

# HOW WE'LL BUILD THE RAIL BRIDGE



*Pier and headstock installation during construction at the Reservoir Level Crossing Removal Project*

The Victorian Government is removing the level crossings at Oakover Road, Bell Street, Cramer Street and Murray Road in Preston, and building new Bell and Preston stations.

Around 82,000 vehicles pass through these level crossings on the Mernda line each day, with the boom gates down for up to 40 per cent of the morning peak.

These level crossings will be removed by raising the rail line over the roads by the end of 2022. The new open space being delivered under the two-kilometre rail bridge will be ready for locals to enjoy in 2023.

Following the success of the Reservoir Level Crossing Removal Project, we will use the same innovative 'monopiling' technique to build the new rail bridges. To build a rail bridge, specialised machinery is needed. As with any major construction this can result in noise and vibration.

Read on for more information on how we'll build the new elevated rail and what to expect.

## Did you know?

The Mernda line has unique constraints as it cannot close for longer than 12 consecutive days due to a requirement for trains to regularly access the Epping maintenance yard. The team will build most of the city-bound rail bridge with little disruption to train services.



# MONOPILING



L-Beam installation on the Reservoir Level Crossing Removal Project

The monopiling technique involves laying down the foundations of the new rail bridges. Monopiling is ideal for Preston's soil and rock material and low groundwater table.

Traditional rail bridge foundations consist of a cluster of small diameter piles below ground, topped with a larger concrete 'pile cap' to support each bridge column. Monopiling is a single pile, and no pile cap – which lessens time and labour.

There are three different piles to be installed for the foundations of the two rail bridges at Preston.

- 100 monopiles at 2.1 metres in diameter
- 28 piles at 1.05 metres in diameter
- 14 piles at 1.2 metres in diameter

When piling ends, the rest of the bridge and elevated station structure will take shape above ground for everyone to see.

## Piers

Bridge piers are the upright support for a structure. At Preston you will see 114 piers installed to support the structure of the two rail bridges and the new Bell and Preston stations.

## U-troughs

The bridge sections, known as U-troughs, are made up of two L-shaped beams installed on top of the headstocks. The two beams are joined with concrete to form a U-shape. At Preston 232 L-shaped beams will be joined to form 116 U-troughs – this will become the base where we lay the train tracks and ballast. The graphic opposite shows you what you'll see as construction on the new rail bridges and two stations continues in Preston.

## What to expect

Safety is our number one priority, therefore during the construction of the rail bridges and new stations, at times we'll need to close the Mernda line. During this time, buses will replace trains. The closures will be no longer than 12 consecutive days.

In 2022, we will close Bell and Preston stations for a period of time to create a safe environment for the project workforce and community while we complete the rail bridge and build sections of the new modern stations.

During this time, to keep the Mernda line open, trains will operate on one single track between Thornbury and Regent stations.

We'll be out to the community with more information closer to the date.

