



Byron Shire Council WSUD Policy and Strategy

Reference: R.B23380.001.03.docx

Date: August 2019

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Document Control Sheet

BMT Eastern Australia Pty Ltd 6/20 Byron Street Bangalow NSW 2479 Australia Tel: +61 2 6687 0466 Fax: +61 2 6687 0422 ABN 54 010 830 421 www.bmt.org	Document:	R.B23380.001.03.docx
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Synopsis: This report presents the WSUD Policy and Strategy for Byron Council		

REVISION/CHECKING HISTORY

Revision Number	Date	Checked by	Issued by
0	11 January 2019	PAR	DCC
1	22 January 2019	PAR	DCC
2	4 March 2019	PAR	DCC
3	27 March 2019	PAR	DCC

DISTRIBUTION

Destination	Revision										
	0	1	2	3	4	5	6	7	8	9	10
Byron Shire Council	PDF	PDF	PDF	PDF							
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1 Water Sensitive Urban Design Policy

The aim of this policy is to provide a consistent approach to the inclusion of Water Sensitive Urban Design (WSUD) principles into Council projects and in planning applications provided to Council.

WSUD principles will guide the design, construction and management of projects and development towards:

- Better management of stormwater runoff peak flows, volumes and quality;
- Improving compliance through monitoring of construction activities and built assets;
- Reducing demands on the use of the regions finite potable water supplies * (i.e. to maximise water efficiency through demand management and conservation);
- Supporting reuse of recycled water in appropriate locations * (i.e. investigate the suitability of water re-use as an additional new water source), and
- Enhancing habitat values for flora and fauna through biodiverse local plant selections.

Additionally, the water balances of catchments should not be subject to excessive imbalance due to importation, exportation or redirection of water, where the water imbalance has the potential to result in adverse impacts to human or ecological receptors.

Climate change and sea level rise will influence the siting and design of WSUD systems in the Byron Shire. Council will review and adopt suitable design approaches for WSUD system as they become available and accepted. This will assist in ensuring that WSUD infrastructure achieves its desired function and service life requirements.

** key actions identified in Rous County Council's Future Water Strategy*

2 Strategies

The Policy is supported by four key strategies and an action plan. The key strategies supporting the policy include:

- A. Improve Council's planning, processes and capacity to integrate WSUD into Council works and address catchment based priorities;
- B. Improve community understanding of the aims of WSUD and actions they can take to support catchment and waterway health;
- C. Increase Council's ability to leverage funding to implement, operate and maintain WSUD infrastructure now and into the future; and
- D. Improving WSUD outcomes delivered to Council in planning applications.

2.1 Actions Plans

Action plans supporting the strategies are outlined in the following sections.

The image shows a vibrant natural scene. In the foreground, there are large clumps of tall, feathery grasses, some green and some with a golden-brown tint, suggesting they might be a mix of species or at different stages of growth. The grasses are dense and fill the lower half of the frame. In the background, a thick forest of various trees rises up a slight slope. The trees have dark green foliage, and their trunks are visible through the canopy. The lighting is bright, creating a high-contrast scene with deep shadows in the trees and bright highlights on the grass. The overall impression is one of a healthy, thriving ecosystem.

Strategy A - “Improve Council’s planning, processes and capacity to integrate WSUD into council works and address catchment based priorities”

3 Strategy A

3.1 Action A1 – Preferred WSUD Solutions

Develop preferred WSUD solutions and material choices for all types of Council internal works including new works and upgrades. WSUD preferred solutions will be included in a new DCP section for WSUD and will provide details of preferred system types and minimum site requirements.

Preferred solutions may include raingardens, wetlands and swales where site conditions allow (swales may be less suited in some urban applications). All vegetated systems should prioritise planting with locally adapted biodiverse planting options. Porous paving should also be preferred over impervious surfaces subject to civil engineering and cost factors.

Preferred outcome	A new locally specific DCP section for WSUD in the Byron Shire
Priority	High
Estimated Cost	Medium up to \$50K depending on whether a suitable local template could be found and adapted.
Timeframe	30/6/2021
Ownership	Strategic Planning

3.2 Action A2 – Internal Opportunities for WSUD

Identify Council projects that present opportunities for WSUD integration.

Project candidates will be identified through multiple avenues including the annual budgeting process, through project templates, scoping processes and draft design processes.



Preferred outcome A	WSUD integration opportunities identified in advance through existing Council functions
Priority	High
Estimated Cost	Low cost
Timeframe	30/6/2019
Ownership	Strategic Planning

Preferred outcome B	Consideration of WSUD opportunities added to project planning templates
Priority	High
Estimated Cost	Low cost
Timeframe	30/6/2020
Ownership	Infrastructure Planning

3.3 Action A3 – Acknowledging WSUD

Identify within the Community Strategic Plan Council's increased focus on WSUD integration as a means to mitigate the effects of development and catchment changes on the physical and ecological conditions of receiving environments.

Preferred outcome	Identify relevance of WSUD in high level Council documents
Priority	High
Estimated Cost	Low cost
Timeframe	30/6/2020
Ownership	Strategic Planning

3.4 Action A4 – Reporting Against WSUD

Report against Council's implementation of WSUD within the Community Strategic Plan and Annual Report. As appropriate to these documents, reporting could identify:

- Council projects where WSUD integration was achieved and the benefits of this to the community and environment;
- Council's auditing of WSUD outcomes on internal and external projects;
- Other metrics of implementation, such as internal budgets for WSUD and associated expenditure, improved processes for WSUD through assessment, construction, establishment and operation; and or
- Achievements such as development of supporting materials, capacity buildings and training.



Preferred outcome	Quantify in Community Strategic Plan and Annual Report
Priority	High
Estimated Cost	Low cost
Timeframe	30/6/2019
Ownership	Strategic Planning

3.5 Action A5 – Internal Training

Assess internal training needs for Council officers working in areas related to WSUD. This includes conceptual design (including modelling), design assessment, detailed design, construction and maintenance.

