TRUenergy COMMUNITY LIAISON GROUP

MEETING MINUTES FEBRUARY 2008

MEETING	**TALLAWARRA COMMUNITY LIAISON GROUP** **MEETING**	MEETING NUMBER	1/2008
HELD AT	TRUENERGY TALLAWARRA SITE, WOLLONGONG	DATE	**20 FEB 2008**
PROJECT	**TALLAWARRA**		
ATTENDEES	John Osseweyer	Scout Association of Australia - South Coast Region	
	Michael Barnes	Scout Association of Australia – South Coast Region	
	Doug Prosser	Lake Illawarra Authority	
	Andrew Knowlson	Duck Creek Catchment Group	
	Cheryl Lappin	Shellharbour City Council	
	Jon Bridge	Wollongong City Council	
	Rhonda Warner	Resident	
	Nicola Lo	Storm Consulting	
	Graham Dowers	TRUenergy	
	Anthony Savenkov	TRUenergy	
	Geoff McEntee	TRUenergy	
	John McIntyre	TRUenergy	
	Lloyd Townsend	TRUenergy	
	Lucy Greig	Elton Consulting (Note taker)	
	Brendan Blakeley	Elton Consulting (Facilitator)	
APOLOGIES	Graham Towers	Department of Planning	
	Frank Wallner	Healthy Illawarra	
DISTRIBUTION	To all invitees		

ITEM NO.	DESCRIPTION	ACTION	DATE

1.0 Welcome & Introductions – Brendan Blakeley, Elton Consulting

The meeting commenced just after 4.30pm. Brendan welcomed all those present. Apologies were received from Graham Towers and Frank Wallner.

The minutes of the previous meeting were accepted without amendment. Adoption of the minutes was moved by Doug Prosser and seconded by Cheryl Lappin.

Michael Barnes (Scout Association of Australia) and Nicola Lo (Storm Consulting) introduced themselves to the group.

2.0 Power Station Works Update – Geoff McEntee

Geoff made the following key points:-

- There are currently about 700 workers on site, with around 300 workers expected to remain onsite beyond April/May.
- The majority of personnel are from the Illawarra Region.
- Commissioning of the power station has begun.
- Good progress has been made on the switchyard. The power lines are in place and the power station will be connected to the grid in March or April.
- Other minor works are progressing – e.g. fencing and landscaping bids are being

prepared.

Questions and discussion

- *CLG member: What is the work taking place in the area to the right of the site's entry gates?*
- GD: the contractors installing the fire fighting equipment are temporarily utilising this area for storage. It also contains the stormwater retention basin - used to capture all stormwater runoff from the site and manage its flow into the existing outfall canal. The footbridges will be replaced and the road bridges have been repaired. Beyond the outfall canal is a temporary storage are for plant items prior to their installation.
- *CLG member: Why do you feed back the electricity to the power station?*
- GD: When the power station is started it will temporarily use power from the grid for a few minutes, while the turbine is accelerated to speed and the combustion is stabilised prior to connecting with the grid and generating power.

3.0 Site Maintenance Update – Lloyd Townsend, TRUenergy

Lloyd made the following key points:-

- The sewage plant upgrade work is complete. Sewage has been transported to a treatment plant offsite due to the recent rainfall and the high numbers of staff currently working on site.
- As advised previously, the development application for the security building has been lodged with Wollongong City Council. TRUenergy is preparing the additional information requested by Council for the assessment.
- A landscape architect has been engaged to assist with the selection of suitable landscape gardeners, trees and shrubs. The associated landscaping works will commence shortly
- Casuarina trees were recently planted along the foreshore road to replace Oleanders.
- Mowing and slashing work continues, as does the noxious weeds spraying program.
- There have been no reported incidents of vandalism since the last Community Liaison Group meeting. However, there have been some security reports of a minor nature in the last couple of months.
- Restoration of drains along Yallah Bay Road is being carried out to minimise wet weather damage to the road – i.e. drain clearing to minimise road damage/maximise safety. TRUenergy helped Council reseal this section of road.
- Silt barriers have been installed along Yallah Bay Road foreshore section to minimise mud runoff going into Lake Illawarra, in compliance with LIA requirements.
- An updated Bushfire Management Plan has been prepared in conjunction with the Rural Fire Services, for approval.
- Some lessees, including the riding school, are undertaking a scrap metal cleanup of their properties.
- TRUenergy has organised a team for Clean Up Australia Day and invites all CLG members, and the broader community, to participate. The Clean Up will take place at 9-11am on Sunday 2 March, with check in at the LIA boat ramp area. TRUenergy shall provide safety equipment, drinks and a BBQ for all participants. Kids to attend with

guardian/parent.

