

WATER SENSITIVE URBAN DESIGN

THE IMPLEMENTATION OF WSUD WITHIN THE EXISTING LEGISLATION AND POLICY FRAMEWORK

FINAL

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1 INTRODUCTION

Urban development in the Darwin Region is occurring without appropriate management of its impact on the urban water cycle and the health of the region's waterways.

Water Sensitive Urban Design (WSUD) is an approach that addresses deficiencies in traditional development practice. However, WSUD can only be implemented effectively when there is a good policy and planning framework.

In order to manage the impacts to Darwin Harbour, particularly from new development and re-development areas, the Territory has identified that the implementation of water sensitive urban design (WSUD) on all new development zones is critical. To assist in the adoption of WSUD, the Department of Planning and Infrastructure (DPI) in conjunction with Department of Natural Resources, Environment and The Arts (NRETA) have secured a grant from the Australian Government Coastal Catchments Initiative (CCI) program to develop a **WSUD Strategy for Darwin Harbour**. The Strategy is to create an enabling environment to ensure commitment to urban water cycle and stormwater management through the development of a WSUD framework linking policy to locally relevant technical design guidelines, manuals and industry tools.

The major goal of the WSUD Strategy for Darwin Harbour is the adoption of WSUD in all new subdivision development in the region. In order to ensure WSUD is an integrated part of the planning and stormwater management process, the strategy must be incorporated within the existing planning and legislative framework. This Discussion Paper reviews the current water management and planning framework and examines existing legislation and policy which controls the development approvals process. This paper will identify and recommend appropriate options to amend the existing framework in order to ensure the proposed WSUD Strategy is implemented within the current policy and planning framework in a practical way.

1.1 Outline of Discussion Paper

This paper has been divided into sections as follows:

- **Section 1** provides the context and purpose of the Discussion Paper
- **Section 2** presents WSUD principles and interim WSUD objectives for development in Darwin. The interim objectives will be refined based on the work of NRETA on defining the water quality needs of Darwin Harbour.
- **Section 3** provides an overview of existing legislation, planning schemes and policies and how they control the development approvals process.
- **Section 4** recommends various options for how the WSUD Strategy should be linked to the existing framework and the most suitable methods of placing numerical and technical guidelines within the boarder planning framework.
- **Section 5** proposes amendments to planning provisions for each of the elements of the Planning Framework identified in the discussion above.
- **Section 6** summarises the paper and provides a summary of recommended options.

2 WSUD PRINCIPLES AND OBJECTIVES FOR INCLUSION IN LEGISLATION

WSUD is an holistic approach to the planning and design of urban development that aims to minimise the impacts of urban development on the natural water cycle and protect the health of aquatic ecosystems. WSUD promotes the integration of stormwater, groundwater, water supply and wastewater management and is represented by the following principles:

- protection and enhancement of natural water systems (harbours, creeks and rivers etc.);
- treating urban stormwater to meet water quality objectives for reuse and/or discharge to receiving waters including groundwater;
- matching the natural water runoff regime as closely as possible.
- reducing potable water demand through water efficient fittings and appliances, rainwater harvesting and wastewater reuse;
- minimising wastewater generation and treatment of wastewater to a standard suitable for effluent reuse opportunities and;
- integrating stormwater management into the landscape, creating multiple use corridors that maximise the visual and recreational amenity of urban development.

To facilitate the implementation of the WSUD principles a series of objectives or targets define the specific outcomes that a development is to meet. For Darwin these objectives were defined at a preliminary level by a workshop involving industry experts and local planners, researchers and practitioners. The interim design objectives, summarised in Table 1, below have been tested at a preliminary level to establish the feasibility of complying with the design objectives.

