

Assessment guideline

Licensing

Assessing applications for sewage treatment works

This document provides guidance to officers when assessing and conditioning applications for environmentally relevant activity (ERA) 63 threshold 1—operating one or more sewage treatment works¹ at a site that have a total daily peak design capacity of at least 21 equivalent persons (EP), against the Environmental Protection Act 1994 (EP Act) and subordinate legislation.

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¹ Does not include pump-out facilities or facilities which screen the sewage only.

Introduction

This guideline has been developed to ensure that the administering authority's decisions when assessing applications for sewage treatment plants (STPs) are consistent, yet allow for flexible assessment on a case-by-case basis. Solutions will be favoured that consider broader environmental benefits, not just 'end-of-pipe' impacts, to achieve the best environmental outcomes that are cost-effective. High-cost, heavily engineered solutions may not always be the most appropriate solution. The Department of Environment, Science and Innovation (the administering authority) encourages and supports low-cost solutions that achieve the same or better outcomes. A risk assessment should be completed by the applicant, documenting priorities and their mitigations, demonstrating sound decision-making processes. Information on carrying out a risk assessment is available in the *Guidelines on risk assessment techniques*, produced by Standards Australia. This risk assessment will then be assessed by the department based on environment, social and economic outcomes rather than just a direct comparison of end-of-pipe outputs. This guideline does not discuss general assessment matters, such as properly made applications, as this should have been determined before assessment of the activity begins. For guidance on requirements for a properly made application, refer to the Business and industry portal on the Queensland Government's website at <http://www.business.qld.gov.au/>

Definition of 'site'

The administering authority will take the following into consideration when determining whether a multiple sewage treatment plant application should be assessed as a single or multiple site:

- physical interconnection of any infrastructure—e.g. plumbing, collection equipment, storage and treatment tanks, irrigation/disposal areas, control systems, housing, structures, etc.
- proximity of the individual sewage treatment plants (including any irrigation/disposal areas) to each other. Soil characteristics (e.g. permeability), topography, physical barriers, etc. shall be taken into consideration
- cumulative impact on the receiving environment
- any other common factors that could lead to an increased risk of environmental harm.

No release works

Sewage treatment works which do not result in a release of contaminants to the environment do not trigger an environmentally relevant activity under Schedule 2 of the Environmental Protection Regulation 2019. No-release works are treatment works that do not release sewage, treated sewage effluent or solid waste (biosolids) to land or water, for example:

- All sewage, treated sewage effluent and biosolids associated with the works are removed and taken to an appropriate facility for further treatment or disposal, for example a municipal sewage treatment plant.
- All treated sewage is re-used/recycled in a closed system resulting in no release to the environment, for example all treated effluent is used in an industrial process such as concrete batching or used for dual reticulation. These circumstances would be regulated under other Queensland legislation such as the *Water Supply (Safety and Reliability) Act 2008*.

The administering authority may also deem works to be no-release if the applicant can demonstrate no release of contaminants to land or water, for example, effluent is released into purpose built, fully sealed containers for treatment and disposal.

Section 1—Legislative assessment requirements

In assessing applications, the administering authority must:

- comply with the regulatory requirements in Chapter 4 of the Environmental Protection Regulation 2019. How the regulatory requirements relate to STP applications is discussed in more detail in Table 1 of Attachment 1
- consider the standard criteria as described under Schedule 4 'Dictionary' of the EP Act. How the standard criteria relate to STP applications is discussed in more detail in Table 2 of Attachment 1

Section 2—Small-to-medium treatment plants

Resorts, caravan parks and other types of tourist facilities often operate in areas not serviced by a municipal sewage treatment facility. They regularly operate small package treatment plants between 21 and 1500 equivalent persons (EP). Effluent disposal from these plants is often via land application and the nutrient release limits should be based upon the performance capabilities of the package plant, best practice environmental management and limits required for sustainable disposal. Package treatment plants are often serviced on a routine basis (quarterly is common) and do not have skilled staff permanently managing them. It is important to note that many package plants available are not capable of achieving a high standard of nutrient reduction consistently, however, this may be adequate in the context of the receiving environment and the method of disposal of wastewater.

