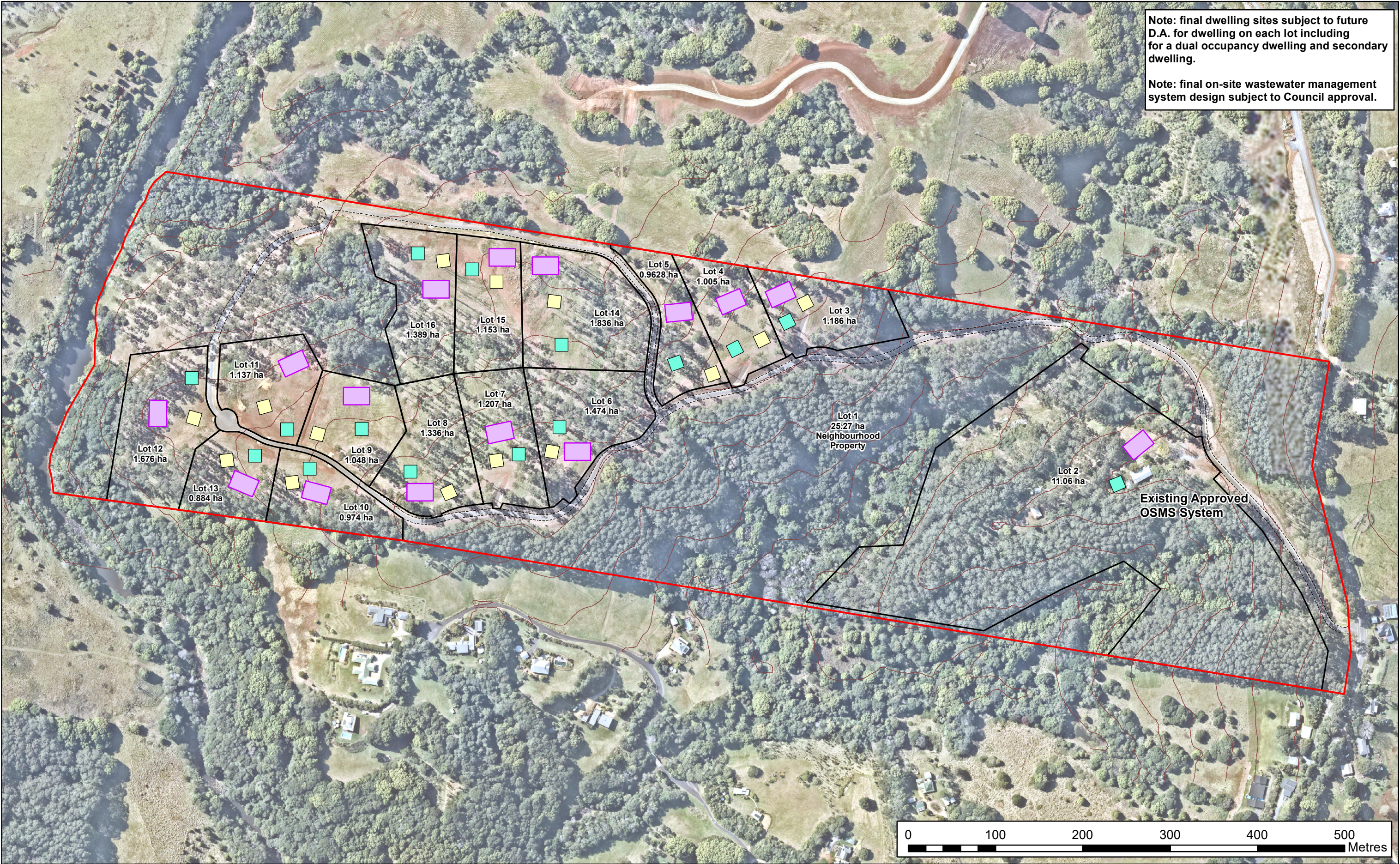




Note: final dwelling sites subject to future D.A. for dwelling on each lot including for a dual occupancy dwelling and secondary dwelling.

Note: final on-site wastewater management system design subject to Council approval.

315 Coorabell Road, Coorabell
Lot 1-16 DP 287027

Community Title Subdivision:
Permit Dual Occupancy &
Secondary Dwelling

**Illustration: On-site
Wastewater Management**

Legend

- Property Boundary
- Community Title Lot
- Accessway
- Indicative Dual Occ. / Sec. Dwelling Site
- Indicative MO/CT Dwelling Site
- Available Area for Wastewater Application
20 metres x 30 metres = 600 sqm

VERSION	DA
DATE	August 2023
LGA	Byron Shire Council
PARISH	Jasper
DATA SOURCE	NSW LPI 2023 Byron Shire Council Newton Denny Chappelle
IMAGERY	Nearmap 2023

Scale: A3
Datum: GDA2020
Projection: MGA Zone 56

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**BALANCED
SYSTEMS**

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THE GENERAL MANAGER
BYRON SHIRE COUNCIL

**ON-SITE WASTEWATER MANAGEMENT
LAND CAPABILITY ASSESMENT**

FOR

PROPOSED RURAL LANDSHARING COMMUNITY

AT

**LOT 1 DP 248377
315 COORABELL ROAD COORABELL**

OWNER
Shared Outlook

SITE INVESTIGATION

TRINE SOLUTIONS

DATE
18th May 2017

Report No: TS17804

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Design Spreadsheets - 3-Bedroom Dwelling

List of Figures

Exhibit No 1 - Illustration 6: Proposed Layout - Balanced Systems

1.0 INTRODUCTION

Trine Solutions Pty Ltd has been commissioned by the applicant to assess the potential impact of future Wastewater Management Arrangements for a proposed Rural Landsharing Community at Lot 1 DP: 248377 / 315 Coorabell Road Coorabell.

