

DEVELOPMENT OF A STANDARD TEST METHOD FOR MEASURING CAPILLARY RISE OF NON-COHESIVE SOILS



Development of a standard Test Method for measuring capillary rise of non-cohesive soils through a laboratory investigation of different sands common to the Perth region.

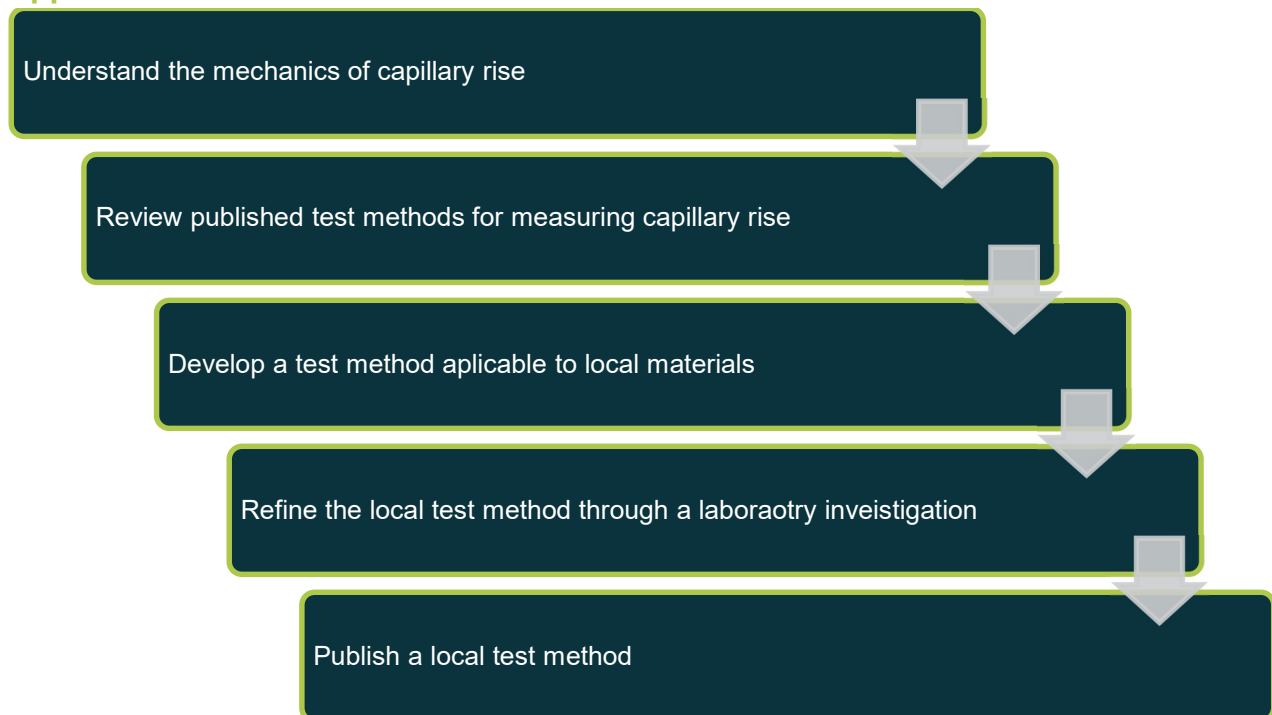
Cost saving are anticipated due to the WARRIP capillary rise test method which more accurately measures true capillary rise in Western Australian soils. We can now design thinner drainage cover in our pavements leading to material and construction savings.

Background

Capillary rise is the phenomenon where a liquid rises within a soil above the phreatic surface. There is currently no standard test method for measuring the capillary rise of non-cohesive soils which are common foundation and select fill materials within the Perth region.

WARRIP undertook a laboratory investigation to develop a standard test method which would allow the capillary rise of local Perth non-cohesive soils to be measured.

Approach



This project undertook a vast review of national and international literature as a first step followed by design and execution of an in-depth laboratory investigation. The laboratory investigation included development of a suitable sample apparatus, specification of sample preparation steps and test duration in addition to detailing the required calculations and measurements for obtaining a capillary rise height.





Outcome

The project successfully produced a standard test method ready for peer review by the local pavement design industry.

Main Roads will be able to publish this test method and revise pavement drainage cover thicknesses based on more accurate measurements of capillary rise in Western Australian soils.



In depth review of national and international practice for measuring capillary rise



Laboratory investigation to develop a practical, repeatable test method



Publication of a local test method for peer review by local industry

NEXT STEPS

Peer review of developed draft standard test method to ensure rigour, practicality, and suitability for industry

Publish final test method on the Main Roads website