- LT noted a flyer has been prepared to promote participation in the Clean Up Australia Day initiative. The flyer will be distributed at key destinations in the local area.
- Group members suggested the initiative could be further promoted through the Ribbonwood Centre in Dapto and the new shopping centre.
- *ACTION: BB to send reminder around to CLG members.*

4.0 Tallawarra Stage B Update – Graham Dowers, TRUenergy

Stage B Planning

- Planning for Tallawarra B now includes the option to locate either an additional CCGT (combined cycle gas turbine) or OCGT (open cycle gas turbine) on the station platform. This is due to the following:-
  - A likely need for gas base load generation in the future.
  - A second CCGT on Tallawarra site is logical because of plant synergies with Tallawarra A and cooling benefits afforded by the proximity to the lake.
  - CCGT provides greater $C0_2$ benefits, and potential changes to carbon pricing may induce increased demand for greener forms of electricity generation.

  CCGT/OCGT decision will be made based on assessment of NSW capacity vs energy requirement later this year.
- The revised project application includes:
  - OCGT plant of 300-400 MW total with diesel fuel backup; or
  - CCGT plant of nominal 400 MW (similar to Stage A except cooling tower/s used instead of once through system);
  - extension to existing switchyard gas lateral and infrastructure;
  - utilisation of existing buildings; and
  - increased operation and maintenance resource.
- Requires removal of store shed and control building.
- The diesel fuel will be used for back up purposes with the OCGT peak power plant option, specifically when the ability to fire with gas is unavailable. The OCGT itself is intended to operate for a small of percentage of time during periods of high load demand and / or periods when base load plant is unavailable or insufficient.
- GD showed OCGT model and layout compared with CCGT model/layout.
- The Environmental Assessment covering OCGT and CCGT plants based according to the Director General's requirements is being produced. Much of the modelling has been done and draft reports completed.
- The EA will be submitted to the Department of Planning for adequacy review, input from the Department of Environment and Climate Change, and other relevant agencies. Following this, there will be an exhibition phase which is likely to be around the date of the next CLG meeting. The environmental modellers will be invited to attend the next CLG meeting to outline the work undertaken.
- GD went on to present and discuss the slides attached: please see **Attachment A**.

MEETING MINUTES FEBRUARY 2008

Next steps

- Continue dialogue with relevant government agencies
- Produce EA utilising information from CPTED modelling and reports
- Submit EA for adequacy review
- Exhibition early April for approximately 2 months.

Questions and discussion

- *CLG Member: what are the impacts on the lake of additional station?*
- GD: The Tallawarra A CCGT will use lake water cooling by passing it directly through the condenser. The OCGT requires minimal cooling and utilise systems similar to a car radiator. In the Tallawarra B situation it is not possible to utilise the lake water in a once through cooling system due to possible impact on the lake under worst case conditions, however a wet cooling tower using lake water for make - up would provide an effective and efficient cooling solution that studies have indicated would have little or no impact on the lake. Compared to Tallawarra A, Tallawarra B as a CCGT would provide less than 5% of the heat load and use less than 5 % of the circulating water.
- JM: The cooling towers for Tallawarra B (6 modules) would be much smaller than those used in Lidell. They would work on a similar principle i.e. run water over slats to assist in cooling process.
- GD As with Tallawarra A they would only need to cool 150 MW as the balance is supplied by the gas turbine that doesn't require cooling.
- *CLG Member: Would TRUenergy seek separate approval for the preliminary works such as shed clearing?*
- GD responded that this is the case and some approvals are in place already.
- *CLG Member: How much asbestos there is in the area that will be demolished?*
- GD: Should any asbestos be identified in that area the appropriate treatment works will be undertaken as was the case with Tallawarra A.

5.0 Tallawarra Lands Update – Anthony Savenkov, TRUenergy

- AS invited questions regarding Tallawarra Lands.

Questions and discussion

- *CLG Member: When will the draft Wollongong Local Environmental Plan be exhibited?*
- JB: Following the issue by the Department of Planning of a s.65 certificate notifying that the Local Environmental Plan be exhibited.

6.0 Water Management and Water Sensitive Urban Design at Tallawarra – Nicola Lo, Storm Consulting

- NL made a presentation on the water cycle management assessment (WCMA) of the Tallawarra Lands site undertaken by Storm Consulting. Please see **Attachment B**.

Questions and discussion

- Several group members thanked NL for the presentation, commenting on the positive nature of the state of the art water management practices being considered for the site.

