

Anna Gibbs

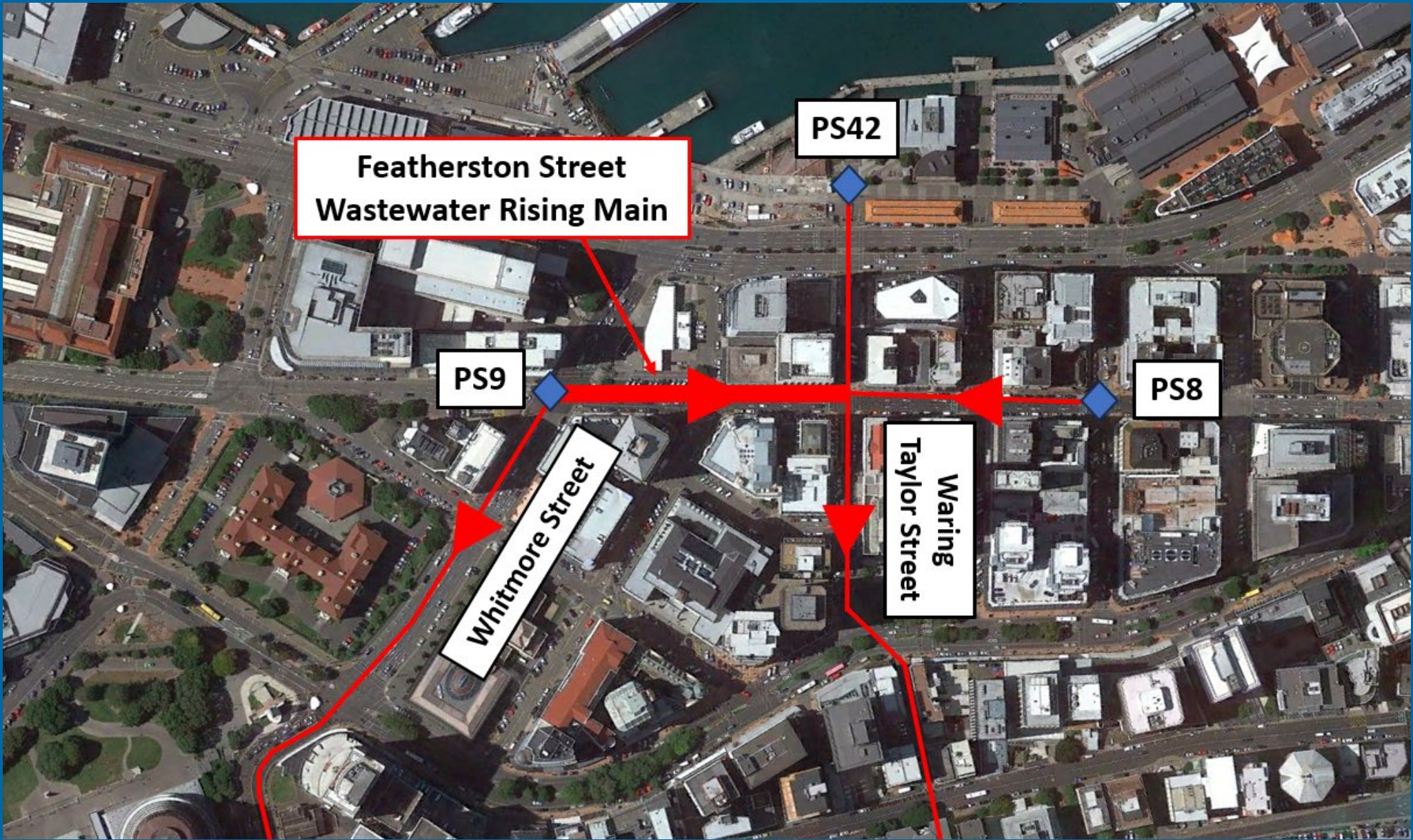
# Our Critical Assets are Ageing – A Story of Renewal over Replacement

Stantec New Zealand



**water**  
NEW ZEALAND  
CONFERENCE & EXPO  
17-19 OCTOBER 2023  
Tākina, Te Whanganui-a-Tara Wellington





PS8, PS9 & PS42 Rising Main Network

# Methodology Selection

Online Renewal Options	Online/Offline Replacement Options
Slip lining with PE	Open trenching
Close-fit PE pipe lining	Directional drilling
Cured in place pipe (CIPP) pressure pipe lining	Pipe Bursting