Many municipal sewage treatment plants are also of a small size and may service small populations without any foreseeable growth. When these plants are managed by large councils it is reasonable to expect that standards of maintenance and operation will be high, with access to skilled staff, but it is likely that such plants are not capable of achieving a high standard of nutrient reduction consistently. Installation of better treatment technology can be beyond the capacity of many small communities, both in terms of initial capital investment and ongoing operational expertise. Environmental information can be less readily available and more expensive to procure than in larger catchments where significant funding has been invested in research.

In such cases, economic issues play a strong role in the assessment process as it is often unsustainable to introduce expensive, high-tech plants into such communities. It is likely that such STPs pose a lesser risk to environmental values than those servicing large populations and a risk-management approach is required. Conditions should be set accordingly but with room for future continual improvement where this is possible.

Section 3—Summary of main issues associated with STPs

Effluent management

See sections 4 and 5 of this guideline.

Odour management

Odour from STPs, if not managed appropriately, has the potential to have an impact on the health and wellbeing of the surrounding community. Environmental values stated in the Environmental Protection (Air) Policy 2019 (EPP Air) include the qualities of the air environment that are conducive to human health and wellbeing, which is very broad. The policy also includes specific air quality objectives for hydrogen sulfide, an odorous gas often emitted from STPs.

STP assessment and regulation by the administering authority will be against the provisions of the EP Act and the EPP Air, with site specific conditions being placed on approvals only when appropriate. It is the applicant's responsibility to determine the risks of causing environmental nuisance from odour and the appropriate mitigation measures. For example, STPs in rural areas with large buffer zones between the plant and sensitive

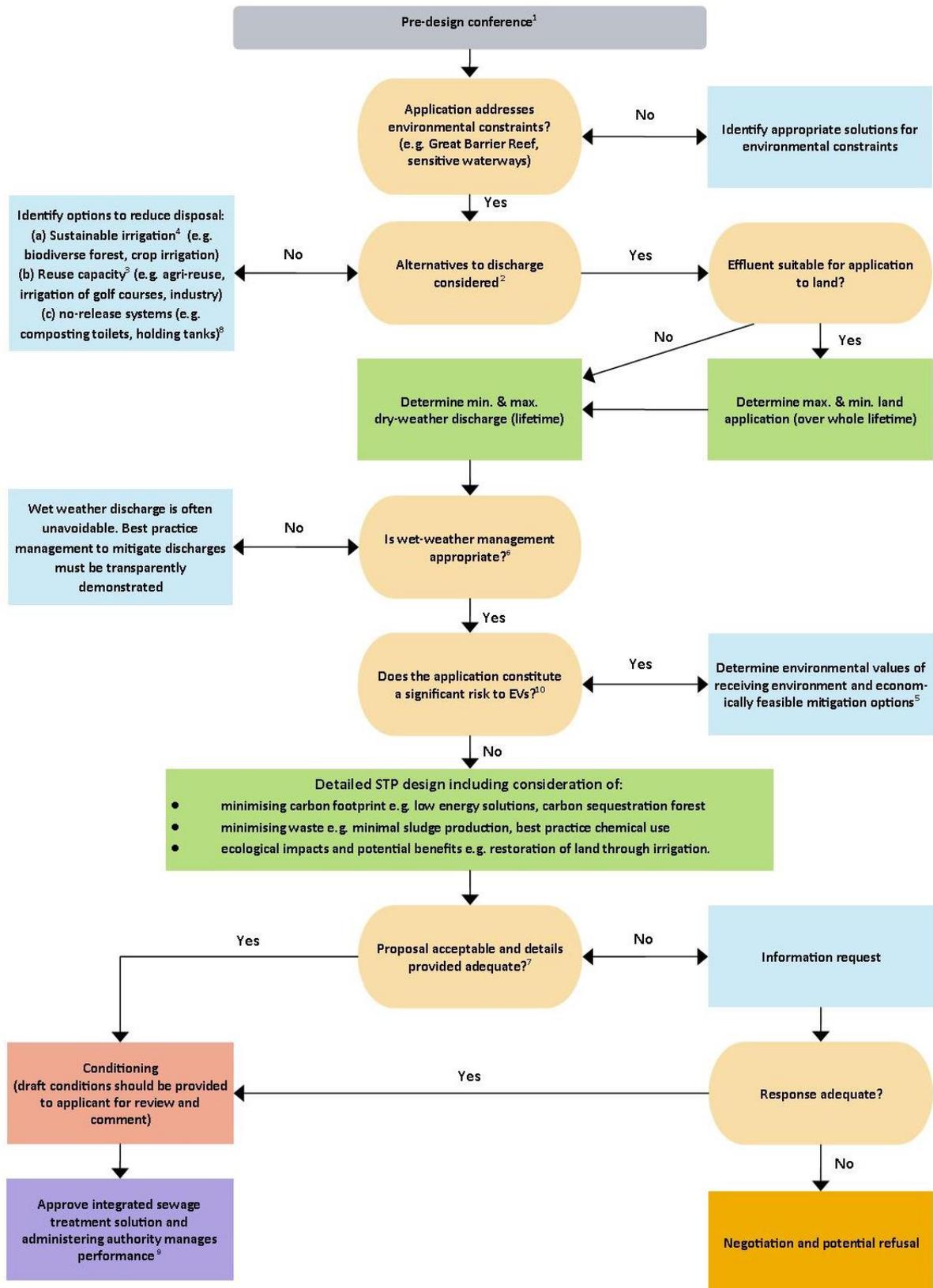
receptors will not require the same level of mitigation measures as STPs sited in urban areas with residential and commercial land uses in close proximity.