Cost effective local training providers are to be identified for Councils training requirements.

There may be economies of scale to undertake training with other local Councils, and or those involved in the design or construction of WSUD infrastructure.

Preferred outcome	Appropriate Council staff trained in WSUD design, assessment, construction and maintenance of WUSD systems and features
Priority	Medium
Estimated Cost	Low cost to assess internal needs and identify suitable providers. Training costs up to \$10K per year across Council
Timeframe	30/6/2020
Ownership	All sections

3.6 Action A6 – Catchment Planning

Identify conditions and sensitivity of major catchments to water cycle issues and develop priority actions as part of a holistic catchment planning process.

The catchment planning process should consider all relevant parts of the water cycle including stormwater, potable water, wastewater and interrelationships to other relevant factors such as flooding and groundwater. The overall focus of the planning process will be on maintaining and/or improving catchment and receiving waterway condition over time.

With respect to stormwater, the CMP must consider the status of effective imperviousness in respective catchments (and developable areas within catchments) to identify the current situation. Research has identified a linkage between higher rates of effective imperviousness in catchments and declining waterway health.

Maximum linkage to other actions outlined in the strategy tables should be aimed to be achieved, such as individual catchment targets and objectives, knowledge of hotspots and potential activities to address issues, amongst others.

Preferred outcome	Preparation of a Catchment Plan for each catchment which identifies issues that can be addressed through WSUD
Priority	Priority and estimated cost: <ol style="list-style-type: none"> 1. Belongil Creek – High - \$100K+ 2. Tallow Creek – High - \$100K 3. Brunswick River (excluding Marshalls Creek and Simpsons Creek) – High - \$80K 4. Marshalls Creek – High - \$50K 5. Simpsons Creek – Medium - \$50K 6. Byron Creek – Medium \$50K
Estimated Cost	Indicative completion timeframe: <ol style="list-style-type: none"> 1. Belongil Creek – 30/6/2021 2. Tallow Creek – 30/6/2022 3. Brunswick River (excluding Marshalls Creek and Simpsons Creek) – 30/6/2023 4. Marshalls Creek – 30/6/2024 5. Simpsons Creek – 30/6/2025 6. Byron Creek – 30/6/2026
Ownership	Strategic Planning

3.7 Action A7 – Capacity Building Opportunities

Council to petition NOROC to host an annual north coast forum focused on water sensitive urban design. Ideally the forum will be open to north coast regional councils and local practitioners with the focus on information sharing and capacity building. A few specialists may be invited from metropolitan centres to discuss recent developments within the industry, i.e. new guidelines or research findings, etc.


There are presently no options for local information transfer (apart from travelling to conferences/seminars which are usually some distance away) in relation to WSUD and many local Councils will be dealing with a similar set of issues and constraints.

Preferred outcome	Annual forum conducted in the North Coast NSW to facilitate local information sharing and capacity building amongst Council and industry practitioners of WSUD
Priority	Low
Estimated Cost	Council may be required to part fund and or engage in coordination for the event alongside other contributing Councils
Timeframe	30/6/2022
Ownership	All Sections

3.8 Action A8 – Support Improved Information Resources

Support update of Northern Rivers Design Guidelines / AUSPEC to reflect current industry approaches for water sensitive urban design, especially those adopted by Councils in South East Queensland and to reflect emerging features of climate change science relevant to asset design (i.e. changing rainfall intensity, etc).

Preferred outcome	Supporting documentation reflecting current industry knowledge
Priority	Medium
Estimated Cost	Moderate depending on effort required to update the guidance material
Timeframe	30/6/2022
Ownership	Development Engineers in association with Infrastructure Planning

The image shows a natural landscape. In the foreground, there is a field of tall, green grasses with some yellowing tips, possibly indicating a riparian area or a wetland. In the background, there is a dense forest of tall trees with green foliage. The text is overlaid on the middle of the image.

Strategy B – “Improve community understanding of the aims of WSUD and actions they can take to support catchment and water health”

4 Strategy B

4.1 Action B1 – Community Education

Develop and implement a low cost community education campaign aimed at encouraging a culture of change within the community towards waterway health.

The education campaign may identify the most common actions undertaken by residents (and visitors) to the area that led to catchment and waterway degradation and approaches to address these issues. If possible, campaign to identify risks of inactivity or 'business as usual' possibly referencing other locations with degraded environments, non-swimmable waterways, resulting from incessant unmitigated urbanisation.

Issues may include inappropriate disposal of wastes such as paint, oils, wet wipes, etc from households (via the sink, toilet or stormwater outlet), keeping drain inlets clear of obstruction (e.g. fill, dirt or debris), maintenance of WSUD assets on private land such as rainwater tanks, swales and raingardens, appropriate disposal of green waste and appropriate use of other Council bins amongst others.

Preferred outcome	Community informed as to the cause and effects of their catchment management on waterway health. Utilise resources / approaches if possible from other successful education programs e.g. Sydney Water 'Clean up not down', etc
Priority	High
Estimated Cost	\$5 to \$10K per year
Timeframe	30/6/2021
Ownership	Infrastructure Services

4.2 Action B2 – Provide Support to Achieve Better Outcomes on Rural Dirt Driveways and Roads

Develop and distribute educational materials to ratepayers (primarily targeted to rural zonings) and earthmoving operators for appropriate design and management of private dirt driveways and access roads. Council to have a dedicated staff member to provide verbal (and on-site) advice as appropriate.

This should include the on-line provision of summary (one page information sheets) and detailed information on dirt roads (such as the Erosion and Sediment Control on Unsealed Roads, OEH 2012) to assist homeowners and contractors to improve design and construction techniques to limit the erosion and loss of sediments from these areas, as well as possible of controls to capture and treat stormwater as appropriate.

