



North Head

Water Resource Recovery Facility

Our wastewater system works behind the scenes to protect the environment and the health of our communities.

The **North Head Water Resource Recovery Facility** (previously known as the North Head Wastewater Treatment Plant) serves over one million Sydneysiders: from Seven Hills in the west, Yagoona in the south, and Ku-ring-gai and Collaroy in the north.

This newsletter provides an update on what's happening at the North Head facility, including:

- the Biosolids upgrade project
- other upgrades at North Head
- the Northern Suburbs Ocean Outfall Sewer (NSOOS) rehabilitation project.

Biosolids upgrade project

Construction for phase one of the North Head Biosolids project started in November 2021.

Relocating the cogeneration engine

One of our first activities for the project was to relocate one of the two cogeneration engines to allow room for the new digesters to be built. This involved:

- demolishing the existing concrete slab
- excavating and preparing the area to lay the new foundations
- forming and pouring the new concrete slab and pavement
- relocating the existing cogeneration engine and other associated equipment to the new location using a large crane
- installing new electrical cables
- upgrading the cogeneration engine to capture and reuse energy produced to heat the digester.

What's a cogeneration engine?



We have two cogeneration engines at our North Head facility that meet some of the facility's energy needs. We capture biogas from the anaerobic digesters and use it to power a combustion engine that drives an electrical generator. This helps us to reuse the energy produced by the facility.

Building two new digesters

There are currently three digesters at our North Head facility that work to break down and stabilise the organic solids (sludge). Our digesters process the sludge and convert it into a safe, and nutrient rich fertiliser (biosolids) that can be reused on farms.

As part of the Biosolids upgrade project, we're building two new digesters to increase the processing capacity of the facility from 40 tonnes to 70 tonnes of sludge per day by 2043.



We're building two new digesters at our North Head facility

Building the new digesters will take about nine months to complete. The work will be done in stages and involves:

Preparing the area

We need to excavate and prepare the area for the new foundations to be laid.



Installing the base

To build the base of the digesters, we'll install the formwork and reinforcement first, and then pour the concrete to form the base of the two digesters.



Installing the walls and roof

The walls of the digesters are 15 metres high, so we need to pour the concrete walls in three 5-metre sections for each digester.

Once the walls are complete, we'll install more formwork and reinforcement and then pour the concrete to form the roof of the digesters.



