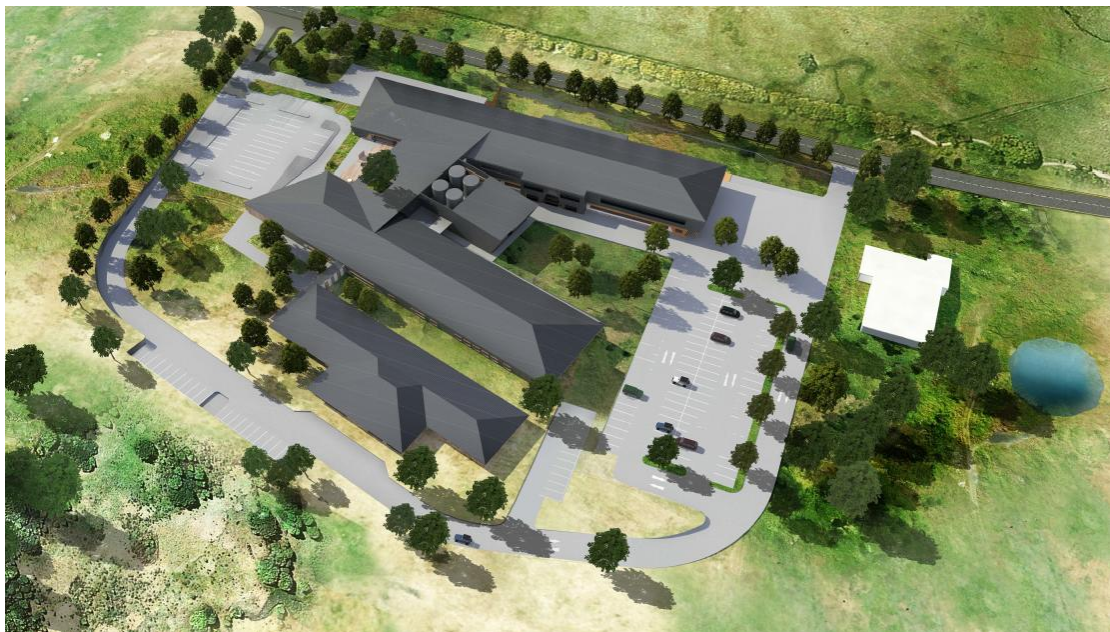


# DA ESD Report

Byron Shire Central Hospital



AECOM

Byron Shire Central Hospital  
DA ESD Report  
Commercial-in-Confidence

## DA ESD Report

Byron Shire Central Hospital

Client: Health Infrastructure

ABN: 89 600 377 397

Prepared by

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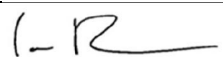


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## Table of Contents

Executive Summary	5
1.0 Introduction	6
2.0 Site description	6
3.0 Statutory and Policy Requirements	8
3.1 Building Code of Australia	8
3.2 Byron Shire ESD Policies	8
3.2.1 Local Environmental Plan 2014 and Development Control Plan 2014	8
3.3 Secretary's Environmental Assessment Requirements (SEAR's)	9
4.0 Voluntary Design Guidelines	9
4.1 NSW Health Sustainability Strategy	9
4.2 NSW Government Sustainability Policy	10
4.3 Green Star Healthcare v1 Rating Tool	10
5.0 Summary of Sustainability Initiatives	11
5.1 Architectural Design	11
5.2 Water	11
5.3 Energy	11
5.4 Materials	11
5.5 Economic Sustainability	11
5.6 Social Sustainability	12
6.0 Design Response	13
7.0 Conclusion	22

## Executive Summary

This report presents the Ecologically Sustainable Development (ESD) strategies for the proposed Byron Shire Hospital on Ewingsdale Road, Byron Bay.

The strategies proposed are designed to meet the regulatory requirements of the Building Code of Australia and Byron Shire Council.

The specific policy targets on which the strategies are based on include:

- Building Code of Australia Part F;
- Building Code of Australia Part J;
- Byron Shire LEP 2014; and
- NSW Secretary's Environmental Assessment Requirements (SEARS).

Although not directly applicable to the project, the Byron Shire DCP 2014 has also been considered;

The strategies that will be incorporated into the design meet these various statutory performance targets.