MEETING MINUTES FEBRUARY 2008

- *Doug Prosser, Chair of the LIA emphasised the importance of using a lower baseline figure to estimate future pollutant loads entering Lake Illawarra, as the removal of livestock from the site could reduce the level of nutrients entering the Lake.*
- *Other CLG members agreed, noting that the current level of livestock grazing in the northern and southern parts of the site meant there was potential for a high level of organic runoff from these parts of site.*
- *CLG Member: please consider other aspects of water quality such as potential for leaching from wetlands.*
- *CLG Member: The SEPP 14 wetlands are of ecological significance. It is also important to retain water in Duck Creek, which is an intermittent creek, to ensure its ongoing sustainability. Also suggested the reuse of greywater on individual residential lots (eg for irrigation purposes) should be considered as an option.*
- *CLG Member: While the SEPP 14 wetland is important, ash pond three is the primary habitat in terms of sustaining birdlife.*
- GD noted that consideration of the use of greywater in the Power Station has commenced.
- *CLG Member: I agree with maintaining the existing drainage lines; these can be meaningfully incorporated into the open space system.*

7.0 Discussion and Next Steps – Brendan Blakeley, Elton Consulting

- BB provided copies of the latest Tallawarra Lands Community Update newsletter. He noted that, as usual, it would appear shortly in the local newspapers, and also be distributed to homes in the local area.
- *CLG Member: The rural areas around Marshall Mt do not receive the local newspapers.*
- AS responded that the Community Updates can also be downloaded from TRUenergy's website.
- *CLG Member: They could also be displayed in the Ribbonwood Centre / library.*

8.0 Next meeting

NEXT REGULAR MEETING: **4.30 pm Wednesday 16 April 2008** onsite.

If you have any questions in relation to these minutes please contact Brendan Blakeley at Elton Consulting. Tel. 02 9387 2600 Fax. 02 9387 2557 Email. brendan@elton.com.au

- **Attachment A**: Graham Dowers presentation for Stage B
- **Attachment B**: Storm Consulting Presentation

ATTACHMENT "A"

Tallawarra Power Project
Stage B CLG Update, February 20 2008

TRU energy

Stage B Planning

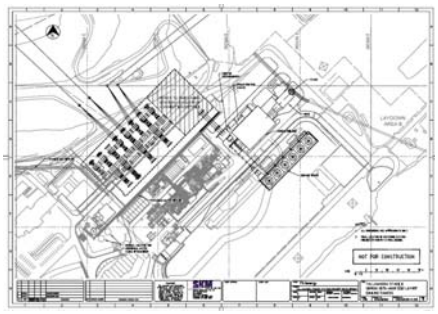
- Planning now includes CCGT as well as OCGT because
  - Greater likelihood of need for gas base load generation in future
  - 2nd CCGT on Tallawarra site is logical because of plant synergies & cooling benefits
  - CCGT provides greater CO_2 benefit
  - CCGT / OCGT decision to be made based on
    - site availability
    - NSW capacity vs energy requirement
- Revised project application covering OCGT & CCGT includes
  - OCGT plant of 300 to 400 MW in total with diesel fuel backup
  - CCGT plant of nominal 400 MW, similar to stage A except that
    - cooling tower(s) are used instead of once thru system
    - extension to existing switchyard, gas lateral & infrastucture
    - utilisation of existing buildings
    - increased O&M resource
- Requires removal of store shed and control building