Council to identify preferred dirt road materials by inspection and assessment of available materials (i.e. at quarries) within and adjacent to the Byron Shire with provision of information on Council website on preferred substrates.

Preferred outcome	Improved construction and maintenance of dirt roads
Priority	High
Estimated Cost	\$5K with low staffing demands
Timeframe	30/6/2021
Ownership	Public and Environmental Services

4.3 Action B3 – WSUD Promotion Projects

Council to identify and promote a selection of projects with WSUD integration as community demonstration projects using a variety of approaches.

Demonstration projects must meet minimum criteria (to be determined) such as visibility, quality and appearance.

The promotional aspects could include:

- Production of information sheets made available on Council's website; and or
- Interpretive signage to inform the general community as to how various WSUD assets work and how they benefit the environment.

Constructed assets could also be used in the internal training and knowledge building of Council staff.



Preferred outcome	Community informed on examples of WSUD projects (i.e. what they look like, what their function is, and where they can be located)
Priority	Medium
Estimated Cost	Information sheets and advertising \$5k. Signage and on-site interpretive information up to \$5K
Timeframe	Ongoing
Ownership	Infrastructure Services

4.4 Action B4 – Supporting School and Community Education

Council to support water based school and or community education activities, via financial support of existing successful programs such as Waterwatch (refer appendix A), and water education provided by local providers and groups, or other recognised centres such as the Dorroughby Environmental Education Centre (involving Rous Water). The financial support offered by Council would be used to increase participation in programs relating to awareness of the water cycle and the condition of local waterways.

It would be ideal if the outcomes of any educational work that involved health based monitoring of streams and waterways resulted in this information being recorded for later interpretation. Recording would need to include details of the location, data and time, monitoring techniques and results and QA/QC metrics.

Preferred outcome	Council support for existing established programs to benefit school aged children and the citizens of the Shire
Priority	Medium
Estimated Cost	Council to identify suitable funding basis in association with these educational groups
Timeframe	30/6/2021
Ownership	Infrastructure Services

The image shows a natural landscape. In the foreground, there is a field of tall, green grasses, some of which are slightly yellowed at the tips. A concrete curb is visible in the bottom left corner. The background is filled with a dense forest of various trees, including tall evergreens and deciduous trees with green foliage. The lighting suggests a bright, sunny day.

Strategy C – “Increase Council’s ability to leverage funding to implement, operate and maintain WSUD infrastructure now and into the future”

5 Strategy C

5.1 Action C1 – O&M Program / Plan for WSUD

Develop a Stormwater Operation and Maintenance Program and Plan for all urban drainage assets. The plan should clearly show costs associated with WSUD specific assets.

The plan would identify the minimum recommended operation and maintenance requirements for each WSUD device or WSUD type. Details such as tasks, frequency of works, record keeping, expected costs should be included.

Using above plan forecast annual expenditure needs for the operation, maintenance and renewal of Council's current urban drainage assets and WSUD assets. The plan will allow forecasting of the annual funding shortfall to achieve minimum operational outcomes for all Council drainage assets, including WSUD assets.

Additionally, the plan should identify a calculation or method to clearly show how drainage maintenance budgets should increase each year as new urban drainage and WSUD assets are created through developments. As well as method for developed assets to be handed over to Councils utilities team as part of this budget increase.

Preferred outcome	Document expected minimum operation and maintenance requirements for existing WSUD assets including expected costs, with forecasting of future costs included for existing assets and new assets likely to be contributed to Council over time
Priority	High
Estimated Cost	\$30K
Timeframe	30/6/2020
Ownership	Utilities with support from Infrastructure Planning

5.2 Action C2 – Update Developer Contributions Plan

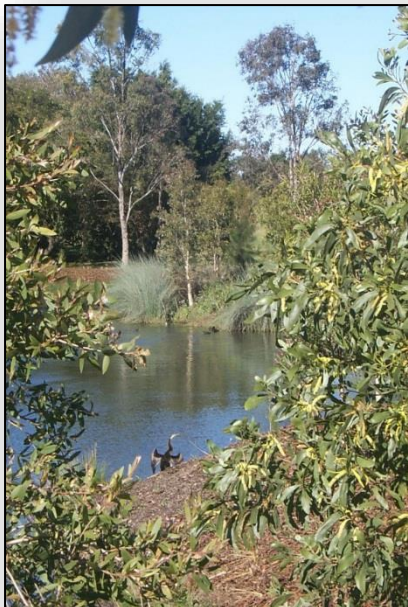
Council's current Developer Contributions Plan 2012 has limited or no provision for developer funding of additional WSUD infrastructure. During its next revision the Developer Contributions Plan should be expanded for contribution towards WSUD facilities (capital costs) in locations where Council's prior planning (i.e. Catchment Management Plans to be prepared) has identified an additional need exists. This may be to redress past development activities within the same locale which remain unmitigated or partly mitigated, or to enhance water quality and quantity outcomes in highly sensitive parts of the Shire

Preferred outcome	Council's Developer Contributions Plan to identify where capital funding may be applied to address existing known water cycle issues
Priority	High
Estimated Cost	Low - needs to link with proposed Catchment Management Plans for the 5 major catchments to identify priority WSUD works
Timeframe	Update as CMPs prepared
Ownership	Strategic Planning

5.3 Action C3 – Increasing Funding for WSUD

Increase Council's ability to leverage funding for WSUD systems maintenance. Potential funding mechanisms include:

- During Land Rezoning (or development assessment), Council may seek to establish, in association with the developer, a Voluntary Planning Agreement (VPA). The VPA seeks to secure certain things in the development where a developer agrees to provide or fund public services or other infrastructure. VPAs can secure the developer's contributions through the dedication of land, monetary contributions, and construction of infrastructure or provision of materials for public benefit and/or use. WSUD capital works or maintenance would be fundable under a VPA. VPAs can also be used to ensure that maintenance periods for vegetated WSUD assets are of sufficient duration to ensure they are sufficiently established prior to dedication to Council.