The design has also been guided by the following voluntary sustainable design guidelines:

- NSW Health Sustainability Strategy; and
- The Green Building Council of Australia's Green Star Healthcare v1 rating tool.

This demonstrates that the development is looking beyond minimum compliance requirements and has the potential to achieve a 4 Star Green Star rating under the Green Building Council of Australia's Green Star Healthcare v1 rating tool.

## 1.0 Introduction

This Ecologically Sustainable Design (ESD) report has been prepared for the Development Application submission for the Byron Shire Central Hospital (BSCH) project. The proposed project is based on the recommendation of the Addendum Version 2 of the Preliminary Business Case comprising;

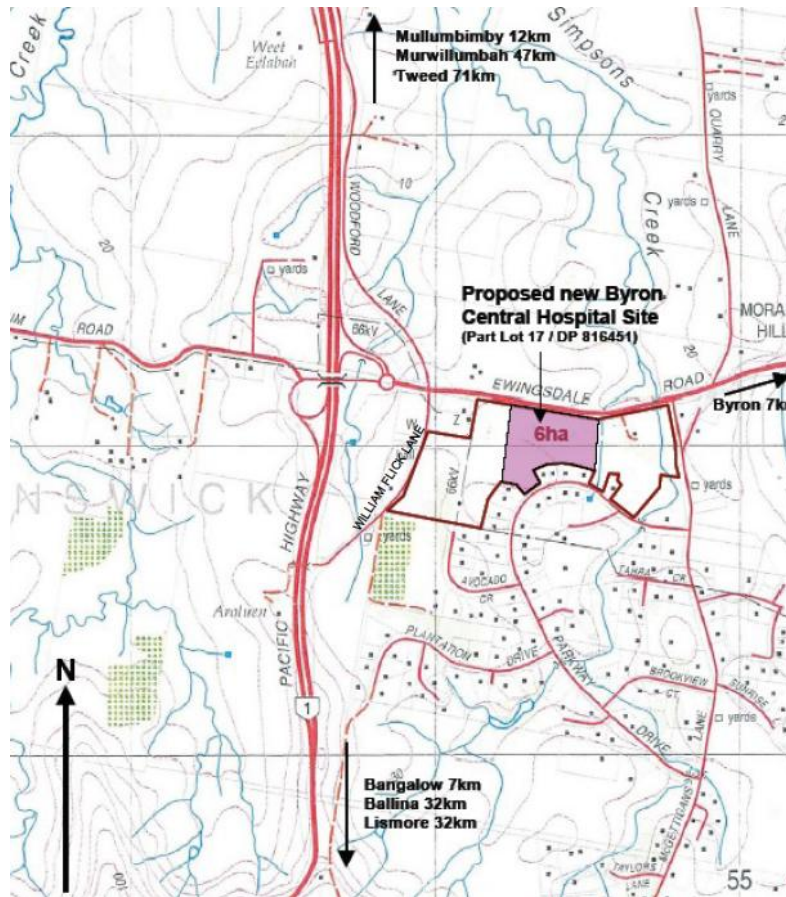
- 45 Overnight Beds;
- New Mental Health Beds (non-acute);
- 4 ED Bays;
- Maternity Suite
- Capacity for periop suite; and
- Enhanced Community Allied Health Drug & Alcohol facility.
- Capacity for a day surgery service should the market sounding be successful.

## 2.0 Site description

The proposed BSCH site is located to the south of Ewingsdale Road, approximately five kilometres to the west of Byron and 1km to the east of the Pacific Highway / Ewingsdale Road interchange. The proposed development will combine the services currently provided at the Byron District Hospital and Mullumbimby War Memorial Hospital (located approximately 12km to the north of the proposed site).

The proposed site is shown in Figure 1.

**Figure 1 Site Location**



## 3.0 Statutory and Policy Requirements

This section provides an overview of key statutory and policy requirements relating to ESD and sustainability as it relates to development.

### 3.1 Building Code of Australia

The Building Code of Australia (BCA) Section J sets minimum energy performance requirements for all new development, which includes building fabric and glazing thermal performance, air-conditioning, ventilation, lighting, power and hot water.

The Building Code of Australia (BCA) Section F sets minimum lighting and ventilation performance requirements for all new development.

The development will meet all BCA requirements as per complying BCA report.

