ALUA Project- Water Main Upgrade and Relocation

Project: ALUA –Perth Armadale Railway Line Upgrade & Water Main Relocation

Customer: Saltire Infrastructure

End User: Water Corporation

Location: Beckenham, Cannington & Hamilton, WA

Completion: 2024

Supplied: MSCL pipes – 1219 OD SSJ & 1016 OD Sintalock® I joint type

Project Need

The Armadale Line Upgrade Alliance (ALUA) is a flagship METRONET initiative in Western Australia, aimed at transforming the Armadale rail corridor in Perth, WA. The project involved removing six level crossings, constructing approximately 4 km of elevated rail, delivering five new stations. The Armadale Line is Perth's busiest rail line with 13,000 regular daily users, with this project being Perth's first major elevated rail design aimed to improve public transport safety and accessibility. The line runs from the outer suburb of Armadale into Perth's Central Business District, cutting through multiple suburbs at road level.

To enable the rail works, significant trunk water mains relocations and upgrades were required in the Beckenham, Cannington, and Hamilton areas. Existing water infrastructure needed to be repositioned to accommodate the elevated rail construction while maintaining uninterrupted water supply to surrounding communities. Delivery of Mild Steel Cement Lined (MSCL) pipes represented a critical path activity, as all civil and rail works were dependent on completing this scope. Steel Mains supported METRONET's Armadale Line Upgrade by proactively engaging with the service team to ensure all installation was on schedule and planned to minimize disruption to the local communities.

Solution

Steel Mains partnered with Saltire Infrastructure to supply MSCL pipes for the Water Corporation network upgrade. Steel Mains successfully manufactured and delivered ~250m of 1219 OD SSJ joint type pipes and 841m of 1016 OD Sintalock® I joint type pipes, within the agreed timeline between 2023-2024. This enabled critical water infrastructure

installation and water main relocation without service disruption to the local community due to the efficient and timely delivery of Steel Mains pipes. Other works completed on this project included:

- Excavation and removal/grouting of old and redundant pipelines
- Installation of scour valves, butterfly section valves, air valves, all valve risers & furniture across the entire pipe network within the scope.
- Hydrostatic pressure testing, chlorination and disinfection of new water mains.
- Installation and commissioning of voltage mitigation and cathodic protection for the MSCL pipeline.
- Tie-in to existing water infrastructure network and energisation of new pipework.
- Restoration of pavements including roads, footpaths and verges.

Steel Mains was able to ensure enhanced safety during construction through pre-roping and supply of our advanced pipe joint systems, reducing confined space entry risks for construction workers. The use of Steel Mains piping for the water main upgrade improved corrosion protection and ensured long-term durability of the pipeline network, demonstrating Steel Main's capability to manufacture MSCL pipes in multiple grades for various types of construction works. Due to the efficient and timely installation process of Steel Mains pipe, Water Corporation was also able to achieve overall lower project costs for the upgrade, with Steel Mains advanced installation techniques of Sintalock® I jointing system minimising disruption during construction.

Steel Mains' MSCL piping technology proved to be the most suitable solution for the Armadale Line water infrastructure upgrades, delivering strength, durability, and constructability for a complex, high-risk rail environment. The ability to supply multiple pipe grades and advanced jointing systems, including Sintalock® I, enabled efficient installation, reduced confined space risks, and minimised disruption to the surrounding community. Enhanced corrosion protection and long-term performance ensured asset longevity, while timely delivery supported critical path works and maintained water supply continuity. Collectively, these advantages contributed to safer construction outcomes, reduced project costs, and the successful delivery of essential infrastructure.

Achievement

Steel Mains partnership with Saltire Infrastructure for Water Corporation successfully delivered MSCL pipes for the efficient and timely installation of the network upgrade. Through proper engagement during the design and installation phase, all water construction was completed before the shutdown of the Armadale Line commencement, ensuring there was no impact to the critical path of railway structural pillars installation when tested during the line closure. Steel Mains' early contractor involvement, advanced jointing systems, and proven delivery capability mitigated construction risks and supported seamless integration with rail works. Steel Mains helped to deliver long-term durability of water infrastructure to the surrounding communities, providing improved water supply reliability for both residential and commercial areas. The quality and advanced technologies of Steel Mains piping have therefore been integral in supporting regional growth through trusted water construction and infrastructure, making the water main upgrade a successful component of Perth's first major elevated rail design.

Overall, the Armadale Line Upgrade Alliance project responds to a critical need to modernise Perth's busiest rail corridor by addressing longstanding safety, congestion, and infrastructure constraints. Through the removal of high-risk level crossings, the introduction of Perth's first major elevated rail system, and the delivery of new stations and public realm improvements, the project enhances transport efficiency while supporting urban renewal and community connectivity. The successful coordination of complex enabling works, including essential water main relocations and Steel Mains MSCL pipe installation, was fundamental to maintaining service continuity and ensuring the timely delivery of rail and civil works. Collectively, these upgrades demonstrate a commitment to long-term, sustainable transport infrastructure that meets the growing demands of Perth's south-eastern suburbs while minimising disruption during construction.