

Pollution Solutions

CONCRETE BATCHING

JULY 2000



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EXPLANATORY NOTES FOR OPERATOR'S ENVIRONMENTAL GUIDE (OEG)

Purpose of the OEG

The *Environmental Protection Act 1994* states 'A person must not carry out an activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm (the "general environmental duty")'. This clause applies to all persons in Queensland.

Under the *Environmental Protection Act 1994 and Integrated Planning Act 1997* Local Government licenses and approves businesses that have the potential to cause environmental harm – Environmentally Relevant Activities (ERA). Concrete batching is a level 1 ERA listed in the *Environmental Protection Regulation 1998*.

All ERAs must have a development permit and/or an environmental authority (licence) which lists the conditions of operation to prevent pollution. However, setting these conditions is only part of the story. Businesses should know how to meet these conditions (compliance) and to go beyond (best practice).

This Operator's Environmental Guide (OEG) – *Pollution Solutions for Concrete Batchers* - has been developed to assist concrete batchers to achieve their general environmental duty as above. That is, to achieve compliance with the *Environmental Protection Act 1994* and progress towards best practice environmental management.

The OEG was developed jointly by the Brisbane City Council and representatives of the concrete batching industry.

Limitations of the OEG

Council has written this OEG as a guide only. It does not form part of the licence conditions. Complying with this document does not necessarily exempt the licensee from prosecution or ensure compliance with the *Environmental Protection Act 1994, Regulation and Policies (Air, Water, Noise and Interim Waste)*.

Approvals or licences may contain conditions which may vary from the requirements in the OEG. These are often included because of site specific requirements or because of the nature of the activity. Whether your operational performance meets the conditions of your development permit and/or environmental authority (licence) will be the main determinant of compliance.

The control measures in the OEG are recommendations only. **It remains the responsibility of each operator and employee of the business to satisfy the general environmental duty applicable to that business.** The operator should carefully consider the information in this OEG and put in place measures that may help to achieve this objective.

This OEG represents accepted concrete batching industry practice at the time of issue and is therefore subject to change. Please note the date recorded on the front.



How to use the OEG

This OEG is based on three central concepts. These are explained below and each operational process is defined according to these concepts.

Environmental Outcomes

are outcomes, or goals, that Council considers it is important to achieve if the environment is to be protected. **These outcomes are highlighted in bold text.** You should try to satisfy the general environmental duty. The environmental outcomes in the OEG, however, do not ensure that this duty is achieved and should be considered in conjunction with your development permit and/or licence conditions.

Compliance

means the control measures that Council recommends as the minimum required to meet the environmental outcome for the concrete batching industry.

In some cases, a number of compliance control measures may be listed for one process. In these cases, you are advised to aim for the control measure or combination of control measures that is most likely to achieve the environmental outcome for that process.

Alternatively, you may be able to meet an environmental outcome in a manner that is not listed in this OEG. It is recommended that in these instances the alternatives be discussed with a Council Development Officer Health prior to implementation.

Although this guide lists some solutions, Council encourages operators to develop alternative ideas or innovations that are consistent with the environmental outcomes and other relevant requirements.



Best practice

means the control measures considered to be above the minimum requirements. They are not compulsory. Best practice incorporates concepts such as cleaner production, waste minimisation, recycling and reuse. Use of best practice control measures may help to improve industry standards and progress towards best practice in the industry. Best practice measures are marked with a  in the text.

In some cases, a business may be required to use a best practice control measure, rather than compliance, if an authorised officer believes that it is necessary to achieve an environmental outcome.

The best practice options listed are not fully inclusive; they only indicate what options may be available. Other best practice options not listed in this OEG may be used.

Importantly, this OEG takes into account changing industry standards, technology improvements, and scientific knowledge and community expectations.



ENVIRONMENTAL DUTY

Develop environmental commitment and sound environmental performance

- Develop a commitment to being good neighbours and to preventing or minimising pollution.
- Ensure all staff are aware of the development permit and/or licence conditions and the relevant methods and procedures contained in this OEG.