All applications as a minimum should detail the risk assessment completed and describe all odour control equipment and techniques employed on the premises to suppress or minimise odorous emissions.

Waste management

Biosolids, grit and screenings are regulated waste and should be managed as such. High-quality, stabilised biosolids are appropriate for beneficial reuse, but this is not always possible. Particular attention must be paid to facilitating economically as well as environmentally appropriate and sustainable reuse of biosolids. Treated effluent is not regulated waste.

Section 4—Assessment flowchart: STP effluent management



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The above flow chart is provided as a guide only. Applications need to be assessed on a case-by-case basis and other factors may need to be considered. The amount of information provided by the applicant should reflect the risks associated with the proposed STP.

1. The opportunity to meet with the department to discuss the proposal prior to lodging an application is strongly recommended. Information is available on the department's website regarding pre-design conferencing.

2. Management hierarchy from section 14 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP Water).

Applications for STPs must address the management hierarchy for surface or groundwater, unless 100 per cent re-use and/or land disposal is proposed. This hierarchy must be applied carefully to STPs, which in almost all cases require some form of discharge to waters (because they supply an essential service and operate close to the economic limit of technology in many areas).

- The preferred option in the hierarchy is recycling (including treatment to an appropriate standard for re-use).

The preference is for the implementation of long-term beneficial re-use programs and higher order use of reclaimed water is encouraged. Higher order uses include replacement of potable water in industrial applications. It is important to note that sustainable reuse for municipal plants can be difficult because of the volumes treated, wet weather surges and the costs of treating sewage to appropriate standards. This can make conditioning for re-use by third parties problematic. The STP operator may not have control over whether the third party takes the water or not. For example, industrial users of effluent may shut down and no longer need the recycled water, or during and following particularly wet weather years irrigation of crops may not be possible or attractive, sometimes for extended periods. In some cases, even a series of average years may reduce the demand for effluent for crop irrigation to almost zero.

Supplying recycled water (e.g. treated sewage or effluent for re-use) is regulated under the *Water Supply (Safety and Reliability) Act 2008* and is not covered by this guideline.

The application must provide for sustainable effluent disposal when re-use is not possible and this should be conditioned for in the approval. Setting rigid re-use targets is seldom appropriate and flexible discharge conditions should be developed. So long as immediate impacts of such discharges are not deleterious, the long-term benefits of reuse on mass loads and accumulation can outweigh the risks of increases in discharge when reuse is temporarily unavailable.

Investigation of re-use opportunities should be ongoing and implemented where appropriate.

Flexible conditions provided at the design stage provide a significant incentive for developing reuse options (i.e. through up-front capital savings).

- The next preferred option in the EPP Water hierarchy is disposal to land, preferably to land under the control of the STP operator (for example, owned or leased by the operator) to ensure sustainable access. Land disposal by third parties should be considered as opportunistic unless there is a significant and long-term user (e.g. a golf course) recognised under town planning instruments and the application and resulting approval should reflect appropriate contingencies for effluent disposal.

Refer to the department for guidance on what should be supplied with the application and appropriate conditioning. This option may still include disposal during wet weather events as wet weather storage adequate enough to cover all events may not be economically feasible. The applicant should demonstrate any impact of a wet weather discharge is acceptable (including the impact if no wet weather storage is proposed).

