Temuka Water Event

DECEMBER 2017 – MARCH 2018

Ashley Harper, CPEng; FIPENZ

Infrastructure Group Manager

Timaru District Council

TIMARU DISTRICT COUNCIL
Te Kaunihera ā-Rohe o Te Tihi o Maru

OUTLINE

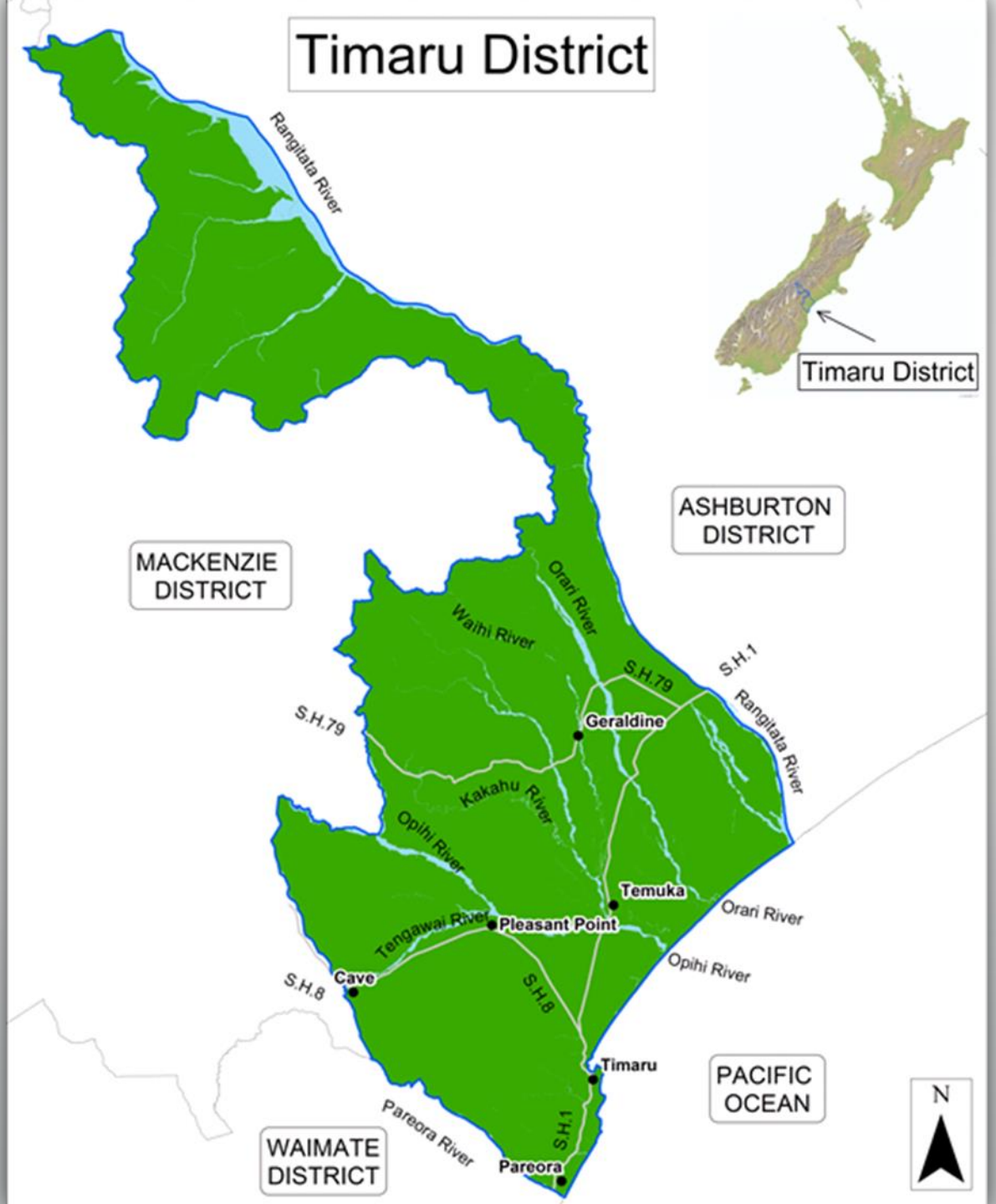
1. Issue Definition
2. Location
3. Timeline
4. Water Safety
5. Design
6. Approvals
7. Contract Model
8. Installation
9. Critical Path
10. Risk Management
11. Commissioning
12. Communication
13. Learnings

1. Issue Definition

In early December 2017 the Temuka Water Supply was found to contain millions of Asbestos Fibres from an unknown source.