The purpose of this report is to demonstrate to Byron Shire Council that appropriate arrangements can be made for Wastewater Management, which will minimise the environmental impact of the proposed development at this site.

2.0 PROPOSED DEVELOPMENT

The proposed development will create a Rural Landsharing Community (Multiple Occupancy) consisting of fifteen (15) new dwelling sites, and associated infrastructure (existing dwelling to become the community building).

The proposed sites are in five (5) clusters, N1 to N9 are located along a ridgeline that dissects the centre of the lot from the north-east to the south-west with N10 to N15 located on lower contours to the west and north-west of this central ridgeline, as depicted on Balanced Systems Planning Consultants ***Illustration 6: Proposed Layout*** dated 19/05/2017.

All calculations for areas required for wastewater application, at each of the vacant sites, will be based on a 3-bedroom dwelling.

The proposed development will be based on eco-friendly principles which minimise power usage and allow for reuse of natural resources where possible.

Therefore the design of the On-site Wastewater Management System for each '**Vacant Site**' will be based on:

Minimum Secondary Treatment

- **4.5 occupants (Conservative – 3-bedroom)**
- **Wastewater generated is say 517.5L per day (115L per person/day roof harvest)**

3.0 SITE DESCRIPTION

Lot 1 DP: 248377, is a large rural lot with an area of approximately 53ha situated on the western side and in part fronting onto Coorabell Road. The site contains ridges, slopes, valleys and streams associated with the Coorabell topography. A broad ridge line dissects the centre of the lot from the north-east to the south-west boundaries with Wilsons River creating the western boundary.

The site contains a large Blackbutt plantation. The site has ample area for a wastewater application including reserve areas.

4.0 SOIL ASSESSMENT

Numerous cuttings at the site were investigated for the purpose of classification and testing of the site soils. The soils consist of top soil to a depth of 100 to 300mm and a consistent clay loam to light clay to a depth greater than 800mm.

The soil classification and profile description is consistent with published works by Morand titled 'Soil Landscapes of the Lismore - Ballina 1:100 000 Sheet'

Soil description

Soil Landscape	Erosional – Rolling low hills and hills on Lismore basalts
Grouping	ro – Rosebank
Description	Moderately deep to deep (>100 cm) Krasnozems, and brownish red well-drained Krasnozems on slopes
Limitations	Very acid soils with high aluminium toxicity potential *Not encountered at this site

Soil investigations were undertaken on 18th May 2017 after a relatively wet climatic period.

The results indicated that the soils at all sites are not limited for the application of effluent and a percolation rate in the order of 0.5m/day can be achieved.

The complete results of the site assessment have been summarized in the table below.

TABLE OF SITE CHARACTERISTICS : All Sites	
Soil:	Clay Loam to Light Clay - Krasnozems at all sites
Land area:	Not limited
Flood Potential:	Nil
Exposure	Good wind & sun exposure
Slope %	Variable / 5-12%
Landform	The sub-soils are well drained Krasnozems
Run-on and up-slope seepage	Nil (to be diverted)
Erosion potential	Nil
Site drainage	Good
Buffer distance	All buffers can be maintained
Depth to bedrock	>3m
Geology/regolith	The underlying stratum provides good internal drainage
Exchangeable Sodium Percentage	Not limiting
Permeability (Ksat)	0.5m/day

Plate 1 - Central Ridge Line: Site N1 - N3



Plate 2 - Central Ridgeline: Site N4 - N6



Plate 3 - Sites N7 - N12



Plate 4 - Sites N13 - N15



SOIL ASSESSMENT – All Sites / 315 Coorabell Road Coorabell								Date: 18 May 2017
All Sites								
SOIL UNIT (Morand, 1994): ro – Rosebank								
Horizon A & B	Depth (mm)	Texture	Structure	Colour	Soil Category (cf. Texture)	Course Fragments	Soil pH	Dispersive Class (Emerson)
.....	0 300 600 800 1000 1200	Clay loam Clay loam Light Clay Light Clay Light Clay	Moderate Moderate Moderate Moderate	Dark Reddish Brown Dark Reddish Brown Dark Reddish Brown	4 - CL 5 - LC	0-3%	5.4	5 or 6 Slake (1) No Dispersion
Tick box: No limitation (✓) Limitation (X)					(✓)	(✓)	(✓)	(✓)
					Overall:	No limitation Limitation(s)		(✓)

Plate 3 – Typical Cutting at site



5.0 SITE ASSESSMENT

All sites were assessed for the suitability of various options for wastewater management. The following is a summary of that inspection based on the following:

- a) The proposed dwelling sites are grouped in five locations, sites N1 to N6 are located along the higher elevations (120-110 AHD) of the broad central ridgeline, with sites N7 to N12 located on lower western elevations of the ridgeline (70-80AHD), with N13 to N15 located on lower north-western elevations of the ridgeline (70-80AHD).
- b) All proposed sites are capable of Wastewater Management with no significant constraints noted.
- c) All recommended buffers can be maintained.

