

Recycled Water Masterplan

Recycled Water Master Plan

File Reference	West Ballina STP Ultimate Upgrade
Sustainability Plan	A built environment contributing to health and wellbeing
Management Plan	Sewer Services
Objective	To seek Council's endorsement of a modified proposal for the planned Lennox Head Recycled Water Reservoir.

Background

Recycled Water Master Plan

The Ballina Lennox Head Recycled Water Master Plan, as adopted by Council in September 2007, includes a commitment to provide urban dual reticulation (UDR) to all new major subdivisions in Ballina and Lennox Head. The Master Plan targets 80% dry weather re-use of treated wastewater from the Ballina and Lennox Head Waste Water Treatment Plants by the year 2026. This will be achieved by providing UDR to an estimated some 7242 new lots. The recycled water, subject to final approval, will be used for garden watering, toilet flushing, car washing and the cold tap of washing machines.

To meet this target, in addition to the UDR, Urban Open Space (UOS) irrigation will be expanded to some 173 ha including playing fields, parks/gardens and the Ballina Golf Club and 160 hectares of Vegetation Regeneration (VR) is proposed.

The 2026 dry season water balance in the Master Plan 2026 is as follows:

Urban Dual Reticulation (UDR)	24%
Urban Open Space (UOS)	29%
Vegetation Regeneration (VR)	27%
Discharge to ocean	9%
Discharge to estuary	11%

Within the Lennox Head/East Ballina areas, the following recent or currently approved subdivisions are developed to facilitate dual reticulation, with the supply of recycled water to commence following the construction of treatment and distribution infrastructure.

- 'Elevation' subdivision 113 properties
- 'Aspects' subdivision 33 properties
- "Angels Beach" subdivision 63 properties
- 'Meadows' subdivision 24 properties

Total: 233 properties

A total of some 2,258 properties are expected to be ultimately connected to the dual reticulation system in the Lennox Head to East Ballina areas. In

Recycled Water Masterplan

addition to the land above, dual reticulation is planned for the remainder of the Pacific Pines and neighbouring land, as well as for planned land releases at Skennars Head and north of Lennox Head.

UDR re-use is considered the highest value of the three streams nominated in the Master Plan. The reason for this is that the water avoids the use of the potable water supply. The size of the Council's proposal contributes to the potential to defer or reduce the required provision of new water sources, such as the potential Dunoon Dam currently being considered by Rous Water.

Environmental Impact Statement

To implement the Master Plan, a significant infrastructure development program is required. To obtain development consent it was necessary for Council to prepare an Environmental Impact Statement.

The assessment of the EIS is being managed by Council's Regulatory Services Group. Prior to and during the exhibition of the EIS, submissions were received from residents concerned about the impacts of a reservoir proposed for Kings Court Reserve.

In response to those concerns, further investigations have been undertaken and details of the findings are set out below.

Key Issues

- To consider the various technical, financial, ecological and social issues related to the range of options available to provide the required recycled water pressure to the Lennox Head/East Ballina dual reticulation areas.

Information

The use of a service reservoir (with a capacity of about 1 peak days demand) to supply pressure and increase security of supply is normal water supply practise in Australia. To meet those demand requirements for the proposed 2,258 properties and planned open space irrigation in the Lennox Head to East Ballina areas a 3.4 ML is required.

By placing reservoirs on the sites of the highest elevation mean that the any required high level zone pressure system is reduced in size. That is, the maximum number of homes can be serviced directly from the available reservoir pressure, with no mechanical or electrical cost or risks. A minimum water pressure equal to 25 m vertical head is normally required in order to avoid customer complaints.

Two potential reservoir sites were nominated in the Recycled Water Master Plan EIS. The site at Kings Court Reserve provided the highest elevation in the area. The alternative, lower site was nominated in part of Mr Pidcock's land to the north of Fieldcrest Place. As indicated above Council has received considerable representations and submissions opposing the reservoir from the local communities near these 2 sites.

During consultation processes, a third site has been suggested by Mr Pidcock, on his land adjacent to 'Warrawee' estate. Whilst considerable consultation has occurred with residents impacted by the Kings Court and

Recycled Water Masterplan

Pidcock's sites, no consultation has yet occurred with residents near to this third site, as further alternatives have since emerged.

In addition to these three site alternatives, the consultation process asked Council to seek out other options. Investigations were undertaken regarding the feasibility of a pressure system. Two pressure options were developed. One option is a full pressure system with no reservoir. The second option was a hybrid option being a pressure system with a 107kL header tank. Finally a sixth option is reported, being the impacts associated with a do nothing option.

The pressure system option is unique and as such there are no readily applicable engineering standards. Therefore there is limited information available for the Council to consider service risks. The service risk relates to the mechanical or electrical failure of the pressure system. Households will be supplied with potable water from a different supply. Therefore the risks to service from a lack of supply of recycled water are not as critical, although toilet flushing needs should be considered.

The tank in the hybrid option would provide an emergency storage of several hours under power outage/pump failure conditions and also the ability to allow a potable top-up of this header tank from the existing drinking water system. That is a tank of this size would allow uninterrupted supply for the more typical times required to make the repairs from the outage.

The pressure system requires additional pumping when compared to the service reservoir options. It was important therefore to assess the whole of life costs and green house gas emissions associated with these options.

Attachment One to this report is a table setting out the findings of the investigation. The analysis indicates that the Hybrid System is preferred for the following reasons.

- Acceptable level of service risk
- Risk advantages when compared to full pressure system
- Avoids many of the social impacts of the service reservoir options
- Lowest NPV
- The additional GHG emissions are relatively minor in the context of the total energy of Council's water and sewer operations.

Kings Court Reserve Embellishment

The preferred site on a technical basis for a tank within the hybrid pressure system is still Kings Court. The reasons described above in regard to the high level zone for the service reservoir apply in the same manner for the small tank.

Consideration has also been given to locating the tank on the Council reserve on the western side of North Creek road, opposite Castle Drive (adjacent to Mr Pidcock's property). Advice is that the tank cannot be located in this area due to the close proximity to heritage listed trees, which are part of an 'Endangered Ecological Community'.

The other sites are not owned by Council would need to be acquired.

Recycled Water Masterplan

The 107 kL tank would be approximately 6 by 4 metres. It was therefore decided that there may be opportunities to use the tank as a structure that as well as meeting the Master Plan needs, embellish the reserve and contribute to its amenity.

Consulting architects, Archimages were engaged to prepare concept sketches for shade structure that incorporated the tank, playground and ball play areas, bbqs, tables and chairs.

Attachment Two to this report provides the outcomes of that work including sketches and photo montages.

The proposal is to utilise the sloping land and the southern end of the reserve. The slope reduces the use of this area, it is located away from residents, and provides excellent views. The concept design takes into account sight lines from the houses adjacent and the structure can be designed so as not to impede the views of those houses.

As well as being a social meeting place, it would be possible to utilise the tank structure for interesting artwork, indigenous story telling or water demand management education.

The additional capital cost for the embellishment proposal still results in this option having the lowest Net Present Value.

In addition, consideration has been given to completely burying the 107 kL reservoir. There are several reasons why this is not feasible, including operational/maintenance difficulties (access is required for pipe work at the base of the storage, additional costs (likelihood of highly expensive basalt excavation), and loss of head.

The embellishment proposal has been discussed with representatives of the Kings Court Action Group and the Lennox Head Residents Association. Their response is discussed in the consultation section of this report.

Sustainability Considerations

- **Environment**
The Master Plan was developed to reduce the discharge of treated effluent to aquatic environments and to reduce the demand on the potable water supply. Greenhouse gas production arising from the operation of the system has been considered in the assessment.
- **Social**
The options have been considered for their social impacts. The recommended option offers the embellishment of a reserve and avoids the social impacts associated with the other options.
- **Economic**
The supply of cost effective infrastructure supports economic development.

Recycled Water Masterplan

Legal / Resource / Financial Implications

The recommendation to this report seeks Council's approval to amend its EIS proposal. Therefore there are no legal implications directly associated with this report.

The Council is not making a financial commitment through the recommendation to this report, other than to continue to the next phase of this project. It is however noted that the recommendation is supporting the least expensive option on a capital and net present value basis. The current project estimates are consistent with those previously used in Council's financial planning, however those plans will need to be reconfirmed prior to Council accepting a tender for the reservoir works and making the commitment to expend the required funds.

Consultation

The information presented in this report has been provided to the Lennox Head Residents Association, the Lennox Head Chamber of Commerce and the Kings Court Action Group.

Attachment Three to this report is an email response from the resident's association which is in effect in support of the recommendation to this report.

At the time of writing this report the formal response from the Action Group is yet to be received. It is understood from conversation with the President of the Group that some members would still prefer for the reserve to maintain its current status, however the majority of residents support the proposal. Should a formal response be received prior to the meeting, it will be distributed to Councillors.

Should the Council accept the recommendation to this report, the Regulatory Services Group will notify adjoining residents and those that made submissions to the EIS of the amended proposal and seek any new or additional comments.

The design is at concept level only for EIS purposes. Should the project be approved, further consultation can be undertaken regarding the detail of the design.

Options

1. Kings Court Reserve - 3.4 ML reservoir
2. Pidcock Land West 3.4 ML reservoir
3. Pidcock Land North Ck Rd: 3.4 ML reservoir
4. Do nothing (no UDR in this area)
5. Full Pressure system (2.5 ML storage & pump station at Lennox WWTP)
6. Hybrid Pressure System (as for 5 with a 107kL tank at Kings Court Reserve)
7. Hybrid Pressure System (as for 5 with a 107kL tank at the sites for 2 and 3).

If the do nothing option is selected 2,258 future or existing properties will not be part of the recycled water scheme. This will significantly impact on the Council's ability to meet its current reuse targets and remove a major portion

Recycled Water Masterplan

of the reuse type considered to be the most important given it reduces the demand for potable water.

As detailed in the report the hybrid option is preferred as it avoids social impact issues and is the lowest cost. Option 6 (Kings Court) is preferred when compared to Option 7 for the following reasons.

- Elevation provides high level zone operational benefits
- Social impacts of a small tank can still apply
- Land is owned by Council
- Opportunity to embellish the reserve.

As described in the above report, the only disadvantage of Option Six compared to the service reservoir options is that there is a greater risk of service interruption in the event of mechanical or electrical problems. However, it is considered that the proposed concept provides enough redundancy to manage typical faults without impacting on service level. It was noted that given the unique nature of this project, no specific engineering standard applies. In addition to the proposed redundancy, the service risks are considered acceptable given the non critical types of use for the water.