Within 114 days the problem was solved by installing a 9km replacement trunk water main.

2. Location


Timaru District
Rangitata River
Timaru District
ASHBURTON DISTRICT
MACKENZIE DISTRICT
Orari River
Waihi River
S.H.79
S.H.1
Rangitata River
S.H.79
Geraldine
Kakahu River
Opihi River
Temuka
Orari River
Tengawai River
Pleasant Point
Opihi River
Cave
S.H.8
S.H.8
Timaru
PACIFIC OCEAN
N
Pareora River
S.H.1
WAIMATE DISTRICT
Pareora

2. Location


Orari
Temuka
Beeby Road
Gipps Road
Polk Road
Unwin Lane
Barker Road
Harrison Road
Muff Road
Buxton Road
Scott Road
Factory Road
Rise Road
Springfield Road
Middleswamp Road
Smithfield Road
Temuka-Orari Highway
McNair Road
Wyndham Road
Grant Street
St Leonards Road
Godley Street
Ewen Road
North Town

3. Timeline

28 November	Calls from the Public – 'Lower Water Pressure'
5 December	'You have Asbestos'
12 December	Decision to install filter
17-20 December	Install/Commission Filter Plant
4 January	Trunk main burst
8 January	Design Workshop
9 January	Contractors Briefing
12 January	Extraordinary Council Meeting -Project to Replace Pipeline Approved • $3.3m estimated cost • Completion prior to 31 March (Easter)

3. Timeline (cont'd)

12-19 January	Pipe Supply Tendering Programme
15-20 January	Pipe Install Tendering Programme
22/23 January	Tenders Let
29 January	Pipes start arriving
29 January	Welding commenced
4 February	Two further pipe bursts
7 February	New Pipe Installation commenced
19 March	80% (7.2km) installed and put into use
29 March	100% (9.0km) installed and in use
30 April	Project substantially completed
31 July	Completion