It should be noted that individual Wastewater Management Proposals will be required with any future Development Applications for each proposed vacant lot.

6.0 AVAILABLE METHODS FOR ON-SITE WASTEWATER MANAGEMENT 'VACANT LOTS'

Assuming that all vacant lots are capable of sustainable wastewater management for a minimum 3-bedroom dwelling, considering that:

- ✓ Contemporary on-site wastewater standards will be used
- ✓ Best technology Best Practice is allowed
- ✓ Future development applications for each vacant lot will be assessed based on the future development proposed

6.1 On-site Wastewater Treatment Systems

- Waterless Composting Toilets –
- Greywater Treatment Systems –
- Sand Filters -
- AWTS's -
- Reed Beds –

6.2 Wastewater Application Methods Available

- Subsurface Irrigation
- ETA Beds

***The following Table lists effluent disposal area required when combinations of the above Treatment Process's and Application Methods are used based on a hydraulic loading of 517.5L/day.**

Table 1:

Split System	Application Method	Area Required
Waterless Composting Toilet		
Grey water Tank	ETA Bed	46m ²

Table 2:

All Black & Greywater	Secondary Treatment	Application Method	Area Required
3000L Septic Tank	Sand Filter	ETA Bed	68m ²

Table 3:

All Black & Greywater	Secondary Treatment	Application Method	Area Required
3000L Septic Tank	Reed Bed	ETA Bed	68m ²

Table 4:

All Black & Greywater	Secondary Treatment	Application Method	Area Required
AWTS	Aeration	Sub-surface Irrigation	212m ²

***Note: Byron OSMS Design Model spread sheets attached**

As indicated by the above tables, the proposed ‘Vacant Lots’ are capable of sustainable wastewater management.

This is based on:

- All sites have access to >10000m²
- All sites have ample area available for duplicate application areas
- All assumptions are conservative

7.0 CONCLUSION

The following has been demonstrated:

- Vacant proposed sites are capable of sustainable wastewater management
- Flexibility in OSMS design for future development proposals on vacant sites

This proposal is consistent with Councils adopted strategy for wastewater management

*End of Report
Trine Solutions P/L*

8.0 REFERENCES

Australian Standard AS1547:2012 - On-Site Domestic Wastewater Management.

Plumbing Code of Australia – December 2012

Byron Shire Council - Design Guidelines for On-Site Sewage Management Systems for Single Households. (1 December, 2004)

Environmental Protection Authority, Dept. of Local Government, Department of Land & Water Conservation and NSW Department of Health (Feb 1998). Environment and Health Protection Guidelines - On-Site Sewage Management Systems for Single Households.

Crites – Tchobanoglous (1998) - Small and Decentralized Wastewater Management Systems

Department of Land and Water Conservation NSW - The Constructed Wetlands Manual Volume 2

