PLAN 5

PLANNING APPLICATION PLN-21-0071

35 COLLINS STREET (ACCESS OVER 18 LOGAN ROAD), EVANDALE

ATTACHMENTS

- Application & plans
- Representation

ATTACHMENT A

2-204

PLANNING APPLICATION

Proposal

Description of proposal: A NEW DWELLING & GARAGE

(attach additional sheets if necessary)

If applying for a subdivision which creates a new road, please supply three proposed names for the road, in order of preference:

1..... 2..... 3.....

Site address: 35 COLLINS ST

CT no: 5239-21 (123)

Estimated cost of project $ 400,000 *(include cost of landscaping, car parks etc for commercial/industrial uses)*

Are there any existing buildings on this property? (Yes) / No

If yes – main building is used as SMALL SHED, N.W. CORNER

If variation to Planning Scheme provisions requested, justification to be provided:

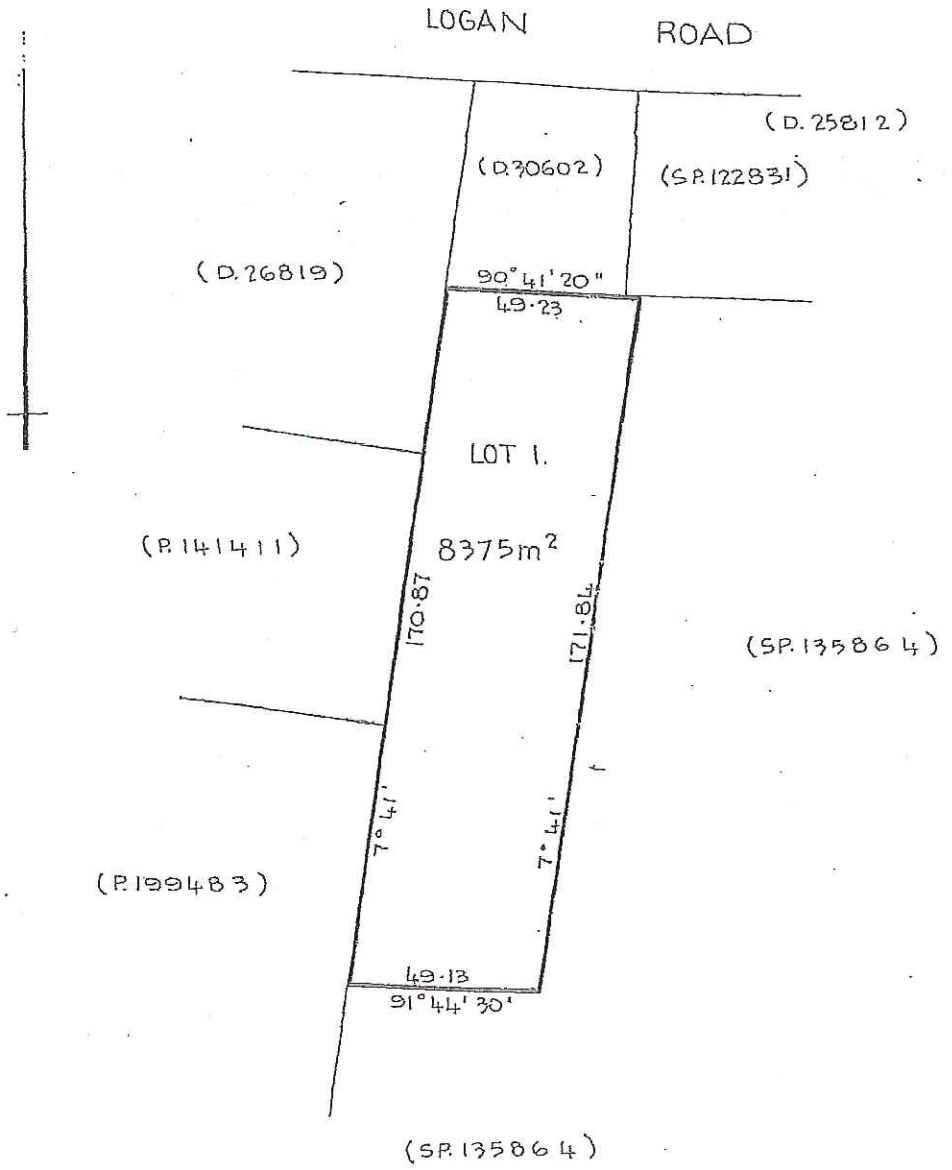
(attach additional sheets if necessary)

Is any signage required? .....

(if yes, provide details)

EE PART OF 31A-3R-18P D. TO HENRY JENNINGS & ILLIAM DAWSON GRUBB	FIRST SURVEY PLAN No. 50/35 D.O. COMPILED BY L.D.R.B SCALE 1: 1250 LENGTHS IN METRES	APPROVED 2 AUG 2004 Alice Kaura Recorder of Titles

PSHEET MUNICIPAL DE No. 5239-21 (123)	LAST UPI No 4700665	LAST PLAN No.	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN



2-206

LEGEND
PAGE 1# COVER PAGE
PAGE 2# SITE PLAN
PAGE 3# DWELLING LOWER FLOOR PLAN
PAGE 4# DWELLING UPPER FLOOR PLAN
PAGE 5# DWELLING ELEVATIONS
PAGE 6# DWELLING ELEVATIONS
PAGE 7# GARAGE FLOOR PLAN AND ELEVATIONS
PAGE 8# GARAGE FLOOR PLAN AND ELEVATIONS

COUNCIL – NORTHERN MIDLANDS COUNCIL
ZONE – GENERAL RESIDENTIAL
CODE – 101
LANDSLIDE BAND – NIL

TITLE REF. = 141412/1

PROPOSED DWELLING LOWER FLOOR AREA = 325.4sq/m
PROPOSED DWELLING UPPER FLOOR AREA = 140.0sq/m
PROPOSED COMBINED DWELLING VERANDAH AREA = 80.0sq/m
PROPOSED GARAGE FLOOR AREA = 84.0sq/m
PROPOSED SHED FLOOR AREA = 30.0sq/m
PROPOSED SHED VERANDAH FLOOR AREA = 12.0sq/m

CLIMATE ZONE FOR THERMAL DESIGN = 7
REFER TO ENERGY REPORT BY 2DR

ALPINE AREA – N/A LESS THAN 900m AHD

CORROSION ENVIRONMENT – MODERATE

OTHER HAZARDS – N/A

ALL DIMENSIONS SHOWN ARE TO OUTSIDE OF BRICKWORK CLADDING OR TIMBER FRAMING ON CLAD HOUSES UNLESS NOTED OTHERWISE

CONFIRM ALL DIMENSIONS AND SERVICES ON SITE PRIOR TO COMMENCEMENT OF WORKS

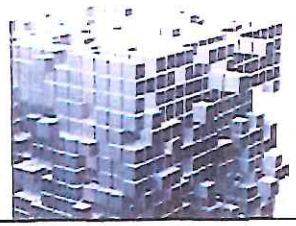
IF IN ANY DOUBT ABOUT BEARING AND BOUNDARIES SHOWN THEN THESE MUST BE CONFIRMED ONSITE BY A SURVEYOR PRIOR TO SETOUT

ENSURE DRAWINGS USED ONSITE ARE STAMPED 'APPROVED' PLANS BY BUILDING SURVEYOR AND PERMIT AUTHORITY

PROPOSED DWELLING
FOR P. WOOF
AT 35 COLLINS STREET
EVENDALE 7212

EXHIBITED

REVISION NUMBER	DATE
REVISION – 1	18 / 07 / 2018
REVISION – 2	19 / 07 / 2018



FOR ALL YOUR DESIGN, DRAFTING AND ENGINEERING NEEDS
ACCREDITATION CC565H
MEINDERT VAN DER MOLEN
116 ALANVALE RD
NEWNHAM 7248
PH 6326 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

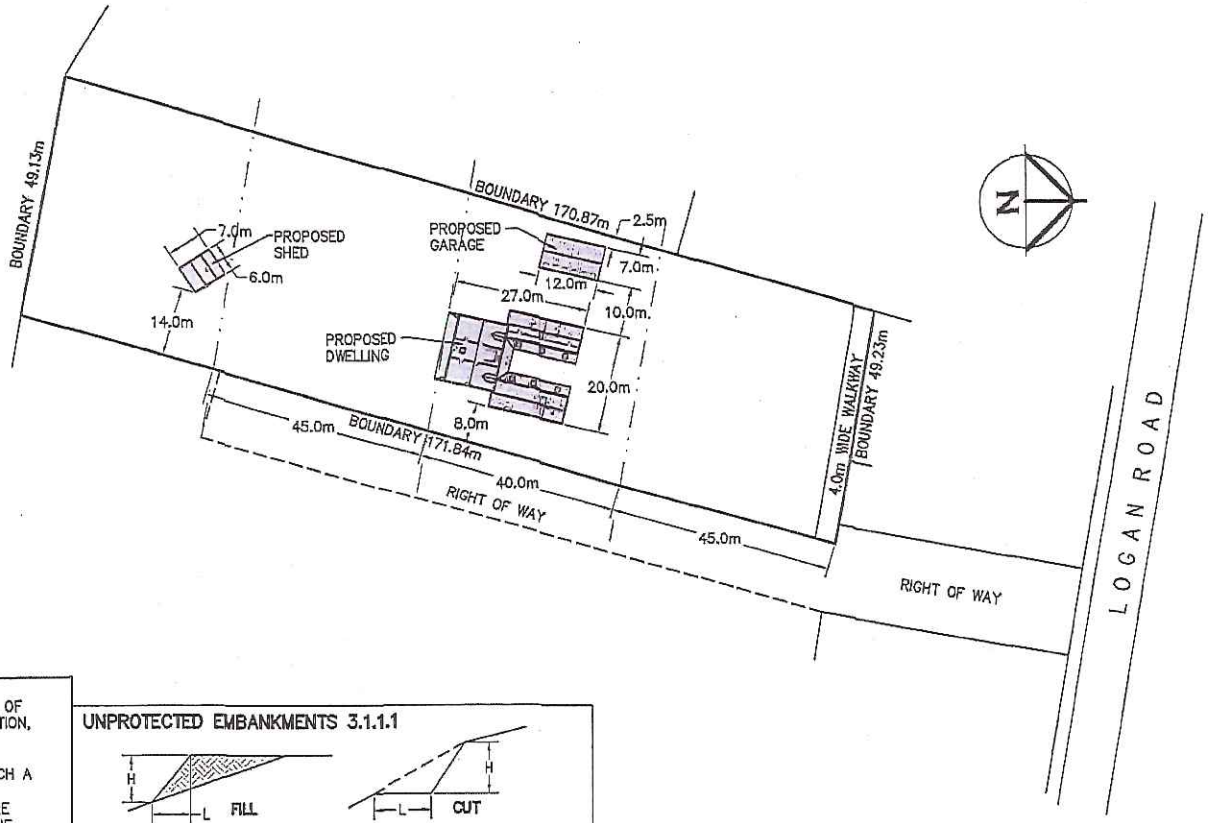
SOIL AND WATER MANAGEMENT:

DOWNPIPES TO BE CONNECTED INTO STORMWATER SYSTEM AS SOON AS THE ROOF IS INSTALLED

INSTALL AG DRAIN (IF SHOWN) PRIOR TO FOOTING EXCAVATION

EXCAVATED MATERIAL PLACED UP SLOPE OF AG DRAIN. TO BE REMOVED WHEN BUILDING WORKS ARE COMPLETE AND USED AS FILL ON SITE FOR ANY LOW POINTS. INSTALL A SEDIMENT FENCE ON THE DOWNSLOPE SIDE OF MATERIAL

CONSTRUCTION VEHICLES TO BE PARKED ON THE STREET ONLY, TO PREVENT TRANSFERRING DEBRIS ONTO STREET



EXHIBITED

FALL PREVENTION
WHERE A PERSON IS EXPOSED TO THE HAZARD OF FALLING FROM A STRUCTURE DURING CONSTRUCTION, CLEANING OR MAINTENANCE WORK THE BUILDER SHALL PROVIDE:
(A) A WORK SYSTEM DESIGNED TO PREVENT SUCH A FALL
(B) WHERE SAFETY BELT ANCHORAGE POINTS ARE USED THEY MUST BE POSITIONED SUCH THAT THE SAFETY LINE CAN BE ATTACHED BEFORE PROCEEDING TO THE AREA WHERE A FALL IS POSSIBLE
(C) ANCHORAGE POINTS MUST COMPLY WITH AS2626 AND BE ABLE TO WITHSTAND A FORCE OF 1500KG
(D) INFORM THE OWNER PRIOR TO OCCUPANCY THE NATURE OF THE FALL ARREST SYSTEM AND USE ACCORDING TO AS2626.

UNPROTECTED EMBANKMENTS 3.1.1.1

SOIL TYPE		EMBANKMENT SLOPES H:L	
		COMPACTED FILL	CUT
STABLE ROCK		2:3	8:1
SAND		1:2	1:2
SILT		1:4	1:4
CLAY	FIRM CLAY	1:2	1:1
	SOFT CLAY	NOT SUITABLE	2:3
SOFT SOILS		NOT SUITABLE	NOT SUITABLE

EMBANKMENTS THAT ARE TO BE LEFT EXPOSED AT THE END OF THE CONSTRUCTION WORKS MUST BE STABILISED BY VEGETATION OR SIMILAR TO PREVENT SOIL EROSION

SITE PLAN

REVISION NUMBER	DATE
REVISION - 1	18 / 07 / 2018
REVISION - 2	19 / 07 / 2018

MV CONSULTING (TAS) PTY LTD
ACCREDITATION CC565H
116 ALANVALE RD
NEWNHAM 7248
PH 6326 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

PROJECT: PROPOSED DWELLING FOR
P. WOOF
AT 35 COLLINS STREET
EVENDALE 7212

DRAWING: SITE PLAN

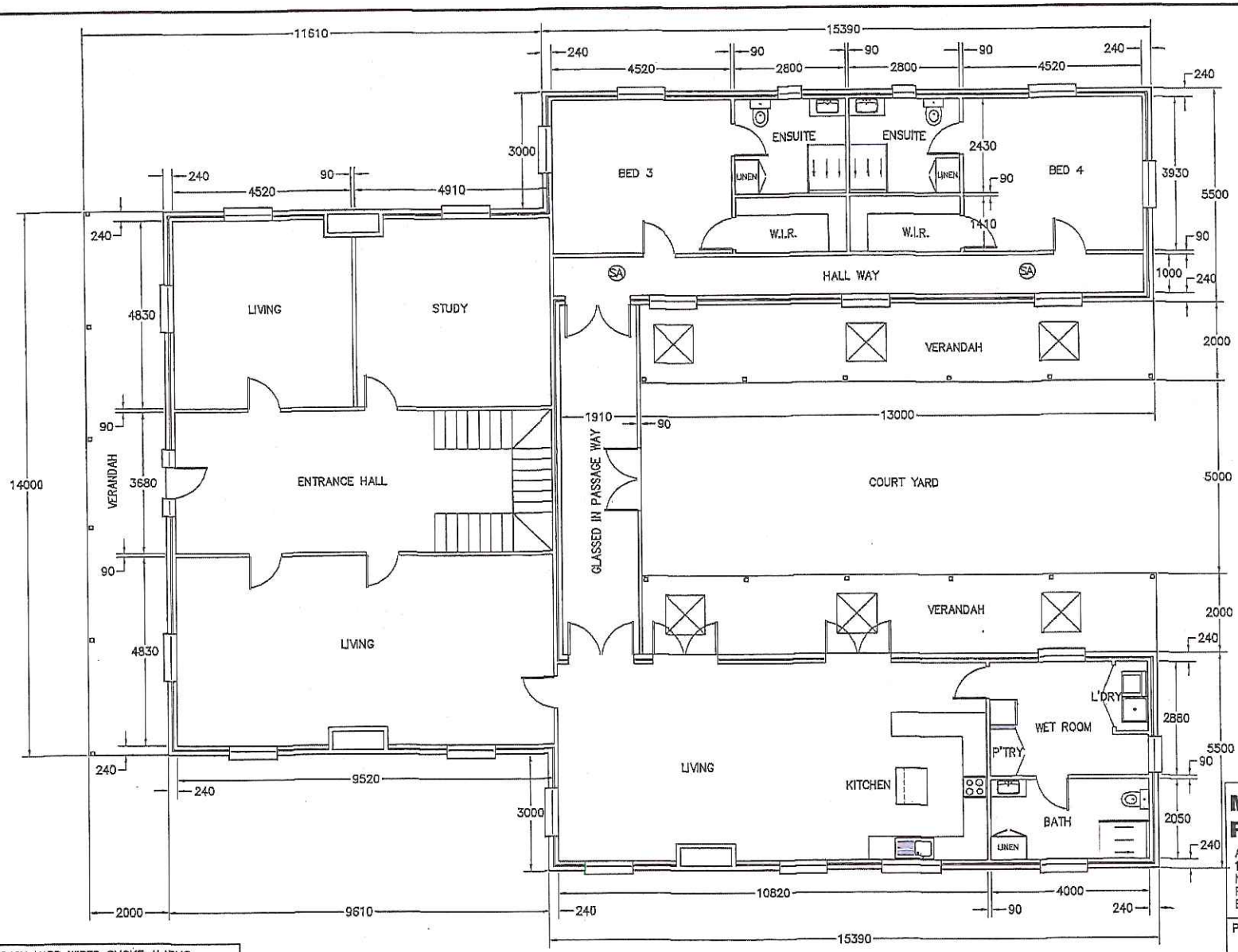
DESIGNED: M. v. d. M.
DRAWN: M. v. d. M.

APPROVED.
DATE: 19 / 07 / 18

SCALE: 1:1000.
A3.

DRAWING No.:
W000718 - 2/8

2-208



EXHIBITED

PROPOSED LOWER FLOOR PLAN

PROPOSED LOWER FLOOR AREA = 325.4sq/m

COMBINED VERANDAH FLOOR AREA = 80.0sq/m

(SA) – 240V HARD WIRED SMOKE ALARMS INSTALLED IN ACCORDANCE WITH BCA 3.7.2. TO COMPLY WITH AS3786, BE CONNECTED TO MAINS POWER AND INTERCONNECTED WHERE THERE IS MORE THAN ONE ALARM

REVISION NUMBER	DATE
REVISION – 1	18 / 07 / 2018
REVISION – 2	19 / 07 / 2018

MV CONSULTING (TAS) PTY LTD
ACCREDITATION CC565H
116 ALANVALE RD
NEWNHAM 7248
PH 6326 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

PROJECT: PROPOSED DWELLING FOR P. WOOF AT 35 COLLINS STREET EVENDALE 7212

DRAWING: DWELLING LOWER FLOOR PLAN

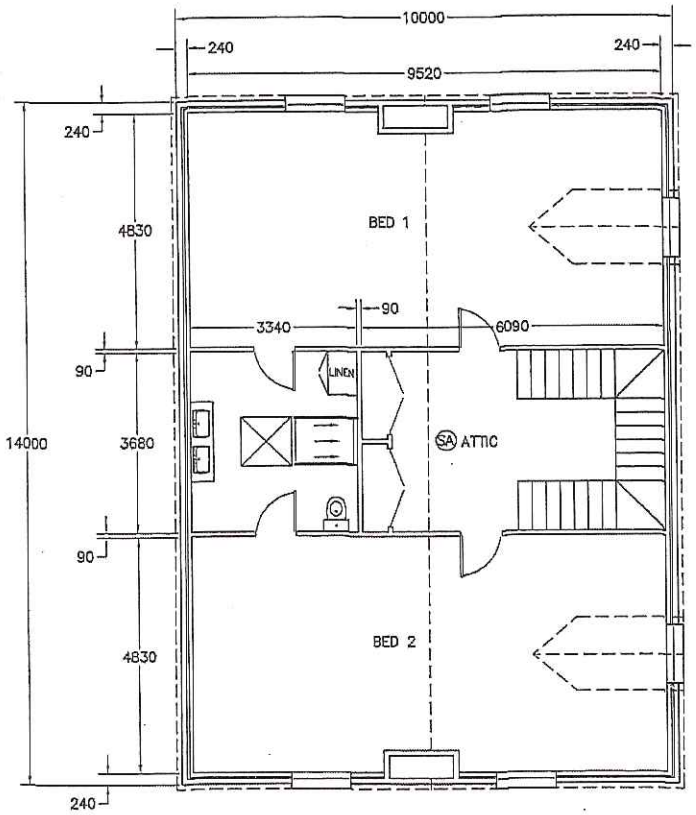
DESIGNED: M. v. d. M.
DRAWN: M. v. d. M.

