LANDFILL GAS RISK ASSESSMENT

25 Cressy Road

Winchelsea, Victoria

August 2020
Report No. J1214-R1.0

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DOCUMENT CONTROL

Report Revision List

Report Number	Status	Date	Prepared By	Reviewed By
J1214-R1.0	Final	3 August 2020	MS	PK

1 Introduction

1.1 Background

Jet Environmental was requested by Earl Civil (the client), care of Spectrum Planning Solutions, to undertake a landfill gas risk assessment (LGRA) at 25 Cressy Road, Winchelsea (site).

The location of the site, and nearby closed landfill, is presented in the attached Site & Landfill Location Plan (Figure 1 - Appendix I).

It is understood that proposed development of the site will comprise construction of a dwelling, a machinery shed and an industrial wool store shed. It is further understood the eastern portion of the site is subject to a contract of sale and is intended to be rezoned for future industrial use. In light of the presence of former landfilling activity less than 500 metres from the site, it is understood Surf Coast Shire has requested an assessment into the potential for landfill gas to pose a risk to the development as part of the planning permit process. Copies of the proposed development plans are provided in Appendix II.

1.2 Objective

The objective of the assessment was to investigate the potential for landfill gas, sourced from former nearby landfilling activity, to be present at proposed development areas and the eastern triangle portion of the site.

1.3 Scope of Works

To achieve the assessment objective the following works were undertaken:

- *Desktop Study:* A desktop study reviewing documentation relating to:
  - Former environmental investigations performed at, or nearby, the site;
  - Underground service plans at, and in close proximity to the site;
  - Topographical, geological and hydrogeological maps and information;
  - Historical aerial photographs to identify the location and boundaries of former quarries and landfills; and
  - Council records and EPA Victoria publications.
- *Site Inspection:* An inspection conducted at, and in close proximity to proposed development areas of the site, to identify potential sources and/or pathways of landfill gas generation and migration.
- *Conceptual Site Model:* Using findings of the site inspection and desktop study, a conceptual site model was prepared.
- *Landfill Gas Investigation:* A landfill gas survey including measurements collected with a gas analyser from underground utility locations and installation and monitoring of onsite landfill gas bores.
- *Data Assessment & Reporting:* Preparation of a written report detailing the findings of the site investigations and recommendations for further assessment where required.

The scope of works did not include a geotechnical assessment or a general contamination assessment with respect to the suitability of the site for the proposed development.

2 Site Condition & Surrounding Environment

2.1 Site Identification

The location of the site is depicted on the Site & Landfill Location Plan (refer Figure 1 - Appendix I) and relevant site details are tabulated in Table 2-1.

Table 2-1: Summary of Site Details

Address	25 Cressy Road, Winchelsea
Lot/Plan Description	Lot 1 Plan TP591824 Lots 1 & 2 Plan TP407625 Allotments 1 – 9, Section 72 PP3123
Local Government Authority	Surf Coast Shire Council
Site Zoning	Farming Zone (FZ)
Site Area	~28 ha
Elevation	~90 – 100 mAHD
Planning Overlay/s	None

2.2 Site Inspection

At the time of the brief walkover inspection by Jet Environmental on 10 July 2020, which was limited mostly to areas where landfill gas investigations were proposed, the following features and conditions were noted as presented in Table 2-2.

Table 2-2: Site Inspection Summary

Site occupant/s	The site was used for several purposes including as a residential dwelling, a civil earthworks company depot, grain storage and for growing a canola crop.
Buildings & structures	Buildings and structures at site included a single storey brick dwelling, maintenance sheds, workshops and several storage silos.
Topography	The site generally sloped down from the south western portion, except for the backfilled portion of the former quarry immediately south of the waste transfer station which also formed a high point.
Surface type and condition	External site surface coverage comprised a combination of exposed soil, canola crop, vegetated areas, unsealed gravel driveways and tarpaulin covered grain storage areas.
Staining / odours	No surface staining or odorous soils were noted in areas where monitoring occurred.
Chemical storage	No chemical storage was observed at site, except for general materials used for workshop purposes.
Fuel storage infrastructure	No evidence was noted of any underground storage tanks or associated structures in areas where landfill gas investigations were proposed.

Other underground infrastructure	No evidence of underground infrastructure was noted at the surface in areas where landfill gas investigations were proposed, except for a vehicle servicing pit at the workshop.
Stressed Vegetation	No stressed vegetation was observed during the inspection of areas where landfill gas investigations were proposed.

2.3 Nearby Landfill Summary

A landfilled former quarry, now forming part of the Winchelsea Waste Transfer Station, was identified to be within a 500 m radius of the subject site, with its approximate location depicted on the Site & Landfill Location Plan (Figure 1 - Appendix I).

Information pertaining to the former quarry was obtained from the following sources:

- Personal communication with a Surf Coast Shire Council waste officer on 7 July 2020;
- A Fisher Stewart preliminary plan titled *'Winchelsea Inert Landfill Site - Cressy Road, Winchelsea (Drawing No. 2000295/01)'* provided by the client to Jet Environmental (refer Appendix III);
- Historical aerial photos for 1947, 1970, 1986, 2003 and 2011 obtained from Landata and Google Earth (refer Appendix IV); and
- EPA Victoria (nd) *Victorian Landfill Register.* Accessed online 8 July 2020. https://www.epa.vic.gov.au/your-environment/waste/landfills/victorian-landfill-register#VLR

A summary of pertinent information obtained from the above sources is provided below:

- The landfilled former quarry occupied part of the site immediately south of the Winchelsea Waste Transfer Station;
- Waste accepted at the landfill included solid inert waste and minor putrescible waste;
- The volume of waste received at the landfill was between 51 m^3 and 500,000 m^3;
- The estimated year of closure of the landfill was 1994;
- Surf Coast Shire Council consider the landfill to be low risk and it was not licensed by EPA Victoria;
- Monitoring of groundwater bores around the perimeter of the landfill has not identified resultant contamination;
- The landfill was unlikely to have an engineered lining, however it was capped to EPA Victoria requirements;
- Review of available historical aerial photographs (refer Appendix IV) identified the following:
  - 1947 – disturbance of the central portion of the quarry area is depicted;
  - 1970 – the quarried area has increased since the 1947 aerial photograph and the southern end occupies a portion of the site;
  - 1986 – the quarry boundary appears to be of a similar size to that depicted in the 1970 aerial photograph and the majority of the landfill appears to have been backfilled;
  - 2003 – the southern portion of the landfill area which is present at the site appears to have been capped and is covered with grass. Numerous soil stockpiles appear to be evident in the central portion of the landfill; and
  - 2011 – the central portion of the landfill has been capped and the waste transfer station appears to be evident in the northern portion.

2.4 Underground Services

A review of plans sourced via the Dial Before You Dig service was undertaken to identify any potential underground infrastructure which may be acting as a conduit between the closed landfill and the site. The following underground services were identified in the vicinity of the site, as listed in Table 2-3.

Table 2-3: Underground Utility Services Summary

Service	Asset Holder	Location
Sewer	Barwon Water	The nearest sewer easements are depicted beyond the railway line southeast of site. No direct easements are depicted between the site and the former quarry.
Water	Barwon Water	Town water mains are depicted northeast of site beneath Cressy Road. No direct water mains are depicted between the site and the former quarry.
Gas	AusNet	A gas distribution main is depicted northeast of site beneath Cressy Road. No direct gas mains are depicted between the site and the former quarry.
Stormwater	Surf Coast Shire Council	No stormwater easements are depicted within the vicinity of the site and the former quarry.
Electricity	Powercor	Short sections of underground low voltage electricity cable are depicted northeast of site beneath Cressy Road. No direct cables are depicted between the site and the former quarry.
Communications	Telstra	Telstra conduits are depicted northeast of site beneath Cressy Road. Conduit is depicted entering site beneath the north eastern boundary. No direct conduits are depicted between the site and the former quarry.
	NBN Co	NBN cables are depicted northeast of site beneath Cressy Road. Cables are depicted entering site beneath the north eastern boundary. No direct cables are depicted between the site and the former quarry.

Copies of the underground service plans are provided in Appendix V.

2.5 Surrounding Land Use

Surrounding land uses were noted at the time of the site inspection and are summarised in Table 2-4.

Table 2-4: Surrounding Land Use Summary

Location	Site Use / Features
North	Winchelsea Waste Transfer Station at 55 Cressy Road, Cressy Road and several properties used for grazing
East	Cressy Road, grazing land and residential dwellings

Location	Site Use / Features
South	Railway line, grazing land and several industrial and storage premises
West	Grazing land and Leighs Lane

2.6 Hydrogeological Information

Hydrogeological features at, and in the vicinity of the site, as reviewed on 8 July 2020, are described in Table 2-5.

Table 2-5: Hydrogeological Information

Feature		Source	Site Description
Geology		VVG	The site and the former quarry are underlain by Newer Volcanic Group basalt flows comprising basalt, tuff, scoria and alluvium.
Surface Water		VicMap	A small onsite dam is present near the north eastern site boundary. Aside from numerous small dams in nearby properties, the nearest surface water body is the Barwon River (approximately 770 m northeast of site at its nearest point).
Regional Groundwater	Quality	VVG	Total dissolved solids: 3,500 – 7,000 mg/L
	Depth	VVG	Typically < 5 – 10 m below ground level (mbgl) at site and the closed landfill
	Flow Direction	Inferred	Based on topography, the likely groundwater flow direction beneath the site and the former quarry is east towards the Barwon River.

VVG – Visualising Victoria's Groundwater Federation University
VicMap – Victorian Department of Environment, Land, Water and Planning

2.7 Previous Site Investigations

A copy of a Provincial Geotechnical Pty Ltd report titled '*Land Capability Assessment Report – 25 Cressy Road, Winchelsea'* and dated 30 April 2020 was provided to Jet Environmental. Relevant findings from the report include:

- Five boreholes were advanced with a drill rig near the location of the proposed new dwelling in the western portion of the site;
- Natural silty clay and heavy clays were encountered at depths of up to 1.6 m below surface;
- No waste material was encountered during the drilling works;
- Each borehole met refusal on basalt at depths ranging from 0.9 m to 1.6 m below surface; and
- Groundwater was not encountered during the drilling works.

2.8 Initial Conceptual Site Model

Based on information obtained from the site inspection and desktop assessment, a conceptual site model relating to landfill gas contamination issues was prepared.

Landfill Gas Sources

Desktop review confirmed landfilling occurred at the former quarry within a 500 m buffer zone of the site. Material suspected to have been disposed of at the former quarry likely included amounts of putrescible material, typically the main contributor to landfill sourced methane generation, until as recently as 1994 (refer Section 2.3).

Based on the time since landfilling of the nearby former quarry of at least 26 years, the gas generation potential from this landfill is considered to have likely decreased significantly in accordance with US EPA modelling for typical landfills as depicted in Figure 2-1 below.

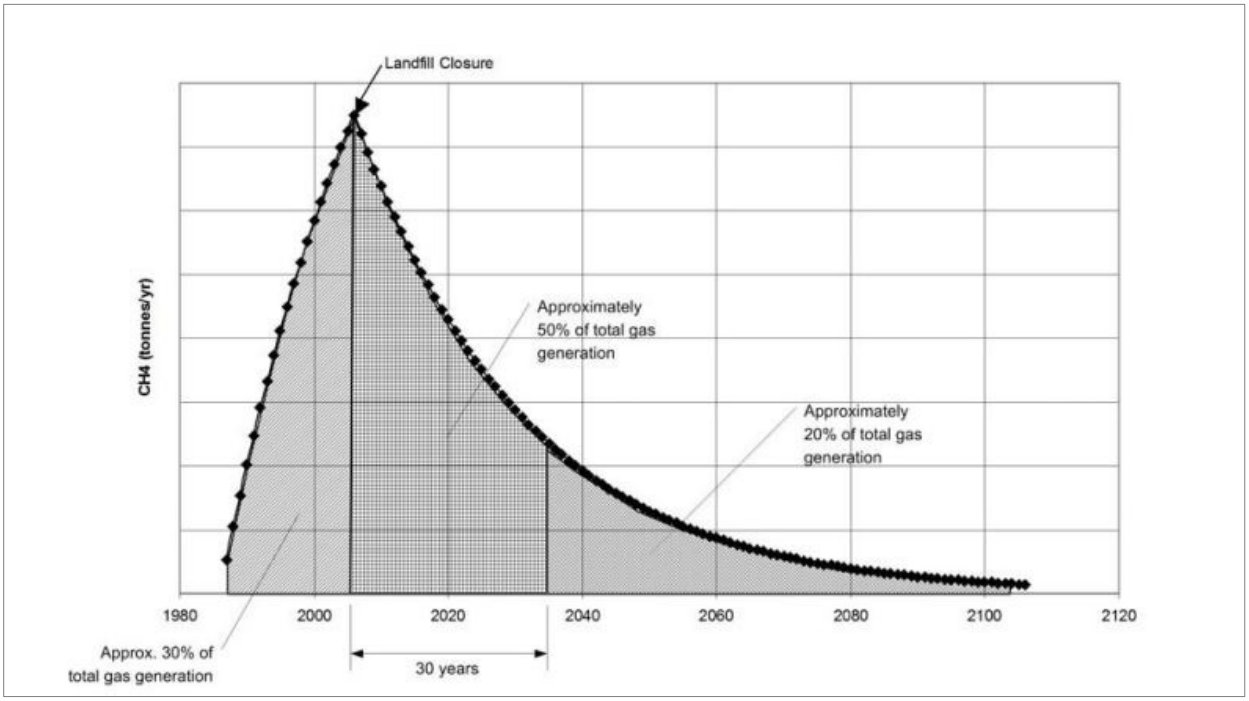

Figure 2-1: Typical landfill gas generation curve (after US EPA, 2005).

Potential Landfill Gas Receptors

Potential landfill gas receptors to be considered at the site include:

- future site occupants;
- site workers during construction works performed as part of the proposed development; and
- maintenance workers conducting intrusive works in underground utility pits, landscaped garden beds, etc.

Potential Landfill Gas Pathways

Potential pathways for exposure of the above receptors potentially affected by accumulation within enclosed spaces and inhalation of landfill gas are listed below:

- landfill gas generated from the former landfill migrating vertically and horizontally through soils and rock underlying the landfilled and surrounding areas;
- preferential migration of landfill gas via utility services and associated backfilled trenches; and
- dissolution of methane from landfill leachate into groundwater and subsequent migration of the methane away from landfilled areas.

Likelihood of Complete Source-Receptor Pathways

For exposure to occur, a complete pathway must exist between the potential source of landfill gas and the receptor. Where the exposure pathway is incomplete, there is no exposure and hence no risk via that pathway.

No direct underground utility services or associated trenches between the proposed development areas, the eastern triangle portion of the site and the nearby former quarry were identified (refer Section 2.4), suggesting gas migration via this pathway is unlikely.

The regional flow direction of groundwater underlying the site and the former quarry is likely to be in a general easterly direction towards the Barwon River. As such, potentially dissolved methane in groundwater originating from the former quarry may migrate to proposed development areas of site to the east of the former quarry.

Based on the relative topography of the site with respect to the former quarry (i.e. 90 – 100 mAHD at site compared with approximately 95 mAHD at the former quarry), potential exists for subsurface migration of gas generated by landfilling activity to proposed development areas at the site via underlying soil and rock.

3 Landfill Guidelines & Assessment Criteria

3.1 Landfill Guidelines

General information and guidelines for landfills in Victoria are detailed in:

- EPA Victoria (2015) Publication 788.3 - *Best Practice Environmental Management – Siting, Design, Operation, and Rehabilitation of Landfills* (Landfill BPEM);
- EPA Victoria (2018) Publication 1684 - *Landfill gas fugitive emissions monitoring guideline*; and
- EPA Victoria (2017) Publication 1642 – *Assessing planning proposals within the buffer of a landfill*.

According to the Landfill BPEM, a specific zone called a buffer zone is required to protect the public from any impacts resulting from a failure of landfill design or management or abnormal weather conditions. The failures might be in the form of discharge from the site of potentially explosive gas, offensive odours, noise, litter and dust.

Default buffer distances are set to reflect the potential impacts from landfilling activities. The post-closure buffers are set to manage landfill gas impacts, including the risk of explosion and/or asphyxiation. Buffer distances are measured from sensitive land use (i.e. residential area) to the edge of the closest cell or premises boundary, whichever is more practicable. The distances vary from 200 m for Type 3 landfill (inert materials) to 500 m for Type 2 landfill (putrescibles / municipal waste).

Buffer distances apply to closed landfill sites until the site has stabilised to the point where the potential for subsurface landfill gas migration has largely ceased, which can be in excess of 30 years.

