Waste Management Assessment

Byron Shire Central Hospital
Lot 100 DP 1140936
Ewingsdale Road, Ewingsdale

HEALTH SCIENCE ENVIROMENTAL EDUCATION
ENVIRONMENTAL AUDITOR

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1. Introduction

Tim Fitzroy & Associates has been engaged by Health Infrastructure to prepare a waste management assessment for the proposed Byron Shire Central Hospital.

The waste management assessment is required in response to the Secretary's Environmental Assessment Requirements which requires the proponent to:

> *Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.*

1.1 Waste Minimisation and Management Development Control Plan

Byron Shire Council's Waste Minimisation and Management Development Control Plan (termed 'Waste DCP' hereafter) (Byron Shire Council, 2014) aims to facilitate sustainable waste management by pursuing the following relevant aims:

- minimise construction waste by reuse and recycling and the efficient selection and use of resources
- minimise demolition waste by promoting adaptability in building design and focussing upon end of life deconstruction
- maximise reuse and recycling of industrial/commercial waste
- developing systems for new developments that ensure waste is transported and disposed of in a lawful manner
- ensuring waste management systems are compatible with collection services
- minimising risks associated with waste management at all stages of development.

The general requirements of a Site Waste Minimisation and Management Plan (SWMMP) as outlined in Byron Shire Council's Waste DCP have been followed in preparing this Waste Management Assessment.

The Waste DCP requires a SWMMP to address the following stages of development:

- demolition (this stage is not relevant to the proposal as the site is 'greenfield')
- construction
- ongoing operation and use of the development.

The general requirements to be addressed in a SWMMP as outlined in the Waste DCP are:

1. the volume and type of waste and recyclables to be generated
2. proposed measures for storage and treatment of waste and recyclables on site
3. proposed measures for disposal of residual waste and recyclables
4. proposed operational procedures for ongoing waste management once the development is complete
5. proposed means of access and manoeuvring for recycling/ waste management bins and vehicles
6. proposed method of recycling or disposal and the waste management service provider.

The following sections address the general requirements for the construction and operational stages of the development.

2. Construction Waste Management

2.1 General Construction Methods and Materials

2.1.1 Earthworks

The siting of the building has been carried out to minimise cut and fill. Due to the lower floor level and loading dock expected to be about 1-2m below the existing ground levels, excess engineered fill may be spread around the site in lieu of disposing. Excavated material will be reused as engineered fill provided it complies with civil specifications. The nature of the soils indicates that conventional earthmoving equipment will be utilised (Taylor Thomson Whitting, 2014).

2.1.2 Foundations

All building slabs are expected to be slab-on-ground construction (Taylor Thomson Whitting, 2014).

2.1.3 Building Framwork

The structural elements of the proposed hospital building is a combination of concrete slabs and steel framing. The construction waste associated with these two materials is relatively low for concrete and very low for steel framing due to the relative ease of estimating and ordering precise quantities.

2.1.4 Building Exterior

The roofing and the walls will be primarily metal sheeting using various combinations as indicated in the building elevations – refer to the drawing set for the proposal. The construction waste associated with metal sheeting is relatively low due to the relative ease of estimating and ordering precise quantities.

Aluminium frame windows will be utilised.

2.1.5 Building Interior

Internal walls will generally be lightweight type construction with plasterboard finishes. The regular sizing of the rooms should facilitate efficiencies in construction and waste minimisation of plasterboard materials. Fire rated walls will utilise masonry construction.

2.1.6 Road Pavements

The loading dock will be a reinforced concrete pavement to withstand stresses from turning of heavy vehicle movements and to minimise maintenance in comparison to asphalt pavements.

The perimeter loop road will utilise asphalt due to reduced turning stresses compared to loading dock. Nevertheless, the asphalt will be designed to accommodate heavy vehicle loads.

The carparking area will be made from asphalt to suit car / light loads only.

All footpaths will be constructed from concrete (Taylor Thomson Whitting, 2014).