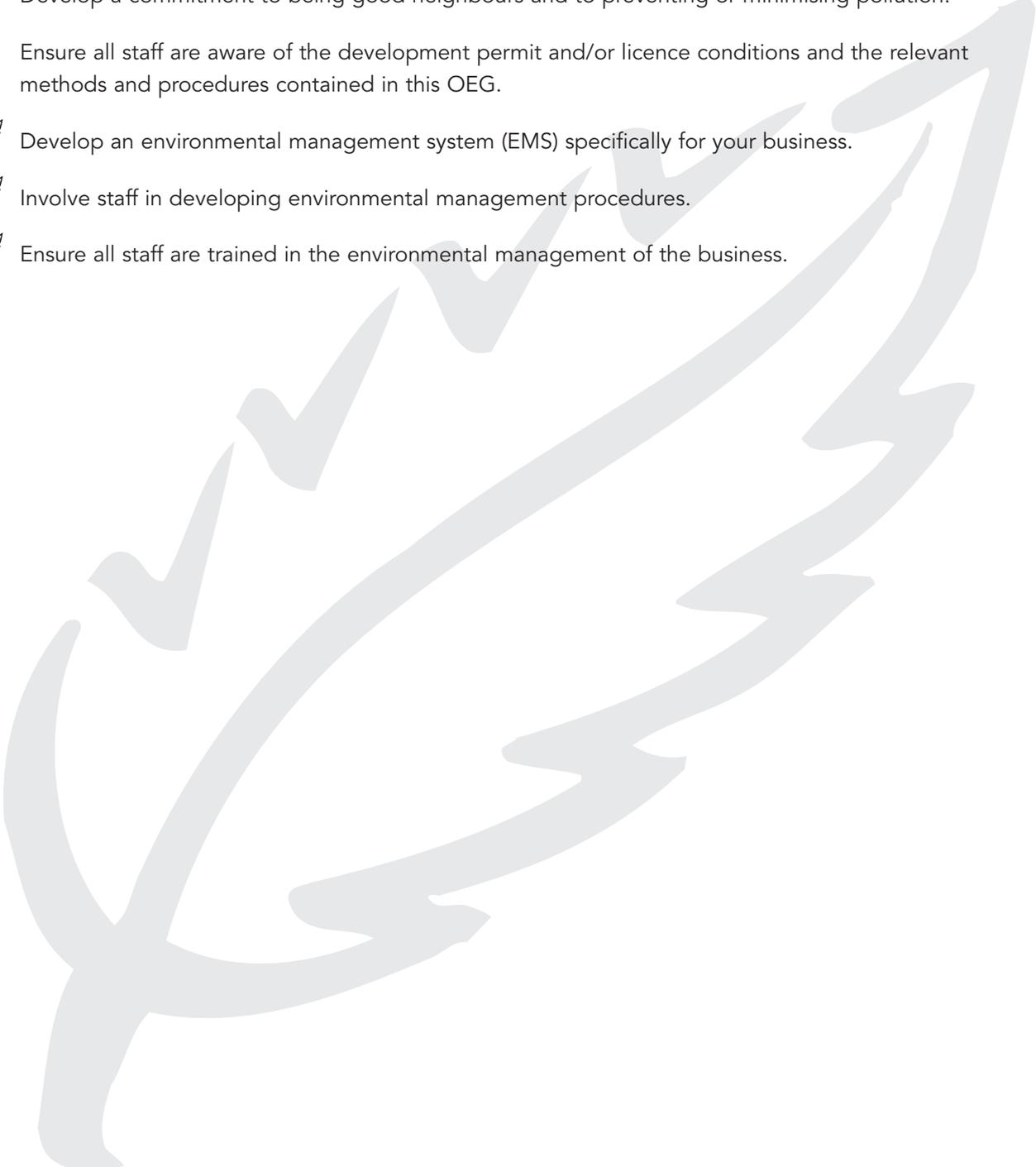
Develop an environmental management system (EMS) specifically for your business.



Involve staff in developing environmental management procedures.



Ensure all staff are trained in the environmental management of the business.



ENVIRONMENTAL MANAGEMENT

Implement environmental policies and practices

- The object of the *Environmental Protection Act 1994* is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).

Environmental Management Program (EMP)

Achieve compliance for non-conforming activities

- Operators who are currently unable to comply with the requirements of licence conditions and the OEG may be required to submit an EMP for approval.
- An EMP is a binding agreement between your business and Council that sets out the areas where your business needs to improve to achieve compliance, and the time frame to achieve them. This allows you to operate your business although you may not fully comply, as long as Council has a firm arrangement with you to rectify problem areas in a mutually agreed time.

Environmental Management System (EMS)

Maintain compliance with licence conditions and implement best practices



Develop an EMS to ensure environmental performance and compliance with licence conditions and the OEG. An EMS provides a systematic method for meeting environmental outcomes, licence conditions and the ways or procedures for meeting and exceeding compliance. It allows for:

- better practices
- monitoring of, and reporting on, performance
- training of staff
- keeping of relevant records
- complaint response
- emergency and incident response.



Plan to protect your environment and reduce your business risks



An EMS addresses noise, air quality, waste and any other relevant environmental issues associated with processes that could reasonably pose a significant risk to the environment, if not appropriately controlled, monitored and/or managed.

- For low risk activities, the EMS should be kept concise with control measures, checklists and records (e.g. development permit, waste disposal) maintained.
- In higher risk activities, licence conditions and procedures generally require more detail in an EMS. In some cases, preparation by an environmental consultant is recommended.
- The basic objectives are to increase business performance and reduce environmental risks through good management practices. Key components in the EMS include:
 - monitoring and reporting
 - records
 - training of employees
 - complaint response
 - emergency and incident responses.