G. Swarbrick – Short Course in Waste Management – University N.S.W. 1996

Ratcliff (1983) Published Paper

Metcalf & Eddy (1991) Wastewater Engineering 3rd Edition

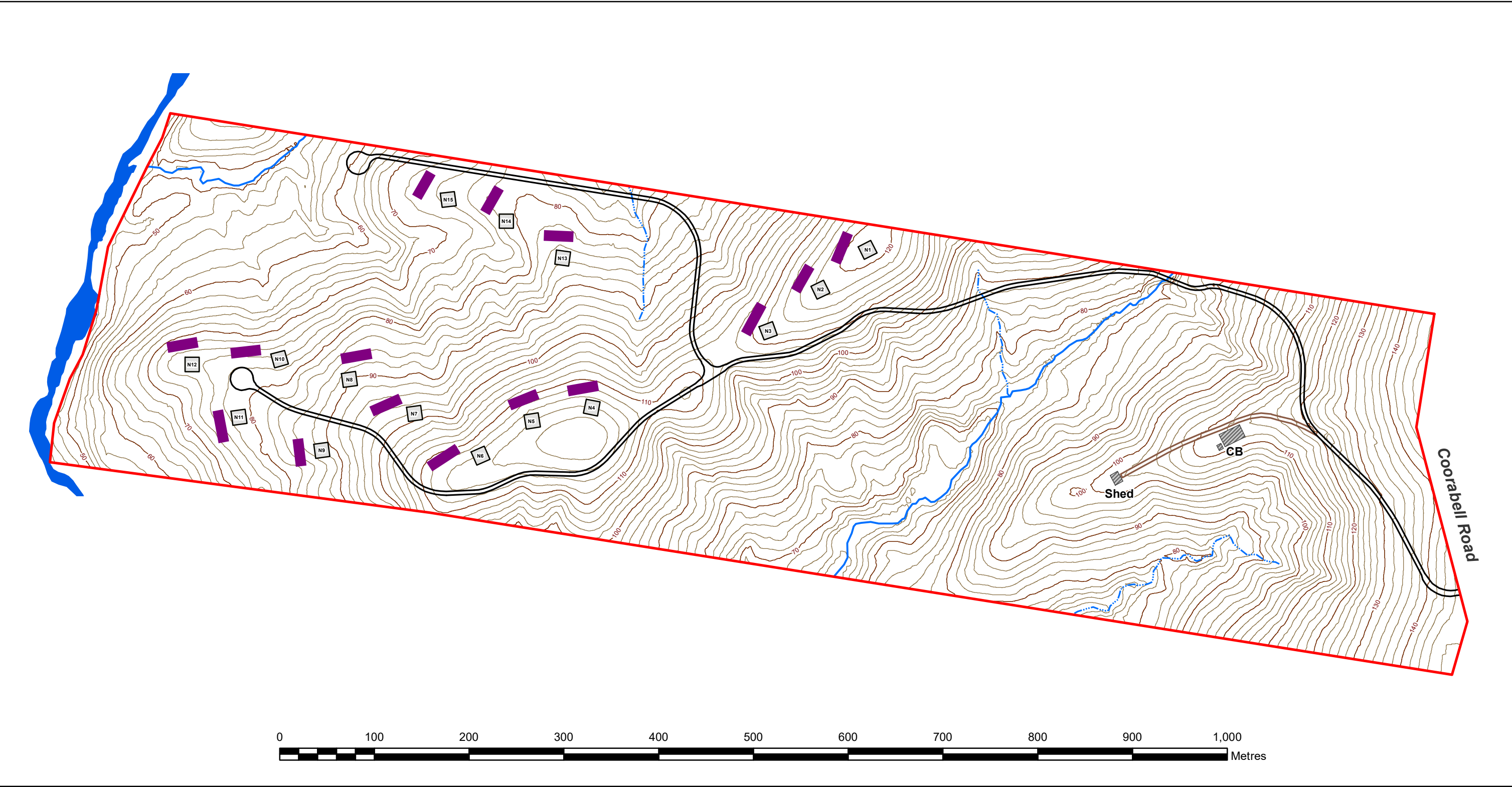
EPA, United States Environmental Protection Agency, Office of Water Washington, D.C. (Sep. 1999) Wastewater Technology Fact Sheet – Intermittent Sand Filters

Morand, D.T. (1994) Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet Report, Soil Conservation Service of NSW, Sydney.

Morand, D.T. (1994) Soil Landscapes of the Lismore-Ballina 1:100,000 Sheet Map, Soil Conservation Service of NSW, Sydney.

End of Report

Bradford Nicholson
Trine Solutions Pty Ltd



**Shared Outlook
Lot 1 DP 248377
315 Coorabell Road**

*Rural Landsharing
Community*

**Illustration 6:
Proposed Layout**

- | | |
|------------------------|---|
| Subject Site | Existing Buildings |
| Contour (10m interval) | Existing Driveway |
| Contour (2m interval) | New Dwelling Site |
| Wilsons River | Proposed Access Road |
| Creek | Area Available for Wastewater Application |
| Small Creek/Gully | |

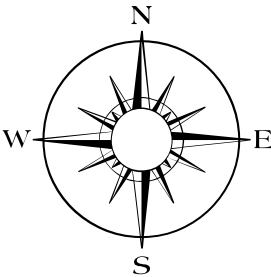
NOTES:

N1-N15: New Dwelling Site

Dwelling Site - 15m x 15m

CB: Community Building

Proposed Access Road 4m Wide



1:4,000 (A3)

Datum: GDA94
Projection: MGA Zone 56

FILE:
SharedOutlook_06_PropLayout

VERSION:
5.0

DATE:
14/07/2017

SOURCE:
Cadastral, Topographic Data: LPI NSW 2017
Lidar: NSW LPI



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Byron OSMS Design Model

Version: Copy of OSMS_Design_Model_70.2008.527.1 (2).xls

Set Defaults

bedrooms

persons

STEP 1

bedrooms (Grp 1)

bedrooms (Grp 2)

STEP 2

3

STEP 3

Buffer to permanent water

Buffer to intermittent water

STEP 4

Block size (m2)

30000

100

115

4.20

20%

STEP 5

Daily effluent flow accord. water supply type

Reticulated supply (bore, spring, creek) 180L/p.d

Reticulated + std. water saving devices 145L/p.d

Roof water harvesting 140L/p.d

Roof water harvesting + std. water sav. 115L/p.d

Grp1

Grp2

STEP 6

Toilet

Bathroom

Laundry

Kitchen

Total Daily Flow (L/day) *

517.5

Daily Effluent Flow per person (L/day)

115

32%

STEP 7

Treatment system

Septic (primary treatment only)

AWTS

Septic + single pass sandfilter (SPF)

Septic + SPF, 25% septic return flow

Septic + recirculating sandfilter

Septic + reedbed

Current Inlet BOD conc. ~ 250 mg/L

TN production per year (kg/year)