APPROVED.
DATE: 19 / 07 / 18

SCALE: 1:100. A3.

DRAWING No.: W000718 – 3/8

2-209



PROPOSED UPPER FLOOR PLAN

PROPOSED UPPER FLOOR AREA = 140.0sq/m

EXHIBITED

MV CONSULTING (TAS) PTY LTD
ACCREDITATION CC565H
116 ALANVALE RD
NEWNHAM 7248
PH 6326 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

PROJECT: PROPOSED DWELLING FOR
P. WOOF
AT 35 COLLINS STREET
EVENDALE 7212

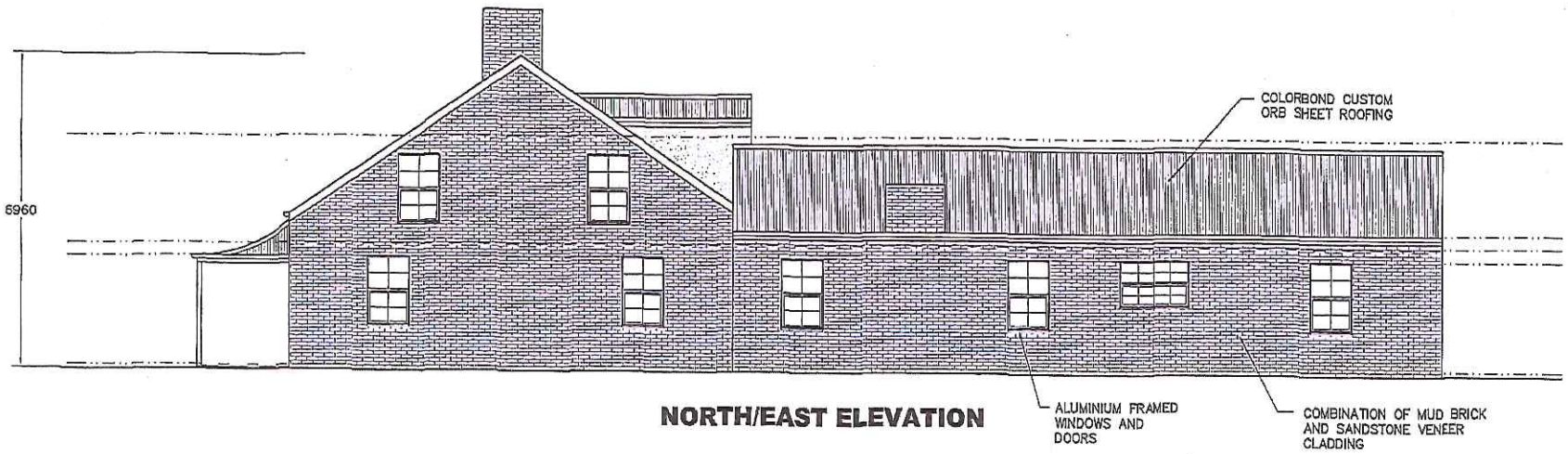
DRAWING: DWELLING UPPER FLOOR PLAN

REVISION NUMBER	DATE
REVISION – 1	18 / 07 / 2018
REVISION – 2	19 / 07 / 2018

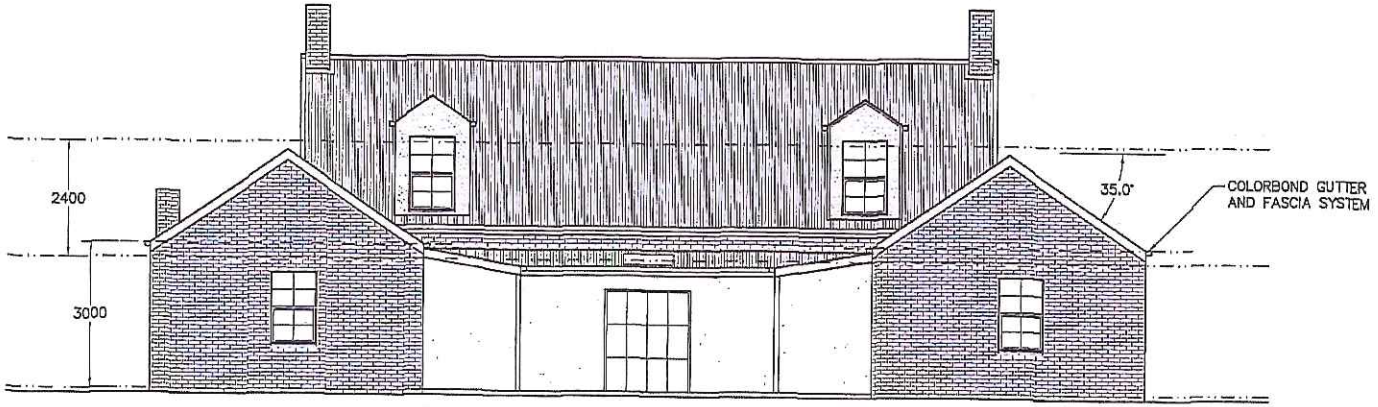
DESIGNED: M. v. d. M.
DRAWN: M. v. d. M.
APPROVED.
DATE: 19 / 07 / 18

SCALE: 1:100. A3.
DRAWING No.: W000718 – 4/8

2-210



NORTH/EAST ELEVATION



NORTH/WEST ELEVATION

EXHIBITED

MV CONSULTING (TAS) PTY LTD
ACCREDITATION CC565H
116 ALANVALE RD
NEWNHAM 7248
PH 6326 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

PROJECT: PROPOSED DWELLING FOR
P. WOOF
AT 35 COLLINS STREET
EVENDALE 7212

DRAWING: DWELLING ELEVATIONS

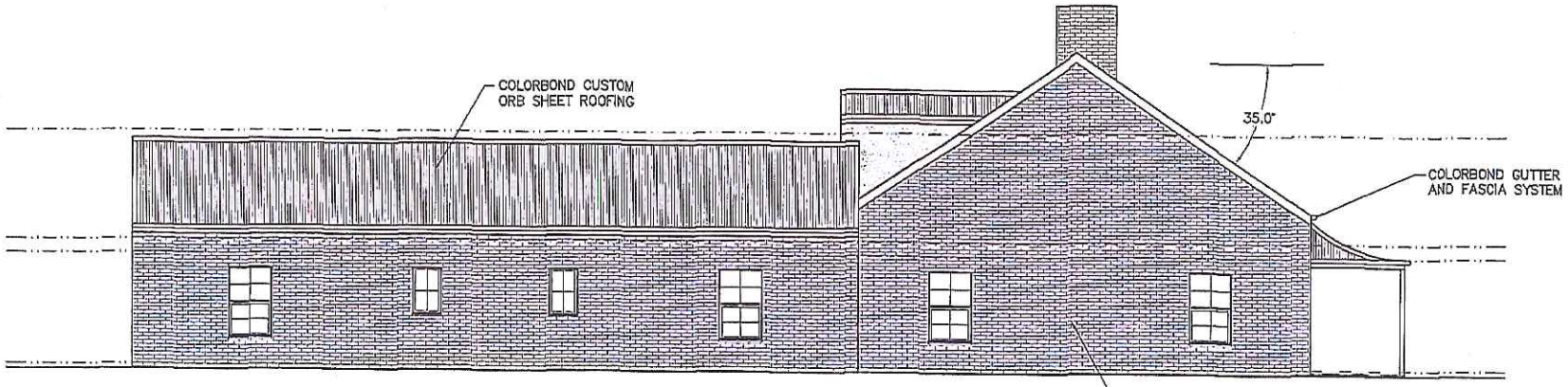
DESIGNED: M. v. d. M.
DRAWN: M. v. d. M.

APPROVED.
DATE: 19 / 07 / 18

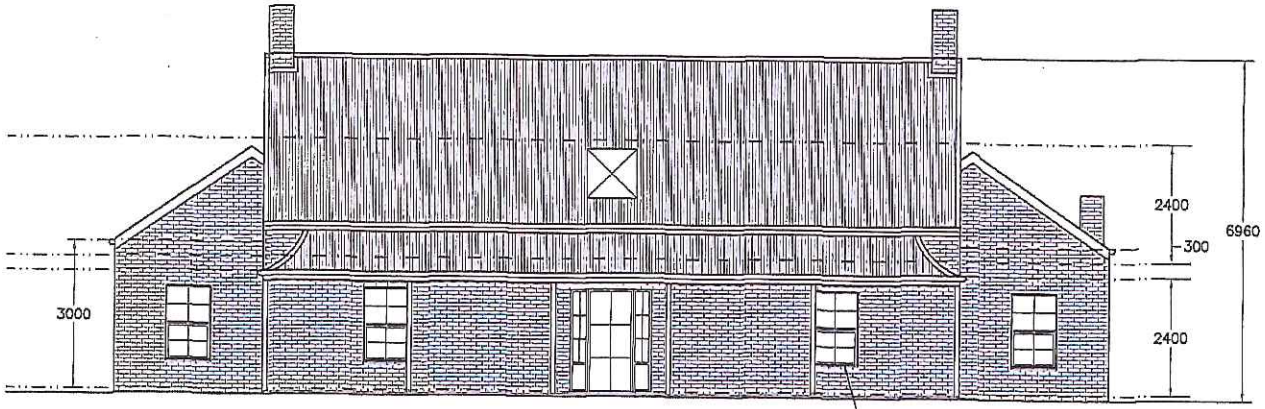
SCALE: 1:100. A3.

DRAWING No.: W000718 – 5/8

REVISION NUMBER	DATE
REVISION – 1	18 / 07 / 2018
REVISION – 2	19 / 07 / 2018



SOUTH/WEST ELEVATION



SOUTH/EAST ELEVATION

EXHIBITED

MV CONSULTING (TAS) PTY LTD
ACCREDITATION CC565H
116 ALANVALE RD
NEWNHAM 7248
PH 6325 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

PROJECT: PROPOSED DWELLING FOR
P. WOOF
AT 35 COLLINS STREET
EVENDALE 7212

DRAWING: DWELLING ELEVATIONS

DESIGNED: M. v. d. M.
DRAWN: M. v. d. M.

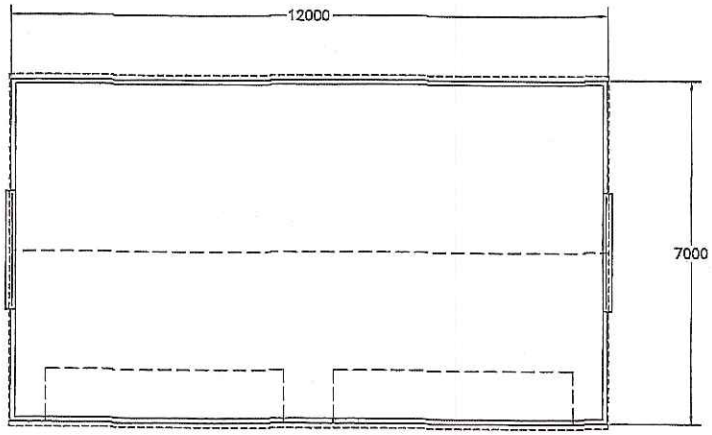
APPROVED.
DATE: 19 / 07 / 18

SCALE: 1:100.
A3.

DRAWING No.:
W000718 – 6/8

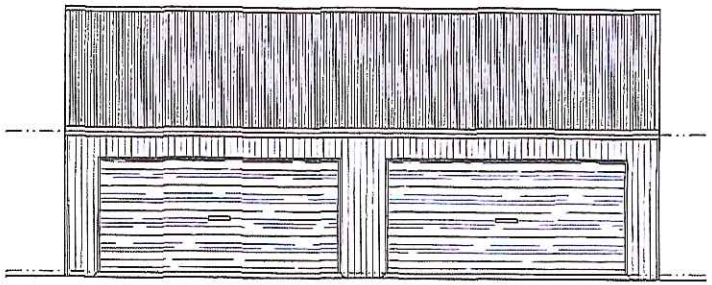
REVISION NUMBER	DATE
REVISION – 1	18 / 07 / 2018
REVISION – 2	19 / 07 / 2018

2-212

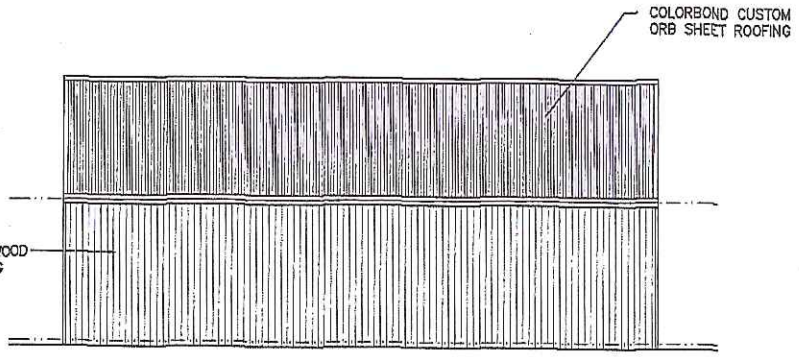


PROPOSED GARAGE FLOOR PLAN

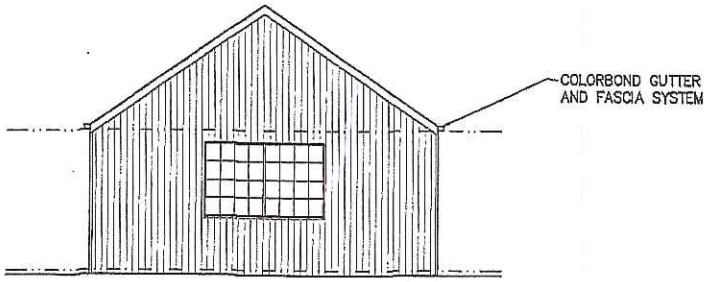
PROPOSED GARAGE FLOOR AREA = 84.0sq/m



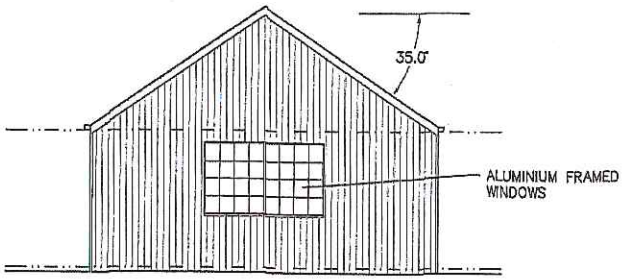
SOUTH/EAST ELEVATION



NORTH/WEST ELEVATION



SOUTH/WEST ELEVATION



NORTH/EAST ELEVATION

EXHIBITED

REVISION NUMBER	DATE
REVISION – 1	18 / 07 / 2018
REVISION – 2	19 / 07 / 2018

MV CONSULTING (TAS) PTY LTD
ACCREDITATION CC565H
116 ALANVALE RD
NEWNHAM 7248
PH 6326 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

PROJECT: PROPOSED DWELLING FOR P. WOOF AT 35 COLLINS STREET EVENDALE 7212

DRAWING: GARAGE FLOOR PLAN AND ELEVATIONS

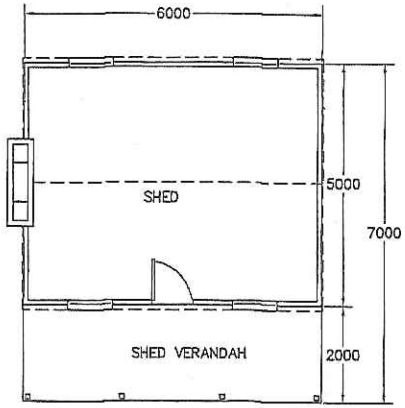
DESIGNED: M. v. d. M.
DRAWN: M. v. d. M.

APPROVED.
DATE: 19 / 07 / 18

SCALE: 1:100. A3.

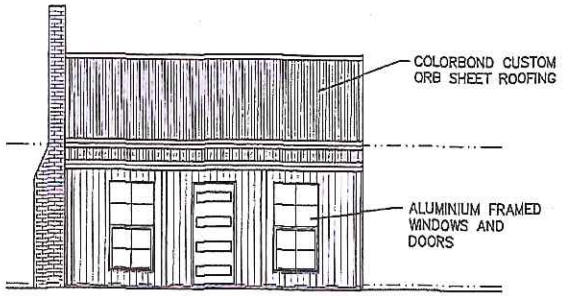
DRAWING No.: W000718. – 7/8

2-213

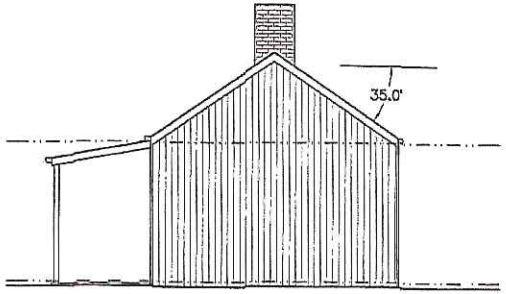


PROPOSED SHED FLOOR PLAN

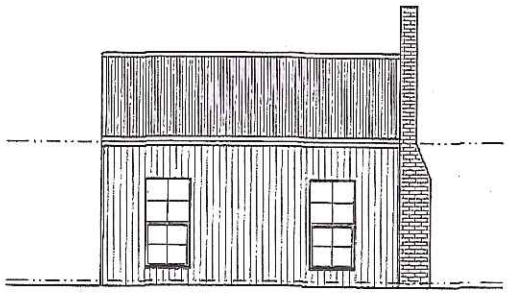
PROPOSED SHED FLOOR AREA = 30.0sq/m
PROPOSED SHED VERANDAH FLOOR AREA = 12.0sq/m



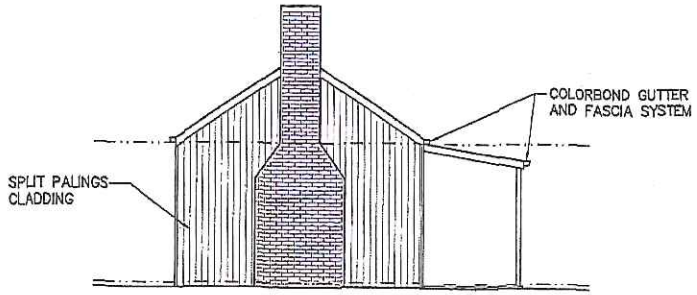
NORTH/WEST ELEVATION



SOUTH/WEST ELEVATION



SOUTH/EAST ELEVATION



NORTH/EAST ELEVATION

EXHIBITED

MV CONSULTING (TAS) PTY LTD
ACCREDITATION CC565H
116 ALANVALE RD
NEWNHAM 7248
PH 6326 6276
EMAIL : MVCONSULTINGTAS@GMAIL.COM

PROJECT: PROPOSED DWELLING FOR
P. WOOF
AT 35 COLLINS STREET
EVENDALE 7212

DRAWING: SHED FLOOR PLAN AND ELEVATIONS

REVISION NUMBER	DATE
REVISION – 1	18 / 07 / 2018
REVISION – 2	19 / 07 / 2018

DESIGNED: M. v. d. M.
DRAWN: M. v. d. M.
APPROVED.
DATE: 19 / 07 / 18

SCALE: 1:100. A3.
DRAWING No.: W000718 – 8/8

Tarkarri Engineering

Air Quality • Acoustics • Environment • Vibration

19 July 2018

Peter Woof
6 Russell Street
Evandale TAS 7212

5026a_AC_R
AJM

Attn: Mr Peter Woof

Dear Sir,

Please find below a summary of the odour emission modelling of the Evandale sewerage treatment plant conducted by Tarkarri Engineering.