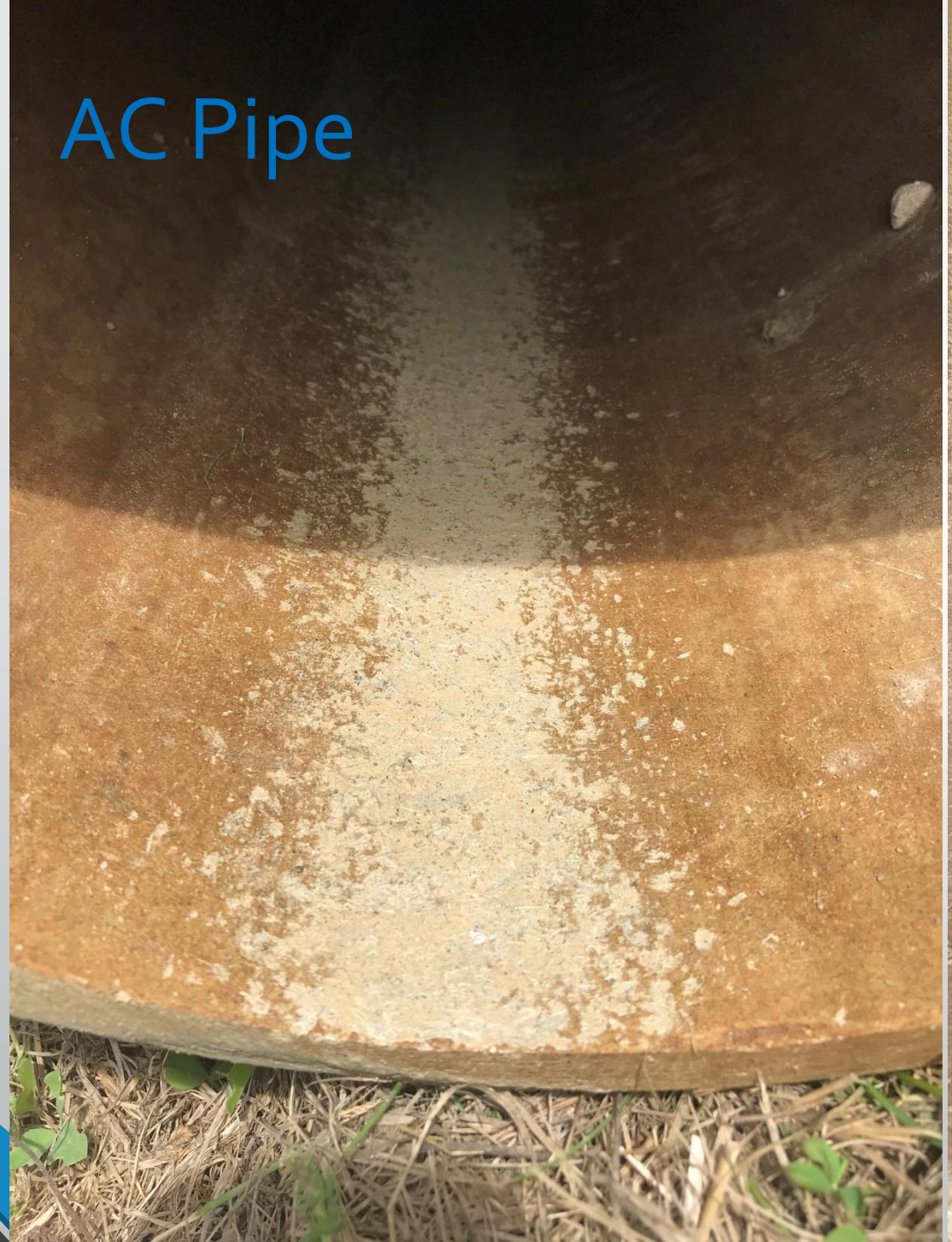
4. Water Safety

- Medical authorities stated and reconfirmed that Asbestos fibres in potable water did NOT compromise water safety
- Static tank of Timaru Water installed at the Temuka Service Centre carpark for resident self service
- Filtration Plant installation gave residents a degree of comfort

Filtration Units

Filtration Plant

AC Pipe



5. Design

- Current Trunk Main
  - 3km 2015 300mm PVC
  - 9km 1964 300mm AC 'Fibrolite' brand
- Options
  - 9km 1 x 300mm PVC
  - 9km 2 x 300mm PVC
  - **9km 1 x 450mm HDPE**
- Features
  - 'In Line' valves @ 1.5km
  - Air valves
  - Sluice valves
  - Metering
  - PRV
  - PSV

450mm HDPE Pipes 29.01.2018

6. Approvals

- Land Entry - Farmers x3
  - KiwiRail
  - NZTA
- Consents - Canterbury Regional Council –unforeseen event
  - TDC `exempt building' work

7. Contract Model

Timaru District Council

- Project Managers , Coordinators, Supervisors
- Supply all pipeline components
- Land entry agreements
- As built drawings
- Testing and commissioning

Contractors

- Weld Pipes
- Install Pipeline
- Install Fittings
- Connect to existing

Suppliers = 6

Contractors = 8

8. Installation

- 4 Zones/4 Contractors
- 4 Connections
- 1.5m max depth
- Avoid - Fibre Optics x3
  - Existing 300mm AC
  - Trunk Sewer – 300mm HDPE
  - State Highway 1