RECOMMENDATIONS

That Council endorses a proposal to amend its Recycled Water Master Plan EIS by replacing the proposed Kings Court Reservoir with a pressure system inclusive of a feeder tank that can be incorporated into a structure that provides embellishment to the amenity and function of the Kings Court Reserve.

Attachment(s)

1. Comparison of Social, Technical, Financial and Ecological Aspects of Options
2. Architect sketches of Option 6 Hybrid system 107 kL tank with community facilities inbuilt.
3. Correspondence from the Lennox Head Residents Association

Recycled Water Masterplan

Appendix – Lennox Head Recycled Water Reservoir
Comparison of Social, Technical, Financial and Ecological Aspects of Options

Option	Social	Technical Reliability	Financial Capital cost-NPV (\$m) See (3)	Ecological equivalent number of average homes/ GHG emissions offset cost at \$50/t - over 25 yrs	Ownership/BSC parkland
1 3.4 ML Kings Ct Reserve (East)	Adjoining landowners concerned about reduced amenity	Highest site in area - smallest HLZ see (1)	7.27-7.36	5.1 - \$89,000	26 m dia uses 1/5 of current park site area
2 3.4 ML Pidcocks West	Adjoining landowners concerned about reduced amenity	9 m lower than option 1 - larger HLZ	7.75-7.83	4.5 - \$79,000	NIL - private land but unwilling vendor
3 3.4 ML Pidcocks – adjacent North Ck Road	Adjoining landowners concerned about reduced amenity	16 m lower than option 1 – much larger HLZ	7.82-7.89	4.1 - \$72,000	NIL – private land, possible willing vendor
4 Do nothing – abandon UDR in Lennox-East, Ballina. Limit UDR to only Ballina Heights and North Ballina areas	Existing 'Aspects' & 'Elevations' 'Meadows' & 'Angels Beach' already dual plumbed – wasted effort. Target re-use for UDR drops by ~ 20%. Corresponding increased discharge to ocean at Skemmers Hd.	NA see (2)		Greater discharge of recycled water to environment and earlier construction of new water sources	NA
5 Full Pressure system with no elevated reservoir	Avoids visual issues, but if pump system fails then toilet flushing will cease, i.e. increased risks for inconvenience, amenity, reduced levels of service, etc	Even with standby generator, potential reliability issues especially with lightning strikes on PS.	5.79-5.92	7.0 - \$123,000	NIL
6 Hybrid System: Full pressure system with 107 kL header tank in Kings Ct reserve (western side)	6 m dia concrete tank is blended into a BBQ/playground area. The bottom 1 m can be below ground (effective height 3m)	Reliability ensured by potable top-up from Basalt Ct reservoir. Air gap prevents backflow.	6.51-6.84 see (4)	7.0 - \$123,000	Very small footprint on parkland - which is offset by the added community facilities

Legend/Notes:

- (1) HLZ = High level zone for pumped pressure (ie vertical height less than 25 m from home to reservoir water level)
- (2) NA = not applicable
- (3) NPV = Nett Present Value & this also includes cost of offsetting GHG emissions at \$50/tonne & includes cost of land acquisition, where required.
- (4) Capital cost and NPV adjusted to include \$300,000 additional cost for BBQ, toilet, playground and landscaping over and above 107kL reservoir

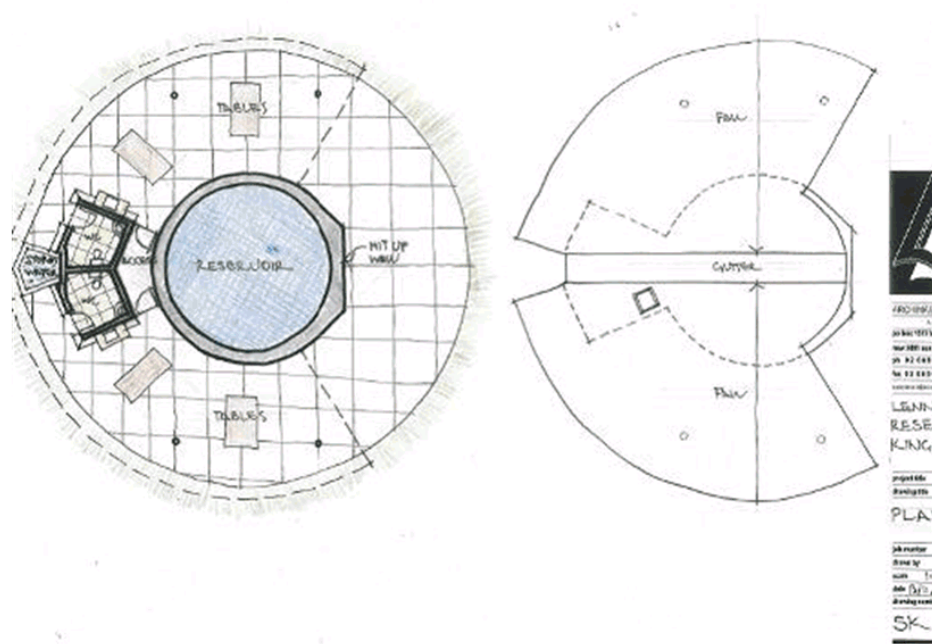
Recycled Water Masterplan

Architect Sketches of Option 6, Hybrid System, with 107 k L tank combined with community facilities:

BBQs, tables, playground. Note some earthworks will be carried out to create a more 'level' area on the sloping site. This also allows the bottom 1 m of the tank to be placed 'underground', without any rock excavation. (Rock is anticipated to be close to surface, based on geotechnical data from the nearby Basalt Ct drinking water reservoir construction)



Recycled Water Masterplan



Recycled Water Masterplan

Lennox Head Residents Association Inc.

8 November 2009

Mr John Truman
Group Manager
Civil Services
Ballina Shire Council
BALLINA

Dear John,

Re: Recycled Water Masterplan - Kings Court Reserve Reservoir Proposal

I refer to our meeting held 24 November and your subsequent letter enclosing the concept plans for the potential use and amenity of the King's Court Reserve Area incorporating a small tank capable of storing around 100kl of water. Thank you for the opportunity to consider this proposal and to discuss it with the members of the Association at its meeting last night.

Reaction to the proposal and to the concept plans was favourable. It was resolved: that provided the intention to improve the amenity of the Reserve as shown in the sketches, ie to incorporate facilities including playground equipment, toilets and covered seating BBQ etc. is adopted the Association approves of the proposed location of the Smaller tank.

Discussion revolved around the need to improve the amenity to avoid the spoiling effect of the presence of the tank. However, the meeting wished me to compliment you for the effort that has gone into reaching this solution to the problem and for your cooperation with the representatives of the objectors to the original proposal.

Please don't hesitate to contact me if I can help any further.

Yours sincerely

Fred Goodman
President

Martha Dotter

Project Reference No. 2009/0005

The General Manager
Ballina Shire Council
PO Box 450
BALLINA NSW 2478

**NOTICE TO APPLICANT OF APPROVAL OF ACTIVITY
PURSUANT TO PART V OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT
ACT, 1979**

Pursuant to Part V of the EP & A Act, notice is hereby given that the application seeking approval of the proposed activity has been determined by way of **approval** by Council on 28 October 2010 in accordance with this notice.

SUBJECT LAND

Ballina Wastewater Treatment Plant, Fishery Creek Road Ballina and Lennox Head Wastewater Treatment Plant, North Creek Road Skennars Head and various other land parcels in the Ballina-Lennox Head locality proposed to contain associated infrastructure and reticulation (refer to Environmental Impact Statement).

DESCRIPTION OF PART V ACTIVITY APPROVAL

Upgrade of the Ballina and Lennox Head Wastewater Treatment Plants (WWTP) and the Construction and Expansion of Recycled Water Treatment Facilities (RWTF) and Associated Infrastructure, being summarised as follows:

- *Ultimate Upgrade of Ballina Wastewater Treatment Plant (WWTP) to a capacity of 30,000 equivalent persons (EP);*
- *Diversion works to redirect some wastewater flows that are currently directed to Lennox Head WWTP to the Ballina WWTP;*
- *Ultimate upgrade (Quality Enhancement) of the Lennox Head WWTP, following the optimization upgrade which is now underway;*
- *Construction and commissioning of two Recycled Water Treatment Plants (RWTPs);*
- *Construction of the following recycled water infrastructure:*
 - *Ballina Heights recycled water reservoir (plus a drinking water reservoir on the same site);*
 - *Pipeline from Ballina WWTP to Ballina Heights recycled water reservoir;*
 - *A recycled water pressure system located at the Lennox Head WWTP providing a recycled water service to some areas of Lennox Head and East Ballina including the construction of a reservoir (to act as an emergency supply) located at Kings Court Reserve (involving associated embellishments being the construction of a playground and picnic area under the provisions of the Ballina Shire Development Control Plan -*

Page 1 of 17

11.5 Recycled Water Scheme - Kings Park Embellishment Project.DOC

Part V Approval Waste Water Upgrade - Project Reference No. 2009/0005

*Exempt and Complying Development) **NOTE** - *See heading Kings Court Reserve Embellishment below for further information);*

➤ *Pipeline from Lennox Head WWTP to Lennox Head recycled water reservoir site (Kings Court Reserve).*

- *Treatment of the recycled water to make it suitable for urban dual reticulation use;*
- *Change of use of existing treatment pond at Ballina WWTP to stormwater by-pass pond; and*
- *Disposal of sludge from Ballina and Lennox Head WWTPs to an approved waste facility.*

ACTIVITIES NOT INCLUDED IN PART V APPROVAL

It is noted that the EIS document included assessment of activities for which approval was not sought. The following is a list of those activities for which approval was not issued by the Council:

- Use of recycled water for vegetation regeneration sites;
- Use of recycled water open space irrigation sites;
- The Pacific Pines site as an option for the construction of a Recycled Water Reservoir;
- On-site or any alternative disposal of sludge at the Ballina WWTP, outside of the approved trucking of the sludge to an approved waste facility;
- Any extension, reconstruction or widening (not constituting 'routine maintenance') of Fishery Creek Road where it passes through SEPP 14 boundaries, as gazetted;
- Expansion of either the Lennox Head or Ballina WWTPs onto adjoining parcels of land not owned by Council;
- Utilisation of 'Trenching' construction methods to lay reticulation pipelines in ecologically sensitive areas;
- The removal of any vegetation at the existing Ballina and Lennox Head WWTPs;
- Construction of a Recycled Water Reservoir at Ross Lane or a Recycled Water Plant at the Ballina Southern Cross Industrial Estate;
- Construction of embellishments associated with the construction of the Kings Court Reserve Recycled Water Reservoir (see NOTE* below); and
- Recycled water pipelines where alignments have not been identified.