Tarkarri Engineering has conducted odour emission modelling of the Evandale sewerage treatment plant with regard to parcels of land at 35 Collins St and 18 Logan Rd, Evandale, which fall within a 350 m attenuation zone under the Northern Midland Council Interim Planning Scheme 2013 surrounding the plant.

Odour emission modelling was conducted utilising the CALPUFF dispersion model with input meteorological data from TAPM via the CALMET meteorological model. Assessment is against the Tasmanian *Environmental Protection Policy(Air Quality) 2004* criterion of 2 OU, 100 percentile, 1-hour average .

Model scenarios were developed from information provided by TasWater regarding the operation of the plant with odour emission rates sourced from 'McDonald, A. Cesca, J. Witherspoon, J. MacKenzie, R. Barbu, E. (2008) "*Development of a Wasterwater Treatment Plant Odour Emissions Database and its Application for Process Improvements*" In Odour and VOCs: Measurement Regulation and Control. Kassel Publishing 2009'. This document provides both minimum and maximum odour emission rates from the Sydney Water database for 'a well operating plant'. Odour emission rates for 'Equalisation Basins and Catch Ponds' and 'Sludge Lagoons and Basins' were utlised.

Scenarios for normal operations with constant and seasonally varying emissions showed predicted odour levels within the land parcels well below the criterion level. Maintenance conditions, in the form of desludging of the lagoons, was modelled with results predicting odour emission levels well below the criterion under minimum emission rates. However, under maximum emission rates the criterion was exceeded within the land parcels.

While the results under maximum emission rates show an exceedance of the criterion within the land parcels during desludging, such activity at the plant is likely to be infrequent the potential for environmental harm is considered low.

e info@tarkarri.com
w tarkarri.com
p +61 (0) 3 6343 2077

Tarkarri Engineering Pty Ltd
ABN 98 009 561 488
PO Box 506 Kings Meadows
Tasmania 7249 Australia

I hope this information meets your immediate requirements.

Please contact me directly if you have any questions concerning this work.

Yours faithfully,
Tarkarri Engineering Pty Ltd

Dr. Alex M°Leod
Principal Consultant

m. +61(0)439 357 297
email: alex.mcleod@tarkarri.com

Peter Woof

Evandale sewerage treatment plant odour emissions modelling

Report No. 5026_AQ_R

TARKARRI ENGINEERING PTY LTD
PO Box 506
Kings Meadows TAS 7249

April 2018

Tarkarri Engineering

Air Quality • Acoustics • Environment • Vibration

DOCUMENT CONTROL

EVANDALE SEWERAGE TREATMENT PLANT ODOUR EMISSIONS MODELLING

Report No.
5026_AC_R
Prepared for
Peter Woof

Library Code
AQ
Prepared by
Tarkarri Engineering Pty Ltd
PO Box 506
Kings Meadows
Tasmania 7249

Contact Mr Peter Woof
☎ +61 3
Mobile +61(0)418 134 511
Email peterhwoof@bigpond.com

Contact Dr Alex McLeod
☎ +61 3 6343 2077
Mobile +61(0)439 357 297
Email alex.mcleod@tarkarri.com

Author	Alex McLeod Director / Principal Consultant	Date: 16 April 2018

Revision History

Revision No.	Date Issued	Reason/Comments
1	18/4/18	Location information

Distribution

Copy No._____	Revision No.	Location
1	1	Project/Client File
2	1	Client
3	1	Tarkarri Engineering Library

Keywords OU, dispersion, maintenance, 100 percentile 1-hour average.

Executive Summary

Tarkarri Engineering was commissioned by the Peter Woof to conduct odour emission modelling of the Evandale STP with regard to parcels of land at 35 Collins St and 18 Logan Rd, Evandale, which fall within a 350 m attenuation zone under the Northern Midland Council Interim Planning Scheme 2013 surrounding the STP.

Scenarios for normal operations with constant and seasonally varying emissions showed predicted odour levels within the land parcels well below the criterion level. Maintenance conditions, in the form of desludging of the lagoons, was modelled with results predicting odour emission levels in the parcels well below the EPP criterion under minimum emission rates. However, under maximum emission rates the criterion was exceeded.

Tarkarri Engineering consider the maintenance scenario modelling conducted here to be very conservative, particularly under the maximum emission rates. While the results under maximum emission rates show an exceedance of the EPP criterion, such an occurrence is a low probability and the potential for environmental harm is therefore low.

Under normal operating conditions the modelling results indicate that environmental harm within the land parcels from odour emissions from the Evandale STP is unlikely.

Table of Contents

List of figures

List of tables

References

[1] Department of Primary Industries, Water and Environment *(2005) ENVIRONMENT PROTECTION POLICY (AIR QUALITY) 2004*

[2] McDonald, A. Cesca, J. Witherspoon, J. MacKenzie, R. Barbu, E. (2008) "*Development of a Wasterwater Treatment Plant Odour Emissions Database and its Application for Process Improvements*" In Odour and VOCs: Measurement Regulation and Control. Kassel Publishing 2009.

1 Introduction

Tarkarri Engineering was commissioned by Peter Woof to conduct modelling of potential odour emissions from the Evandale Sewage Treatment Plant (STP). The modelling is in relation to parcels of land on properties at 35 Collins St and 18 Logan Rd, Evandale, which fall within a 350 m attenuation zone under the Northern Midland Council Interim Planning Scheme 2013 that surrounds the Evandale STP.

The Northern Midlands Council have stated that '...any application to develop the land at would have to demonstrate by means of a site-specific study by a suitably qualified person (e.g. environmental scientist) that there will not be an environmental nuisance or environmental harm, having regard to the:

a) degree of encroachment; and

b) nature of the emitting operation being protected by the attenuation area; and

c) degree of hazard or pollution that may emanate from the emitting operation; and

d) the measures within the proposal to mitigate impacts of the emitting activity to the sensitive use.

Tarkarri Engineering proposed the following approach to address the above:-

- Development of an odour emissions model of the Evandale STP.
- In addition to the modelling of standard operating conditions the consideration of odour impacts due to upset and maintenance scenarios.
- Predicted ground level concentration (glc) contours and levels at specific discrete receptors.
- Assessment against criteria outlined in the Tasmanian *Environmental Protection Policy (Air Quality) 2004* and development of mitigation recommendations, if applicable.

2 Site description

The two parcels of land under consideration are located approx. 220 and 270 m to the north of the Evandale STP. The land at 35 Collins St is divided into two titles with the land under consideration the eastern most title (title ref 141412/1) with only the northern half of the title considered. The land at 18 Logan Rd is currently part of a car parking area for the Evandale Market with a parcel at the northern end considered here.

The STP is located in open pasture to the south of the township of Evandale. The surrounding topography is relatively flat with gentle undulating pasture and crop land to the west, east and south.

Figure 2-1 presents an aerial view of the Evandale STP with the STP boundary (red) and land parcels under consideration (yellow) marked.

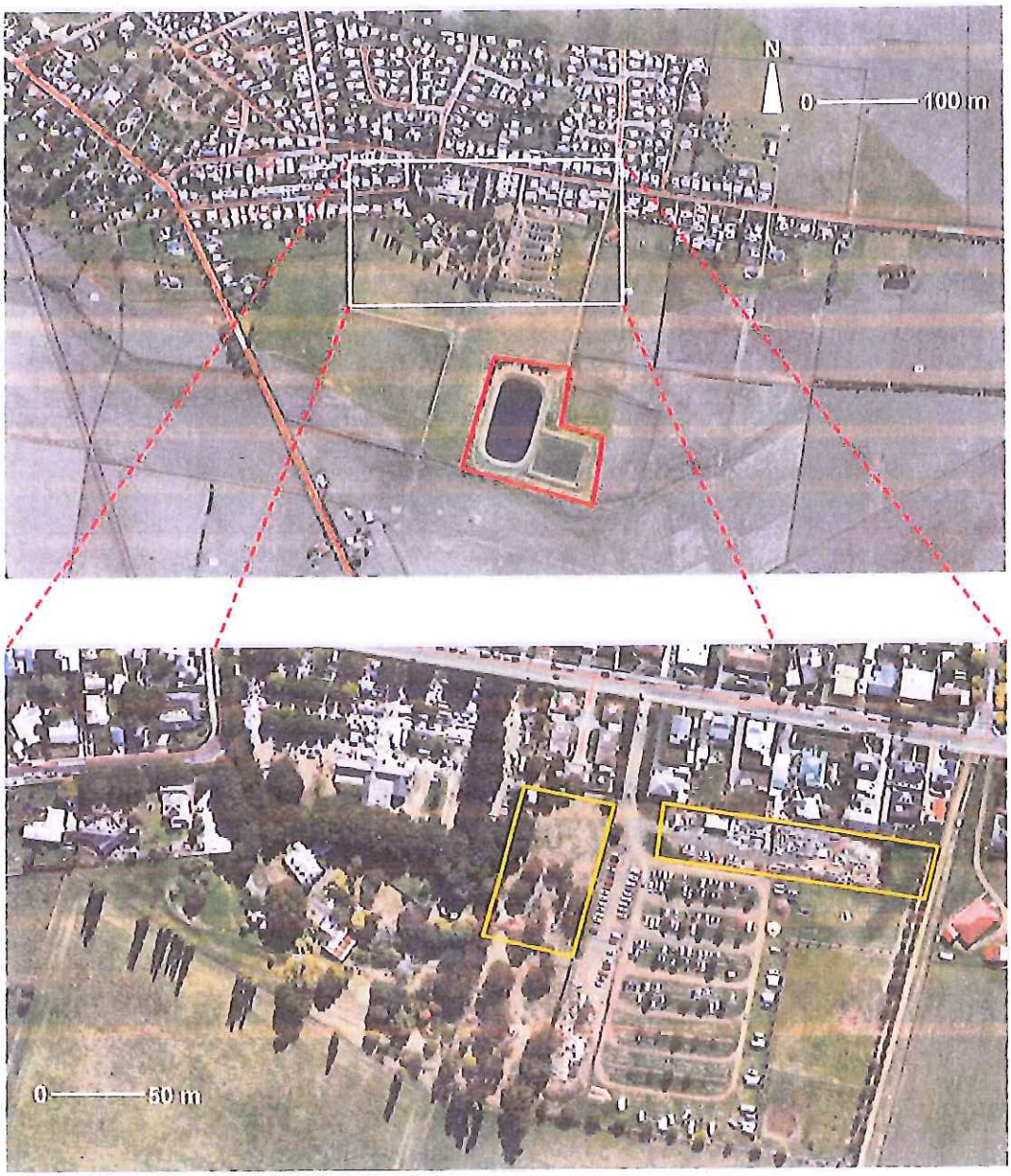


Figure 2-1: Aerial view of the Evandale STP with the location of the STP boundary (red) and land parcels being considered (yellow) marked.

2.1 Terrain

Figure 2-2 below provides an aerial view of the terrain surrounding the Evandale STP projected onto aerial photographic coverage. The terrain overlay is from the CALMET model (see section 5.2. for details) and was processed from the SRTM-1 digital elevation model (30 m resolution) data produced by NASA. Figure 2-3 provides a 3-dimenstional aerial view of the terrain overlay to assist in visualisation of the topography surrounding the plant.

These two figures show that the topography surrounding the STP is relatively flat with the closest significant topography to the north-east approx. 8 km away. The Central Plateau rises to the south-east of the site at a distance of approx. 35 km, however this is not shown on the extent provided here.

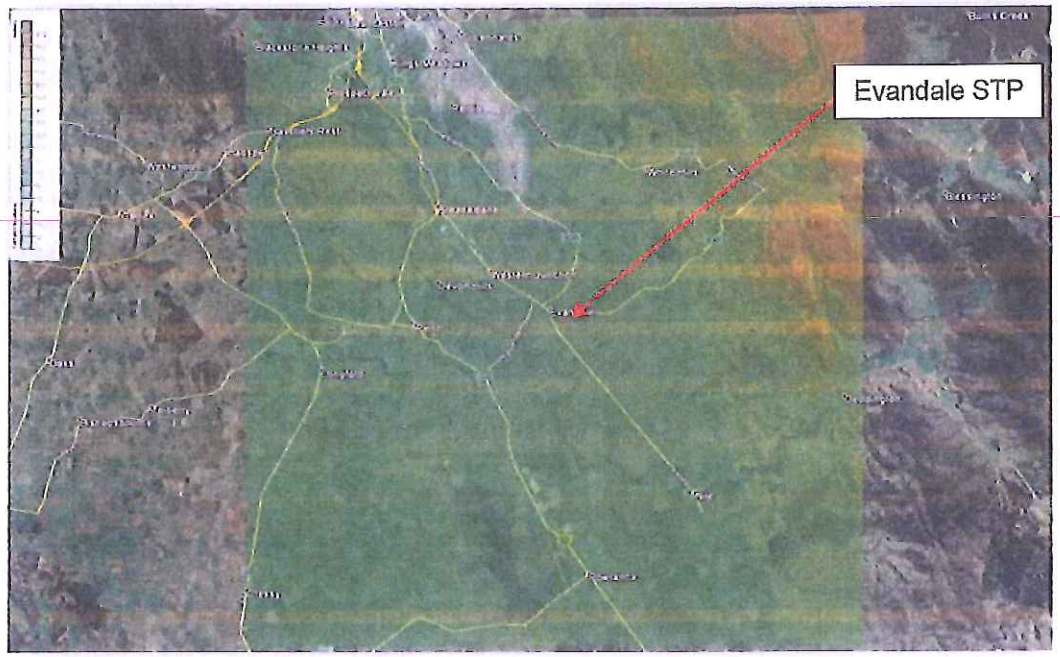


Figure 2-2: Aerial view of Evandale STP surrounds with terrain overlay.

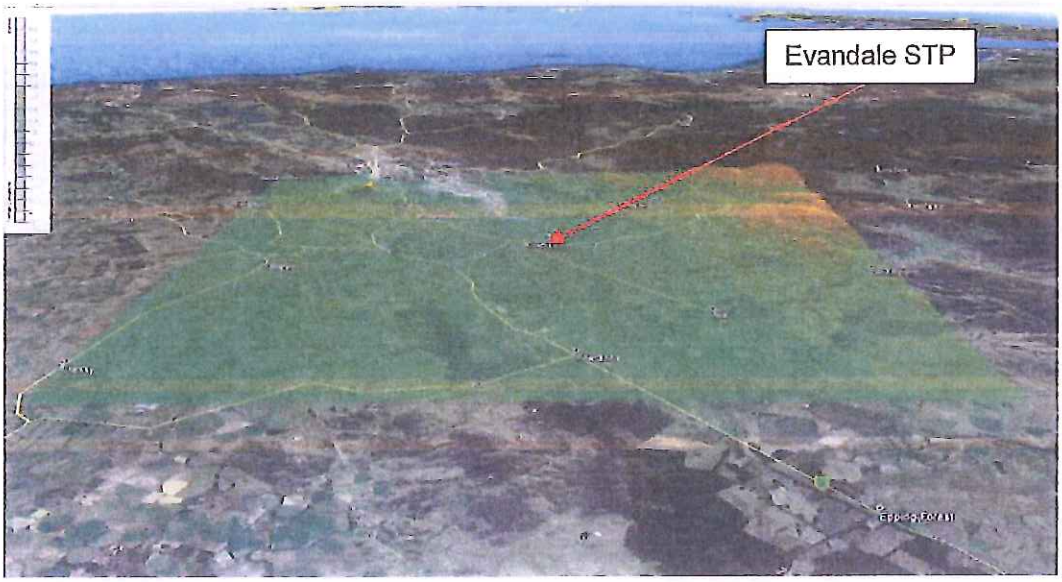


Figure 2-3: 3D view aerial view of Evandale STP surrounds with terrain overlay.

3 Evandale STP

The Evandale STP is a secondary treatment lagoon system. The plant is comprised of two treatment lagoons with a total capacity of 20.5 ML. There is Primary Lagoon 1 (the larger of the two lagoons) which is divided with a baffle (although this is in very poor condition) and Primary Lagoon 2. Treated effluent from the secondary lagoon is pumped to a reuse dam on a nearby property (the reuse dam is not considered here). The processing period for incoming effluent is approx. 105 days.

Based on information provided by TasWater there have been no odour complaints relating to the STP in the last 3 years. Also, records from the Northern Midlands Council show no received odour complaints dating back to 2007, however, a report completed in 2009 just prior to handover to the regional water corporations flagged some complaints had occurred that appeared to relate to the presence of algal blooms on the treatment lagoons.

TasWater currently plan to conduct desludging works at the Evandale STP in 2020/21. Given the natural process employed at the STP and limited trade waste input TasWater consider there to be little risk of process upset or disablement of natural lagoon processes.

Figure 3-1 provides a process flow diagram of the Evandale STP.

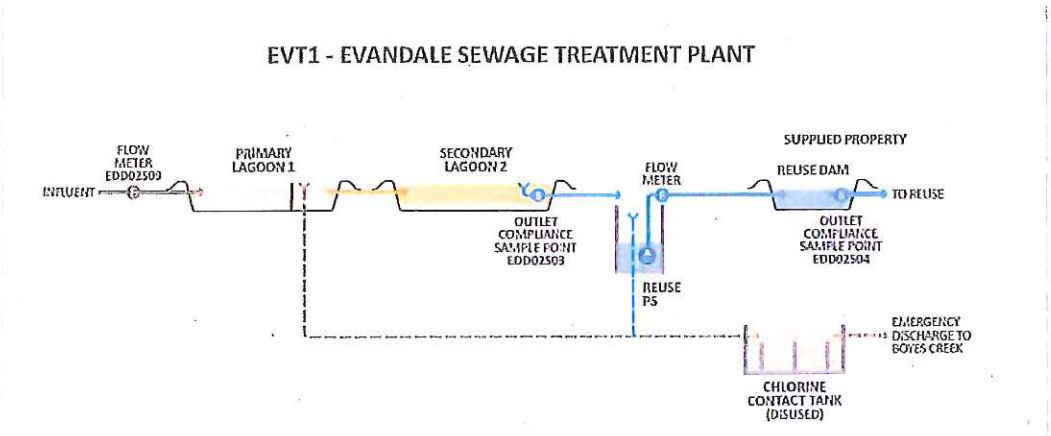


Figure 3-1: Evandale STP process flow diagram, provided by TasWater.

4 Criteria

Under schedule three of theTasmanian *Environmental Protection Policy (Air Quality) 2004*(EPP)[1] odour criteria are stipulated and are presented below. The relevant criteria to this study are highlighted in red.

Table 1 – Odour criteria

Column 1	Column 2	Column 3	Column 4
	Criterion	Averaging Period	Percentile
Known pollutant(s)	See Schedule 2	See Schedule 2	99.9[a]
Unknown mixture	2 odour units[1,a]	1 hour	99.5[b]

1 "Odour unit" has the same meaning as in Australian Standard AS/NZS 4323.3 *Stationary source emissions – Determination of odour concentration by dynamic olfactometry.*

a Modelled 99.9 percentile concentration at or beyond the boundary of a facility (whichever is higher) in cases where local high-quality meteorological and emissions data are available. In cases where such data are not available, the 100 percentile concentration modelled at or beyond the boundary of a facility applies.

b Modelled 99.5 percentile concentration at or beyond the boundary of a facility (whichever is higher) in cases where local high-quality meteorological and emissions data are available. In cases where such data are not available, the 100 percentile concentration modelled at or beyond the boundary of a facility applies.