CONCRETE BATCHING PROCESSES AND MANAGEMENT

Loading and Transport

Minimise emission of dust possibly contaminated with hazardous materials

- Truck loading bays must be:
 - roofed and enclosed on three sides for 'back in' type plant, or
 - roofed and enclosed on two sides for 'drive through' type plant.
- Use water sprays or filtered dust extraction systems around gob hoppers and across open sides of enclosures.
- Specify speed limits on exposed road surfaces (< 40km/h).
- Erect barriers with kerbs and posts to discourage vehicle movement on unsealed areas.
- Regularly water unsealed roads (clean water @ 1-2 l/m²) to prevent nuisance from traffic movements.
- To minimise airborne dust
 - seal or turf the site
 - cover the exposed site with a dust suppressant such as compacted road base or aggregate
 - use organic dust-binding agents.
- Never let trucks leave the premises with dust and or mud on the vehicle (e.g. where necessary wet down trucks). This will prevent dust and/or mud nuisance.
- Cover truckloads of sand or aggregate during transport if there is a possibility dust may be emitted.
- Regularly water sand and aggregate stockpiles to keep down dust emissions. This should be done in conjunction with an appropriate catchment and treatment system to contain runoff and leached water from the sprinklers.

Prevent contamination of water, soil and groundwater from potentially hazardous substances

- Never use waste oil or other contaminants on dirt roads as a dust suppressant or weed killer. This practice may lead to the site being notified as a possible contaminated site under the *Environmental Protection Act 1994*.
- Immediately clean up material spilt on traffic area before it can be mobilised by vehicle movement.
- Regularly collect floor sweepings, dust, powder waste or absorbent clean up materials and place in a sealed bag prior to disposal in a sealed waste bin.
- Prevent and clean up any spillages or dust accumulation in driveways or sealed roads.



Aggregate Storage

Prevent nuisance dust

- Enclose stockpiles:
 - on two sides for “drive over” inground storage bins, or
 - on three sides for “reverse delivery” inground storage bins.
- Enclose above ground stockpiles with walls on at least three sides at all times. Stockpile height must be at least 0.5 metres below the tops of the walls and at least 0.5 metres inside the open ends of the enclosures.



Cover raw material with a high dust generating potential in addition to using sidewalls.

- Use water misting sprays to keep aggregates damp. For batching plants with drive over receival bins it is not considered practical to use water sprays and therefore all loads should be received in a damp state.
- Ensure water spray systems keep aggregates and yard areas damp.
- Handling practices for raw material with a high dust generating potential (e.g. crusher dust) must prevent dust nuisance.
- Never store sand and aggregates outside of the storage areas/bins.
- Cover sand and aggregates during long production intervals.

Conveyor Systems

Prevent nuisance dust

- Roof, and enclose on one side, the incline conveyors to overhead bins.
- Install spill trays under the conveyor system and clean them regularly.



Install belt scraping devices on the head pulleys of the conveyor belts and regularly sweep away material. Recycle the removed material.



Use water spray systems on conveyor systems to suppress dust.



Minimise the drop height between conveyors.

- Maintain all areas directly beneath conveyor systems in a clean condition to avoid dust nuisance.



Elevated Storage Bins

Prevent nuisance dust



Partially or totally enclose bin openings to minimise wind generation of dust emissions.

- Alternatively, never load aggregate to within 0.5 metres from the top of the bin walls.
- Enclose swivel chute areas and transfer points that have the potential to generate dust.

Aggregate Weighing Hoppers

Prevent nuisance dust

- Front-end loader type plants:

- must roof, and shroud (three sides) the aggregate weigh bins



should dampen aggregates before transferring the load into the weighing bin.



Partially or totally enclose overhead bins from the base of the overhead bin walls down to the aggregate weigh bins.

Prevent nuisance noise



Use self-cleaning hoppers that are coated internally with resin or other resilient material to dampen noise emissions from aggregate.



Load fine aggregates first to reduce the noise made when loading coarse aggregate.

Cement and Flyash Silos

Prevent and control nuisance dust

- **Always** use filters when venting silos to the atmosphere. Filters must be designed for maximum discharge rates from cement and flyash delivery trucks.



Use Reverse Pulse filters rather than the 'green bag' type filters.

- Do not operate silo filters in excess of the manufacturers' specifications and rated capacity.
- Use a burst bag detector system that has ducting to ground level adjacent to the silo-filling pipe.



Maintain filter systems in accordance with the manufacturers' recommendations. Keep spare filters on site at all times.



- Install:
 - automatic level sensors and an alarm system to prevent over filling
 - filling line shut off valves that close automatically when a high level of material is detected
 - 🌿 spring-loaded shut off valves to close if automated control systems fail
 - 🌿 test circuits for high level alarm and shut off valve operation. Operate test circuits prior to filling silos.

Prevent nuisance noise

- Ensure that sensors and alarm systems used in day to day operation of the plant do not cause environmental nuisance.

Cement and Flyash Weigh Hoppers

Prevent and control nuisance dust

- Install a dust tight seal between silo discharge chutes and the weigh hopper.
- Use a filter to vent to the atmosphere.