NOTE* - Kings Court Reserve Embellishments

This Part V Approval includes the construction of a 107kL Recycled Water Reservoir (for emergency back up supply to the pressure fed system) at the Kings Court Reserve in Lennox Head. The recommendations and proposed mitigative measures contained within the Determination Report (subsequently approved by Council) recommended that the proposed embellishments to the Recycled Water Reservoir at Kings Court Reserve, Lennox Head be carried out as exempt development pursuant to the Ballina Shire Development Control Plan - Exempt and Complying Development and under the State Environmental Planning Policy – Infrastructure (2007) (I-SEPP).

This approach is consistent with Council's general practise which provides that playground and barbeque facilities within a Council managed reserve is the ordinary operational business of Council's Civil Services Group, specifically managed by the Open Spaces and Reserves Manager, and is therefore exempt from requiring approval.

It is noted that a significant number of submissions received by local residents during the exhibition of the Part V proposal indicated that residents and affected community members believed they were not adequately consulted with regard to the proposed embellishments

Page 2 of 17

associated with the Recycled Water Reservoir at Kings Court Reserve. It is further noted that although no approval is issued for the construction of the associated embellishment of the Kings Court Reserve Reservoir, the Council, as the proponents of the project advised in the Representations Report that the following actions would be undertaken with regard to this issue:

- *Further consultation is required and proposed for development of the design at Kings Court Reserve; and*
- *Consultation would be undertaken with residents regarding maintenance scheduling and timing for the proposed reservoir at Kings Court.*

DETAILS OF MODIFICATIONS AND MITIGATIVE MEASURES APPLIED TO THE PART V APPROVAL

Pursuant to Part V, Division 3 Section 112(4)(b)(i) of the EP & A Act, and the Council determination, the following modifications or mitigation measures form part of the approved activity:

1 GENERAL

- 1.1. The terms, conditions, mitigative measures and modifications contained within the Ballina Lennox Head Recycled Water Master Plan EIS, dated September 2009, prepared for Ballina Shire Council by NSW Water Solutions and within the Representations Report, dated July 2010, except where modified in the Determination Report and/or amended by the adopted modifications listed/referenced below, remain applicable to the approval.
- 1.2. The additional information provided by the proponent dated 4 February 2010 (Appendix A), 18 June 2010 (Appendix B), 15 July 2010 (Appendix C) and the 15 October 2010 (Appendix D);

See **attached** documents Appendix A, B, C and D.
- 1.3. The RTA concurrence conditions dated 27 October 2009;

See **attached** RTA document Appendix E.
- 1.4. All design and construction plans are to clearly depict the key environmental features depicted within the Construction Environment Management Plan (CEMP) required by modification/mitigative measure No. 2.1 of this approval.
- 1.5. As the details of the design are developed for the Lennox Head WWTP they will be reviewed for consistency with what was assessed in the EIS.
- 1.6. Consultation with other plant operators will be considered further through the early tender involvement process and the detailed design development.
- 1.7. Council will undertake evaluation of the treatment processes for the recycled water to ensure its suitability for re-use. An ongoing monitoring regime will be developed to ensure that barriers for health controls are performing adequately.

11.5 Recycled Water Scheme - Kings Park Embellishment Project.DOC

Part V Approval Waste Water Upgrade - Project Reference No. 2009/0005

Incident Management Response Protocols will be developed for the use of the recycled water.

- 1.8. Consultation shall be undertaken with residents regarding maintenance scheduling and timing for the proposed reservoir at Kings Court Reserve.

State Environmental Planning Policy 14

- 1.9. The proposal is to avoid any filling, draining or clearing on land identified as being subject to State Environmental Planning Policy 14 (SEPP - 14) Wetland Areas Nos 88, 93 and 94. All recycled water pipeline networks within these areas are to be underbored.

It is noted that parts of Fishery Creek Road, the access road into the Ballina WWTP, which are affected by SEPP 14 is proposed to be repaired by patching and resealing (routine maintenance) but will not be widened, or extended in any way. There is not to be any widening or re-alignment of that portion of Fishery Creek Road affected by SEPP 14. Consequently, SEPP 14 will not be triggered due to the works proposed being routine maintenance of an existing road.

Building Requirements

- 1.10. The proponent is required to submit a development application under Part IV of the EP&A Act for buildings that are required to be constructed at the Ballina WWTP and the Lennox Head WWTP, if not deemed to be exempt or complying development.
- 1.11. Any amenities at the Waste Water Treatment Plants are to contain both male and female disabled facilities constructed in accordance with the requirements of Australian Standard 1428 - 2003 - Design for access and mobility Set.

Local Government Act Approval

- 1.12. Should any of the following activities be carried out as part of the approval issued by this document, then pursuant to Section 68 of the Local Government Act 1993, the proponent is required to submit a S68 application to Council:
 - Carry out sewerage work.
 - Carry out stormwater drainage work.
 - Connect a private drain or sewer with a public drain or sewer under the control of Council or with a drain connected to such device or facility.

Water Management

Water Management Act 2000 – Controlled Activity

- 1.13. As outlined in the submitted environmental impact statement (EIS) Local Government is exempt from the requirement to obtain a Controlled Activity Approval (CAA) for works in a water course under section 39A of the Water Management (General) Regulation 2004.
- 1.14. The submitted EIS outlines that the works will involve the interception of groundwater. Therefore a Dewatering Licence must be obtained from the NSW Office of Water prior to the commencement of works (see Table 2 - Approvals which May be Required Prior to Works Commencing).

Page 4 of 17

- 1.15. Should the proposed works involve the discharge of groundwater to a waterway an environmental protection licence must be obtained from the DECCW works (see Table 2 - Approvals which May be Required Prior to Works Commencing).

Mosquito Management

- 1.16. Any ponds, dams along with any other equipment of structures used during construction works that hold water must be designed, installed and maintained to ensure they do not act as a mosquito breeding site.

Buffer Zones

- 1.17. The RWF Buffer Zone Land Use Planning Guidelines and Living and Working in Rural Areas – A handbook for managing land use conflict issues on the North Coast recommend a minimum buffer distance between sewage treatment works and residential areas of 400 metres.

Although the proponent has proposed that additional works at the Ballina and Lennox Head waste water treatment plants will take place within the existing areas, should works eventuate outside of the existing areas of the Ballina and Lennox Head waste water treatment plants the minimum buffer distance should be maintained.

Approval should be sought by Council should the additions to the treatments plants encroach on the 400 metre minimum buffer.

- 1.18. Appropriate buffers will be identified in the **CEMP** and **Operational Environmental Management Plan** (OEMP) to prevent impacts to adjoining land holders and to sensitive environments such as wetlands.

2 PRIOR TO CONSTRUCTION WORK COMMENCING

Construction Environmental Management Plan

- 2.1. To ensure that construction activities do not have an adverse impact on the environment, the proponent is to prepare a **Construction Environmental Management Plan** (CEMP), to be submitted to and approved by Council's Regulatory Services Group prior to any construction works commencing. The CEMP is to include but is not to be limited to the following information;

- Mapping of ecologically significant features as listed below:
 - Identify and map SEPP 14 Wetland Areas Nos 88, 93 and 94;
 - Undertake surveys during suitable weather conditions to determine the distribution of the vulnerably listed Wallum Froglet (*Crinia tinnula*);
 - Identify and map all EEC's located within 30m of the finalised position of the recycled water pipeline network and/or limit of works area;
 - Identify and map all wetland habitats located within 30m of the finalised position of the recycled water pipeline network and/or limit of works area;
 - During the detailed design phase for the installation of the recycled water pipeline the proponent is to identify and map all significant vegetation growing within the vicinity of the finalised pipeline route. Impact assessment of the pipeline route on the vegetation is to be undertaken in accordance with AS 4970-2009 – 'Protection of trees on development

sites'. Where it is determined that the pipeline route will impact on the Tree Protection Zone of areas of significant vegetation, underboring will be required. Details of the survey work are to be included in the CEMP

- A specialist ecologist will be engaged to assist in defining pipeline alignments within the pipeline corridor.
- Details of measures to ensure that the identified ecologically significant elements are protected during and post the installation of the recycled water pipeline;
- Details of methods to be implemented to protect SEPP 14 Area No. 93 during and post construction;
- A specialist underboring consultant shall be part of the design team and further ecological recommendations from an ecologist will be included in the preparation of a detailed methodology of underboring. This is required to minimise any potential impacts to sensitive areas such as wetlands, high conservation habitat for threatened species, main roadways, endangered ecological communities etc. Mitigation measures are to be included in the CEMP to minimise the potential impacts from the underboring.
- Consultation is to be undertaken with the RTA prior to construction to identify if there have been any issues identified during the construction of the Ballina Bypass in regards to the spread of *Phytophthora cinnamomi* (a soil-borne water mould that produces an infection which causes a condition in plants called root rot or dieback. It can be spread by movement from the bottom of shoes and vehicles that have traversed an infected site). In the event that it is an issue, then specific work practice methodology is to be included in the CEMP, providing environmental safeguards for all directional underboring activities;
- Details of provisions for the erection of exclusion fencing adjacent to ecologically sensitive areas. This is required to protect ecologically significant habitats. The proponent is to erect visible barrier fencing isolating the identified habitats from work sites and construction activities. Signage depicting the purpose of the fencing is to be installed on the fence;
- Details of measures to be implemented to clearly identify vegetation to be removed, lopped or retained;
- Clear identification of the limit of works along the finalised pipeline route including, vehicle access tracks, set down and storage areas etc; and measures to mitigate against potential spread of weeds etc.

Ecological Requirements

- 2.2. All personnel working on the site are to be advised of the significance of erected fencing.
- 2.3. Underboring of the highway is to comply with RTA conditions, as provided in Appendix E attached.