2.2 Waste Management Measures to be Adopted in Construction

The following measures will be adopted in the construction of the development to minimise and manage waste:

- The relatively large scale of the development will involve detailed materials estimates that will be incorporated into a purchasing policy to minimise purchase of excess quantities
- potential reuse/recycling opportunities of excess construction materials will be identified and pursued
- prefabricated components will be utilised to provide efficiencies in construction and minimise waste
- a site construction plan and erosion and sediment control plan will nominate storage areas of materials for use, recycling and disposal
- contractors will be made aware of the legal requirements for disposing of waste and employ appropriate transport, processing and disposal of waste and recycling. All waste exported off site will be transported to a place that can lawfully be used as a waste facility. All records demonstrating lawful disposal of waste will be retained on site accessible for inspection by regulatory authorities such as Council, EPA or WorkCover NSW
- separate collection bins or areas for the storage of residual waste will be utilised with clear 'signposting' of the purpose and content of the bins and storage areas
- the earthworks planning and site erosion and sediment control plan (refer to Taylor Thomson Whitting, 2014) will minimise site disturbance and limit unnecessary excavation – refer also to **Section 2.1.1**

3. Operational Waste Management

3.1 NSW Health Waste Management Policy

NSW Health policy (NSW Health, 2005) requires the hospital to have a:

- Waste Management Policy, outlining the accountabilities and responsibilities of managers, employees and staff
- Waste Management Committee which will have the main function of implementing Waste Management Policy
- Waste Management Plan based on NSW Health *Waste Management Guidelines for Health Care Facilities - August 1998* to assist the facility to manage their waste streams correctly, efficiently and effectively. The guidelines aim to: minimise waste generation and environmental impacts of waste treatment / disposal; ensure compliance with legislative requirements; protect public health and safety; and provide a safer working environment.

The Waste Management Plan that will be developed for the hospital will achieve the objectives of Byron Shire Council's Waste Minimisation and Management Development Control Plan for the operational phase of the development. The NSW Health guidelines for waste management require the Waste Management Plan for a facility to address the following matters:

- goals and savings targets to be achieved within set time frames
- classification of waste streams in accordance with the guidelines
- organisational issues such as employer and employee responsibilities, licencing requirements, education and training, purchasing policies
- waste management strategies including audits and waste minimisation strategies
- waste handling, containment and transport requirements
- waste disposal requirements
- OH&S requirements.

3.2 Waste Storage Areas

The proposed waste storage areas are located primarily on the lower ground floor plan near the loading dock as shown in **Appendix A**.

The lower ground floor plan contains the following rooms located near the loading dock:

- General Waste storage room with a floor plan area of 20m^2
- Contaminated Waste storage room with a floor plan area of 13m^2
- Body Hold room with a floor plan area of 15m^2.

The waste storage areas are located away from food and clean storage areas, and are not accessible to the public. The waste storage areas and associated loading dock are also situated such that they will not impact on the amenity of the development or adjoining properties.

Clean up facilities, spills kits, appropriate drainage and bunding should be provided as per the NSW Health waste management guidelines. Where wastes are stored in bins the bin must be locked.

The ground floor plan also contains four smaller Disposal rooms distributed through the buildings for local collection of waste on the ground floor. Each room has a floor plan area of 8m^2 except one with a floor plan area of 5m^2.

3.3 Access

The loading dock and vehicle loading area will be coordinated with truck turning manoeuvres to ensure vehicles are able to access the service area (Taylor Thomson Whitting, 2014).

A second access off Ewingsdale Road directly accessing the service area is proposed. The second access will be designed with appropriate intersection arrangements – refer to Taylor Thomson Whitting (2014).

An internal perimeter loop road is also provided linking the two accesses to the development. The perimeter loop road will be designed to accommodate heavy vehicle loads (Taylor Thomson Whitting, 2014).