3.2 Landfill Gas Assessment Criteria

To investigate risk posed by fugitive landfill gas emissions, reference was made to the action levels within Landfill BPEM as listed in Table 3-1 below.

Table 3-1: Landfill Gas Action Levels

Location	Parameter	Action level
Subsurface services on and adjacent to landfill site	Methane	10,000 ppm (1% v/v)
Buildings/structures on and adjacent to the landfill site	Methane	5,000 ppm (0.5% v/v)
Subsurface geology at the landfill boundary	Methane & carbon dioxide	1% v/v methane or 1.5% v/v carbon dioxide above background

Calculation of gas screening values (GSVs) using gas concentrations and flow rates was also performed in accordance with British Standard (2015) *BS8485:2015 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings* (BS8485:2015). The GSV is a multiple of the maximum gas flow rate (L/hr) from a gas monitoring bore and the corresponding maximum gas concentration (% v/v).

4 Landfill Gas Investigations

4.1 Landfill Gas Assessment Methodology

To investigate for the presence of landfill gas a combination of underground utility monitoring and sub-surface gas bore monitoring was performed at and near site on 10 July 2020. Monitoring locations are presented on Figure 1 – Landfill Gas Sampling Location Plan (refer Appendix I).

Utility Monitoring

Monitoring of landfill gas emissions (inclusive of methane and carbon dioxide) from one accessible underground service utility was performed adjacent to site using a GTI GA5000 landfill gas monitor (refer calibration certificate presented in Appendix VI). Monitoring at the utility location continued for two minutes until stabilised readings were obtained. Descriptions of the landfill gas monitoring utility location is presented in Table 4-2.

Landfill Gas Bore Installation & Monitoring

Four onsite landfill gas bores, LFG01 to LFG04, were installed on 10 July 2020 at each of the proposed dwelling, machinery shed and wool store shed locations and one near the boundary of the eastern triangle portion of the site. Following drilling of soil boreholes to the target depth using a hand auger, the gas bores were constructed using a 50 mm diameter PVC (Class 18) casing and factory slotted screen (3 mm wide slots). Upon placing the casing into each borehole, a 7 mm washed and graded gravel packing was installed, extending for up to 0.05 m above the slotted screen interval. A seal of approximately 0.5 m thick of moistened bentonite was placed above the gravel pack. The PVC casing extended up beyond the surface with an approximate 'stick up' of 1.0 m and was sealed with a gas-tight TriCap Gas cap.

The locations of gas bores are depicted on Figure 1 – Landfill Gas Sampling Location Plan (refer Appendix I). Construction details of the bores and descriptions of the material encountered during excavation of the bores are provided in the borehole log sheets (refer Appendix VII).

Monitoring of gas emissions into subsurface geology was undertaken on 10 July 2020 via the onsite landfill gas bores in accordance with EPA Victoria (2018) *Publication 1684 – Landfill gas fugitive emissions monitoring guideline*. Measurements were collected with a calibrated GTI GA5000 gas analyser and included peak and stabilised methane, carbon dioxide and oxygen concentrations as provided in Table 4-3.

Supplementary parameters including relative and atmospheric pressure, stabilisation time and flow rate were also measured and recorded for the gas bore using the GA5000. Copies of the landfill gas monitoring field sheets are provided in Appendix VIII.

Landfill Gas Bore Leak Testing

To ensure the landfill gas bores had an adequately gas-tight seal at the surface, post-installation leak testing was performed following monitoring of each bore. The leak testing procedure included:

- Placing a stainless steel shroud with rubber seal over the PVC bore casing;
- Connecting the GA5000 sampling tube to the gas tight bore cap sampling point;
- Connecting a regulated carbon dioxide gas cylinder to the shroud with Teflon tubing via brass and nylon fittings;

- Filling the shroud with carbon dioxide from the gas cylinder; and
- Monitoring for the presence of elevated carbon dioxide concentrations in the gas bore with the GA5000 for at least three minutes.

Results of the leak test monitoring did not identify the presence of increased carbon dioxide concentrations indicating each gas bore was leak free and no dilution from ambient air was occurring.

4.2 Field Odour Observations

No potentially offensive odours were noted at or nearby the site during the site inspections or throughout the duration of the landfill gas monitoring.

4.3 Meteorological Conditions

Meteorological conditions as recorded by the Bureau of Meteorology (at the nearest weather station, Colac – Mount Gellibrand) before and after landfill gas measurement on 10 July 2020 are summarised in Table 4-1.

Table 4-1: Meteorological Conditions

Date	Time	Temperature (°C)	Relative Humidity (%)	Wind Direction	Wind Speed (km/h)	Atmospheric Pressure (hPa)
9 July 2020	3:00pm	11.5	96	N	22	1025.0
10 July 2020	**9:00am**	**7.3**	**87**	**NNE**	**11**	**1023.9**
10 July 2020	**3:00pm**	**11.8**	**88**	**ENE**	**4**	**1020.4**
11 July 2020	9:00am	8.8	89	N	2	1017.5

It is considered that monitoring was completed under satisfactory meteorological conditions for the purposes of the assessment during decreasing or stable atmospheric pressure, in general accordance with EPA Victoria guidelines.

4.4 Landfill Gas Monitoring Results

A complete record of all landfill gas concentrations measured, including peak and stabilised readings (where applicable), is provided on the Landfill Gas Monitoring Sheets presented in Appendix VIII.

Utility Monitoring

A summary of the utility measurement location types, including maximum methane and carbon dioxide concentrations recorded, is presented in Table 4-2.

Table 4-2: Utility Landfill Gas Monitoring Results

Location	Utility Type	Maximum Methane Concentration (% v/v)	Maximum Carbon Dioxide Concentration (% v/v)
WV1	Water main valve	0.0	1.0

Landfill Gas Bore Monitoring

Results of landfill gas monitoring of the gas bores performed on 10 July 2020, together with gas screening levels (GSVs) calculated using the BS8485:2015 method outlined in Section 3.2, are presented in Table 4-3.

Table 4-3: Landfill Gas Bore Monitoring Results

Bore	Date	Flow Rate (L/hr)	Peak Methane (% v/v)	Methane GSV (L/hr)	Peak Carbon Dioxide (% v/v)	Carbon Dioxide GSV (L/hr)
LFG01	10 July 2020	0.0*	0.0	0.0	0.2	0.0002*
LFG02	10 July 2020	0.1	0.0	0.0	0.8	0.0008
LFG03	10 July 2020	0.0*	0.0	0.0	0.3	0.0003*
LFG04	10 July 2020	0.0*	0.0	0.0	0.6	0.0006*

GSV – Gas screening value = maximum bore flow rate (L/hr) x maximum gas concentration (% v/v)

* – Positive flow rate of 0.1 L/hr conservatively utilised for GSV calculation

4.5 Interpretation of Results

Landfill Gas Action Levels

The landfill gas measurement results presented in Section 4.4 demonstrate that detected methane and carbon dioxide concentrations at and near site, were below the landfill gas action levels adopted in Section 3.2.

Gas Screening Values

In accordance with Section 6.4 of BS8485:2015, the calculated gas screening values of 0.0 and 0.0008 for methane and carbon dioxide respectively, indicate a characteristic gas situation (CS) of 1 (i.e. GSV is less than 0.07 L/hr). CS 1 is defined as posing a 'very low' hazard potential indicating that there is a low possibility that harm could arise to a potential receptor.

Based on these results, it is considered that the risk of adverse impacts upon the proposed site developments and the eastern triangle portion of the site from landfill gas migrating from the closed landfill is very low.

5 Conclusions & Recommendations

5.1 Conclusions

A summary of pertinent findings of the landfill gas risk assessment is provided below:

- The northern portion of the site appears to be partially underlain by a former quarry.
- A review indicated that the former quarry may have been backfilled with putrescible material until as recently as 1994.
- Due to the likely presence of putrescible waste in material historically used to backfill the former quarry, potential for generation of methane exists during decomposition of this material. However, given that landfilling of the former quarry ceased at least 26 years ago, the potential for significant subsurface landfill gas migration is likely to have largely decreased.
- No distinct odours were noted at or nearby site during inspection and monitoring works.
- Results of landfill gas monitoring did not report elevated surface concentrations of gas at the site or within the measured potential pathways of gas migration (e.g. underground service utilities) on or near site at the time of monitoring.
- Based on the assessment findings, it is considered that the risk of subsurface landfill gas migration from the former quarry adversely impacting the proposed site developments or the eastern triangle portion of the site is very low.

5.2 Recommendations

Based on findings of the assessment:

- No ongoing management or monitoring of landfill gas is recommended for the site with respect to the proposed site development; and
- Further assessment of landfill gas risk via an environmental audit under Section 53V of the *Environment Protection Act 1970* is not recommended for the site.

Should further information pertaining to nearby landfills, environmental reports or gas monitoring be provided, or the proposed development change, the findings of this report may need to be reviewed, and further assessment works may be required.

6 Statement of Limitations

This report has been commissioned and produced for Earl Civil (the client), care of Spectrum Planning Solutions. The application or use of this report is for the sole purpose of the client. Jet Environmental accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. The use, application, misuse or misapplication of information (whether in part or whole) or any consequences of its use, provided by Jet Environmental is not the responsibility of Jet Environmental, its employees, servants or agents. This report may not be reproduced or amended in any way without prior approval by the client and Jet Environmental. This report must be read in its entirety and in conjunction with the attached documents, only applying the report in accordance with the stated aims as outlined in the introduction of this report.

The interpretation of results, conclusions and recommendations presented in this report are predominantly based on the results of analyses at the time of the assessment works and may alter if the data obtained is not representative of the subsurface as i) soil, rock and aquifer conditions are often variable, ii) contaminant characteristics may be variable, and iii) boundaries between zones of variable contamination are often indistinct - potentially resulting in heterogeneous contaminant distributions across site. Furthermore, surface and sub-surface conditions may change in the future either naturally or anthropogenically.

Areas that were unable to be assessed due to access restrictions (e.g. buildings, overhead utilities, underground structures etc.) and/or a limited scope of works do not form part of this report.

Should further information become available regarding conditions at the site or relevant issues including previously unknown sources of contamination, Jet Environmental reserves the right to review the report in the context of the additional information.

All works carried out in preparing this report have been conducted on a fully professional basis with due care and attention utilising Jet Environmental professional knowledge and understanding of relevant and current National and State Standards, Codes of Practice, Regulations and Acts. Changes in Acts, Regulations or guidance information may occur at any time resulting in conclusions contained in this report becoming invalid, incorrect or inappropriate. Jet Environmental, at its discretion, may advise the client of the potential impact of such changes but does not accept responsibility for advising of, or implications of, any such changes.

7 References

British Standard (2015) *BS8485:2015 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*.

EPA Victoria (2015) Publication 788.3 – *Best Practice Environmental Management: Siting, design, operation and rehabilitation of landfills*.

EPA Victoria (2018) Publication 1684 – *Landfill gas fugitive emissions monitoring guideline*.

EPA Victoria (2017) Publication 1642 – *Assessing planning proposals within the buffer of a landfill.*

EPA Victoria (nd) *Victorian Landfill Register (VLR)*. Accessed online 8 July 2020. https://ref.epa.vic.gov.au/your-environment/waste/landfills/victorian-landfill-register

Federation University (nd) *Visualising Victoria's Groundwater*. Accessed online on 8 July 2020. https://www.vvg.org.au/vvg_map.php

Provincial Geotechnical Pty Ltd (2020) *Land Capability Assessment Report – 25 Cressy Road, Winchelsea (Reference No. 14187D).*

US EPA (2005) *Landfill Gas Emission Model (LandGEM) version 3.02*. Publication No. EPA-600/R-05/047.

APPENDIX I:

Site Plans

LEGEND:

NORTH

SITE BOUNDARY

LANDFILL BOUNDARY (APPROXIMATE)

LANDFILL GAS SAMPLE (UTILITY PIT / DRAIN)

LANDFILL GAS BORE

TITLE:	LANDFILL GAS SAMPLE LOCATION PLAN
FIGURE NO:	FIGURE 1
SITE:	25 CRESSY RD, WINCHELSEA
JOB NO:	J1214
DRAWN BY:	MS
REFERENCE:	GOOGLE EARTH

0 100 200 m

JET environmental

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ALTONA VIC 3018
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APPENDIX II:

Proposed Development Plans

Existing Site Plan
SCALE 1 : 1000

Client :	Robert Earl		
Proposal :	Proposed New Dwelling		
Address :	25 Cressy Rd Winchelsea		
Drawing # :	201045	Rev :	E
Sheet # :	TP 01 of 08	Checked :	GM
Scale :	1 : 1000	Date :	26/06/2020
Description:	Existing Site Plan		

CACTUSDESIGNS INSIDE+OUT
Fact 2, 39 Smithton Gve
Ocean Grove 3226
P: 5244 0921
M: 0438 293 745
Registration #
DP-AD 27931

AREAS	
Site:	: 243398.84m² - 24.34 ha
Proposed Residence:	: 232.9m² - 25.07sqs
Proposed Garage:	: 163.15m² - 17.56sqs
Proposed Alfresco & Veranda:	: 94.26m² - 10.15sqs
Total Inc. Garage:	: 490.31m² - 52.77sqs

ISSUED FOR:	
DATE:	
07/05/2020	Rev C - Town Planning Application
03/06/2020	Rev D - Town Planning Further Info
26/06/2020	Rev E - Town Planning Further Info

Cressy Rd

CRESSY ROAD

Cressy Rd

#25

SITE 172.24m 123° 09' 50"

PROPOSED POST & WIRE FENCE

PROPOSED 6m WIDE (MIN) PASSING BAY 20m (MIN) LONG, EVERY 200M

PROPOSED 5m ALL WEATHER ACCESS (CRUSHED ROCK)

SITE 255.55m 203° 15' 50"

SITE 92.302m 123° 09' 50"

25 Cressy Ro

SITE 142.168m 123° 09' 50"

SITE 90.00m 10° 12' 50"

SITE 201.61m 10° 12' 50"

LOT 3
TP407625C

50000

SITE 150.00m 10° 12' 50"

35000

PROPOSED NEW SHED

SITE 800.12 10° 14' 50"

UN NAMED GOVERNMENT Rd

RED LINE INDICATES 250m FROM PROPOSED DWELLING

SITE 169.48m 100° 12' 50"

SITE 85.0m 100° 12' 50"

20000

PROPOSED 6m WIDE (MIN) PASSING BAY 20m (MIN) LONG, EVERY 200M

PROPOSED POST & WIRE FENCE RESIDENTIAL CURTILAGE BOUNDARY

PROPOSED POST & WIRE FENCE

RED LINE INDICATES 250m FROM PROPOSED DWELLING

5

9

4

LOT 2
TP407625C

SITE 339.19 190° 15' 20"

300m² (3 x 10mx10m PODS) PROPOSED EFFLUENT FIELD

DWELLING CURTILAGE
20165m² - 2.0165 ha

92.000 92.500 93.000 93.500 94.000 94.500 95.000

PROPOSED RESIDENCE

5089

11590

31796

PROPOSED GARAGE

PROPOSED DEDICATED CFA 10000 l WATER TANK, WITH CFA APPROVED FITTINGS

PROPOSED 10000 l WATER TANK

PROPOSED POST & WIRE FENCE RESIDENTIAL CURTILAGE BOUNDARY

LOT 1
TP591824M

PROPOSED POST & WIRE FENCE RESIDENTIAL CURTILAGE BOUNDARY

SITE 342.04 10° 12' 50"

20000

10

11

8

SITE 243.48 252° 33' 10"

UN NAMED GOVERNMENT Rd

SITE 308.81 252° 33' 10"

RAILWAY LINE

Storage King W

Wi

EFFLUENT LEGEND

- SEWER LINE
- 300 m2 EFFLUENT FIELD
- 10,000l WATER HARVESTING TANK
- 10,000l WATER DEDICATED CFA TANK
- SEWER TREATMENT PLANT