Vehicle Servicing

Protect humans and environment from hazardous effects of motor vehicle maintenance

- Refer to the latest Operator's Environment Guide – *Pollution Solutions for Motor Services Industries* for acceptable practices for servicing of vehicles.

Dust Audits and Monitoring

Monitor environmental performance

- 🌿 The site EMS should include regular audits of the effectiveness of control measures for dust generation. The frequency of audits (e.g. monthly or quarterly) will depend on the level of risk (e.g. near sensitive land uses including residential).
- 🌿 Conduct dust monitoring using a suitable direct-reading instrument. Check or monitor monthly:
 - dust fallout
 - high volume sampling (24 hour) **and/or**
 - respirable dust levels (PM₁₀)
- 🌿 Check and monitor background dust levels from other sources.



STORAGE OF POTENTIAL CONTAMINANTS

Minimise accidental spills and prevent contamination of soil, stormwater, ground-water and/or air



- Store chemicals and other materials that may contaminate soil, stormwater, groundwater and/or air in a manner that prevents or minimises the impact of any accidental spills or releases. This means:
 - potential liquid contaminants stored in a secure, covered area away from through traffic. Such contaminants may include disinfectants, fuels, oils, detergents, poisons, cleaning solvents, alkaline or acidic solutions;
 - storage areas provided in an impervious bunded area or compound to contain any leakage or spillage. The capacity of the compound shall be at least the capacity of the largest tank or package in the compound (Bunding may not be required where the storage is inside a workshop or similar area and the operator can demonstrate that any spills will not escape the area and contaminate stormwater or surrounding ground.); and
 - where dangerous goods (as defined by the ADG Code) are stored in quantities in excess of minor storage (refer to Note below), the capacity of the compound shall comply with the requirements of the relevant legislation, Australian Standard and/or Code of Practice. Relevant Australian Standards may include:
 - AS 1940 *The storage and handling of flammable and combustible liquids*
 - AS 2022 *Anhydrous ammonia – storage and handling anhydrous ammonia*
 - AS 2714 *The storage and handling of hazardous chemicals - Class 5.2 substances (organic peroxides)*
 - AS 3780 *The storage and handling of corrosive substances*
 - AS 3833 *The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers*
 - AS 4081 *The storage, handling and transport of liquid and liquefied polyfunctional isocyanates*
 - AS 4326 *The storage and handling of oxidising agents*
 - AS 4452 *The storage and handling of toxic substances*
- Note: Storage of materials in excess of minor storage quantities may require approval, licensing and full compliance with the above standards. Contact the Council or the relevant dangerous goods administering authority for further information.*
- Storage must be:
 - away from any heating or ignition sources
 - provided with adequate natural or mechanical ventilation relevant to the nature of the substance and its use.



Reduce volatile emissions

- Store volatile liquids (e.g. solvents, thinners) in closed containers that are kept closed when not in use. This will avoid unnecessary exposure of volatile liquids.
- Keep Material Safety Data Sheets (MSDS) for all hazardous substances used or stored on site. In case of an emergency an MSDS is the most effective means of assessing risk.

CAUTION! Some classes of materials may react dangerously if mixed or stored together. Incompatible materials must be segregated to minimise the possibility of any reaction. Read and follow all directions on labels. Refer to the material's Material Safety Data Sheet (MSDS) or contact the manufacturer for further information.

Respond promptly to spills and leaks

- Keep clean-up equipment, absorbent materials, and any materials for neutralising or decontaminating spills on the premises. Staff are to be adequately trained in the use of these materials.
- Immediately take action to clean-up spills or leaks. Contaminated materials are not to be reused and must be appropriately contained and packaged for transport for either recycling or disposal by a licensed waste removalist.
- Avoid the use of sawdust or other readily combustible absorbents to clean up flammable liquid spills.

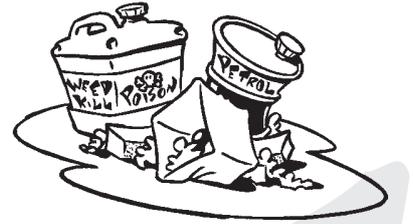
Note: Oily and greasy rags and oil-soaked sawdust can spontaneously combust if stored in a confined space.



WASTE MANAGEMENT

Reduce wastage of material resources and landfill space

- Minimise all wastes produced by site activities.



Recycle and reduce waste disposal costs



Disposal of wastes should be viewed as the **last** option in environmental management strategies. The life of material resources may be extended by recovery, reuse and recycling.



Implement a waste recycling (reuse) system for non-hazardous solid wastes using separate containers for individual waste streams (refer to Solid Wastes section).

- Clearly label waste containers and locate them in convenient areas to encourage use. Mixing wastes may make them unsuitable for reuse or recycling.

Protect soil, stormwater and groundwater quality

- Store solid wastes undercover so contaminants cannot be washed to stormwater by rain.
- Never dispose of waste on site.



Use wet/dry vacuum cleaners with dust filters for general cleaning of workshop floors instead of sweeping and hosing with water.