3.4 Waste Streams

The main waste streams usually present in a hospital are Clinical Waste, Chemical Waste, Radioactive Waste, Cytotoxic Wastes, Recyclables, Organic Waste, Liquid Waste and General waste. Clinical, cytotoxic, pharmaceutical, chemical and radioactive wastes are classified as Hazardous wastes in the *Waste Regulation*. The hospital will obtain the relevant licencing as required by the *Waste Regulation*.

The specific waste streams for the Byron Shire Central Hospital would be classified and managed appropriately as part of the Waste Management Plan developed for the facility.

The NSW Health guidelines for waste management (1998) outline the bin requirements and handling procedures for the various waste streams.

3.5 Waste Minimisation

The Waste Management Plan that will be developed for the facility will identify and implement effective waste minimisation strategies include waste avoidance, reduction, re-use and recycling. This will include measuring the cost and volumes of each waste stream using an audit process.

The NSW Health waste management guidelines require hospitals to liaise and work with manufacturers / suppliers to change or modify products to incorporate both product performance and waste disposal. The guidelines also draw attention to implementing simple changes to patient care procedures to minimise the wastes generated.

3.6 Waste Separation

The Waste Management Plan that will be developed for the facility will classifying waste and placing it into the appropriate waste container (including differentiation of recyclable materials) immediately after the waste is generated

3.7 Handling, Labelling, Containment, Transport and Storage

The NSW Health waste management guidelines outline the importance of streamlining the process of waste collection, handling and transport to ensure compliance with OH&S and environmental control requirements, and correct waste separation and containment as required under the Waste Act.

The NSW Health waste management guidelines require the Waste Management Plan to address appropriate procedures including:

- Internal waste transport
- Waste labelling – colour coding and identification labelling
- Tracking - all bag/containers of waste must be marked to identify the facility, unit and date of collection to: help rapidly identify the source of waste; facilitate waste separation; provide feedback; assist in providing data for education purposes; and facilitate auditing
- Handling waste bags
- The use of mobile garbage bins and trolleys for transporting waste to decrease spills, minimise collector contact with waste and minimise manual handling.
- Requirements for storage areas

- Spill management measures
- Transport off-site of waste for treatment and disposal which will be specifically referenced in the Waste management Plan in regard to the Australian Code for the Transport of Dangerous Goods by Road and Rail, the *Waste Regulation*, *National Manifest and Classification System* and the "*National Guidelines for the Management of Wastes*"
- Procedures specific to each waste stream.

3.8 Waste Treatment / Disposal / Utilisation

The NSW Health waste management guidelines outline the requirements for the Waste Management Plan in respect to treatment / disposal / utilisation options for waste streams generated in the hospital. Disposal methods will conform to EPA and NSW Health requirements.

4. Conclusions

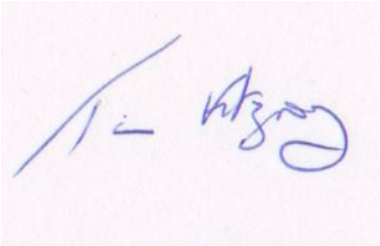
This Waste Management Assessment identifies the likely waste streams to be generated during construction and operation.

The scale of the construction and selected materials generally lend to minimisation of construction waste. General measures will be adopted in the construction of the development to minimise and manage waste.

Under NSW Health policy, the hospital will have its own Waste Management Policy, Waste Management Committee, and Waste Management Plan based on NSW Health *Waste Management Guidelines for Health Care Facilities - August 1998.* The Waste Management Plan that will be developed for the hospital will achieve the objectives of Byron Shire Council's Waste Minimisation and Management Development Control Plan for the operational phase of the development.

The plans for the proposed hospital include waste storage areas located primarily on the lower ground floor plan near the loading dock and service area. The waste storage areas are located away from food and clean storage areas, are not accessible to the public, and are situated such that they will not impact on the amenity of the development or adjoining properties.