Table 1: Summary of Interim WSUD Objectives

WSUD Objective	Performance Measure/Target
Stormwater Quality	Stormwater discharged from development areas to be treated in accordance with best practice: <ul style="list-style-type: none"> • 80% reduction in the mean annual load of Total Suspended Solids (TSS) • 60% reduction in the mean annual load of Total Phosphorus (TP) • 45% reduction in the mean annual load of Total Nitrogen (TN) • 90% reduction in the mean annual load of Gross Pollutants
Waterway Stability	It is recommended that a waterway stability objective is not adopted at this stage. Further technical investigation is required to refine and test the practicality and achievability of the objective.
Potable Water Conservation	No quantitative potable water conservation objective has been specified; however a <u>20% water conservation target is considered technically feasible and is suggested as an interim target.</u>

It is recommended that the preliminary stormwater quality design objectives be adopted as interim design objectives to ensure that stormwater pollution impacts on Darwin Harbour resulting from current urban expansion are adequately addressed.

NRETA is currently working on the Water Quality Protection Plan (WQPP) for Darwin Harbour. This project will allow the objectives in Table 1 to be refined, to ensure that they protect the values

of the receiving waters. The WQPP addresses the water quality guidelines and the Beneficial Use process set out in National Water Quality Management Strategy (NWQMS) and includes the following activities:

- Review of the Beneficial Uses Declarations for Darwin Harbour, in terms of the environmental and cultural values of the Harbour. This process is currently underway.
- Establishment of receiving water quality guidelines/objectives, in terms of water quality concentrations, that will protect the values of the Harbour in keeping with the Beneficial Use Declarations. At this stage, NRETA has defined interim priority water quality indicators for different receiving water systems within Darwin Harbour. These are shown in Table 2.
- Formulation of a water quality model for Darwin Harbour, which can be used to predict the impact of nutrient and sediment inputs on the Harbour's water quality. This will allow the receiving water quality guidelines/objectives to be translated into load-based targets for stormwater and wastewater flows into the Harbour. This has not yet been completed, hence the presentation of interim stormwater quality objectives in Table 1.
- Formulation of regulatory mechanisms to achieve the receiving water quality objectives, for example water sensitive urban design requirements for new urban development.
- Identification of measurable biological condition indicators that can be monitored.
- Implementation of a monitoring and reporting system that informs resource managers and the public about the state of health of the Harbour and its catchment.

The WSUD principles and objectives identified in this section are suggested as forming the basis of the textual amendments to legislation discussion in Sections 2 and 3 to enable WSUD in the Darwin region.

Table 2: Interim guideline values for priority water quality indicators of the Darwin Harbour Region (Based on 80th and 20th percentiles of data from reference sites).

Indicator	Marine and Estuarine Systems					Freshwater Systems			
	Offshore Marine	Inshore marine	Outer Estuary	Mid Estuary	Upper Estuary	Freshwater Rivers & streams ^b	Aquifer Fed Springs	Lagoons	Groundwater
DO% saturation	Refer ANZECC 2000	Refer ANZECC 2000					To be determined	To be determined	-
Upper			100	100	100	100			
Lower			80	80	75	54			
pH	Refer ANZECC 2000	Refer ANZECC 2000						To be determined	
Upper			9.0	9.0	6.0	7.5	8.0		8.1
Lower			8.0	8.0	8.0	6.0	7.0		7.2
Turbidity (NTU)	Refer ANZECC 2000	Refer ANZECC 2000	-	-	-	1-20	To be determined	1-4	-
Conductivity (µS/cm)	Refer ANZECC 2000	Refer ANZECC 2000	-	-	-	20-200	320-390	n/a	350
Nutrients (µg/L)	Refer ANZECC 2000	Refer ANZECC 2000					To be determined	To be determined	-
Total N (µg N/L)			439 ^a	270	To be determined				
NOx (µg N/L)			10	17	20	8	nd		nd
NH3-N (µg/L)			20	20	20				
Total P (µg P/L)			16	19	22				
FRP (µg P/L)						5	To be determined	To be determined	
Chla (µg/L)	Refer ANZECC 2000	Refer ANZECC 2000	1	2	4	2	-	10	-

^aLimited data.

^b Derived from Fukuda & Townsend 2006.