This modelling study is assessing on the basis of an unknown mixture and therefore emission in odour units (OU) is considered.

5 Methodology

CALPUFF was utlised here for the modelling of odour emission from the Evandale STP. This is a non-steady-state Lagrangian Gaussian puff model. CALPUFF employs the three-dimensional meteorological fields generated from the CALMET model by simulating the effects of time and space varying meteorological conditions on pollutant transport, transformation and removal. Emission sources can be characterised as arbitrarily-varying point, area, volume and lines or any combination of the three within the modelling domain

5.1 TAPM

To generate the broad scale meteorological inputs to run CALPUFF, this study has used the model The Air Pollution Model (TAPM) a 3-dimensional prognostic model developed by CSIRO. The output from TAPM is used to generate the appropriate meteorological data for the CALPUFF modelling system. TAPM was configured as follows:-

- Centre coordinates – 41˚ 34.500 S, 147˚ 15.500 E;
- Dates modelled – 1st January 2011 to 31st December 2011;
- Four nested grid domains of 30 km, 10 km, 3 km and 1 km;
- 30 x 30 grid points for all modelling domains;
- 30 vertical levels from 10 m to an altitude of 8000 m above sea level; and
- The default TAPM databases for terrain, land use and meteorology were used in the model.

5.2 CALMET

CALMET is an advanced non-steady-state diagnostic three-dimensional meteorological model with micrometeorological modules for overwater and overland boundary layers. The model is the meteorological preprocessor for the CALPUFF modelling system.

The CALMET simulation was run as No-Obs simulation with the gridded TAPM three-dimensional wind field data from the innermost grid. A meteorological grid domain of 28 km by 28 km was used with a grid spacing of 300 m (study area). The radius of influence of terrain

features was set at 25 km. SRTM-1 digital elevation model (30 m resolution) data produced by NASA was used to process the terrain for the met grid domain (see figures 2-2 and 2-3 for details) and land use was generated from generic land use codes. Remaining CALMET parameters were left at their default recommended values.

Figure 5-1 provides an aerial view of the study area with an overlay of the land use categories assigned in CALMET.

Figure 5-1: Aerial view of study area with land use overlay.

5.3 CALPUFF

Default CALPUFF settings were utilised. A 2 km x 2 km sampling grid domain surrounding the Evandale STP with a nesting factor of 8 within the CLAMET grid was utilised for the calculation of emission contours.

6 Meteorology

NB: Please note the use of letter designations for wind directions in the following subsections.

The nearest representative Bureau of Meteorology (BoM) weather station is located at the Launceston Airport (station number 091104), approx. 6 km NW of the Evandale STP.

Figure 6-1 provides an aerial view showing the approx. location of the BoM weather station and the Evandale STP.

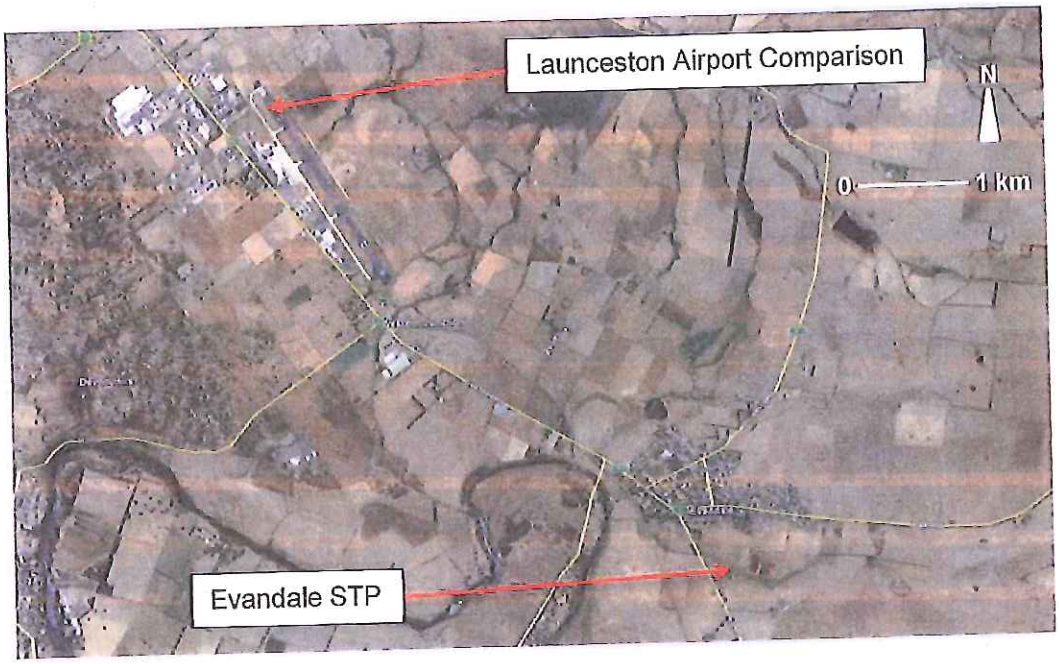


Figure 6-1: Aerial view showing the location of the nearest BoM weather station and the Evandale STP.

Long term weather data was obtained from the Launceston Airport Comparison (1931 – 2009) BoM weather station with the data presented in Tables 6-1. The mean temperature range is between 2 and 23 °C with the coldest month being July and the hottest being January. The rainfall in the region is relatively evenly distributed through the year, with the highest rainfall in late winter/ early spring and the lowest in late summer/early autumn. The mean annual rainfall is approx. 678 mm.

Climate stats - LAUNCESTON AIRPORT COMPARISON: 091104									
Month	Mean temp (°C)		Rainfall (mm)	9 a.m. conditions			3 p.m. conditions		
	Max.	Min.		Temp (°C)	RH (%)	Wind speed (km/h)	Temp (°C)	RH (%)	Wind speed (km/h)
Jan	23.2	10.2	44.0	16.0	66	14.1	21.8	44	22.1
Feb	23.2	10.3	38.7	15.5	70	12.8	21.9	45	20.7
Mar	21.1	8.9	38.1	13.8	74	11.4	19.8	49	19.6
Apr	17.4	6.6	54.5	11.3	80	11.5	16.3	57	18.2
May	14.0	4.6	60.0	8.3	87	10.3	13.1	66	16.2
Jun	11.4	2.8	61.5	5.8	89	10.3	10.6	72	15.1
Jul	10.9	2.3	76.7	5.3	90	10.4	10.1	71	16.4
Aug	12.0	3.0	78.3	6.6	86	12.0	11.1	66	18.9
Sep	14.0	4.2	64.1	9.0	79	15.4	12.9	61	21.8
Oct	16.4	5.5	60.2	11.1	73	15.8	15.1	56	22.3
Nov	18.8	7.1	50.1	13.0	69	15.7	17.5	52	22.7
Dec	21.2	8.7	50.7	14.9	66	15.0	19.9	48	23.0
Annual	17.0	6.2	677.7	10.9	77	12.9	15.8	57	19.8

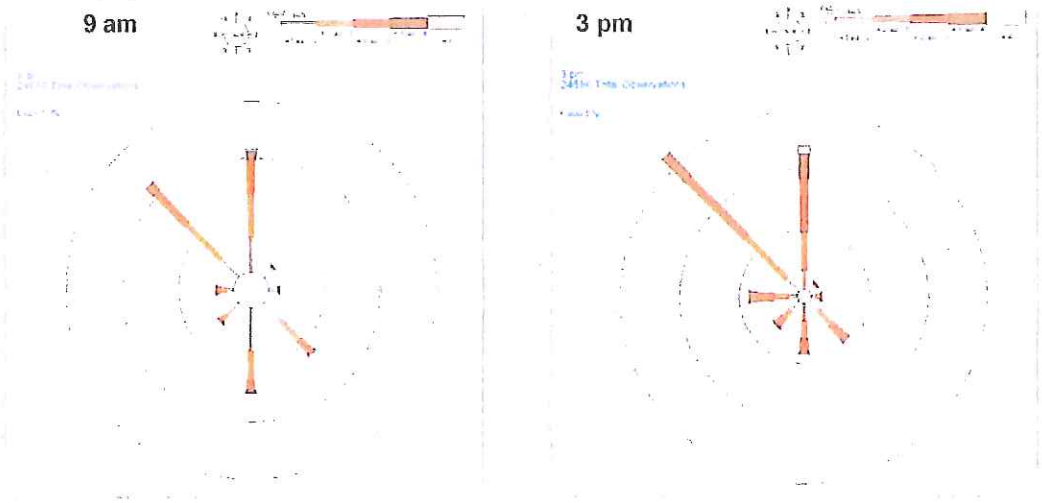
Table 6-1: Long term climate statistics, BoM weather station LAUNCESTON AIRPORT COMPARISON: 091104.

6.1 Wind rose comparison

Figure 6-2 presents average 9 am and 3 pm wind roses from the Launceston Airport Comparison location from BoM and from data extracted from CALMET at the same location.

It can be seen from the BoM wind roses that the dominant air flow is from the N and NW. The CALMET wind roses represent a strong NW wind flow but don't predict the same northerly wind pattern. S and SW winds at 9 am and W, SW, S and SE winds at 3 pm are well represented by the CALMET data. Clam winds conditions are under predicted by the CALMET data, particularly at 9 am.

BoM



CALMET

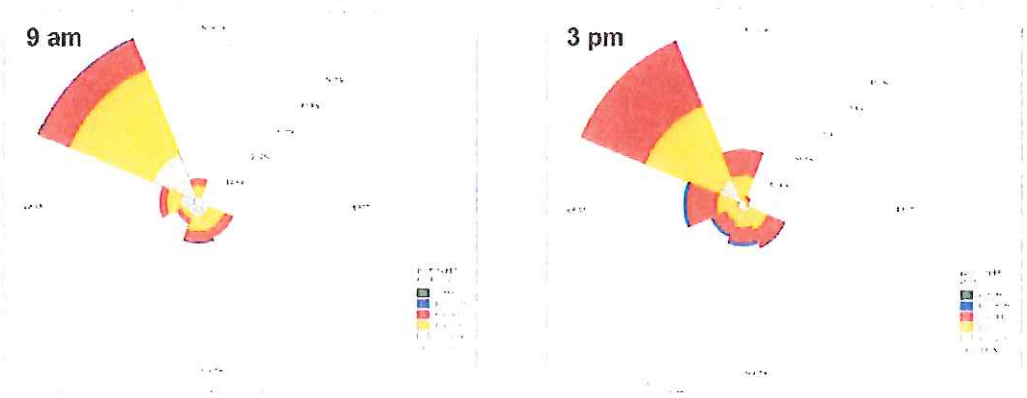


Figure 6-2: 9 am and 3 pm wind roses for Launceston Airport Comparison location from both the BoM and CALMET data.

6.2 CALMET meteorological outputs

6.2.1 Wind fields

Figure 6-3 presents an annual and seasonal CALMET wind roses from the Evandale STP site. A strong N and NW component is evident in these wind roses with a significant SE component in Summer and Autumn in particular. Notably, low wind speed conditions (≤ 2.1 m/s) are predominantly from the NW, N, NE, E and SE with very little from the S and SW. Calm conditions are predicted approx. 3.6 % of the time.

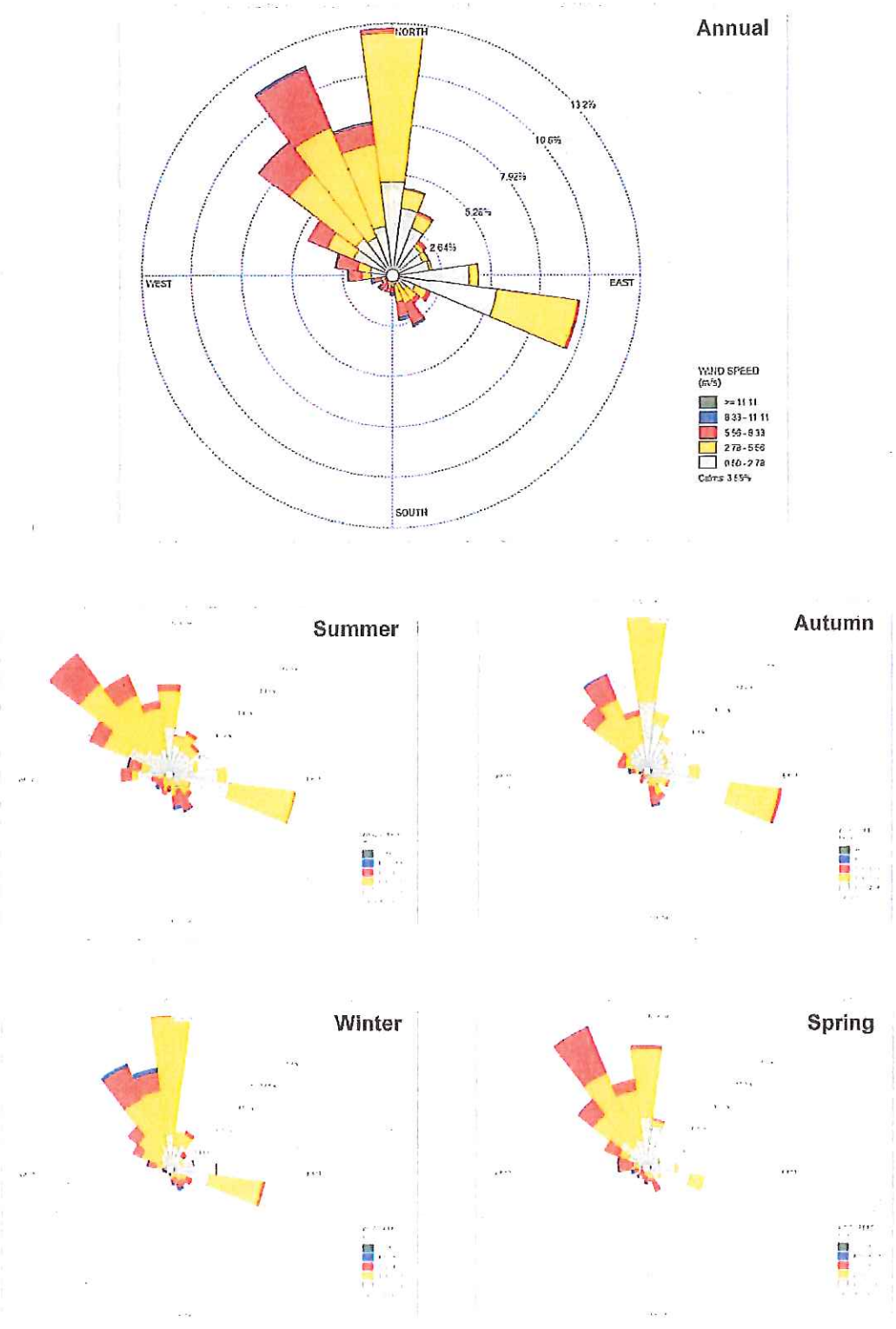


Figure 6-3: Annual and seasonal wind roses for the Evandale STP.

Figure 6-4 presents a view of the CALMET modelling domain with terrain elevation and the vector wind field for the first hour of the model run period shown. The wind vectors show the flow of air across the domain following the major topographic features. Conditions were stable (during the night period) with light winds and this shows the expected katabatic effect with general air movement downslope.

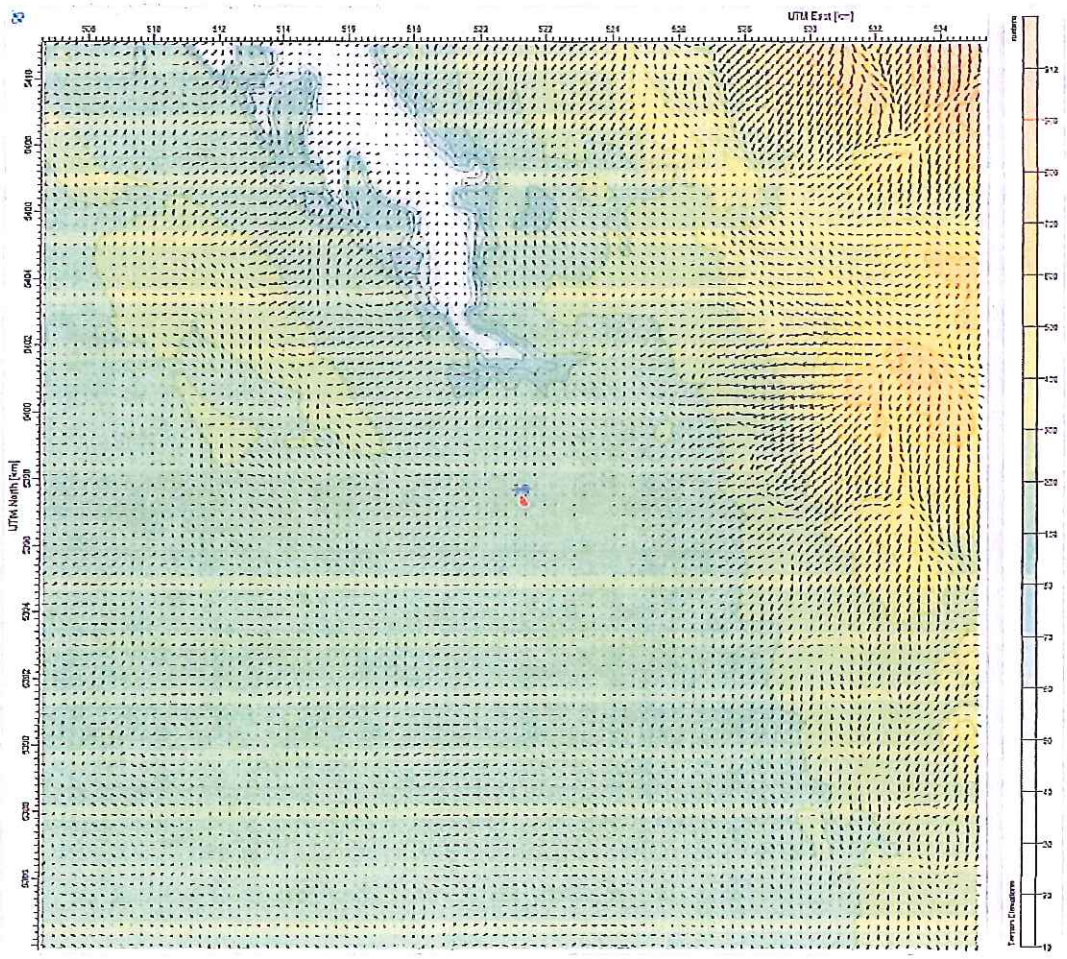


Figure 6-4: CALMET modelling domain with terrain elevations and vector wind fields for hour 1 of the model run period.

Figures 6-5 and 6-6 present CALMET diurnal variation in wind speed and direction respectively at the Evandale STP. At night wind speeds are typically lower and less variable with little to no winds from the S, SW and W. During the day winds from the east are uncommon.

