

Kamay Ferry Wharves

Deep dive: Wharf construction

July 2023



The NSW Government is replacing the previous ferry wharves at La Perouse and Kurnell as part of the Kamay Botany Bay National Park, Kurnell Master Plan.

It takes specialised equipment to build a wharf – some of which you may not have seen before. This information sheet provides an overview of our work including the creation of temporary access structures, piling and how we will use construction barges and cranes.

Temporary access structures

To build the wharves at Kurnell and La Perouse, we need to install a temporary structure that provides a level and sturdy base for equipment to operate from. This structure, called a causeway, reaches into the shallow waters to allow machinery to safely access work areas on the land and water. It also provides a place to transfer materials between the land and waterside.

The causeway is made of several layers. The bottom layer is made of a geotextile material – a bit like a blanket – which provides a barrier between the existing ground and the rest of the materials used to build the causeway.

The outside of the causeway is then formed by layering net bags filled with quarry rocks (like the cages of rock you see on the side of the road). These are used to build up the temporary retaining wall of the causeway on both the land and in the water. Large concrete blocks are placed as the upper layer of the temporary retaining wall, above the water layer. Coarse ballast rock (like what you see under railway tracks) is then used to fill the causeway.

For the surface, a layer of road base is compacted down to provide a flat, level area for equipment and people to work from.

At Kurnell, we will also install a temporary jetty structure off the causeway, as the water is too

shallow for a barge to operate in the inshore area.

Removing the causeway

Once we are finished work in that area the causeway and temporary jetty will be completely removed. The rocks, concrete blocks and geotextile material will be removed from site and the area reinstated.

Barges

A lot of our work will be done from the water, so we will use specialised marine vessels called barges to operate equipment from and to transport materials and equipment to site. The majority of barge movements, or repositioning activities, will be assisted by tugboats.

Barges are a very stable vessel with a flat bottom. They stay in position via legs (called spuds) that sit on the seafloor, and/or anchors. The location of the legs and anchors are planned and deployed using surveys to ensure they do not impact sensitive flora.

Different sized barges will be used throughout the work to support equipment such as cranes and piling rigs. Some will move between Kurnell and La Perouse depending on the work sequence. Typically, there will two to three main barges operating at each site supported by additional smaller support barges and vessels.



Image of barges and crane installing a pile at La Perouse.

Cranes

Several cranes will be used to help construct the wharves. A crane is a machine that uses a long arm (called a boom) and cables to lift and move objects at site. They are also used to assist with piling work (more on this below).

At each site there will be a crane operating from the land and a crane operating from a barge on the water.

Cranes will be managed to ensure they are safe during high winds or stormy weather.

Piling

Piles are long steel cylinders (like posts) that are inserted into the ground to hold up the wharf structure. There are 46 piles for the La Perouse Wharf and 48 piles for the Kurnell Wharf. Each pile is around 760mm in diameter and varies in length depending on where it is being installed.

Piling is the process of installing the steel piles into the ground and seabed. We will use a variety of piling methods during the project – this is because of the different types of soil and ground conditions across the sites.

Bored piles

This involves drilling a hole or ‘socket’ into the rock using a drill rig. The drill is like a large corkscrew, as it drills into the ground material is collected and lifted out of the hole, then removed from site. A crane then lifts and places the steel pile into the hole. Concrete or grout is used in the socket to cement the pile in place.

Driven piles

This method involves using vibratory and/or impact hammering to advance or ‘drive’ the pile into the ground.

For some piles, we may also need to drill out through the bottom of the pile with the drill rig, to enable it to then be driven further into the ground.

Piling work will take place for around five months, although piling work will not be continuous during this period. Factors such as the weather, ocean swell, the type of piling, location, ground conditions and work priorities will influence the piling schedule.

How noisy will piling be?

Some of the piling work will be noisy, particularly the impact hammering work, although this work is usually the shortest part of the installation process.

The noise level experienced by people will depend on how close you are to the work area and factors such as the ground and weather conditions.

We will not conduct noisy piling for more than three hours at a time with a one-hour break (respite period) provided before we start again.

Will I feel vibration?

You may feel vibration during our drilling and piling activities. How this is experienced is dependent on how close you are to the work area, and factors such as ground conditions. Vibration is a normal occurrence for this type of work and should not be a cause for concern.

Vibration and noise monitoring will be carried out during the works and in accordance with the approved Noise and Vibration Management Plan.

For more information contact our team on the details below.

Safeguarding the environment

We will start piling work slowly (called a 'soft start procedure') to help encourage marine life to disperse from the area as work begins.

Marine Mammal Observers will keep an eye out for marine mammals during piling work and stop work if any come close to the work zone.

Other management methods may include:

- turbidity/water clarity monitoring
- localised 'silt curtains' in the water for certain activities to contain sediment disturbance, if produced
- erosion and sediment controls for land-based work including silt fencing to prevent sediment runoff from site areas
- Syngnathid/seahorse and Black Rockcod inspections.

Contact us



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