This report has been prepared by Tim Fitzroy of *Tim Fitzroy & Associates.*



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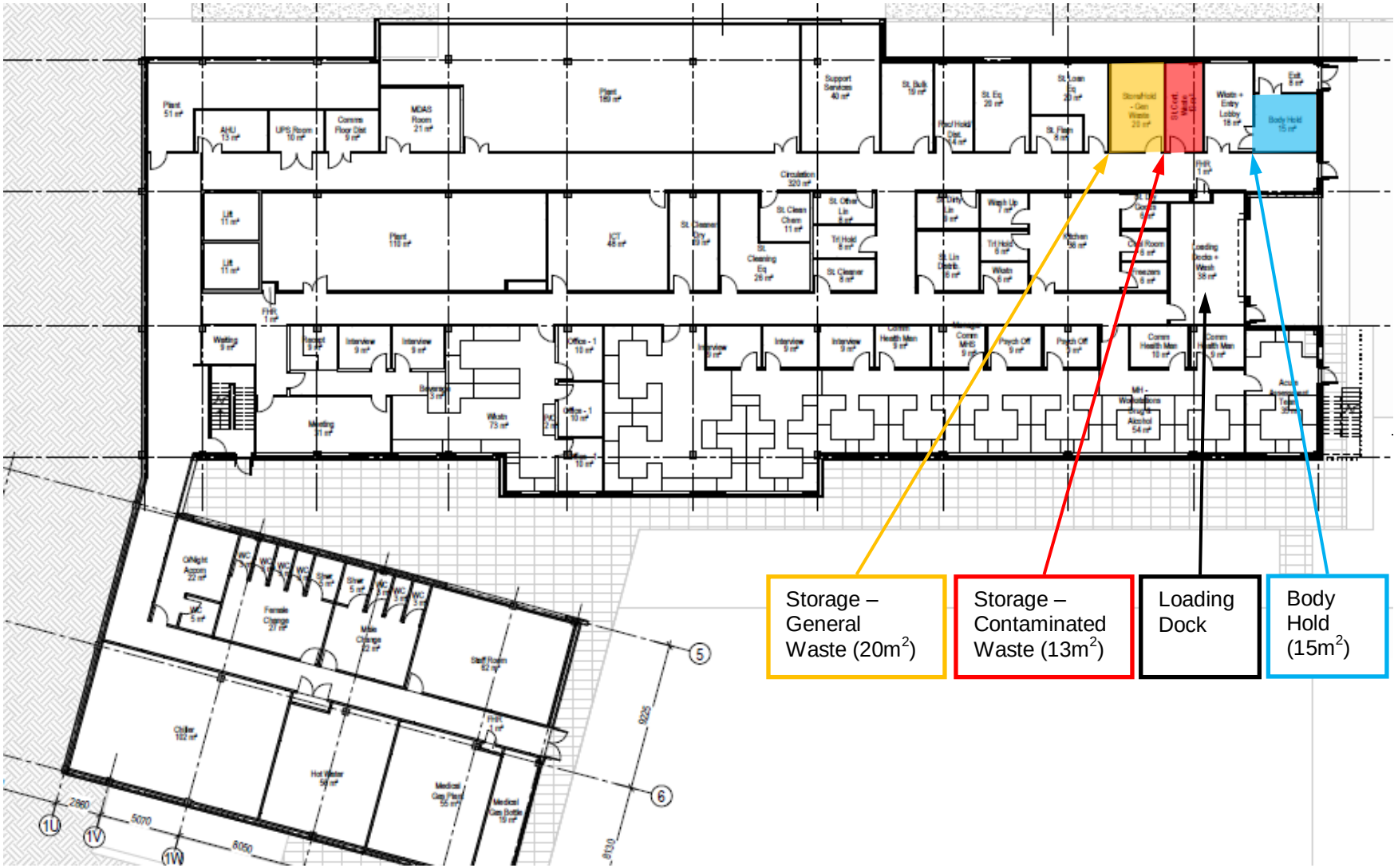
A Waste Storage Areas - Operational



Lower Ground Floor Plan

Ground Floor Plan