# Methodology Selection

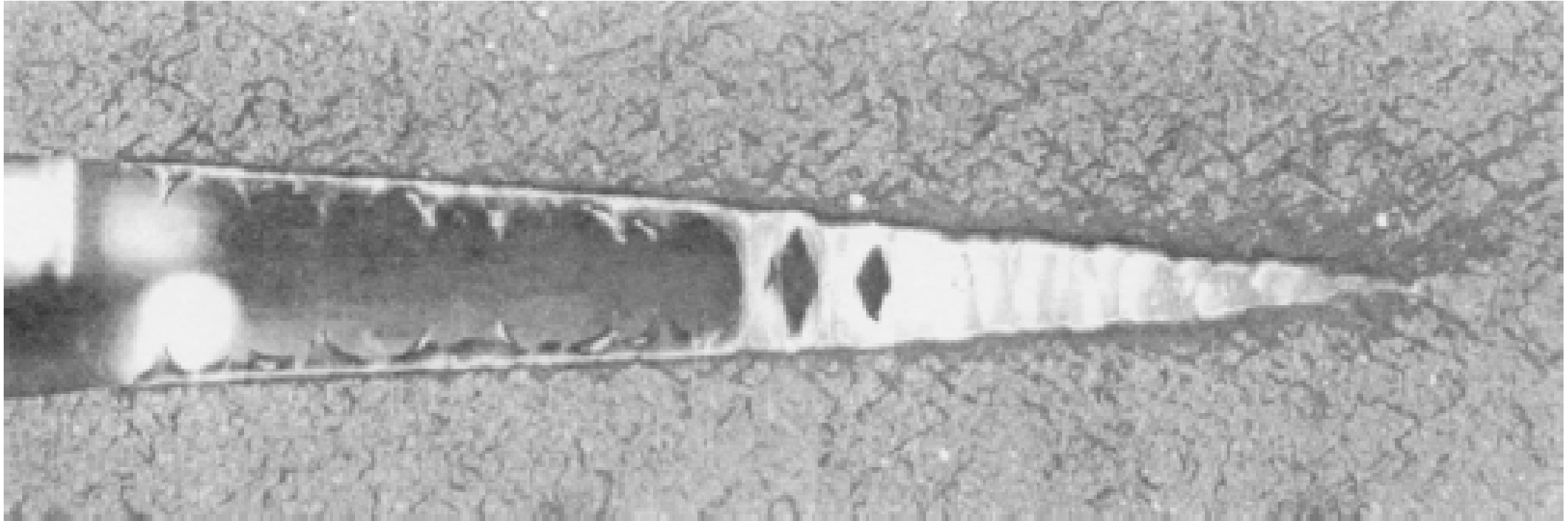
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# Tuberculation