### 3.2 Byron Shire ESD Policies

#### 3.2.1 Local Environmental Plan 2014 and Development Control Plan 2014

Byron Shire Local Environmental Plan 2014 (BSLEP 2014) is the applicable statutory planning instrument for the subject site. Sustainability is addressed as the first item in the aims of the Plan itself:

*(2) The particular aims of this Plan are as follows:*

*(a) to progressively respond to changes in the natural, social and economic environment in a way that is consistent with the following principles of ecologically sustainable development:*

*(i) the precautionary principle—this principle means that where there are threats of serious or irreversible damage to the community's ecological, social or economic systems, a lack of complete scientific evidence should not be used as a reason for postponing measures to prevent environmental degradation (In some circumstances this will mean actions will need to be taken to prevent damage even when it is not certain that damage will occur.),*

*(ii) the principle of intergenerational equity—this principle means that the present generation must ensure that the health, integrity, ecological diversity, and productivity of the environment is at least maintained or preferably enhanced for the benefit of future generations,*

*(iii) the principle of conserving biological diversity and ecological integrity—this principle aims to protect, restore and conserve the native biological diversity and enhance or repair ecological processes and systems,*

*(iv) the principle of improving the valuation and pricing of social and ecological resources—this principle means that users of goods and services should pay prices based on the full life cycle costs (including the use of natural resources at their replacement value, the ultimate disposal of any wastes and the repair of any consequent damage),*

*(v) the principle of eliminating or reducing to harmless levels any discharge into the air, water or land of substances or other effects arising from human activities that are likely to cause harm to the environment,*

*(vi) the principle of encouraging a strong, growing and diversified economy that promotes local self-reliance, and recognises and strengthens the local community and its social capital in ways that safeguard the quality of life of future generations,*

*(vii) the principle of providing credible information in open and accountable processes to encourage and assist the effective participation of local communities in decision making.*

The purpose of the Byron Shire Development Control Plan 2014 (BSDCP 2014) is to supplement the BSLEP 2014 and provide more detailed provisions to guide development. Part B - *Controls* includes provisions for ESD. Whilst the BSLEP 2014 does not apply to the SSD Refer to Table 1 provides a compliance table against the requirements, for information.

### 3.3 Secretary's Environmental Assessment Requirements (SEAR's)

The SEAR's issued on 9<sup>th</sup> July 2014 contain the following requirements relevant to ESD:

- Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development.
- Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice (propose to assess against GBCA Green Star health v1 tool).
- Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.

Refer to Table 2 for a compliance table against the Director Generals Requirements.

## 4.0 Voluntary Design Guidelines

This section provides an overview of voluntary guidelines being used to benchmark the sustainable design performance of the development.

### 4.1 NSW Health Sustainability Strategy

NSW Health developed an 'Environmental Sustainability Strategy 2012 to 2015', with a vision for 'Healthy People – Now and in the Future' (NSW State Health Plan) in a future carbon constrained economy.

The commitment is to a sustainable health system through efficient use of resources and to achieve improvement in physical assets and corporate services and on integrating and standardising systems across all NSW Health entities.

Actions will be delivered through policy promulgation, upgraded design standards for construction and refurbishments, improved maintenance delivery programs, and education programs for staff service providers and contractors.

The strategy includes non-binding targets as follows:

- To reduce greenhouse gas emissions state-wide from building energy use by 5 percent below 2000 levels (665,000 tonnes) by 2019/20, with interim targets of 817,000 tonnes by 2010/11, 769,500 tonnes by 2013/14 and 741,000 tonnes by 2016/17.
- Agencies to purchase 6% GreenPower.
- State-wide 20% reduction of potable water consumption by June 2011 (from 2005/06 levels).
- 85% of all copy paper purchased to contain recycled content by 2014.
- From July 2008, all publication quotes to include one recycled content option.
- All products and appliances purchased to meet minimum 4 star rating under MEPS and WELS or Smart Approved WaterMark products and services (for outdoor use), where available and fit for purpose.
- Achieve an average "environment performance score" of 12/20 by 2007/08.
- Achieve 20% reduction in GHG emissions by 2007/08 (from 04/05 baseline).
- Agencies with fleets of 25 to 99 cars are required to have at least one petrol/electric hybrid fuel technology vehicle. For fleets comprising 100 or more vehicles, one percent of the fleet must be hybrid vehicles.
- Motor vehicle purchasing requirements to require vehicles to be compatible with E10 blends (or other alternative fuels), consistent with the Cleaner NSW Government Fleet Policy.