Noise

- 2.4. To minimise the potential construction noise impacts on nearby residences a **Construction Noise Management Plan** must be submitted to, and approved by Council's Regulatory Services Group prior to the commencement of works. This may form part of the **CEMP** as required by other Modifications in this approval. As outlined in the submitted Report, such measures to be included in the management plan are:

- Avoiding the coincidence of noisy plant working simultaneously close together and adjacent to sensitive receivers.
- Where possible increase distance between noisy plant items and nearby sensitive receivers.
- Regular compliance checks on the noise emissions of all plant and machinery.
- The use of residential grade mufflers on all mobile plant use don site.
- Acoustic enclosures on plant items.
- Temporary noise barriers between noise sources and nearby potentially affective noise sensitive receivers.
- Community consultation with any potentially affected nearby receivers.

Stormwater Management

- 2.5. A **Stormwater Management Plan** (SWMP) must be submitted to and approved by Council's Regulatory Services Group prior to the commencement of works. The SWMP must be prepared in accordance with Managing Urban Stormwater – Soils and Construction, LANDCOM, March 2004.

Acid Sulfate Soil Management

- 2.6. As outlined in the submitted EIS potential acid sulfate soils were found along the north Ballina rising main route and the Ballina waste water treatment plant. Therefore an **Acid Sulfate Soil Management Plan** shall be prepared by a suitably qualified person in accordance with the Acid Sulfate Soil Assessment Guidelines (Acid Sulphate Soil Management Advisory Committee, 1998) where construction works have the potential to disturb potential acid sulphate soils. The Plan is to be submitted to and approved by Council's Regulatory Services Group prior to the commencement of works and may form part of the **CEMP**.

An **Acid Sulphate Soil Management Plan** will be developed specifically for the construction works where there is potential to disturb potential acid sulphate soils. This will be part of the **CEMP**.

Contaminated Land Management

- 2.7. **Preliminary Site Investigation Reports** for the recycled water reservoir sites (Ballina Heights and Kings Court Reserve) are to be prepared by a suitably qualified consultant and submitted to, and approved by Council's Regulatory Services Group to ensure land contamination does not pose a risk to nearby residents, prior to works commencing.

Civil Modifications

- 2.8. Prior to Construction Commencing, engineering design drawings shall be submitted to and approved by the RTA under Section 138 of the Roads Act 1993 for any Civil Works occurring on a state classified road. This is to include the application of a Works Authorization Deed (WAD). Details submitted shall be in accordance with the RTA letter dated 27/10/09 (**attached** as Appendix E), RTA reference number 23.5363, file number 9397YB, from Yvonne Bowles, and RTA letter dated 22/10/08, RTA reference number 23.5351, 08/1942, N01417, by Leisa Sedger.
- 2.9. Prior to Construction Commencing, a **Traffic Management Plan** is to be submitted to and approved by Council's Civil Services Group. This Traffic

Management Plan is to be in accordance with Sections 6.2.2 and 7.2.2 of the Ballina – Lennox Head Recycled Water Master Plan – Environmental Impact Statement (September 2009), DC08174 and RTA letter dated 22/10/08, RTA reference number 23.5351, 08/1942, N01417, by Leisa Sedger.

- 2.10. Prior to Construction Commencing a **Traffic Control Plan** is to be submitted to, and approved by Council's Civil Services Group. This is to be conducted for any works occurring on a Council road.

3 DURING CONSTRUCTION WORKS

- 3.1. During construction works all significant vegetation and/or trees to be retained as identified in the CEMP, and immediately adjoining the pipeline route are to be protected with temporary fencing. Fencing is to be established a minimum of 1 metre outside of the identified Tree Protection Zone and/or drip line zone which ever is greater.
- 3.2. All pruning activities are to conform to the Australian Standard as detailed in "Pruning of Amenity Trees". Pruning activities are to be conducted in a manner that ensures the ongoing environmental integrity of the area.
- 3.3. During construction all vegetation removal is to be undertaken in a manner that ensures the ongoing integrity of the vegetation to be retained and/or adjacent native plants to be retained.
- 3.4. During construction there is to be no vegetation clearance, earthworks and/or storage of any vegetative matter, goods and/or equipment outside of the nominated limits of works areas identified in the required CEMP.
- 3.5. During construction all lopped vegetated matter is to be removed from the site and disposed of in an appropriate manner.

Drainage and Plumbing Inspections

- 3.6. Forty eight (48) hours notice is to be given to Council's Building Services Group to enable the following plumbing and drainage works to be inspected during construction. NOTE: All required sewer and water service plumbing drainage inspections are to be carried out by Council:
 - a) When the internal sewer drainage pipelines beneath the building have been laid by the licensed plumber so that a water test can be carried out before they are backfilled.
 - b) When the external sewer drainage lines have been laid by the licensed plumber so that a water test can be carried out before they are backfilled.
 - c) When the external stormwater drainage lines have been laid and connected by a licensed plumber prior to backfilling.
 - d) On completion of the water supply "rough in" and/or plumbing stackwork prior to the internal lining of the building.

Filling Requirements

- 3.7. The subject lands (within the curtilage of the upgrade) must be filled to a minimum level of RL 1.9 metres AHD.

- 3.8. The minimum height of all berms and perimeter tracks around treated water bodies is to be no less than RL 2.4m AHD with backflow prevention devices affixed to the outlets.
- 3.9. The finished floor height of buildings is to be constructed at a minimum RL of (2.4) metres AHD. A Surveyor's certificate verifying compliance with this height is to be submitted to Council's Civil Services Group at completion of slab formwork stage, prior to concrete pouring, or upon completion of the timber floor prior to work proceeding beyond this stage. Where filling is utilised to raise the slab level and extends to the outside of the building, such filling is to be adequately retained and drained to the stormwater drainage system, to ensure stormwater is not directed onto adjoining properties.

Noise

- 3.10. The submitted Ballina Wastewater Treatment Plant Upgrade Potential Noise and Vibration Impacts Assessment Report dated 4 September 2009 outlined a construction noise criterion for the proposed works in Table 9. The Assessment Report goes on to outline the predicted noise levels from the pipeline and reservoirs construction. Many of these predicated noise levels exceed the construction noise criteria.

Table 21 of **Ballina Wastewater Treatment Plant Upgrade Potential Noise and Vibration Impacts Assessment Report** dated 4 September 2009 outlines the operation noise criteria and potential operational noise levels from the Ballina Waste Water Treatment Plant.

- 3.11. The hours of operation for any noise generating construction activity (including the delivery of materials to and from the site) on the proposed development are to be limited to within the following times:

Monday to Friday 7.00am to 6.00pm
Saturday 8.00am to 1.00pm

No noise generating construction activities are to take place on Sundays or public holidays.

- 3.12. Table 21 of the above report demonstrates that the operational noise criteria may be exceeded at a number of noise sensitive receivers. To reduce the potential noise impacts the following mitigation measures must be implemented in accordance with the submitted **Noise Assessment Report**.
- 3.13. The noise assessment report states that the dominant noise is the breakout from the roof and roller door of the blower room. Therefore the roof construction shall consist of:
 - Steel sheet roof
 - Steel purlins
 - 100mm air space (provided by the purlins and battens if required)
 - 75mm R2.0 batts in ceiling cavity
 - 3mm Soundcheck plasterboard ceiling
- 3.14. The roller door for the blower room must have a sound insulation rating of RW 38. The noise assessment report outlines that this level of attenuation can not be achieved with a roller door and a proprietary hinged steel framed door would be required.

- 3.15. As the design details of the blower building have not been confirmed certification by a qualified acoustic consultant must be provided to Council outlining that the proposed design will meet the noise attenuation requirements outlined in the submitted **Noise Assessment Report**.
- 3.16. The proposed works shall not result in the emission of offensive noise. Offensive Noise means noise:
- i. That, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:
 - i. is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or
 - ii. interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
 - ii. That is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.
- 3.17. A single all weather accessway is to be provided on site. All construction vehicles are to enter and exit the site via this accessway so as to minimise erosion on site and prevent the movement of soil material onto surrounding roadways (if required provide a 'shake down' grid area for truck wheel washing). When necessary, roadways shall be swept and all drains and gutters cleaned of sediment material. **Failure to comply with this requirement may result in an on-the-spot fine being issued.**
- 3.18. Suitable covering and protection is to be provided to all stockpiles to ensure that no material is removed from the sites by wind, causing a nuisance to neighbouring properties.
- 3.19. To prevent the pollution of waterways, the proponent/builder is to ensure adequate sediment and erosion control measures are in place prior to the commencement of works on site and are to be maintained during the construction of the project until the site has been stabilised by permanent vegetation cover or a hard surface. This is to include:
- The prevention of soil erosion and the transportation of sediment material into any roadway, natural or constructed drainage systems, watercourse and or adjoining land.
 - Service trenches are to be backfilled as soon as practical.
 - Buffer vegetation zones are to be retained on sites that adjoin roadways, drainage systems and or watercourses.
 - Sediment and erosion control measures are to be maintained throughout the construction process and beyond by the owner, where necessary.

Fill

- 3.20. The proponent shall ensure that any fill material imported to the site for the proposed development shall only be obtained from other fill sources with approved testing. The supplier of the fill material must certify to Council's Regulatory Services Group at the completion of the construction of the

development that the material was free of contaminants, being natural or otherwise.

Waste Management

- 3.21. All demolition, construction or the like waste is to be transported and disposed of to an approved waste facility or if alternative disposal methods are sought, that written approval is granted by Council's Regulatory Services Group.
- 3.22. All demolition work is to be carried out in accordance with the WorkCover Authority guidelines, Australian Standard 2601:2001 'The demolition of structures', and Council guidelines for the removal of asbestos and lead based products. The sewer, water and electrical services are to be disconnected by licensed tradespersons.
- 3.23. Water and sewage treatment plants are included in Schedule 1 of Ballina Shire Council Management of Contaminated Land Policy which indicates it is a potentially contaminating activity. Due to the potential land contamination risk at the Ballina and Lennox Head WWTPs, any soil removed from each site for disposal or otherwise must be tested to classify the waste in accordance with the NSW DECCW Waste Classification Guidelines to ensure it is suitable for disposal.
- 3.24. All chemical storage areas shall be provided with bunding to contain all oils, chemicals and other liquid contaminants. Where applicable, the construction of a bunded area must comply with the requirements specified in Australian Standard 1940 – 2004 "The storage and Handling of Flammable and Combustible Liquids" and Australian Standard AS 4452 – 1997 "The Storage and Handling of Toxic Substances".