Note A: Note that DO guidelines for freshwater should only be applied for flowing streams/waters. Stagnant pools in intermittent streams naturally experience low DO.

Note B: DO values less than 30% saturation are toxic to some fish species (Qld Guidelines, Burrows et al).

Note C: DO guidelines apply to daylight hours/conditions. Lower values occur at night.

Note D: Guidelines do not apply during high flow events associated with wet season conditions.

ANZECC 2000 guidelines suggest that this is best addressed using load-based guidelines. These would be based on a reference approach and involve the assessment of loads in undisturbed catchments and using these as benchmarks for other catchments. Loads could be assessed through either direct measurements or through a calibrated model. Total Maximum Pollutant loads for N, P and TSS will be developed through the WQPP for the Darwin Harbour region using catchment loads data and modelling approaches.

3 EXISTING LEGISLATIVE AND POLICY FRAMEWORK

The major goal of the WSUD Strategy for Darwin Harbour is the adoption of WSUD in all new subdivision development in the region. For this goal to be realised, the WSUD strategy for the Darwin Region should be consistent with and work within the context of the existing administrative and legislative framework, and should complement existing policies and programmes relating to stormwater management, catchment management and receiving waterways in the region.

For this to be enabled, WSUD needs to be supported in the Darwin Region through appropriate policy and a strong position within the planning framework. The policy and planning framework should:

- Provide leadership from the NT Government to support the adoption of WSUD
- Include clearly stated WSUD design objectives
- Inform and guide strategic land use planning (i.e. structure planning and master planning), infrastructure planning and development assessment decision making

The following section provides an overview of the relevant planning and water management policy and framework that controls the development approvals process. This discussion of policy and framework is partially based on the User Guide to the Northern Territory Planning Scheme (NT Government 2007).

3.1 Planning and Land Development Administration

Planning and land development in the Northern Territory is the responsibility of the Department of Planning and Infrastructure (DPI). The Development Consent Authority (DCA), established under Section 82 of the Planning Act, is a division of the DPI whose function is to assess and determine development applications. The DCA is organised into seven division areas which are generally associated with the larger population centres of Alice Springs, Batchelor, Darwin, Katherine, Litchfield, Palmerston and Tennant Creek. Outside of these division areas the consent authority is the Minister. The DCA comprises a Chairman, Deputy Chairman and three (3) division members.

The role of local government within the development application process is one of an advisory position. Local government is not responsible for issuing subdivision and development permits, rather their role is one of a referral agency who makes comment on proposed development applications with regard to their responsibilities under the *Local Government Act* and *Planning Act*.

3.2 Water Management Administration

Operational management of stormwater is undertaken by both the Territory and local governments. Road corridors and crown lands are managed by the NT Government, while other public lands are generally managed by local government. Within the NT Government, it is DPI's Land Administration and Road Network units who have primary responsibility for stormwater management activities. Six local governments are located within the Darwin Harbour region: Darwin City Council, the City of Palmerston, Litchfield Shire Council, Cox Peninsula Community Government Council, Belyuen Community Government Council and the Coomalie Community Government Council. Darwin City and the City of Palmerston local government areas contain the urban areas of Darwin and Palmerston, and it is in these jurisdictions that most land development is occurring.

3.3 Planning and Water Management Legislation

3.3.1 Northern Territory Planning Act

Development consent is required for subdivision or consolidation of land in the Northern Territory and the *Planning Act* governs this development. The Planning Act aims to provide a consistent approach to land use planning throughout the Territory by the promotion of a performance based approach to planning rather than compliance with prescriptive development and land use controls. Under the *Planning Act*, the Development Consent Authority can place conditions on new developments, including stormwater management conditions.

3.3.2 Northern Territory Planning Scheme

As a broad based legislative document the Planning Act relies on the Northern Territory Planning Scheme to provide a mechanism for development control and define directions for future land use development. The consolidated NT Planning Scheme, contains provisions that include:

- statements of policy with respect to the use or development of land;
- provisions that permit, prohibit or impose conditions on a use or development of land;
- provisions that provide instructions, guidelines or assessment criteria to assist the consent authority in assessing development applications;
- other provisions in connection with planning for, or control of, the use or development of land; and
- maps, plans, designs and diagrams.