Refer to Table 3 for a benchmarking assessment against the NSW Health Sustainability Strategy targets.

## 4.2 NSW Government Sustainability Policy

The NSW Government Sustainability Policy identifies targets across key areas including greenhouse gas emissions from building energy use; sustainable water use; environmental performance of buildings; cleaner government fleet; reduction of waste; and sustainable purchasing.

The NSW MoH's key objectives for environmentally sustainable design, as defined in TS-11 Engineering Services and Sustainable Development Guidelines, are:

- Comfortable and healthy indoor environment (in terms of thermal comfort, visual comfort and indoor air quality);
- Minimised non-renewable resource consumption (e.g. energy, water) and environmental impacts (e.g. greenhouse, other air and water emissions, solid waste);
- Grey water return for irrigation, subject to negotiation with Council; and
- Cost-effectiveness over its whole lifecycle.

Refer to Table 4 for a benchmarking assessment against the NSW Government Sustainability Policy guidelines.

## 4.3 Green Star Healthcare v1 Rating Tool

The Green Building Council of Australia (GBCA) released the Green Star — Healthcare v1 tool on 15 June 2009 to support sustainable planning, design and construction of high-performance healthcare facilities.

The Green Star — Healthcare v1 tool can help owners and operators of healthcare facilities around Australia to:

- minimise the environmental impact of their buildings
- improve patient health outcomes and staff productivity
- receive recognition for green leadership
- achieve real cost savings.

Refer to Table 5 for a benchmarking assessment against the Green Star Healthcare v1 tool.

## 5.0 Summary of Sustainability Initiatives

The proposed BSCH building features a number of sustainability initiatives to reduce the environmental impacts of the development, enhance economic and social benefits and offer high quality indoor and outdoor amenity to building users. Below is a summary of key initiatives.

### 5.1 Architectural Design

- A series of narrow, east-west oriented buildings provides:
  - opportunities for natural ventilation;
  - deep penetration of daylight into the floor plate;
  - large areas with access to external views;
  - outdoor spaces that can be used as courtyards with passive surveillance;
  - minimal west-facing façade area and summer afternoon heat loads; and
  - ideal northern aspect for rooftop solar power/hot water generation.
- Building form is sympathetic to the site, minimising requirements for excavation.

### 5.2 Water

- Efficient fittings and fixtures will be provided, including dual flush toilets.

### 5.3 Energy

- Central heating and cooling systems will provide energy efficient space conditioning and heat recovery utilised where possible from waste heat.
- Economy cycle will be used when outside conditions are favourable (100% outside air) and mixed mode air conditioning will be implemented in the LDRPs and Birthing suite. Natural ventilation is not considered viable for spaces such as Acute Wards and areas in which security is of higher importance.
- A large amount of floor space (i.e the middle 'finger' of the 3 floor plate fingers) will be powered off between 6pm and 7am to conserve energy.
- Appropriate zoning control for HVAC systems to condition spaces only when required.
- Variable speed drives will be considered for fans, pumps and air handling plant.
- Building management and control system to optimise performance in operation.
- Daylight dimming connected to daylight sensors to harvest natural light where possible.
- Energy efficient light fittings with high levels of control and motion detection at night.

### 5.4 Materials

- Consideration will be given to locally sourced, modular and pre-fabricated building materials.
- Construction materials sourced from environmentally and socially responsible suppliers will be investigated.
- Operational procurement policy to consider materials sourced locally, with recycled content and/or low environmental impacts.

### 5.5 Economic Sustainability

- Reduced length of patient stay due to increased amenity, particularly access to daylight and high quality external views.
- Increased staff productivity due to increased flexibility of facilities.
- Increase in local employment opportunities.

- Increased flexibility due to flow separation of consults from workspaces.
- Future proofing through including of expansion zones and consideration of climate change risks.
- Increased flexibility due to functional design and flows throughout the building. Namely separation of consultation rooms and staff workstation enables increased utilisation of clinical areas.

