



Site Classification

And

Wastewater Management System

For

D&S Bates

At

Proposed Tourist Park

152 Shiptons Flat Road

Rossville

INTRODUCTION:

Earth Test has been engaged by D&S Bates to assess, design and report on Site Classification and a Domestic Wastewater Management System at Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

Real Property Description:-

Lot 61, on SP 144060

Local Authority: Cook Shire Council.

It is understood the intention is to construct a number of heavy duty tents for seasonal use at the site.

A site and soil evaluation was carried out in January 2022.

SITE FACTORS:

The site was identified during a meeting with a representative of the owner on-site.

The proposed area is covered with short, scattered regrowth.

The location of the proposed six heavy duty tents for seasonal use where identified.

The water supply for the site will be from a future bore

Six Dynamic Cone Penetrometer tests were performed at locations DCP1 through DCP6, six boreholes BH1 through BH6, and three constant head soil permeability tests P1 through P3 as shown on the site plan.

Atterberg Limits tests were performed on a disturbed sample from Borehole1, 3 and 5.



BH1 being sampled at the Proposed Tourist Park, 152 Shiptons Flat Road, Rossville



SITE INVESTIGATION REPORT **BOREHOLE LOG**

CLIENT: D&S Bates.		DATE SAMPLED: 15/01/2022
PROJECT: Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.		Sampled by: G. Negri
REPORT DATE: 26/02/2022		
BOREHOLE No: BH1		
DEPTH (m)	DESCRIPTION	COMMENTS
0.0-0.2	Grey-Brown Silty-Clay	Disturbed Sample 0.6-0.9m
0.2-1.1	Yellow Orange-Brown Silty-Clay Moist	Watertable not encountered
1.1-2.0	Orange-Brown Silty-Clay	
BOREHOLE No: BH2		
DEPTH (m)	DESCRIPTION	COMMENTS
0.0-0.4	Grey-Brown Silty-Clay	Watertable not encountered
0.4-1.2	Yellow Orange-Brown Silty-Clay W Gravel	
1.2-2.0	Orange-Brown Sandy Silty-Clay	
BOREHOLE No: BH3		
DEPTH (m)	DESCRIPTION	COMMENTS
0.0-0.2	Grey-Brown Silty-Clay	Disturbed Sample 0.6-1.0m
0.2-0.6	Yellow Orange-Brown Sandy Silty-Clay	Watertable not encountered
0.6-2.0	Orange-Brown Sandy Silty-Clay	



SITE INVESTIGATION REPORT **BOREHOLE LOG**

CLIENT: D&S Bates.		DATE SAMPLED: 15/01/2022
PROJECT: Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.		Sampled by: G. Negri
REPORT DATE: 26/02/2022		
BOREHOLE No: BH4		
DEPTH (m)	DESCRIPTION	COMMENTS
0.0-0.4	Grey-Brown Silty-Clay	Watertable not encountered
0.4-1.4	Yellow Orange-Brown Sandy Silty-Clay	
1.4-2.0	Orange-Brown Sandy Silty-Clay	
BOREHOLE No: BH5		
DEPTH (m)	DESCRIPTION	COMMENTS
0.0-0.1	Grey-Brown Silty-Clay	Watertable not encountered
0.1-0.4	Yellow Orange-Brown Silty-Clay	Disturbed Sample 0.6-0.9m
0.4-0.7	Yellow Orange-Brown Sandy Silty-Clay	
0.7-2.0	Red Orange-Brown Sandy Silty-Clay	
BOREHOLE No: BH6		
DEPTH (m)	DESCRIPTION	COMMENTS
0.0-0.1	Grey-Brown Silty-Clay	Watertable not encountered
0.1-0.4	Yellow Orange-Brown Silty-Clay	
0.4-0.7	Yellow Orange-Brown Sandy Silty-Clay	
0.7-2.0	Red Orange-Brown Sandy Silty-Clay	



ATTERBERG LIMITS TEST REPORT

CLIENT: D&S Bates

SAMPLE No: SI 016.1-22

PROJECT: Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

DATE SAMPLED: 15/01/2022

SAMPLE DETAILS: BH1 0.6-0.9m

Sampled by: G. Negri

REPORT DATE: 26/02/2022

Tested By: K. Hodgson

TEST METHOD	RESULT
Liquid Limit: AS 1289.3.1.2	60%
Plastic Limit: AS 1289.3.2.1	19%
Plasticity Index: AS 1289.3.3.1	41%
Linear Shrinkage: AS 1289.3.4.1	17.5%
Length Of Mould:	150mm
Cracking, Crumbling, Curling, Number Of Breaks:	Nil
Sample History:	Oven Dried
Preparation Method:	Dry Sieved
Insitu Moisture Content:	19.7%
% Passing 0.075mm:	