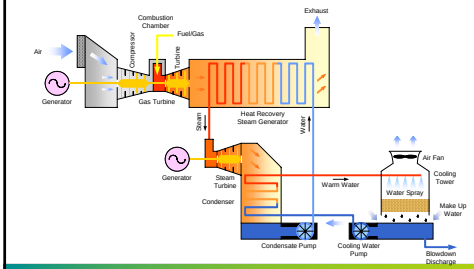
TRU energy

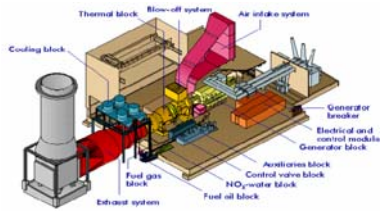
CCGT Model

•. Similar to A with Cooling Tower

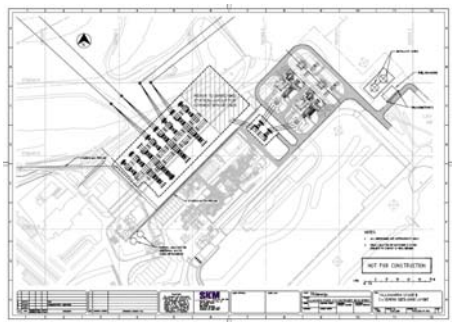
3







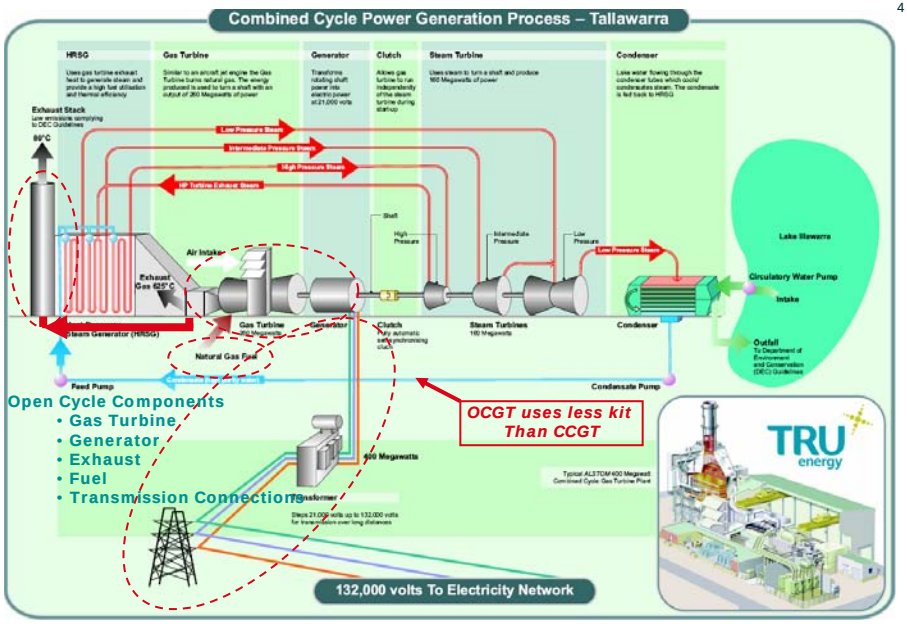
OCGT Model & Layout



TRU energy

4

Combined Cycle Power Generation Process – Tallawarra



Open Cycle Components

- Gas Turbine
- Generator
- Exhaust
- Fuel
- Transmission Connections

OCGT uses less kit Than CCGT

TRU energy

Stage B Planning

Environmental Assessment (EA) covering OCGT & CCGT plants based on Director Generals Requirements is being produced.

Impact	CCGT	OCGT
Local Air	Meet and are within DECC criteria (NO_2, 0_3, $S0_2$, PM_{10})	
Regional Air	DEC process: 03 plume duration – decrease or no change 92%; no adverse effects on regional concentrations of NO_2 & 0_3 on >200 test hours	
Greenhouse	Reduces greenhouse intensity of electricity grid	Low greenhouse intensity, will reduce operation of inefficient, high $C0_2$ plant
Cooling Water	325 KL / hr (lake water make up)	Not applicable
Potable Water	85 ML (85% stm, 35% evap, 10% fog) Opportunity for stormwater / greywater	10 ML (10% CF, 5% evap & aug) Opportunity for stormwater / greywater
Noise	No offsite impacts - on site impacts ameliorated through design controls	
O&M + People	20 - 25	1 - 2
COD[1]	2012 – 2013 Depends on growth & CO2 signals	2010 – 2011 Depends on capacity growth
Infrastructure	Extension to existing elec & gas, small impact on demineralised water and buildings	

1 – COD, Commercial Operation Date

Where to from here

- Continue dialogue with relevant agencies
- Produce the EA using information from completed modelling and reports
- Submit EA for adequacy review by the DoP and agencies
- Exhibit
- Provide detailed discussion of assessments and modelling outcomes at next CLG
- Continue commercial process

Tallawarra Lands: Water Cycle Assessment

Presenter: Nicola Lo

Overview

- Investigation objectives
  - Integrated Water Cycle Management (IWCM) assessment
- Issues (constraints and opportunities)
- Sustainability initiatives
  - Water supply options
  - WSUD and water quality

2

Water Cycle Management

- STORM_CONSULTING (STORM) have investigated a range of issues relating to the water cycle on the site including:
  - Stormwater quality management
  - Overland flow paths
  - Alternate water supply options

3

Issues

- Receiving water quality - Lake Illawarra has known water quality issues (nutrients = algal blooms)
- Urbanisation has had negative impacts on water quality
- Opportunity for Tallawarra Lands development to be as sustainable as possible.

4

WCM – Roof Runoff

- Area Rainfall – 1015mm/yr (ave.)
- Roof areas:

Area	Total Area (ha)	Roof Area (ha)*	Potential Runoff (ML/yr)	Roof Runoff Rate (L/m²/yr)	Harvested runoff (80% of potential runoff) (ML/yr)
Business Park (precinct 8)	13.70	5.48	52.6	959	42.0
Enterprise Zones (precinct 8 + 9)	12.92	5.17	49.6		39.7
General Industrial (precinct 6)	20.91	8.36	80.20		64.2
				Total	**145.9**

* assumes roof area is 40% of total area

5

Water Demands – per capita

Area	Low Density Residential			Low Density Residential (compact) – Precincts 8/9/10	
	Water Consumption (kL/person/annum)*	Water Consumption (L/person/day)	% of total	Water Consumption (L/person/day)	% of total
Bathroom	26.3	72.1	26	72.1	30
Toilet	23.2	63.6	23	63.6	26
Laundry	16.2	44.4	16	44.4	18
Kitchen	10.0	27.4	10	27.4	11
Outdoor	25.3	69.3	25	34.7	14
Total	101	276.8	100	242	100