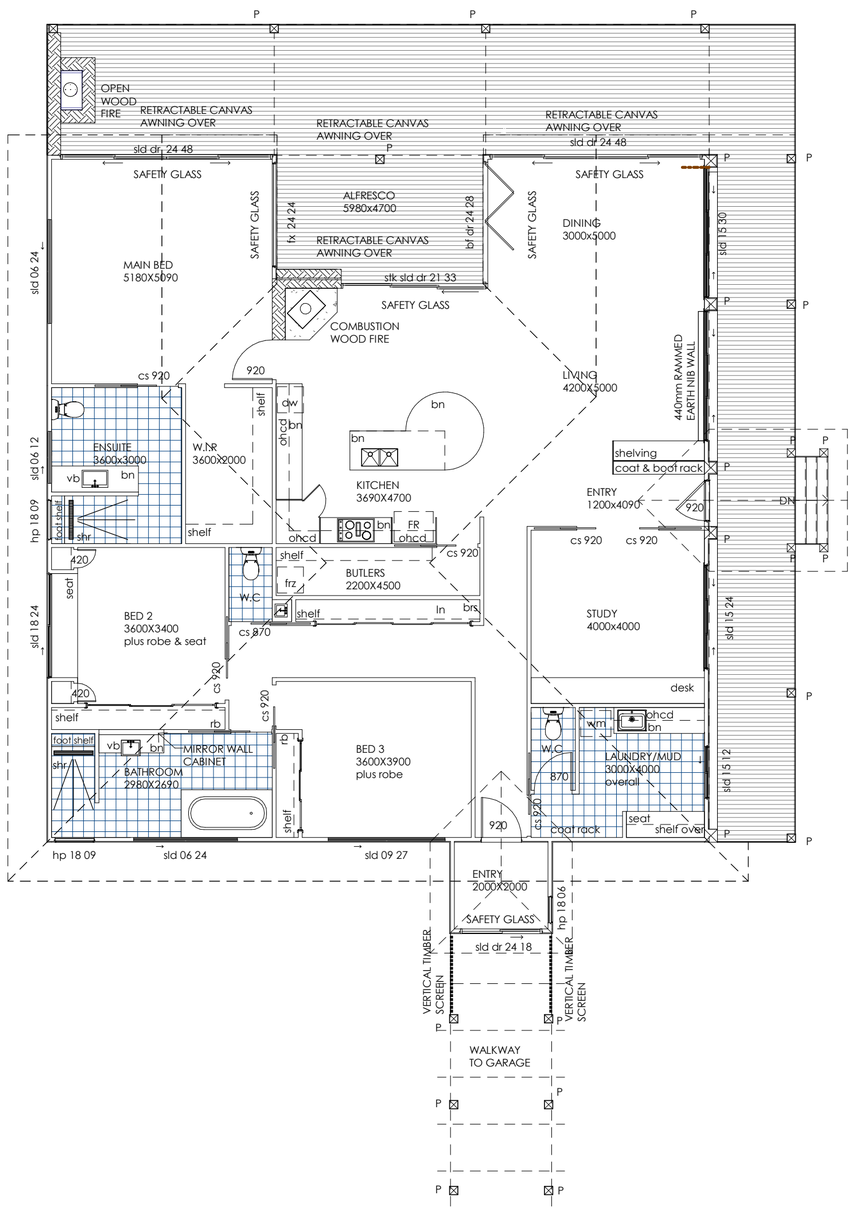
Proposed Site Plan
SCALE 1 : 1000

Client :	Robert Earl
Proposal :	Proposed New Dwelling
Address :	25 Cressy Rd Winchelsea
Drawing # :	201045 Rev : E
Sheet # :	TP 02 of 08 Checked : GM
Scale :	As indicated Date : 26/06/2020
Description:	Proposed Site Plan

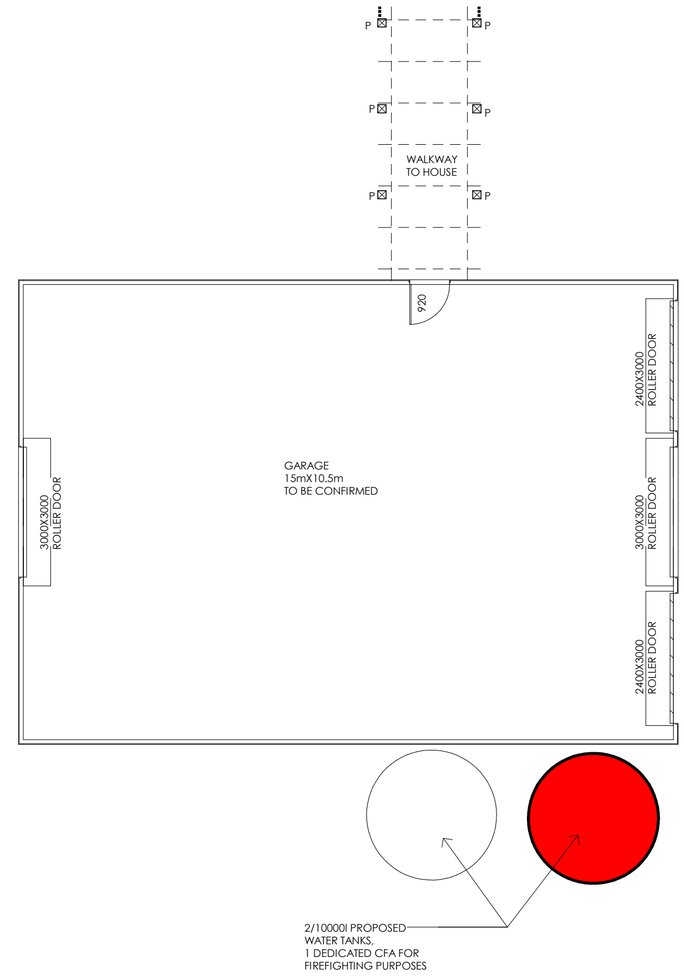
CACTUSDESIGNS INSIDE • OUT
Unit 2, 39 Smithton Gve
Ocean Grove 3226
P: 5244 0921
M: 0438 293 745
Registration #
DP-AD 27931

AREAS	
Site:	: 243398.84m² - 24.34 ha
Proposed Residence:	: 232.9m² - 25.07sqs
Proposed Garage:	: 163.15m² - 17.56sqs
Proposed Alfresco & Veranda:	: 94.26m² - 10.15sqs
Total Inc. Garage:	: 490.31m² - 52.77sqs

ISSUED FOR:	
DATE:	
07/05/2020	Rev C - Town Planning Application
03/06/2020	Rev D - Town Planning Further Info
26/06/2020	Rev E - Town Planning Further Info



Proposed Floor Plan
SCALE 1 : 100



Proposed Garage Floor Plan
SCALE 1 : 100

Client :	Robert Earl		
Proposal :	Proposed New Dwelling		
Address :	25 Cressy Rd Winchelsea		
Drawing # :	201045	Rev :	E
Sheet # :	TP 03 of 08	Checked :	GM
Scale :	As indicated	Date :	26/06/2020
Description:	Proposed Floor Plan		

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Ocean Grove 3226
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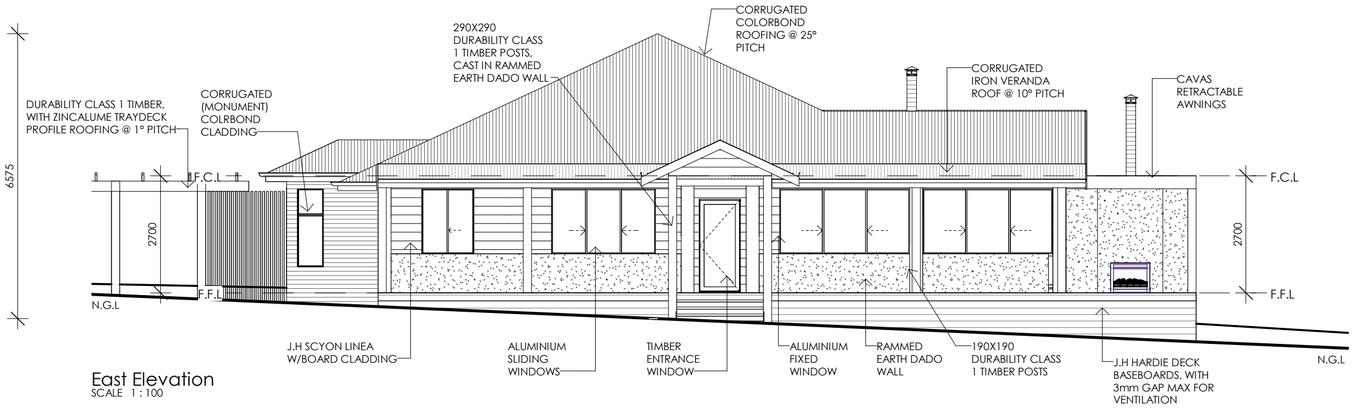
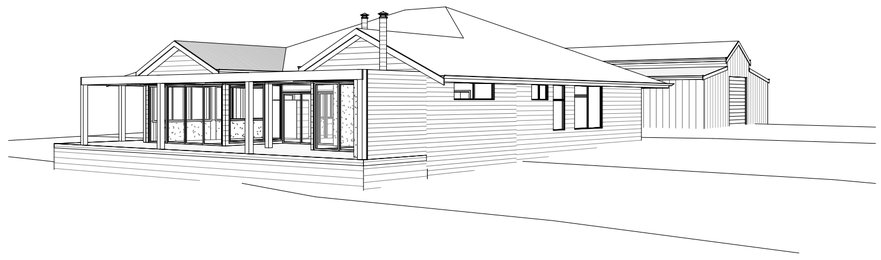
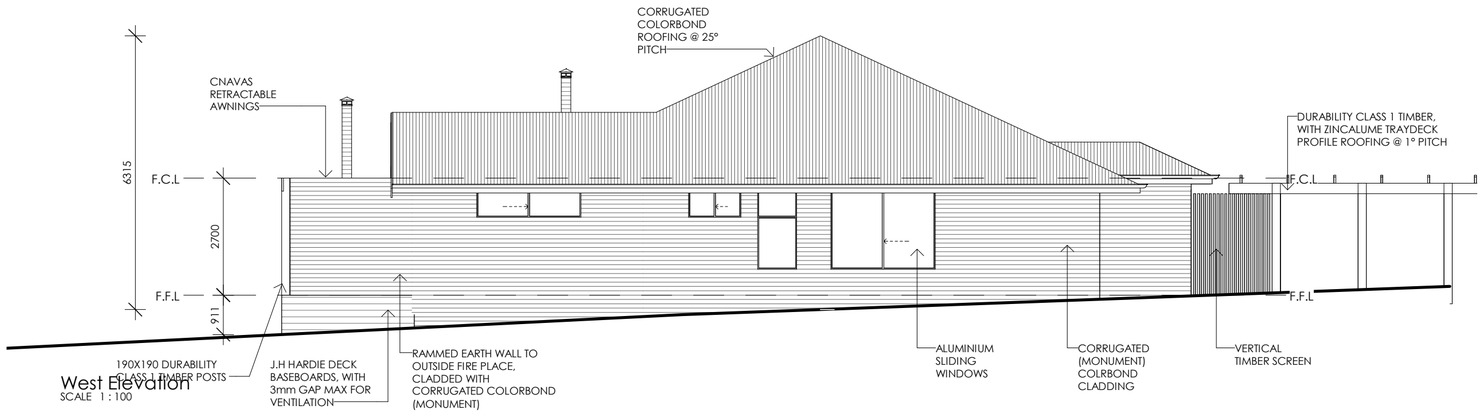
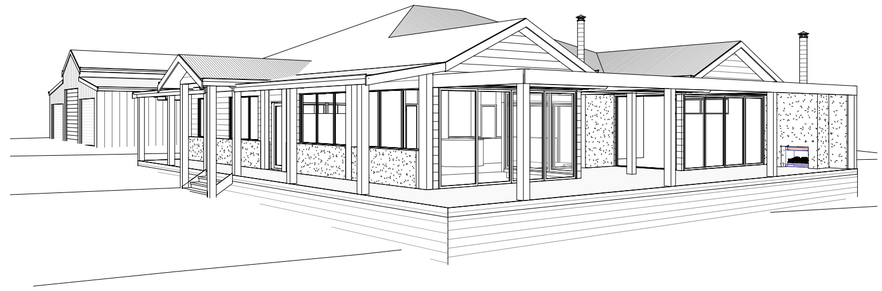


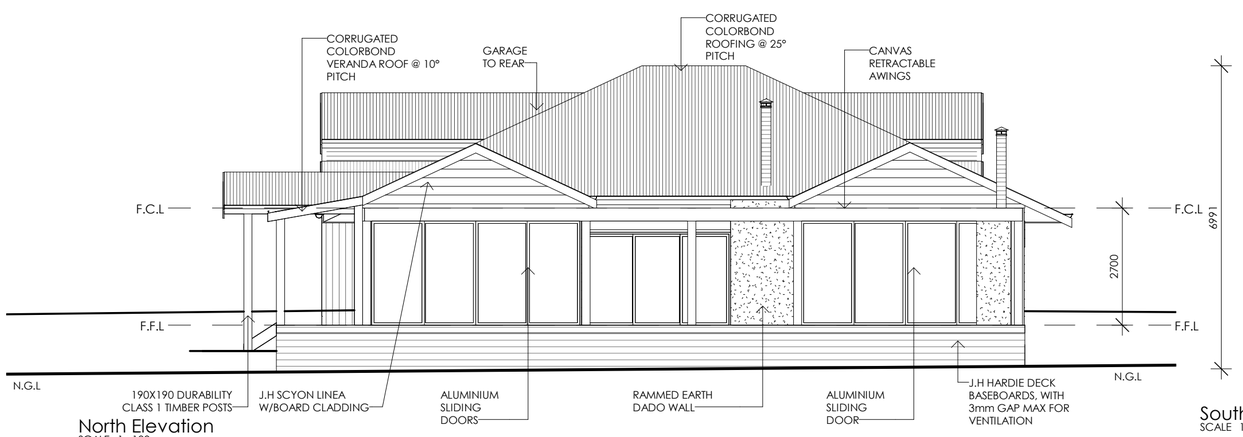
East Elevation
SCALE 1 : 100



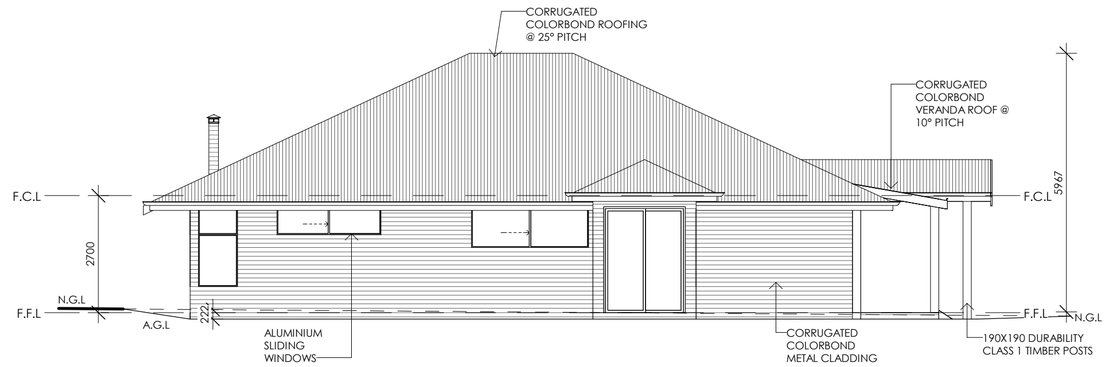


West Elevation
SCALE 1 : 100





North Elevation
SCALE 1 : 100



South Elevation
SCALE 1 : 100

Client :	Robert Earl		
Proposal :	Proposed New Dwelling		
Address :	25 Cressy Rd Winchelsea		
Drawing # :	201045	Rev :	E
Sheet # :	TP 04 of 08	Checked :	GM
Scale :	1 : 100	Date :	26/06/2020
Description:	Elevations		