3.3.3 Local Government Act

Under the *Local Government Act*, Council is specifically responsible for stormwater drainage. In the case of re-subdivision and/or development/substantial redevelopment of exiting allotments, Council has the right under the Local Government Act to require the upgrading of stormwater assets.

3.3.4 Water Act and Waste Management and Pollution Control Act

The *Water Act* governs the use of water, including surface and groundwater. The *Water Act* allows Beneficial Use Declarations to be made in relation to particular water bodies. A Beneficial Use Declaration defines the environmental values that apply to the body of water, and associated water quality objectives. Beneficial Use Declarations have been made for Darwin Harbour, including aquatic ecosystem protection, recreational water quality and aesthetic environmental values.

The Water Act is linked to the development application process pursuant to Section 51(s) of the Planning Act, which maintains that in considering a development application, a consent authority must take into account any beneficial uses, quality standards, criteria, or objectives, that are declared under section 73 of the *Water Act*. Section 73 of the Water Act provides the mechanism for the declaration of beneficial uses and water quality standards, criteria and objectives, which apply to or are related to waste and water classes.

The *Waste Management and Pollution Control Act* governs stormwater pollution. Activities with the potential to cause environmental harm are regulated under this Act. The *Waste Management and Pollution Control Act* is linked to the development application process pursuant to Section 51(d) of the Planning Act, which states that a consent authority, when assessing a development application must take into account an environment protection objective within the meaning of the *Waste Management and Pollution Control Act* that is relevant to the land to which the application relates.

While the *Water Act* and the *Waste Management and Pollution Control Act* are the main legislative instruments governing stormwater management in the Northern Territory, options for inclusion of

WSUD elements within these Acts are not recommended. The major goal of the WSUD Strategy for Darwin Harbour is the adoption of WSUD in all new subdivision development in the region. Therefore, focus is directed towards the inclusion of WSUD Strategy and guidelines within sections of the existing framework that relate directly to the development approvals process.

3.4 Policies and Guidelines

3.4.1 Guidelines relating to the NT Planning Scheme

Section 2.8 of the NT Planning Scheme states that applications for a use or development must demonstrate consideration of, and the consent authority must have regard to, any guidelines applicable to the use or development appearing in Schedule 3 (of the scheme) and ensure that a use or development or proposed use or development is consistent with them.

3.4.2 Other Guidelines

While the Planning Scheme establishes certain standards for subdivision including minimum lot sizes, general layout, the provision of open space etc, local governments also have requirements relating to subdivision development. These local government subdivision guidelines are provided for the information of developers of land wherever assets are to be handed over to the local government for it to maintain. The guidelines represent the minimum standards acceptable to Council for elements such design and construction of roads, *stormwater drainage*, street lighting, footpaths, driveways, open space, landscaping and ancillary items. Two key guidelines have been identified in the Darwin Region:

- Darwin City Council Development and Subdivision Guidelines 2005 - Section 3.9 outlines design requirements for stormwater drainage design
- City of Palmerston Subdivisional Guidelines 2007 - Section 4 provides guidelines for stormwater drainage and management incorporating necessary principles for water sensitive urban design

3.5 Existing Framework Conclusions

Following the review of existing water management and development assessment legislative framework coupled with an appreciation in the application of WSUD policy, the following elements have been identified so as to facilitate the successful implementation of WSUD into the existing legislative framework of the Northern Territory:

- Territory level policy that explicitly supports the adoption of WSUD is essential.
- Having clearly stated WSUD design objectives contained within a Territory level policy or alternatively within a supporting document that is referenced by a Territory policy is important to ensure consistency and confidence in Territory and Local Government decision making on land use and development proposals.
- Preparation of local (or catchment scale) WSUD Guidelines and Tools are essential to inform and guide strategic land use planning (i.e. structure planning and master planning), infrastructure planning and development assessment decision making. In the NT local government is responsible for approval of all stormwater drainage through the referrals procedure of the development approvals process.