Disposal to a constructed wetland for further treatment is considered a higher order use compared to direct discharge to waters if the wetland provides further environmental benefits, such as polishing, volume reduction and/or velocity control. In such circumstances imposing conditions in relation to the release from the constructed wetland to natural receiving waters is likely to be appropriate.

- The least preferred, but often unavoidable option for large municipal STPs, is appropriate treatment and release to surface waters.
3. The supply of recycled water is regulated under the *Water Supply (Safety and Reliability) Act 2008*. Approvals for STPs should clarify in a note that the production and supply of recycled water must be managed in accordance with regulatory requirements under the *Water Supply (Safety and Reliability) Act 2008*, and that the supply should cease if the STP operator becomes aware of any breaches of the EP Act as a result of the re-use.
 4. Refer to the department for information in relation to land application requirements.
 5. Refer to technical guideline *Wastewater releases to Queensland waters*² for guidance. Applicants must demonstrate the proposal will not adversely impact on receiving environmental values (including during wet weather) taking into consideration social and economic factors. However, it must be clear in the approval which release limits apply to effluent released from the plant operating within its peak design capacity (for example, 3 x average dry weather flow [ADWF] for many municipal STPs) and which apply to by-pass events. By-pass events are discussed further below.

Conditioning—refer to the department’s procedural guide *Writing Effective and Enforceable Conditions*.

6. The preferred outcome is for discharge to waters to be prevented/minimised as much as reasonably possible. However, the vast majority of STPs will need to discharge to waters. This is true even during dry weather, for example when a re-use scheme is temporarily unavailable, storage capacity has been exceeded or the plant peak design capacity has been exceeded (usually because of inflow and infiltration). The latter situations are referred to as ‘by-pass events’. In such cases the risk of environmental harm should be investigated and the level of treatment determined based on this risk. It is usually not practical or economic to apply a high level of treatment to by-pass flows.

By-pass events

Factors affecting the frequency and duration of wet weather by-pass events include climate, peak design capacity of the plant and management of inflow and infiltration in the sewer network. The vast majority of sewerage schemes around the state have sewerage networks with a higher peak design capacity (usually 5 x ADWF) than the associated STP (which is usually full treatment to 3 x ADWF). It is the responsibility of the sewerage scheme provider to cost-effectively reduce the risk of sewage overflows from both the plant and the network during wet weather. This can be best achieved by determining the appropriate peak flows when designing infrastructure (i.e. during initial development) and by undertaking thorough and ongoing inflow and infiltration investigations and a program of maintenance and/or rectification works in the network. The Water Services Association of Australia has a number of national standards that may assist service providers in determining appropriate actions.

If an applicant can demonstrate that they are meeting their general environmental duty in terms of network management, for example a full risk assessment of wet weather discharges has been undertaken, and all procedures and any new infrastructure have been designed according to best practice, the resulting approval can set conditions for the release. Conditions will include provisions for

² Available at www.qld.gov.au using the publication number ESR/2015/1654 as a search term.

an approved release point, when by-pass discharges are authorised (e.g. >3 x ADWF), required minimum treatment, monitoring, reporting and notification.

If the applicant cannot demonstrate they have met the general environmental duty and an assessment of the impact of wet weather releases has not been provided, the approval will remain silent on the issue and any wet weather by-pass events will be assessed as non-compliance with the approval.

7. Guidance is available on what information should be provided with all applications through the business and industry portal on the Queensland Government website at <http://www.business.qld.gov.au/>

Detailed design of the STP is not necessary if it is not available at the time of the application. However, a description of the treatment processes to be employed, demonstration that the proposal is technically feasible, details about effluent quality and quantity, and how environmental values will be protected, is mandatory. Detailed scientific studies and investigations may not be necessary if the approval results in a reduction in contaminants released (for example, as a result of an upgrade) or if the proposal represents a very low risk. Refer to the appropriate technical guidelines to ensure all STP specific information has also been provided.

The *Queensland Government planning guidelines for water supply and sewerage* provide information on minimum design requirements for STPs and associated infrastructure.

8. When a release to waters is not acceptable, particularly for small STPs, no-release alternatives such as composting toilets and holding tank systems may need to be considered. This is generally not going to be appropriate for large municipal STPs.

