Sydney Water Standards Newsletter

Issue #1 - March 2025



Welcome!

This newsletter is to keep our staff and partners informed about the latest updates and news regarding our engineering standards.

These standards focus on technical requirements aiming to promote safety, performance, sustainability and value for money for our customers.

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Recent Releases

Set out below are new standards and changes to existing standards. These are available through the public links listed in the References section below. If the standards are not for public access, our industry partners will be able to access these directly through secure links in Delivery Portal or iConnect.

Dewatering Equipment Design Specification (D0001932)

This update addresses gaps, safety issues, stakeholder feedback and learnings from recently completed projects. Improvements include:

- Simplified electrical design requirements to provide clarity.
- Enhanced safety by addressing known risks (hand injuries & working at height).
- Increased performance through improved control philosophy and sludge transfer design.

High Voltage Switchgear specification (DOC0012)

This revision was initiated to address user feedback. The changes will:

- Improve clarity and adapt to the latest market products.
- Result in reduction in greenhouse gas footprint of 2000 tonnes of CO2 over the next five years.



Photo of switchgear from one of our new High Voltage Water Pumping Stations

Recent Releases

Engineering Competency Standard (D0000833)

The purpose of the Engineering Competency Standard is to ensure:

- Engineers involved with design of new assets (or renewal of existing assets) possess the appropriate qualifications, knowledge, skills and experience.
- The optimised design of assets that balance performance, cost and risk.

It has been updated to address feedback from stakeholders including clarity on what constitutes a complex project and how to increase competency levels.

Sydney Water Supplement to Pressure Sewerage Code of Australia WSA 07 2007 Version 1.1 (D0001898)

The update to this supplement was designed to:

- Capture departures from the Code and Sydney Water design requirements for pressure sewerage system.
- Simplified process for users by consolidating requirements from various other documents.
- Reduce the number of source documents.

Sydney Water Technical Specification - Civil (CPDMS0023 – Version 11)

This targeted update focused on earthworks associated with reticulation assets in residential areas to address industry feedback. This update provides:

- Risk based approach to material, workmanship and QA requirements.
- Overall reduction in project delivery costs and time.
- Improved environmental benefits through increased reuse of site-won materials.

Supplement to Industry Standard for Submersible Pumps for Sewage Pumping Stations WSA 101 2008 Version 4 (D0000677)

This update sets out requirements for wet and dry mounted submersible sewage pumps.

- Summarises Sydney Water's specific and additional requirements for submersible sewage pumps which are not currently covered in outdated WSA 101-2008.
- Reduces stakeholder involvement during pump procurement.
- Standardises submersible sewage pumps requirements across Sydney Water facilities.

Recent Releases

Water, Wastewater and flowmeter Deemed to Comply (DTC) Drawings

DTC drawings provide a pre-approved solution that streamlines and reduces the cost of design and construction. New revisions of the water and wastewater DTC drawing sets were published in October. These drawing sets cover a range of common linear asset types and have been updated to:

- Better align to current standards and specifications, industry practices.
- Include reference to newly available products and market changes.
- Better align with all stakeholder needs.
- Include new drawings with additional common assets that were not previously covered.

Please note DTC drawings are subject to terms and conditions of use.

Supplement to Sewage Pumping Station Code of Australia WSA 04-2005-2.1 – Sydney Water Edition – 2012 (D0002313)

Supplement sets out specific SW's design requirements for wet well sewage pumping stations larger than 200 L/s capacity, which are not currently covered in WSA 04.

- Standardises large SPSs layout and arrangement across SW's facilities.
- Streamlines the design, construction, installation, commissioning, and hand over.
- Reduces requirements for stakeholder design reviews.



Photo of an air valve installation on a sewer pressure main

Coming Soon

The Engineering Modernisation standards team is working on new and updated standards to ensure they support you in delivery of our capital program, meeting our customer outcomes, and achieving our commitment to achieve net carbon zero emissions.

If you wish to contribute to development of these standards or provide feedback at any time, please email <u>standards@sydneywater.com.au</u>.

- Chemical Dosing Unit Specification ACP0002
- Odour Control Unit Specification ACP0004
- Design guideline for minimising odour causing turbulence in wastewater networks.
- Earthing and Lightning Technical Specification DOC0016
- HV Batteries and Charger Technical Specification DOC0008
- Power Transformer Technical Specification DOC0019
- Updated Deemed to Comply (DTC) drawings for CDU and OCU assets.
- Safety in Design Procedure D0000653
- Specialist Engineering Assessment Procedure D0001870
- Building Design Specification

Innovation Spotlight

Approval of Boral Glass Sand as Embedment Material

We are pleased to announce that following a successful trial as part of the Upper South Creek AWRC Project, Boral's Engineered Glass-Sand product has been approved for general use across Sydney Water as a pipe embedment material. The trial confirmed that engineered glass-sand is a viable alternative to conventional virgin compaction sand.

The glass-sand mix also offers sustainability benefits, supporting circular economy initiatives and reducing lifecycle carbon emissions by reusing problematic waste streams and reducing reliance on diminishing virgin materials.

Approval of this product is documented in Sydney Water Specification EPS 501 – List of Approved Non-Standard Products for Networks (D0001614). The product is now eligible for use in all current and future projects.

Please note that use of Boral's engineered glass-sand product is subject to conditions set out in the Resource Recovery Order and Exemption issued by the Environment Protection Authority (EPA). These conditions aim to mitigate the risk of harm to the environment, human health and agriculture. Key requirements include statement of compliance with the Order and appropriate record keeping. Please refer to EPS 501 for further information.

EPS501 can be found via the links below.