- At any time Council may seek a special rates variation by application to IPART for a special variation to general income. The IPART application will require WSUD to be identified initially within Councils key documentation such as Community Strategic Plan / Delivery Plan / Operational Plans, etc, prior to seeking funding. The decision to seek a special rates variation is dependent on many factors such as period since last variation was sought, community understanding and support for the variation, etc.

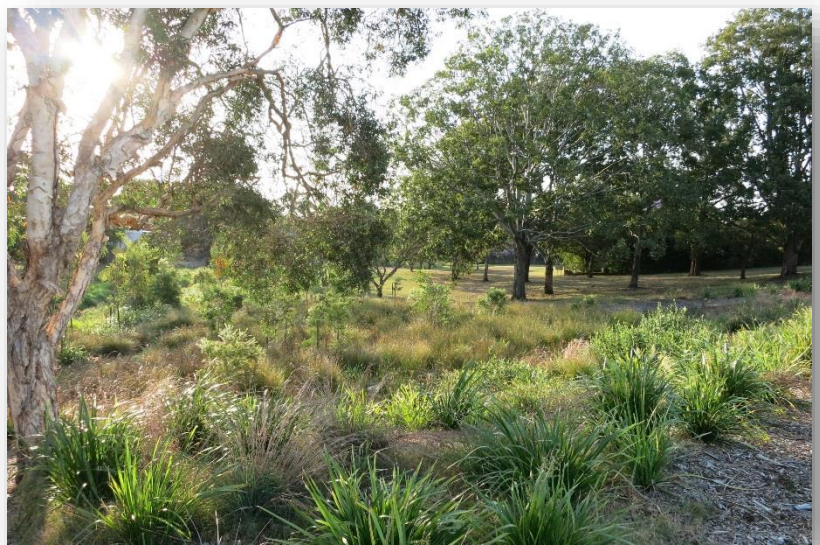
- Address any funding shortfall through adjusted internal funding models. Recalculate Council's ratepayer funding allocation (annual budgeting) to cover shortfall in WSUD asset operational and maintenance (O&M) costs. This will require determination of the funding shortfall for WSUD asset O&M on an annual basis. As part of this investigation, Council will consider the distribution of income and expenditure on WSUD asset and maintenance to determine if certain areas with higher densities of WSUD assets and yearly O&M costs could have a higher stormwater contribution applied to their rates, with potentially some areas have a lower rate contribution due to lack of WSUD assets.

Preferred outcome	Additional monies allocated to Council for future operation and maintenance of WSUD assets
Priority	High
Estimated Cost	Low
Timeframe	Ongoing
Ownership	Planning/Development/Engineers/Section 94 Officer

5.4 Action C4 – Recommending Longer On-Maintenance Periods for Vegetated WSUD Assets

The WSUD section of the DCP should identify preferred periods of maintenance and establishment for vegetated WSUD features, noting that subsection 6(c) in section 4.17 (Imposition of conditions) of *Environmental Planning and Assessment Act 1979*, requires only a six month period for developers to remedy defects in public assets (such as WSUD infrastructure to be dedicated) prior to development bonds being returned. This period is widely recognised as insufficient to successfully establish the vegetation in a variety of WSUD assets. The period should be extended to around 2 years or potentially until a large rainfall event and /or extended dry period has occurred (if within the 2 year period).

Council to engage with NSW Department of Planning and Environment to identify options for Byron Council to legally adjust developer maintenance bond periods for WSUD assets.



Preferred outcome	DCP to identify preferred periods for vegetated WSUD assets. Developers supported (incentivised) in their extension of maintenance periods for WSUD infrastructure
Priority	High
Estimated Cost	Included in overall cost of DCP section development
Timeframe	30/6/2021
Ownership	Strategic Planning

5.5 Action C5 - Audit Construction Sites

Council to conduct periodic audits of construction sites and developments with private WSUD infrastructure to identify occurrence of water pollution.

If suspected pollution identified, Council to coordinate and engage with the NSW EPA in respect of any suspected water pollution incidents arising from construction and building activities within the Byron Shire. The EPA have powers to issue Clean-up notices, prevention notices and prohibition notices, or issues fines and penalties (Tier 1, 2 or 3) where water pollution has occurred (under Section 120 of *Protection of the Environment Operations (General) Regulation 2009*).



Preferred outcome	Periodic checks of water pollutions from higher risk developments and appropriate follow up through the EPA for enforcement
Priority	High
Estimated Cost	Moderate cost as compliance auditing is currently unfunded, may require additional staffing to be able to implement. \$20K per annum
Timeframe	30/06/2020
Ownership	Public and Environmental Services

A photograph of a natural landscape. The foreground is filled with tall, green, feathery grasses. In the background, there is a dense forest of trees with green foliage. The text "Strategy D – 'Improving WSUD outcomes delivered to council in planning applications'" is overlaid in white on the image.

Strategy D – “Improving WSUD outcomes delivered to council in planning applications”

6 Strategy D

6.1 Action D1 – Prepare WSUD Section within the DCP

Prepare a new Water Sensitive Urban Design DCP section. The new section will capture and revise existing WSUD requirements into a single DCP section and remove/harmonise wording in existing sections of the DCP. Many actions in Strategy D are related to the preparation of the DCP including Actions:

- D2 – Incorporate Deemed to Comply Solutions for Smaller Scale Developments
- D3 – Guidance for Recycled Water Access
- D4 – Support On-Lot WSUD
- D5 – DCP WSUD to Include Information for Homeowners
- D8 – Guidance for Preferred WSUD Solutions (this supports also Action A1)
- D9 – Increasing Duration of Establishment Periods for Vegetated WSUD Assets (this supports Action C4)
- D10 – Planning Applications to Provide Improved Economic Information for Proposed WSUD Assets

Additionally, as Byron Shire Council has now declared a State of Climate Emergency and is the process of preparing a Climate Emergency Plan, the outcomes of this plan should integrate with the development of this DCP chapter. WSUD assets should over time be located and designed in consideration of the likely trajectory of climate change and its implications on rainfall intensity and sea level rise, change in daily temperature ranges, amongst other factors. Design that is considerate of potential climate change effects will increase the assets serviceability and life cycle outcomes.

