

# Sustainable Systems for Urban trees:

Applications in Brisbane City Council



*Dedicated to a better Brisbane*

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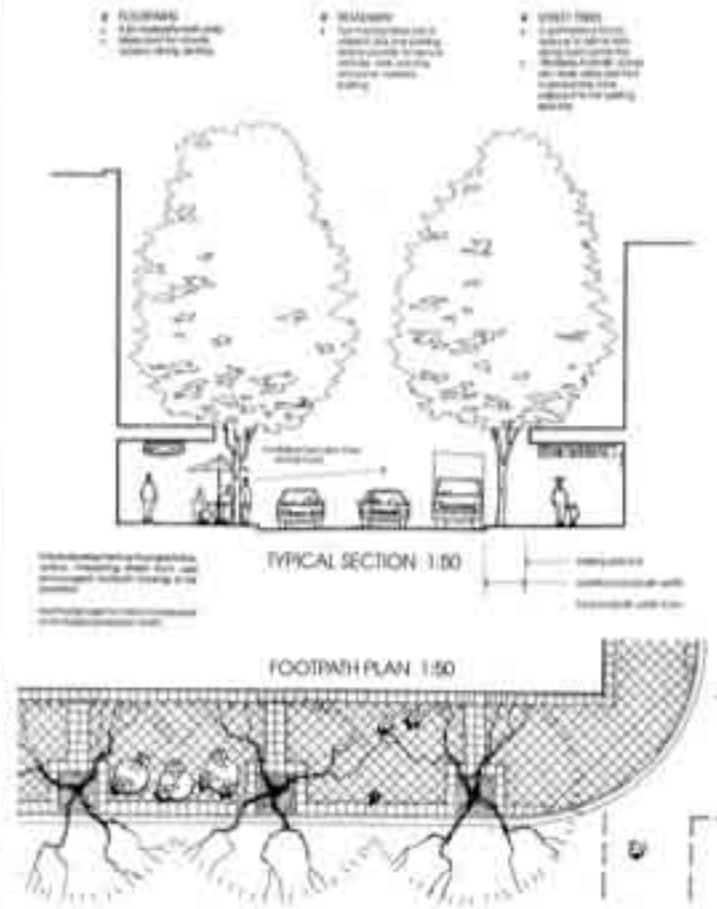
# Purpose of this presentation

- To summarise Brisbane City Council's applications and influence of "tree trench technology" over last 12 yrs.
- Critical success factor = adequate root space for urban trees.
- To introduce a new design tool BCC City Design area is using to further justify the role of trees in sustainable building design.





Brisbane City Council is proposing to improve Albert Street by the creation of a new boulevard between the Gardens near the Queen Street Mall. There will be more trees, air conditioning cooling, outdoor seating and a pedestrian friendly street for people to enjoy on-line great street life.