4 OPTIONS FOR INCLUSION OF WSUD STRATEGY WITHIN EXISTING FRAMEWORK

Section 3.5 outlines three requirements that are considered to be necessary in order to ensure the successful implementation of WSUD within the existing legislative framework. Based on these three requirements, options for the inclusion of the proposed WSUD Strategy within existing framework are provided as follows:

- Options as to how the **WSUD Strategy** should be adopted within Territory planning framework, in order to ensure broadscale NT Government support for the strategy.
- Options as to how **WSUD Principles and Objectives** should be incorporated within Territory planning framework in order to provide for the consistency in Territory and local government decision making on land use and development proposals.
- Options as to how **WSUD Guidelines** (including numerical performance controls) should be incorporated within the existing planning framework in order to inform and guide strategic land use planning, infrastructure planning and development assessment decision making, and taking into account the responsibilities of local government in the approval and long term management and maintenance of all stormwater drainage.

Table 3: Options for inclusion of WSUD into existing NT planning framework

Options for adoption of the WSUD Strategy within the NT planning framework		
Legislation/Policy to be Amended	Proposed Amendment	Justification
NT Planning Act	Section 51	<p>Section 51 relates specifically to the assessment and determination of an application, and outlines matters to be taken into account by the DCA during the development approvals process. Specifically, this section refers to the consideration of planning policies such as planning schemes, as well as other relevant pieces of legislation including the Water Act 1992 and Waste Management and Pollution Control Act 2007.</p> <p>An option is to include a sub clause under Section 51 that relates specifically to WSUD. Inclusion of such a sub clause would include WSUD as a matter to be taken into consideration during the assessment and determination of a development proposal. Amending this Section to include WSUD acts as a trigger within the development assessment process and highlights the importance of WSUD within legislation. Furthermore, Section 51 is strengthened by Section 52 of the Planning Act, which ties planning schemes and their requirements to the development application process and gives weight to the requirements of planning schemes.</p>
Options for adoption of WSUD Principles and Objectives within the NT planning framework		
Legislation/Policy to be Amended	Proposed Amendment	Justification
NT Planning Scheme	Part 2 (Section 4.1 and Section 4.2)	<p>Section 4.1 lists a number of planning principles which are broad expressions of the NT Governments commitment to outcomes of land use planning and development control. Section 4.2 provides planning principles as above which are specific to the Darwin Region.</p> <p>In order to provide for the consistency in Territory and local government decision making on land use and development proposals, an option is to include WSUD principles within either Section 4.1 or 4.2. The NT Planning Scheme is considered to be the most appropriate mechanism for achieving consistency within decision making as it is linked directly to the Planning Act via Section 52 of the Act, which states that the DCA must not consent to a development proposal if (in its opinion), the proposed development is contrary to the planning scheme's statement of policy in respect of the use or development of land or is contrary to planning scheme provisions that permit, prohibit, restrict or impose conditions on a use or development of land. By amending this Section to include WSUD</p>