Air Quality Management

- 3.25. No burning of cleared vegetation or other waste material shall occur on site prior to or during the construction phase of the development. Council has a No Burn Policy in residential areas which aims to minimise air pollution by prohibiting the burning of any waste in residential areas. All vegetation waste should be removed to a licenced waste management facility or if an alternative method of disposal is sought written approval of Council is required.
- 3.26. Any potential odour impacts of the waste water treatment plants on nearby residents shall be managed in accordance with the DECCW guideline '*Assessment and Management of Odour from Stationary Sources in NSW*'.
- 3.27. A water truck designed to suppress dust from exposed surfaces and access roads shall be available at the work sites or in the immediate vicinity. Exposed surfaces and access pads shall be regularly wetted to suppress dust generation until such time that construction is completed and areas have been revegetated. All disturbed areas shall be revegetated immediately they are completed.

Land Contamination

- 3.28. Where required and necessary, excavation for structures would be considered in accordance with Council's policy in regards to preliminary site contamination assessments.

- 3.29. Clean up equipment including suitable absorbent material shall be available on site to effectively deal with liquid contaminates such as oils and chemical spills.

Note: Spill equipment must be available for any fuel, oil spill from machinery or equipment.

- 3.30. Any chemical storage areas shall be provided with bunding to contain all oils, chemicals and other liquid contaminants. Where applicable, the construction of a bunded area must comply with the requirements specified in Australian Standard 1940 – 2004 “The storage and Handling of Flammable and Combustible Liquids” and Australian Standard AS 4452 – 1997 “The Storage and Handling of Toxic Substances”.

- 3.31. Any potentially contaminated soil excavated during the pipeline/construction works must be handled and sampled, for relevant contaminates of concern in accordance with the NSW EPA Contaminated Sites Sampling Design Guidelines and National Environmental Protection (Assessment of Site Contamination) Measure 1999 Guideline on the Investigation Levels for Soil and Groundwater.

Note:

Such indications of potential contamination may be the presence of hydrocarbon odours or the excavation of chemical or other waste containers.

Additional land contamination information has not been requested for the waste water treatment plant sites because there is no change in land use and should the land use change in the future land contamination investigations will be required due to the land contaminating potential of waste water treatment plants.

Land contamination information has not been requested for the pipeline works due to the low level of risk of the proposed land use.

4 PRIOR TO COMMENCEMENT OF OPERATIONS

- 4.1. Prior to the Commissioning of the Works (i.e. completed construction), the proponent shall submit to Council a hard copy of a ‘Works-as-Executed’ (WAE) drawing at a scale of 1:500 in addition to a computer disk copy of the WAE information. The proponent shall be deemed to have indemnified all persons using such drawings against any claim or action in respect of breach of copyright.
- 4.2. In connection with the “Works-As-executed” drawings the proponent shall submit an electronic listing of all water and sewer assets generated by the development. The developer shall be required to contact Council’s Engineer on telephone 6686 4444 to obtain an electronic copy of the lists required.
- 4.3. Easements shall be created prohibiting the erection of buildings\structures over or adjacent to sewer and stormwater pipelines. The prohibition on the erection of buildings\structures shall extend horizontally on each side of the pipeline for a distance equal to the depth of the pipeline from the invert level to finished surface level. The minimum width of such easement shall be 3.0 metres. Details are to be lodged and approved prior to issue of the Subdivision Certificate.

5 DURING OPERATIONS

Amenity

- 5.1. The proposed works shall not interfere with the amenity of the locality by reason of the emission of noise, vibration, odours, fumes, smoke, vapour, steam, dust, water, waste products and the like.

Noise

- 5.2. The proposed landuse shall not result in the emission of offensive noise. Offensive Noise means noise:
- i. That, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:
 - (a) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or
 - (b) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
 - ii. That is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.

Waste

- 5.3. The use and disposal of biosolids generated by the waste water treatment plants must be carried out in accordance with the EPA (NSW) Environmental Guidelines: Use and Disposal of Biosolids, October 1997.
- 5.4. Adequate provision must be made on site for the storage and disposal of wastes generated from the development.

Air Quality Management

- 5.5. Any potential odour impacts of the waste water treatment plants on nearby residents shall be managed in accordance with the DECCW guideline Assessment and Management of Odour from Stationary Sources in NSW.

Land Contamination

- 5.6. Clean up equipment including suitable absorbent material shall be available on site to effectively deal with liquid contaminates such as oils and chemical spills.

Note: Spill equipment must be available for any fuel, oil spill from machinery or equipment.

Water Quality for Recycled Water

- 5.7. The recycled waste water treatment plants shall be operated in accordance with the Australian Guidelines for Water Recycling: Managing Health and Environmental Risk (Phase 1) (NRMMC, 2006).

11.5 Recycled Water Scheme - Kings Park Embellishment Project.DOC

Part V Approval Waste Water Upgrade - Project Reference No. 2009/0005

- 5.8. The water quality of the recycled water must comply with the Australian Guidelines for Water Recycling: Managing Health and Environmental Risk (Phase 1) (NRMMC, 2006).
- 5.9. A **Water Quality Monitoring Program** must be incorporated into the management of the recycled waste water treatment plants. The monitoring program must comply with the Australian Guidelines for Water Recycling: Managing Health and Environmental Risk (Phase 1) (NRMMC, 2006) and The Australian and New Zealand Guidelines for Fresh & Marine Water Quality. This monitoring program is to be submitted to Council's Regulatory Services Group and may be combined with the monitoring report required by DECCW, in their modifications listed below.

DEPARTMENT OF ENVIRONMENT CLIMATE CHANGE AND WATER (LICENSING BODY) MODIFICATIONS TO THE PART V APPROVAL

1. The proponent is to develop a receiving water monitoring program in consultation with DECCW to assess actual environmental performance of the Ballina WWTP and validate the modelling provided in the Ecological Health Assessment of the Impact of the Releases to the Lower Richmond River Estuary (EHAR).
2. The proponent is to implement a receiving water quality monitoring program to assess discharge impacts commencing at the date of commissioning of the Ballina WWTP for a period of three years.
3. The proponent is to carry out a review of the reuse strategy, within three years of commissioning of the Ballina WWTP, to assess progress with the implementation of reuse options and examine potential impediments to maximising the volume of reuse in the short, medium and long term and achieving reuse of 80% of average dry weather flows by 2026.
4. DECCWs (EPA) requirements for discharge of upgraded plant into the Richmond River Estuary, dated 5 August 2010 and including the following proposed effluent discharge criteria, as currently supported by DECCW;

Table 1: Proposed Effluent Discharge Criteria

Parameter	90%ile	100%ile
Biochemical Oxygen Demand	10mg/L	15mg/L
Total Suspended Solids	15mg/L	20mg/L
Ammonia - Nitrogen	2mg/L	5mg/L
Total Nitrogen	10mg/L	15mg/L
Total Phosphorous	0.5mg/L	1.0mg/L
Grease and Oil	2mg/L	10mg/L
pH	6.5-8.5	6.5-8.5
Faecal coliforms	200cfu/100mL	600cfu/100mL

Page 14 of 17

Summary of Statutory Approvals Potentially Required from Other Agencies

A number (or all) of the following list of approvals in Table 2 below may be required to be obtained by the proponent prior to any construction work commencing. The proponent shall investigate and obtain any required approvals from the relevant Government Agencies, prior to commencing works.

Table 2 - Approvals Potentially Required Prior to Works Commencing

Administering Authority	Nature of Approval/Licence
Ballina Shire Council	<p>Development approval under Part 4 of the <i>Environmental Planning and Assessment Act 1979</i> for any buildings located at the Lennox Head WWTP and Ballina WWTP.</p> <p>Approval under Section 138 of the <i>Roads Act 1993</i> to lay pipelines within Council road reserves.</p>
Department of Environment, Climate Change and Water (Environment Protection Authority)	<p>Variation of existing license(s) under Section 58 of the <i>Protection of Environment Operations Act 1997</i>.</p> <p>Conditional support based requirements listed in letter dated 5 August 2010 (attached).</p> <p>Environmental Protection License for discharge of treated groundwater to waterways if required due to construction methodology</p>
Department of Environment, Climate Change and Water (Office of Water)	<p>Approval under s60 of the <i>Local Government Act 1993</i> for the upgrade for the WWTPs and provision of recycled water.</p> <p>Approval for the interception of groundwater during construction under the <i>Water Act 1912</i>.</p>
Department of Industry and Investment (NSW) (Permits under the Fisheries Management Act 1994)	<p>Permit under Section 199 for dredging and reclamation work associated with the pipe laying and discharge pipe extension across waterland.</p> <p>Permit under Section 219 to temporarily block fish passage due to pipe laying and discharge pipe extension within waterland.</p>
Roads and Traffic Authority	<p>Concurrence under Section 138 of the <i>Roads Act 1993</i> is applicable and has been provided subject to concurrence conditions provided via correspondence dated 27/10/09 (copy attached).</p>

11.5 Recycled Water Scheme - Kings Park Embellishment Project.DOC

Part V Approval Waste Water Upgrade - Project Reference No. 2009/0005

Roads and Traffic Authority	Road Occupancy Licence would be required from the RTA for works to a classified road (Pacific Highway), such as underboring.
-----------------------------	------------------------------------------------------------------------------------------------------------------------------

Yours faithfully

Rod Willis
Regulatory Services
Group Manager

Page 16 of 17

APPENDIX E - RTA Concurrence Conditions Dated 27 October 2009



Kings Park
Kings Court Reserve, Lennox Head
VISION AND CONCEPT PLAN



05 June 2014
Prepared for Ballina Shire Council

www.designteamink.com
PO Box 1473 Ballina NSW 2478 | M 0428 259 286 | E sheryn@designteamink.com | ABN 474 05963844

Draft

This document presents CONCEPT OPTIONS ONLY
This document is not suitable for construction purposes

KINGS PARK VISION

The Overall Vision

The overall concept for Kings Park is inspired by the breathtaking coastal outlook, environmental sustainability and water recycling.

Central to the suburban areas of Lennox Head, the Park has historically provided an open green space for informal use by local residents. With the recent addition of the reservoir to the Park this open space remains a key part of the landscape and is complemented by the addition of a cross-generational playspace and general picnic facilities to support the recreational needs of the local community.

The theme of the playspace is water (we can see it, we can use it, we can recycle it and we can play in it). The playspace will promote imaginative, and creative play by offering a diversity of water play experiences suitable for all abilities and ages. The playspace splashpad that will be a hit with the kids (big and small)! A place to get wet and have a ball!

A variety of water play equipment such as upturning round buckets, misting rings and water jets that squirt randomly throughout the playspace, will all occur on a splashpad with no standing water.