CACTUSDESIGNS INSIDE + OUT
Fact 2, 39 Smithton Gve
Ocean Grove 3226
P: 5244 0921
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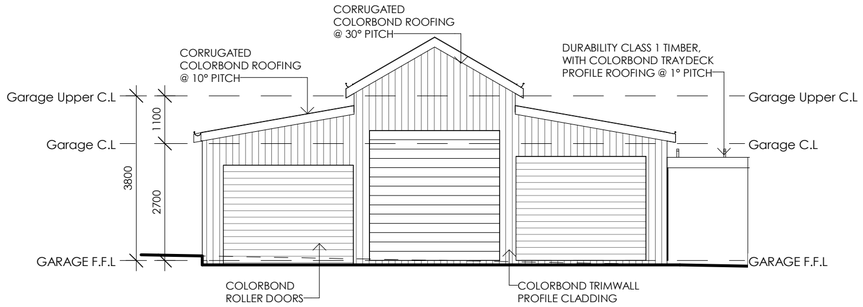
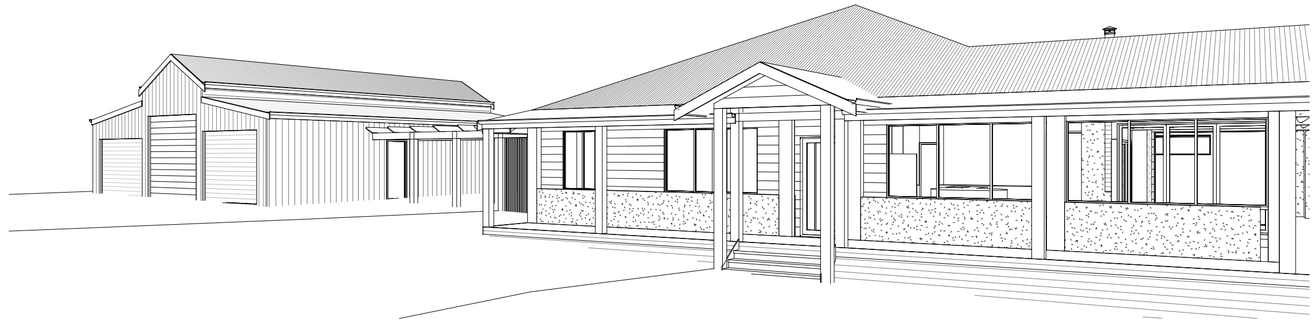
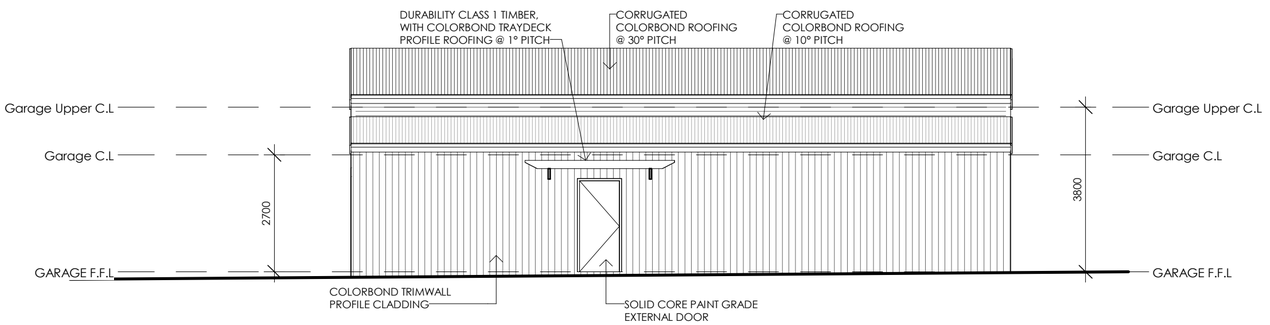
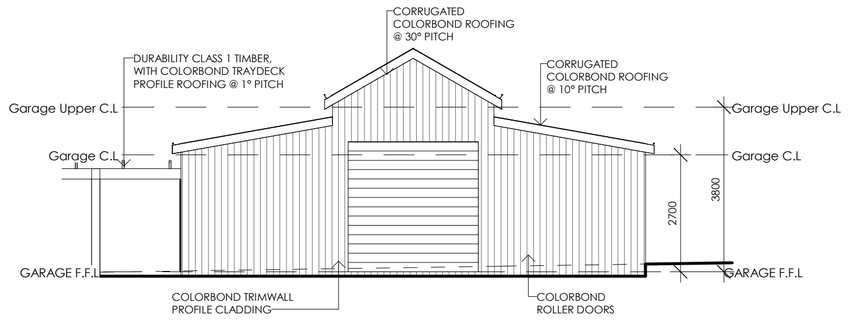


Garage East Elevation
SCALE 1 : 100

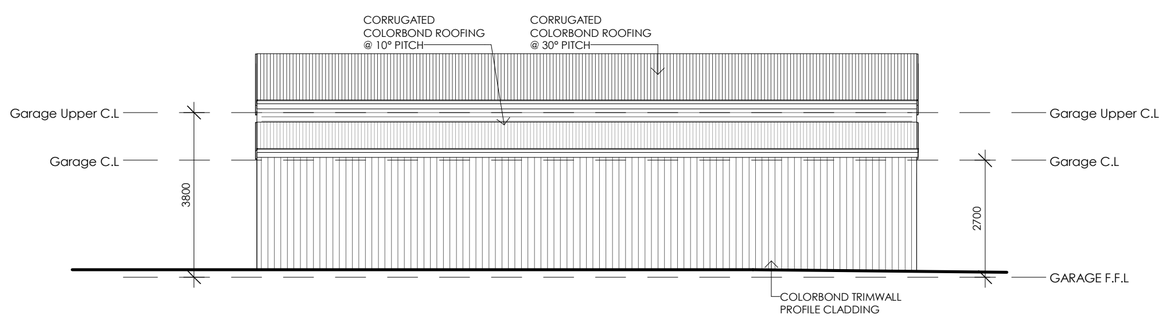




Garage North Elevation
SCALE 1 : 100



Garage West Elevation
SCALE 1 : 100



Garage South Elevation
SCALE 1 : 100

Client :	Robert Earl		
Proposal :	Proposed New Dwelling		
Address :	25 Cressy Rd Winchelsea		
Drawing # :	201045	Rev :	E
Sheet # :	TP 05 of 08	Checked :	GM
Scale :	1 : 100	Date :	26/06/2020
Description:	Garage Elevations		

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DEFENDABLE SPACE

The area of defendable space is to extend in all directions from the perimeter of the building to the properties boundaries, shown shaded green on the site plan, where vegetation (and other flammable materials) will be modified and managed in accordance with the following requirements:

- Grass must be less than 50mm high during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10m of the building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10cm in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy trees.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 2m and tree canopy must not exceed 15%.
- There must be clearance of at least 2m between the lowest branches and ground level.
- Features with high flammability such as doormats and firewood stacks should not be located near the structure.

CONSTRUCTION STANDARDS

Any new buildings will be designed and constructed a minimum Bushfire Attack Level of BAL 19 for both Proposed Residence & Outbuilding

WATER SUPPLY

Fire Hydrant within 30m of site or show a minimum of 10,000 litres of effective water supply for fire fighting purposes including:

- The location of the CFA outlet, the occupier's outlet and the pipeline between the tank and the CFA outlet, and
- Use either
  100mm PVC or copper or,
  90mm HDPE pipe to remote outlet 4m minimum from title boundary

The water supply must be installed so that it meets the following requirements:

- The static water supply must be stored in a tank constructed of concrete or **metal.**
- The static water supply must be provided with an outlet for the CFA (CFA outlet) that includes a 64 mm CFA 3 thread per inch male coupling.
- The static water supply must also include an outlet which incorporates a ball or gate valve separate to the CFA outlet for use by the owner/occupier of the land.
- The CFA outlet must be:
  a. Easily accessible by a firefighter in the event of a bushfire,
  b. Clear of all vegetation for a distance of 1.5 metres,
  c. Setback from flammable objects (including timber fences and timber retaining walls) for a minimum distance of 1.5 metres,
  d. Located a minimum distance of 10 metres and no more than 60 metres from the dwelling, and
  e. Oriented horizontally.
- The internal diameter for the fitting connecting the tank to the pipeline must be equivalent to or greater than the internal diameter of the pipeline between the tank and the fire authority outlet.
- The centreline of the CFA outlet must be:
  a. A minimum of 300mm and maximum 600mm in height above the finished ground level, and
  b. Located below the level of the outlet on the tank.
- The riser for the CFA outlet must be supported by a galvanised steel post at least 50mm x 50mm or equivalent which is concreted in the ground to a depth of at least 450mm.
- A 65mm British Standard Pipe (BSP) ball or gate valve must be provided at the CFA outlet to control the flow of water to the CFA coupling. Any other valves between the CFA outlet and the tank must be locked in the open postion.
- The CFA outlet must be easily identifiable from the entrance to the property or signage must be provided that meets the following requirements:
  a. Has an arrow pointing to the location of the fire authority outlet,
  b. Has dimensions of not less than 310mm high and 400mm long,
  c. Is red in colour, with a blue reflective marker attached, and
  d. Is labelled with a 'W' that is not less than 15cm high and 3cm thick.
- The CFA outlet must include a fade-resistant or engraved sign that:
  a. Is fixed to the post supporting the fire authority outlet riser,
  b. Has a minimum height of at least 1.5m from the ground surface level, and
  c. Includes the words "FIRE WATER TANK OUTLET" in lettering that is a minimum of 50mm in height and white on a red background.
- A blue reflective disc at least 50mm in diameter must be attached to the post holding the sign. The blue reflective disk must be located immediately below the sign.
- All below-ground water pipes must be installed to provide at least the following cover below the finished surface:
  a. 300 mm for pipes subject to vehicle traffic,
  b. 75 mm for pipes under dwellings or concrete slabs, and
  c. 225 mm for all other locations.

Defendable Space Zone

ACCESS REQUIREMENTS

1 - CURVES MUST HAVE A MINIMUM INNER RADIUS OF 10m WIDE

2 - THE AVERAGE GRADE MUST NOT BE MORE THAN 1:7 WITH A MAXIMUM OF NO MORE THAN 1:5 FOR NO MORE THAN 50m

3 - HAVE A MINIMUM TRAFFICABLE WIDTH OF 3.5m ALL WEATHER CONSTRUCTION

4 - BE CLEAR OF ENROACHMENTS FOR AT LEAST .5m ON EACH SIDE AND 4m ABOVE ACCESSWAY

5 - DIPS HAVE NO MORE THAN A 1:8 ENTRY AND EXIT ANGLE

6 - INCORPORATE A TURNING AREA FOR FIRE FIGHTING VECHILES CLOSE TO THE BUILDING

CFA & Occupant Outlet

BAL LEVEL (BUSH FIRE ATTACK LEVEL)
BAL 19

BAL 19 -
Increasing Levels of Ember Attack and burning debris ignited by windborne embers together with increasing heat flux Constructed as per Construction requirements, Sections 3 & 6 of AS 3959 - 2009

Client :	Robert Earl		
Proposal :	Proposed New Dwelling		
Address :	25 Cressy Rd Winchelsea		
Drawing # :	201045	Rev :	E
Sheet # :	TP 06 of 08	Checked :	GM
Scale :	As indicated	Date :	26/06/2020
Description:	BAL Report		

NORTH W E S
CACTUSDESIGNS INSIDE • OUT
Fact 2, 39 Smithton Gve
Ocean Grove 3226
P: 5244 0921
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DP-AD 27931

BUILDING ELEMENT		BAL - LOW	BAL - 12.5	BAL - 19	BAL - 29	BAL - 40	BAL - FZ
TESTED SYSTEMS		NR	AS1530.8.1 at 12.5 kW/m2	AS1530.8.1 at 19 kW/m2	AS1530.8.1 at 29 kW/m2	AS1530.8.1 at 40 kW/m2	AS1530.8.2
TIMBER SUMMARY		NR	Window Joinery-650 kg/m3 Remainder - 750 kg/m3	Window Joinery-650 kg/m3 Remainder - 750 kg/m3	Bushfire Resisting Timber (7 Listed timber or fire retarded	Tested to AS1530.8.1	Tested to AS1530.8.2
ROOF	**Tiled**	NR	Fully sarked (Flammability index not more than 5) • Installed directly below tile battens • Must cover entire roof area including ridge and be so that there is no gaps where the sarking meets fascia, gutters, valleys and the like		Fully sarked (Flammability index not more than 5) • Installed directly below tile battens • Must cover entire roof area including ridge and extend into gutters and valleys		• System complies with AS1530.8.2 when tested from the outside, or • Having an FRL of 30/30/30 or -/30/30 when tested from the outside (NOTE: there are no known systems that comply at present)
	Sheet	NR	Fully sarked (Flammability index not more than 5) • foil backed insulation blankets may be installed over battens • gaps greater than 3mm to be sealed with a. Mesh with a max 2mm aperture made of corrosion resistant steel, bronze or aluminium or b. Mineral wool or c. Other non - combustible material		Fully sarked (Flammability index not more than 5) • foil backed insulation blankets may be installed over battens • gaps greater than 3mm to be sealed with a. Mesh with a max 2mm aperture made of corrosion resistant steel, bronze or aluminium or b. Mineral wool or c. Other non - combustible material		
FASCIA BARGEBOARDS		NR	NR	NR	• Bushfire-resisting timber • Metal fixed at 450 cts	• Complying with AS1530.8.1	• Complying with AS1530.8.2
EAVES LININGS		NR	NR	NR	• 4.5mm fibre cement • Bushfire-resisting timber	• 6mm fibre cement sheet • 6mm calcium silicate	• FRL -/30/30, or • Complying with AS1530.8.2
WINDOWS		NR	• Behind bushfire shutters - NR, or • Behind screens - NR, or • Less than 400mm off horz surface •• Frames a. Bushfire-resstng timber, or b. Timber species from E2, or c. Metal, or d. Metal reinf PVC-U •• Glazing: 4mm Grade A safety and openable part screened • Greater than 400mm off horz surface - openable part screened	• Behind bushfire shutters - NR, or • Behind screens - NR, or • Less than 400mm off horz surface •• Frames a. Bushfire-resstng timber, or b. Timber species from E2, or c. Metal, or d. Metal reinf PVC-U •• Glazing: 5mm Grade A safety and openable part screened • Greater than 400mm off horz surface - openable part screened	• Behind bushfire shutters - NR, or • Windows •• Glazing a. 5mm toughened glass and if less than 400mm from horz surface, screened b. Openable part to be screened •• Frames a. Bushfire-resisting timber, or b. Metal, or c. Metal reinf PVC-U	• Behind non-combustible bushfire shutters - NR, or • Window •• Glazing - 5mm toughened glass •• Screens to all parts of window •• Frames - metal •• Seals - Flam Index 5	• Behind bushfire shutters (shutters complying with AS1530.8.2 when tested from the outside) - NR, or • Window system having FRL of -/30/- and openable part of window screened, or • Window system complying with AS1530.8.2 and the openable part of the window screened
EXTERNAL DOORS	**SIDE HUNG**	NR	• Behind bushfire shutters - NR, or • Behind screens - NR, or • Unglazed door •• Joinery a. Non-combustible, or b. Solid having min thickness of 35mm for the lower 400mm, or c. Hollow core with a non-combustible kickplate for the lower 400mm • Glazed door •• Glazing: as per windows •• Joinery less than 400mm from horz surface a. Bushfire-resisting timber, or b. Timber species from E1, or c. Metal, or d. Metal reinf PVC-U •• Joinery greater than 400mm from horz surface - NR • Door jambs •• Less than 400mm from horz surface a. Bushfire-resisting timber, or b. Timber species from E1, or c. Metal, or d. Metal reinf PVC-U •• Greater than 400mm from horz surface - NR		• Behind bushfire shutters - NR, or • Behind screens - NR, or • Unglazed door •• Joinery a. Non-combustible, or b. Solid timber having min thickness of 35mm • Glazed door •• Glazing: 5mm toughened glass •• Joinery to be; a. Bushfire-resisting timber, or b. Metal, or c. Metal reinf PVC-U • Door jambs a. Bushfire-resisting timber, or b. Metal, or c. Metal reinf PVC-U	• Behind non-combustible bushfire shutters - NR, or • Unglazed door •• Joinery a. Non-combustible, or b. Solid timber having min thickness of 35mm, with lower 400mm screened with a mesh • Glazed •• Joinery: non-combustible •• Glazing: min 6mm toughened glass with lower 400mm screened with a mesh • Door jambs: metal • Seals: silicone	• Behind bushfire shutters (shutters complying with AS1530.8.2 when tested from the outside) - NR, or • Door system having FRL of -/30/-, or • Door system complying with AS1530.8.2 (NOTE: seals are not to compromise performance)
	SLIDING DOOR	NR	• Behind bushfire shutters - NR, or • Behind screens - NR, or • Glaze door- grade A safety glass •• Joinery less than 400m from horz surface a. Bushfire-resisting timber, or b. Timber species from E1, or c. Metal, or d. Metal reinf PVC-U		• Behind bushfire shutters - NR, or • Behind screens - NR, or • Glazed door •• Glazing: 6mm toughen glass • Door jambs •• Bushfire-resisting timber, or •• Metal	• Behind bushfire shutters - NR, or • Glazed door •• Glazing: FRL -/30/-, or behind screens (no glazing req given??) •• Joinery (not given???) •• Door jams: metal	• Behind bushfire shutters (shutters complying with AS1530.8.2 when tested from the outside) - NR, or • Door system having FRL of -/30/-, or • Door system complying with AS1530.8.2
EXTERNAL WALLS	CLADDING LIGHT-WEIGHT	NR	Any cladding within 400mm from a horz surface a. Non-combustible material, or b. Fibre-cement min 6mm thick, or c. Bushfire-resisting timber, or d. Timber species listed in E1		• Fibre-cement 6mm thick, or • Steel sheet, or • Bushfire-resisting timber	• Fibre-cement 9mm thick, or • Steel sheet, or • A system complying with AS1530.8.1	• A system complying with AS1530.8.2 when tested from outside, or • A system with an FRL of 30/30/30 or -/30/30 when tested from outside
	BRICK	NR	NR	NR	NR	NR	NR
	FRAMING MEMBERS	NR	NR	NR	NR	NR	NR
FLOORS (BEARERS, JOISTS, FLOORING)	ENCLOSED	NR	NR	NR	NR (includes mesh walls)	NR	NR
	UNENCLOSED	NR	NR	NR	• Flooring material ≤ 400m a. non-combustible b. bushfire-resisting timber, or c. particleboard or plywood flooring the underside lined with sarking or mineral wool insulation • Flooring material > 400mm - NR	• Flooring material a. non-combustible b. timber flooring members must have the underside lined with a non-combustible materials (eg fibre cement or metal sheet), or c. Complying with AS1530.8.1	• FRL of at least 30/30/30 and non-combustible surface material, or • Underside of combustible floor system protected with a 30 min resistant to incipient spread of fire system, or • Complying with AS1530.8.2 when tested from the outside
SUB-FLOOR (POSTS, STUMPS, COLUMNS ETC)	ENCLOSED	NR	NR	NR	NR	NR	NR
	UNENCLOSED	NR	NR	NR	• Non-combustible material, or • Bushfire-resisting timber	• Non-combustible material, or • Complying with AS1530.8.1	• FRL of at least 30/-/- and non-combustible, or • Complying with AS1530.8.2
DECKS, RAMPS ETC	ENCLOSED	NR	• Wall enclosing subfloor deck space first 400mm from horz surface is to be the same as for walls above • Supports - NR • Framing - NR • Decking - less than 300mm from glazed element is to be; a. Non-combustible b. Bushfire resisting timber c. Timber species from E1		• Wall enclosing subfloor deck space: •• Non-combustible •• Bushfire resisting timber •• Mesh • Supports - NR • Framing - NR • Decking to be a. Non-combustible b. Bushfire resisting timber	• Wall enclosing subfloor deck space: •• Comply with wall req •• Mesh • Supports - NR • Framing - NR • Decking to be •• Non-combustible •• Complying with AS1530.8.1	• Wall enclosing subfloor deck space: •• Comply with wall req •• Mesh • Supports - NR • Framing - NR • Decking to be to have no gaps and be; •• Non-combustible, or •• Fibre cement sheet, or •• Complying with AS1530.8.2
	UNENCLOSED	NR	• Supports - NR • Framing -NR • Decking - less than 300mm from glazed element is to be a. Non-combustible b. Bushfire resisting timber c. Timber species from E1		Supports- a. Non-combustible b. Bushfire resisting timber Framing- a. Non-combustible b. Bushfire resisting timber Decking- a. Non-combustible b. Bushfire resisting timber	Supports- a. Non-combustible b. Complying with AS1530.8.1 Framing- a. Non-combustible b. Complying with AS1530.8.1 Decking- a. Non-combustible b. Complying with AS1530.8.1	Supports- a. Non-combustible b. Complying with AS1530.8.2 Framing- a. Non-combustible b. Complying with AS1530.8.2 Decking- a. Non-combustible, or b. Fibre cement sheets, or c. Complying with AS1530.8.2
BALUSTRADES, HANDRAILS		NR	NR	NR	>125mm from glazing or combustible wall or 0mm from non-combustible wall - NR ≤125mm from glazing or combustible wall to be non-combustible or bushfire resisting timber	>125mm from glazing or combustible wall or 0mm from non-combustible wall - NR ≤125mm from glazing or combustible wall to be non-combustible	>125mm from glazing or combustible wall or 0mm from non-combustible wall - NR ≤125mm from glazing or combustible wall to be non-combustible