## 5.6 Social Sustainability

- Improved accessibility for patients and carers due to integrated services on one site.
- Increase in the equitable access to a range of public health services, including ambulatory, community health, community mental health, drug and alcohol and emergency care.
- Reduced distress and disability associated with illness and having to travel long distances to other hospitals to access specialist services.
- Enhanced social cohesion due to improved accessibility of health services in regional and rural areas and in achieving the long standing community goal of a new purpose built hospital that will meet the health service needs of the Byron Shire now and in the future.
- Improved facilities supporting nurse, doctor and allied health training in partnership with universities.
- Reduced waiting time for and greater access to medical imaging, expanding scope (e.g. OPG, CT) so patients are transferred less often.
- The development is encouraging the provision of safe access to cyclists as well as new provision of public transport access.
- Increased number of access points will improve overall accessibility and reduce walking distances.

## 6.0 Design Response

The following tables summarise the sustainable design requirements and guidelines outlined in Section 3 and the proposed design response.

**Table 1 Compliance with Sustainability requirements of Byron Shire DCP 2014**

Part	Objective / Requirements	Design Response	Compliance														
Part B3.2.3 – Stormwater Management	1. To promote on-site stormwater management practices that support the 'predevelopment' hydrological regime (surface flow, streams and groundwater).	Areas nominated for water sensitive urban design response to be developed in detailed design.	Y														
	5. To promote on-site retention, detention and infiltration of stormwater.	Areas nominated for water sensitive urban design response to be developed in detailed design.	Y														
	6. To promote stormwater harvesting and other forms of innovative water conservation.	Areas nominated for water sensitive urban design response to be developed in detailed design.	Y														
	11. To achieve best practice stormwater treatment targets for stormwater quality as per table B3.2.  <b>Table B3.2 – Pollutants and Retention Criteria</b>	Areas nominated for water sensitive urban design response to be developed in detailed design.	Y														
	<table border="1"> <thead> <tr> <th>Pollutant / Issue</th> <th>Retention Criteria</th> </tr> </thead> <tbody> <tr> <td>Litter</td> <td>70% of average annual load greater than 5mm.</td> </tr> <tr> <td>Coarse Sediment</td> <td>80% of average annual load for particles 0.5mm or less.</td> </tr> <tr> <td>Fine Particles</td> <td>50% of average annual load for particles 0.1mm or less.</td> </tr> <tr> <td>Total Phosphorous</td> <td>45% of average annual load.</td> </tr> <tr> <td>Total Nitrogen</td> <td>45% of average annual load.</td> </tr> <tr> <td>Hydrocarbons, motor fuels, oils &amp; grease</td> <td>90% of average annual load.</td> </tr> </tbody> </table>	Pollutant / Issue	Retention Criteria	Litter	70% of average annual load greater than 5mm.	Coarse Sediment	80% of average annual load for particles 0.5mm or less.	Fine Particles	50% of average annual load for particles 0.1mm or less.	Total Phosphorous	45% of average annual load.	Total Nitrogen	45% of average annual load.	Hydrocarbons, motor fuels, oils & grease	90% of average annual load.		
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Part	Objective / Requirements	Design Response	Compliance
Part B5.2.3 – Providing for Cycling	Where development applications include or adjoin the site of an existing or proposed Cycleway or facilities identified in Table 6: Infrastructure Based Action Plan of the Byron Shire Bike Strategy and Action Plan, the proposed development must be designed to accommodate the cycleway and/or related facilities so identified.	Cyclist facilities, in the form of on and off road bicycle paths, are provided in and around the township of Byron Bay. Unfortunately these facilities do not extend to the proposed site, with cyclists required to ride in the road shoulder. This is not an 'attractive' cycling route and is not deemed a viable transportation mode for access to the hospital. Were a dedicated cycleway provided to the site it would increase the likelihood of staff/visitors commuting to the site.	Y
	Development applications that include site construction works other than internal building alterations must include provision for well-located and well-designed bicycle storage, parking and end of trip facilities within the development. They must be located to maximise their accessibility and ease-of-use for persons using the site. They must provide convenient, direct and safe access to and from the adjoining road and cycleway network.		Y
Part B8.1.4 – Waste Minimisation and Management	<p>The Statement of Environmental Effects submitted for all Development Applications must include a Site Waste Minimisation and Management Plan (SWMMMP). In addition to submission of a SWMMMP, the waste management facilities proposed as part of the development must be clearly illustrated on the plans and drawings accompanying the Development Application.</p> <p>The SWMMMP must outline measures to minimise and manage waste generated during: 1. demolition; 2. construction; and 3. ongoing operation and use of the development. In doing so, the SWMMMP must nominate:</p> <ol style="list-style-type: none"> <li>1. the volume and type of waste and recyclables to be generated;</li> <li>2. proposed measures for storage and treatment of waste/recyclables on site;</li> <li>3. proposed measures for disposal of residual waste and recyclables;</li> <li>4. proposed operational procedures for ongoing waste management once the development is complete;</li> <li>5. proposed means of access and manoeuvring for recycling/ waste management bins and vehicles.</li> </ol> <p>The SWMMMP must specify the proposed method of recycling or disposal and the waste management service provider.</p> <p>DCP2014 Appendix B8.1 provides a template for the compilation of a SWMMMP.</p> <p>In the absence of project specific calculations, the rates specified in DCP 2014 Appendix B8.2 - Waste/Recycling Generation Rates and Council's current rate of provision of services to residential properties can be used to inform the compilation of a SWMMMP.</p>	A Site Waste Minimisation and Management Plan is being prepared to meet DCP provisions.	Y

