PTP ALLIANCE

OAKLANDS CROSSING GRADE SEPARATION

STATION CONSTRUCTION FACT SHEET

December 2018

The Oaklands Crossing Grade Separation Project will improve safety for all road users and ease traffic congestion by lowering the railway station and rail line under the road and removing the level crossing at the intersection of Morphett and Diagonal roads.

This fact sheet explains what the new lowered Oaklands Railway Station will look like and how it is constructed.

A bright and modern station

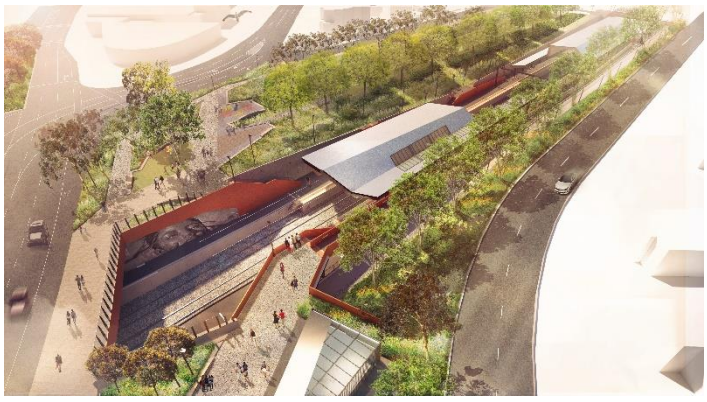
The new station will be lowered approximately eight metres below ground level and located immediately to the south of the existing station. The platform will be 160m long, which allows all doors on a double electric train to open with direct access to the platform.

The station includes textured concrete walls, with a burnt orange steel cladding that wraps around the edges of both bridges, and extends down onto the platform and stair accesses. The canopy is black steelwork, with plywood on the underside and skylights to create a bright and modern station.

Extension of the station canopy

The project received community feedback requesting a larger canopy. This was explored in the design process and the canopy has been extended to cover approximately 75% of the station.

The openings and skylights in the canopy will allow natural light to enter the station and provide visibility into the station from the plaza areas. Additional lighting will be installed at the station and surrounding plaza area, along with CCTV security.



Artist impression station overview

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Excavating the lowered station

It is estimated that a total of 70,000 cubic meters of earth will be removed to make way for the new lowered station.

As the area is excavated in stages, foundations, footings and retaining walls are constructed. The station is supported by columns – or piles – that are drilled into the ground using a CFA piling rig and injected with concrete and a supporting steel frame.

Excavation taking place to make way for the lowered station

Installing the retaining walls

Retaining walls are required on both sides of the lowered station for stability and to form the side walls. Walls will be installed using long soil nails that are drilled two metres deep into the earth walls and set in place with concrete.

Steel mesh and reinforcements will be attached to the nails and concrete – shotcrete – is sprayed onto the surface at high pressure to create the wall.

Soil nailing

Shotcrete wall

Platform and canopy footings

Once the area has been excavated low enough, concrete footings are installed below the surface. The footings will support the station precast ramp-walls and steel columns that hold up the canopy roofing.

There are a total of 40 concrete footings that will support the roof canopy.

Platform construction

Construction of platforms for the new lowered station begins with the installation of precast panels.

These panels were cast from concrete in reusable moulds, and left to dry and cure offsite. Panels are transported to the construction site and lifted into place using cranes.

The Adelaide and Seaford platforms are formed using 'L' shaped precast panels, which will sit either side of the rail tracks to become the visible walls of the platforms.

Once each precast panel has been lifted into place, electrical and data cabling will be fed behind the panels and backfilled to create a flat level that can be walked on. Later, a top coat of concrete will make it suitable for future rail passengers using the station.

Precast panels in the new station area

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Roof canopy columns and steelwork

To install the roof, large steel columns and beams are installed along the length of each platform, similar to the posts that hold up a veranda or pergola, but on a larger scale. These will be used to hold up the station roofing and canopy.

Columns and steel highlighted in blue

Final platform and ramp works

With the platform precast panels in place, the backfill complete, and roof columns installed, concrete is applied to all walking areas of the station to make it suitable for pedestrians and cyclists.

This includes the surface of each platform, as well as the ramps, stairs and pathways.

Canopy and roofing installation

The canopy steelwork is fabricated off side and lowered in place in segments using a crane. Once the canopy steelwork is complete, the roofing will be installed.

The roofing is made up of steel and clear plastic sheets. The canopy has a timber ceiling that will be constructed as the roofing is installed.

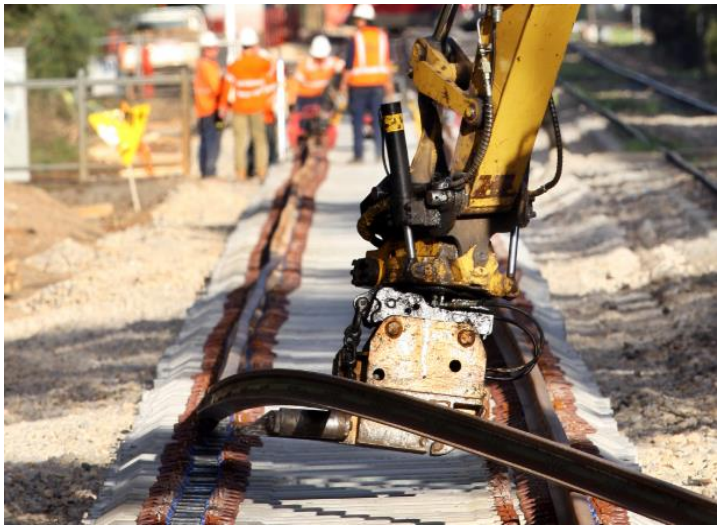
New railway track installation

Once the roofing and canopy are complete, new railway tracks will be constructed starting with crushed stone ballast laid throughout the track area to support the track and aid stormwater drainage.

Concrete sleepers are laid over the top of the ballast and long lengths of steel rail are offloaded on top of the sleepers. The rail is clipped to the sleepers and clamps are then used to attach the long lengths of steel together.

Additional ballast is spread over the top and compacted using rail tamper and rail regulator machines. This will ensure that the railway rail track is supported, stable, and at the required height for the station platform.

Final welds are undertaken once everything has been checked and align.



An example of steel rail being offloaded and laid onto concrete sleepers

Fit-out of services

With the main construction of the structures complete, the next stage is to install the services (ie communications, water), fixtures and fittings.

Fixtures and fittings include the installation of electronics, such as lighting, CCTV, and the passenger information screens.

Finishing painting and furniture installations

The final stage of the station construction will be painting, as well as any completion and tidy-up works. Furniture will be installed, including benches, bins and hand rails.

Once the new lowered station is complete the old station will be removed and landscape the surrounding area will begin.

More information

To find out more about the Oaklands Crossing project and register for email updates, please contact the project team using the details below.

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