Preferred outcome	New DCP section prepared to update and replace existing DCP wording
Priority	High
Estimated Cost	Medium up to \$50K depending on whether a suitable local template could be found and adapted
Timeframe	30/6/2021
Ownership	Strategic Planning

6.2 Action D2 – Incorporate Deemed to Comply Solutions for Smaller Scale Developments

WSUD DCP section to include 'Deemed to Comply' solutions for small scale development. DCP to identify development types/scale or activities that qualify for 'Deemed to Comply' solutions.

'Deemed to Comply' solutions are becoming widely accepted and seek to optimise outcomes for the applicant and Council by having a range of suitable WSUD outcomes identified upfront, so that applicants are fully aware of their options.

To ensure that all developments are applying the required level of WSUD infrastructure in the appropriate ways (particularly complying development which may not receive assessment by Council for WSUD), Council will need to provide greater emphasis in all planning documentation around complying development achieving DCP requirements. This would need to be clearly and strongly communicated with any party approving development within Byron Shire, e.g. private certifiers. To verify that a high level of compliance is being achieved, Council should conduct audits of a selection of developments across the Shire annually.

Development subject to consent (assessable development) that meets the identified requirements will implement 'Deemed to Comply' solutions.

Case studies for the application of 'Deemed to Comply' solutions will assist in interpretation.

Preferred outcome	Deemed to comply solutions for small scale development to provide preferred outcomes
Priority	High
Estimated Cost	Included in overall cost of DCP section development
Timeframe	30/6/2021
Ownership	Strategic Planning

6.3 Action D3 – Guidance for Recycled Water Access

DCP WSUD section to identify development types and areas that can access Council's recycled water from existing STPs. This action will align with Council's existing programs and ensure that recycled water is used efficiently and cost-effectively.



Preferred outcome	Suitable developments in suitable locations accessing recycled water
Priority	Medium
Estimated Cost	Included in overall cost of DCP section development
Timeframe	30/6/2021
Ownership	Strategic Planning in associated with Infrastructure Services

6.4 Action D4 – Support On-Lot WSUD



DCP WSUD section to identify support for on-lot WSUD by ensuring all private WSUD infrastructure is protected by public positive covenants with Council as the beneficiary (Conveyancing Act 1919). Covenants to be applied to on-lot WSUD measures such as on-site detention (OSD) systems, rainwater tanks and raingardens.

Preferred outcome	Identify support for private on-lot WSUD outcomes provided they are secured under a public positive covenant
Priority	High
Estimated Cost	Low
Timeframe	30/6/2021
Ownership	Strategic Planning

6.5 Action D5 – DCP WSUD to Include Information for Homeowners

DCP WSUD section to include information for homeowners who may have private WSUD infrastructure on their lots. Information to be provided will allow homeowners to understand the role and function of the WSUD asset and how to maintain it and troubleshoot issues. Checklists to be provided to assist.

Preferred outcome	Homeowners informed of the role of their private WSUD assets and their responsibilities in maintaining them
Priority	High
Estimated Cost	Included in overall cost of DCP section development
Timeframe	30/6/2021
Ownership	Strategic Planning in associated with Infrastructure Services

6.6 Action D6 – Maintain a Register of Public Positive Covenants

Council to maintain a register of public positive covenants for private on-lot WSUD assets that separately identify asset delivery and asset maintenance. Aspects of the register will need to be updated when assets on private land are on sold.

Preferred outcome	Registers of private assets under covenants developed and maintained by Council
Priority	High
Estimated Cost	Minor cost for initial register development, low ongoing costs integrated into existing Council activities
Timeframe	30/6/2021
Ownership	Public and Environmental Services

6.7 Action D7 – Periodically Audit Locations with Public Positive Covenants

Council to periodically audit private WSUD assets with a public positive covenant (where Council is the beneficiary). The outcomes of the audit are to be recorded in the maintenance portion of the asset register.

Council to develop asset auditing requirements and regime. Ideally assets are inspected on a frequency commensurate with the risks of their failure (where risk is a combination of consequence of failure and likelihood of failure). If private certifiers are engaged to complete auditing they must adhere to the same auditing requirements as Council.

Where compliance failures are noted Council to issue compliance notices identifying corrective actions or other enforcement requirements.

Preferred outcome	Private asset maintenance register developed along with assessment regime and compliance requirements
Priority	High
Estimated Cost	Moderate cost as compliance auditing is currently unfunded, may require additional staffing to be able to implement. \$20k to \$70k per annum. Increasing as more on lot WSUD assets built
Timeframe	30/6/2022
Ownership	Public and Environmental Services

6.8 Action D8 – Guidance for Preferred WSUD Solutions

DCP WSUD section to identify preferred WSUD solution types and material choices for planning applications. Biodiverse locally suited planting options for vegetated systems to be identified.



Preferred outcome	Preferred WSUD solutions for various types of development outcomes identified
Priority	High
Estimated Cost	Included in overall cost of DCP section development
Timeframe	30/6/2021
Ownership	Strategic Planning

6.9 Action D9 – Increasing Duration of Establishment Periods for Vegetated WSUD Assets

DCP WSUD section to promote extension of maintenance periods for WSUD assets. This is especially important for vegetated WSUD assets such as bioretention systems and wetlands.

DCP WSUD section to identify for new urban release areas the conditions to be achieved prior to handover of WSUD infrastructure, especially for vegetated WSUD assets.