Prevent landfill hazards

- Material put into industrial bins will generally go to landfill. Do not dispose of gas cylinders, asbestos-containing materials or synthetic-mineral fibres into an industrial bin; instead a licensed waste removalist should dispose of these wastes.
- Only put solid inert waste in industrial bins.

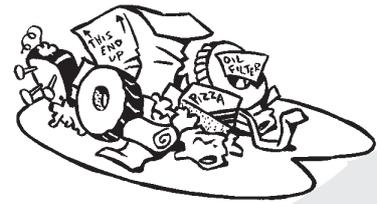
Protect air quality

- Incinerating waste on site is prohibited.



SOLID WASTES

Hazardous Wastes (regulated)



Prevent contamination of landfill, soil and water

- Regulated wastes are those that have been identified as unsafe for municipal or refuse landfill disposal. These wastes are listed in Schedule 7 of the *Environmental Protection Regulation 1998* (refer to Appendix 2) and must be disposed through a licensed waste removalist.
- Keep proof of proper disposal of hazardous wastes for presentation to Council officers. Proof includes:
 - hazardous waste disposal facility docket
 - waste manifest documents
 - licensed waste transport receipts.

Non-hazardous Wastes

Conserve material resources, landfill space and reduce waste disposal costs



The following solid wastes are recyclable. They should be collected in separate containers for disposal at a waste recycling and reprocessing facility:

- clean cardboard
- aluminium cans, drink bottles
- plastics
- steel drums, drained steel cans
- metal parts
- rags (can be laundered and reused)
- tyres.

Ensure appropriate disposal of non-recyclable solid wastes

- Always dispose of non-recyclable solid waste at a licensed general waste disposal facility (e.g. local government service or approved waste removalist).

Prevent contamination of landfill and groundwater with hazardous wastes

- Empty all containers or vessels containing oils, solvents, and other chemicals or potential contaminants before disposing via the industrial bins.

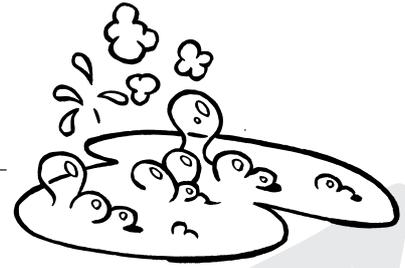
Prevent air contamination by harmful dusts

- Bag floor sweepings and other dusty wastes before disposing via the industrial bins.
- Only transport general solid waste in your own vehicle or by a licensed waste transporter.



LIQUID WASTES

Non-sewerable Wastes (regulated)



Prevent contamination of landfill, soil and water

- Non-sewerable (regulated) wastes are those that have been identified as unsafe for sewer disposal. These wastes are outlined in Schedule 7 of the *Environmental Protection Regulation 1998* (refer to Appendix 2) and must be disposed of by a licensed waste removalist.
- Keep proof of proper disposal of non-sewerable wastes for presentation to Council officers upon request. Proof includes:
 - hazardous waste disposal facility docket
 - waste manifest docket
 - licensed waste transport receipts.



Separate out recyclable liquid wastes for collection by a licensed waste removalist. Recyclable liquid wastes include solvents, thinners, waste oil, brake fluid and coolant.

Sewerable Wastes

Ensure compliance with licence conditions (Trade Waste Permit)

- Obtain a Trade Waste Permit from the Council prior to discharge of any trade waste to the sewer. The permit establishes the discharge conditions for the waste.
- Water-miscible solutions are generally accepted under a Trade Waste Permit. This may include dilute organic wastes.

Prevent contamination of landfill, soil and water

- Washdown waters must either be directed to the sewerage system under the conditions of the Trade Waste Permit, or collected for recycling or disposal by a licensed waste removalist.



On-site treatment and reuse of wastewater (e.g. washdown waters) can be used to replace or reduce disposal of wastewater to sewer. The systems of treatment and nature of reuse must not cause pollution or be hazardous to persons (refer to Appendix 3).



STORMWATER MANAGEMENT

Prevent contamination of soil, stormwater and local watercourses

Stormwater flows untreated to your local creek or waterbody.

- Prevent stormwater from entering or leaving work areas where it may become contaminated with grease, oils, chemicals, particulates or solvents.
 - Cover and bund such areas where necessary to avoid the incursion of stormwater and prevent hazardous and trade wastes from contaminating the surrounding soil and stormwater system.
- Prevent wastewater containing contaminants (e.g. degreasers, oils and detergents) from contaminating stormwater or the ground. Never hose workshop floor, vehicles or machinery parts on to the surrounding soil or into stormwater drains.
- Store wastes undercover so that contaminants cannot be washed to stormwater by rain.



Avoid sewerage system overload

- Do not direct stormwater to the sewerage system. It is an offence under the *Sewerage and Water Supply Act 1949*.
- Contain any contaminated stormwater (e.g. holding tank) and:
 - dispose of by a licensed waste removalist
 - treat on-site to an appropriate standard for discharge
 - treat on-site for recycling or reuse (refer to Appendix 3).