18.90

N prod. per capita (kg/person/yr)

4.20

70%

TN reduced by all N loss (kg/year) *

12.10

N loss in treatment system (% reduction)

20%

20%

Phosphorus in effluent (Ip) (kg/yr) *

2.70

P prod. per person per yr (kg/person/yr)

0.60

40%

P soil sorption accord. soil type

"Alluvial" Soils 1 (dp, mu, my, te) 10,000 kg/ha/m

"Alluvial" Soils 2 (cr) 2,000 kg/ha/m

Red Basaltic Soils (bg, ca, co, el, ew, mb, ro, wo) 10,000 kg/ha/m

Duplex Soils (ba, bi, bu, mi, ni) 8,000 kg/ha/m

Podzol Soils (ab, bo, br, eb, fh, ki, ku, og, po, ty, wy) 1,000 kg/ha/m

P uptake by plants (Hp) (kg/ha/yr)

10

N plant uptake (kg/yr)

4.18

Total N-load 12.10kg/yr

STEP 9

Soil texture & structure beneath system

Gravels, Sands Ksat > 3.0m/d

Sandy loams - weakly structured Ksat > 3.0m/d

Sandy loams - massive Ksat 1.4 - 3.0m/d

Loams - high/moderate structured Ksat 1.5 - 3.0m/d

Loams - weakly structured or massive Ksat 0.5 - 1.5m/d

Clay loams - high/mod structured Ksat 0.5 - 1.5m/d

Clay loams - weakly structured Ksat 0.12 - 0.5m/d

Clay loams - massive structured Ksat 0.06 - 0.12m/d

Light clays - strongly structured Ksat 0.12 - 0.5m/d

Light clays - moderately structured Ksat 0.06 - 0.12m/d

Light clays - weak. structured or massive Ksat < 0.06m/d

Med. to heavy clays - strong. struct. Ksat 0.06-0.5m/d

Med. to heavy clays - mod. structured Ksat < 0.06m/d

Med. to hvy clays - weak. struct. or massive Ksat < 0.06m/d

DISPERSIVE soil (Modified Emerson Aggregate test)

STEP 10

Water Table/ Bedrock Depth (m)

3.00

10000

0.5

50

STEP 11

% Effective Rainfall

Mounded bed

Level bed with grass

Final area (m²)

209

Nitrogen area (m²)

130

Phosphorus area (m²)

53

Hydraulic area (m2)

209

Water balance area (m²)

209

Specific Crop Coeff.(grass=1.00)

1.00

% Effective Rainfall

70%

Percolation (mm/d)

4

ETA trench length (m)

18.40

number of SSI laterals

11

beds total plus separating spaces: X-Y dimensions = 10.0m x 11.0m x 1.0m = 110.0m²

Avg depth of root zone (m)

0.30

Effective porosity of root zone

0.34

Avail. Water Capacity (AWC) of root zone

0.13

Avg depth bluemetall (etc) in trench below root zone (m)

0.00

Effective porosity of bluemetall in trench below root zone

0.00

Default AWC of bluemetall in trench below root zone

0.00

Trench under root zone

0.00

Soil Moisture Holding Capacity: saturation & AWC (mm)

102.00

39.00

STEP 12

Soil texture in root zone

Coarse Sand

Fine sand, Sandy loams

Loams, Clay loams, Silt

Clay (light, med, heavy)

Permissible percentile exceedence

5.00%

SSI laterals pipe separation (m)

1.00

STEP 13

Land Application Type

SSI

ETA

STEP 14

Calculate (or Cntl- q)

11

ETA bed separation

0.90

STEP 15

1.50

Minimum effluent application (mm/day/m²)

2.48

Exceedence (L)

0.00000

94.52%

20

15

10

5

0

0

5

10

15

20

Byron OSMS Design Model

Version: Copy of OSMS_Design_Model_70.2008.527.1.xls

Set Defaults

bedrooms

persons

STEP 1

bedrooms (Grp 1)

bedrooms (Grp 2)

STEP 2

3

STEP 3

Buffer to permanent water

Buffer to intermittent water

STEP 4

Block size (m2)

30000

100

115

4.20

52%

STEP 5

Daily effluent flow accord. water supply type

Reticulated supply (bore, spring, creek) 180L/p.d

Reticulated + std. water saving devices 145L/p.d

Roof water harvesting 140L/p.d

Roof water harvesting + std. water sav. 115L/p.d

Grp1

Grp2

STEP 6

Toilet

Bathroom

Laundry

Kitchen

Total Daily Flow (L/day) *

517.5

Daily Effluent Flow per person (L/day)

115

32%

STEP 7

Treatment system

Septic (primary treatment only)

AWTS

Septic + single pass sandfilter (SPF)

Septic + SPF, 25% septic return flow

Septic + recirculating sandfilter

Septic + reedbed

Current Inlet BOD conc. ~ 250 mg/L

TN production per year (kg/year)

18.90

N prod. per capita (kg/person/yr)

4.20

70%

N loss in treatment system (% reduction)

52%

20%

Phosphorus in effluent (Ip) (kg/yr) *

2.70

P prod. per person per yr (kg/person/yr)