Part	Objective / Requirements	Design Response	Compliance
Part B9 – Landscaping	Utilise plant species locally indigenous to the area (and preferably) sourced from the local area, in preference to exotic plant material, wherever practicable;	Landscaping will be specified to meet this requirement.	Y
	Landscaping must provide year-round shade, shelter and amenity to outdoor living areas and help to define the function of different outdoor spaces.	Landscaping will be provided as areas of respite for staff and patients, and provided to create a comfortable microclimate.	Y
	landscape solutions for drainage lines, particularly in urban areas, to promote: <ul style="list-style-type: none"> <li>i. the utilisation of natural materials and natural feature solutions as an alternative to traditionally hard and unattractive open concrete drains;</li> <li>ii. integration of engineering and landscape solutions for stormwater management;</li> <li>iii. on steep land, swales and contour banks to reduce the detrimental effects of overland flow.</li> </ul>	Areas nominated for water sensitive urban design response to be developed in detailed design.	Y
	The design of the planted area for street trees should encourage passive watering from the road and footpath surface and incorporate the principles of water sensitive urban design.	Areas nominated for water sensitive urban design response to be developed in detailed design.	Y
	Landscaping along pedestrian and cycle routes shall consist of clear trunked trees, shrubs to 1 metre height and groundcovers to allow for maximum visibility and surveillance.	Crime prevention through environmental design (CPTED) principles will be utilised for all urban design and landscaping elements.	Y

Table 2 Compliance assessment against NSW Director General Requirements for ESD

Objective / Requirements	Design Response	Compliance
<p>Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development.</p> <p>7(4) The principles of ecologically sustainable development are as follows:</p> <p>(a) the precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:</p> <p>(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and</p> <p>(ii) an assessment of the risk-weighted consequences of various options,</p> <p>(b) inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,</p> <p>(c) conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,</p> <p>(d) improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:</p> <p>(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,</p> <p>(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,</p> <p>(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.</p>	Refer to Section 4.0 - Summary of Sustainability Initiatives.	Y
Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice (propose to assess against GBCA Green Star health v1 tool).	The development has the potential to achieve a 4 Star rating. Refer to Table 5 - Benchmarking assessment against Green Star Healthcare v1.	Y
Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.	Refer to Section 4.0 - Summary of Sustainability Initiatives.	Y

Table 4 Benchmarking assessment against NSW Health Sustainability Strategy guidelines

Components	Objective / Requirements	Design Response	Compliance
Building Energy/ GHG Emissions	Agencies to purchase 6% GreenPower.	Green power supply options will be considered.	Y
	All products and appliances purchased to meet minimum 4 star rating under MEPS, where available and fit for purpose.	A minimum 4 Star Energy Star rating will be achieved for equipment, where available and fit for purpose.	Y
Potable Water	All products and appliances purchased to meet minimum 4 star rating under WELS, where available and fit for purpose.	3 Star WELS rated showerheads (<7.5L/min); 4 Star WELS rated basin mixers; 4 Star dual-flush toilets.	Y
Vehicle GHG Emissions	Agencies with fleets of 25 to 99 cars are required to have at least one petrol/electric hybrid fuel technology vehicle. For fleets comprising 100 or more vehicles, one percent of the fleet must be hybrid vehicles.	Fleet vehicle policy will consider this requirement.	Y
	Motor vehicle purchasing requirements to require vehicles to be compatible with E10 blends (or other alternative fuels), consistent with the Cleaner NSW Government Fleet Policy.	Fleet vehicle policy will consider this requirement.	Y
Materials	85% of all copy paper purchased to contain recycled content by 2014.	Procurement policy to consider materials sourced locally, with recycled content and/or low environmental impacts.	Y
	From July 2008, all publication quotes to include one recycled content option.		