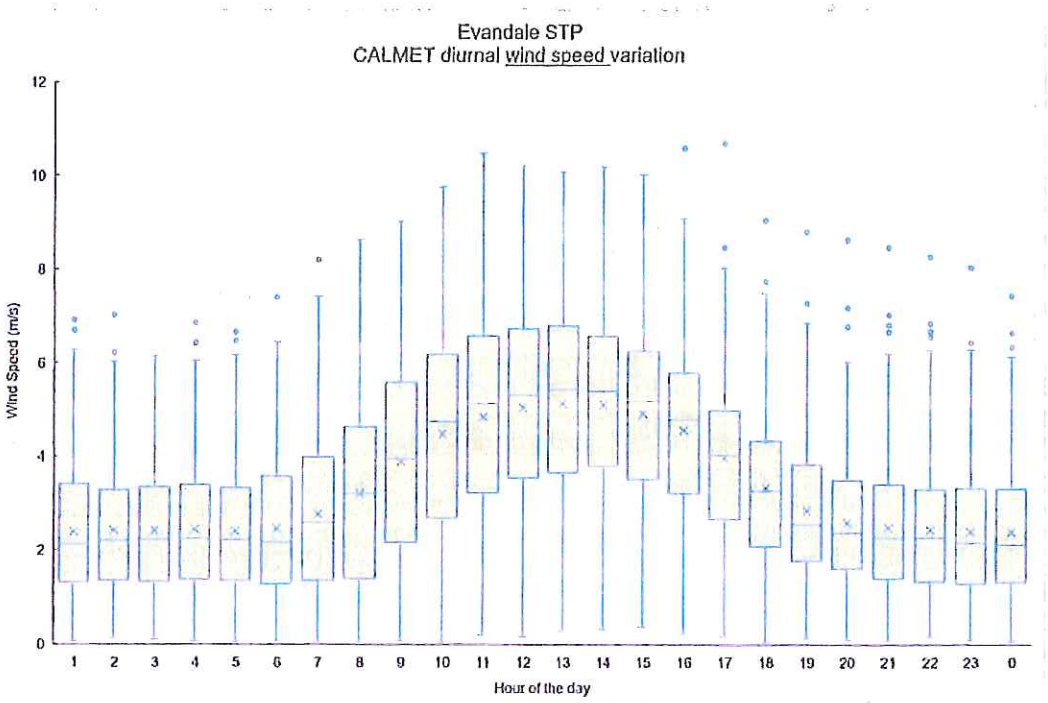


Figure 6-5: CALMET diurnal wind speed variation at the Evandale STP.

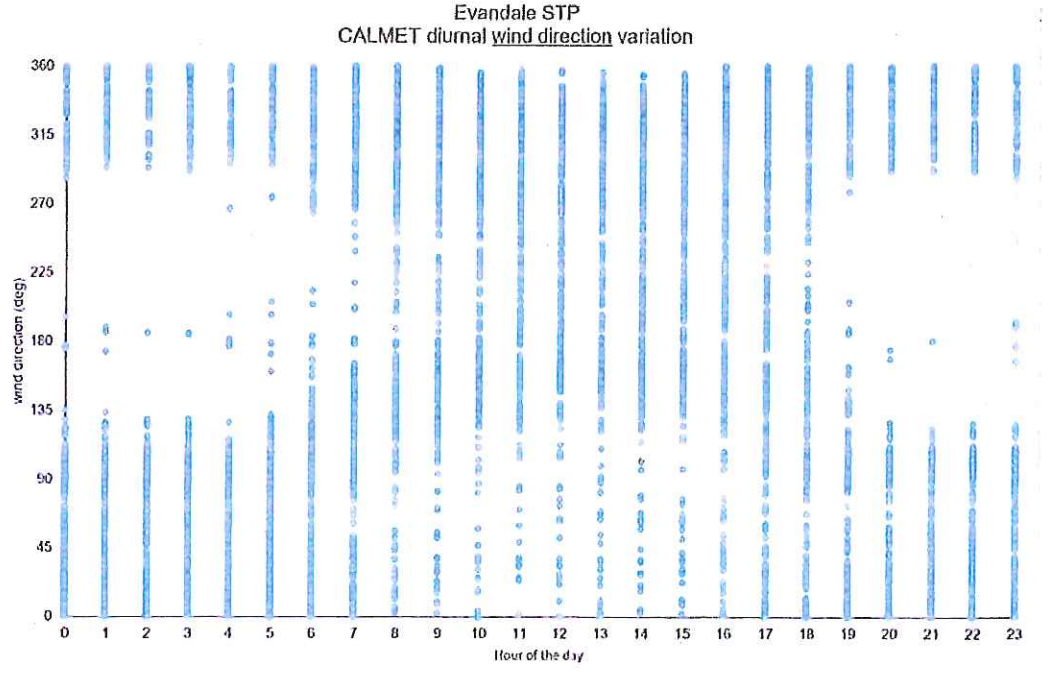


Figure 6-6: CALMET diurnal wind direction variation at the Evandale STP.

6.2.2 Mixing height

The mixing height determines the height above ground that a pollutant emitted will be mixed by turbulent air flow, i.e. lower mixing height, less potential dispersion. CALMET diurnal variation in mixing height at the Evandale STP is shown in figure 6-7.

An increase in the mixing height is observed during the morning due to the increase in solar radiation following sunrise. Maximum mixing heights occur in the mid to late afternoon and descends in the early evening (period of greatest variation due to seasonal differences). At night, the mean mixing height is approx. 175 m. The pattern described is expected given the inland location of the STP.

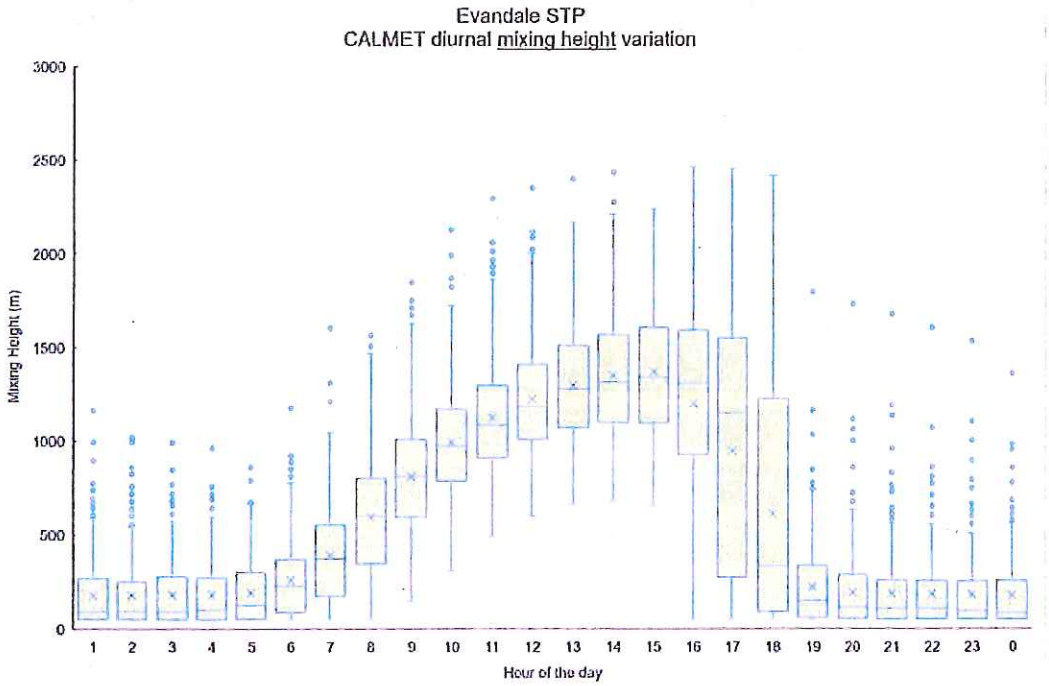


Figure 6-7: CALMET diurnal mixing height variation at the Evandale STP.

6.2.3 Atmospheric stability

Atmospheric stability refers to the tendency of the atmosphere to lesson or augment vertical motion. Pasquill Stability Classes (stability classes A to F) categorise the degree of atmospheric stability. These classes characterise prevailing meteorological conditions and are an input into the air dispersion model. Figure 6-8 presents CALMET diurnal variation in atmospheric stability at the Evandale STP. Table 6-2 provides the percent occurrence of each class across the modelled year along with a brief description of the class with regard to atmospheric stability.

The results in figure 6-8 show that relatively unstable conditions are normal during the day, whilst stable to neutral conditions typically occur at night (i.e. less dispersive conditions at night). The data from table 6-2 identifies that stability class D, representing neutral atmospheric conditions, as the most commonly occurring stability class throughout the year modelled.

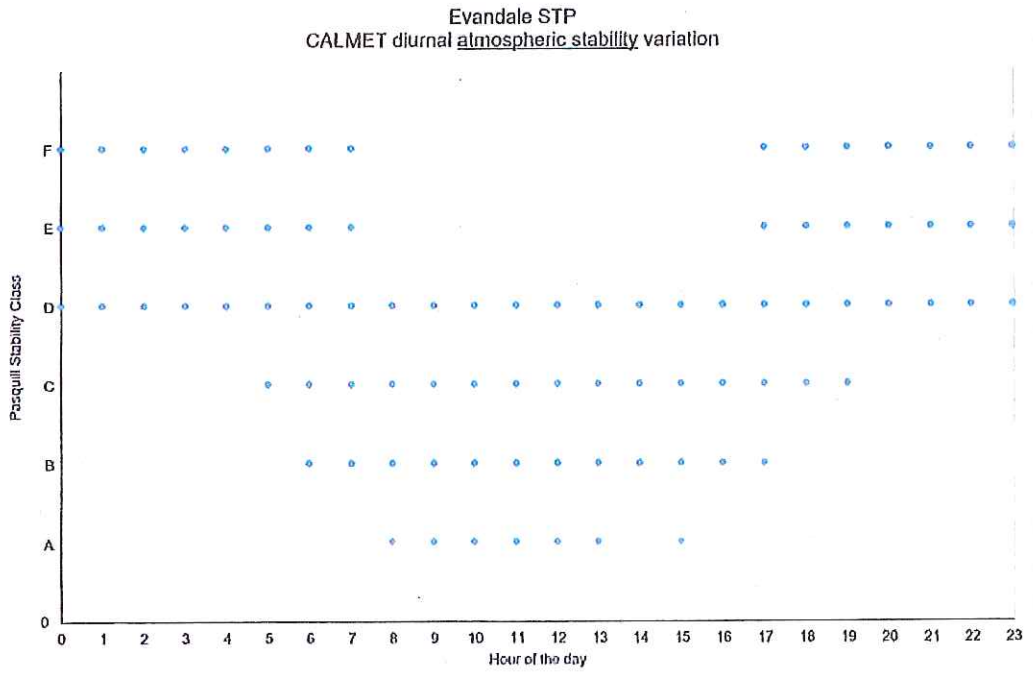


Figure 6-8: CALMET diurnal atmospheric stability variation at the Evandale STP.

Pasquill stability class annual occurrence		
Stability class	Description	Percent occurrence (%)
A	Very unstable low wind, clear skies, hot daytime conditions	1.1
B	Unstable clear skies, daytime conditions	7.8
C	Moderately unstable moderate wind, slightly overcast daytime conditions	17.3
D	Neutral high winds or cloudy days and nights	27.3
E	Stable moderate wind, slightly overcast night-time conditions	11.8
F	Very stable low winds, clear skies, cold night-time conditions	34.7

Table 6-2: CALMET annual percent occurrence of atmospheric stability classes at the Evandale STP.

7 Odour emission sources and discrete receptors

Table 7-1 presents the model input details of the Evandale STP odour emission sources modelled. The source emissions were derived from MacDonald *et al* (2008)[2] with both minimum and maximum emission rates for 'a well operating plant' used. Additional input data is also provided in the table. Table 7.2 provides discrete receptor locations utilised for the prediction of odour emission ground level concentrations (glc's). Figure 7-1 provides an aerial view of the Evandale STP with a marked-up model emission source overlay and discrete receptor locations.

Odour emission sources						
Emission source	Area (m^2)	Release height (m)	Initial sigma Z (m)	SOER ($OU.m^2/s$)		Process unit from MacDonald *et al* (2008).
				Min.	Max	
Primary Lagoon 1	12,161	0.5	1.0	0.053	0.109	Equalisation basin and catch pond
Primary Lagoon 2	6,128	0.5	1.0	0.053	0.109	Equalisation basin and catch pond

Table 7-1: Odour emission model input source information.

NB: In addition to modelling the above emission sources at a constant emission rate a seasonally varying model run was conducted with summer emission rates doubled and winter emission rates halved in accordance with seasonal atmospheric temperature variations.

Discrete receptor locations		
Receptor	UTM coordinate (zone 55)	
	Easting.	Northing
R1	521288	5397679
R2	521344	5397715
R3	521399	5397694
R4	521459	5397694

Table 7-2: Discrete receptor locations.

Figure 7-1: Aerial view of Evandale STP with a marked-up model emission source overlay and discrete receptor locations.

8 Odour emissions modelling results

Dispersion modelling of odour emissions from the Evadale STP has been undertaken to assess the predicted glc's of odour (in OU) within the parcels of land under consideration. Normal operations were modelled (emission source inputs as defined in table 5-4) with both constant and seasonally varying emission rates.

NB: Analysis of the wind field data from the CALMET model (see section 6) indicates the meteorological modelling doesn't accurately predict northerly wind patterns and under predicts calm wind conditions. Given this predicted 100 percentile 1-hour average glc's are presented here.

8.1 Emission contours

Presented below in figures 8-1 and 8-4 are 100 percentile 1-hour average glc odour contours for normal operations with both constant and seasonally varying emissions for the minimum and maximum emission rates.

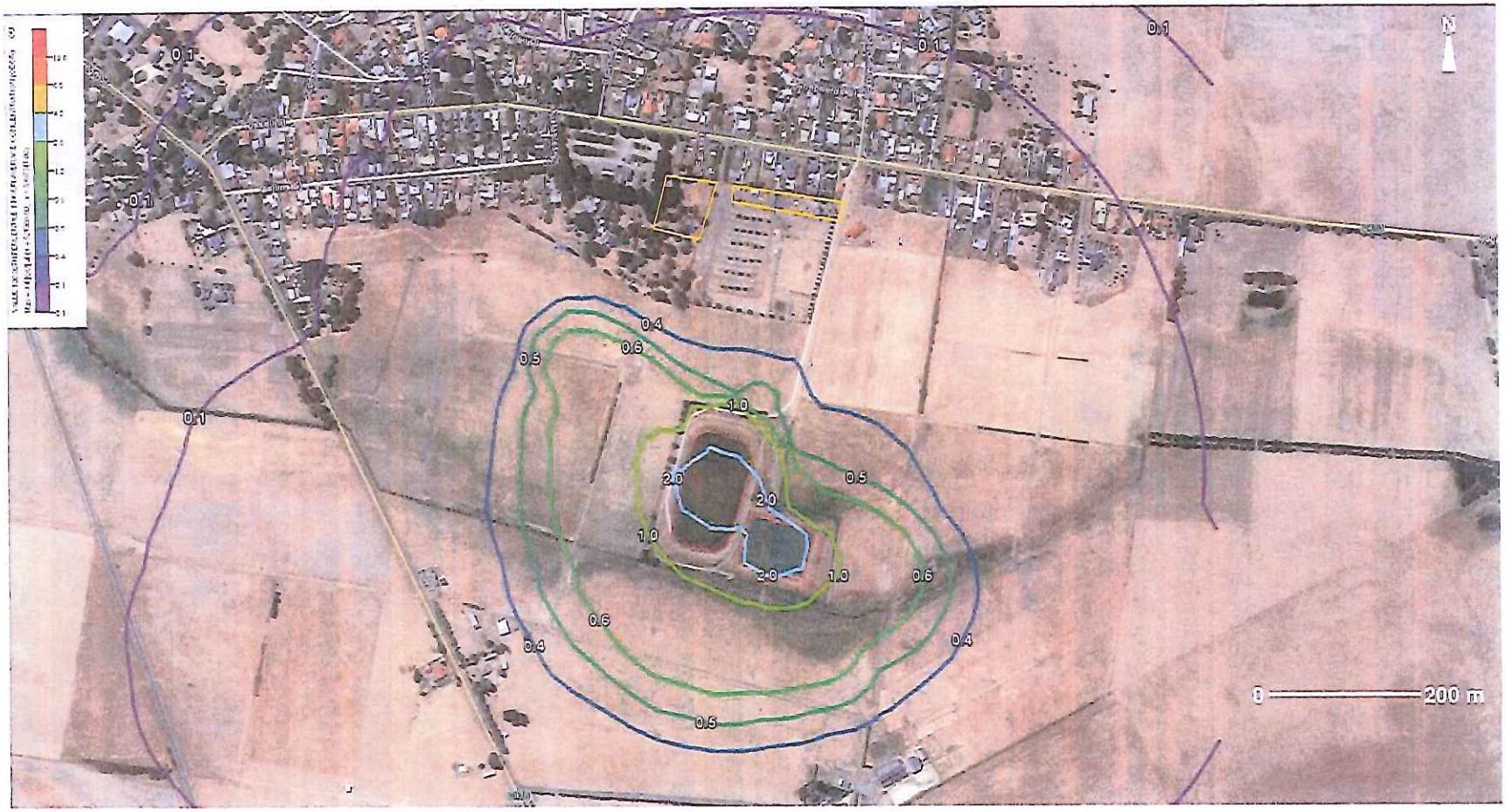


Figure 8-1: Predicted glc odour contours, **constant emissions**, minimum emission rates.

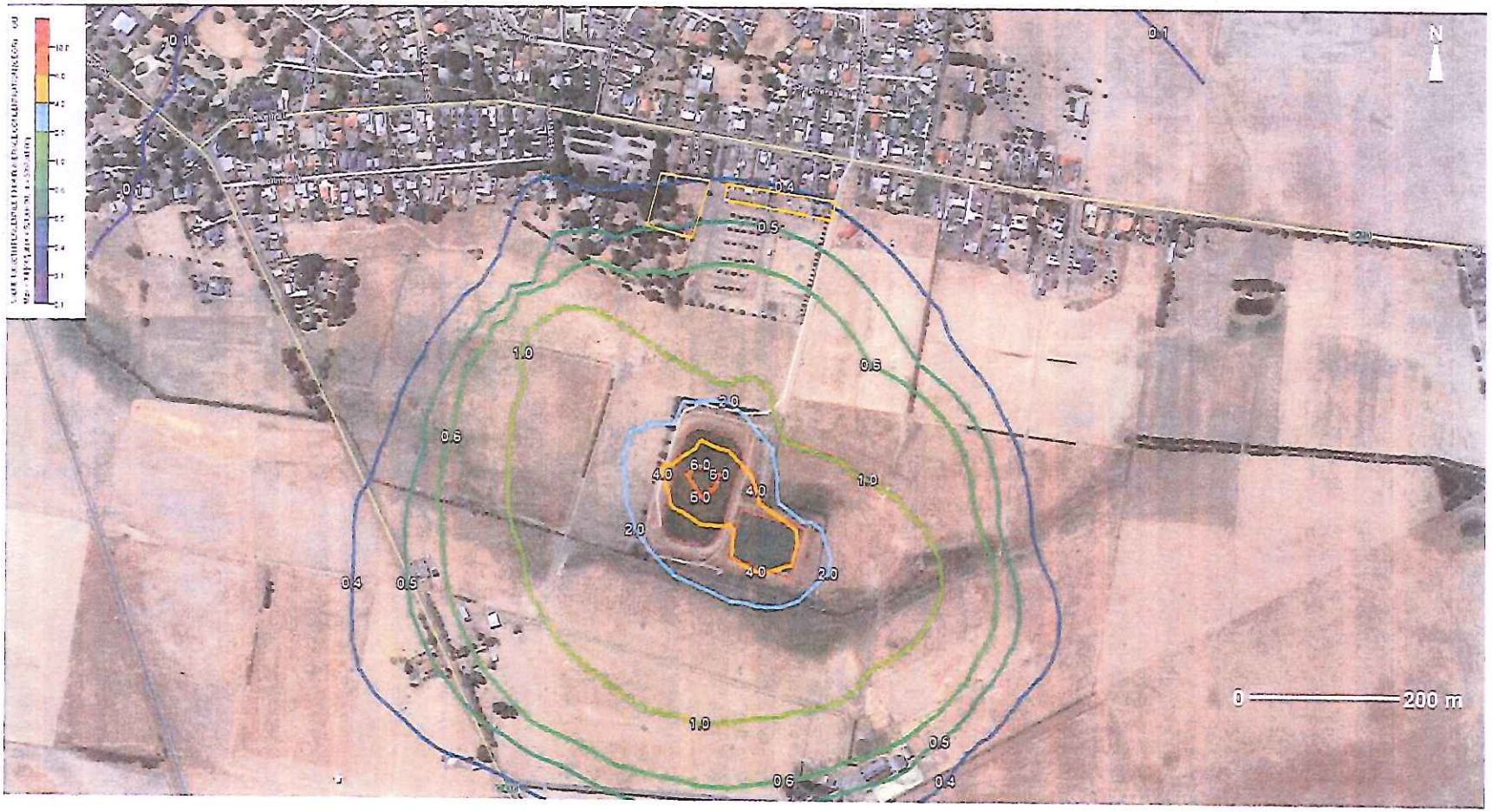


Figure 8-2: Predicted glc odour contours, **constant emissions**, maximum emission rates.