9. Monitoring and reporting

Effluent quality and quantity monitoring must be included in the approval, but the extent in terms of parameters, frequency and limits will depend on the size of the STP, effluent management/disposal and the receiving environment. Weekly effluent quality monitoring may be appropriate for large municipal STPs with discharge to waters as the primary method of disposal but not for smaller plants, especially ones which discharge to land.

Conditioning for receiving environment monitoring programs for discharges to waters and soil impact monitoring programs for irrigation schemes (not third party re-use) may be appropriate to monitor the environmental impacts associated with large STPs and may even be appropriate for smaller plants depending on the environmental values of the receiving environment.

Timely reporting of non-compliance with release limits and results of receiving environment monitoring programs and soil impact monitoring programs is usually required. Reporting of incidents which cause or threaten serious or material environmental harm must be notified as per the EP Act notification requirements.

Monitoring and reporting must reflect the level of risk associated with the STP in terms of design capacity, effluent quality, effluent management, contribution of contaminants and the values and condition of the receiving environment. Onerous reporting that is not fit-for-purpose can compromise the ability of the operator to respond to compliance failures in an effective and timely manner.

10. An application for a public sewage treatment plant in some circumstances may not pose a significant risk to environmental values. For example, if the applicant can demonstrate a net improvement in the receiving environment or if the scale of the operation is insignificant in comparison to total loads in the catchment. In these cases, detailed evaluation and assessment of environmental values and extensive monitoring may not be appropriate.

Disclaimer

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Department of Environment, Science and Innovation should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

Approved:

12 September 2016

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Attachment 1

Table 1: Guidance on application of regulatory requirements to STP assessment

Regulatory requirements and environmental outcome assessment	Guidance and Acceptable solutions*
<p>Consideration of environmental values, quality objectives, management intent and management hierarchy under environmental protection policies as per section 35 of the Environmental Protection Regulation 2019.</p>	<p>Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (or later versions) is the most relevant when release to waters proposed and application of the wastewater hierarchy is discussed in more detail in section 3. How to apply environmental values and water quality objectives is discussed in detail in the technical guideline, <i>Wastewater releases to Queensland waters</i>², and provides guidance on determining if the proposal meets the objectives of the EPP Water.</p> <p>The applicant must minimise and manage air emissions. For most STPs this is mainly odour, through effective controls and/or buffers to ensure the objectives of the Environmental Protection (Air) Policy 2019 (EPP Air), or later versions, are met. Plants which use anaerobic biological treatment methods will also need to demonstrate appropriate management of the associated gases. The EPP Air includes long term air quality objectives for hydrogen sulphide, a gas associated with odour emissions from sewage. However, these long-term objectives should not be used as release limits from the plant but may be used by the applicant when demonstrating compliance with the EPP Air through modelling. This issue can be regulated against the provisions of the EP Act and does not require specific conditions. However, conditions requiring environmental investigations (full odour impact assessments) in the event of odour nuisance can be included (refer to the guideline, <i>Odour Impact Assessment from Developments</i>).</p> <p>Like the EPP Water and EPP Air, the Environmental Protection (Noise) Policy 2019 (or later versions) has set long-term quality objectives to protect environmental values. Plants can include noisy equipment such as blowers and pumps and as such the applicant must demonstrate that noise will be minimised and managed. This issue can be regulated against the provisions of the EP Act and does not require specific conditions. However, standard noise monitoring in the event of a complaint and associated reporting conditions can be included or specific noise limits if an appropriate noise impact assessment has been undertaken.</p> <p>Recycling/reuse of biosolids (after further treatment if necessary and if economically viable) instead of disposal to landfill.</p> <p>Note: Consider investigation into treatment alternatives which produce less biosolids.</p>