Table 4 Benchmarking assessment against NSW Government Sustainability Policy guidelines

Components	Objective / Requirements	Design Response	Compliance
Indoor Environment Quality	Comfortable and healthy indoor environment (in terms of thermal comfort, visual comfort and indoor air quality)	Refer to Section 4.0 - Summary of Sustainability Initiatives	Y
Environmental Impacts	Minimised non-renewable resource consumption (e.g. energy, water) and environmental impacts (e.g. greenhouse, other air and water emissions, solid waste)	Refer to Section 4.0 - Summary of Sustainability Initiatives.	Y
	Grey water return for irrigation, subject to negotiation with Council.		
Economic Sustainability	Cost-effectiveness over the asset lifecycle.	Whole of life cost study to be completed during detailed design to guide decision-making.	Y

Table 5 Benchmarking assessment against Green Star Healthcare v1

<b>Category</b>	<b>Title</b>	<b>Credit No.</b>	<b>Points Available</b>	<b>Points Achieved</b>	<b>Points to be Confirmed</b>
Management					
	Green Star Accredited Professional	Man-1	2	2	0
	Commissioning Clauses	Man-2	2	0	2
	Building Tuning	Man-3	1	0	1
	Independent Commissioning Agent	Man-4	1	0	0
	Building Guides	Man-5	1	0	1
	Environmental Management	Man-6	2	0	2
	Waste Management	Man-7	2	0	2
	Building Management Systems	Man-9	1	1	0
	Maintainability	Man-11	1	0	1
	Construction Indoor Air Quality Plan	Man-12	3	0	3
	Sustainable Procurement Guide	Man-13	1	0	0
		TOTAL	17	3	13
Indoor Environment Quality					
	Ventilation Rates	IEQ-1	4	0	2
	Air Change Effectiveness	IEQ-2	2	0	0
	CO2 Monitoring & Control and VOC Monitoring	IEQ-3	1	0	0
	Daylight	IEQ-4	3	1	1
	Thermal Comfort	IEQ-5	2	1	1
	Hazardous Materials	IEQ-6	1	1	0
	Internal Noise Levels	IEQ-7	1	1	0
	Volatile Organic Compounds	IEQ-8	5	2	3
	Formaldehyde Minimisation	IEQ-9	1	1	0
	Mould Prevention	IEQ-10	1	0	1
	Daylight Glare Control	IEQ-11	1	0	1
	High Frequency Ballasts	IEQ-12	1	1	0
	Electric Lighting Levels	IEQ-13	1	0	1
	External Views	IEQ-14	2	1	0
	Individual Thermal Comfort Control	IEQ-15	2	0	0
	Exhaust Riser	IEQ-16	1	0	1

<b>Category</b>	<b>Title</b>	<b>Credit No.</b>	<b>Points Available</b>	<b>Points Achieved</b>	<b>Points to be Confirmed</b>
	Air Distribution System	IEQ-17	1	0	1
	Outdoor Pollutant Control	IEQ-18	1	0	1
	Places of Respite	IEQ-19	1	1	0
		TOTAL	32	10	13
Energy					
	Conditional Requirement	Ene-Con	Conditional	Yes	/
	Greenhouse Gas Emissions	Ene-1	20	0	4
	Energy Sub-metering	Ene-2	1	1	0
	Peak Energy Demand Reduction	Ene-3	2	0	0
	Lighting Zoning	Ene-4	2	1	1
	Car Park Ventilation	Ene-6	3	3	0
	Efficient External Lighting	Ene-9	1	1	0
		TOTAL	29	6	5
Transport					
	Provision of Car Parking	Tra-1	2	0	2
	Fuel-Efficient Transport	Tra-2	1	0	1
	Cyclist Facilities	Tra-3	3	1	0
	Commuting Mass-Transport	Tra-4	5	0	1
	Transport Design and Planning	Tra-6	1	1	0
		TOTAL	12	2	4
Water					
	Occupant Amenity Water	Wat-1	5	5	0
	Water Meters	Wat-2	1	1	0
	Landscape Irrigation	Wat-3	2	2	0
	Heat Rejection Water	Wat-4	4	0	0
	Fire System Water	Wat-5	1	0	1
	Potable Water Use for Equipment	Wat-6	1	0	0
		TOTAL	14	8	1
Materials					
	Recycling Waste Storage	Mat-1	1	1	0
	Building Re-use	Mat-2	0	na	0