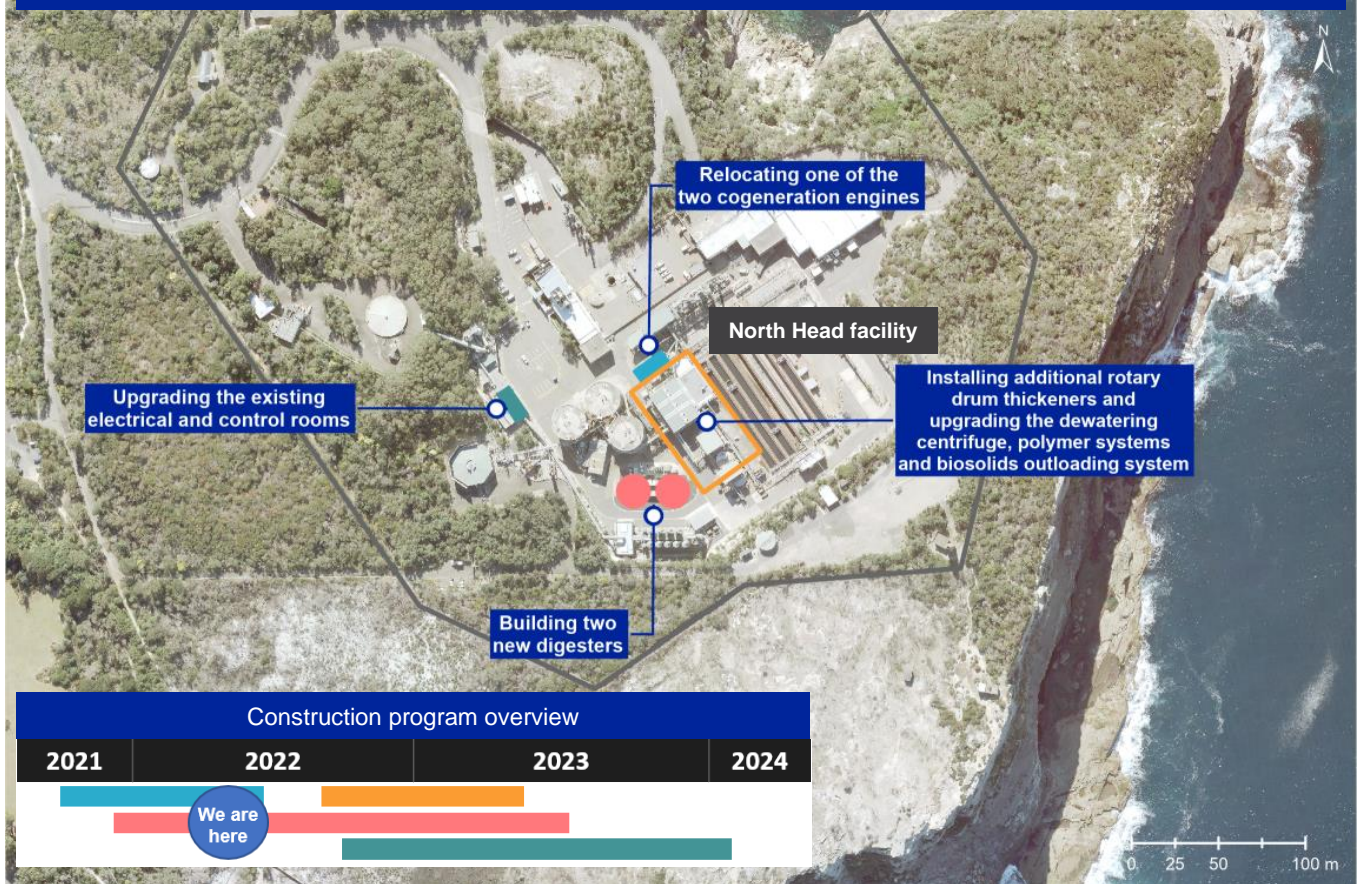
Work hours

The North Head facility operates 24 hours a day, seven days a week. Our standard approved hours for the Biosolids project are **7 am to 6 pm Monday to Friday** and **8 am to 1 pm Saturdays**, and most of our work will be done during those times.

Over the course of our construction period, there will be certain activities that require oversized equipment and vehicles such as cranes to travel to and from site. Sometimes these will need to be transported outside our standard work hours when the roads are quiet, in line with Transport for NSW requirements.

We're committed to being a good neighbour and reducing noise and vehicle movements for the community. **We'll let directly impacted residents know in advance** if we need to bring oversized vehicles or equipment to site outside our work hours.

Improving processing of biosolids at the North Head facility: Phase one of the Biosolids upgrade project



Concrete deliveries

Normally, our deliveries are scheduled to avoid school zone hours (between 8 am and 9:30 am and 2:30 pm and 4 pm).

However, on the days when we pour concrete for the new digesters, this won't be possible. This is because we need regular deliveries of concrete throughout the day, so there will be frequent truck movements to and from the facility on our concrete pour days.

Over the course of construction, there will be about **10 days between June 2022 and March 2023** when we'll need regular deliveries of concrete throughout the day. The first large concrete pour is planned for **Thursday 9 June 2022**.

Other upgrades at North Head

When it rains, stormwater can get into our wastewater pipes and the system can overload. This can cause wastewater to overflow into local waterways as well as on private properties, including inside homes.

The **Northside Storage Tunnel** stretches 16 kilometres from Lane Cove to our North Head facility, and stores wastewater and stormwater that would otherwise overflow into the environment or homes during heavy rain.

The tunnel can store 500 million litres of water, which is transported to the North Head facility where it's treated and discharged to the deep ocean outfall.

There are two pumps inside the Northside Storage Tunnel at our North Head facility. The speed of these pumps is controlled by Variable Speed Drives (VSDs) which are critical in keeping the facility running reliably.

These VSDs have performed well over the past 22 years. As they are approaching the end of their design life they are due for replacement. To do this, we need to replace cabling that descends **160 metres** into the tunnel, below the surface at North Head.

Our team are using a specially designed abseiling system to replace the cabling in the tunnel. Our work is expected to finish in late 2022.



Our crew using specialised abseiling equipment to replace cabling that descends 160 metres below the surface

Northern Suburbs Ocean Outfall Sewer (NSOOS) rehabilitation

The NSOOS is a major wastewater tunnel that collects wastewater from Sydney's north and north western suburbs and transports it to the North Head facility. It was built progressively between 1916 and 1933 and services about 25% of the wastewater from the Sydney basin.

Major 'once in a generation' rehabilitation work on the NSOOS is underway. The work involves entering the tunnel, up to 70 metres below the ground, to remove silt and debris that has built up over the years, and to resurface the walls and roof of the tunnel.

This work will increase capacity of the NSOOS, assist in preventing both dry and wet weather overflows as well as strengthen the NSOOS and extend its operational life.

More than six kilometres of tunnel has been desilted and rehabilitated so far, mainly between Lane Cove and Cammeray. The next section of tunnel to be desilted and rehabilitated is between Cremorne and The Spit. This is expected to finish in late 2024. In

the coming months, we'll also begin community consultation and planning to prepare for the section of the NSOOS that follows between Clontarf and North Head.



Relining the NSOOS

To find out more

Biosolids upgrade project

For more information and updates on the project, visit our Sydney Water Talk page at www.sydneywatertalk.com.au/nh-biosolids

You can also contact our team directly on **1800 943 119** or email confluence@sydneywater.com.au

North Head operations

For general enquiries related to the North Head facility, you can contact the North Head Hub on **9934 4423** or email northheadhub@sydneywater.com.au

NSOOS rehabilitation project

For more information and updates on the project, visit our Sydney Water Talk page at www.sydneywatertalk.com.au/nsoos

You can also contact our team directly on **0475 767 272** or email scott.mckellar@sydneywater.com.au