



*Dedicated to a better Brisbane*

**Urban Management Division  
Subdivision and Development Guidelines  
Part C Water Quality Management Guidelines**

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## **7.0 SEWAGE OVERFLOWS**

### **7.1 BACKGROUND**

Overflows from sewage pumping stations and associated sewerage infrastructure have the potential to degrade water quality as these discharges typically contain high concentrations of pathogens (bacteria, viruses), suspended solids, oxygen-demanding substances (organic matter), litter, nutrients and toxicants. Accordingly, sewerage infrastructure must be designed, operated and maintained to:

- minimise the environmental impact of overflows on the environment (ie water quality, ecological health, public health and nuisance);
- minimise the frequency with which overflows occur;
- minimise the pollutant loads discharged during any particular event;
- improve the quality of the wastewater discharged during the overflow event; and
- take account of the environmental sensitivity of the receiving environment.

The purpose of this guideline is to identify those key issues that must be addressed with respect to the provision of overflows on new sewage pumping stations and to identify the existing policies, standards and guidelines governing overflows.

### **7.2 KEY ISSUES/DESIGN CRITERIA**

Sewerage overflows must be managed at new pumping stations in accordance with the requirements of Council's *Water and Sewerage Reticulation Standards* dated May 1999 (or later version).

Design considerations relevant to overflows must include possible provision of:

- stand-by pumping capacity;
- duplicate power supplies to the pumping station (where possible);
- a permanently installed stand-by power generator at the station (where practical);
- connection of an emergency generator (where practical);
- a stand-by diesel operated or portable pump-set (where practical);
- measures to prevent vandalism that may lead to an overflow event;
- monitored telemetry systems on pumping station controls to provide for quick response to breakdowns and data collection;
- baffling and/or screening of overflows to improve water quality (note that technologies now exist to remove solids from the overflowing wastewater and return this material to the sewer);
- an emergency storage tank (or volume) to allow for a reasonable response time before overflow to the environment;
- automatic wash-down system for overflow storages (where contaminated washwater returns to sewer);
- monitoring systems for overflow storages and overflow pipelines to detect overflow events;



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- wetland systems downstream of overflow points that have the ability to treat coarsely screened wastewater (note that successful research and pilot projects have been done in Brisbane involving small melaleuca wetlands);
- flow metering of overflows; and
- the overflow discharge location must be selected to minimise environmental impacts, nuisance (eg odour) and potential impact on human health<sup>1</sup>.
- All overflows will be subject to an Environmental Authority or licence (issued under the Environmental *Protection Act 1994* by the Environmental Protection Agency) as part of Council's overall sewerage system. Designers must liaise with the Environmental Protection Agency and Council to determine applicable licence requirements so that they can be met through the design.
- The Environmental Protection Agency requires overflow storages to be sized in accordance with the Department of Natural Resources' *Guidelines for Planning and Design of Sewerage Systems* dated October 1991 (or later version) as detailed in its internal *Guidance for Sewage Pump Station Overflow* dated May 1998 (or later version).
- In addition to sewer overflows during wet weather, leakage from sewerage infrastructure during dry weather is another potential source of waterway pollution. Such leakage can be of importance during dry weather periods, as these discharges are not diluted by large volumes of surface water in receiving environments and poor water quality may be sustained rather than transient. The design and construction of the sewerage network must minimise the risk of such leakage.
- New technologies for treatment of sewer overflows (eg devices that mechanically screen solids for the wastewater) may need to be evaluated, depending upon the site-specific circumstances.

### 7.3 REFERENCES

1. Brisbane City Council, 1999 (or later version). *Water and Sewerage Reticulation Standards*. Brisbane City Council, Brisbane.
2. Department of Natural Resources, 1991 (or later version). *Guidelines for Planning and Design of Sewerage Systems*. Department of Natural Resources, Brisbane.
3. Environmental Protection Agency, 1998 (or later version). *Guidance for Sewage Pump Station Overflow - EPA Internal Guideline*. EPA, Brisbane.

<sup>1</sup>

It is acknowledged that many issues constrain the location of overflow points, but the key point is that these issues should be considered early in the design stage.