- <u>iConnect</u>
- <u>SWDelivery Portal</u>
- Sydney Water website





News Stories

We Heard You – A Human-Centred Approach to Enhancing Engineering Standards

Last year, the Engineering Modernisation team partnered with the Human-Centred Design (HCD) team to take a deep dive into the current experience of using engineering standards. The aim was to understand the challenges faced by users and identify opportunities to make a step change improvement.

The Current State of Engineering Standards

Sydney Water has over 100 Engineering Standards that define the requirements for planning, designing, constructing, and commissioning assets. These standards play a critical role in ensuring our infrastructure is fit for purpose.

However, there are no formal performance measures to assess how well the standards are being applied or the value they deliver. Recognizing this gap, we set out to explore how we could improve the effectiveness of our standards to ensure they will support Sydney Water's Long-Term Capital and Operational Plan, which includes a \$34 billion investment over the next decade.

To do this, we engaged the HCD team, whose expertise lies in solving the right problems and designing solutions with users in mind.

The Importance of User Involvement Every Step of the Way

A key part of this initiative was engaging with those who use engineering standards daily. Through focus groups and ideation workshops, we connected with over 100 people—including standards authors, designers, project engineers, project managers, design directors, water servicing coordinators and constructors. Their insights were invaluable in identifying the real challenges and opportunities for improvement.

This engagement process provided a broader perspective and helped build empathy with users. As a result, this collaborative effort has shaped a roadmap to improve both the quality of our standards and the experience of using them.

What's Next?

Our team is actively working on improvement initiatives, including some quick wins, to enhance usability and effectiveness. These include better communication, guidance material, mapping our standards, establishing feedback mechanisms, measuring standards performance and identifying sustainability enhancements.

At the same time, we are developing a longer-term improvement plan including further scoping, validation, and design to ensure initiatives will be of benefit. As this work progresses, we will again seek input from users and stakeholders to help shape and prioritize the next steps. We look forward to finalizing our plan to improve engineering standards and support the successful delivery of Sydney Water's Long-Term Capital and Operational Plan.

Stay tuned for updates as we move into the next phase of this work. If you'd like to learn more about the HCD team, feel free to reach out to them via **HumanCentredDesign@sydneywater.com.au.**

News Stories



Engineering Modernisation, Human Centred Design team, Standards Users and Stakeholders working together to improve standards

Design Guideline for Resilient Pressure Sewer Mains

Sydney Water is developing a new guideline as part of ongoing collaboration with suppliers on pressure sewer mains. This guideline is designed to:

- Reduce sewer overflows from failed pressure mains and improve environmental performance:
- Provide guidance for when to consider duplicating sewer pressure mains to improve resilience whilst balancing cost and risk.
- Develop guidance for internal maintenance access to ensure that we can carry out internal inspections and maintenance as needed to prevent future incidents.
- Incorporate guidance, knowledge and insights developed in this project into the relevant Sydney Water standards and guidelines.

Access to American National Standards Institute (ANSI) and Hydraulic Institute Pump Standards

Sydney Water advises all staff and contractors of our continued alignment with international standards. Our own standards refer to ANSI and Hydraulic Institute Pump Standards where needed.

Sydney Water maintains access to these standards through our i2i platform for our staff and internal partners to:

- Develop and review Sydney Water's design and testing requirements for pumps.
- Inform stakeholder on the latest guidelines in optimal pump intake design, efficiency and flow.
- Align with industry best practices in testing procedures, ensuring safety and pump system reliability.

News Stories



Engineering Tech Talks: Where Knowledge Meets Collaboration

The Engineering Modernisation team is proud to host monthly Tech Talks, a forum designed to share knowledge, promote discussion, and keep our staff updated on the latest developments in the water industry. These sessions have attracted a broad audience from teams across Sydney Water and our partners.

Since its inception, we have organized over 28 Tech Talks, covering 10 unique disciplines. On average, each session has seen an attendance of around 50 participants, reflecting the high level of interest and engagement from our staff.

Our Tech Talks cover a wide range of topics, from technical investigations and new product assessments to site visits and innovative technologies. Recent sessions have included discussions on sludge carbonization and PFAS treatment, concrete corrosion and durability, smart online monitoring, and machine learning applications at Sydney Water. These topics have sparked discussion across the business. Recordings are distributed to maximize accessibility, ensuring no one misses out. The sessions also provide a platform for receiving valuable feedback on existing standards and guidelines.

If you would like to present an interesting topic or seek more information on upcoming Tech Talks and access past presentations, please reach out to Kirtan Kelaiya (<u>kkl@sydneywater.com.au</u>) and Jason Smith (<u>jai@sydneywater.com.au</u>) from the Engineering Modernisation team.



Photo from a recent tech talk on Biochar production and PFAS removal

References

Accessing Sydney Water Standards

Our standards are available to our staff through our <u>iConnect</u> page.

For our design and delivery partners, they are available through <u>SW Delivery</u> <u>Portal</u>.

For public users, our standards are available for free through our website

Accessing WSAA Codes

WSAA publishes Codes of Practice, which include Sydney Water versions. These are available through their website.

<u>WSAA Codes</u> Sydney Water WSAA Codes

Sydney Water has purchased access for our staff. These documents are available through the links below.

WSAA have also recently updated their process for registration to access their codes. Instructions for setting up an account to access standards is available here: <u>Welcome to WSAA's New Website: Easy steps to set up your account</u>

Contact Us

standards@sydneywater.com.au is back!

Providing feedback on our engineering standards is key to ensuring they meet user needs and are continuously improved. We welcome constructive feedback at any time.

Please use this email address if you have any feedback on our standards. For general enquiries please follow this <u>link</u>. All project enquiries should be made through your project manager.