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Scale :	1 : 1	Date :	26/06/2020
Description:	BAL Construction Requirements		

CACTUS DESIGNS INSIDE • OUT
Fact 2, 39 Smithton Gve
Ocean Grove 3226
P: 5244 0921
M: 0438 293 745
Registration #
DP-AD 27931

#25

SITE 172.24m 123° 09' 50"

CRESSY ROAD

SITE 255.55m 203° 15' 50"

SITE 201.61m 10° 12' 50"

SITE 90.00m 10° 12' 50"

SITE 92.302m 123° 09' 50"

SITE 142.168m 123° 09' 50"

LOT 3
TP407625C

SITE 150.00m 10° 12' 50"

SITE 85.0m 100° 12' 50"

SITE 169.48m 100° 12' 50"

UN NAMED GOVERNMENT Rd

SITE 800.12 10° 14' 50"

SITE 339.19 190° 15' 20"

LOT 2
TP407625C

LOT 1
TP591824M

SITE 342.04 10° 12' 50"

SITE 243.48 252° 33' 10"

SITE 308.81 252° 33' 10"

RAILWAY LINE

UN NAMED GOVERNMENT Rd

Proposed Sub Division Plan
SCALE 1 : 1000

Client :	Robert Earl		
Proposal :	Proposed New Dwelling		
Address :	25 Cressy Rd Winchelsea		
Drawing # :	201045	Rev :	E
Sheet # :	TP 08 of 08	Checked :	GM
Scale :	1 : 1000	Date :	26/06/2020
Description:	Plan of Sub Division		

NORTH W E S

CACTUSDESIGNS INSIDE • OUT

Fact 2, 39 Smithton Gve
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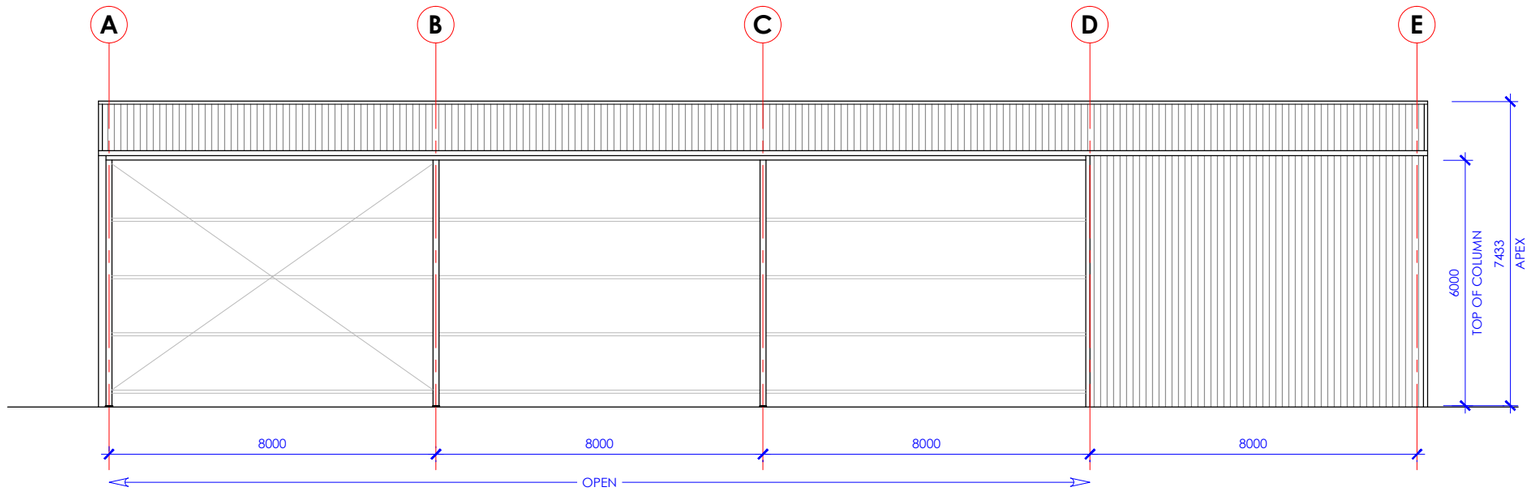
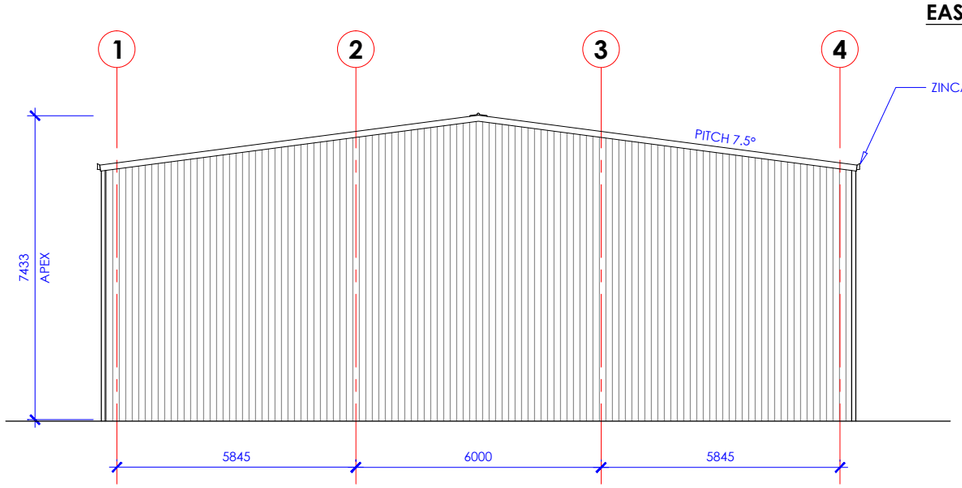
Registration #
DP-AD 27931

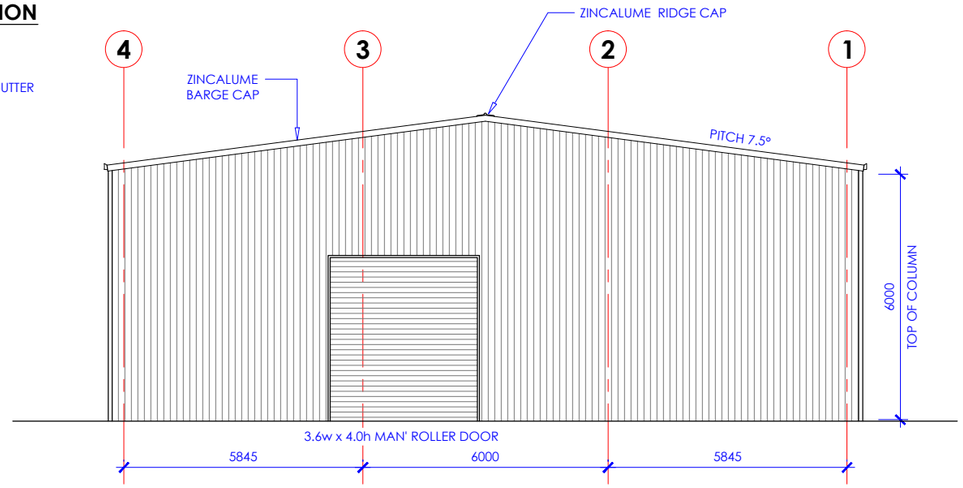
PROPOSED 32.0 x 18.0 x 6.0m SHED FOR ROBERT EARL, 25 CRESSY ROAD, WINCHELSEA 3241



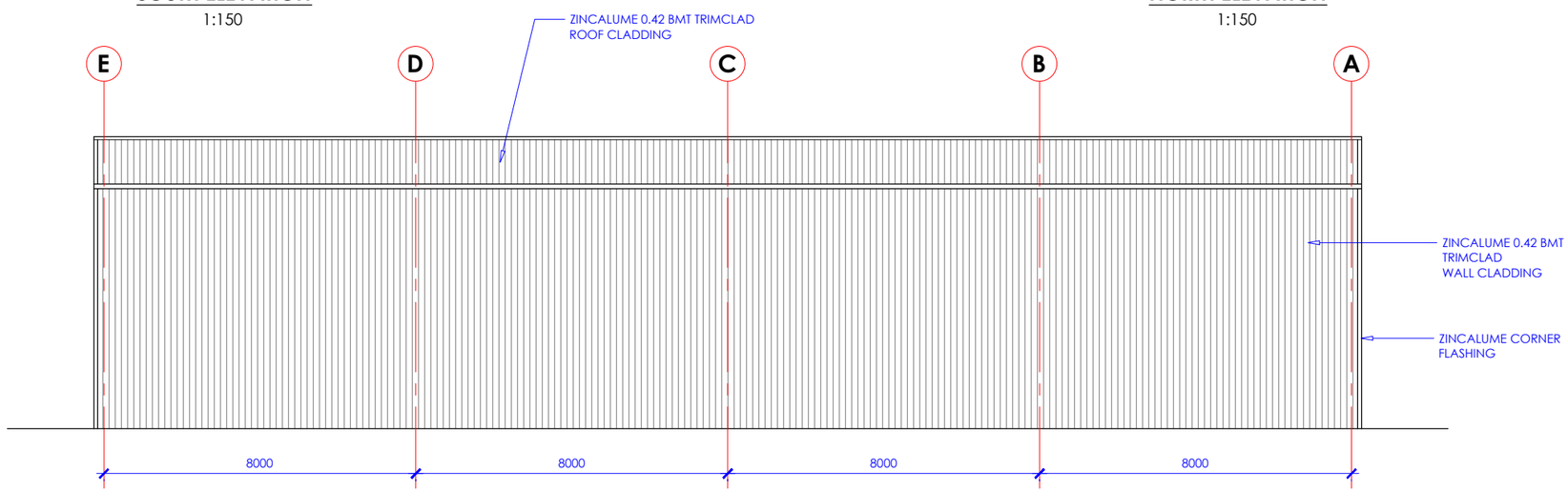
EAST ELEVATION
1:150



SOUTH ELEVATION
1:150



NORTH ELEVATION
1:150



WEST ELEVATION
1:150

* ALL STORMWATER TO APPROVED POINT OF DISCHARGE TO THE SATISFACTION OF THE RELEVANT AUTHORITY.

DRAWING NAME.
PROPOSED 18.0m SPAN SHED

ACTION STEEL INDUSTRIES
20 - 24 PLAYFORD STREET
STAWELL VICTORIA, 3380
PH - (03) 5358 5555
FX - (03) 5358 4680
EM - sales@actionsteel.com.au
WEB - www.actionsteel.com.au

REVISION NO.

REV.	DESCRIPTION.	DATE.
A	BUILDING PERMIT ISSUE	08/05/20

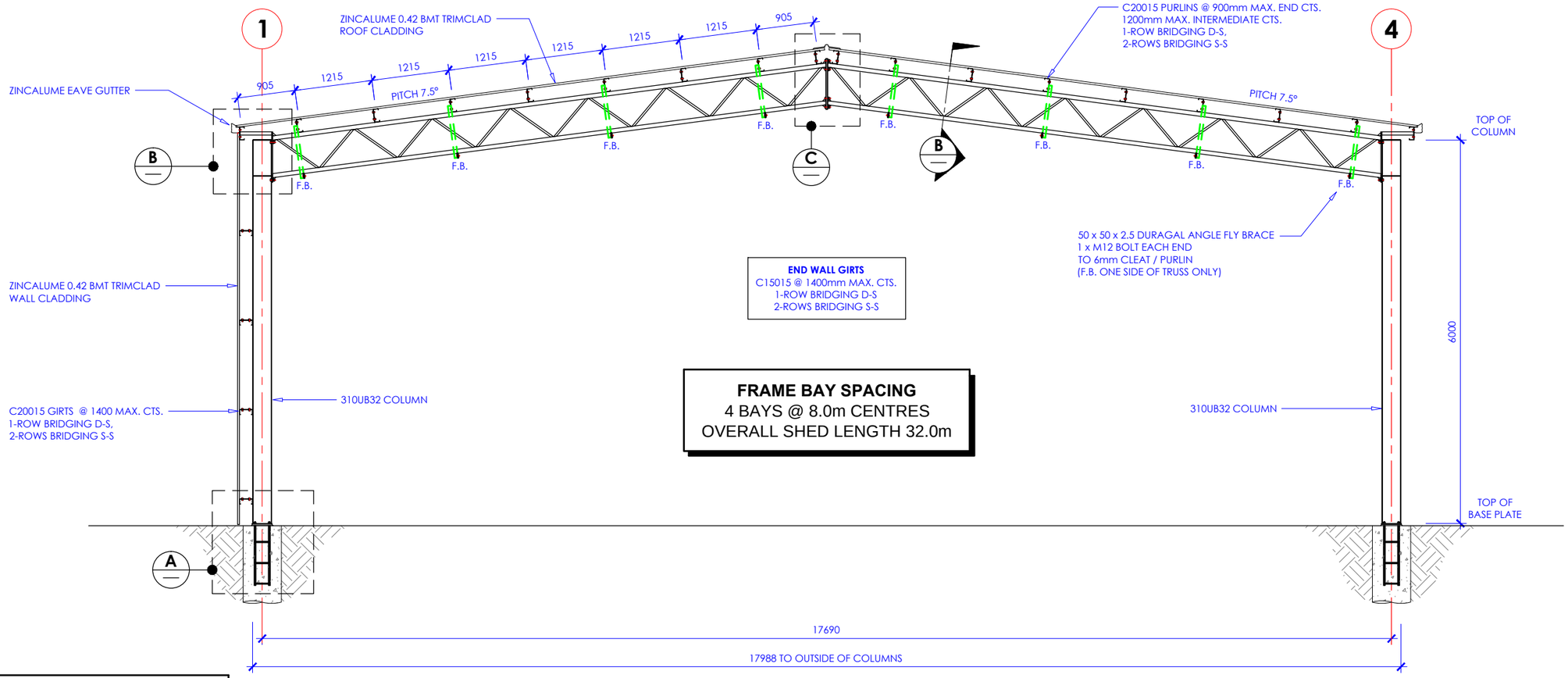
DATE. 08/05/2020

DRAWING NO. SGAASI - 482
SHEET NO. A01
SCALE. 1:150 (A3)
FILE NO.
DRAWN. J. HAND DP-AD1872
SGA BUILDING DESIGN PTY. LTD.
APPROVED.