The splashpad will be ideally located with access to BBQ's at the reservoir and proximate to the open grassy area so that children using many parts of the Park can be easily supervised.

This concept has been prepared in consultation with the Lennox Head Resident's Association and Kings Court Reserve Protection Group.

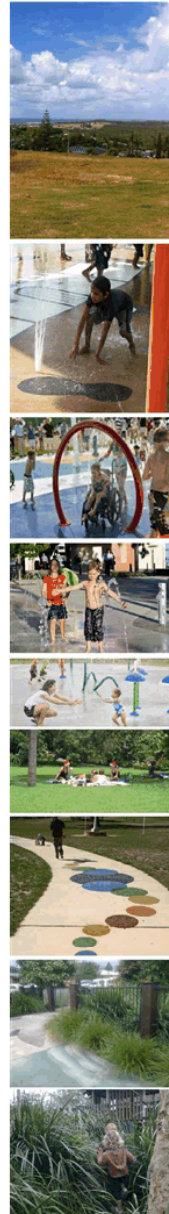
Playspace Objectives

- Maintain a functional open grassy area within Kings Park for general recreation purposes.
- Create a stimulating and interesting playspace for children aged 2 - 10 years old and suitable for all abilities, using water as the key design element.
- Provide seating areas for parents to provide appropriate supervision.
- Integrate age appropriate educational messages about recycling water.
- Incorporate picnic facilities within a shaded setting.
- Connect to the future cycleway/shared pathway on North Creek Road.

Reservoir Precinct Objectives

- Maximise opportunities to enjoy the ocean outlook.
- Make use of the covered area offered by the reservoir to provide BBQ facilities.
- Provide recommendations for embellishing the concrete reservoir structure and surrounds including incorporation of artwork and recycled timbers from the old Teven bridges.
- Integrate interpretative signage that provides information about water recycling or the Kings Court Reserve Reservoir facility specifically.

DESIGN PRINCIPLES



The following design principles underpin the concept:

- maximise views towards the ocean
- consider views from adjoining residences
- provide some opportunities for cross-generational and all-ability play
- is open and adaptable
- is a focal point of the local community
- is safe and is perceived to be safe
- has good surveillance
- is easily maintained
- juxtaposes old against new (old infrastructure / new infrastructure, recycled timber from the old Teven bridges / raw concrete of the reservoir)
- is a place where children can be and feel fair, included, smart, independent, safe, active, and comfortable during play
- provides wet and dry play settings and a diversity of play experiences by including surfaces, textures and planting in a combination of 'natural' and more orderly arrangements.

PLAN SET

- 10-146/01 Vision and Design Principles
- 10-146/02 Site Layout Concept Plan
- 10-146/03 Playspace Concept Plan
- 10-146/04 Splashpad Equipment Option 1
- 10-146/05 Splashpad Equipment Option 2
- 10-146/06 Reservoir Embellishments and Other Works
- 10-146/07 Park Themes and Palettes

NOT FOR CONSTRUCTION

This document was prepared for the exclusive use of Ballina Shire Council for the purpose of conceptual planning of a playspace and landscape works. This plan is NOT suitable for construction and is subject to detailed design. Detail survey information was supplied by Ballina Shire Council (2014). This document and the information contained within shall not be used for any other purpose or by any other person, company or corporation.

design team ink
landscape architecture | urban design
PO Box 1473 Ballina NSW 2478
T 02 6628 8494 | M 0428 259 286
sheryn@designteamink.com

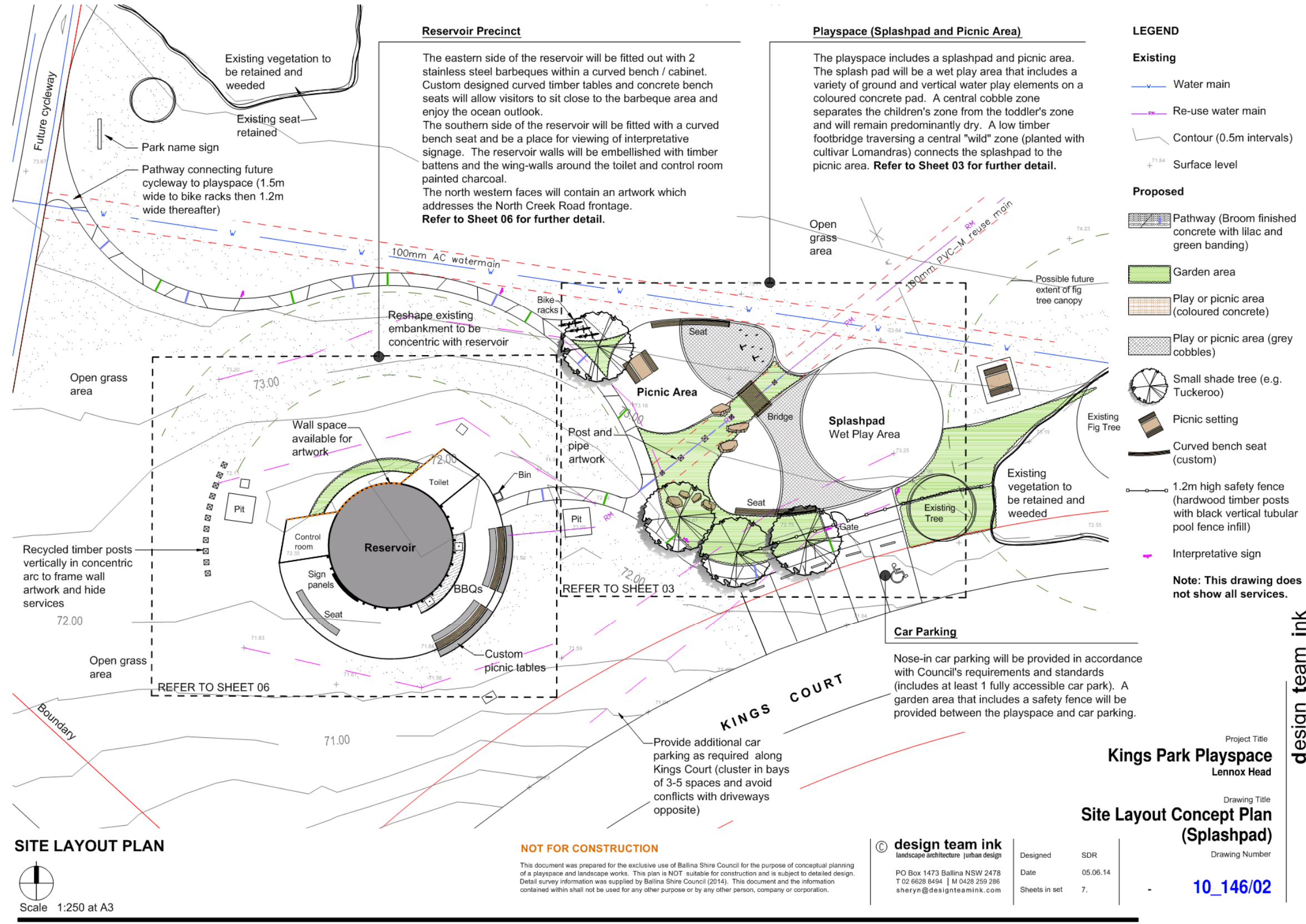
Designed SDR
Date 05.06.14
Sheets in set 7

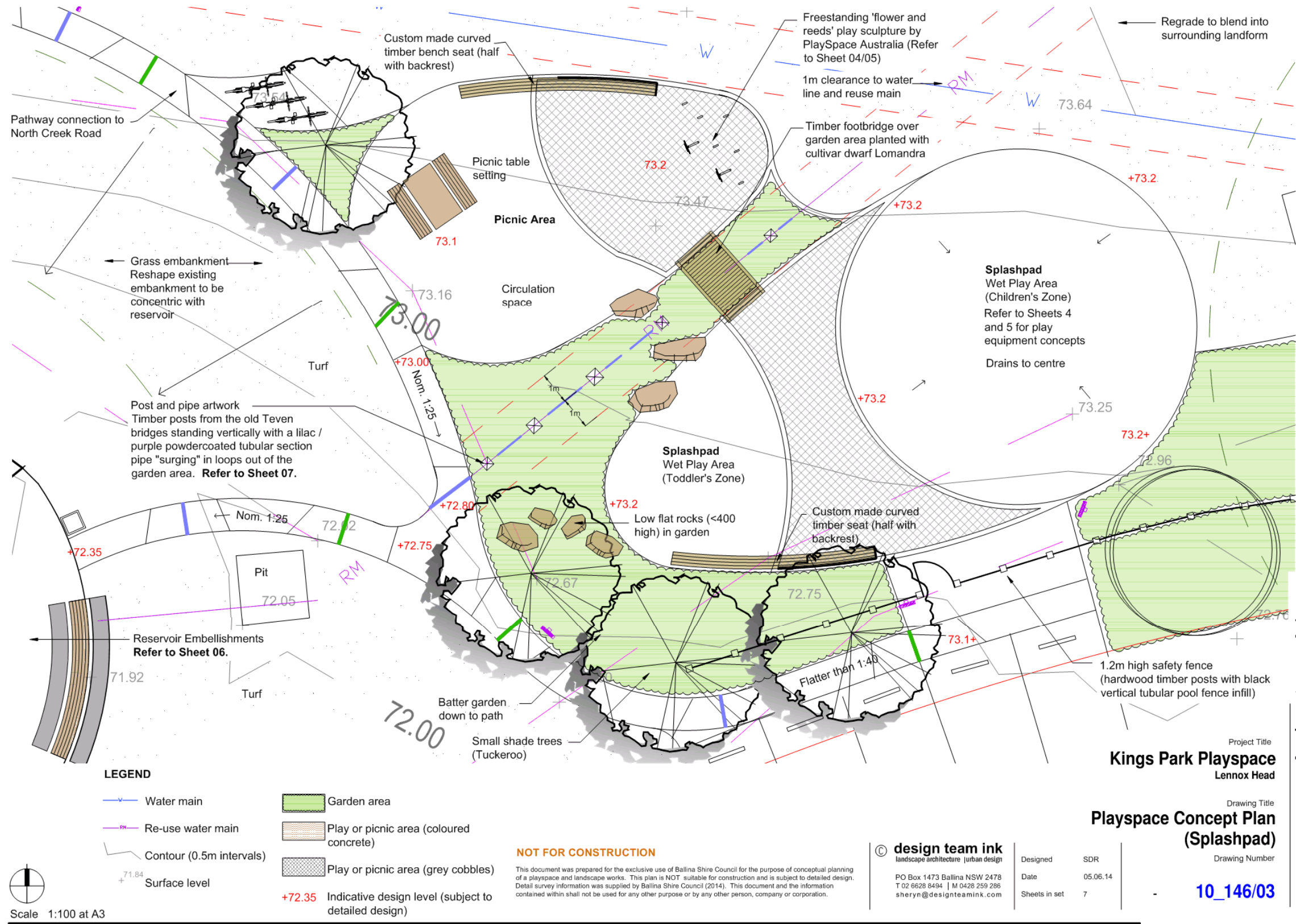
Project Title
Kings Park Playspace
Lennox Head

Drawing Title
Concept Plan
(Splashpad)

Drawing Number
10_146/01

design team ink





design team ink



WATERPLAY SOLUTIONS CORP. - VIEW 1 (ENTIRE SPLASHPAD)

Photomontage prepared by Water Play Solutions Corp. 2014

These pictures provide an illustration of the splashpad equipment proposal. The context and background is generic only and does not represent the design intent.