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<p>The activity will be operated in a way that protects the environmental values of air (the environmental objective for air in schedule 8, part 3, division 1 of the EP Reg).</p>	<p>Odour control infrastructure proposed for particularly odorous areas of the STP (inlet works, buffer storage tanks, primary clarifiers, biosolids handling etc.), or significant buffers between the STP and odour sensitive places, or modelling has shown odour will not be an issue.</p>
<p>The activity will be operated in a way that protects environmental values of waters (the environmental objective for water in schedule 8, part 3, division 1 of the EP Reg).</p>	<p>An impact assessment study demonstrates that the release of sewage effluent from the site does not adversely impact on the environmental values of waterway. STP augmentation does not result in an increase in the mass load of contaminants released to waters. Increase in mass load is unavoidable, but the applicant can demonstrate no adverse impact on environmental values. If an increase is unavoidable, but the application does not pose a significant additional risk to environmental values to justify detailed scientific analysis. Refer to technical guideline <i>Wastewater releases to Queensland waters</i>² for specific guidance. Clean stormwater is segregated from contaminated stormwater and contaminated stormwater is treated, for example through the STP, to meet the relevant water quality limits.</p>
<p>The activity will be operated in a way that protects the environmental values of wetlands (the environmental objective for wetlands in schedule 8, part 3, division 1 of the EP Reg).</p>	<p>No direct or indirect release of effluent to a natural wetland, or an impact assessment study demonstrates that the release of sewage effluent from the site to a natural wetland does not adversely impact on the biological integrity or change the natural size of the wetland. This does not include the release of effluent to constructed wetlands for either treatment or disposal.</p>
<p>The activity will be operated in a way that protects the environmental values of groundwater and any associated surface ecological systems (the environmental objective for groundwater in schedule 8, part 3, division 1 of the EP Reg).</p>	<p>No direct release of effluent to an unconfined aquifer. A groundwater study demonstrates that the direct release of sewage effluent to a confined aquifer does not adversely impact on its environmental values. A groundwater study demonstrates that the irrigation of treated effluent does not adversely impact on environmental values of groundwater. This is not applicable to third party re-use if not being approved and conditioned under the approval. Confined aquifer means an aquifer that is contained entirely within impermeable strata.</p>
<p>The activity will be operated in a way that protects the environmental values of the acoustic environment (the environmental objective for noise in schedule 8, part 3, division 1 of the EP Reg).</p>	<p>Noisy equipment associated with blowers and pumps housed in appropriately designed areas to reduce noise, or significant buffers between the STP and noise sensitive places, or modelling has shown noise will not be an issue.</p>
<p>Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values (the</p>	<p>Biosolids, a regulated waste, are handled, stored, transported and disposed of as per any regulatory requirements in the Environmental Protection Regulation 2019.</p>

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environmental objective for waste in schedule 8, part 3, division 1 of the EP Reg).	
The activity is operated in a way that protects the environmental values of land including soils, subsoils, landforms and associated flora and fauna (the environmental objective for land in schedule 8, part 3, division 1 of the EP Reg).	A land impact assessment, including appropriate modelling when necessary, demonstrates that the application of effluent to a minimum area of land at a maximum irrigation rate with a certain quality effluent is sustainable. Links here to recycled water management plans where relevant. This is not applicable to third party re-use if not being approved and conditioned under the approval.
The choice of the site, at which the activity is to be carried out, minimises serious environmental harm on areas of high conservation value and special significance and sensitive land uses at adjacent places (the environmental objective for site suitability in schedule 8, part 3, division 2 of the EP Reg) ³ .	Areas of high conservation value should be avoided and siting of the activity within a site should consider the adjacent land uses.
The location for the activity on a site protects all environmental values relevant to adjacent sensitive uses (the environmental objective for location on site in schedule 8, part 3, division 2 of the EP Reg) ⁴ .	Ensure that infrastructure is located on the site in a way that minimises environmental impacts on adjacent sensitive uses. For example, if one edge of a site is shared with a wetland, then infrastructure should be located away from this boundary if possible to protect the environmental values of the wetland.
The design of the facility permits the operation of the site, at which the activity is to be carried out, in accordance with best practice environmental management (the environmental objective for critical design requirements in schedule 8, part 3, division 2 of the EP Reg) ⁵ .	This specifically relates to the storage, production, treatment or release of hazardous contaminants. Storage, transfer and dispensing of potentially harmful chemicals occurs within an impervious, bunded and roofed area which contains any spills or contaminated water, or Chemical storage and handling facilities comply with the appropriate Australian design standards.

* These are not specific solutions and have been provided for guidance only. All STP applications should be assessed on a case-by-case basis as the most appropriate solution will vary depending on a number of factors including receiving environment values, financial considerations, community preferences, land availability, re-use opportunities and broader environmental/catchment issues. Refer to Australian standards for design and construction, including codes of practices, where applicable.