0.60

40%

STEP 8

P soil sorption accord. soil type

"Alluvial" Soils 1 (dp, mu, my, te) 10,000 kg/ha/m

"Alluvial" Soils 2 (cr) 2,000 kg/ha/m

Red Basaltic Soils (bg, ca, co, el, ew, mb, ro, wo) 10,000 kg/ha/m

Duplex Soils (ba, bi, bu, mi, ni) 8,000 kg/ha/m

Podzol Soils (ab, bo, br, eb, fh, ki, ku, og, po, ty, wy) 1,000 kg/ha/m

P uptake by plants (Hp) (kg/ha/yr)

10

N plant uptake (kg/yr)

1.52

Total N-load 7.25kg/yr

STEP 9

Soil texture & structure beneath system

Gravels, Sands Ksat > 3.0m/d

Sandy loams - weakly structured Ksat > 3.0m/d

Sandy loams - massive Ksat 1.4 - 3.0m/d

Loams - high/moderate structured Ksat 1.5 - 3.0m/d

Loams - weakly structured or massive Ksat 0.5 - 1.5m/d

Clay loams - high/mod structured Ksat 0.5 - 1.5m/d

Clay loams - weakly structured Ksat 0.12 - 0.5m/d

Clay loams - massive structured Ksat 0.06 - 0.12m/d

Light clays - strongly structured Ksat 0.12 - 0.5m/d

Light clays - moderately structured Ksat 0.06 - 0.12m/d

Light clays - weak. structured or massive Ksat < 0.06m/d

Med. to heavy clays - strong. struct. Ksat 0.06-0.5m/d

Med. to heavy clays - mod. structured Ksat < 0.06m/d

Med. to hvy clays - weak. struct. or massive Ksat < 0.06m/d

DISPERSIVE soil (Modified Emerson Aggregate test)

STEP 10

Water Table/ Bedrock Depth (m)

3.00

10000

0.5

50

Enviro.N limit (kg/yr)

9.50

Nitrogen Report

N load exceedence

0.00

N load percolated (kg/yr)

5.73

N released (perc+exceed.) (kg/yr)

5.73

Wetted depth(m)

0.50

TN% removal

52.0%

Reed bed area (m2)

10.8

BOD target of 20mg/L is equiv. to ~68.0% TN

Current Outlet BOD conc. ~ 46 mg/L.

Final area (m²)

76

Nitrogen area (m²)

0

Phosphorus area (m²)

53

Hydraulic area (m2)

76

Water balance area (m²)

76

total ETA trench area

48.64

ETA trench length (m)

13.51

number of ETA beds

3

beds total plus separating spaces: X Y dimensions = 14.1m x 7.2m Area = 102 m2

Specific Crop Coeff.(grass=1.00)

1.00

% Effective Rainfall

65%

Percolation (mm/d)

9

STEP 11

% Effective Rainfall

Mounded bed

Level bed with grass

Avg depth of root zone (m)

0.15

Effective porosity of root zone

0.34

Avail. Water Capacity (AWC) of root zone

0.13

Avg depth bluemetall (etc) in trench below root zone (m)

0.15

Effective porosity of bluemetall in trench below root zone

0.43

Default AWC of bluemetall in trench below root zone

0.00

STEP 12

Soil texture in root zone

Coarse Sand

Fine sand, Sandy loams

Loams, Clay loams, Silt

Clay (light, med, heavy)

Soil Moisture Holding Capacity: saturation & AWC (mm)

110.62

26.55

STEP 13

Land Application Type

SSI

ETA

Lateral seepage width (m)

0.300

ETA trench separation

1.50

Permissible percentile exceedence

5.00%

ETA trench width (m)

1.20

Calculate (or Cntl- q)

3

ETA bed separation

0.90

Minimum effluent application (mm/day/m²)

6.79

Exceedence (L)

0.00000

94.52%

Byron OSMS Design Model

Version: Copy of OSMS_Design_Model_70.2008.527.1.xls

Set Defaults

bedrooms

persons

STEP 1

bedrooms (Grp 1)

bedrooms (Grp 2)

STEP 2

3

STEP 3

Buffer to permanent water

Buffer to intermittent water

STEP 4

Block size (m2)

50000

100

STEP 5

Daily effluent flow accord. water supply type

Reticulated supply (bore, spring, creek) 180L/p.d

Reticulated + std. water saving devices 145L/p.d

Roof water harvesting 140L/p.d

Roof water harvesting + std. water sav. 115L/p.d

Grp1

Grp2

Toilet

Bathroom

Laundry

Kitchen

STEP 6

Wastewater stream

Septic (primary treatment only)

AWTS

Septic + single pass sandfilter (SPF)