		principles, this should enable consistent consideration of these principles within the decision making process.
NT Planning Scheme	Part 5 (Section 11.1)	<p>Part 5 outlines Subdivision controls for the following:</p> <ul style="list-style-type: none"> ▪ Subdivision General; ▪ Residential Subdivision; ▪ Industrial Subdivision; ▪ Rural Subdivision. <p>An option is that appropriate sections of this part be updated to include specific WSUD principles. Where these requirements are included within this Section will depend on which types of subdivision development require WSUD to be implemented. It may be an option however that amendments be made to Section 11.1 Subdivision General, as this provides for a broader application to a variety of subdivision types.</p> <p>As noted above, the Planning Scheme is supported by Section 52 of the Planning Act. With regard to design requirements outlined in Part 5, Section 52 of the Act specifically states that the DCA must not consent to a development proposal (if in its opinion), the proposed development is contrary to the schemes provisions that provide instructions, guidelines, or assessment criteria to assist the consent authority in assessing development applications, as well as planning scheme; maps, plans, designs and diagrams. Including WSUD principles within this Section should enable the consistent consideration of these principles during the decision making process for relevant subdivision applications.</p>
NT Planning Scheme	Part 1 (Section 2.8 and Schedule 3)	<p>An alternative option to amending Part 5 of the Planning Scheme is to attach a WSUD Principles and Objectives Guideline as a supporting document to the Planning Scheme. Schedule 3 of the Planning Scheme provides a Reference to Guidelines that may be relevant to certain developments. A WSUD Guideline could be included within Schedule 3 of the Planning Act.</p> <p>Section 2.8 of the Planning Scheme ties Guidelines listed in Schedule 3 to the approvals process by instructing that applications for a use or development must demonstrate consideration of and the consent authority must have regard to any guidelines applicable to the use or development appearing</p>

		in Schedule 3, and ensure that a use or development or proposed use or development is consistent with them. The benefit of opting for a standalone Guideline is that this document could be updated as required, without major changes to the Planning Scheme.
Options for incorporation of WSUD Guidelines within the NT planning framework		
Legislation/Policy to be Amended	Proposed Amendment	Justification
Darwin City Council Development and Subdivision Guidelines (DCCDSG) 2005 and City of Palmerston Subdivisional Guidelines (CPSG) 2007	Section 3.9 of DCCDSG and Section 4 of CPSG	<p>Section 3.9 of the DCCDSG and Section 4 of the CPSG cover specific design requirements for subdivisions, including various standards, guidelines and codes that are required to be complied with to meet Council requirements.</p> <p>As Council is responsible for the long term management of stormwater drainage infrastructure, an option for the inclusion of WSUD Guidelines (including numerical performance controls) within the existing framework is to amend existing Sections of Council's Subdivision Guidelines to reflect WSUD. Assessment would be made against these guidelines by Council during the referral process.</p>
Darwin City Council Development and Subdivision Guidelines 2005 and City of Palmerston Subdivisional Guidelines 2007	Additional Appendix	An alternative to amending specific sections within these Council Subdivision Guidelines is to include a separate Appendix which houses a specific WSUD Guideline. Currently, both the Darwin and Palmerston Subdivision Guidelines refer to Appendices which are included to provide further detail on various components of these Guidelines including Councils standard details for various infrastructure requirements. The benefit of opting for a Guideline as an appendix is that this document could be updated as required, without major changes to Councils Subdivision Guideline document. As above, assessment would be made against these guidelines by Council during the referral process.

5 PROPOSED AMENDMENTS

Based on the above discussion on the preferred pathways for inclusion of WSUD into the NT planning framework, proposed provisions are presented for each of these pathways in Table 4.

The existing wording of the provisions within both the NT Planning Act and Planning Scheme are general and do not suggest specific principles, objectives or targets that are to be met. As an example Crime Prevention through Environmental Design (CPTED) is enacted through the following provisions:

- NT Planning Act s51 “community safety through crime prevention principles in design”;
- NT Planning Scheme Clause 2.8 - Applications for a use or development must demonstrate consideration of and the consent authority must have regard to any guidelines applicable to the use or development appearing in Schedule 3 and ensure that a use or development or proposed use or development is consistent with them.
- NT Planning Scheme Clause 8.2 subsection 3 - Reference to Guidelines “A development application must in addition to the matters described in sub-clause 2, demonstrate consideration of and the consent authority is to have regard to the Community Safety Design Guide (as amended from time to time) produced by the Department of Planning and Infrastructure”.
- NT Planning Scheme Schedule 3, Schedule to Clause 2.8 - Reference to Guidelines “Community Safety Design Guide”.