Preferred outcome	Extended duration of establishment achieved for WSUD infrastructure especially for vegetated systems. Specific criteria can be applied for new release areas.
Priority	High
Estimated Cost	Included in overall cost of DCP section development
Timeframe	30/6/2021
Ownership	Strategic Planning

6.10 Action D10 – Planning Applications to Provide Improved Economic Information for Proposed WSUD Assets

DCP WSUD section to identify requirements for planning applications to specify annual operation and maintenance costs that Council may be expected to expend on WSUD assets to be dedicated to Council. This will assist Council in managing for the expected costs for WSUD asset maintenance into the future. Council guidance should identify appropriate procedures for estimating costs.

Case studies will assist in interpretation.

Preferred outcome	Consistent and accurate information provided to Council for dedicated WSUD assets to allow for improved financial programmed for ongoing operation and maintenance
Priority	High
Estimated Cost	Included in overall cost of DCP section development
Timeframe	30/6/2021
Ownership	Strategic Planning

6.11 Action D11 – Investigate Maximum Upper Limits for Imperviousness

Council to consider the implications of imposing maximum upper limits on imperviousness for land development. The reasoning behind this is multifaceted and broader than stormwater management alone. In general, the higher imperviousness associated with development results in increased peak flows during runoff events, increased runoff volumes, increased frequency of runoff events and decreased infiltration. Combined these outcomes can affect catchment hydrology and have severe implications for receiving environments. While mitigation can generally be applied for these effects, the general trend of increasing the extent of impervious development lends itself to creation of compact and space efficient engineered solutions which can become less visually attractive and have a lesser overall benefit in provision of shading, cooling, habitat and overall aesthetics.

It is likely that the maximum limits on imperviousness if appropriate should consider catchment based (or area based) effects (refer Action A6), consider appropriateness of upper limits of imperviousness to different land use types (and potential impacts for sale, development and redevelopment of these lands), consider when upper limits should be imposed (i.e. rezoning, development approval, etc), consider appropriate documents to encapsulate these requirements, i.e. LEP and or DCP and consider potential legal and land value implications of the changes.

Preferred outcome	Investigation into the ability of Council to impose maximum upper limits on imperviousness for development within the Shire
Priority	High
Estimated Cost	Working group resourced internally within Council. Nil additional cost.
Timeframe	30/6/2021
Ownership	Strategic Planning with assistance from other groups.

Action Program

7 Action Program

Action	Priority	Cost	Timeframe	Ownership
Action A1 – Preferred WSUD Solutions	High	Medium up to \$50K depending on whether a suitable local template could be found and adapted.	30/6/2021	Strategic Planning
Action A2 – Internal Opportunities for WSUD (Outcome A)	High	Low cost	30/6/2019	Strategic Planning
Action A2 – Internal Opportunities for WSUD (Outcome B)	High	Low cost	30/6/2020	Infrastructure Planning
Action A3 – Acknowledging WSUD	High	Low cost	30/6/2020	Strategic Planning
Action A4 – Reporting Against WSUD	High	Low cost	30/6/2019	Strategic Planning
Action A5 – Internal Training	Medium	Low cost to assess internal needs and identify suitable providers. Training costs up to \$10K per year across Council	30/6/2020	All sections
Action A6 – Catchment Planning	Priority and estimated cost: 1. Belongil Ck 2. Tallow Ck 3. Brunswick Rv (exc. Marshalls Ck and Simpsons Ck) 4. Marshalls Ck 5. Simpsons Ck 6 Byron Ck	Indicative completion timeframe: 1. 30/6/2021 2. 30/6/2022 3. 30/6/2023 4. 30/6/2024 5. 30/6/2025 6. 30/6/2026	1. High \$100K+ 2. High \$100K 3. High \$80K 4. High \$50K 5. Medium \$50K 6. Medium \$50K	Strategic Planning

Action Program

Action	Priority	Cost	Timeframe	Ownership
Action A7 – Capacity Building Opportunities	Low	Council may be required to part fund and or engage in coordination for the event alongside other contributing Councils	30/6/2022	All Sections
Action A8 – Support Improved Information Resources	Medium	Moderate depending on effort required to update the guidance material	30/6/2022	Development Engineers in association with Infrastructure Planning
Action B1 – Community Education	High	\$5 to \$10K per year	30/6/2021	Infrastructure Services
Action B2 – Provide Support to Achieve Better Outcomes on Rural Dirt Driveways and Roads	High	\$5K with low staffing demands	30/6/2021	Public and Environmental Services
Action B3 – WSUD Promotion Projects	Medium	Information sheets and advertising \$5k. Signage and on-site interpretive information up to \$5K	Ongoing	Infrastructure Services
Action B4 – Supporting School and Community Education	Medium	Council to identify suitable funding basis in association with these educational groups	30/6/2021	Infrastructure Services
Action C1 – O&M Program / Plan for WSUD	High	\$30K	30/6/2020	Utilities with support from Infrastructure Planning
Action C2 – Update Developer Contributions Plan	High	Low - needs to link with proposed Catchment Management Plans for the 5 major catchments to identify priority WSUD works	Update as CMPs prepared	Strategic Planning

Action Program

Action	Priority	Cost	Timeframe	Ownership
Action C3 – Increasing Funding for WSUD	High	Low	Ongoing	Planning/Development/Engineers/Section 94 Officer
Action C4 – Recommending Longer On-Maintenance Periods for Vegetated WSUD Assets	High	Included in overall cost of DCP section development	30/6/2021	Strategic Planning
Action C5 - Audit Construction Sites	High	Moderate cost as compliance auditing is currently unfunded, may require additional staffing to be able to implement. \$20K per annum	30/06/2020	Public and Environmental Services
Action D1 – Prepare WSUD Section within the DCP	High	Medium up to \$50K depending on whether a suitable local template could be found and adapted	30/6/2021	Strategic Planning
Action D2 – Incorporate Deemed to Comply Solutions for Smaller Scale Developments	High	Included in overall cost of DCP section development	30/6/2021	Strategic Planning
Action D3 – Guidance for Recycled Water Access	Medium	Included in overall cost of DCP section development	30/6/2021	Strategic Planning in associated with Infrastructure Services
Action D4 – Support On-Lot WSUD	High	Low	30/6/2021	Strategic Planning
Action D5 – DCP WSUD to Include Information for Homeowners	High	Included in overall cost of DCP section development	30/6/2021	Strategic Planning in associated with Infrastructure Services
Action D6 – Maintain a Register of Public Positive Covenants	High	Minor cost for initial register development, low ongoing costs integrated into existing Council activities	30/6/2021	Public and Environmental Services