Zone 1

Zone 1:
Pipe Install

Zone 1: Pipe Install

Zone 2

Zone 2: Pipe Install

Zone 3

Zone 3: Pipe Install

Zone 3: Backfilling

Zone 4: Bridge for Pipe

Zone 4: Pipe Install

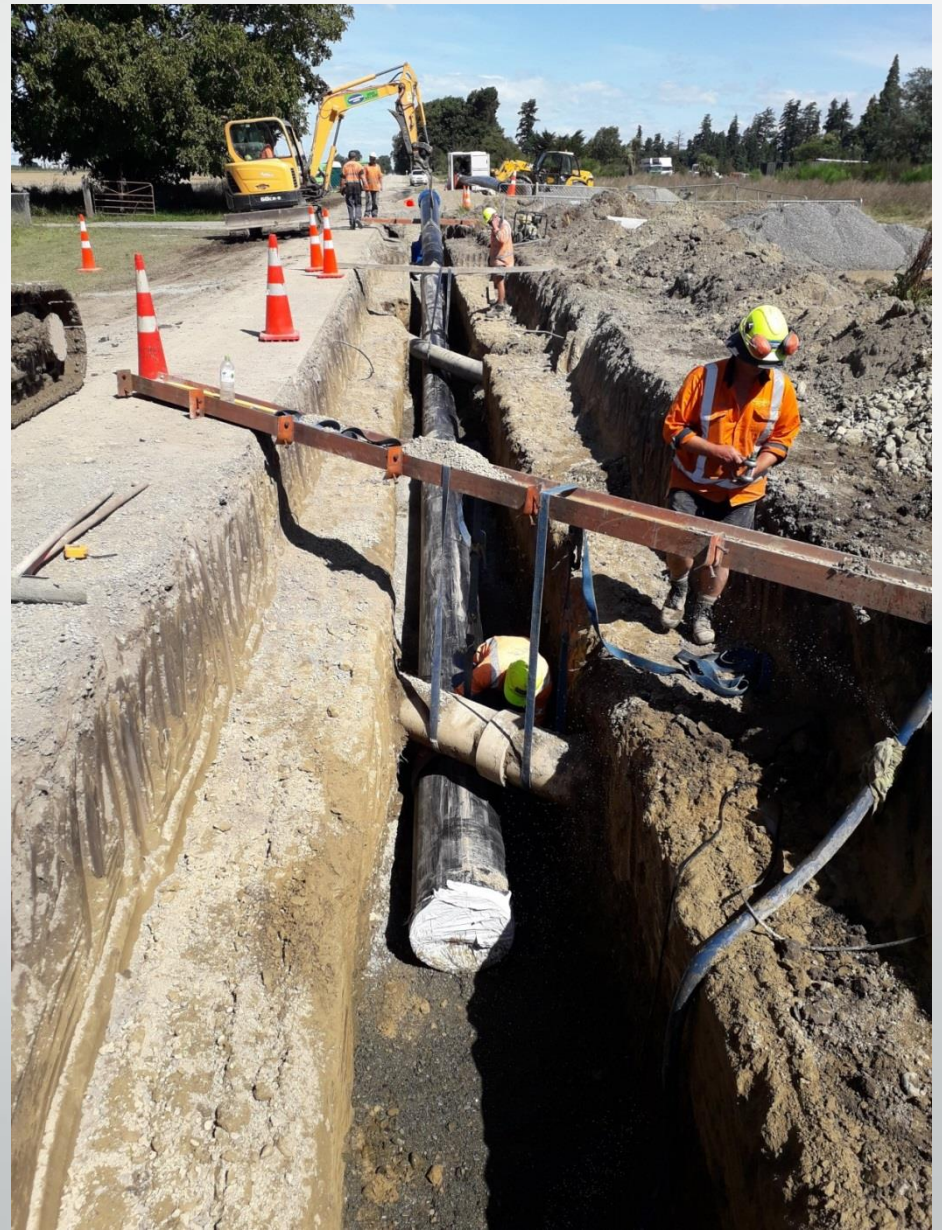
Zone 4:
Trench Testing

Zone 4:

Zone 4:

Zone 4:

Crossing Existing 300mm AC



Zone 4: Ground Water

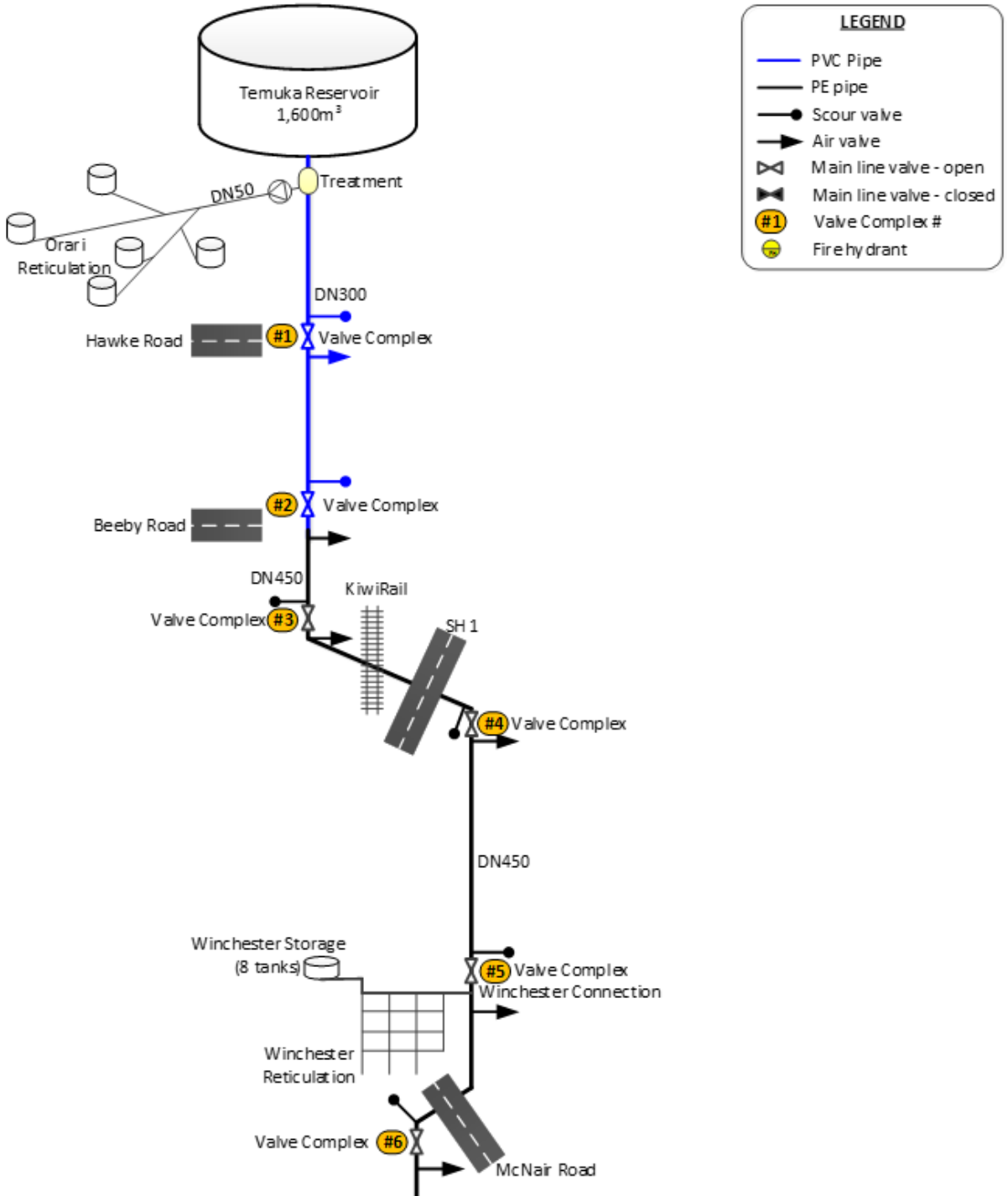
State H-Way 1 / Railway Crossing: Sheet Piling

