

Site Based Management Plans for Wastewater Treatment Plants



The intention of a Site Based Management Plan (SBMP) is to show due diligence with the Environmental Protection Act when conducting an Environmentally Relevant Activity (ERA) as licensed by the Department of Environment and Resource Management.

The unique mix of environmental and process engineering at Sustainable Solutions International (SSI) allows us to develop an innovative, practical and real world management plan for the operation of a wastewater treatment plant (WWTP). SSI's SBMP details WWTP design and specification, ensuring the WWTP is capable of meeting loading requirements while preventing environmental harm.

SSI has prepared many SBMPs for on-site wastewater treatment plants (ERA63 in QLD) and associate effluent management schemes. Having a detailed and effective SBMP increases the chance of streamlined approvals for development applications and environmental licenses.

Objectives of a SBMP include:

- To identify and specify the environmental values associated with an area and activity;
- Propose quantity and quality of wastewater generated;
- Propose appropriate technology for treatment of wastewater to ensure quality;
- Propose uses of treated effluent and required class of treated effluent;
- Risk assess treatment technology and treated effluent application for environmental and human health impacts;
- Manage and mitigate potential risks and prepare emergency contingency plans for high risk items; and
- If treated effluent is to be used for irrigation we will prepare an Irrigation Management Plan. This involves investigating and analysing the soil, irrigation area requirements, irrigation technology and irrigation controls and will be modelled using the Department of Natural Resources and Water MEDLI package.



A SBMP will include a description of existing environmental values. A study of environmental impacts for the operation ensures that all potential environmental effects, such as ground-water contamination by irrigated effluent, have been duly considered and will not impact environmental values in the area. Management / mitigation measures will be proposed to satisfy the EPA that no significant impacts will result from the development and operating procedures. Contingency and emergency plans for possible incidents with the potential to create environmental harm are also considered within a SBMP.

The plan will propose a monitoring, maintenance and reporting plan for the wastewater treatment and effluent disposal scheme. Effluent disposal may involve demand management through water use efficiency improvements and internal recycling on-site for toilet flushing, wash down and even laundry use, thereby reducing the required irrigation area for disposing of treated effluent.



A wastewater treatment plant technology selection and schematic design is carried out as part of the SBMP to ensure that the appropriate wastewater treatment plant has been selected for the site.



A concept design of an irrigation system for a chosen area, and an Irrigation Management Plan is developed as part of the SBMP. Water balance data, along with test results of the soil characteristics, effluent characteristics and other site data is used to gauge whether use of the proposed irrigation area is sustainable for the life of the project and the required effluent wet weather storage requirement.

Asset & Maintenance Management

Design Construction Management & Commissioning

Efficiency Audits & Cleaner Production

Environmental Compliance & Licensing

Master Planning

Plant Assessment & Optimisation

Sustainable Resource Management

Risk Assessments (HACCP & HAZOP)



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Think before you print.

The Queensland Department of Natural Resources developed MEDLI package is used to create a water and nutrient balance for the proposed development's irrigation area to demonstrate the long term effects of irrigation of effluent at the site.

Wastewater Treatment Plant Specification

The Site Based Management Plant will recommend minimum performance criteria for a WWTP. Maximum levels of nutrients, faecal coliforms, and total dissolved salts will be recommended to allow disposal through the required reuse or irrigation options.

SSI's process engineering team work closely with the client to determine their key drivers and use this to determine a suitable technology selection to meet site specific requirements. If it is apparent the client has a requirement for a specific technology we are able to prepare a performance based specification for inclusion with contract documentation. Where it is identified that there is no clear existing package plant design that can meet a clients needs SSI can prepare a design of a suitable system for use in the technical specification and detailed design documentation.

SSI's Engineers can assist further with:

- Treatment plant technology evaluations and recommendations;
- Technical Specification/Contract Documentation;
- Waste Water Treatment Plant (WWTP) design;
- Audits of existing WWTPs with recommendations to meet increased load requirements of proposed developments;
- Contract management, including tendering, installation and commissioning of the plants;
- Ongoing management and maintenance through our SSI COMMS (Computerised Operation, Management and Maintenance System) software;
- Recycled Water Management Plans to assist with reuse of recycled water within the development.; and
- Managing the monitoring and testing requirements for plants and preparing the annual EPA returns for the EPA license.



Environmental Auditing & Rating

Key Projects

Brisbane Square

Brisbane Square, a 40 story office building located in the heart of Brisbane's CBD, is the new head office for Brisbane City Council and Sun-corp. Brisbane Square is set to become Brisbane's showcase sustainable office development.



As part of gaining approvals for the treatment and re-use on site of wastewater generated within the building, SSI prepared a SBMP to manage operation and monitoring of the wastewater treatment plant, also designed by SSI. Brisbane Square was Queensland's first ERA 15 for a sewer mining plant.

Canaipa Resort, Russell Island

SSI prepared an integrated water management plan for this eco-resort occupying two sites on Russell Island, in the Moreton Bay Marine Park. The Integrated Water Management Plan included a WWTP to allow all wastewater generated from both sites to be treated and reused within the resort. SSI also prepared the SBMP for the WWTP, greatly assisting this proposed resort to gain development approvals whilst other developments in this environmentally sensitive location were struggling to gain approvals.



The Ridge on Binna Burra

SSI prepared a water supply, wastewater and solid waste management plan for this eco-resort, and was responsible for negotiating and obtaining all relevant approvals from council and state government. SSI negotiated and obtained the very first approval in QLD for the use of recycled water in residential laundries from the QLD Health department. The SBMP not only managed the environmental impacts of the WWTP, but also ensured the recycled water quality was suitable for the designated reuse.

Wamuran Shopping Centre

The development, consisting of an IGA Supermarket and 15 specialty shops, occurred in an unsewered area and therefore required an on-site WWTP. SSI prepared a SBMP which allowed for ease in gaining development approvals and also allowed recycled water to be reused off site according to a Water Reuse Third Party Agreement.

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