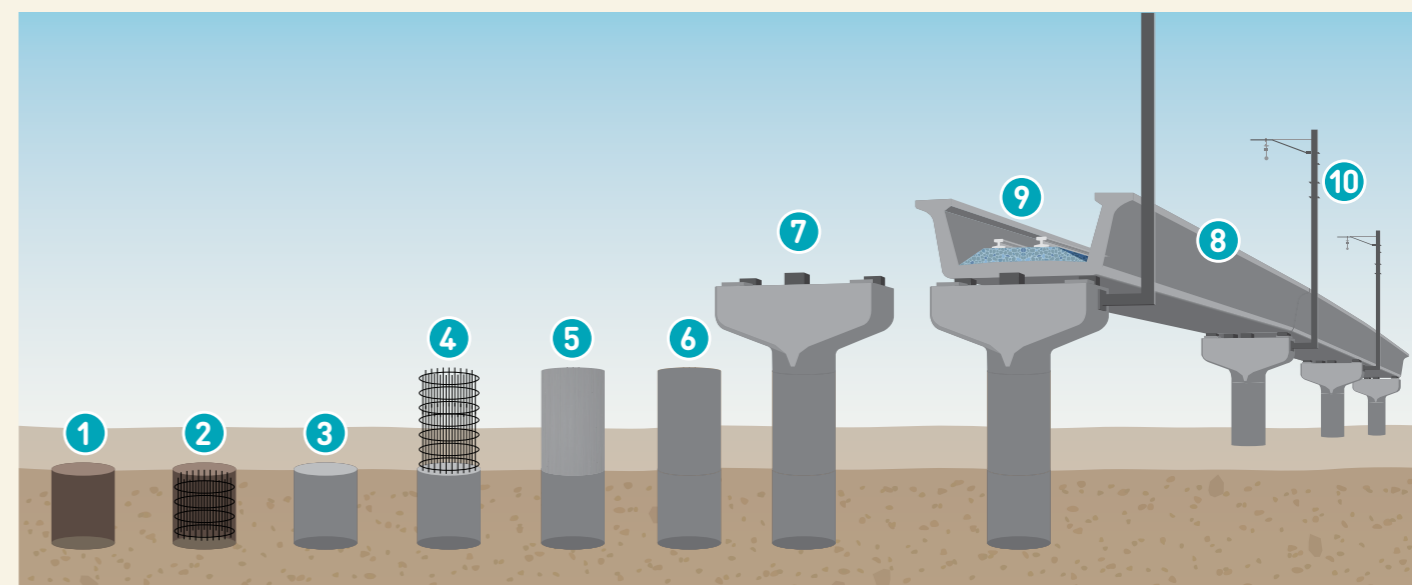
To view our disruptions online visit [levelcrossings.vic.gov.au/disruptions](https://levelcrossings.vic.gov.au/disruptions)

## More Information

While construction is underway, there will be changes to the way you travel. Sign up for regular project updates at [levelcrossings.vic.gov.au/subscribe](https://levelcrossings.vic.gov.au/subscribe) or register for SMS updates by texting **PRESTON** on **0428 581 917**.

## Bridge construction at Preston

- 1 Foundation works, known as piling, start by drilling holes up to 30 metres deep.
- 2 A cylindrical, steel reinforcement cage is inserted into the hole.
- 3 The hole is filled with concrete to form a pile.
- 4 The piers, or bridge columns, are built on top of the piles, starting with a steel reinforcement cage.
- 5 A steel mould is placed around the cage.
- 6 Concrete is poured into the mould and cured to create the pier.
- 7 Pre-cast headstocks are delivered to site and installed on top of each pier. Headstocks support the bridge spans and transfers the bridge load to the pier below.
- 8 The bridge sections, known as U-troughs, are made up of two L-shaped beams installed on top of the headstocks. The two beams are joined with concrete to form a U-shape.
- 9 Train tracks and ballast are laid.
- 10 Signalling, communications and overhead power equipment is installed.





# FAQS

## How many piers and U-troughs are needed for the rail bridges?

The rail bridges will require 114 piers with 116 U-troughs, which are made up of 232 L-beams.

## How high will the rail bridge be – from the ground to the base of the rail bridge?

- **Oakover Road:** 5.1 metres
- **Bell Street:** 7.6 metres
- **Cramer Street:** 6.8 metres
- **Murray Road:** 6.8 metres
- **Bell Station:** 6.3 metres
- **Preston Station:** 5.7 metres

## Will the works be noisy?

To build the rail bridge, specialised machinery is needed. As with any major construction, this can result in noise and vibration.

The project team monitors noise and vibration levels to make sure they are within the Environment Protection Authority (EPA) noise control guidelines.

## Will there be 24 hours works during construction?

Yes. At times we'll need to work during the night. When 24-hour work is anticipated, we'll provide you with plenty of notice.

## What are the respite and relocation options?

Our relocation team will work individually with impacted residents to provide detailed information about the relocation process and to discuss their needs.

If you believe the works are too noisy and affecting your ability to sleep, please call a member of the project team on 1800 105 105.

## Will the Mernda line be closed during construction?

At times we will close sections of the Mernda line, with buses replacing trains. The closures will be no longer than 12 consecutive days. We'll provide you with plenty of notice before any closures.

*Piling works at Reservoir*



## CONTACT US

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