**TOP:
WATERPLAY SOLUTIONS CORP. - VIEW 2 (CHILDREN'S ZONE)**

**BOTTOM:
WATERPLAY SOLUTIONS CORP. - VIEW 3 (TODDLER'S ZONE)**



PlaySpace "Flowers and Reeds" (in green and purple for dry picnic area.

NOT FOR CONSTRUCTION

This document was prepared for the exclusive use of Ballina Shire Council for the purpose of conceptual planning of a playspace and landscape works. This plan is NOT suitable for construction and is subject to detailed design. Detail survey information was supplied by Ballina Shire Council (2014). This document and the information contained within shall not be used for any other purpose or by any other person, company or corporation.

design team ink
landscape architecture | urban design
PO Box 1473 Ballina NSW 2478
T 02 6628 8494 | M 0428 259 286
sheryn@designteamink.com

Designed	SDR
Date	05.06.14
Sheets in set	7

**Splashpad Equipment Option 1
(Splashpad)**

Project Title
Kings Park Playspace
Lennox Head

Drawing Title
**Splashpad Equipment Option 1
(Splashpad)**
Drawing Number

10_146/04

design team ink



Kings Court Reserve Splashpad®, AU - View 1 - Revision1

VORTEX EQUIPMENT - VIEW 1 (ENTIRE SPLASHPAD)

Photomontage prepared by Vortex Aquatic Structures International 2014

These pictures provide an illustration of the splashpad equipment proposal. The context and background is generic only and does not represent the design intent.



Kings Court Reserve Splashpad®, AU - View 3 - Revision1

**TOP:
VORTEX EQUIPMENT - VIEW 2 (CHILDREN'S ZONE)**

**BOTTOM:
VORTEX EQUIPMENT - VIEW 3 (TODDLER'S ZONE)**

Photomontages prepared by Vortex Aquatic Structures International 2014



PlaySpace "Flowers and Reeds" (in green and purple) for dry picnic area.

NOT FOR CONSTRUCTION

This document was prepared for the exclusive use of Ballina Shire Council for the purpose of conceptual planning of a playspace and landscape works. This plan is NOT suitable for construction and is subject to detailed design. Detail survey information was supplied by Ballina Shire Council (2014). This document and the information contained within shall not be used for any other purpose or by any other person, company or corporation.

© **design team ink**
landscape architecture | urban design
PO Box 1473 Ballina NSW 2478
T 02 6628 8494 | M 0428 259 286
sheryn@designteamink.com

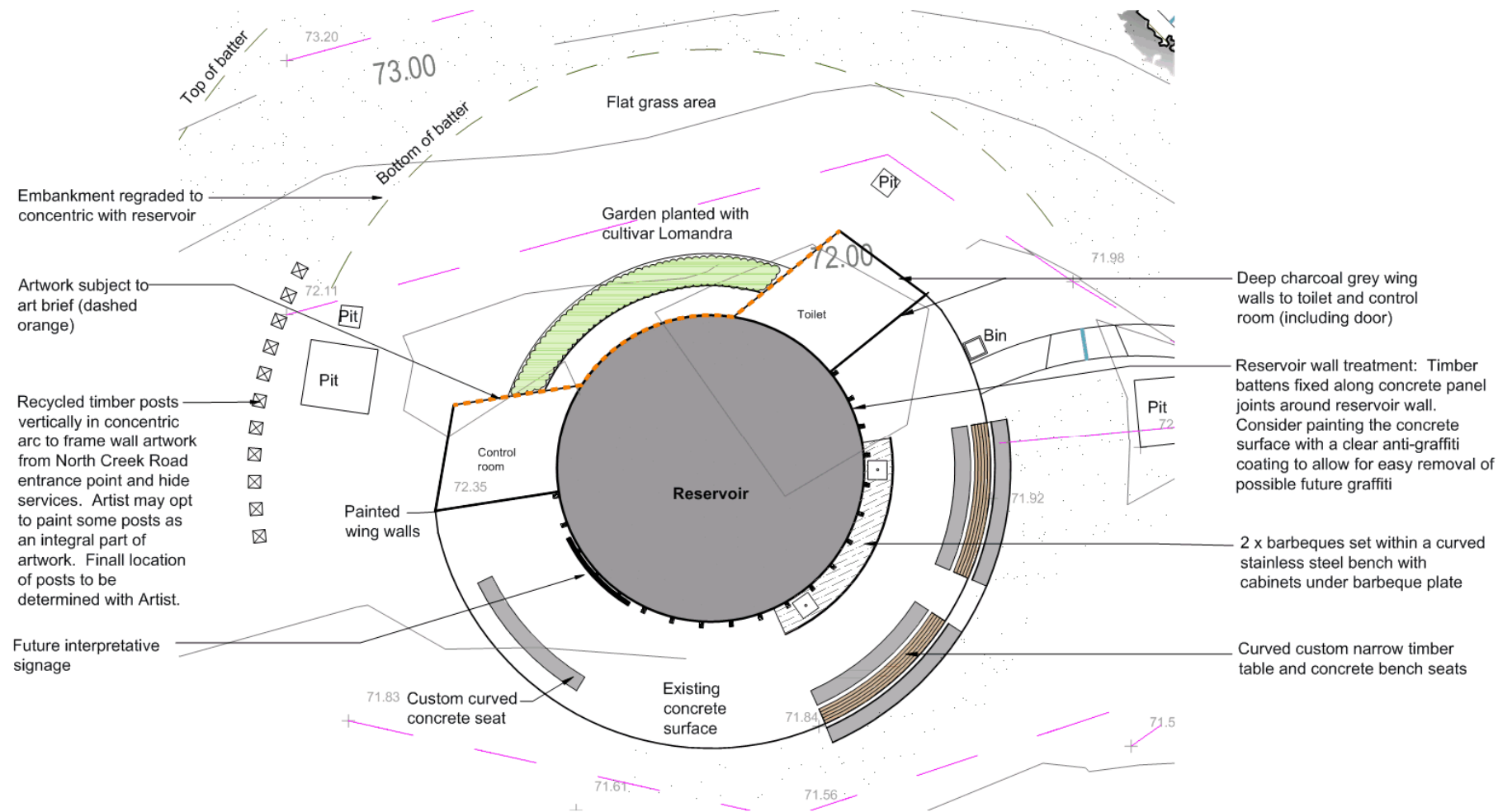
Designed	SDR
Date	05.06.14
Sheets in set	7

Project Title
Kings Park Playspace
Lennox Head

Drawing Title
Splashpad Equipment Option 2
(Splashpad)

Drawing Number
10_146/05

design team ink



RESERVOIR EMBELLISHMENTS

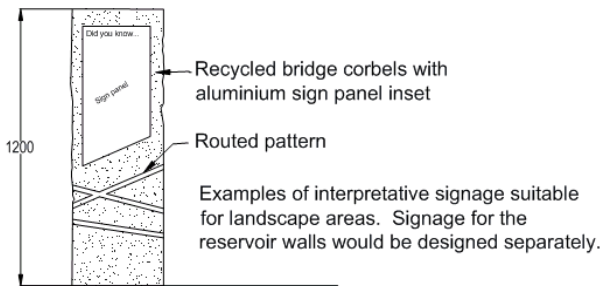
PLAN



Interpretative Signs at Taronga Zoo (by Cuneen Signs) Creative Junction Signs (by Nutshell)

INTERPRETATIVE SIGNAGE EXAMPLES

ILLUSTRATION



NOT FOR CONSTRUCTION

This document was prepared for the exclusive use of Ballina Shire Council for the purpose of conceptual planning of a playspace and landscape works. This plan is NOT suitable for construction and is subject to detailed design. Detail survey information was supplied by Ballina Shire Council (2014). This document and the information contained within shall not be used for any other purpose or by any other person, company or corporation.