Appropriate principles, objectives and targets for WSUD are identified in Section 2 of this report. To facilitate the uptake of these principles and targets and being consistent with the current wording of the NT Planning Act and Scheme suggested amendments to the NT Planning Act and Scheme Table 4. WSUD principles are proposed within Part 2, Section 4.1 of the NT Planning Scheme. In Part 5 of the Planning Scheme developers of both residential and industrial subdivisions are directed to “incorporate water sensitive urban design elements to meet the objectives within and the consent authority is to have regard to the Water Sensitive Urban Design Guide produced by the Department of Planning and Infrastructure”.

As discussed in Section 3.3.4 WSUD provisions are not recommended for the *Water Act* and the *Waste Management and Pollution Control Act*. The major goal of the WSUD Strategy for Darwin Harbour is the adoption of WSUD in all new subdivision development in the region. Therefore, focus is directed towards the inclusion of WSUD Strategy and guidelines within sections of the existing framework that relate directly to the development approvals process.

It is recommended that the inclusion of appropriate design advice into the Darwin City Council Development and Subdivision Guidelines (DCCDSG) 2005 and City of Palmerston Subdivisional Guidelines (CPSG) 2007 is to be based on the suite of documents are being prepared for the Darwin Harbour CCI project. This information which includes WSUD Guidelines and Tools including High Level and Conceptual Design Guideline, Technical Design Guideline and Design Tools (MUSIC Guidelines, Deemed to Comply Solutions, Standard Drawings etc.), which will be made available for Councils to incorporate into the relevant subdivision guides.

It is suggested that these proposed provisions are reviewed by the Department of Planning and Infrastructure, the Department of Natural Resources, Environment, the Arts and Sport and other stakeholders as required.

Table 4: Proposed provisions for inclusion of WSUD into the NT planning framework

Proposed Provisions for adoption of the WSUD Strategy within the NT Planning Act		
Legislation/Policy to be Amended	Existing Provisions	Proposed Provisions
NT Planning Act Section 51	(s) any beneficial uses, quality standards, criteria, or objectives, that are declared under section 73 of the Water Act;	(s) water sensitive urban design; (t) any beneficial uses, quality standards, criteria, or objectives, that are declared under section 73 of the Water Act;
Proposed Provisions for adoption of the WSUD Strategy within the NT Planning Scheme		
Legislation/Policy to be Amended	Existing Provisions	Proposed Provisions
NT Planning Scheme Part 2, Section 4.1	(b) contribute to the sustainable use and development of land and water resources so that the use and development of land is consistent with the principles of sustainable development and avoids pollution and minimizes degradation of the environment or over commitment of water resources;	(b) contribute to the sustainable use and development of land and water resources so that the use and development of land is consistent with the principles of water sensitive urban design, namely: <ul style="list-style-type: none"> i protection and enhancement of natural water systems (creeks, rivers, wetlands, estuaries, lagoons, groundwater systems etc.); ii protection and enhancement of water quality, by improving the quality of stormwater runoff from urban catchments; iii minimisation of harmful impacts of urban development upon water balance and surface and groundwater flow regimes; iv integration of stormwater management systems into the landscape in a manner that provides multiple benefits, including water quality protection, stormwater retention and detention, public open space and recreational and visual amenity; and v reduction in potable water demand.