NOTES.

LEGEND.

PROPOSED 32.0 x 18.0 x 6.0m SHED FOR ROBERT EARL, 25 CRESSY ROAD, WINCHELSEA 3241

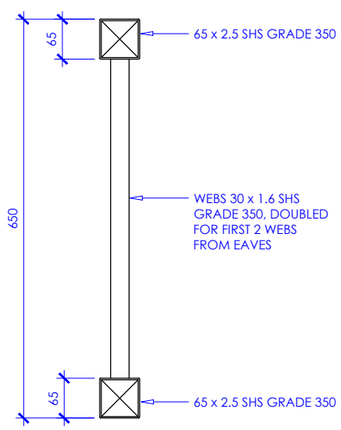


SECTION A 1:75 (A03)

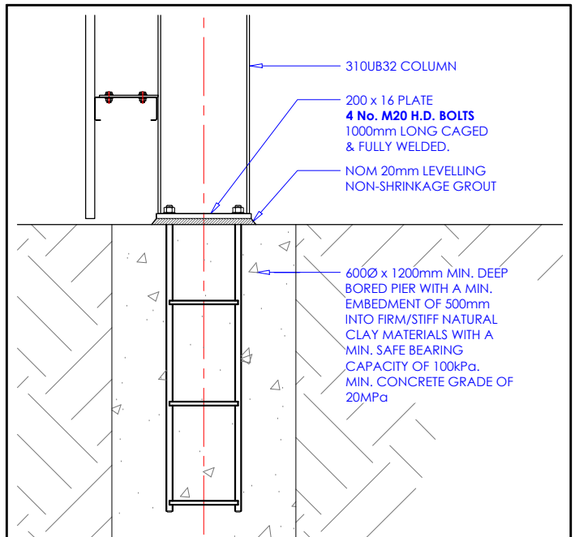
NOTE: END WALL MULLION FOOTINGS

ADOPT 600 Ø x 1000 DEEP BORED CONCRETE PIERS UNDER ALL END WALL MULLIONS U.N.O.

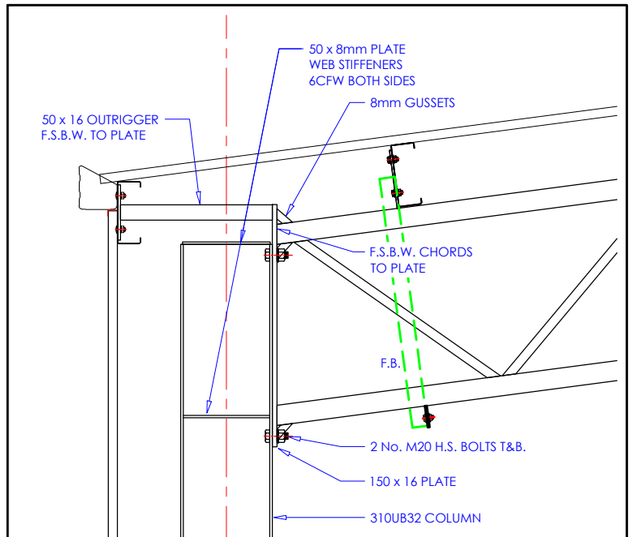
THIS PLAN IS TO BE READ IN CONJUNCTION WITH STRUCTURAL COMPUTATIONS REF No:
1805001-18 (AUGUST 2018)
SHANE MUIR CONSULTING ENGINEERS P/L



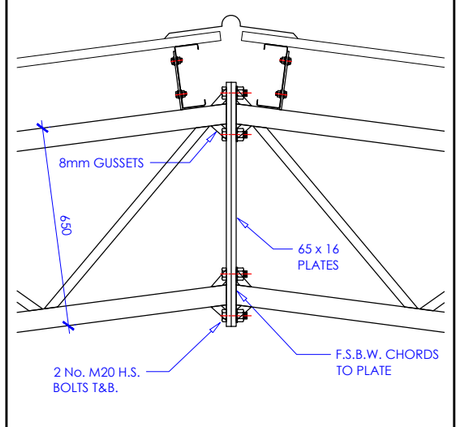
SECTION B 1:10



DETAIL A 1:20



DETAIL B 1:20



DETAIL C 1:20

ACTION "The Big Shed People"

DRAWING NAME.
PROPOSED 18.0m SPAN SHED

ACTION STEEL INDUSTRIES
20 - 24 PLAYFORD STREET
STAWELL VICTORIA, 3380
PH - (03) 5358 5555
FX - (03) 5358 4680
EM - sales@actionsteel.com.au
WEB - www.actionsteel.com.au

REVISION NO.

REV.	DESCRIPTION.	DATE.
A	BUILDING PERMIT ISSUE	08/05/20

DATE. 08/05/2020

DRAWING NO. SGAASI - 482 | SHEET NO. A02

SCALE. 1:75, 1:20, 1:10 (A3) | FILE NO.

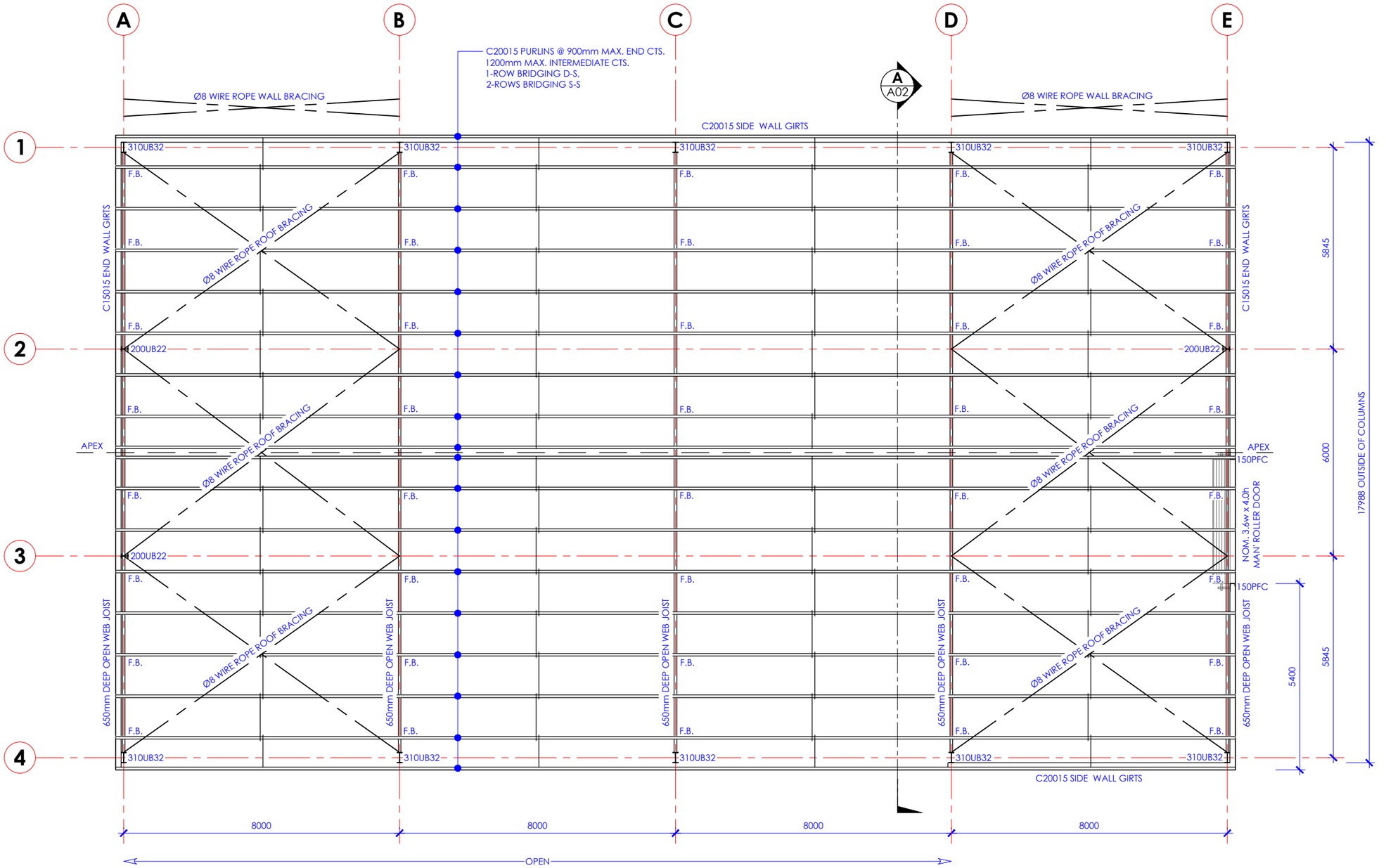
DRAWN. J. HAND DP-AD1872
SGA BUILDING DESIGN PTY. LTD.

APPROVED.

NOTES.

LEGEND.

PROPOSED 32.0 x 18.0 x 6.0m SHED FOR ROBERT EARL, 25 CRESSY ROAD, WINCHELSEA 3241



STRUCTURAL PLAN

1:125

THIS PLAN IS TO BE READ IN CONJUNCTION WITH
STRUCTURAL COMPUTATIONS REF No:
1805001-18 (AUGUST 2018)
SHANE MUIR CONSULTING ENGINEERS P/L

NORTH

ACTION STEEL INDUSTRIES PTY LTD
22-24 PLAYFORD ST
STAWELL VICTORIA, 3380
PH - (03) 5358 5555
FX - (03) 5358 4680
EM - sales@actionsteel.com.au
WEB - www.actionsteel.com.au

NOTES:

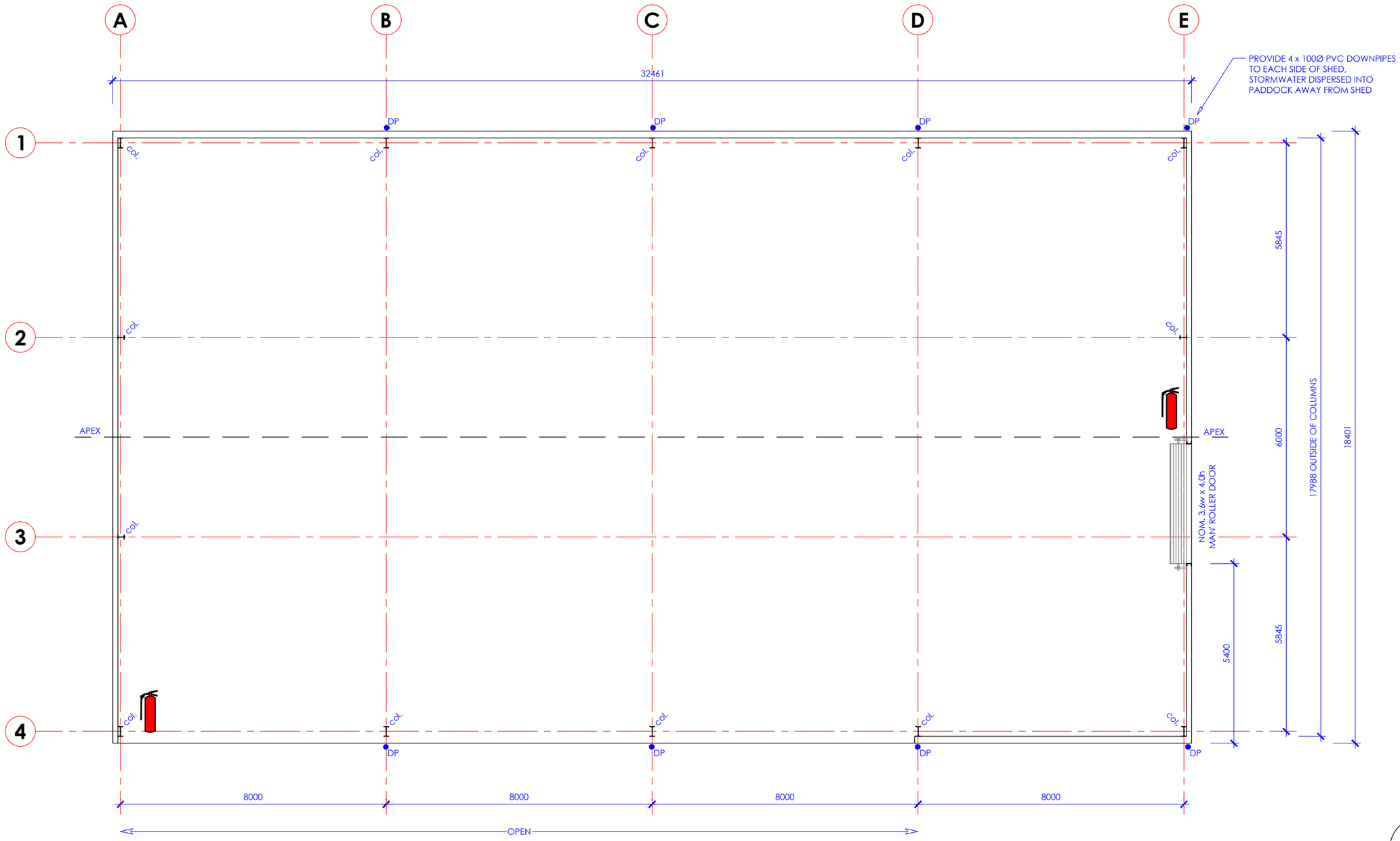
REV NO:	DESCRIPTION:	DATE:
A	BUILDING PERMIT ISSUE	08/05/20

DRAWING NO:	DATE:	SCALE:
SGAASI - 482	08/05/20	1:125 (A3)

DRAWING NAME: PROPOSED 18.0m SPAN SHED

DRAWN.	SIZE:	SHEET:	REV:	APPROVED
J. HAND DP-AD1872 SGA BUILDING DESIGN PTY. LTD.	A3	A03		

PROPOSED 32.0 x 18.0 x 6.0m SHED FOR ROBERT EARL, 25 CRESSY ROAD, WINCHELSEA 3241



FLOOR PLAN
1:125

INSTALL 4.5KG 4A60BE FIRE EXTINGUISHERS MOUNTED AT 1.2m MAX. & 0.1m MIN. ABOVE FLOOR LEVEL WITH LOCATION SIGN MOUNTED NOT LESS THAN 2.0m ABOVE FLOOR LEVEL COMPLYING WITH AS 2444 AND NCC PART H3.11, 1 EXTINGUISHER PER 500m².