* Troy, P. et al report (2005). Water Use & the Built Environment (http://www.fbe.unsw.edu.au/cityfutures/publications/others/waterconsumption.pdf)

6

Water Demands – by dwelling type

Area	No. of dwellings*	Population	Daily Demands (L/pp/day)	Yearly Demands (total) (ML/yr)	Yearly Demands (toilet, laundry and outdoor) (ML/yr)
Low Density (compact) Residential (Precincts 8 / 9 / 10) (2 People / dwelling)	401	802	242	71	42 (comprising 59% of total yearly demands for medium density residential)
Low density Residential (Precincts 1 / 2 / 4) (3 people / dwelling)	1045	3135	277	317	203 (comprising 64% of total yearly demands for low density residential)
TOTAL	1446	3937		388	245

* Source: Draft Structure Plan (Cox, 19 October 2007).

7

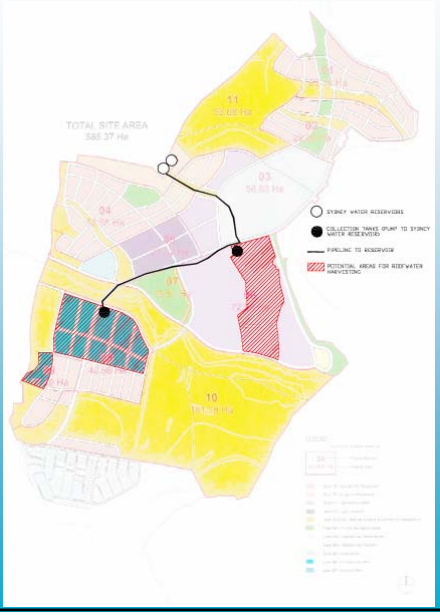
WCM Options

- Household based – Options 1 to 3
- Power station – Option 4
- Sporting field – Option 5

8

Water Supply - Option 1

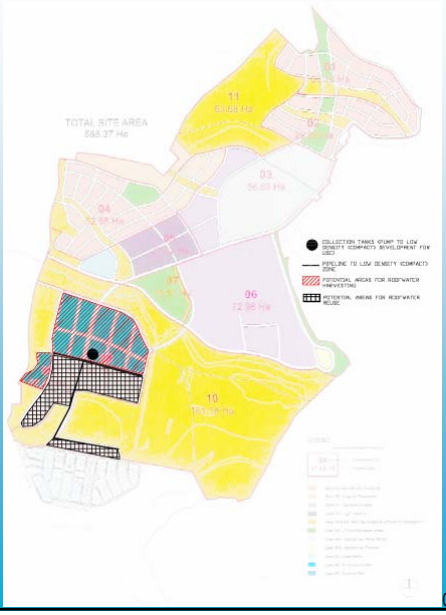
- Collect rainwater roof areas
- Treat
- Pump to storage
- Supplement potable supply through standard water supply mains.



9

Water Supply – Option 2

- Collecting rainwater from roof areas
- Centralised storage tank
- Supply adjacent low density (compact) dwellings as a local “third pipe” to supply non-potable demands.



0

Water Supply – Option 3

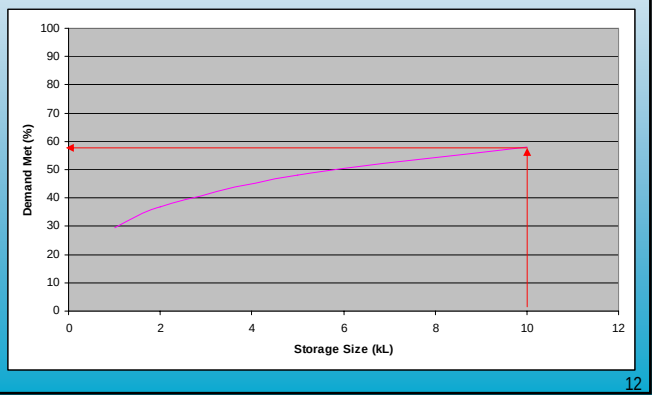
- Collecting rainwater from individual residential lot roofs
- Plumb back into houses for reuse (e.g. toilet flushing, irrigation, laundry)