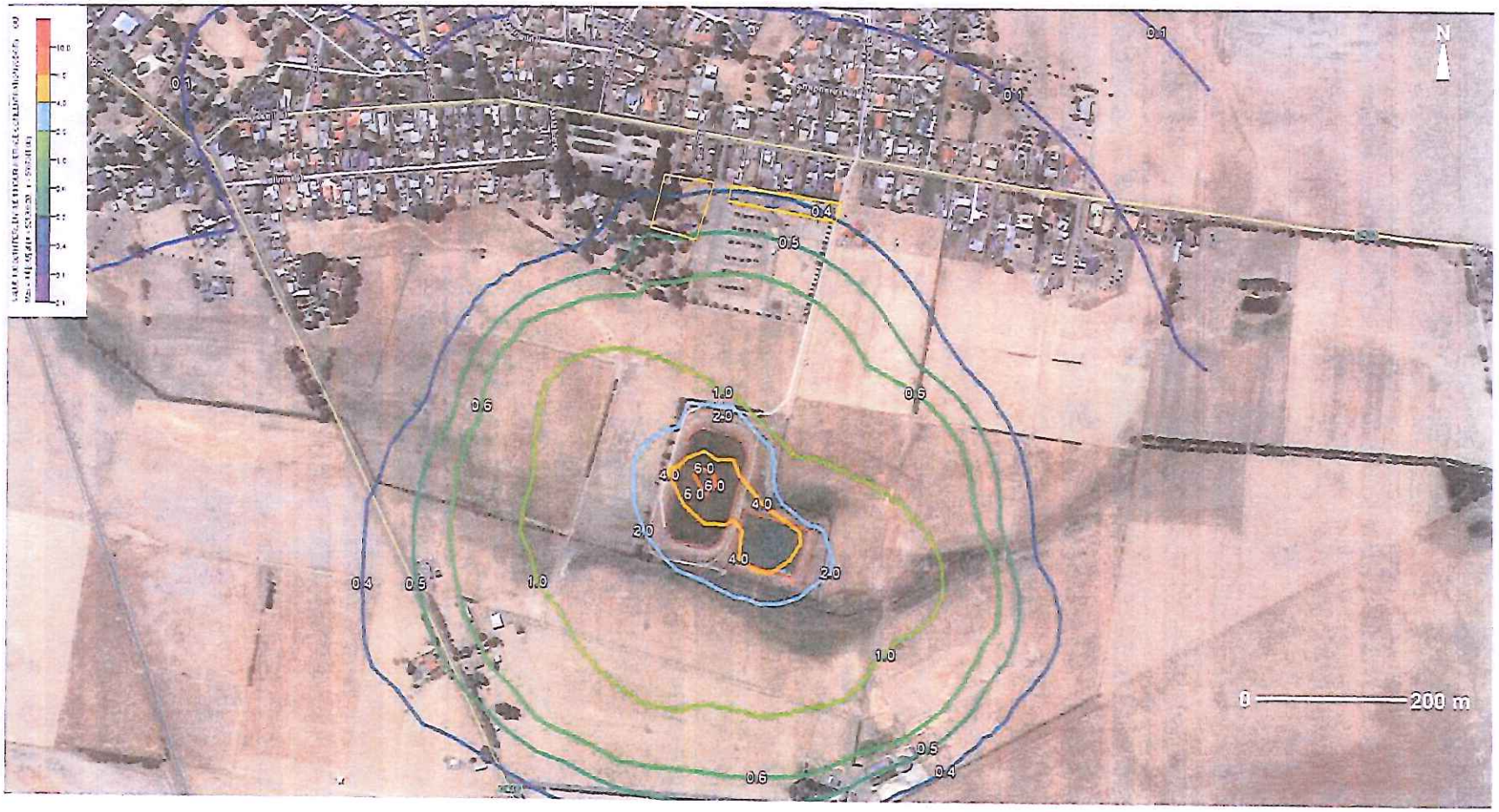


Figure 8-3: Predicted glc odour contours, **seasonally varying emissions**, minimum emission rates.

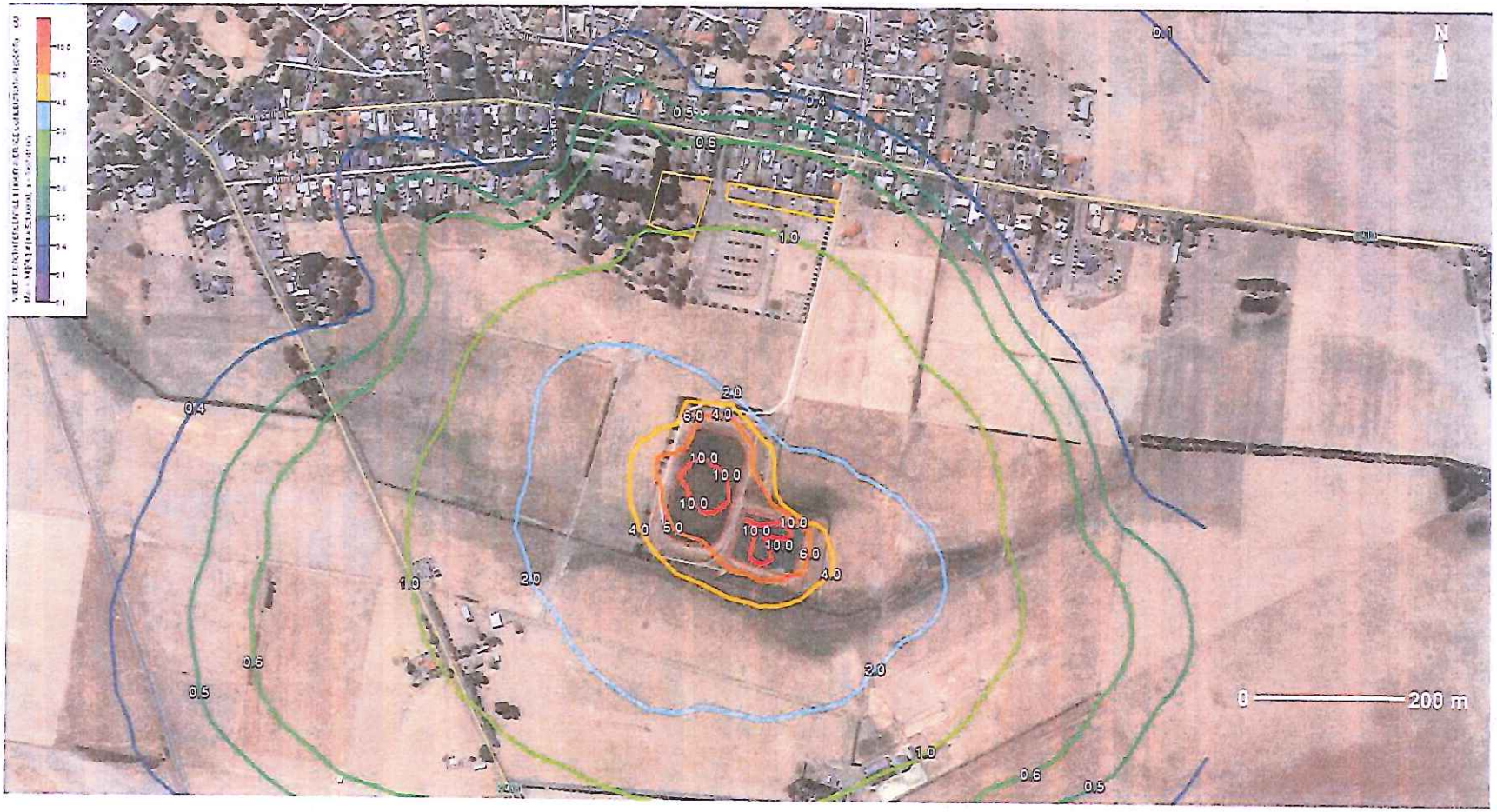


Figure 8-4: Predicted glc odour contours, **seasonally varying emissions**, maximum emission rates.

8.2 Discrete receptors

Table 8-1 presents predicted 100 percentile 1-hour average glcs at the three discrete receptors for normal operations under both minimum and maximum emission rates.

Predicted glcs at discrete receptors (OU)				
Receptor	Constant		Seasonally varying	
	Min.	Max.	Min.	Max.
1	0.24	0.50	0.47	0.97
2	0.22	0.45	0.42	0.86
3	0.22	0.46	0.43	0.88
4	0.12	0.44	0.41	0.84

Exceeds 2 OU.

Table 8-1: Predicted odour glcs at discrete receptors under normal operations with both constant and seasonally varying emissions..

8.3 Discussion of results

From the above we note the following:-

- The criteria level of 2 OU, 100 percentile, is not exceeded within the bounds of the land areas under consideration with predicted glc levels typically ≤ 1.00 OU and the highest predicted level at a discrete receptor is 0.97 OU.

9 Maintenance conditions

The following maintenance scenario was modelled and was derived from information provided by TasWater:-

- Desludging of the lagoons, lagoons emptied for the removal of accumulated sludge.

Table 9-1 presents information in relation to source emission rates used in the maintenance scenario.

Odour emission sources – maintenance scenario						
Emission source	Area (m^2)	Release height (m)	Initial sigma Z (m)	SOER ($OU.m^2/s$)		Process unit from MacDonald *et al* (2008).
				Min.	Max.	
Primary Lagoon 1	14,885*	0.5	1	0.101	0.479	Sludge Lagoons and Basins
Primary Lagoon 2	7,888*	0.5	1	0.101	0.479	Sludge Lagoons and Basins

* approx. surface area of empty lagoon including banks, assuming a depth of 11 m.

Table 9-1: Maintenance odour emission source information.

Odour emissions from the lagoons were modelled using the area sources shown in figure 7-1. Emission rates were scaled to represent the emission rates and surfaces areas provided in table 9-1.

9.1 Odour emissions modelling results

Dispersion modelling of odour emissions under the maintenance scenario has been undertaken to assess the predicted glcs of odour (in OU) within the land areas under consideration.

The following emission conditions were modelled with both min. and max. emission rates:-

- Annual (i.e. desludging emission rates constant through the entire year)

Seasonal

- Summer (i.e. desludging emission rates in Summer only)
- Autumn (i.e. desludging emission rates in Autumn only)
- Winter (i.e. desludging emission rates in Winter only)
- Spring (i.e. desludging emission rates in Spring only)

For seasonal emissions the emission rates used outside of the season under consideration are as provided in table 7-1.

9.1.1 Emission contours

Presented below in figures 9-1 and 9-10 are 100 percentile 1-hour average glc contours for the maintenance scenario described above.

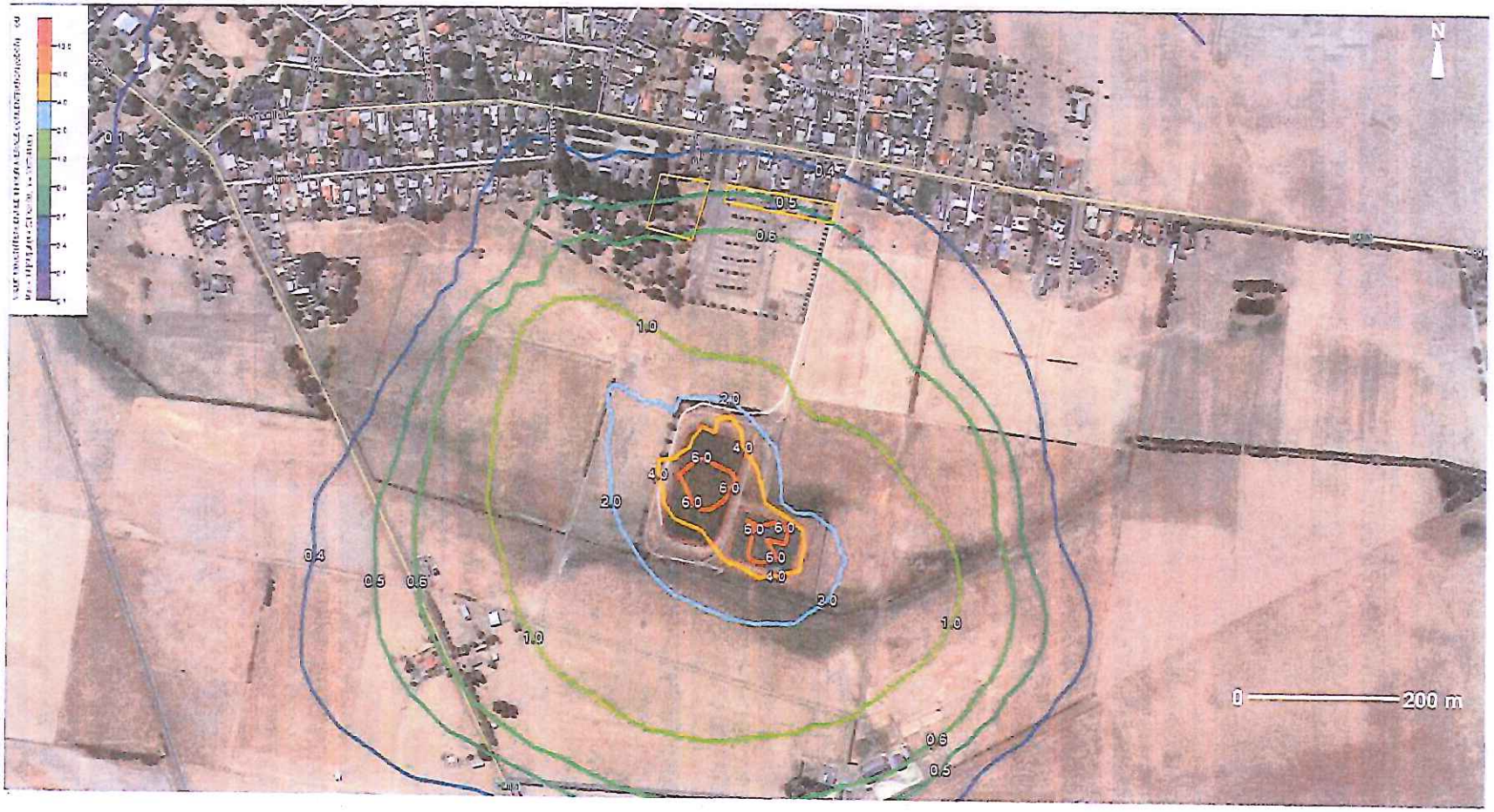


Figure 9-1: Predicted glc odour contours, **desludging, annual emissions**, minimum emission rates.

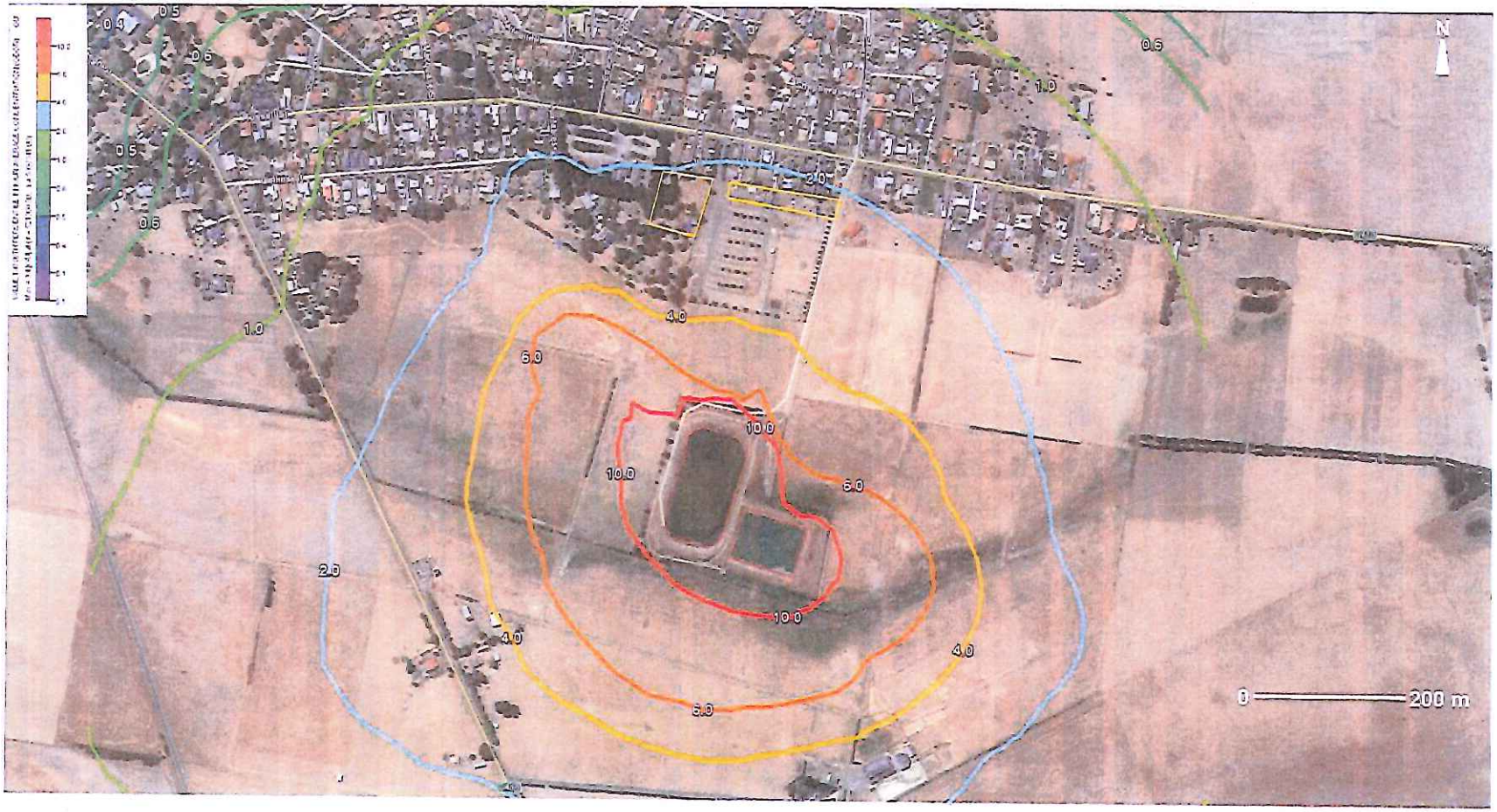


Figure 9-2: Predicted gic odour contours, **desludging, annual emissions**, maximum emission rates.