ATTERBERG LIMITS TEST REPORT

CLIENT: D&S Bates

SAMPLE No: SI 016.2-22

PROJECT: Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

DATE SAMPLED: 15/01/2022

SAMPLE DETAILS: BH3 0.6-1.0m

Sampled by: G. Negri

REPORT DATE: 26/02/2022

Tested By: K. Hodgson

TEST METHOD	RESULT
Liquid Limit: AS 1289.3.1.2	39%
Plastic Limit: AS 1289.3.2.1	20%
Plasticity Index: AS 1289.3.3.1	19%
Linear Shrinkage: AS 1289.3.4.1	11.0%
Length Of Mould:	250mm
Cracking, Crumbling, Curling, Number Of Breaks:	Two Breaks
Sample History:	Oven Dried
Preparation Method:	Dry Sieved
Insitu Moisture Content:	17.9%
% Passing 0.075mm:	



ATTERBERG LIMITS TEST REPORT

CLIENT: D&S Bates

SAMPLE No: SI 016.3-22

PROJECT: Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

DATE SAMPLED: 15/01/2022

SAMPLE DETAILS: BH5 0.6-0.9m

Sampled by: G. Negri

REPORT DATE: 26/02/2022

Tested By: K. Hodgson

TEST METHOD	RESULT
Liquid Limit: AS 1289.3.1.2	29%
Plastic Limit: AS 1289.3.2.1	16%
Plasticity Index: AS 1289.3.3.1	13%
Linear Shrinkage: AS 1289.3.4.1	7.0%
Length Of Mould:	250mm
Cracking, Crumbling, Curling, Number Of Breaks:	One Break
Sample History:	Oven Dried
Preparation Method:	Dry Sieved
Insitu Moisture Content:	15.4%
% Passing 0.075mm:	



DYNAMIC CONE PENETROMETER REPORT

AS 1289.6.3.2

CLIENT: D&S Bates.

SAMPLE No: SI 016-22

PROJECT: Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

DATE SAMPLED: 15/01/2022

Tested By: G. Negri

SAMPLE DETAILS: Sites "DCP1 through DCP6." as per site plan.

REPORT DATE: 26/02/2022

DEPTH (Metres)	Site: DCP1	Site: DCP2	Site: DCP3	Site: DCP4	Site: DCP5	Site: DCP6
	No Blows	No Blows	No Blows	No Blows	No Blows	No Blows
0.0 – 0.1	1	2	2	1	1	1
0.1 – 0.2	1	2	3	1	1	1
0.2 – 0.3	2	2	4	1	1	2
0.3 – 0.4	3	3	6	3	2	3
0.4 – 0.5	3	3	6	3	3	3
0.5 – 0.6	3	4	4	5	3	4
0.6 – 0.7	3	6	5	4	4	5
0.7 – 0.8	3	5	6	3	5	5
0.8 – 0.9	3	3	5	4	4	5
0.9 – 1.0	3	3	5	4	5	6
1.0 – 1.1	2				6	4
1.1 – 1.2	3					
1.2 – 1.3	6					
1.3 – 1.4	5					
1.4 – 1.5						
1.5 – 1.6						
1.6 – 1.7						
1.7 – 1.8						
1.8 – 1.9						
1.9 – 2.0						



SITE CLASSIFICATION

Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

The Dynamic Cone Penetrometer test results indicate adequate allowable bearing pressure to 1.5m.

The Atterberg Limits test results indicate a highly reactive soil.

The characteristic surface movement (y_s) is estimated to be in the $40 < y_s \leq 60$ mm range. According to TABLE 2.3 of AS 2870-2011 the site must be classified **CLASS-“H1”**.

To comply with the “Building Services Board Subsidence Policy” advice should be sought from a Registered Professional Engineer for footing design.

All site works must be carried out in accordance with AS 3798-2007 “Guidelines on earthworks for commercial and residential developments”

If the depth of any cut exceeds 0.5m or uncontrolled fill exceeds 0.4m the classification shall be reconsidered.