11

Water Supply – Option 3

- Roof area = 130m^2
- Supply non-potable demands from 3 person household

e.g. 10kL tank supplies 58% of non-potable demands



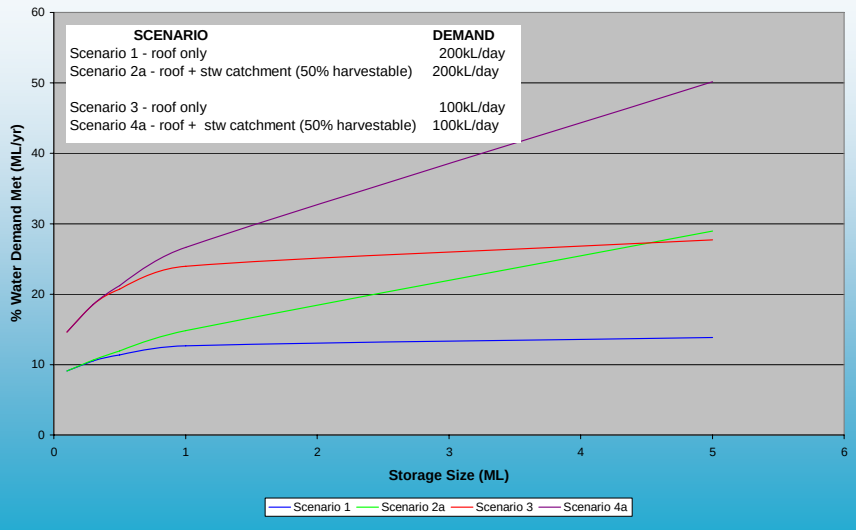
12

Water Supply – Option 4

- Power Station Demands
  - Collecting rainwater from the power station roof
  - Harvest stormwater from nearby wetland
  - Reuse in Tallawarra power station as blowdown water for the boiler.
  - Note: this water needs to be of high quality and very low in TDS (demineralised).

13

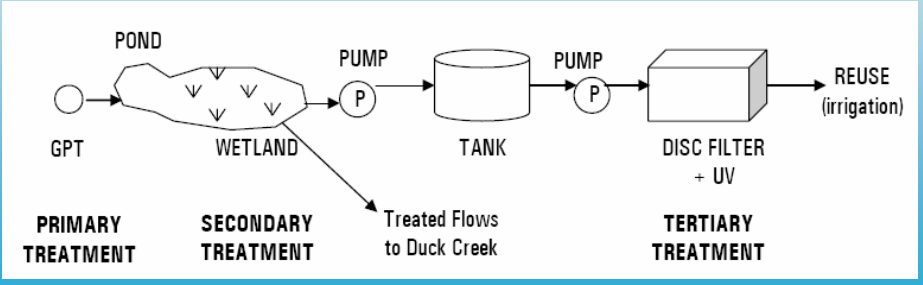
Option 4 - results



14

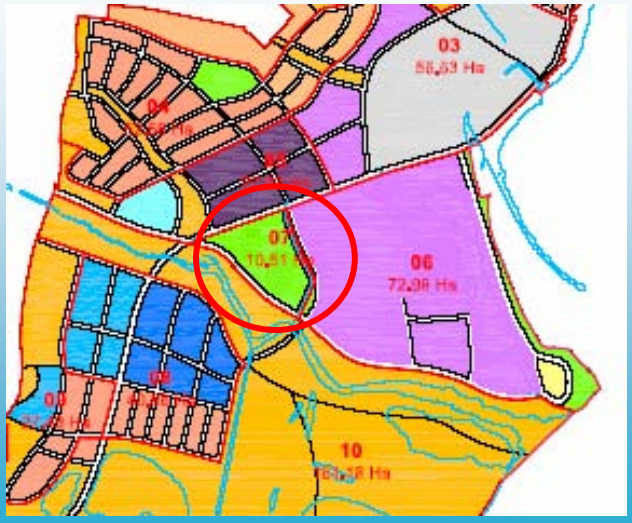
Water Supply - Option 5

- Irrigation of sporting fields – high water demands
- 1.5ha fields
- Demand = 8.3ML/yr