Prevent contamination of waterways/stormwater, soil and groundwater

- Site runoff has been categorised into the following:

Contaminated

- cement and flyash storage and loading areas
- truck loading, washing and slumping points
- truck bowl 'acid wash' points
- settling pits, recycled water pits, slurry agitator pits and 'first-flush' collection pits
- concrete waste drying and storing

Dirty

- aggregate storage area not affected by cementitious materials

Clean

- site areas not defined as contaminated or dirty.



- Direct water runoff from '**contaminated**' areas to an approved settling pit with a capacity equivalent to 0.20 metres multiplied by the area of the 'contaminated yard' (0.2 metres x length x breadth).
- Direct the water runoff from '**dirty**' areas to an approved settling pit for the capture of aggregate materials.
- The holder of the concrete batching plant's environmental authority (licence) must submit a stormwater management plan with the Annual Return that contains:
 - a site plan identifying:
 - 'contaminated', 'dirty' and 'clean' areas as defined above
 - site contours and drainage
 - a flow diagram outlining the treatment process for 'contaminated', 'dirty' and 'clean' water.

CAUTION! Contaminating stormwater and other Queensland waters may result in an 'on the spot' fine or prosecution under the Environmental Protection Act 1994.

The Environmental Protection (Water) Policy 1997 prohibits the discharge of 'certain things' into a roadside gutter, stormwater or a water, or to a place where it could be reasonably expected to move or to be washed into a roadside gutter, stormwater or a water. Discharges to stormwater must comply with the Environmental Protection (Water) Policy 1997.



AIRBORNE WASTES



Silo Emissions

Maintain and protect local and regional air quality, soil and waters

- Emissions from this activity (e.g. dusts, solvents or odours) must comply with those outlined in the *Environmental Protection (Air) Policy 1997* or those prescribed by the Council.
- Fit the silo with an effective rain protection.

Maintain air pollution control equipment



- Examine and review the need for enhanced emission controls annually and if you receive complaints about performance.
- Regularly maintain any emission control equipment (e.g. filters) as per manufacturers' instructions.
- Immediately replace or repair any emission control equipment that is blocked, frayed, leaking or not functioning within specifications. Spare bags and filters must be kept on-site.

Ensure emissions are below prescribed Air Quality Limits

- Undertake regular monitoring, recording and reporting of dust emissions to ensure compliance with ambient dust standards set in the *Environmental Protection (Air) Policy 1997* (e.g. PM₁₀).
- Install monitoring ports in all stacks and other air emissions discharge points. Refer AS 4323.1 (1995) – *Stationary Source Emissions: Method 1: Selection of Sampling Positions*.
- Keep a register of all recorded emissions and air quality indicator levels and have it available for Council inspection.



NOISE MANAGEMENT

Note: Refer to 'Prevent Nuisance Noise' in Concrete Batching Processes and Management section.



Prevent nuisance and unreasonable noise

- The activity must not cause an 'unreasonable noise' as defined in the *Environmental Protection (Noise) Policy 1997*.
- Use the layout of the buildings and the natural topography as noise barriers where possible. Cost-effective landscaping improvements (e.g. fencing, mounds, and plants) can be implemented to reduce noise emissions and therefore noise complaints.
- It is best to avoid using extension telephone bells and public address systems but if they are considered necessary keep them at the lowest possible audible level. Ensure that music does not cause an annoyance to the neighbours.
- Ensure that silencers fitted to air compressors, pumps, fans and blowers and other noisy machinery are effective.
- Enclose or acoustically screen noisy equipment not complying with *Environmental Protection (Noise) Policy 1997* to muffle noise. Locate equipment or operations away from noise sensitive land uses.
- Reduce structural-borne noise and vibration by mounting equipment on vibration isolating platforms, rubber mats, or by increasing the mass weight of equipment.
- Fit mechanical ventilation systems (e.g. air conditioners, fans) with noise-proof ducting and acoustically designed intake and exhaust openings.
- Ask for noise-reduction devices when purchasing new plant and equipment.
- Close windows and roller doors facing noise-sensitive premises and seal all unnecessary openings.
- Only operate heavy vehicles in daylight hours .
- Regularly maintain all equipment and vehicles and attend promptly to any loose parts, rattling covers, worn bearings and broken components. This should be addressed through a regular maintenance schedule and correct staff training.

Note: Premises causing ongoing noise problems may be required to introduce other noise control measures, including noise monitoring and reporting.

