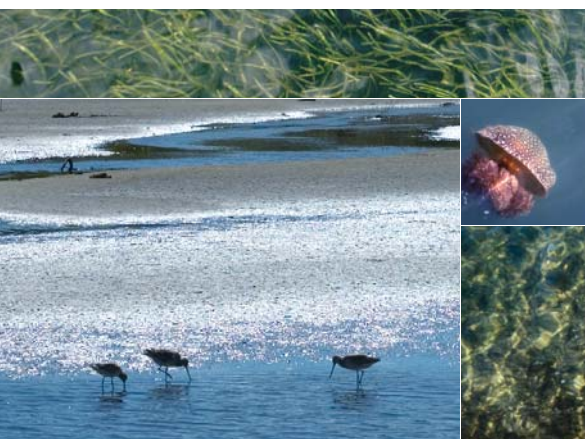


Environmental quality

Environmental quality



2.3

Water quality

The quality of our waterways is essential for human and aquatic health. This is a critical issue for port operations given their close proximity to Sydney Harbour and Botany Bay and the nature of their activities.

Water pollution can be avoided by incorporating the suggested preventative measures and dealing efficiently with any leaks or spills.

Item no	Purpose/criteria	Suggested measures	Stages of development	Environmental/social/health benefits	Ease of use/implementation	Return on investment
HQ1	Manage stormwater to reduce peak stormwater flows and protect water quality.	★ Use water sensitive urban design measures such as permeable surfaces, swales and wetlands.	D	✔✔✔ Significant environmental benefits through reducing the quantity of stormwater runoff and improving water quality by filtration.	✔✔ Design required upfront. Some maintenance required.	✔✔ Cost is dependent on measures, but should not be excessive. Cost benefits by reducing requirements to treat stormwater.
		★ Design, provide and maintain appropriate drainage so rainwater runoff does not flow directly to surface waterbody. Implement a stormwater treatment system.	D C O	✔✔✔ Significant environmental benefits through protection of water quality.	✔✔ Design required upfront. Some maintenance required.	✔✔ Drainage systems factored in at design stage should not constitute an additional cost burden. However stormwater treatment will require additional investment. May avoid environmental non-compliance penalties.
HQ2	Manage water quality to protect the harbour and other water bodies.	Identify potential sources of land-based water pollution such as truck washing, waste and cargo/oil transfers. Implement and maintain measures to minimise these (e.g. oil separators and gross pollutant traps).	D F C O	✔✔✔ Significant environmental benefits through protection and enhancement of water quality.	✔✔ Design required upfront. Some maintenance required.	✔✔ Cost is dependent on measures implemented, but will not be extensive. May avoid environmental non-compliance penalties.
		Provide containment for any spillage, including bunding and appropriate storage of liquid materials.	D C O	✔✔✔ Significant environmental benefits in case of spill.	✔✔ Products readily available.	✔✔ Cost is dependent on measures implemented but not likely to be extensive. Cost savings in terms of liability and compliance with legislation, and avoidance of clean up costs.
		Provide emergency spill kits (including bunds and clean up material) and provide training in how to use them.	C O	✔✔✔ Significant environmental benefits in case of spill.	✔✔ Products readily available.	✔✔ Cost is dependent on measures implemented but not likely to be extensive. Cost savings in terms of liability and compliance with legislation, and avoidance of clean up costs.
		Implement a water quality monitoring program.	C O	✔✔ Moderate environmental benefits through early identification and correction of water quality issues.	✔✔ Design required upfront and ongoing monitoring.	✔✔ Cost is dependent on monitoring program and testing requirements. May require the engagement of external consultants. May avoid environmental non-compliance penalties.

Environmental quality

Environmental quality



**2.3**  
Water quality  
continued

Item no	Purpose/criteria	Suggested measures	Stages of development	Environmental/social/health benefits	Ease of use/implementation	Return on investment
		Manage ballast water discharge to avoid introducing non-indigenous aquatic organisms.	○	✔✔✔ Introduced aquatic organisms can cause severe risks to seafood industries, marine environments and human health.	✔ Current ballast water exchange practices are considered far less effective than emerging ballast water technologies.	✔✔ There are costs associated with vessel diversion and possible structure damage from ballast water exchange, and the introduction of new ballast water technologies, however penalties apply for non-compliance.
		Avoid dumping rubbish, chemicals or untreated sewage, greywater and oily bilge at sea and ensure high standard marine sanitation devices are used and maintained. Avoid toxic anti-fouling paints.	○	✔✔✔ Waste from ships carries bacteria and toxins harmful to marine and human life.	✔ Requires specialist technology and regular maintenance.	✔✔ There are costs associated with proper treatment and disposal, however penalties apply for non-compliance.
<b>HQ3</b>	Prevent damage from potential flood events and water table changes.	Assess the site for flood risk and potential water table changes. Implement appropriate mitigation measures.	ⓓ ⓐ ○	✔✔✔ Significant environmental and social benefits through reduction of flood risk and harm.	✔ Investigations and design required upfront.	✔ Cost is dependent on scale of assessment and measures implemented. Cost savings depend on extent of risk.