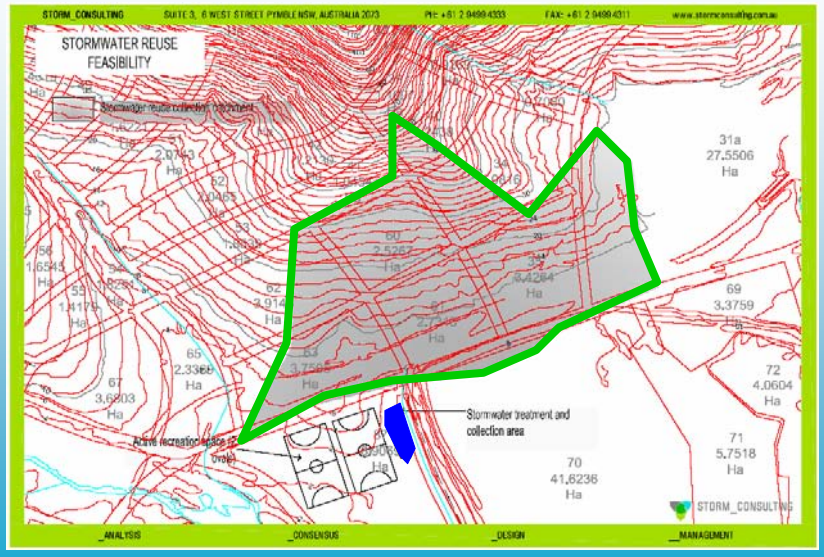
15

Option 5 schematic



16

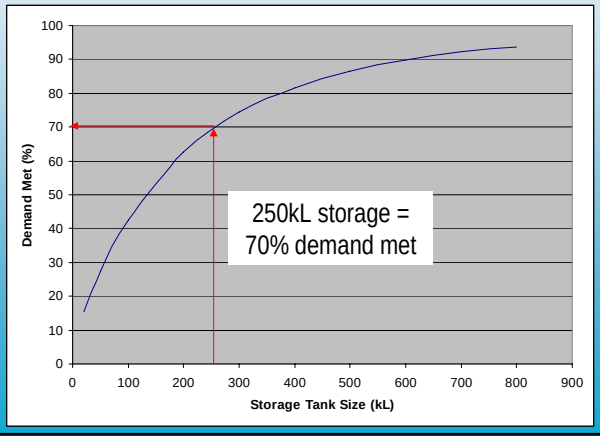
Option 5 schematic



17

Option 5

	Catchment Runoff (ML/yr)	Total Irrigation Demands (ML/yr)
Mean annual rainfall conditions	91.4	8.3



18

Other alternatives

- Collection of grey and/or blackwater for reuse
  - Reticulation system - Rouse Hill style
- Several options available – still open for discussion due to preliminary planning stages

19

Stormwater management

- Lake Illawarra under pressure from development in catchment
- Nitrogen is the critical pollutant – need to reduce nitrogen loads
- 45% reduction in nitrogen load set as benchmark for development

20

Water Sensitive Urban Design

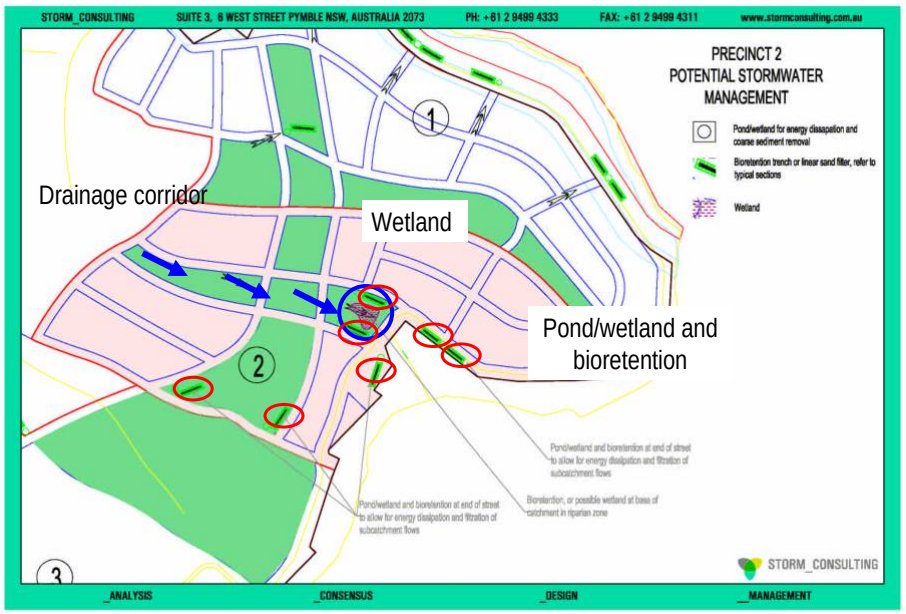
- Road, house and landscape design that incorporates water behaviour into design
- Work with existing landscape
- Manage water quality and flows

21

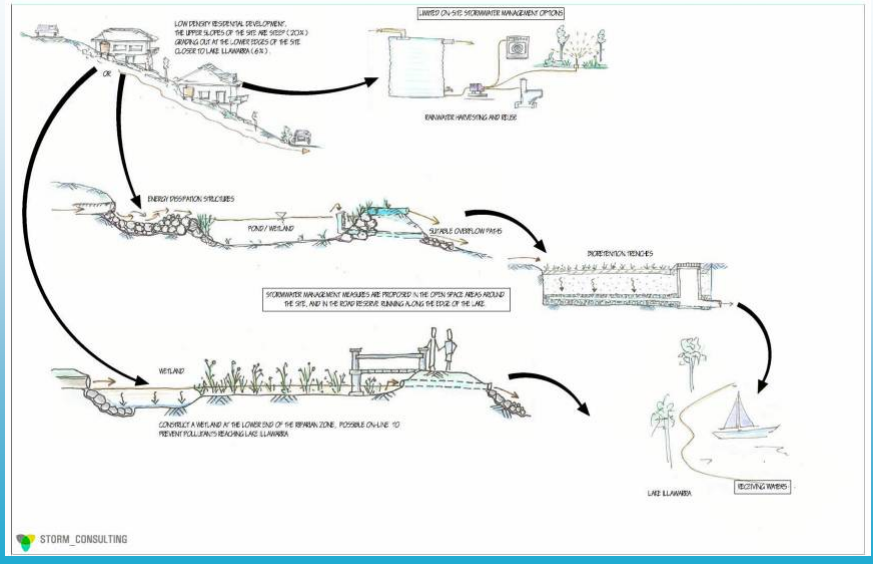
How can WSUD be implemented? Example: Precinct 2

