

**Ionic**

DESIGN AUSTRALIA

**DMG**

ARCHITECTURE

**PROJECT NAME** 44-46 Anderson st Port Hedland

**DOCUMENT TITLE** Stormwater Management Plan

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# Contents

<b>1.</b>	<b>INTRODUCTION/DESIGN PHILOSOPHY .....</b>	<b>2</b>
1.1	PROJECT UNDERSTANDING.....	2
1.1	REPORT OBJECTIVES.....	2
<b>2.</b>	<b>DESIGN SUMMARY .....</b>	<b>3</b>
2.1	DESIGN CONDITIONS.....	3
2.2	TOWN OF PORT HEDLAND .....	3
2.3	STORMWATER DISPOSAL METHODOLOGY .....	3
2.4	ACCOMPANYING DOCUMENTS.....	4

# 1. INTRODUCTION/DESIGN PHILOSOPHY

## 1.1 PROJECT UNDERSTANDING

The proposed new development is located at 44-46 Anderson st Port Hedland. The proposed development will consist of a multi-story hotel/accommodation complex on approximately 4434 square metres of land. The development will include ground level restaurant/bar facilities, conference and gym amenities and 5 levels of accommodation.



### Proposed Development Site

## 1.1 REPORT OBJECTIVES

The objective of this report is to address the stormwater disposal method for the development. The report sets out the disposal intent to be developed during the upcoming design stages.

## 2. DESIGN SUMMARY

The proposed system will retain the first 5 minutes on site for a 1% AEP event (the first 19.1mm). The system will overflow to an over flow swale basin that in the event of larger and longer duration storms will over flow to the street.

The system will comply with the below documents;

- AS3500.3 Stormwater design
- Geo technical report when available
- Project Green star requirements
- Town Of Port Hedland Stormwater guidelines

### 2.1 DESIGN CONDITIONS

The existing ground surface at the site is generally level. Published topographic information indicates that the existing ground surface levels is at approximately 3.6 m AHD.

At this stage there is no Geo technical information available. As such we cannot assess ground water depths or soil conditions. Notwithstanding any swales and soak wells will be kept above the water table with a target of 500mm separation. This may vary pending geo technical findings.

### 2.2 TOWN OF PORT HEDLAND

The City stormwater management guidelines sets the design parameters as a minimum being the on-site system shall have the ability to retain the first 6 minutes of 1 in 5 year event (20% AEP) being circa 12mm over the 6 minutes.

The proposal system is considered over and above the minimum requirements set out by the Town.

### 2.3 STORMWATER DISPOSAL METHODOLOGY

The general disposal method across the site is to retain the first 5 minutes of water for a 1% AEP event. The retention capacity for this duration event is made up by the swale drain and the soak wells. The intent for any residual water held in the soak wells and Swales is to permeate into the ground across a 24 to 48 hour period pending further geo technical advice.

All below ground stormwater drainage pipe work will be designed for an intense storm event 1% AEP 5-minute duration in line with AS/NZS3500.

Upon larger events the design intent is for the stormwater to spill out into the swales where it will over flow over, over the road verge to the road and into the council network.

Design calculations and retention capacities are documented on HYD mark up amended to the rear of this report.

The below assessment is based on the following variables;

- 4434 square meters of land catchment
- No infiltration has been considered into the retention calculation.
- BOM rainfall historical data 19.1mm for 1% AEP
- Documented site levels

## **2.4 ACCOMPANYING DOCUMENTS**

The following documents are to be read in conjunction with this report and are attached to the back of this report;

- Hydraulic service site plan mark up
- Town of Port Hedland stormwater disposal guidelines



ANDERSON ST - HOTEL & ACCOMMODATION

GROUND FLOOR:

RESTAURANT: 360m<sup>2</sup>

FIRST FLOOR:

CONFERENCE: 190m<sup>2</sup>

DINING: 300m<sup>2</sup>

GYM 90m<sup>2</sup>

ROOF:

BAR: 400m<sup>2</sup>

LEVELS 2 - 6:

ACCOMMODATION (PER FLOOR) - EXEC: 9  
HOTEL: 21  
STND: 30

TOTAL: 60 ROOMS

OVERALL TOTAL: 300 ROOMS

CAR PARKING:

GROUND - 39 BAYS

FIRST - 79 BAYS

TOTAL: 118 BAYS

MOTORCYCLE PARKING

GROUND - 4 BAYS

FIRST - 4 BAYS

TOTAL: 8 BAYS

BICYCLE PARKING

GROUND - 20 BAYS

FIRST - 0 BAYS

TOTAL: 20 BAYS

KEY:

FOOD & BEVERAGE

GYM & WELL-BEING

CONFERENCE & MEETING

EXECUTIVE ROOM

HOTEL ROOM

STANDARD ROOM

LOT #467

LOTS 465, 466, 470 & 471  
4434m<sup>2</sup>  
ANDERSON STREET, PORT HEDLAND  
WA 6721

GROUND FFL 3.900  
L1 FFL 9.800  
L2 FFL 22.000  
L3 FFL 15.300  
L4 FFL 18.600  
L5 FFL 21.900  
L6 FFL 25.200  
L7 - ROOF DECK FFL 28.500  
ROOF FFL 33.000

PARKING

CONCRETE 39 BAYS

PICK UP / DROP OFF

RAMP UP TO L1 1:5

LAUNDRY FFL 3.900

SWALE SECTION

2 X 225 OVER FLOWS INTO SWALE PER SWALE

RL3.865

RL3.300

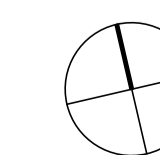
RL3.600

LOT #1

LOT #461

LOT #1791

PROPOSED SITE PLAN



(Development Applications will be assessed on a case by case basis).

Property owners have a statutory obligation under common law and the Local Government Act 1995 to prevent water from dripping or running from a property onto any other land and are not permitted to allow overflow onto neighbouring properties.

All stormwater drainage designs and calculations shall be carried out and certified by a qualified person experienced in hydrologic and hydraulic design. It is a requirement that storm water is retained on site to accommodate a minimum of a 1 in 5 year rainfall event (6 minute duration). Overflow storm water (excess of the 1:5 ARI event) must be directed towards the Town's drainage system.

All stormwater drainage related plans submitted to the Town of Port Hedland, must include a site plan indicating the following drainage details:

- Existing ground levels or contours of the subject property and adjoining land.
- Proposed levels of paved or concrete impervious areas.
- Details of proposed roof and pavement drainage disposal systems.
- Size (depth & diameter) and locations of all soak-wells, retention basins, or landscape garden areas.
- Locations and details of excess water discharge methods towards the Town's drainage system.

Factors such as soil conditions, water table depth and capacity for storm events need to be taken into account by the appointed professional engineer.

The designer shall ensure

- Appropriate methods for discharging of excess stormwater away from habitat areas.
- Floor level of all buildings shall be 500 mm above the 100 year flood level and all non-habitable areas shall be minimum of 300mm above the 100 year flood level to ensure adequate flood protection.

Owner shall install sufficient infrastructure to direct overflow stormwater to the Town's drainage system during a major rainfall event.

**Soakwell capacity:** The calculations provided are a guide only based on rainfall conditions.

SIZE	CAPACITY	Area in Square m per Soakwell For	
		1 in 5 Year Storm Intensity 152 mm/hr	1 in 10 Year Storm Intensity 182 mm/hr
1.2m dia x 0.9m deep	1.00 m3	Inadequate	Inadequate
1.2m dia x 1.2m deep	1.36 m3	1 per 100 m2	Inadequate



# Stormwater Drainage Design Guidelines For Commercial/ Industrial/Grouped and Multiple Dwellings Developments

1.8m dia x0.9m deep	2.29 m3	1 per 175 m2	1 per 140 m2
1.8m dia x1.2m deep	3.05 m3	1 per 230 m2	1 per 180 m2
1.8m dia x1.8m deep	4.58 m3	1 per 350 m2	1 per 290 m2

Soakwells are generally not suitable for sites with silty sand and clay content as such sites do not allow water to be effectively dispersed. Effective stormwater disposal in these areas will generally require interconnected sumps directing flow to the Town's drainage swales.

Stormwater treatment facilities, in the form of petrol oil traps or sediment traps, shall be provided where appropriate. Any areas where piped drainage is used to discharge stormwater to the Town's drainage system shall have a gross pollutant trap installed.

Refer Drawing No TOPH -1.0

Refer Drawing No TOPH- 2.0 for stormwater connection details via open channel.