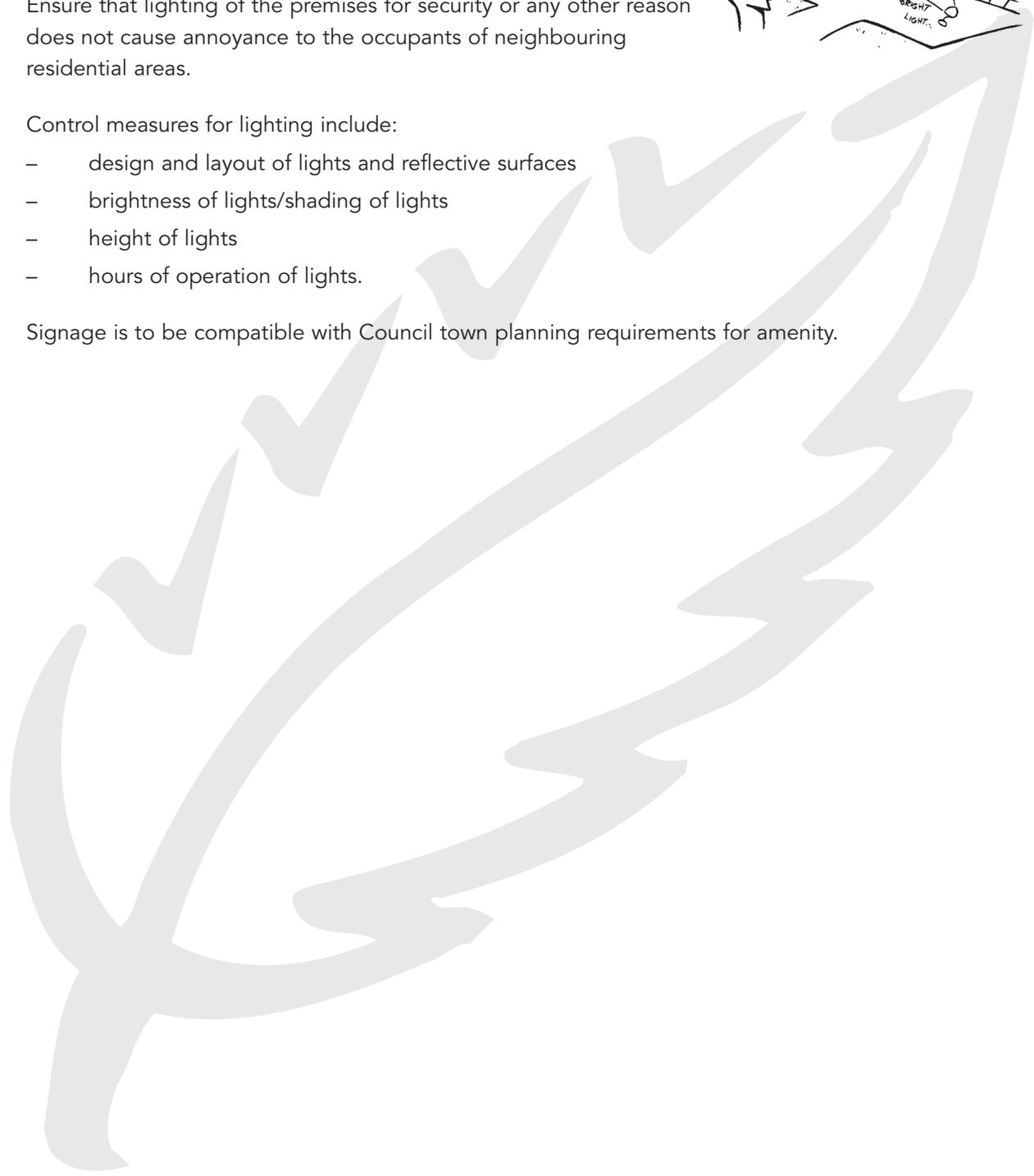
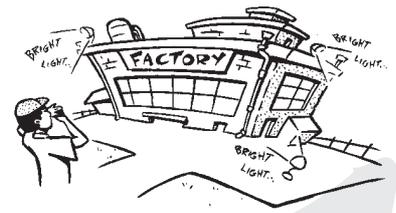
Operators should be aware of the cumulative effects of noise levels on the receiving environment, and where practical, take appropriate steps to reduce noise levels from their operation, particularly before 7am and after 6pm.



VISUAL AMENITY

Prevent environmental nuisance

- Ensure that lighting of the premises for security or any other reason does not cause annoyance to the occupants of neighbouring residential areas.
- Control measures for lighting include:
 - design and layout of lights and reflective surfaces
 - brightness of lights/shading of lights
 - height of lights
 - hours of operation of lights.
- Signage is to be compatible with Council town planning requirements for amenity.



APPENDIX 1 – DEFINITIONS

Bund

An impervious embankment or wall of brick, stone, concrete, or other approved material that may form part or all of the perimeter of a compound. For example, a bund may be used to contain spills from a fuel tank.

Environmental Harm

An adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value and includes environmental nuisance, Environmental Protection Act 1994.

Environmental Management Program (EMP)

A specific program that, when approved, achieves compliance with the Environmental Protection Act 1994 for the matters dealt with by the program by:

- (a) reducing environmental harm
- (b) detailing the transition to an environmental standard.

Environmental Management System (EMS)

Is a systematic approach to managing the environmental aspects of an activity. As a minimum for the lower risk activities administered by Council, an EMS would entail documenting standard operating procedures for the aspects of the activity that may result in environmental harm or nuisance.