- Issues / Constraints
  - Steep upper slopes, flat lower
  - Low density residential
- Solution
  - Reduce runoff as much as possible from lots
  - Install SW systems in open space
  - Incorporate treatment systems within road reserve of main ring road

22


STORM_CONSULTING
SUITE 3, 8 WEST STREET PYMBLE NSW, AUSTRALIA 2073
PH: +61 2 9499 4333
FAX: +61 2 9499 4311
www.stormconsulting.com.au
PRECINCT 2
POTENTIAL STORMWATER MANAGEMENT
Pond/wetland for energy dissapation and coarse sediment removal
Bioretention trench or linear sand filter, refer to typical sections
Wetland
Drainage corridor
Wetland
Pond/wetland and bioretention
1
2
3
STORM_CONSULTING
_ANALYSIS
_CONSENSUS
_DESIGN
__MANAGEMENT

23


TRU energy
STORM_CONSULTING
STORM_CONSULTING

24

Water Quality Modelling

- MUSIC – Model for Urban Stormwater Improvement Conceptualisation
- Models pollutant loads for TSS, TP and TN (TN hardest to control)
- Target reductions (%) 80 / 45 / 45 (existing targets)
- Used as a design tool for preliminary design sizing
- More MUSIC modelling required as design progresses to demonstrate how benchmarks are met

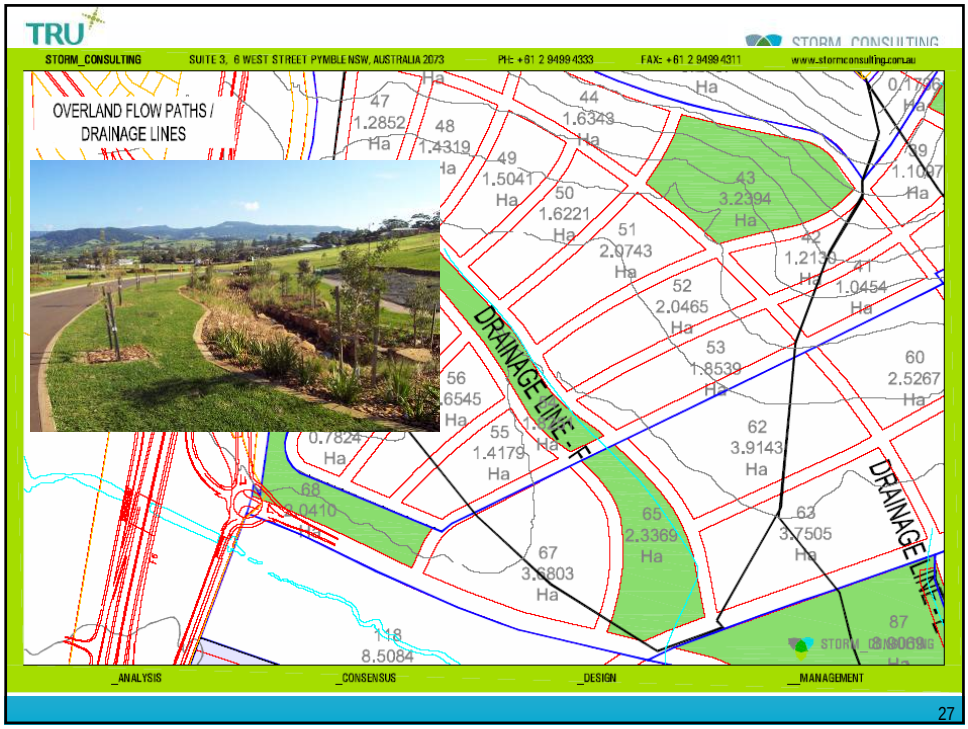
25

Creeks

- A number of drainage lines on site
- Adjust layout to retain overland flow paths and rehabilitate drainage lines where possible



26



Conclusion

- Master planning looked at a range of water based issues up front
- Water management incorporated into the design from an early stage
- Framework in place to create a development that has limited impact on the existing water cycle.

28