Because this investigation is limited in scope and extent, it is possible that areas may exist which differ from those shown on the test hole records and used in the site classification. Should any variation from the reported conditions be encountered during excavation work, this office must be notified immediately so that reappraisal of the classification can be made.

Gavin Negri
Earth Test



SITE AND SOIL EVALUATION

Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

The site and soil evaluation carried out on 15/01/2022 provided the following results.

Site Assessment

<u>Site Factor</u>	<u>Result</u>
Slope	Overall site is predominately level
Shape	Linear Planar
Aspect	Nil
Exposure	Good
Erosion/land slip	Not noted.
Boulders/rock outcrop	Not noted.
Vegetation	Grass and scattered regrowth
Watercourse	Dam as shown on the site plan
Water table	Not encountered during investigation.
Fill	None.
Flooding	Not likely.
Channelled run-off	Not found
Soil surface conditions	Soft, Moist
Other site specific factors	Not noted

Soil Assessment

<u>Soil Property</u>	<u>Result</u>
Colour	Yellow Orange-Brown
Texture	Clay-Loam
Structure	Weak
Coarse Fragments	Nil
Measured Permeability Ksat (m/d)	P1= 0.09, P2= 0.12, P3= 0.05
Dispersion	Slakes
Soil Category	4
Resultant Design Load Rating, DLR (mm/d)	10



WASTEWATER MANAGEMENT SYSTEM

EP4 Heavy duty Tent.

An “All-Waste” septic tank discharging into an “Advanced Enviro-Septic” bed is considered suitable for this site.

This system has been designed to conform to the requirements of the following codes, acts, regulations and standards. All work to be carried out in accordance with the following codes.

- AS/NZ 1547:2012 On-site domestic-wastewater management.
- Queensland PLUMBING AND DRAINAGE ACT 2018.
- Queensland STANDARD PLUMBING AND DRAINAGE REGULATION 2019.
- Queensland PLUMBING AND WASTEWATER CODE.

SYSTEM SIZING FACTORS.

There is six, four person cabins to be constructed at the site, each will contain there own wastewater system.

A population equivalent of (4) persons has been chosen for the each proposed heavy duty tent.

The site is connected to a bore water supply system.

Standard water-reduction fixtures must be used to ensure the integrity of the system.

They shall include:-

- Dual flush 6/3 Litre water closets.
- Shower-flow restrictors.
- Aerator faucets (taps).
- Water-conserving automatic washing machines.

Note: - Garbage grinders are not permitted.

It is understood that the only fixtures to be installed in each tent are, shower, WC, handbasin. No laundry or kitchen sinks will be installed in the tents.

The total flow was calculated using the “Department of Natural Resources and Mines (Determining Capacity of Sewage Treatment Plants based on Use Conditions) guidelines. The guide gives a flow allowance of 100 L/Person/day for Hotels/Motels - Accommodation. With the exclusion of laundry and kitchen facilities the flow can be reduced to 80L/Person/Day.

The daily flow for the each tent (4 persons @ 80 L/person/day) will be 320 L/day.

From AS/NZ 1547:2012 Table J1 the minimum capacity of the All-Waste septic tank required is 3000 L.

The tank must NOT be fitted with an outlet filter.



LAND-APPLICATION SYSTEM

DISPOSAL AREA SIZING

From AS/NZ 1547:2012 APPENDIX L, L4 DESIGN AREA SIZING, L4.2 Sizing

$$L = Q / (DLR \times W)$$

Where:

L = length in m

Q = design daily flow in L/day

DLR = Design Loading Rate in mm/d

W = Width in m

$$\begin{aligned} L &= 320/10 \times 4.85 \\ &= 6.6\text{m.} \end{aligned}$$

Use one 6.6m long by 4.85m wide advanced enviro septic bed to be installed at each cabin.

See site plan and detail cross-section.

1kg gypsum per m² shall be applied to the scarified base before laying the sand

SYSTEM SAND

All Advanced Enviro-Septic systems require the use of “system sand” surrounding the pipe. This sand, typically washed coarse sand, must adhere to the following specification.

AS Sieve Size (mm)	Percent Passing %
9.50	100
4.75	95-100
2.36	80-100
1.18	50-85
0.600	25-60
0.300	5-30
0.150	0-10
0.075	0-2

If there is any doubt if the sand media proposed for use will meet the requirements please contact Earth Test for further advice.