<b>Category</b>	<b>Title</b>	<b>Credit No.</b>	<b>Points Available</b>	<b>Points Achieved</b>	<b>Points to be Confirmed</b>
	Recycled Content & Re-used Products & Materials	Mat-3	2	0	1
	Concrete	Mat-4	3	0	1
	Steel	Mat-5	2	0	1
	Steel	Mat-5	2	0	1
	PVC Minimisation	Mat-6	2	0	1
	PVC	Mat-6	2	0	1
	Sustainable Timber	Mat-7	2	0	1
	Timber	Mat-7	1	0	1
	Design for Disassembly	Mat-8	1	0	1
	Dematerialisation	Mat-9	1	0	1
	Flooring	Mat-11	3	0	1
	Joinery	Mat-12	1	0	1
	Loose Furniture	Mat-13	4	0	1
	Ceilings, Walls and Partitions	Mat-14	2	0	1
		TOTAL	29	1	14
<b>Land Use &amp; Ecology</b>					
	Conditional Requirement	Eco-Con	Conditional	Yes	/
	Topsoil	Eco-1	1	1	0
	Re-use of Land	Eco-2	1	0	0
	Reclaimed Contaminated Land	Eco-3	0	na	0
	Change of Ecological Value	Eco-4	4	1	0
		TOTAL	6	2	0
<b>Emissions</b>					
	Refrigerant ODP	Emi-1	1	1	0
	Refrigerant GWP	Emi-2	2	0	0
	Refrigerant Leaks	Emi-3	2	0	1
	Insulant ODP	Emi-4	1	1	0
	Stormwater	Emi-5	3	1	1
	Watercourse Pollution	Emi-5	2	0	2
	Discharge to Sewer	Emi-6	5	2	1
	Light Pollution	Emi-7	1	1	0

<b>Category</b>	<b>Title</b>	<b>Credit No.</b>	<b>Points Available</b>	<b>Points Achieved</b>	<b>Points to be Confirmed</b>
	Legionella	Emi-8	1	1	0
	Trade Waste Pollution	Emi-9	1	0	1
		TOTAL	19	7	6
Innovation					
	Innovative Strategies and Technologies	Inn-1	2	0	0
	Exceeding Green Star Benchmarks	Inn-2	2	0	0
	Environmental Design Initiatives	Inn-3	1	1	0
		TOTAL	5	1	0
<b>This project could potentially achieve a 4 Star Green Star rating.</b>			<b>105</b>	<b>26</b>	<b>31</b>

## 7.0 Conclusion

AECOM has reviewed the applicable ESD regulatory requirements, policies and rating tools relevant to the proposed Byron Shire Health Service Redevelopment on Ewingsdale Road, Byron Bay.

A series of initiatives are being considered and targeted to achieve compliance with the regulatory requirements of the Building Code of Australia and Byron Shire Council.

The specific policy targets on which the strategies are based on include:

- Building Code of Australia Part F;
- Building Code of Australia Part J;
- Byron Shire LEP 2014; and
- NSW Director Generals Requirements.

Although not directly applicable to the project, the Byron Shire DCP 2014 has also been considered;

This report demonstrates general compliance with the objectives of these requirements and is considered to sufficiently address DA requirements for ESD. The project is still to progress through detailed design, which will allow for changes and improvements to ESD commitments.

Additionally, the design has been reviewed against the following voluntary sustainable design guidelines:

- NSW Health Sustainability Strategy; and
- The Green Building Council of Australia's Green Star Healthcare v1 rating tool.

The reviews demonstrate that the development is looking beyond minimum compliance requirements and has the potential to achieve a 4 Star Green Star rating under the Green Building Council of Australia's Green Star Healthcare v1 rating tool.