# Slow Crack Growth



# Slip Lining Risk Management

Material selection

Cleaning

Test piece

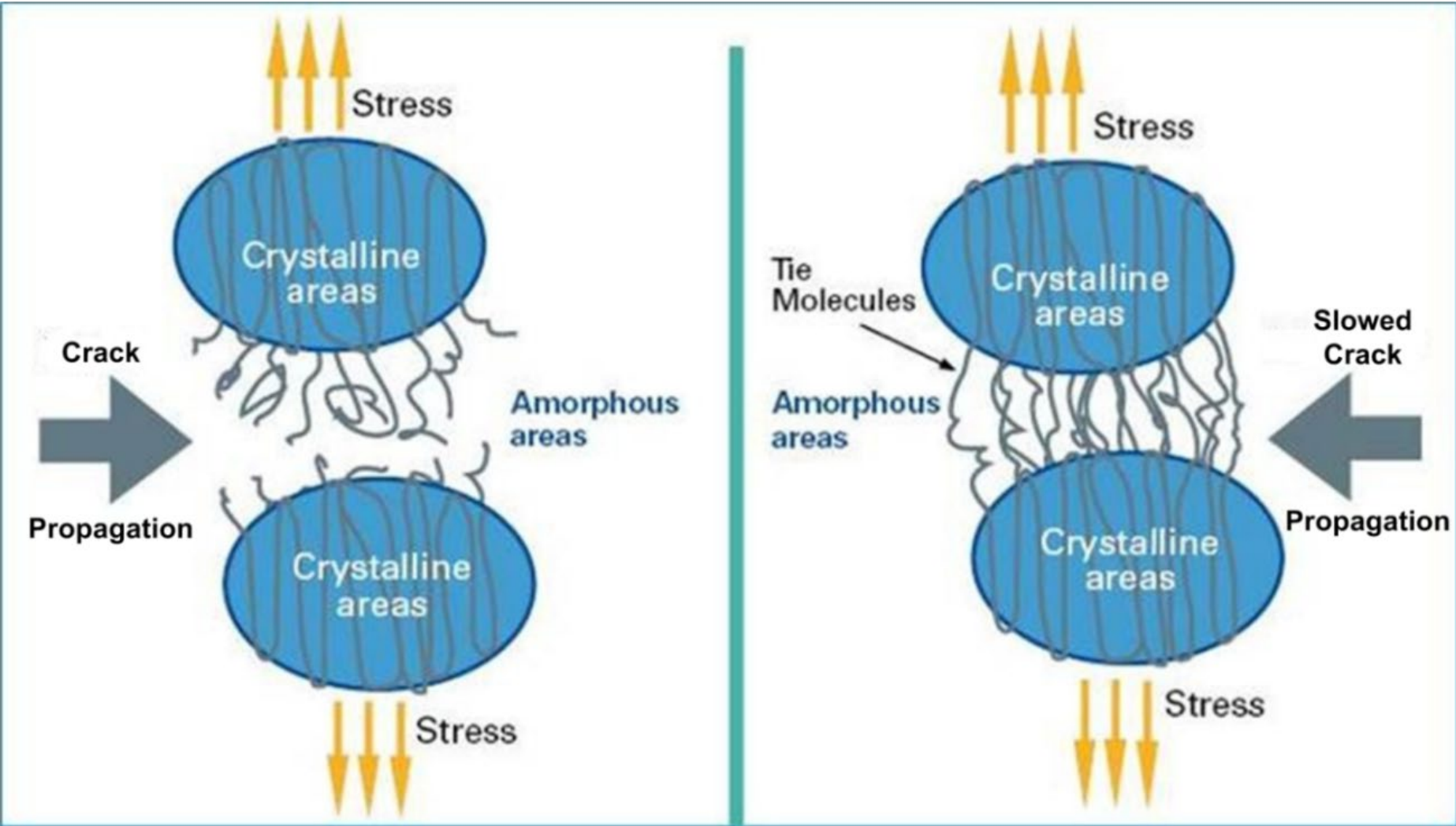
Post-slip line defects inspection

# Material Selection



# Standard PE100

# “Resistant to Crack” PE100



# Host Pipe Cleaning & Inspection



# Host Pipe Cleaning & Inspection





# Host Pipe Cleaning & Inspection





# Test Piece



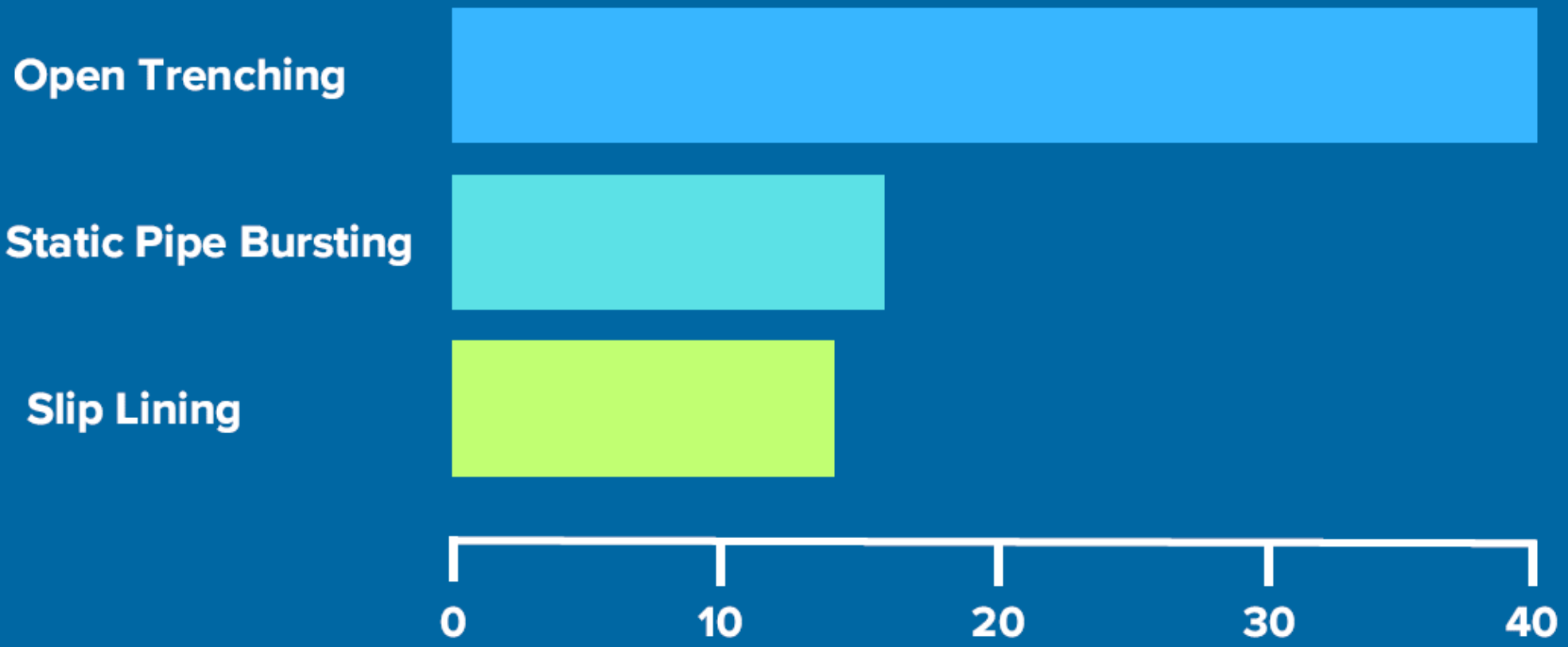
- Minimal markings identified
- All scratches extended less than 0.5mm into the pipe wall

# Post Slip Line Defects Inspection





# Environmental Benefits of Trenchless Construction



**Total estimated construction-related carbon emissions to renew 180m of rising main (tonnes CO<sub>2</sub>eq)**





# Conclusions

- Carbon impact should be factored into the methodology selection process
- Trenchless installation risks can be effectively managed with planning & preparation
- Consider alternative trenchless technologies before open trenching

# Acknowledgements

- **Stantec NZ Design Team – James Mabin & Yassasvie Sundarapperuma**
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