<p>NT Planning Scheme Part 5 Section 11.2.2 Infrastructure and Community Facilities in Residential Subdivisions</p>	<p>(e) provide for connection to reticulated services; (f) provide a minimum of 10% of the subdivision area as public open space which:</p>	<p>(f) incorporate water sensitive urban design elements to meet the objectives within and the consent authority is to have regard to the Water Sensitive Urban Design Guide produced by the Department of Planning and Infrastructure; (g) provide a minimum of 10% of the subdivision area as public open space which:</p>
<p>NT Planning Scheme Part 5 Section 11.3.2 Infrastructure in Industrial Subdivisions</p>	<p>(f) where no reticulated sewerage is available, demonstrate that the soils are suitable for the on-site absorption of effluent without detriment to the environment, and in particular to ground and surface waters; and (g) protect service infrastructure by providing/ preserving easements.</p>	<p>(g) incorporate water sensitive urban design elements to meet the objectives within and the consent authority is to have regard to the Water Sensitive Urban Design Guide produced by the Department of Planning and Infrastructure; and (h) protect service infrastructure by providing/ preserving easements.</p>
<p>NT Planning Scheme Schedule 3</p>		<p>Water Sensitive Design Guide, Department of Planning and Infrastructure</p>
Proposed Provisions for adoption of the WSUD Strategy within the Subdivision Design Guides		
<p>Legislation/Policy to be Amended</p>	<p>Existing Provisions</p>	<p>Proposed Provisions</p>
<p>Darwin City Council Development and Subdivision Guidelines (DCCDSG) 2005 and City of Palmerston Subdivisional Guidelines (CPSG) 2007</p>	<p>Section 3.9 of DCCDSG and Section 4 of CPSG</p>	<p>A suite of documents are being prepared for the Darwin Harbour CCI project through the Department of Planning and Infrastructure which will be made available for Councils to incorporate into the relevant subdivision guides.</p>

6 SUMMARY

The major goal of the WSUD Strategy for Darwin Harbour is the adoption of WSUD in all new subdivision development in the region. This paper has focused on the inclusion of WSUD Strategy and guidelines within sections of the existing framework that relate directly to the development approvals process. However, while focus is concentrated on development approvals legislation and policy, it is also important that the WSUD strategy for the Darwin Region fits within the context of the existing administrative and legislative framework, and complements existing policies and programmes relating to stormwater management, catchment management and receiving waterways in the region.

Following an overview of the relevant planning and water management policy and framework that controls the development approvals process, a number of options have been recommended for the inclusion of WSUD Strategy within the existing framework. These options are summarised below.

Adoption of WSUD Strategy within the NT planning framework

- **Option 1** - amendment of Section 51 of the Planning Act to include WSUD as an element that is to be considered as part of the development assessment and determination process by the consent authority (DCA).

Adoption of WSUD Principles and Objectives within the NT planning framework

- **Option 1** - amend Section 4.1 of the Planning Scheme to include WSUD planning principles for the Northern Territory and amend Section 11.1 to include specific WSUD Principles and Objectives that should be considered within subdivision design. In the first instance it could be appropriate to amend Section 4.2 of the Planning Scheme to include WSUD planning principles relating to the Darwin Region.
- **Option 2** - amend Sections 4.1 and 4.2 of the Planning Scheme to include WSUD planning principles for both the whole Northern Territory and the Darwin Region; and amend Schedule 3 of the Planning Scheme to attach a linked but standalone WSUD Principles and Objectives document, pursuant to Section 2.8 of the Scheme.

Incorporation of WSUD Guidelines within the NT planning framework

- **Option 1** - amend Section 3.9 of the Darwin City Council Development and Subdivision Guideline and Section 4 of the City of Palmerston Subdivision Guideline to include specific WSUD requirements (including numerical performance controls).

Recommended options have been formulated in order to provide the mechanism for the inclusion of clearly stated WSUD design objectives, as well as required amendments to policy in order to inform and guide strategic land use planning, infrastructure planning and development assessment decision making.

Recommended options have also been structured to provide for minimal changes to broadscale legislation, while ensuring detailed WSUD requirements are included in local level policy documents. The recommended options also seek to ensure ease of adoption with regard to formal legislative and policy changes required in order to ingrain the WSUD Strategy within the existing planning framework. Furthermore, this strategy has been formulated in order to ensure flexibility with regard to the adoption of new WSUD guidelines and controls in the NT development environment. Flexibility can help to overcome existing barriers to policy and planning with regard to administration and consistency, as well as technical and knowledge barriers as a result of a previous lack of awareness, demand and data relating to WSUD systems.

The recommended options are supported by a series of proposed provisions which should be reviewed by the Department of Planning and Infrastructure, the Department of Natural Resources, Environment, the Arts, as well as Councils and other stakeholders. Based on the review of the information presented the process for updating the relevant sections of the planning framework can be undertaken.