Septic + SPF, 25% septic return flow

Septic + recirculating sandfilter

Septic + reedbed

STEP 7

Treatment system

Current Inlet BOD conc. ~ 125 mg/L

STEP 8

P soil sorption accord. soil type

"Alluvial" Soils 1 (dp, mu, my, te) 10,000 kg/ha/m

"Alluvial" Soils 2 (cr) 2,000 kg/ha/m

Red Basaltic Soils (bg, ca, co, el, ew, mb, ro, wo) 10,000 kg/ha/m

Duplex Soils (ba, bi, bu, mi, ni) 8,000 kg/ha/m

Podzol Soils (ab, bo, br, eb, fh, ki, ku, og, po, ty, wy) 1,000 kg/ha/m

STEP 9

Soil texture & structure beneath system

Gravels, Sands Ksat > 3.0m/d

Sandy loams - weakly structured Ksat > 3.0m/d

Sandy loams - massive Ksat 1.4 - 3.0m/d

Loams - high/moderate structured Ksat 1.5 - 3.0m/d

Loams - weakly structured or massive Ksat 0.5 - 1.5m/d

Clay loams - high/mod structured Ksat 0.5 - 1.5m/d

Clay loams - weakly structured Ksat 0.12 - 0.5m/d

Clay loams - massive structured Ksat 0.06 - 0.12m/d

Light clays - strongly structured Ksat 0.12 - 0.5m/d

Light clays - moderately structured Ksat 0.06 - 0.12m/d

Light clays - weak. structured or massive Ksat < 0.06m/d

Med. to heavy clays - strong. struct. Ksat 0.06-0.5m/d

Med. to heavy clays - mod. structured Ksat < 0.06m/d

Med. to hvy clays - weak. struct. or massive Ksat < 0.06m/d

DISPERSIVE soil (Modified Emerson Aggregate test)

STEP 10

Water Table/ Bedrock Depth (m)

3.00

0.5

50

STEP 11

% Effective Rainfall

Mounded bed

Level bed with grass

STEP 12

Soil texture in root zone

Coarse Sand

Fine sand, Sandy loams

Loams, Clay loams, Silt

Clay (light, med, heavy)

STEP 13

Land Application Type

SSI

ETA

STEP 14

Calculate (or Cntl- q)

STEP 15

ETA bed separation

0.90

STEP 16

ETA trench width (m)

1.20

0.300

1.50

STEP 17

ETA trench length (m)

12.15

2

1.50

STEP 18

ETA trench separation

0.300

1.50

STEP 19

ETA trench width (m)

1.20

0.300

1.50

STEP 20

ETA trench length (m)

12.15

2

1.50

STEP 21

ETA trench separation

0.300

1.50

STEP 22

ETA trench width (m)

1.20

0.300

1.50

STEP 23

ETA trench length (m)

12.15

2

1.50

STEP 24

ETA trench separation

0.300

1.50

STEP 25

ETA trench width (m)

1.20

0.300

1.50

STEP 26

ETA trench length (m)

12.15

2

1.50

STEP 27

ETA trench separation

0.300

1.50

STEP 28

ETA trench width (m)

1.20

0.300

1.50

STEP 29

ETA trench length (m)

12.15

2

1.50

STEP 30

ETA trench separation

0.300

1.50

STEP 31

ETA trench width (m)

1.20

0.300

1.50

STEP 32

ETA trench length (m)

12.15

2

1.50

STEP 33

ETA trench separation

0.300

1.50

STEP 34

ETA trench width (m)

1.20

0.300

1.50

STEP 35

ETA trench length (m)

12.15

2

1.50

STEP 36

ETA trench separation

0.300

1.50

STEP 37

ETA trench width (m)

1.20

0.300

1.50

STEP 38

ETA trench length (m)

12.15

2

1.50

STEP 39

ETA trench separation

0.300

1.50

STEP 40

ETA trench width (m)

1.20

0.300

1.50

STEP 41

ETA trench length (m)

12.15

2

1.50

STEP 42

ETA trench separation

0.300

1.50

STEP 43

ETA trench width (m)

1.20

0.300

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STEP 44

ETA trench length (m)

12.15

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1.50

STEP 45

ETA trench separation

0.300

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STEP 46

ETA trench width (m)

1.20

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STEP 47

ETA trench length (m)

12.15

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STEP 48

ETA trench separation

0.300

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STEP 49

ETA trench width (m)

1.20

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STEP 50

ETA trench length (m)

12.15

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1.50

STEP 51

ETA trench separation

0.300

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STEP 52

ETA trench width (m)

1.20

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STEP 53

ETA trench length (m)

12.15

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1.50

STEP 54

ETA trench separation

0.300

1.50

STEP 55

ETA trench width (m)

1.20

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STEP 56

ETA trench length (m)

12.15

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1.50

STEP 57

ETA trench separation

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STEP 58

ETA trench width (m)

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STEP 59

ETA trench length (m)

12.15

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STEP 60

ETA trench separation

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STEP 61

ETA trench width (m)

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STEP 62

ETA trench length (m)

12.15

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STEP 63

ETA trench separation

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STEP 64

ETA trench width (m)

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STEP 65

ETA trench length (m)

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STEP 66

ETA trench separation

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STEP 67

ETA trench width (m)

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STEP 68

ETA trench length (m)

12.15

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STEP 69

ETA trench separation

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STEP 70

ETA trench width (m)

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STEP 71

ETA trench length (m)

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STEP 72

ETA trench separation

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STEP 73

ETA trench width (m)

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STEP 74

ETA trench length (m)

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STEP 75

ETA trench separation

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STEP 76

ETA trench width (m)