³ Schedule 8, part 3, division 2 of the EP Reg does not apply for prescribed ERAs. However, these matters can be considered for conditioning under section 36(1)(c) of the EP Reg. In addition, under section 207 of the EP Act conditions may be imposed relating to environmental offsets.

⁴ Schedule 8, part 3, division 2 of the EP Reg does not apply for prescribed ERAs. However, this can be considered for conditioning under section 36(1)(c) of the EP Reg. This is also assessed when considering the environmental objectives in schedule 8, part 3, division 1 of the EP Reg.

⁵ Schedule 8, part 3, division 2 of the EP Reg does not apply for prescribed ERAs. However, this can be considered for conditioning under section 36(1)(b) of the EP Reg. This is also considered under item (g) of the standard criteria (see Table 2: Application of standard criteria to STP assessment).

Table 2: Application of standard criteria to STP assessment

Standard criteria means	Application to STP assessment
<p>(a) the following principles of environmental policy as set out in the Intergovernmental Agreement on the Environment-</p> <ul style="list-style-type: none"> (i) the precautionary principle (ii) intergenerational equity; (iii) conservation of biological diversity and ecological integrity. 	<p>Decision-making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations. Municipal STPs are usually proposed or upgraded to cater for projected population growth and environmental impact studies must consider the plant at peak design capacity.</p> <p>This is rarely done and not appropriate for small-to-medium privately-owned STPs that are not constructed to treat municipal sewage.</p> <p>Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The applicant must demonstrate with appropriate science that the proposal will not adversely impact environmental values.</p> <p>The biggest issue is ensuring the disposal of effluent to either land or water addresses the principles. This needs to be demonstrated by the applicant. This demonstration may not require detailed receiving environment studies where it is obvious that the proposal will result in a reduction of environmental discharge or improvement to the receiving environment. Other alternatives for smaller STPs include composting toilets and no release systems.</p> <p>Whole-of-life cycle costs are also important (e.g. replacement costs of equipment and the financial sustainability of operations and maintenance. Also consider use of green energy for pumping etc (for example, solar, wind, and biogas).</p>
<p>(b) any Commonwealth or State government plans, standards, agreements or requirements about environmental protection or ecologically sustainable development.</p>	<p>Where relevant, the following must be considered by the applicant in determining environmental values of the receiving environment and an appropriate effluent release strategy:</p> <p>Wetlands of international significance (Ramsar), marine parks including the Great Barrier Reef Marine Park Authority guidelines or standards, local conservation area, drinking water catchments, National Health and Medical Research Council guidelines for recreational waters, healthy waters management plans (water quality improvement plans) e.g. South East Queensland Healthy Waterways Strategy, etc</p> <p>*Matters of national environmental significance may be assessed by the Commonwealth under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>, rather than the state. Where possible a coordinated approach with the Commonwealth is preferred.</p> <p>Total water cycle management plans may also be used by the applicant to determine sewage treatment and disposal strategies which take into consideration whole-of-catchment issues.</p> <p>The coastal algal bloom (CAB) implementation guideline, Implementing Policies and Plans for Managing Nutrients of Concerns for Coastal Algal Blooms in Queensland, provides direction for state and local governments,</p>