© design team ink
landscape architecture | urban design

PO Box 1473 Ballina NSW 2478
T 02 6628 8494 | M 0428 259 286
sheryn@designteamink.com

Designed	SDR
Date	05.06.14
Sheets in set	7

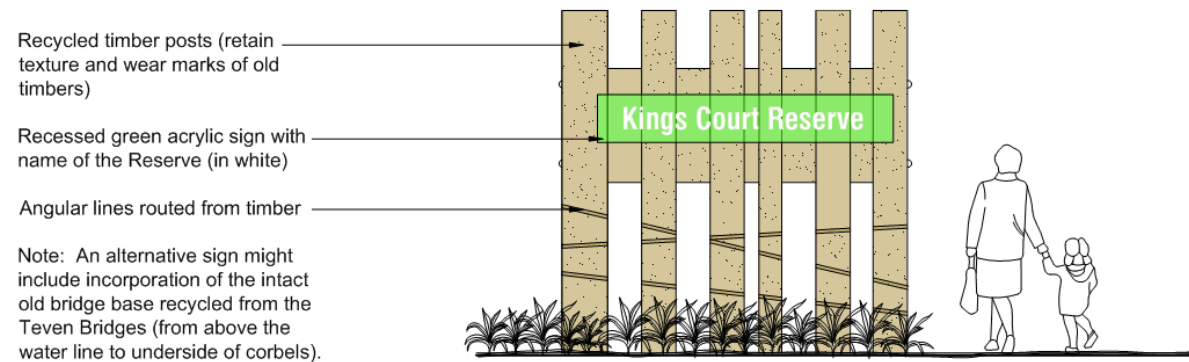
Project Title
Kings Park Playspace
Lennox Head

Drawing Title
Reservoir Embellishments and Other Works

Drawing Number

10_146/06

design team ink



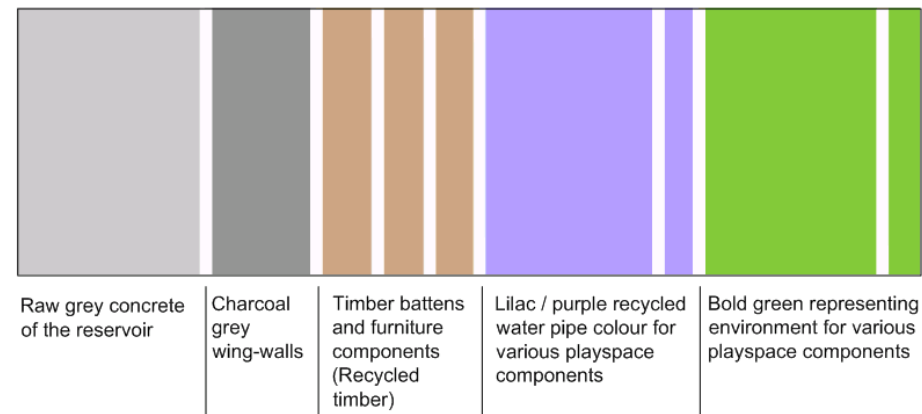
Recycled timber posts (retain texture and wear marks of old timbers)

Recessed green acrylic sign with name of the Reserve (in white)

Angular lines routed from timber

Note: An alternative sign might include incorporation of the intact old bridge base recycled from the Teven Bridges (from above the water line to underside of corbels).

ENTRANCE SIGN
ELEVATION



Raw grey concrete of the reservoir

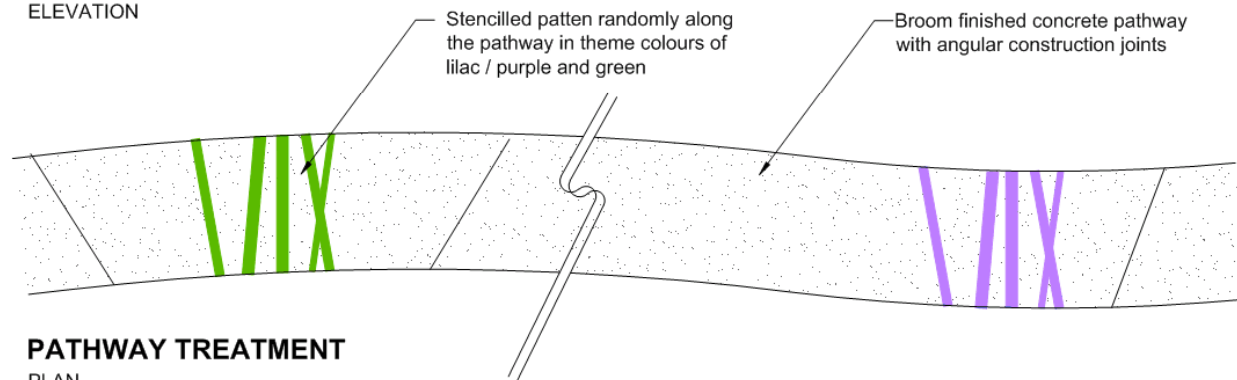
Charcoal grey wing-walls

Timber batters and furniture components (Recycled timber)

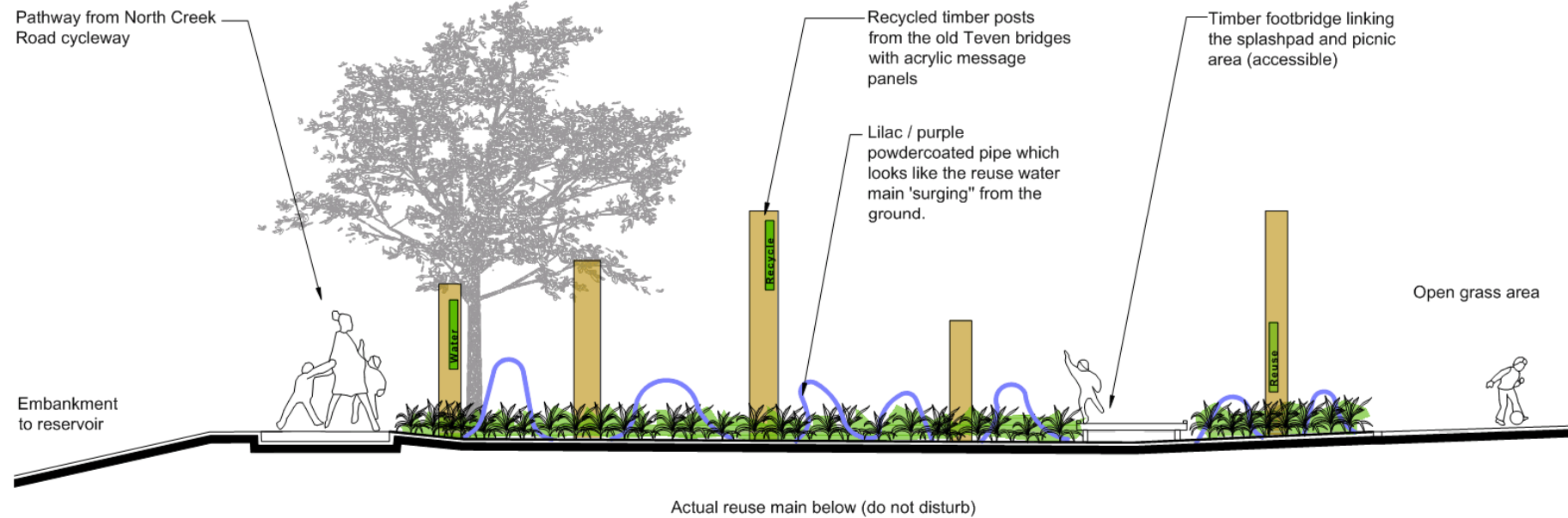
Lilac / purple recycled water pipe colour for various playspace components

Bold green representing environment for various playspace components

COLOUR PALETTE



PATHWAY TREATMENT
PLAN



POST AND PIPE PLAYSACE ARTWORK
ELEVATION

NOT FOR CONSTRUCTION

This document was prepared for the exclusive use of Ballina Shire Council for the purpose of conceptual planning of a playspace and landscape works. This plan is NOT suitable for construction and is subject to detailed design. Detail survey information was supplied by Ballina Shire Council (2014). This document and the information contained within shall not be used for any other purpose or by any other person, company or corporation.

© **design team ink**
landscape architecture | urban design
PO Box 1473 Ballina NSW 2478
T 02 6628 8494 | M 0428 259 286
sheryn@designteamink.com

Designed SDR
Date 05.06.14
Sheets in set 7

Project Title
Kings Park Playspace
Lennox Head

Drawing Title
Park Themes and Palettes

Drawing Number
10_146/07

design team ink

11.5 Recycled Water Scheme - Kings Park Embellishment Project.DOC

From: Kennedy Surveying [
Sent: Friday, May 23, 2014 12:45 PM
To: 'Ian Knapman'; 'Fred Goodman'
Cc: 'John Truman'; 'Andrew Swan'; 'Tim Mackney'; 'Cheyne Willebrands'
Subject: RE: Kings Court Reserve

Dear Ian,

Thank you for the continued consultation regarding the Kings Court Reserve.

As previously agreed, I have circulated the **Vision & Concept Plan** to the Kings Court Reserve Protection Group (KCRPG) for review and comment.

Whilst the Group has around 80+ members, only a limited number of responses (less than 10) were received back which, for mind, would seem to indicate that the silent majority are happy enough to proceed with the concept plans as delivered and that they did not have any major concerns that warranted voicing in a reply email.

The responses that were received back were a mixture of praise and congratulations right through to disappointment for the structure already in place.

With regard to the **Vision & Concept Plan**, the following points were raised by 2 of the KCRPG membership:

- No shading provided for kids playing half naked for hours and will the water supply be cut-off at a set time or the bit older kids will have a lot of fun in the middle of the night when half drunk
- Freestanding 'flower and reeds' play sculpture by PlaySpace Australia. What is it? No pictures included
- I strongly object to the wet play - The rest look OK.

and

- 1: *Can council make sure no new car parking areas are behind existing driveways of residents in Kings Ct. Reversing will only result in accidents. Driveways of 2 and 4 Kings Ct have high incline and vision is impaired when reversing, and also cannot turn successfully using only one carriage way.*
- 2: *Does this mean we will have extra persons parked in Kings Ct making it a one lane only when cars park parallel on street. This happened when building was in process. You cannot pass another vehicle when a car is parked on street.*
- 3: *What happens when older youth use wet areas, who is duty of care to younger children.*
- 4: *Are surveillance cameras going to be fitted for security and protection.*
- 5: *Lighting, is any lighting going to face existing housing and cause concerns.*
- 6: *Litter and cleaning as well as garbage bins.*

In summation, I feel the majority of the KCRPG membership accept in principle, the current form of the Concept Design with possibly a few minor details warranting clarification and/or discussion as to minor amendment.

I also wish to stress that the KCRPG forms only a small part of the Lennox Head Community at large and that the **Vision & Concept Plan** should be opened up to the entire community for transparent community consultation – perhaps via the BSC website and/or local publications such as the Lennox Wave or Ballina Shire Advocate.

We look forward to continuing to receive information via consultation as this project progresses.

Kind regards,

Neil A. Kennedy

11.5 Recycled Water Scheme - Kings Park Embellishment Project.DOC

From: Fred Goodman
Sent: Tuesday, 3 June 2014 1:34 PM
Subject: RE: Kings Court Reserve Recycled Water Infrastructure

Hi Ian,

I spoke at the LHRA meeting last night about the Kings Court Reserve plan. There was only one serious comment. That was regarding the water that would be used on the water park, objecting to the waste of water. I explained the re-circulating process to be used. Most members were satisfied with this explanation.

A resolution was passed: to approve the concept plans as presented and to congratulate Council for the way the development of the recycled water infrastructure had been turned into a Community recreational asset.

May I personally add that the direct communication in developing this project has been very much appreciated and should be used in many other projects requiring community input even though it may take up some staff time.

Regards,
Fred Goodman