

Ensuring Water Sensitive Urban Design Succeeds

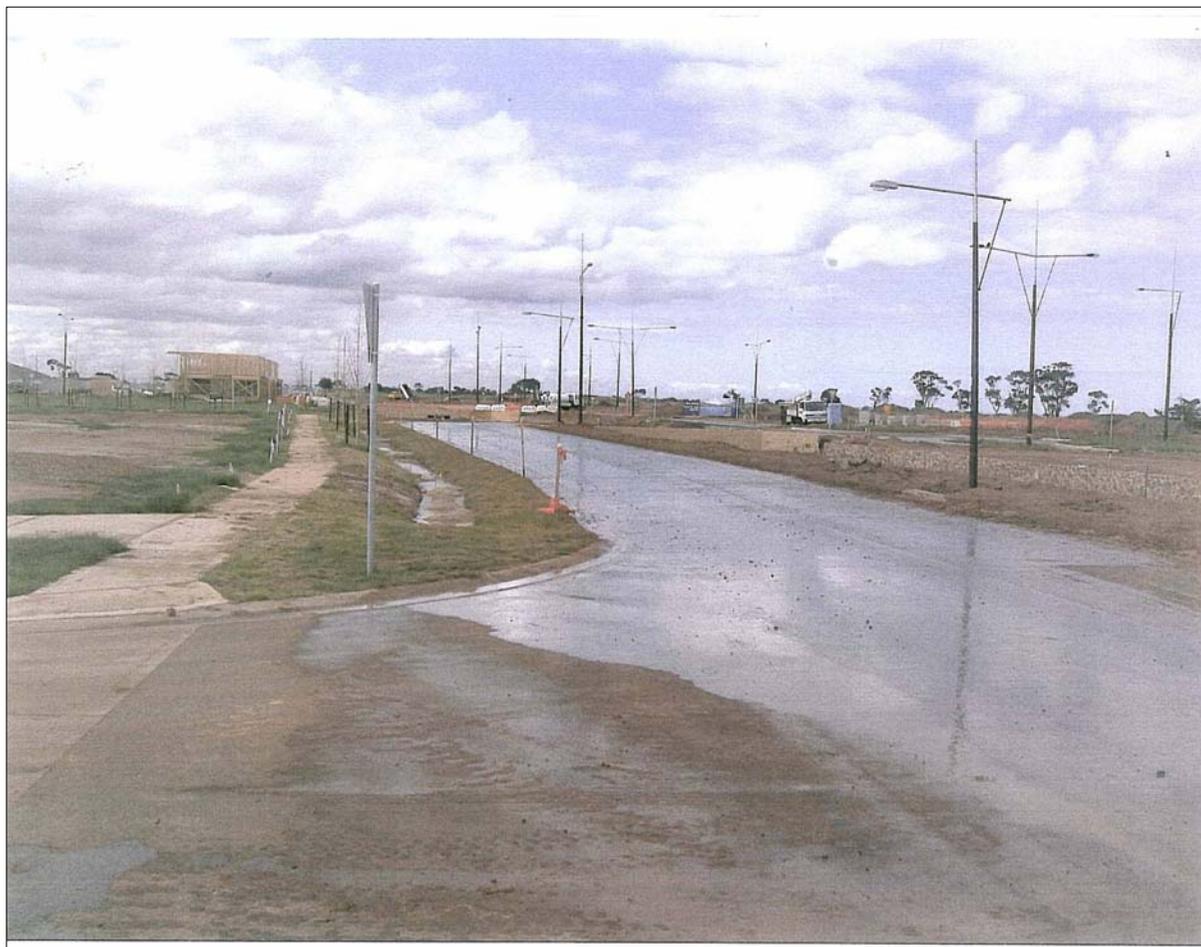
Michael McGlade
Manager Engineering Services
Wyndham City Council

Success Factors:

- Physical
 - Design
 - Construction
 - Maintenance
- Political

Construction:

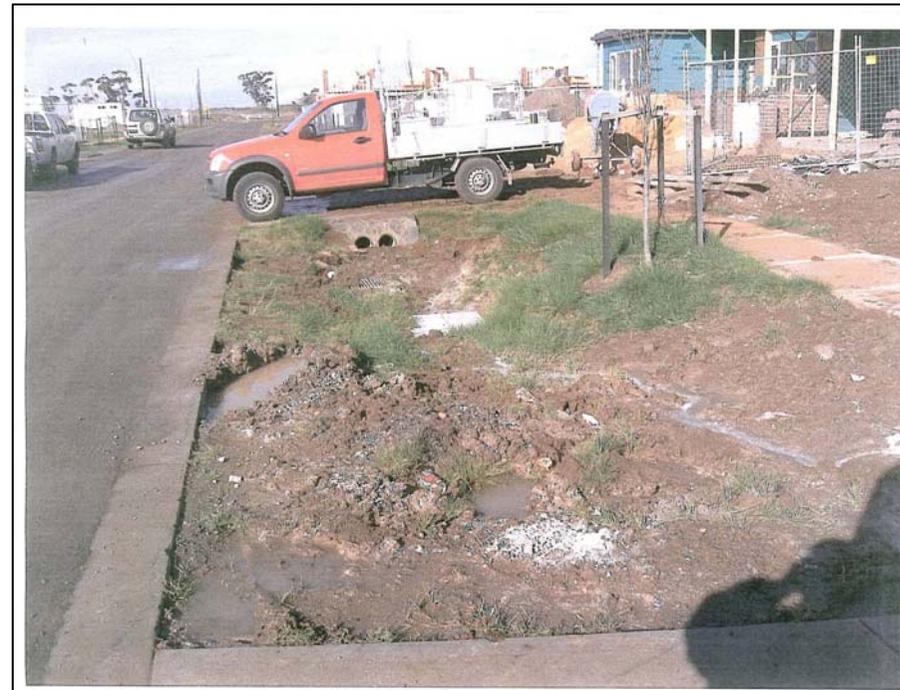
- Understand how to construct WSUD
- Adherence to Environmental Management Plan
- Two year maintenance period to allow for planting to establish





Construction – Residential Development

- Implement an Environmental Management Plan during house construction phase
 - Defer construction of WSUD
 - Delay planting
 - Fence-off WSUD to protect



Construction – Residential Development Contd...

- Silt control around building sites
- Protect swales with sacrificial geofabric cover
- Provide temporary silt ponds
- Controls on builders



Maintenance

- WSUD costs \$'s to maintain
- Swales
 - Planted - \$5.50/m²/yr
 - Grassed – 6 cents/m²/yr
 - Reconstruction - \$120 - \$160/m
- Wetlands
 - \$40-50,000/wetland/yr



Maintenance Contd...

- Understand maintenance implications & responsibilities
 - Determine who is responsible for maintenance



Maintenance Contd...

- Understand maintenance implications & responsibilities
 - Consider how treatments can be maintained



Political:

WSUD is:

- Costly to build
- Costly to maintain
- No immediate benefits
- Is not sexy
- Gets no votes

Lollipop Creek Wetland

Total Cost - \$2 m

Stage 1 - \$500,000

Annual Maintenance:

\$50-\$100,000



Lollipop Creek Recreation Precinct

- Walking/Running Trails
- Rest Areas
- Barbeques
- Community Pride

Total Cost - \$2.4m

Stage 1 - \$750,000

Annual Maintenance
\$70-\$120,000

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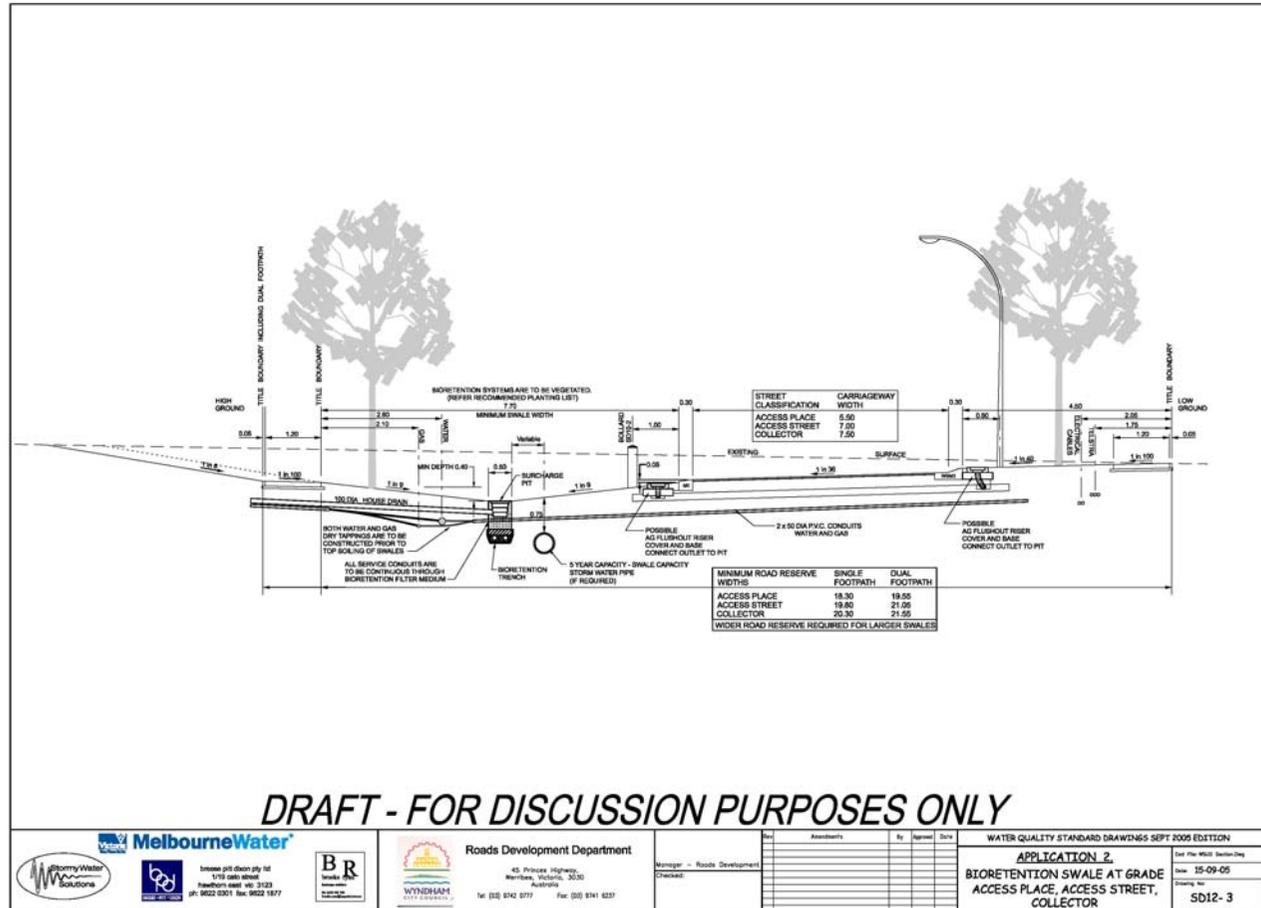
Lollipop Creek – Stage 1 Boardwalk



WSUD Swale in Roads



Bio Retention Swale



			<table border="1"> <thead> <tr> <th>Rev</th> <th>Amendments</th> <th>By</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Rev	Amendments	By	Approved	Date						WATER QUALITY STANDARD DRAWINGS SEPT 2005 EDITION APPLICATION 2 BIORETENTION SWALE AT GRADE ACCESS PLACE, ACCESS STREET, COLLECTOR	Def Plan 9512 Section 04 Date: 15-09-05 Drawing No: SD12-3 Size: A
				Rev	Amendments	By	Approved	Date							
please call dixon ply ltd 1711 sales road Hawthorn east vic 3123 ph: 9522 0301 fax: 9522 1817	45 Prince Highway, Werribee, Victoria, 3030 Australia Tel: (03) 8742 0771 Fax: (03) 8741 8237	Manager - Roads Development Checked:	WYNDHAM CITY COUNCIL												

WSUD Sales in Roads

- Widened road reserve by 4-5 metres
- Reduced developable land by 3-4%
- Additional \$5,000 - \$6,000 per lot
- Maintenance \$70 - \$100/lot/year
- 6-9% rate increase







Conclusion

- Understand the maintenance implications and cost
- Integrate WSUD into overall developments