sensitive; it is used for food production.
    - The SPS operates duty/assist, with no standby.
    - Tankering cannot provide adequate capacity for solation of the DN450 SRM.
  - Refine the criticality rating of the DN300 and DN450 SRM by dividing the asset into zones of high and low risk of failure associated with local exposure conditions and construction materials/corrosion protection systems. Develop a tactical condition assessment programme accordingly.
- Asset Planning and Delivery
  - Given the failure history of the BE35 SRM, CoGC should consider opportunities to accelerate the delivery of the Stapylton Sewerage Network renewal / augmentation project. Consideration should be given to addressing programme risks, easement acquisition, approvals, accelerated design and the incentivisation of early construction completion. There are a number of contract models that facilitate incentivised delivery programme outcomes.
- Operations:
  - Regular inspection of isolated sections of corridor, including consideration of walk overs, drone inspections, sniffer dogs, etc. and the frequency of these inspections.
- Environment:
  - Finalize the investigations into the potential impacts of the release resulting from this incident.

Appendix B. Riparian Environment Restoration Initiatives

Item	Environmental Initiatives	Description	Impact of initiatives/ Extras
B.1	Albert-Logan River - Baseline Water Quality Monitoring Program (ALR-BWQMP); Long Term monitoring of 19 sites	The ALR-BWQMP will be developed and implemented in the Albert and Logan Rivers and adjacent waters of Southern Moreton Bay to establish a record of baseline water quality condition. The ALR-BWQMP is a 3-year program, initial sampling will occur fortnightly for the first 12 months, and monthly thereafter.	This data will be used by CoGC for input into the Expanded Near- and Far- Field Receiving Water Quality Model as described under item B.2, below. This model will consider near-field (within the river) and far-field (within the estuary and Moreton Bay) impacts of releases from sewage treatment It will provide quantitative information on baseline water quality conditions and detect any impacts on Environmental Values (EVs) designated under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP Water). A suite of metals analysis has been added to the standard baseline tests.
B.2	Expanded Near- and Far-Field Receiving Water Quality Model	CoGC has developed a comprehensive receiving water quality model for the Albert and Logan Rivers. The purpose of this model is to enable a fully comprehensive understanding of the system processes to be developed that will allow more accurate understanding of the impact sewage treatment activities have on the receiving environment.	The detailed receiving water model will incorporate advection-dispersion, assimilative capacity, and hydrodynamic assessment of the Albert and Logan Rivers. The model will build upon the modelling conducted for the incident, the existing model used by Healthy Land and Water and will tie-into the City's Broadwater receiving water model that was developed to inform impact assessments related to the authorised and licensed recycled water release points located at the Seaway.
B.3	Riverbank Restoration and Revegetation Project, Priority site #1	**August Burow Park** CoGC will develop a restoration plan prepared by an AQP and to the satisfaction of the department, which achieves the following: (a) Identifies a minimum area of 9 hectares of August Burow Park, Alberton on Lot 1 SP104045 and Lot 2 SP104045 (the location) which will benefit from the restoration works as follows; (i) A minimum of 5 hectares of cleared land on Lot 2 SP104045 will be revegetated with up to 40,000 plants that are consistent with the natural species composition and density of the mapped regional ecosystem for the land; and (ii) An additional 4 hectares on Lot 1 SP104045 will receive rehabilitation and maintenance to remove	August Burow Park contains riparian buffer zones to the Logan-Albert River estuary and mapped palustrine wetland. Reinstating riparian vegetation and improving existing native vegetation including palustrine wetlands will assist in improving water quality in the Logan Albert estuary by filtering run-off from overland flow.

		weeds and revegetate in accordance with the restoration plan. (b) Details the restoration of flora communities through the establishment of native species of endemic vegetation reasonably expected to be previously existing and in the location, and at a density typically existing in this location; (c) Details measures necessary to plant and restore vegetation to a self-sustaining vegetated community; and (d) Details the ongoing monitoring and maintenance of the restoration areas for a minimum of 4 years from planting. CoGC will implement the restoration plan on August Burow Park in accordance with the restoration plan. CoGC will consult with the Traditional Owners being the Danggan Balun (Five Rivers) People as the registered Native Title claimant for the location from the environmental initiatives including August Burow Park prior to initiation of the works. This consultation will be undertaken to fulfill the cultural heritage duty of care under the Qld *Aboriginal Cultural Heritage Act 2003,* when undertaking land disturbance on land under Native Title claim.	 

B.4	Riverbank Restoration and Revegetation Project, Priority site #2	**Halls Road Reserve** CoGC will develop a restoration plan prepared by an AQP and to the satisfaction of the department, which achieves the following: (a) Identifies a minimum area of 1 hectare of Halls Road Reserve, Luscombe on Lot 115 WD4525 (the location) which will benefit from the restoration works; (b) Details the restoration of flora communities through the establishment of native species of endemic vegetation reasonably expected to be previously existing and in the location, and at a density typically existing in this location; (c) Details measures necessary to plant and restore vegetation to a self-sustaining vegetated community; and (d) Details the ongoing monitoring and maintenance of the restoration areas for a minimum of 4 years from planting. CoGC will implement the restoration plan on Halls Road Reserve in accordance with the restoration plan. CoGC will consult with the Traditional Owners being the Danggan Balun (Five Rivers) People as the registered Native Title claimant for the location from the environmental initiatives prior to initiation of the works. This consultation will be undertaken to fulfill the cultural heritage duty of care under the Qld *Aboriginal Cultural Heritage Act 2003,* when undertaking land disturbance on land under Native Title claim.