Environmental Nuisance

Any unreasonable interference or likely interference with an environmental value that is caused by noise, dust, odour, light, an unhealthy, offensive or unsightly condition because of contamination, or another way prescribed by regulation, Environmental Protection Act 1994.

Environmental Value

- (a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or
- (b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation, Environmental Protection Act 1994.

General Environmental Duty

A person must not carry out an activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm.

Material Safety Data Sheets (MSDS)

Information sheets on products that manufacturers are required to provide. They outline the composition, applications and precautions that need to be taken in using such products.

Regulated Liquid Wastes

Those wastes that have been identified as unsafe for sewer disposal due to their chemical nature (e.g. flammable). These wastes are outlined in Schedule 7 of the Environmental Protection Regulation 1998.

Regulated Solid Wastes

Those wastes that have been identified as unsafe for landfill disposal. These wastes are outlined in Schedule 7 of the *Environmental Protection Regulation 1998*.



Stormwater

Rainfall that runs off hard surfaces, such as roofs, roads and car parks, or off ground that has become saturated. Stormwater flows untreated to local creeks.

Trade Waste

Liquid wastes from any business, industry, trade or manufacturing process approved for sewer disposal other than domestic sewage

Unreasonable Noise

An unreasonable noise is one which:

- (a) causes unlawful environmental harm because of:
 - its characteristics
 - its intrusiveness
 - the time at which it is made
 - where it can be heard
 - other noises ordinarily present at the place where it can be heard
- (b) is not declared to be reasonable in and Environmental Protection Policy.

VOCs (Volatile Organic Compounds)

Evaporated organic solvents (e.g. hydrocarbons or alcohols, or unburnt liquid fuels) that are known or suspected to have environmental or health effects. Examples of VOCs include solvents, thinners, acrylic lacquers and fuels.



APPENDIX 2 – SCHEDULE 7 - REGULATED WASTES

Abattoir effluent	Heterocyclic organic compounds containing oxygen, nitrogen or sulphur	Phenolic compounds (other than solid inert polymeric materials)
Acids and acid solutions	Hydrocarbons (oxygen, nitrogen or sulphur)	Phosphorus
Adhesives (other than solid inert polymeric materials)	Industrial plant wash down waters	Pickling liquors
Alkalis and alkaline solutions	Infectious substances	Polychlorinated biphenyls and related substances
Antimony	Inks	Polymeric lattices
Arsenic	Inorganic cyanides and cyanide complexes	Poultry processing wastes
Asbestos (all chemical forms)	Inorganic sulphur compounds	Quarantine waste
Azides	Isocyanate compounds (other than solid inert polymeric materials)	Reactive chemicals
Barium	Laboratory chemicals	Reducing agents
Batteries	Lead	Resins (other than solid inert polymeric materials)
Beryllium	Lime neutralised sludges	Saline effluent and residues
Biocides	Lime sludges	Selenium
Boiler blowdown sludge	Materials or equipment contaminated with infectious substances	Silver compounds
Boron	Mercaptans	Solvent recovery residues
Cadmium	Mercury and anything containing mercury	Surfactants
Caustic solutions	Metal finishing effluent and residues	Tallow
Chlorates	Methacrylate compounds (other than solid inert polymeric materials)	Tannery effluent and residues
Chromium	Nickel	Tars and tarry residues
Contaminated soils	Oil interceptor sludges	Tellurium
Copper compounds	Oil water emulsions and mixtures	Textile effluent and residues
Cytotoxic wastes	Oils	Thallium
Detergents	Organic solvents	Timber preservative effluent and residues
Distillation residues	Oxidising agents	Treatment tank sludges and residues (including sewage tank sludges and residues)
Dyes	Ozone depleting substances	Tyres
Electroplating effluent and residues	Paint sludges and residues	Vanadium
Filter backwash waters	Perchlorates	Vegetable oils
Filter cake sludges and residues	Pesticides	Vehicle wash down waters
Fish processing waste	Petroleum tank sludges	Wool scouring effluent & residues
Fly ash	Pharmaceutical substances	Zinc compounds
Food processing waste		
Grease interceptor trap effluent and residues		
Halogen compounds (other than solid inert polymeric materials)		
Heat treatment salts		

APPENDIX 3 – ON-SITE TREATMENT AND REUSE OF WASTEWATER OR STORMWATER

- a) The operator should consult with the Council regarding any system for the collection, treatment and reuse of wastewater (e.g. washdown waters) or stormwater that may be contaminated. This needs to be approved by Council to ensure the method and level of treatment is adequate and safe.
- b) It is generally necessary to test and monitor treated waters to demonstrate effectiveness of the system for Council approval.
- c) Consideration must be made of:
 - volumes to be treated
 - handling and storage
 - key contaminants
 - types of treatment
 - disposal of wastes (e.g. sludge)
 - safety and hygiene
 - testing and frequency.