**ALBERT STREET BOULEVARD PROJECT**



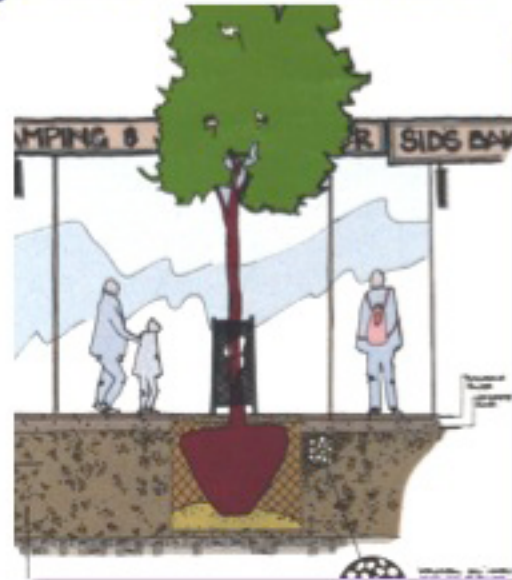
**ALBERT STREET BOULEVARD PROJECT**



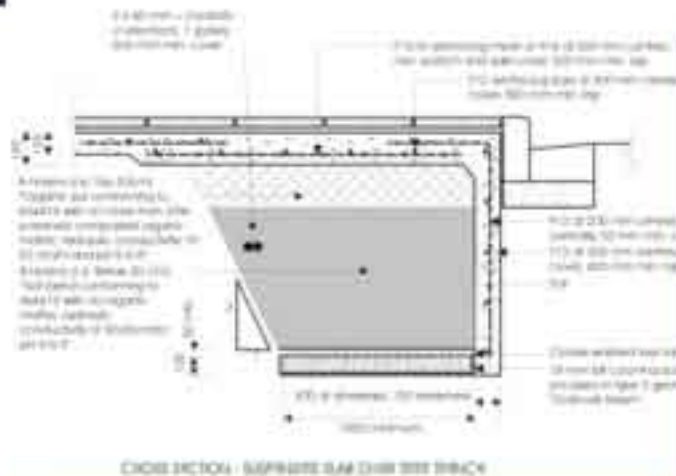
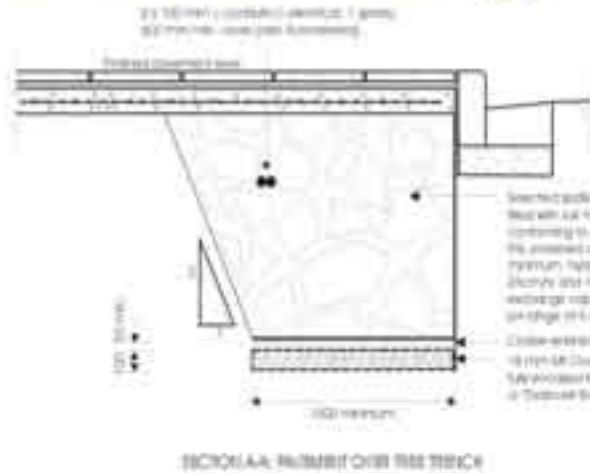
# Tree trench technology in Brisbane

Applying U.S. research  
(Grabosky & Bassuk 1995&1996)

- Gap-graded, stone and soil mix
- Provide spaces with conditions suitable for root growth, and
- compatible to pavement requirements



# Tree trench technology in Brisbane



# Tree trench technology in Brisbane

- Tree trench + WSUD

## Melbourne St Boulevard





# Other applications in Brisbane

- Structural soil as a root regeneration media beneath roads






- Structural soil providing root space and some stormwater management in carparks



# Tree trench technology in Brisbane

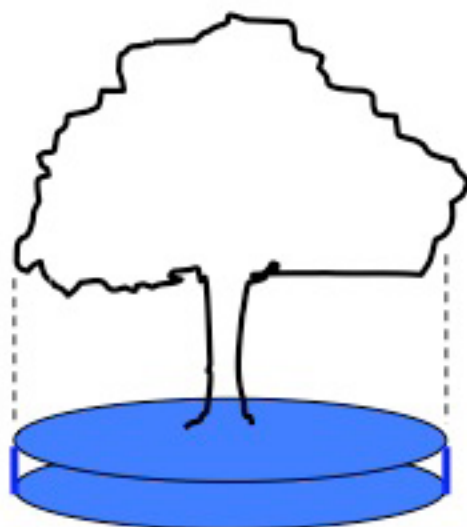
## ■ *Learnings*

- Desire for trees in urban centres, and knowledge/understanding of engineering spaces for trees is improving 
- Designing for integrated outcomes/multiple benefits 
- Designing for adequate soil volumes in contested urban spaces – always major challenge 



# Root space requirements

*-relationship to critical protection zones at maturity ?*



Available Soil volume = Potential canopy area X 0.6m

*eg. 8m canopy width tree requires minimum of 28 cubic metres.*



Available Soil volume = (Potential trunk diameter X 10) squared X  $\pi$  X 0.6m

*eg. 400mm trunk diam. Tree requires minimum of 28 cubic metres*



# city design

delivering innovative solutions to create sustainable communities

**Broad climate control through...**

## Site planning

- Windbreak planting
- Maximising summer breezes
- Shading pavements
- Creating cool zones

## Building/landscape relationships

- Daylight
- Wind protection
- Thermal buffering
- Breezeways



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# Willawong Bus Depot

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delivering innovative solutions to  
create sustainable communities

## Designing Microclimate

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