Action Program

Action	Priority	Cost	Timeframe	Ownership
Action D7 – Periodically Audit Locations with Public Positive Covenants	High	Moderate cost as compliance auditing is currently unfunded, may require additional staffing to be able to implement. \$20k to \$70k per annum. Increasing as more on lot WSUD assets built	30/6/2022	Public and Environmental Services
Action D8 – Guidance for Preferred WSUD Solutions	High	Included in overall cost of DCP section development	30/6/2021	Strategic Planning
Action D9 – Increasing Duration of Establishment Periods for Vegetated WSUD Assets	High	Included in overall cost of DCP section development	30/6/2021	Strategic Planning
Action D10 – Planning Applications to Provide Improved Economic Information for Proposed WSUD Assets	High	Included in overall cost of DCP section development	30/6/2021	Strategic Planning
Action D11 - Investigation into the ability of Council to impose maximum upper limits on imperviousness for development within the Shire	High	Working group resourced internally within Council. Nil additional cost.	30/6/2021	Strategic Planning with assistance from other groups.

Appendix A DRAFT WSUD Policy (Council Format)



Draft Policy:

**Water Sensitive Urban
Design**

2019

INFORMATION ABOUT THIS DOCUMENT

Date Adopted by Council		Resolution No.	
Document Owner	Insert here the Executive Team position title e.g. Director		
Document Development Officer	Insert there the position title of the person responsible for developing and/or reviewing this document		
Review Timeframe	All policies are to be reviewed within a 4 year period, insert here the number of years (not greater than 4 years) for the review timeframe of this document		
Last Review Date:		Next Scheduled Review Date	

Document History

Doc No.	Date Amended	Details/Comments eg Resolution No.

Further Document Information and Relationships

List here the related strategies, procedures, references, policy or other documents that have a bearing on this Policy and that may be useful reference material for users of this Policy.

Related Legislation	
Related Policies	
Related Standards, Procedures/Protocols, Statements, documents	

Note: Any reference to Legislation will be updated in the Policy as required. See website <http://www.legislation.nsw.gov.au/> for current Acts, Regulations and Environmental Planning Instruments.

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OBJECTIVES

The Water Sensitive Urban Design Policy (WSUD) has been prepared to provide strategic direction for Council and other parties in the design, construction, operation and maintenance of WSUD infrastructure in the Byron Shire. The objectives of the WSUD Policy is to progressively improve catchment and receiving waterway outcomes through improved implementation of WSUD principles and accepted practices.

SCOPE

The WSUD Policy applies to all of Council operations and through its implementation (via the associated WSUD Strategy) it will influence the nature of parties external to Council, such as the development industry and the general public towards an increased awareness of WSUD and improved implementation of WSUD principles and practices.

DEFINITIONS

STATEMENT

The aim of this policy is to provide a consistent approach to the inclusion of Water Sensitive Urban Design (WSUD) principles into Council projects and in planning applications provided to Council.

WSUD principles will guide the design, construction and management of projects and development towards:

- (1) Better management of stormwater runoff peak flows, volumes and quality;
- (2) Improving compliance through monitoring of construction activities and built assets;
- (3) Reducing demands on the use of the regions finite potable water supplies * (i.e. to maximise water efficiency through demand management and conservation);
- (4) Supporting reuse of recycled water in appropriate locations * (i.e. investigate the suitability of water re-use as an additional new water source), and
- (5) Enhancing habitat values for flora and fauna through biodiverse local plant selections.

Additionally, the water balances of catchments should not be subject to excessive imbalance due to importation, exportation or redirection of water, where the water imbalance has the potential to result in adverse impacts to human or ecological receptors.

Climate change and sea level rise will influence the siting and design of WSUD systems in the Byron Shire. Council will review and adopt suitable design approaches for WSUD system as they become available and accepted. This will assist in ensuring that WSUD infrastructure achieves its desired function and service life requirements.

** key actions identified in Rous County Council's Future Water Strategy.*

LEGISLATIVE AND STRATEGIC CONTEXT

The WSUD Policy links directly to a few of the 10-year Community Strategic Plan Strategies including:

- (1) Community Objective 1 – We have Infrastructure, Transport and Services which meet our Expectations. Under this objective the supporting strategy “Provide continuous urban water and sewerage services within the Shire” is relevant in the sense that WSUD has not been applied evenly through the Shire to date and there is extensive capacity for improving WSUD outcomes in existing areas of urban settlement and in future urban settlements.
- (2) Community Objective 3 – We Protect and Enhance our Natural Environment. Under this objective the supporting strategy “Partner to protect and enhance the health of the Shire’s coastlines, estuaries, waterways and catchments” is most relevant, as to achieve the desired outcome of healthy and protected waterways the actions of the community and development sector need to align with Councils vision.

SUSTAINABILITY

The WSUD Policy incorporates social, environmental, economic and governance required for sustainability as outlined below:

6.1 Social

The WSUD Policy includes strategies to educate the community as to what water sensitive urban design is and how their actions can assist in maintaining and improving the condition of receiving waterways. Additionally, the benefits of improved and more consistent implementation of WSUD will have far reaching social benefits over time through improved environmental amenity and ecology.