SYSTEM INSTALLATION

The entire bottom of the bed should be scarified a minimum of 200mm deep parallel to the AES pipes.

Avoid compaction by keeping people and machinery off the finished trench or bed floor.
The system shall be installed by a licensed plumber in accordance with the manufacturer's recommendations and the relevant Australian Standards.

Operation and Maintenance

Homeowners should be fully informed of the proper operation and maintenance requirements of the on-site wastewater system.

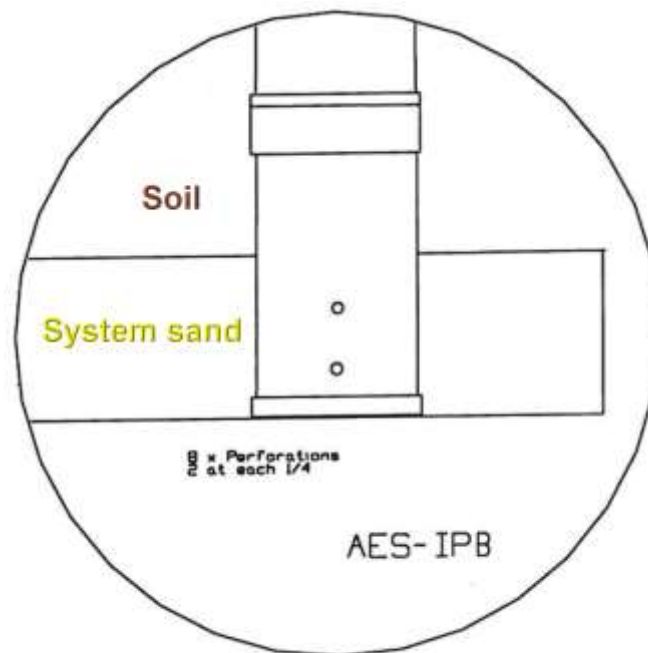
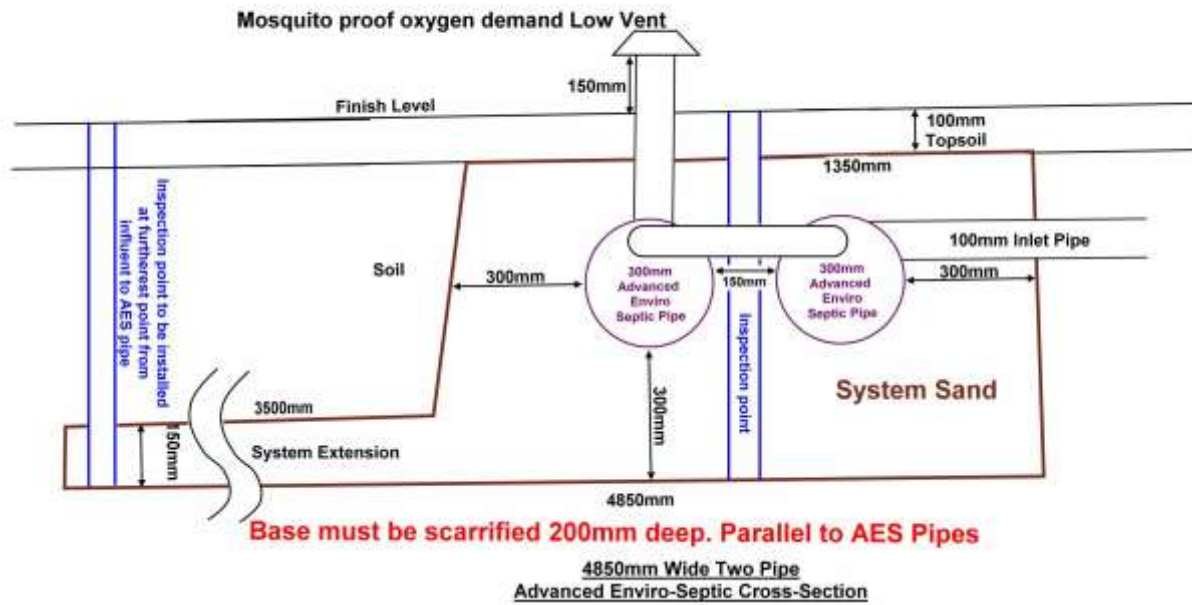
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SITE PLAN

Proposed Tourist Park, 152 Shiptons Flat Road, Rossville.

NOT TO SCALE





AES Inspection point detail