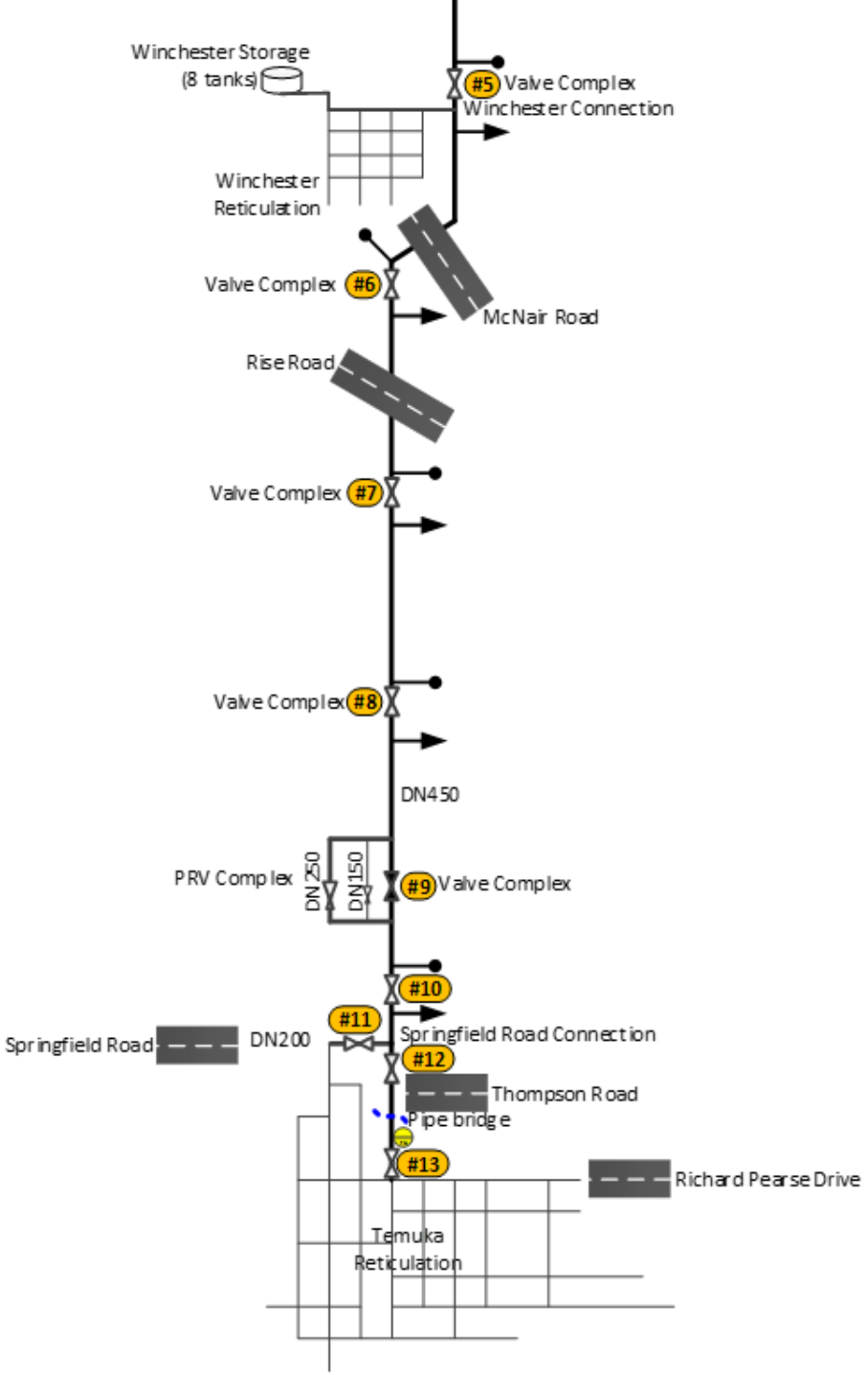
9. Critical Path

10. Risk Management

11. Commissioning

- Testing
- Swabbing
- Sterilisation – Chlorination
- De-chlorination
- Cut Over


LEGEND
PVC Pipe
PE pipe
Scour valve
Air valve
Main line valve - open
Main line valve - closed
#1 Valve Complex #
Fire hydrant
Temuka Reservoir
1,600m³
Treatment
DN50
Orari
Reticulation
DN300
Hawke Road
#1 Valve Complex
#2 Valve Complex
Beeby Road
DN450
KiwiRail
Valve Complex #3
SH 1
#4 Valve Complex
DN450
Winchester Storage
(8 tanks)
#5 Valve Complex
Winchester Connection
Winchester
Reticulation
Valve Complex #6
McNair Road


Winchester Storage
(8 tanks)
#5 Valve Complex
Winchester Connection
Winchester
Reticulation
Valve Complex #6
McNair Road
Rise Road
Valve Complex #7
Valve Complex #8
DN450
PRV Complex
DN250
DN150
#9 Valve Complex
#10
#11
Springfield Road
DN200
Springfield Road Connection
#12
Thompson Road
Pipe bridge
#13
Richard Pearse Drive
Temuka
Reticulation

Zone 1: Pipe Filling

Zone 2: Winchester Connection

PRV Testing 20.03.2018

All Zones: Chlorination

12. Communications

- All Media - 5 December 2017 Evening
- TV Interviews - 7 December 2017
- Leaflet Drop to every household mid January 2018
- Internal updates every week
- Facebook actively managed
- Minimal newspaper interest
- Community Fun Day – 10 March 2018
- Completion Notification – 29 March 2018

13. Learnings

- Was the AC Pipe Sampling Programme sufficiently robust?
- What is the real life expectancy of AC Pipe?