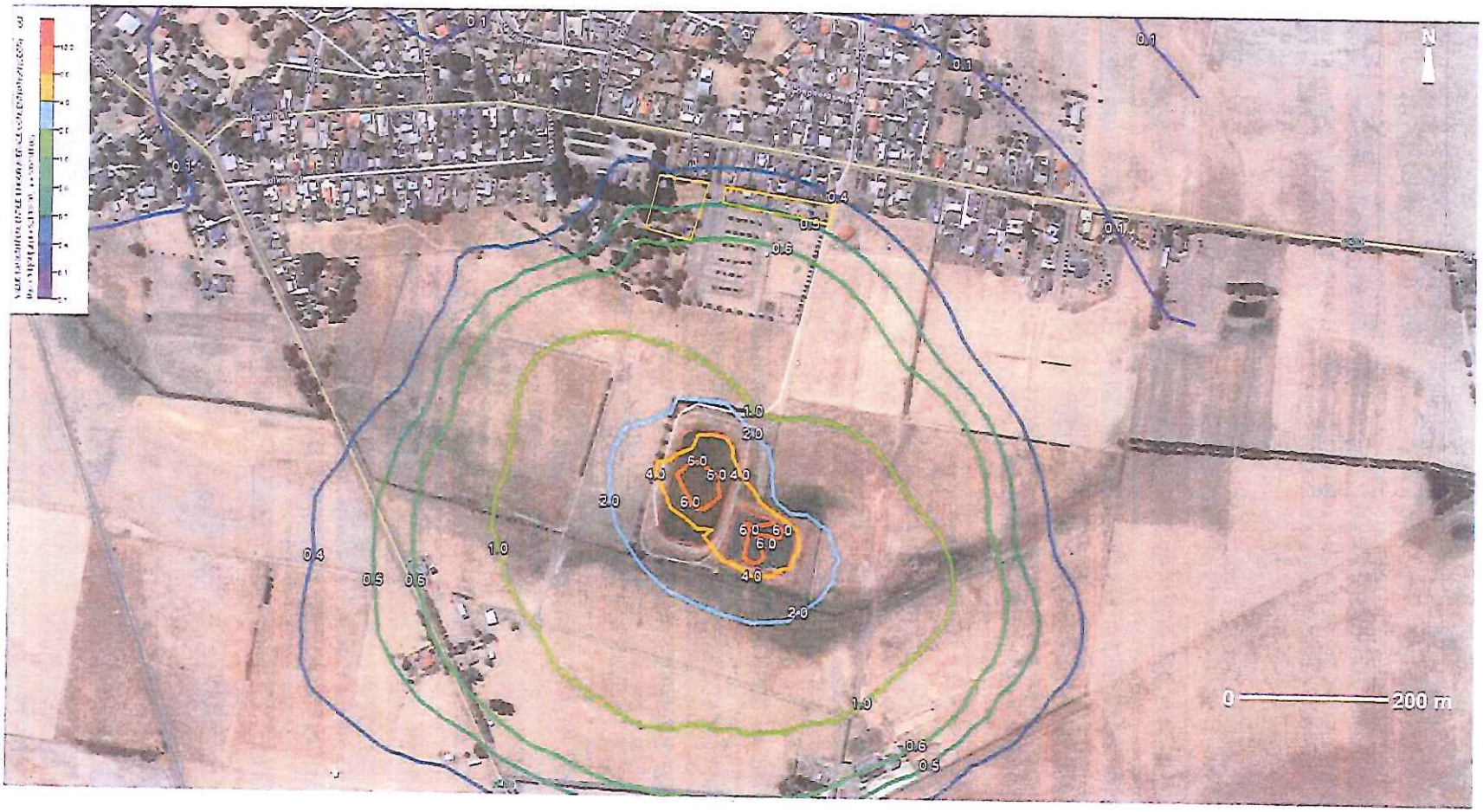


Figure 9-3: Predicted glc odour contours, **desludging, Summer emissions**, minimum emission rates.

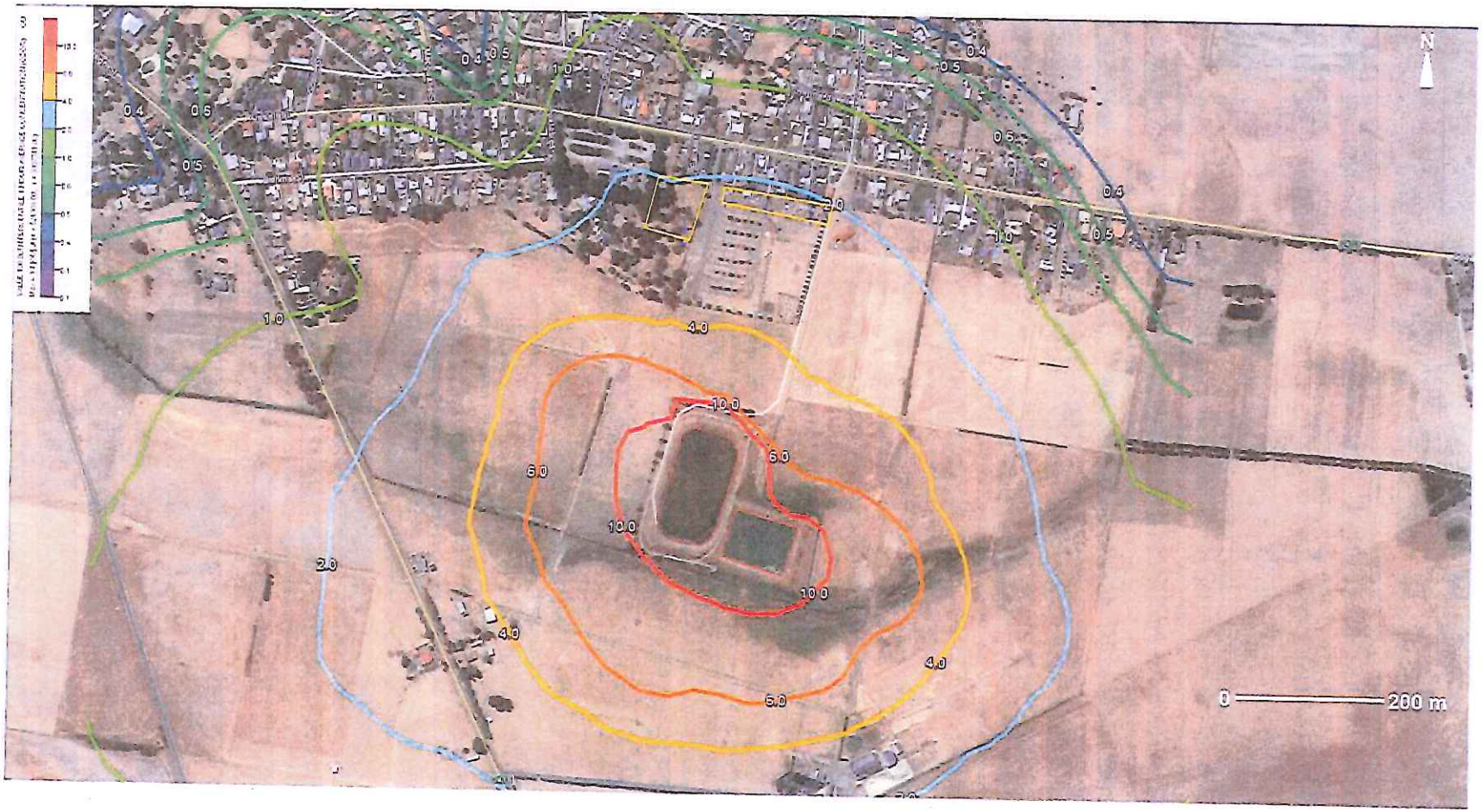


Figure 9-4: Predicted glc odour contours, **desludging, Summer emissions**, maximum emission rates.

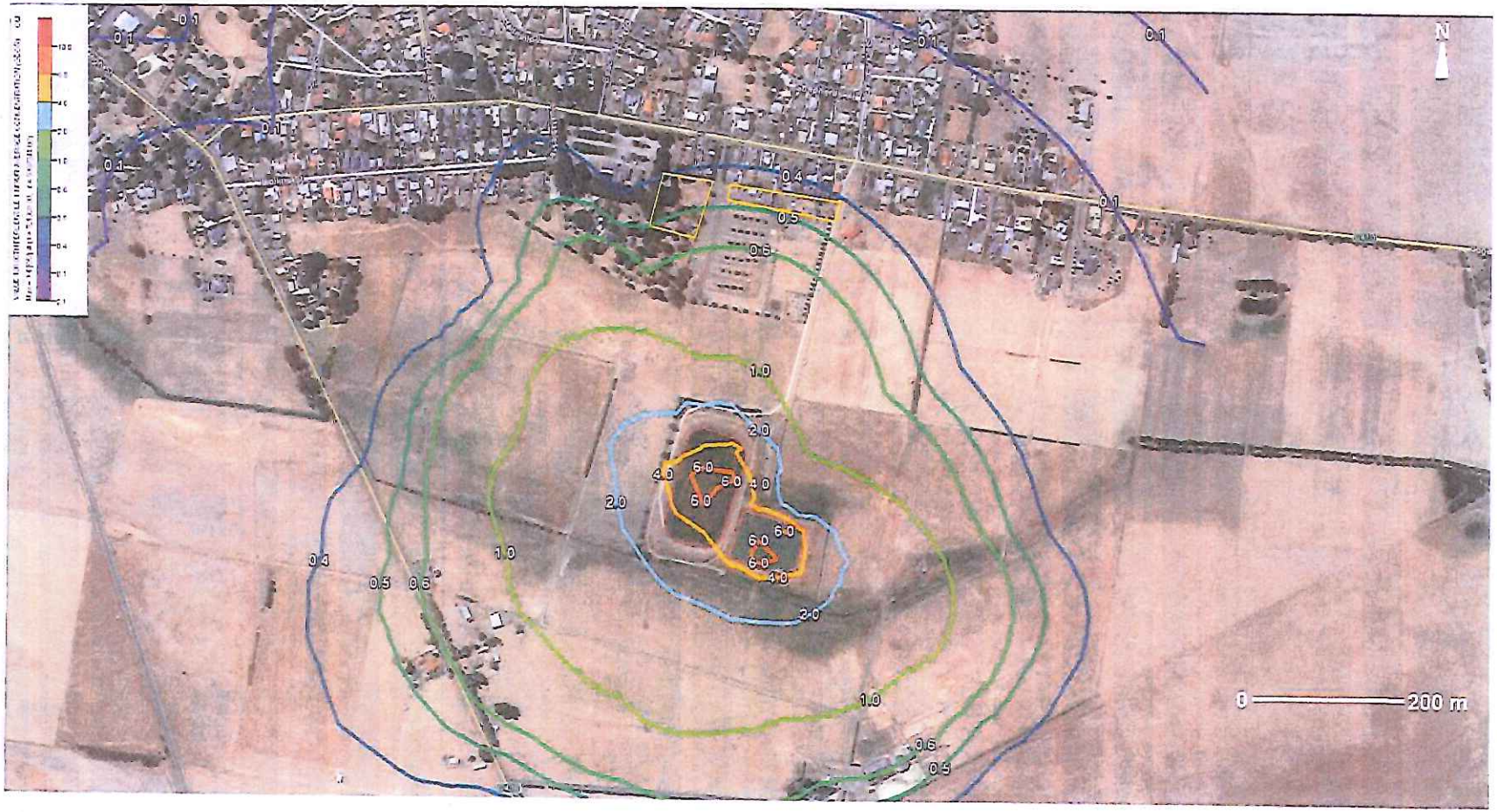


Figure 9-5: Predicted glc odour contours, **desludging, Autumn emissions**, minimum emission rates.

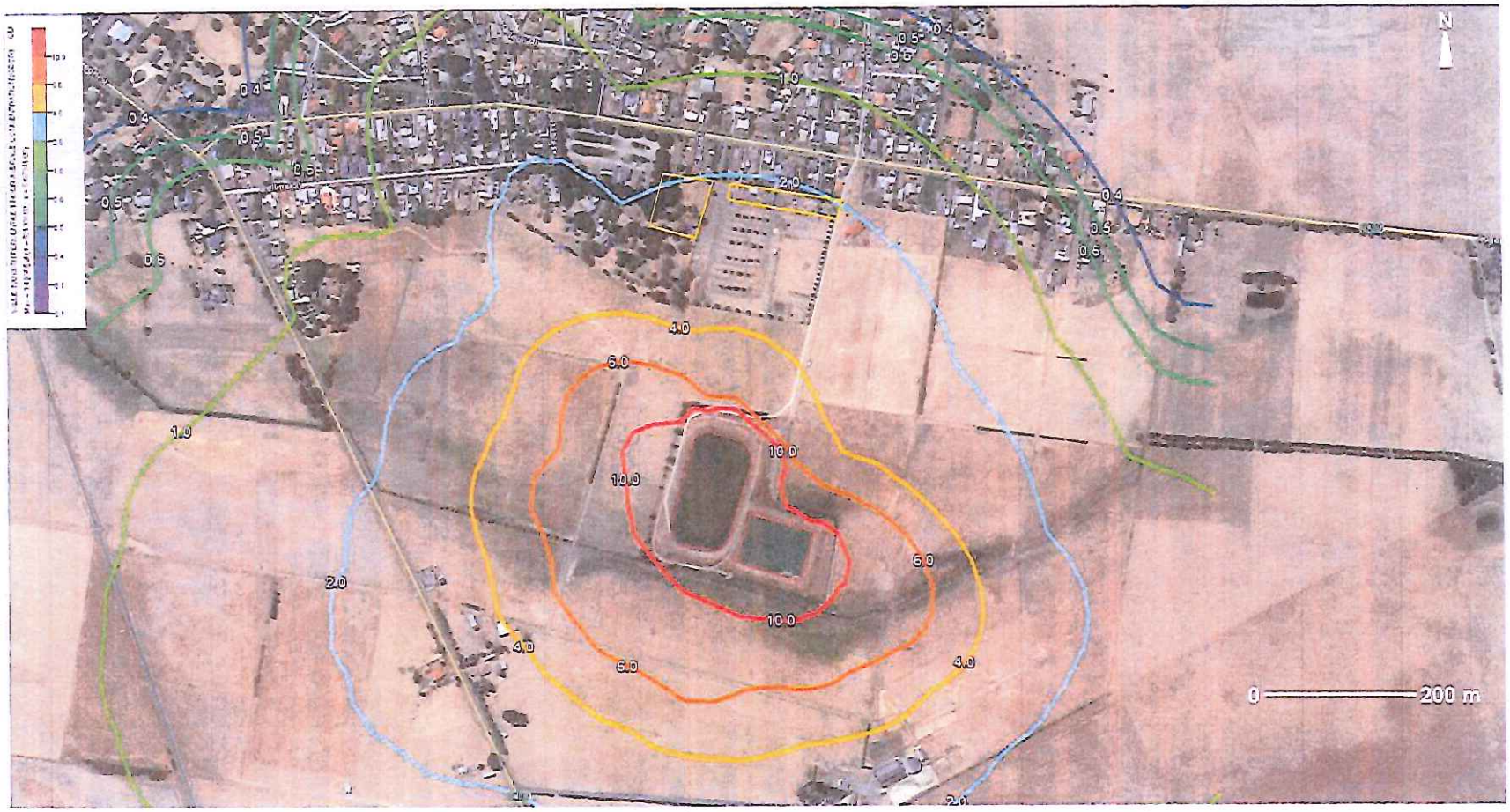


Figure 9-6: Predicted glc odour contours, **desludging, Autumn emissions**, maximum emission rates.

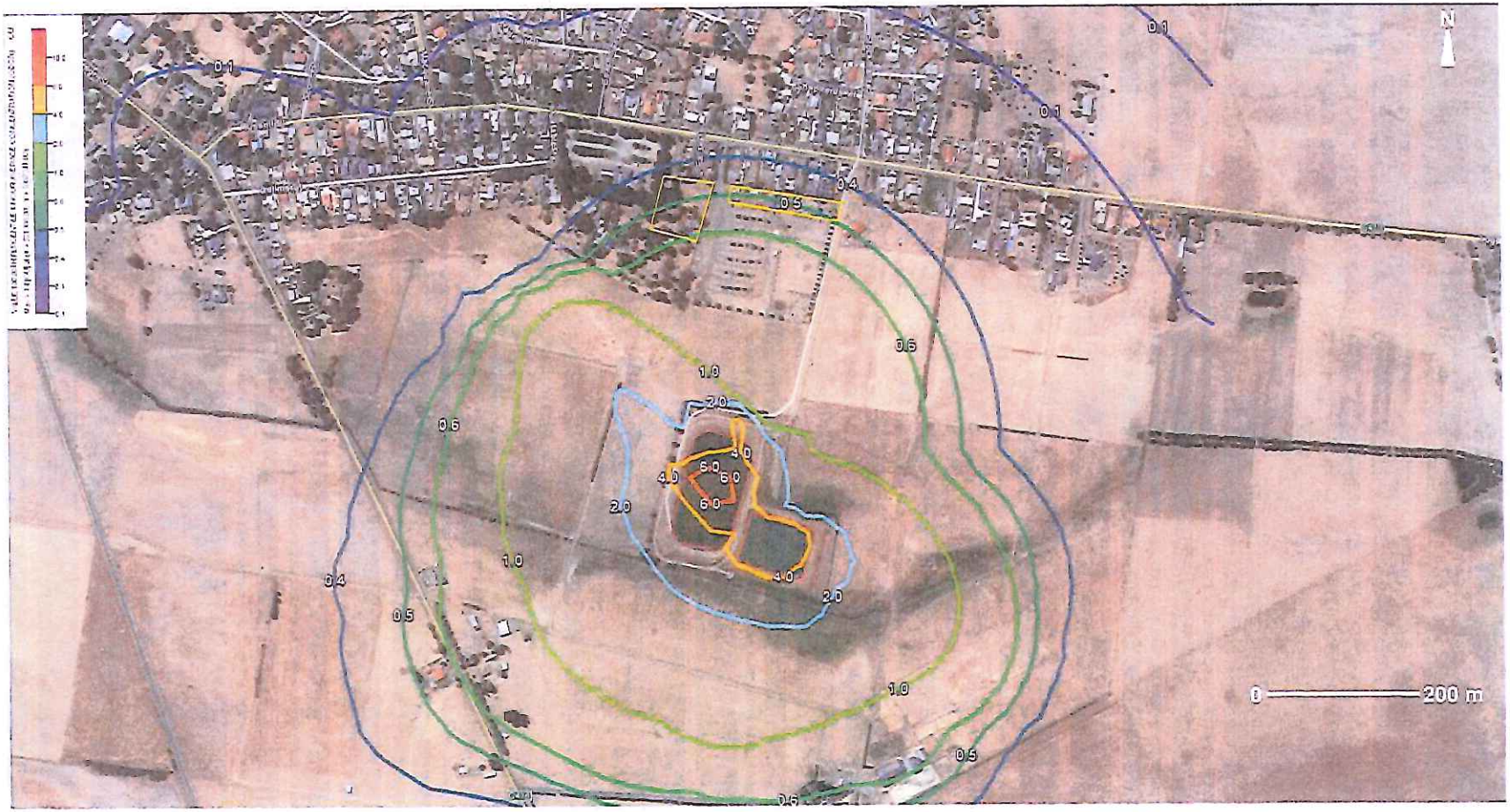


Figure 9-7: Predicted glc odour contours, **desludging, Winter emissions**, minimum emission rates.

