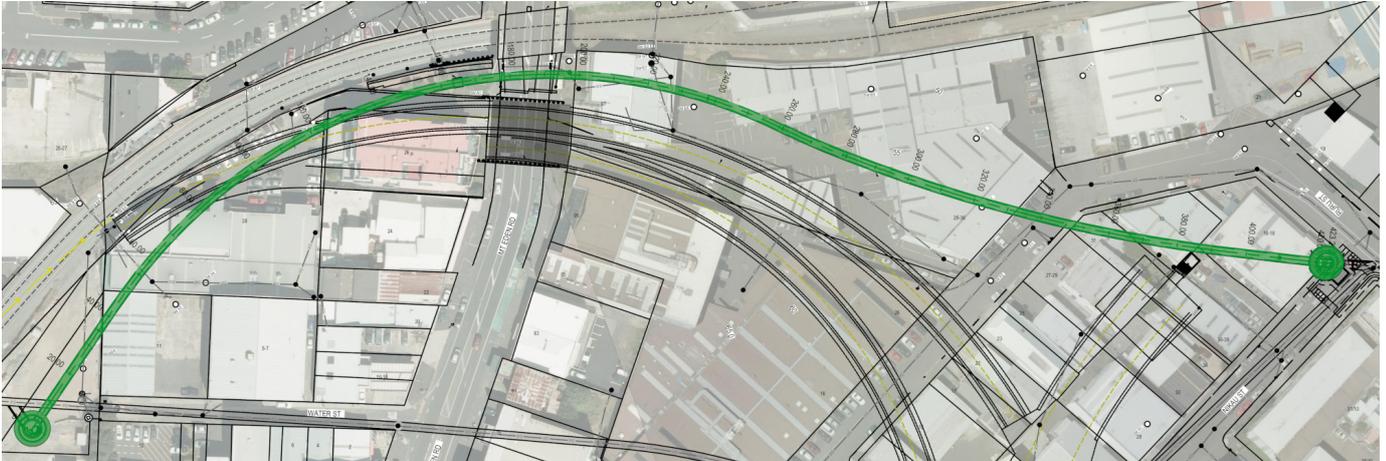


# Tight S-curve eliminates difficult shaft in Auckland NZ



The new construction of the Auckland City Rail Link comprises a railway tunnel, crossing Mt. Eden Road close to the existing Mt. Eden Station. The new tunnel is interfered by an existing stormwater drain, which consequently had to be replaced before the railway tunnel could be built. The original design asked for a microtunnel launch shaft next to the existing Mount Eden Bridge, crossing an existing railway line. The stormwater line was designed to be tunneled in two directions, to the reception shafts at Water Street and Nikau Street. March-Bessac Joint Venture proposed an alternate alignment, launching at Water Street shaft and implementing an S-Curve to avoid construction of the inconveniently located Mt. Eden Shaft. The original two drives were combined to a single one, which required a suitable pipe design and the Hydraulic Joint to provide articulation capacity and high enough jacking force capacity to tackle the curve. Jackcontrol provided the pipe design, structural calculation, Hydraulic Joint and the real time structural monitoring system to ensure the pipe quality during construction.



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## AT A GLANCE

<b>Project name</b>	Auckland CRL C6
<b>Project location</b>	Auckland, NZ
<b>Time of completion</b>	2019
<b>Specialties</b>	Tight space between road, existing and new railway
<b>Total length</b>	423 m / 1388 ft.
<b>Pipe ID</b>	2000 mm / 78.7 in.
<b>Pipe OD</b>	2380 mm / 93.7 in.
<b>Alignment</b>	S-Curve with transitioning clothoids
<b>Min. curve radius</b>	150 m / 492 ft.
<b>Pipe material</b>	Reinforced Concrete
<b>Pipe length</b>	2 m / 6.56 ft.
<b>Geology &amp; groundwater</b>	Sandstone and Siltsone, different decomposition levels (ECBF), Groundwater present
<b>Hydraulic Joint</b>	JC250, single loop, admissible jacking force 7'900 kN
<b>Guidance system</b>	VMT SLS Microtunneling LT
<b>TBM</b>	Herrenknecht AVN2000
<b>Owner</b>	Auckland Transport
<b>Designer</b>	WSP
<b>Contractor</b>	March-Bessac JV