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STEP 77

ETA trench length (m)

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STEP 78

ETA trench separation

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STEP 79

ETA trench width (m)

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STEP 80

ETA trench length (m)

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STEP 81

ETA trench separation

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STEP 82

ETA trench width (m)

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STEP 83

ETA trench length (m)

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STEP 84

ETA trench separation

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STEP 85

ETA trench width (m)

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STEP 86

ETA trench length (m)

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STEP 87

ETA trench separation

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STEP 88

ETA trench width (m)

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STEP 89

ETA trench length (m)

12.15

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STEP 90

ETA trench separation

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STEP 91

ETA trench width (m)

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STEP 92

ETA trench length (m)

12.15

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STEP 93

ETA trench separation

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STEP 94

ETA trench width (m)

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ETA trench length (m)

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STEP 96

ETA trench separation

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STEP 97

ETA trench width (m)

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STEP 98

ETA trench length (m)

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STEP 99

ETA trench separation

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STEP 100

ETA trench width (m)

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STEP 101

ETA trench length (m)

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STEP 102

ETA trench separation

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STEP 103

ETA trench width (m)

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STEP 104

ETA trench length (m)

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STEP 105

ETA trench separation

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STEP 106

ETA trench width (m)

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STEP 107

ETA trench length (m)

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STEP 108

ETA trench separation

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STEP 109

ETA trench width (m)

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STEP 110

ETA trench length (m)

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STEP 111

ETA trench separation

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STEP 112

ETA trench width (m)

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STEP 113

ETA trench length (m)

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STEP 114

ETA trench separation

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STEP 115

ETA trench width (m)

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ETA trench length (m)

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STEP 117

ETA trench separation

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STEP 118

ETA trench width (m)

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ETA trench length (m)

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STEP 120

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 123

ETA trench separation

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STEP 124

ETA trench width (m)

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ETA trench length (m)

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STEP 126

ETA trench separation

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STEP 127

ETA trench width (m)

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ETA trench length (m)

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STEP 129

ETA trench separation

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STEP 130

ETA trench width (m)

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STEP 131

ETA trench length (m)

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STEP 132

ETA trench separation

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STEP 133

ETA trench width (m)

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ETA trench length (m)

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STEP 135

ETA trench separation

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STEP 136

ETA trench width (m)

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ETA trench length (m)

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STEP 138

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 141

ETA trench separation

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ETA trench width (m)

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ETA trench width (m)

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STEP 147

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 150

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 153

ETA trench separation

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ETA trench width (m)

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ETA trench width (m)

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ETA trench width (m)

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ETA trench width (m)

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STEP 165

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ETA trench width (m)

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STEP 168

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ETA trench width (m)

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ETA trench length (m)

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STEP 171

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 174

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 177

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 180

ETA trench separation

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STEP 181

ETA trench width (m)

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ETA trench length (m)

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STEP 183

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 186

ETA trench separation

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ETA trench width (m)

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STEP 189

ETA trench separation

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ETA trench width (m)

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ETA trench separation

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ETA trench width (m)

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ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 198

ETA trench separation

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STEP 199

ETA trench width (m)

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STEP 200

ETA trench length (m)

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STEP 201

ETA trench separation

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STEP 202

ETA trench width (m)

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ETA trench length (m)

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STEP 204

ETA trench separation

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STEP 205

ETA trench width (m)

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ETA trench length (m)

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STEP 207

ETA trench separation

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ETA trench width (m)

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ETA trench length (m)

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STEP 210

ETA trench separation

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STEP 211

ETA trench width (m)

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ETA trench length (m)

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STEP 213

ETA trench separation

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STEP 214

ETA trench width (m)

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ETA trench length (m)

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STEP 216

ETA trench separation

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STEP 217

ETA trench width (m)

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ETA trench length (m)

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STEP 219

ETA trench separation

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STEP 220

ETA trench width (m)

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ETA trench length (m)

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STEP 222

ETA trench separation

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STEP 223

ETA trench width (m)

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STEP 224

ETA trench length (m)

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STEP 225

ETA trench separation

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STEP 226

ETA trench width (m)

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STEP 227

ETA trench length (m)

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STEP 228

ETA trench separation

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STEP 229

ETA trench width (m)

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ETA trench length (m)

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STEP 231

ETA trench separation

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STEP 232

ETA trench width (m)

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ETA trench length (m)

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STEP 234

ETA trench separation

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STEP 235

ETA trench width (m)

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STEP 236

ETA trench length (m)

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STEP 237

ETA trench separation

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STEP 238

ETA trench width (m)

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STEP 239

ETA trench length (m)

12.15

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STEP 240

ETA trench separation

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STEP 241

ETA trench width (m)

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STEP 242

ETA trench length (m)

12.15

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STEP 243

ETA trench separation

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STEP 244

ETA trench width (m)

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STEP 245

ETA trench length (m)

12.15

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STEP 246

ETA trench separation

0.300

1.50

STEP 247

ETA trench width (m)

1.20

0.300

1.50

STEP 248

ETA trench length (m)

12.15

2

1.50

STEP 249

ETA trench separation

0.300

1.50

STEP 250

ETA trench width (m)

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