6.2. Environmental

The WSUD Policy seeks to achieve better environmental outcomes through improved implementation of WSUD principles and practices within Council operations, and within the development sector and the general community. As such the WSUD Policy is fundamentally aligned with environmental management and improvement.

6.3. Economic

Economic sustainability is a key consideration of WSUD which requires adequate funding to achieve its aims. A variety of mechanisms to improve the funding for WSUD from Council based and external sources are outlined within the WSUD Strategy.

6.4. Governance

The implementation (and governance) of the WSUD Policy is outlined further within the WSUD strategy.

Waterwatch**Appendix B Waterwatch**

NSW WATERWATCH ENQUIRY – FOR BMT GLOBAL ON BEHALF OF BYRON SHIRE COUNCIL

Unfortunately, there isn't any local Waterwatch Coordinator near you to assist with the provision of a Waterwatch kits and training etc, but the information below will help see how we can support you and your organisation/school to get involved.

WATER QUALITY

Waterwatch kits are between \$900-\$2300 depending on what parameters you wish to monitor - can do freshwater & estuary. Waterwatchers can test temperature, pH, electrical conductivity, turbidity, available phosphate & dissolved oxygen with kits available. The first 4 tests are called the 'basic' level (primary school & adults - tests take approx 30mins), with all 6 tests listed above is 'senior' level (high school & adults - tests take approx 1hr). The range of tests you decide to do, generally depends on the WHY behind your monitoring - general water quality, salinity & DO particularly etc. Water quality testing regularity needs to be a minimum of:

- Once per month for Community groups & volunteers
- Twice per school term for schools.

We purchase our kits through La Motte Pacific (Vendart), and I've attached a basic price guide for the two types of kits & accessories that you'd need which come with the plastic suitcase and foam insert. If you want to save money on your kit, you can just purchase the items individually to cut out the cost of the case - happy to help work the order up, if you need it, when the time comes. The good thing about these kits, despite the initial investment, they can last for 10+ years for groups/schools to use, and may only need some chemicals & other consumables replaced each year (\$200/yr max per kit - probably an overestimation and depends on how often they're used).

Waterwatch NSW also has lots of online information available in the Resources section of the website - www.nswwaterwatch.org.au/ - testing procedures, results sheets, WHS information, manuals and links to NSW Waterwatch YouTube channel that has 'how to videos'.

All our volunteer's data is stored on the NSW Waterwatch online database via Atlas of Living Australia at <http://root.ala.org.au/bdrs-core/nswwww/home.htm> which you'll be able to add data to, once registered online (I can do that part) and provide you with a login - all I need is chosen site's waterway name with a description, and longitude & latitude, or a mark on a map which I can look up.

For training - you could teach yourself via instructions and videos, or we can arrange it via a video conference - otherwise myself or another consultant would have to charge (fee for service) for the time to come to the group. Something we can talk with Council more, once they've decided how to go about implementing the program.

Waterwatch

WATERBUGS

Groups can do waterbugs via Waterwatch monitoring, or they can also be part of the [National Waterbug Blitz project](#), a nationally focused citizen science project with scientists working with the community to gather national river health data based on waterbugs. The main focus of the Waterbug Blitz events are in Spring (September to November) each year, but bug surveys and the app can be used at any time.

The [Waterbug App](#) can be download free from either Google Play or Apple Store. It's also really great as it has lots of information and pictures. There are three different options for involvement for citizen scientists in the National Waterbug Blitz:

1. Mayfly Muster – identify mayfly nymphs or emerging mayflies at a site and report data (targeted at freshwater fisherman in particular)
2. Quick version – waterbug survey via netting and identifies to Order level (great to schools).
3. Detailed version – waterbug survey via netting and identifies to Family.

The [NSW Waterbug Detective Guide](#) would be great to use as it has pictures of the bugs which are easy to use.

It has recently been made really easy to buy a Waterbug kit, via [The Waterbug Shop](#) where you can buy a complete kit for 2-4 people for \$225, and can add nets and extra equipment if you want to get enough for your group size - just contact them online for advice and help.

If Council would like to host a future Waterbug Blitz Training workshop in 2019, they're \$1500 plus travel & accommodation for 2 experts to visit and train the group, which can be a collection of staff of council, agencies, Landcare, teachers, community members etc, with approximately 20 maximum per workshop.

Other ideas for engaging the community in catchment education and awareness:

- **Catchment Crawls** – take school or community member on a bus trip down a catchment visiting 3-4 site along the way. Measure water quality as you go, and you can also include discussions around land management, water quality and quantity, biodiversity, riparian revegetation projects and more along the way.
- **Annual catchment snapshot reports** – Collect water quality, waterbug and other river health data via council and provide an annual snapshot of condition to the community.
- **Schools** – Waterwatch fits very well with many parts of the curriculum as well as can be used for numeracy, literacy activities in-class as well. A few suggests for both primary and secondary school involvement are below:
 - **Primary Schools** – schools can be involved in monitoring water quality regularly, but often need a fair bit of support each year (can be good to get community or parents involved to support teacher). Also, ensure the Principal is in support of the teacher and implementing the program prior to training. You could also do a catchment crawl/tour with them, or ask them to participate in brochure competitions on '7 ways to keep your waterway clean', video competitions, and lots more. Annual waterbug surveys with schools are always very welcomed, but need support with a council or other staff member to assist.
 - **High Schools** – as above for Primary Schools, but have can have dedicated times for water testing due to school timetable. A great way for a high school to get involved in regular testing is to make it a Sport activity – instead of sport, students can volunteer to do river water testing and other activities for that time.
- **Community Groups** – great to get them involved, particularly Landcare/Bushcare groups who are working on sites with waterways. Would suggest always having minimum of 2

Waterwatch

monitors trained for each group, so that the monthly data can be collected and uploaded for data consistency over time.

Please contact me if you have any questions

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Prepared Wed 9th January 2019.



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