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	<p>industry, consultants, land and natural resource managers and the community on how to implement these policies into planning and development assessment. For further information refer to https://www.qld.gov.au/environment/coasts-waterways/marine-habitats/algae-blooms.</p> <p>Australian and New Zealand Environment and Conservation Council Water Quality Guidelines can also be considered in the assessment of STPs.</p>
(d) any relevant environmental impact study, assessment or report ⁶	<p>The applicant must demonstrate that the proposal will not adversely impact on environmental values. Detailed information may include sustainable loads studies, water quality modelling, nutrient and water balance modelling for land disposal and odour modelling. However, this level of detail is not readily available in some parts of Queensland and it is not always economically justifiable for the applicant to obtain detailed information. In these cases, it would be sufficient for applicants to demonstrate that the proposed development will result in reduced environmental impacts as a result of an improved treatment process resulting in a higher quality effluent. Refer to technical guideline, <i>Wastewater releases to Queensland waters</i>², for further guidance. Other reports not submitted by the applicant that are relevant can also be considered.</p>
(e) the character, resilience and values of the receiving environment	<p>The applicant must identify the characteristics of the environment in which the proposed STP is to operate and consider these in appropriate project design and operational management strategies. The applicant must provide appropriate data (adequate monitoring) and potentially modelling. The volume of data required should be matched to the risk to environmental values and the existing availability of background data. Small or low-risk applications may not warrant the same information requirements. Refer to technical guideline, <i>Wastewater releases to Queensland waters</i>² for further guidance.</p>
(f) all submissions made by the applicant and submitters	<p>Properly made submissions are not relevant to applications for STPs as they do not require an environmental impact statement under the EP Act. Submissions can be made about an application for a STP to the assessment manager under the <i>Planning Act 2016</i>.</p>
<p>(g) the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows:</p> <p>(i) an environmental authority</p> <p>(ii) a transitional environmental program</p> <p>(iii) an environmental protection order</p> <p>(iv) a disposal permit</p> <p>(v) a development approval</p>	<p>Definition of best practice environmental management in the EP Act: 'is the management of the activity to achieve an ongoing minimisation of the activity's environmental harm through cost-effective measures assessed against the measures currently used nationally and internationally for the activity.'</p> <p>In deciding the best practice environmental management of an activity, regard must be had to the following measures:</p> <p>(a) strategic planning by the person carrying out, or proposing to carry out, the activity</p> <p>(b) administrative systems put into effect by the person, including staff training and monitoring and review of the systems</p>

⁶ Item (c) of the standard criteria definition was deleted from the EP Act, but the remaining items were not renumbered.

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	<p>(c) public consultation carried out by the person (d) product and process design (e) waste prevention, treatment and disposal.</p> <p>This must be considered on a case-by-case basis and the proposal must achieve the best possible environmental outcomes for the least cost. Environmental, social and economic factors will determine best practice for each individual application.</p> <p>This is discussed in more detail in technical guideline, <i>Wastewater releases to Queensland waters</i>².</p>
<p>(h) the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument; and</p>	<p>Monitoring, including water quality monitoring, soil monitoring, receiving environment monitoring programs and direct toxicity assessment, can have significant financial impacts. All monitoring imposed on the approval must be appropriate and reasonable considering the size and risk of the application (refer to relevant technical guidelines for assistance).</p> <p>Operational costs associated with sewerage and treatment processes and consideration of replacement cost should be taken into account and must be financially sustainable in the long term. Failure to consider future costs can result in long-term environmental impacts when communities are unable to maintain or replace expensive capital.</p> <p>Heavily-engineered, high-cost STPs are not always appropriate. Low-cost solutions achieving the same or better outcomes are supported. In some cases better environmental outcomes and protection of environmental values can be achieved despite higher end-of-pipe concentrations and mass loads.</p>
<p>(i) the public interest</p>	<p>The public interest has been described as referring to considerations affecting the good order and functioning of the community and government affairs for the wellbeing of citizens.</p> <p>It has also been described as the benefit for society, the public or the community as a whole. This public interest distinguishes interests that are private interests that benefit particular persons. It is not whether the public is interested or there have been stories in the media.</p> <p>STPs provide an essential service to the community. It is in the public interest that STPs are designed and constructed to achieve the best practically achievable environmental outcomes for the least cost. Impacts to the receiving environment (including recreational water and drinking water catchments) must be addressed, to the extent that this does impose an unsustainable cost impost on the community. This can be of particular concern for small communities.</p>
<p>(j) any applicable site management plan</p>	<p>Site management plans under the contaminated land provisions of the EP Act are unlikely to be applicable.</p>

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<p>(k) any relevant integrated environmental management system or proposed integrated environmental management system; and</p>	<p>Integrated environmental management system, for an environmentally relevant activity or activities, means a system for the management of the environmental impacts of the carrying out of the activity or activities. International Organisation for Standardisation standards exist for such systems. A system could include a site-based management plan, an activity-based management plan or an environmental management system that documents a system of management of environmental impacts including contingency plans and emergency response plans.</p> <p>These documents may be provided with the application. Conditions requiring site-based management plans or environmental management systems are required for STPs. Proposed monitoring and maintenance should be included in the application as on-going operational costs and the ability of the applicant to meet them is very important.</p> <p>This standard criterion is more important when making decisions (usually around enforcement) about existing activities.</p>
<p>(l) any other matter prescribed under a regulation.</p>	<p>Refer to Table 1.</p>