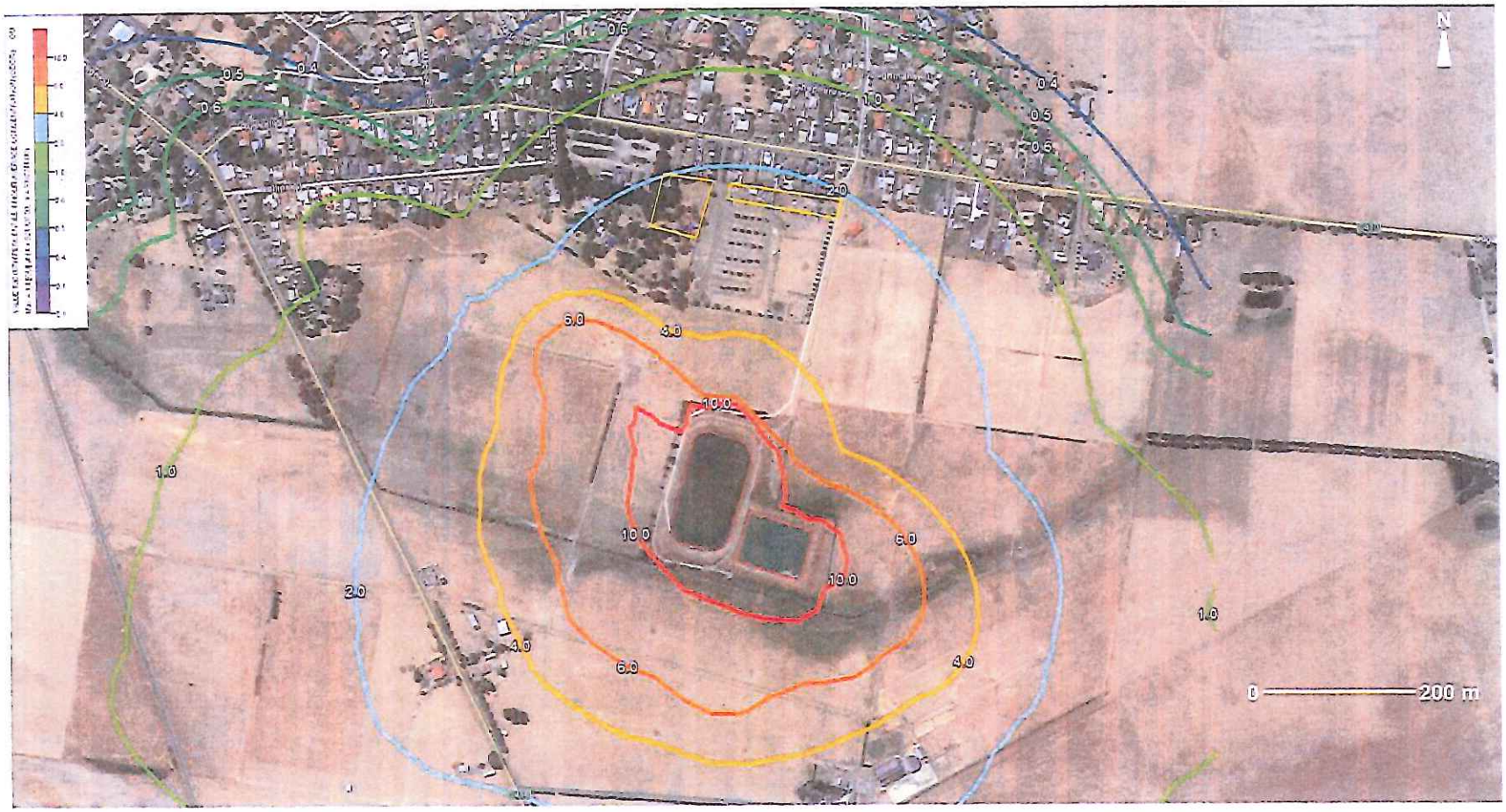


Figure 9-8: Predicted glc odour contours, **desludging, Winter emissions**, maximum emission rates.

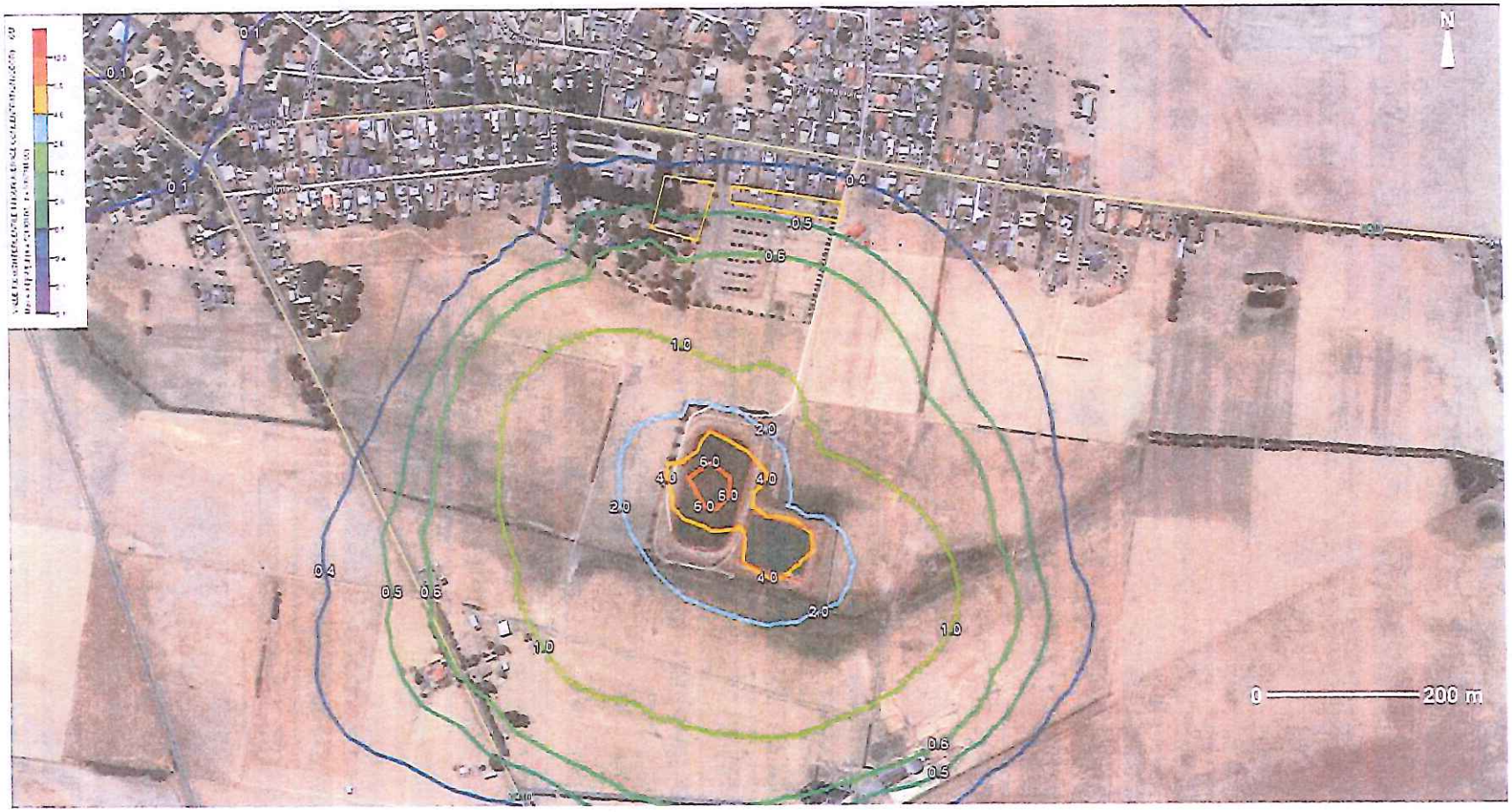


Figure 9-9: Predicted glc odour contours, **desludging, Spring emissions**, minimum emission rates.

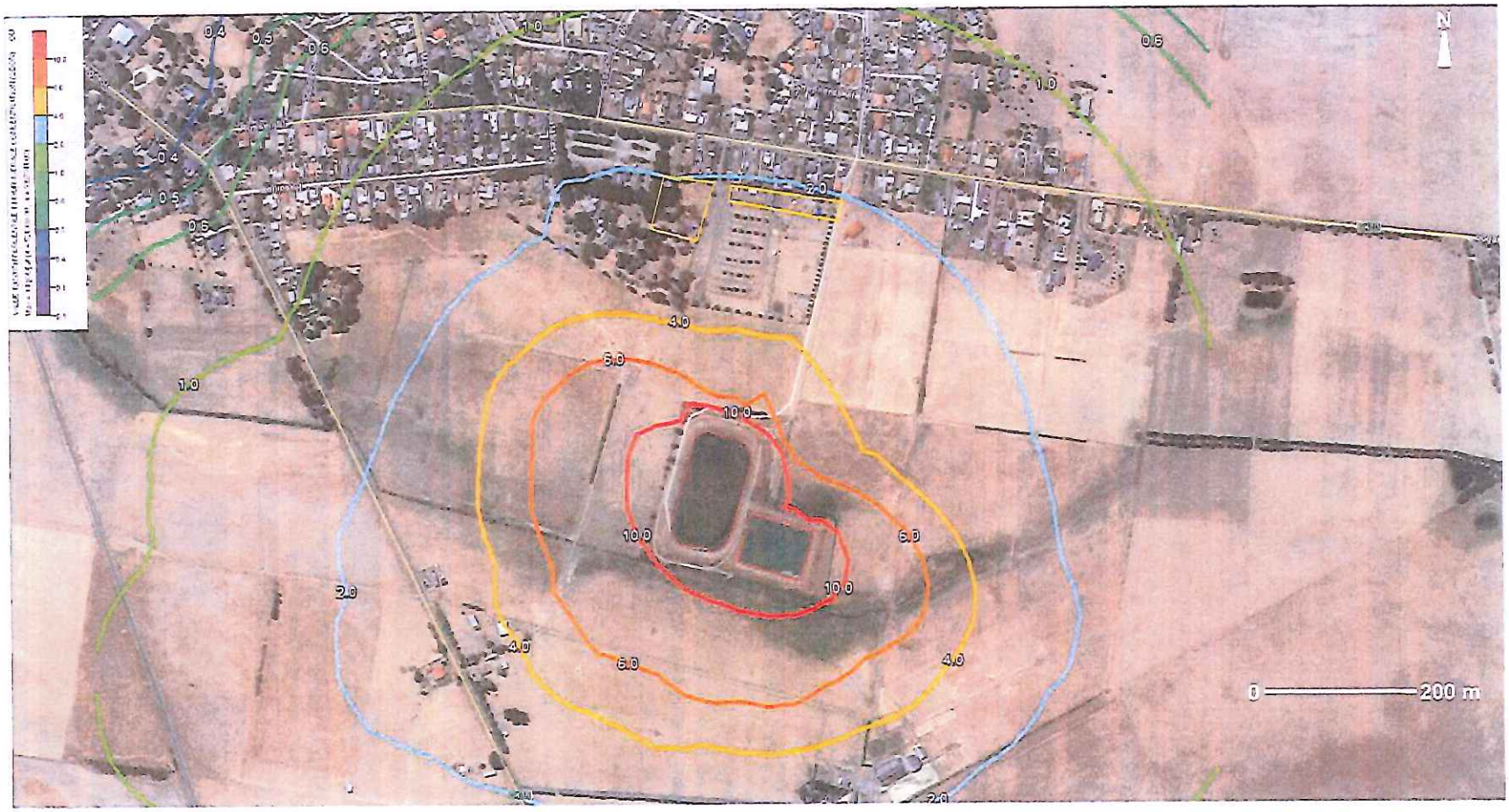


Figure 9-10: Predicted glc odour contours, **desludging, Spring emissions**, maximum emission rates.

9.1.2 Discrete receptors

Table 9-8 presents predicted 100 percentile 1-hour average glcs at the three discrete receptors for the maintenance scenario.

Predicted glcs at discrete receptors (OU) maintenance										
Receptor	Annual		Seasonal							
			Summer		Autumn		Winter		Spring	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
1	0.58	2.73	0.56	2.66	0.54	2.55	0.58	2.73	0.53	2.51
2	0.52	2.44	0.49	2.34	0.48	2.29	0.52	2.44	0.47	2.24
3	0.53	2.49	0.50	2.39	0.49	2.33	0.53	2.49	0.48	2.27
4	0.50	2.38	0.48	2.30	0.47	2.22	0.50	2.38	0.47	2.22

Exceeds 2 OU.

Table 9-2: Predicted odour glcs at discrete receptors under the **maintenance scenario**.

9.1.3 Discussion of results

From the above we note the following:-

- The criteria level of 2 OU, 100 percentile, is not exceeded within the bounds of the land parcels under minimum emission rates with levels < 0.6 OU.
- Under maximum emission rates the 100 percentile 2 OU contour penetrates both land areas and the 2 OU, 100 percentile, criteria is exceeded at all receptors with the maximum predicted glc 2.73 OU.
- There is no strong seasonal influence with receptor glcs similar across all seasons.

NB: All scenarios were modelled with continuous emissions over extended periods (i.e. entire year or season) and don't account for the duration of desludging works and potential coincidence with low dispersion conditions. Therefore, the results from these scenarios should be considered as representing a maximum potential extent of impact with the degree of probability relating the frequency and duration of desludging works.

10 Conclusions and recommendations

Tarkarri Engineering has conducted odour emission modelling of the Evandale STP with regard to parcels of land at 35 Collins St and 18 Logan Rd, Evandale, which fall within a 350 m attenuation zone under the Northern Midland Council Interim Planning Scheme 2013 surrounding the STP.

Odour emission modelling was conducted utilising the CALPUFF dispersion model with input meteorological data from TAPM via the CALMET meteorological model. Assessment is against the Tasmanian EPP criterion of 2 OU, 100 percentile, 1-hour average. Scenarios for normal operations with constant and seasonally varying emissions showed predicted odour levels within the land parcels well below the criterion level. Maintenance conditions, in the form of desludging of the lagoons, was modelled with results predicting odour emission levels well below the EPP criterion under minimum emission rates. However, under maximum emission rates the criterion was exceeded within the land parcels.

NB: The use of a spatially constant odour emission rate across the surface of large area sources such as the lagoons modelled here is considered very conservative and likely to over predict emissions of odour, often by a considerable margin. The modelling of large area sources doesn't account for spatial variability in the rate of odour emissions from the surface of large ponds with sampling typically taken at locations were emissions are relatively high (information regarding this isn't provided in MacDonald *et al* (2008)[2]) and also doesn't account for micrometeorological effects across a pond. The technique of sampling is also important with flux chamber sampling of surface odour emission the accepted technique under *AS/NZS 4323.4:2009 Stationary source emissions Area source sampling - Flux chamber technique* while wind tunnel sampling that has been conducted in the past considered to provide higher emission rates than the flux chamber technique (MacDonald *et al* (2008)[2] doesn't specify the measurement technique used for sampling area sources in the data set presented).

Given the above discussion regarding the modelling of large area sources and previous discussion of the desludging model scenario results and their consideration in the context of the duration of desludging works and potential for coincidence with low dispersion conditions, Tarkarri Engineering consider the maintenance scenario modelling conducted here to be very conservative, particularly under the maximum emission rates. While the results under maximum emission rates show an exceedance of the EPP criterion within the land parcels during desludging, such an occurrence is a low probability and the potential for environmental harm is low.

Under normal operating conditions the modelling results indicate that environmental harm within the land parcels under consideration from odour emissions from the Evandale STP is unlikely.

Paul Godier

From: Peter Woof <[redacted]>
Sent: Thursday, 29 April 2021 7:53 AM
To: Paul Godier
Subject: Collins Street

Hi Paul
Re Tas Water

The land in question already has a water connection and the sewerage due to the topography would have to dealt with a bio recycling system so at this stage Tas Water would not have to be notified.
Cheers Peter
Sent from Mail for Windows 10

ATTACHMENT B

MILLS OAKLEY

Mills Oakley
ABN: 51 493 069 734

17 May 2021

Your ref:
Our ref: APGB/TRPM/9241380

All correspondence to:
GPO Box 5247
BRISBANE QLD 4001
DX 40160 Brisbane Uptown

Contact
Andrew Greenhalgh +61 7 3228 0426
Email: agreenhalgh@millsoakley.com.au
Fax: +61 7 3012 8777

Partner
Troy Palmer +61 3 85678 9574
Email: tpalmer@millsoakley.com.au

Attention: General Manager
North Midlands Council
PO Box 156
LONGFORD TAS 7301

By email: Planning@nmc.tas.gov.au

Dear Sir / Madam

Estate of Ernest William Clarence Lahiff, deceased
RE: 35 Collins Street Development - PLN-21-0071

We act in the administration of the above estate and have received instructions from the executor (on behalf of the beneficiaries of the deceased's estate) concerning the abovementioned development application.

Our client accordingly takes this opportunity, on behalf of the beneficiaries of the estate, to voice the concerns of the beneficiaries in respect of the abovementioned development application, pursuant to section 57(5) of the *Land Use Planning and Approvals Act 1993* (Tas).

We **enclose** a copy of the Grant of Probate issued by the Supreme Court of Tasmania in respect of the deceased's estate, together with a copy of the Certificate of Title for unit 5/16 Logan Road, Evandale, Tasmania, 7212 ("**Unit 5**"), for your reference, setting out our client's (and the beneficiaries) standing.

Objection to proposed development

We are instructed that Unit 5 is situated on a right of way from Collins Street which currently has restricted access for vehicle use.

The beneficiaries believe that this development will have a negative impact on their property and should not be permitted for the reasons set out below.

The set back of the unit from the right of way is minimal and any change to the status of the right of way to accommodate increased traffic, will, in the informed opinion of the beneficiaries, have a negative effect on the quiet enjoyment by the occupants of the unit. The road surface of the right of way is not sealed and the noise and dust both from construction and its subsequent occupation will be a major impact.

The beneficiaries are also of the view that the development is out of character and scale with the local townscape and as it is situated in a prominent elevated position viewed from the Nile Road approach to Evandale, such that it will have a significant visual impact on the character of the town.

This impact would appear to be counter to the objectives of *The Northern Midlands Interim Planning Scheme 2013* ("**the Scheme**"), which seeks to reduce additional development for housing in Evandale and change to the character of the town.

In that regard, we refer to the existing character statement for the Evandale Heritage Precinct, on page E13-11 of the Scheme.

Having carefully reviewed the development documentation submitted for public scrutiny, the beneficiaries, one of whom is a prominent architect, believe that the said documentation fail to address the following issues:

1. Vehicle access both for the development and its subsequent occupation;
2. Parking and manoeuvring area;
3. Site contours;
4. Trees to be removed;
5. Foul and storm water disposal;
6. Erosion;
7. Fire;
8. Location of buildings on adjoining lots;
9. Buildings to be demolished;
10. Rights of way and/or easements;
11. Cut and fill of the site;
12. Existing structures; and
13. landscape plan.

The beneficiaries also believe, having regard to the fact that Evandale is a heritage area, development of the proposed site will adversely affect the historic character of the area, rather than enhance it. Further, the beneficiaries are concerned that the proposed development will likely affect its immediate neighbours' quiet enjoyment of their respective properties.

We are instructed that the materials and forms of the main dwelling are not compatible with similar sized historic buildings, particularly when viewed from the Nile Road approach.

We understand that the house plan footprint at ground floor level is approximately 20 metres x 27 metres, the ultimate silhouette of which will, we are instructed, be out of scale with other properties, especially when seen on a prominent elevation from the Nile Road approach to Evandale.

It is not clear to the beneficiaries how the status of the right of way from Collins Street will be affected by permanent access to the site. Can you please advise us of your intention for the right of way and whether, in particular, it will become 24 hours/ 7 days per week access, or whether the right of way will be changed to a gazetted road, with street lighting installed?

We are also instructed that it is not clear how power and telecommunications will be distributed to the site. Please advise us if it these utilities are proposed to be distributed to the building aerially, along the right of way, which will therefore run close past Unit 5.

We are also instructed that the main dwelling house has been sited on the block in such a way to allow for further subdivision, which would likely exacerbate the issues set out above.

Our client, on behalf of the estate's beneficiaries, also queries whether the building is to be occupied, as it is not clear what the intended use of the proposed shed with a chimney otherwise is.

The beneficiaries do not believe that the planning application for the development provides sufficient information for the local authority to make a decision in the circumstances.

For this reason, our client respectfully submits, on behalf of the beneficiaries, that this application should not be granted.

We look forward to your responses to the above queries.

Should you have any queries or require further information, please contact Andrew Greenhalgh on +61 (0)7 3010 8024 or agreenhalgh@millsoakley.com.au.

Yours sincerely,

STUART O'NEILL
SPECIAL COUNSEL
Enc.