



Smart, experienced team versatile and efficient fleet

Rob Carr Pty Ltd was one of Australia's first contractors to utilise microtunnelling technology.

With over 23 years of trenchless construction experience since 1999, we have used microtunnelling techniques to successfully construct tunnels for pipeline infrastructure beneath major roads, railways, waterways and environmentally sensitive areas.

We typically use two specific techniques to undertake trenchless construction—slurry pressure balanced microtunnelling and pilot auger soil displacement. Either is used to address access challenges, site footprints, ground conditions, minimise urban disruption or, to efficiently cover large distances. Both techniques are used to construct critical water, wastewater, drainage, or energy utilities infrastructure.

Rob Carr owns a fleet of 30 microtunnelling machines able to install pipe diameters up to 2200mm OD covering all ground conditions. The machines are supported with wide ranging ancillary items in the form of control cabins, jacking frames, slurry separation, gantries, power generation and guidance equipment.

The fleet consists of Iseki Unclemole, Iseki Unclemole Super and Herrenknecht AVN machines, covering all ground conditions from soft alluvial saturated soils through to high strength rock. Both brands have a reputation for versatility, efficiency and a high level of performance.

Slurry Pressure Balance

The slurry pressure balanced technique can be used in all ground conditions and greatly limits the potential for over-excavation during tunnelling operations. Slurry pressure balanced machines are commonly used to construct pipelines between DN300 and DN2100 over short or long distances including under live rail, roads, airport runways and water ways. The slurry generated and recycled by the tunnelling process is used to counterbalance earth and hydrostatic pressure at the face of the machine to provide immediate tunnel support. The technique is especially beneficial in ground consisting of a high water table. As the machine progressively moves forward constructing the tunnel, rigid jacking pipe is immediately thrust behind the machine to ensure the tunnel is lined with structural pipe, ensuring the integrity and full continuous support of the tunnel at all times.

Pilot Auger Soil Displacement

The pilot technique is used in soft, dry or wet non supporting soils for small diameters, typically DN150, DN225 and DN300. The pilot machine has a very small footprint and can comfortably fit in a back or front yard setting. The machine is commonly used to construct pipelines up to 90m in length in such settings for large backlog or infill sewer projects where the technique is advantageous in minimising disruption to local residents and business owners. The technique requires a small diameter pilot rod to be pushed through on line and grade from the launch to reception shaft. Once through, a casing pipe with auger attached is used to remove material along the alignment with the carrier pipe being progressively installed behind the casing to construct the pipeline. This method provides a robust trenchless solution along with an excellent value for money solution on smaller sized pipelines.



Perth WA

Quinns Main Sewer Extension

Client: Water Corporation

Works Completed: The project involves the design and construction of the Quinns Main Sewer Extension (Stage 2), allowing for the conveyance of wastewater flows from Ellenbrook, running through Clarkson and Neerabup National Park to the Alkimos wastewater treatment plant. The 1.9km, 1,800mm internal diameter PVC lined concrete sewer, consists of 1.4km of microtunnelling using a Herrenknecht AVN. Drives range between 188m to 637m, with the longest drive following a curved alignment and traversing under the Mitchell Freeway and Joondalup Railway Line. The depth of the sewer ranges between 3.5m and 27m and will be constructed through ground consisting a combination of sand and soft-hard pinnacle limestone. The shafts will be constructed using a combination of in situ and pre cast caisson techniques with the deepest shaft converted into an intricate permanent vortex structure.



Melbourne VIC

CBD Sewer Augmentation Stage 2A

Client: Greater Western Water

Works Completed: To meet the growing demand due to major residential growth in the Spencer St area, the CBD Sewer Augmentation is a four-stage project that will enable City West Water to provide the Melbourne CBD with a second sewer outlet. The second stage, comprises the augmentation of the new outlet sewer along Lonsdale St in Melbourne's CBD, between Spencer St and Elizabeth St. Rob Carr was engaged to design and construct a 1499mm OD GRP pipeline over two drives using slurry pressure balanced microtunnelling along Lonsdale St, from a deep caisson launch shaft 23m in depth at the intersection of William St and King St, heading 350m west in a single drive towards Spencer Street and heading 550m in a single drive east towards the intersection of Lonsdale St and Elizabeth St, whereby Rob Carr connected the new sewer to the existing system, limiting disruption to the CBD.



Sydney NSW

Green Square Stormwater Drain

Client: Drying Green Alliance

Works completed: The project site was located within a flood prone dense urban area in Sydney consisting of restricted hazardous fill material and a high-water table. Meeting the challenge head on, Rob Carr used multiple slurry pressure balanced machines to combat the difficult ground. Over 24 months, Rob Carr constructed 4km of DN1800 concrete drainage pipeline in twin and triple parallel formation over a 1.3km section of the alignment. In one particular area, Rob Carr constructed three 286m long parallel tunnels on a curved alignment to avoid critical existing power infrastructure. Rob Carr self-performed the construction of five in-situ concrete caissons between 10m and 12m in diameter, as well as eight other conventionally constructed shafts for tunnelling equipment access and construction of key complex drainage infrastructure to complete the flood mitigation works leading to Alexandra Canal in Zetland.



Sydney NSW

O'Dea Ave Stormwater – Waterfall

Client: Crown Group

Works completed: In response to Crown Group's challenge to build key stormwater infrastructure, Rob Carr put forth an alternative solution to avoid a myriad of underground services and keep Waterloo's O'Dea Avenue continuously operational. With services lying up to 0.45m below ground and no more than 0.3m above the new stormwater transition pit, which would also receive the MTBM, Rob Carr constructed the culvert by changing the design and building seven parallel 820mm diameter tunnels 350mm apart, with clearances no more than 80mm between services. Each tunnel was bored within tolerance below a myriad of existing services (including the main fibre optic to the USA) to connect two transition pits for the stormwater drain below Crown's Waterfall development. The project was delivered two months ahead of time, with no interruption to existing operations.