TOTAL FLOOR AREA : 597.31m²

ACTION STEEL INDUSTRIES PTY LTD
22-24 PLAYFORD ST
STAWELL VICTORIA, 3380
PH - (03) 5358 5555
FX - (03) 5358 4680
EM - sales@actionsteel.com.au
WEB - www.actionsteel.com.au

NOTES:

REV NO:	DESCRIPTION:	DATE:
A	BUILDING PERMIT ISSUE	08/05/20

DRAWING NO:	DATE:	SCALE:
SGAASI - 482	08/05/20	1:125 (A3)

DRAWING NAME: PROPOSED 18.0m SPAN SHED

DRAWN.	SIZE:	SHEET:	REV:	APPROVED
J. HAND DP-AD1872 SGA BUILDING DESIGN PTY. LTD.	A3	A04		

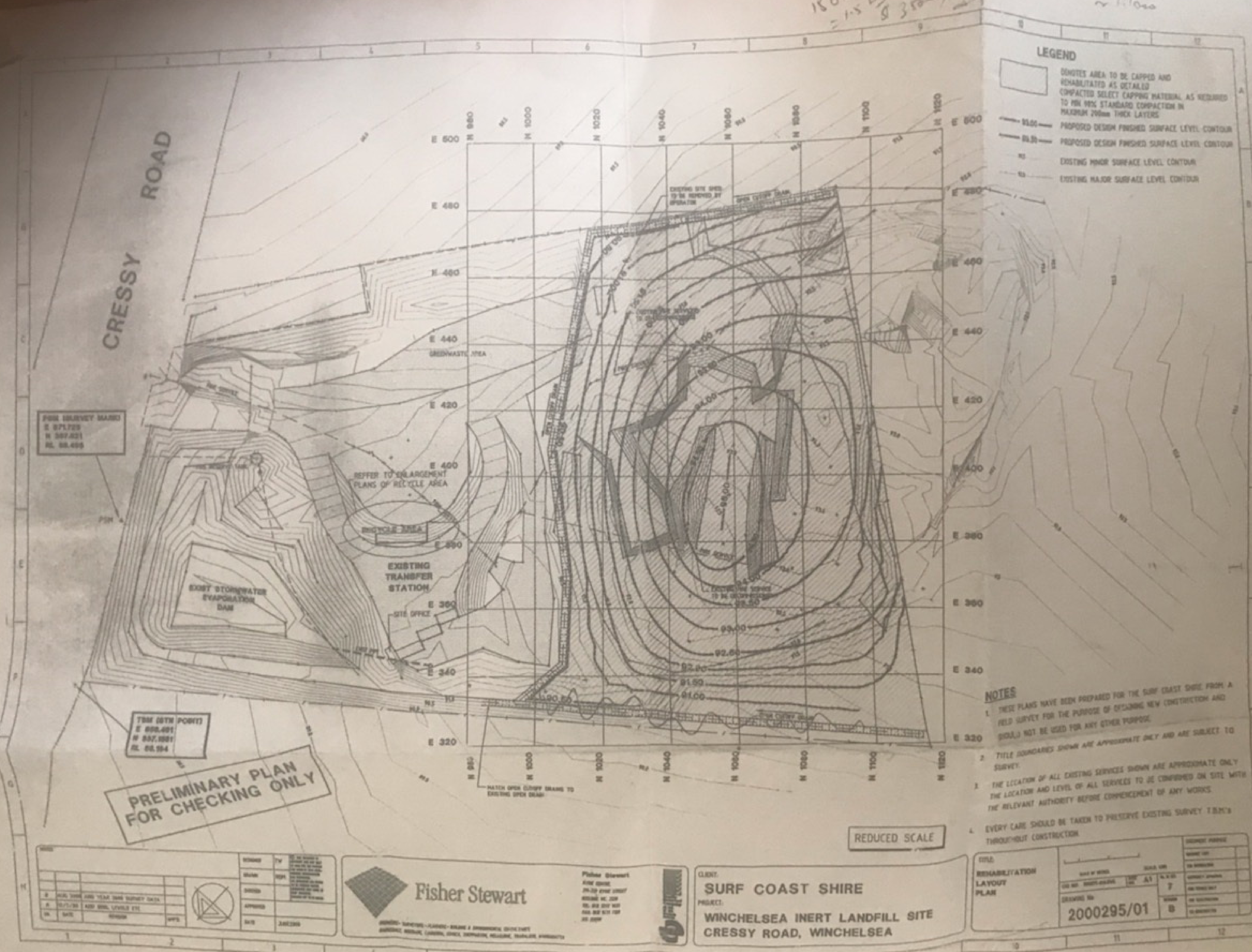
Robert Earl, 18m x 32m x 6m, 25 Cressy Rd, Winchelsea VIC 3241

SITE PLAN

MAP LEGEND	NOTES
NEW SHED LOCATION **Approx. 300mm CRUSHED ROCK FILL TO SHED PAD MIN SIZE 24m x 38m**	• **Stormwater to disperse into paddock away from shed**

APPENDIX III:

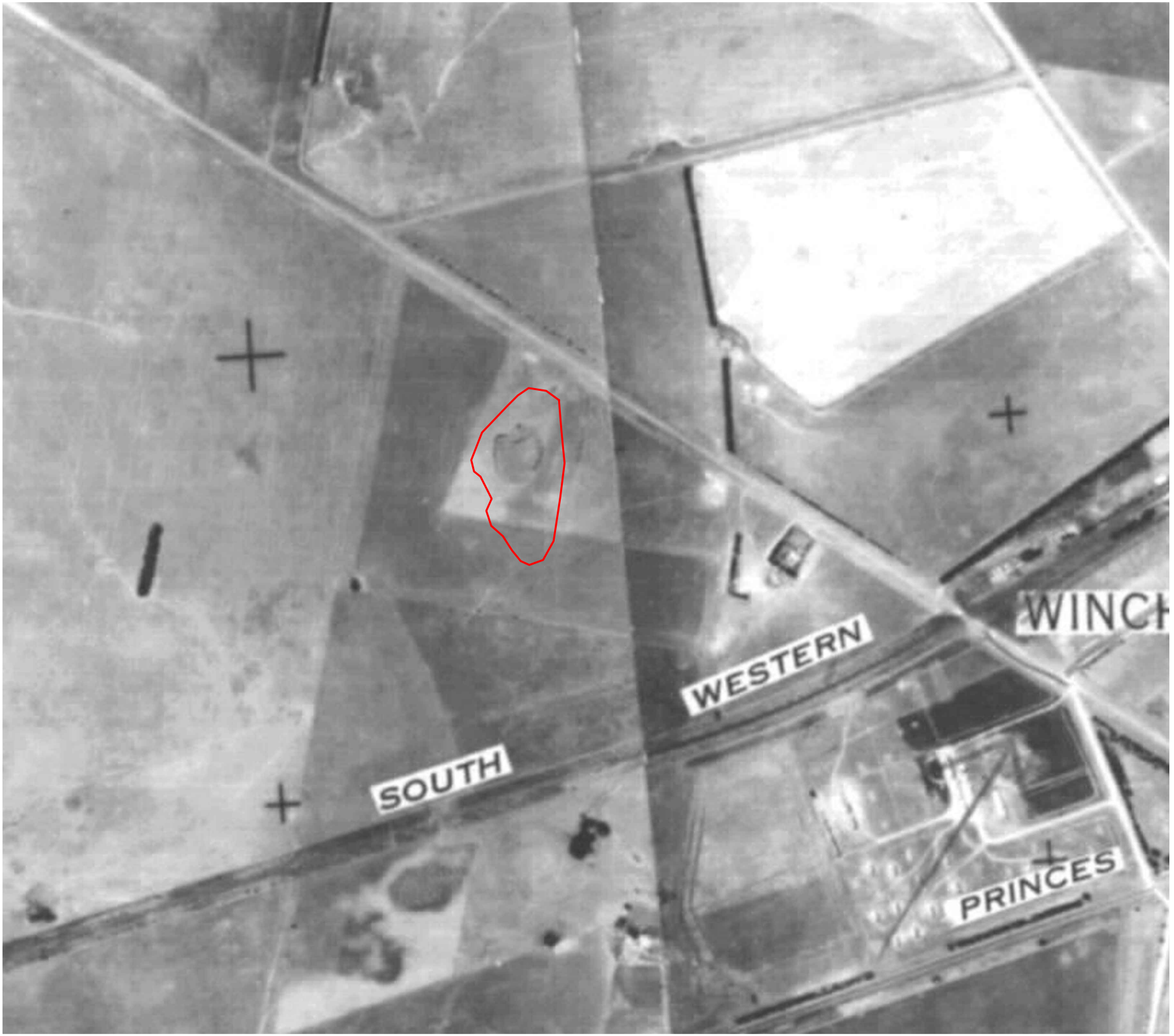
Preliminary Quarry Plan



CRESSY ROAD
LEGEND
DENOTES AREA TO BE CAPPED AND REHABILITATED AS DETAILED
COMPACTED SELECT CAPPING MATERIAL AS REQUIRED TO MIN 95% STANDARD COMPACTION IN MAXIMUM 200mm THICK LAYERS
PROPOSED DESIGN FINISHED SURFACE LEVEL CONTOUR
PROPOSED DESIGN FINISHED SURFACE LEVEL CONTOUR
EXISTING MINOR SURFACE LEVEL CONTOUR
EXISTING MAJOR SURFACE LEVEL CONTOUR
GREENWASTE AREA
REFFER TO ENLARGEMENT PLANS OF RECYCLE AREA
RECYCLE AREA
EXISTING TRANSFER STATION
EXIST STORMWATER EVAPORATION DAM
SITE OFFICE
PSM
MATCH OPEN CUTOFF DRAINS TO EXISTING OPEN DRAIN
PRELIMINARY PLAN FOR CHECKING ONLY
REDUCED SCALE
NOTES
1. THESE PLANS HAVE BEEN PREPARED FOR THE SURF COAST SHIRE FROM A FIELD SURVEY FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTION AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE
2. TITLE BOUNDARIES SHOWN ARE APPROXIMATE ONLY AND ARE SUBJECT TO SURVEY.
3. THE LOCATION OF ALL EXISTING SERVICES SHOWN ARE APPROXIMATE ONLY THE LOCATION AND LEVEL OF ALL SERVICES TO BE CONFIRMED ON SITE WITH THE RELEVANT AUTHORITY BEFORE COMMENCEMENT OF ANY WORKS
4. EVERY CARE SHOULD BE TAKEN TO PRESERVE EXISTING SURVEY T.B.M's THROUGHOUT CONSTRUCTION
Fisher Stewart
CLIENT:
SURF COAST SHIRE
PROJECT:
WINCHELSEA INERT LANDFILL SITE
CRESSY ROAD, WINCHELSEA
TITLE:
REHABILITATION LAYOUT PLAN
A1
7
DRAWING No
2000295/01
B

APPENDIX IV:

Historic Aerial Photographs



LEGEND:

NORTH

LANDFILL BOUNDARY (APPROX)

TITLE:	1947 AERIAL PHOTOGRAPH
SITE:	25 CRESSY RD, WINCHELSEA
JOB NO:	J1214
DRAWN BY:	MS
REFERENCE:	DEPARTMENT OF LAND

JET environmental

PO BOX 478
ALTONA VIC 3018
P: 03 9398 2837
E: info@jetenvironmental.com.au

LEGEND:

NORTH

LANDFILL BOUNDARY (APPROX)

TITLE:	1970 AERIAL PHOTOGRAPH
SITE:	25 CRESSY RD, WINCHELSEA
JOB NO:	J1214
DRAWN BY:	MS
REFERENCE:	DEPARTMENT OF LAND

JET environmental

PO BOX 478
ALTONA VIC 3018
P: 03 9398 2837
E: info@jetenvironmental.com.au

LEGEND:

NORTH

LANDFILL BOUNDARY (APPROX)

TITLE:	1986 AERIAL PHOTOGRAPH
SITE:	25 CRESSY RD, WINCHELSEA
JOB NO:	J1214
DRAWN BY:	MS
REFERENCE:	DEPARTMENT OF LAND

JET environmental

PO BOX 478
ALTONA VIC 3018
P: 03 9398 2837
E: info@jetenvironmental.com.au

LEGEND:

NORTH

LANDFILL BOUNDARY (APPROX)

TITLE:	2003 AERIAL PHOTOGRAPH
SITE:	25 CRESSY RD, WINCHELSEA
JOB NO:	J1214
DRAWN BY:	MS
REFERENCE:	GOOGLE EARTH

JET environmental

PO BOX 478
ALTONA VIC 3018
P: 03 9398 2837
E: info@jetenvironmental.com.au

LEGEND:

NORTH

LANDFILL BOUNDARY (APPROX)

TITLE:	2011 AERIAL PHOTOGRAPH
SITE:	25 CRESSY RD, WINCHELSEA
JOB NO:	J1214
DRAWN BY:	MS
REFERENCE:	GOOGLE EARTH

JET environmental

PO BOX 478
ALTONA VIC 3018
P: 03 9398 2837
E: info@jetenvironmental.com.au

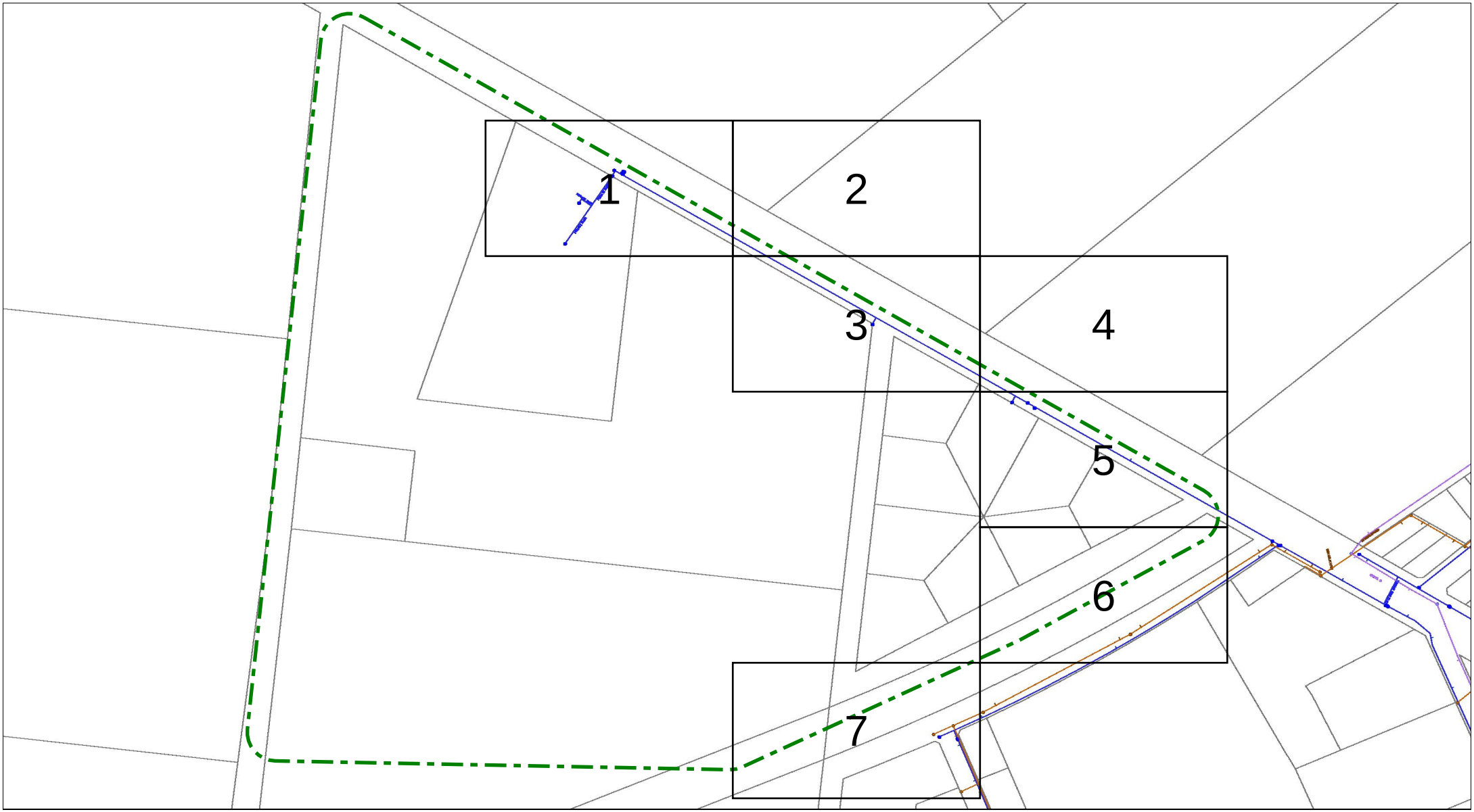
APPENDIX V:

Underground Service Plans

Sequence Number: 99478233 **Job Number:** 19845577

Location: 25 Cressy Road, Winchelsea VIC 3241

Date Generated: 08/07/2020



PLANS MUST BE PRINTED IN COLOUR

N

Scale: 1:4450

Overview

Asset Types

- Water
- Recycled Water
- Gravity Sewer
- Pressure Sewer

Feature Types

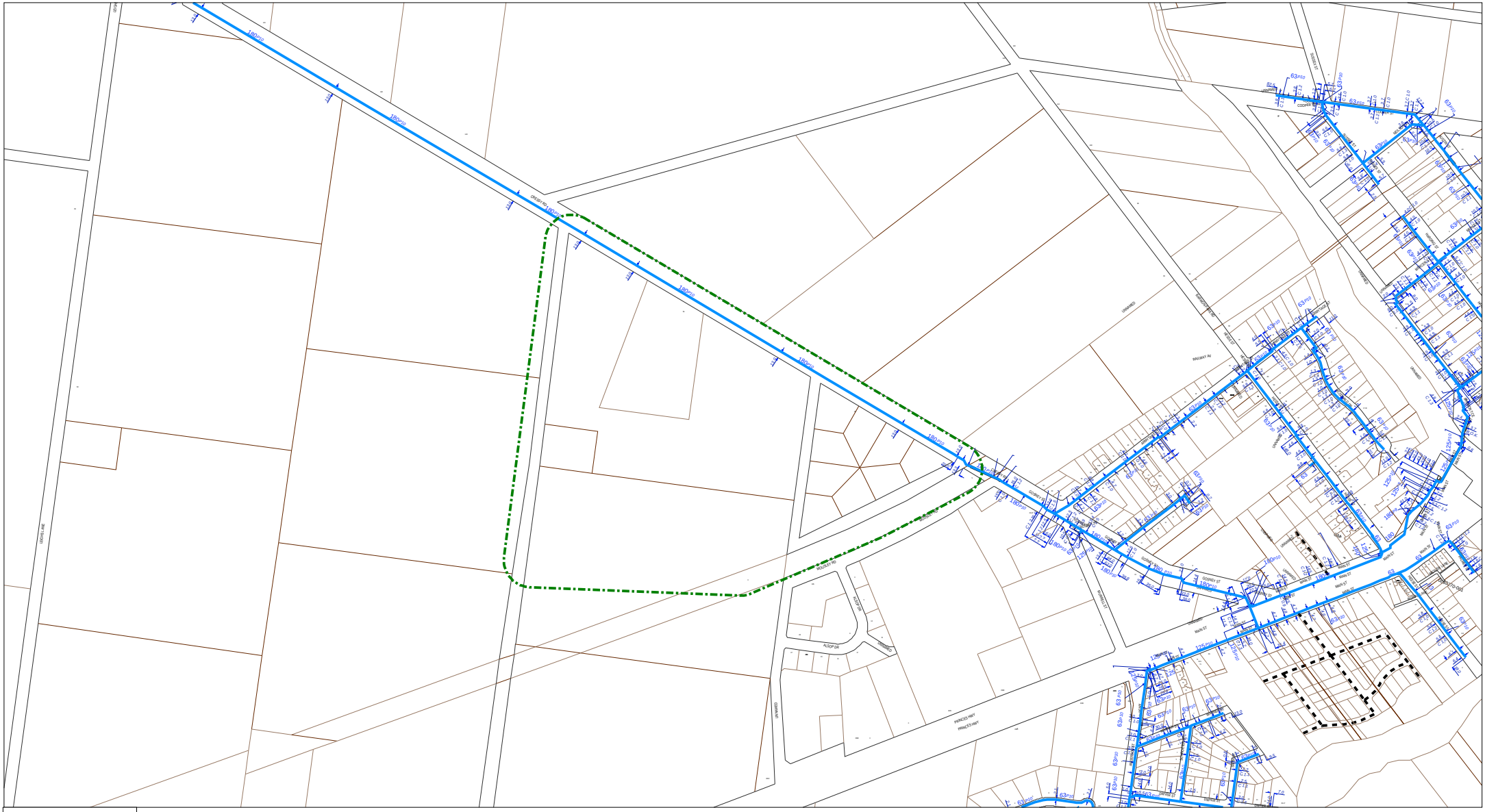
- Pipes
- Decommissioned Pipe
- Fitting / Manhole
- 2.0 Offset

OH&S Hazard Types

- Cracked AC Pipe
- Asbestos in Wrapping
- Benzene Detected
- LEL Detected
- Contaminated Ground

AusNet services

0m 400m 800m 1200m 1600m 2000m



N
W E
S

NOTE: AusNet Services has taken care to ensure that the locations of Gas Mains shown on this plan are accurate however some variations from records do exist and complete accuracy is not guaranteed. It is essential that the position of pipes be proved on site by hand excavation. AusNet Services shall not be liable for any loss damage claim or demand incurred either directly or indirectly resulting from any act or omission which was made in reliance in whole or in part upon this plan.

Warning - Take Precautions if Printing this Plot in Black & White.
All planned mains shall be treated as live mains, as mains under pressure may be in existence.

Gas Transmission Pipeline
Gas Distribution Mains
Planned Gas Assets
Abandoned Gas Assets
Requested Area

Indicative Plans

Issue Date:	08/07/2020
Location:	25 Cressy Road , Winchelsea , VIC , 3241

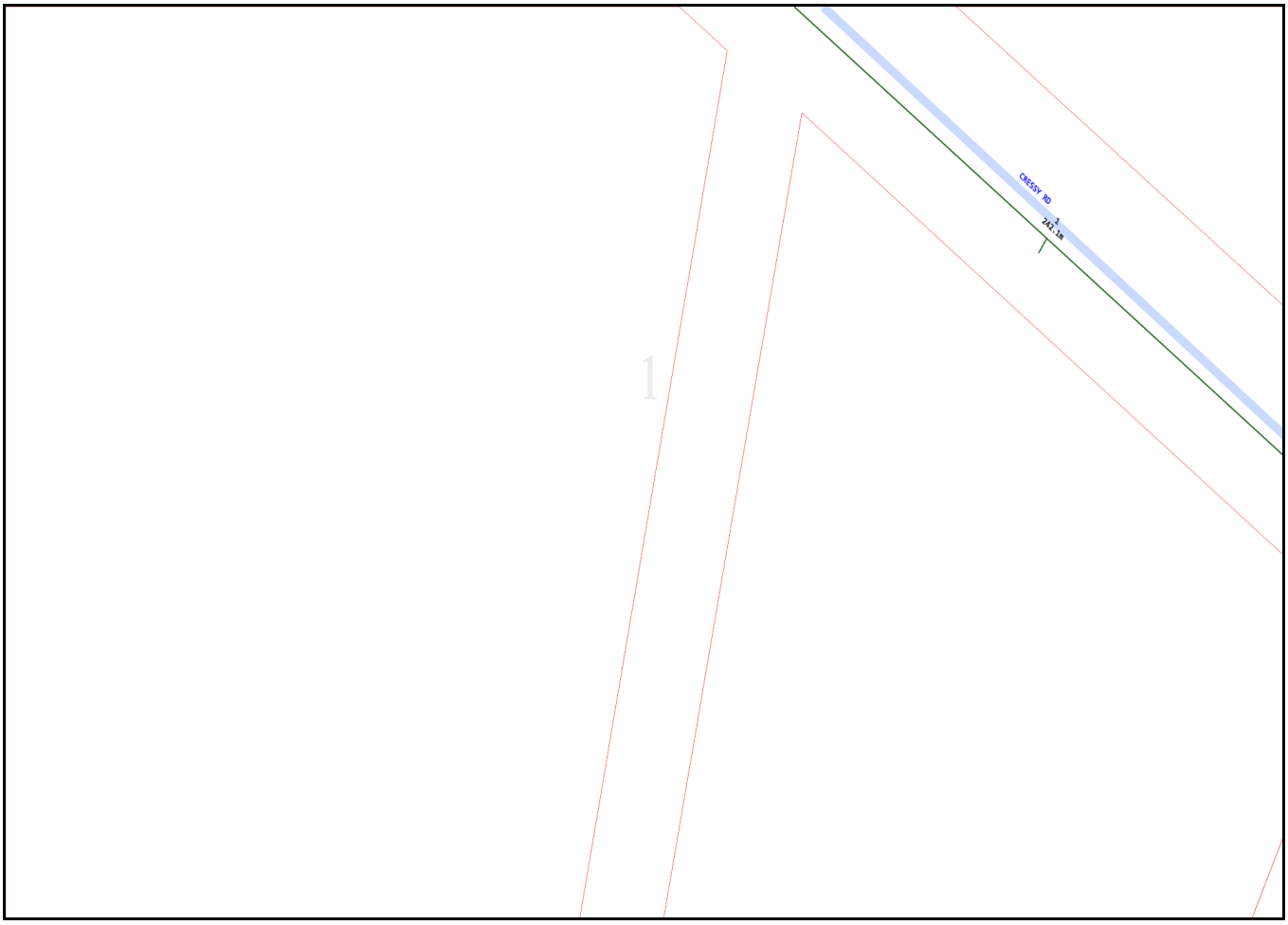
1	5	9
2	6	10
3	7	11
4	8	12

Email info@nbn.com.au Web nbn.com.au

LEGEND

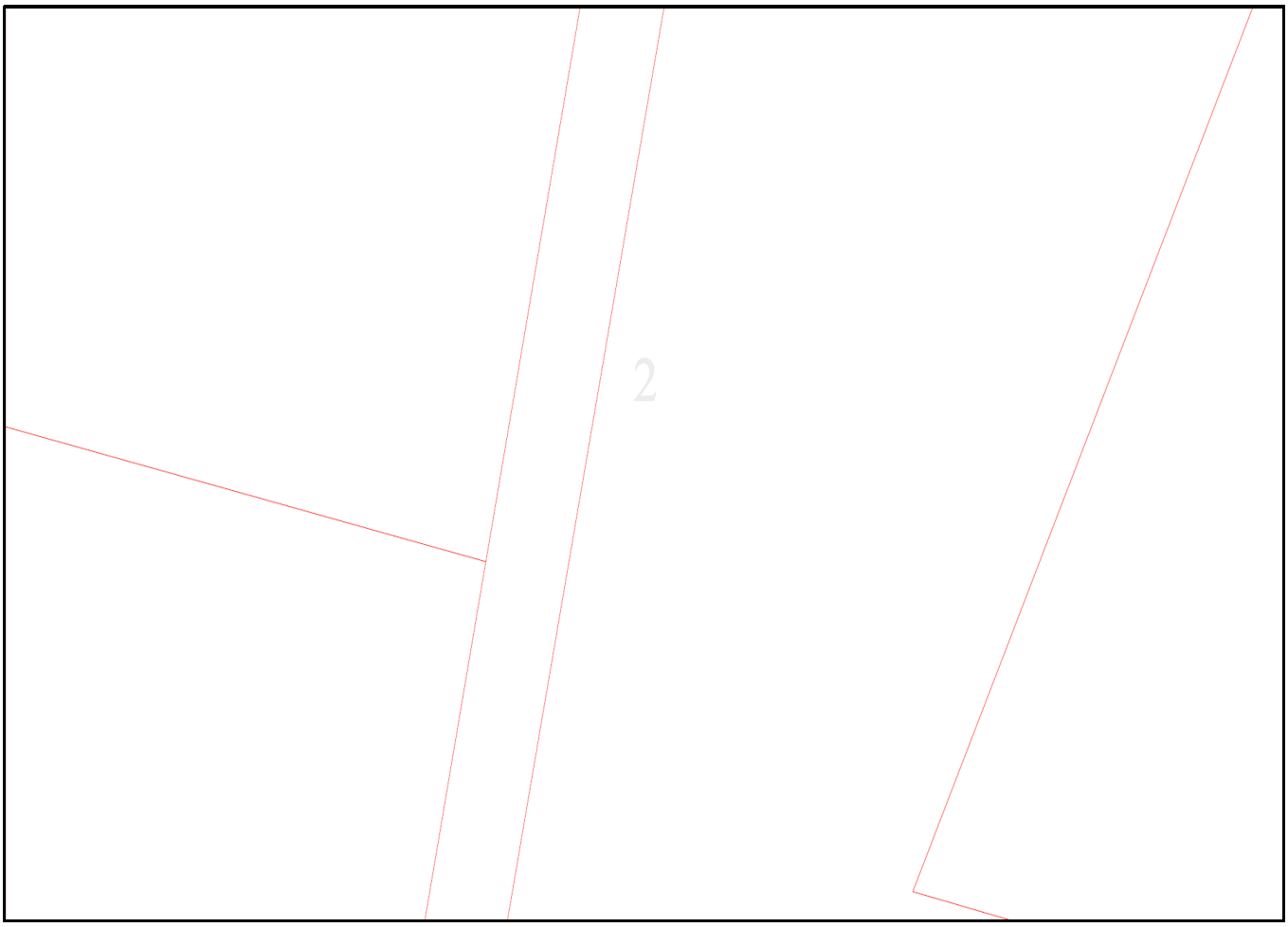
34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

Email info@nbn.com.au Web nbn.com.au



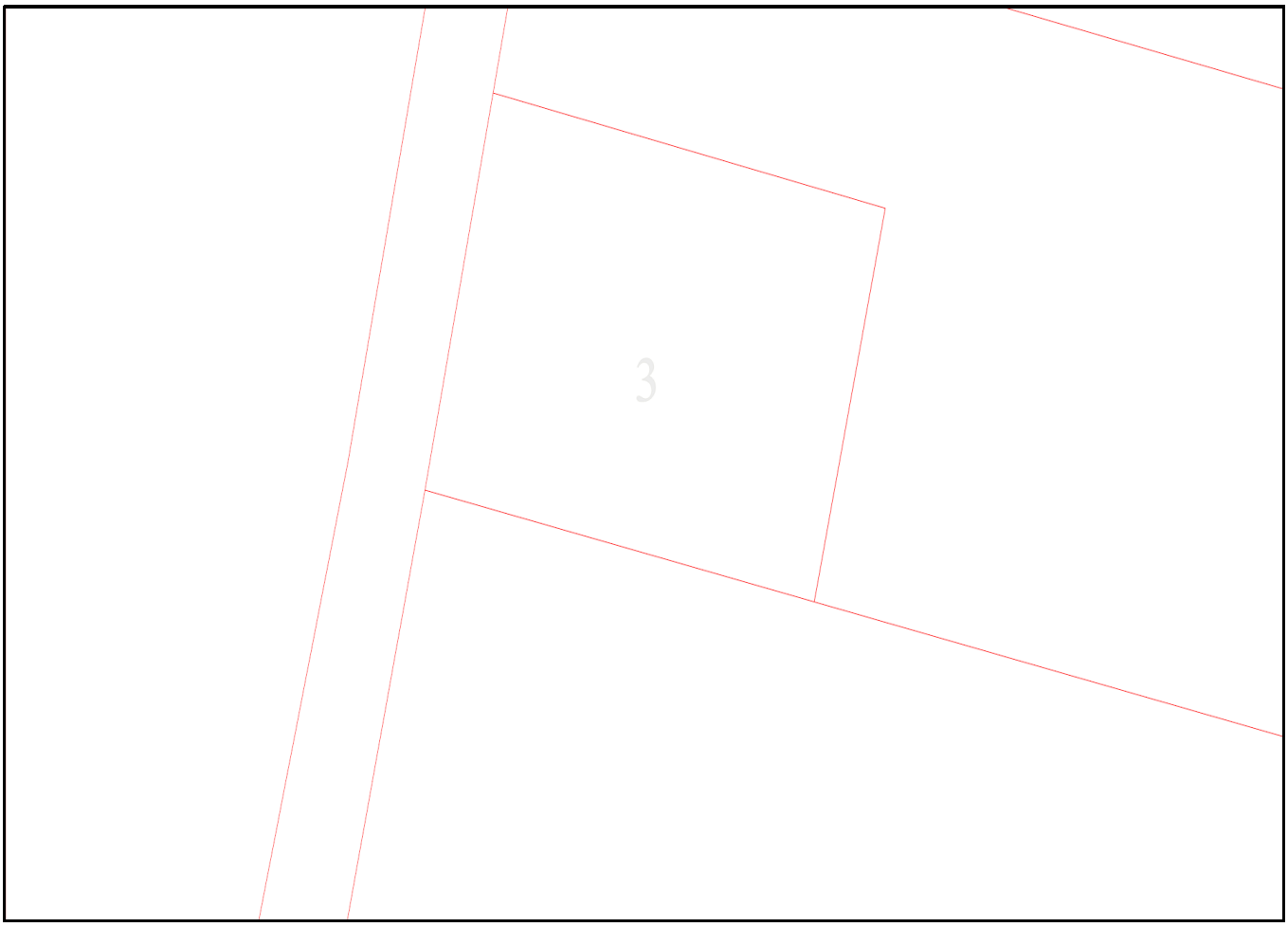
Level 11, 100 Arthur Street, North Sydney NSW 2060

Email info@nbn.com.au Web nbn.com.au



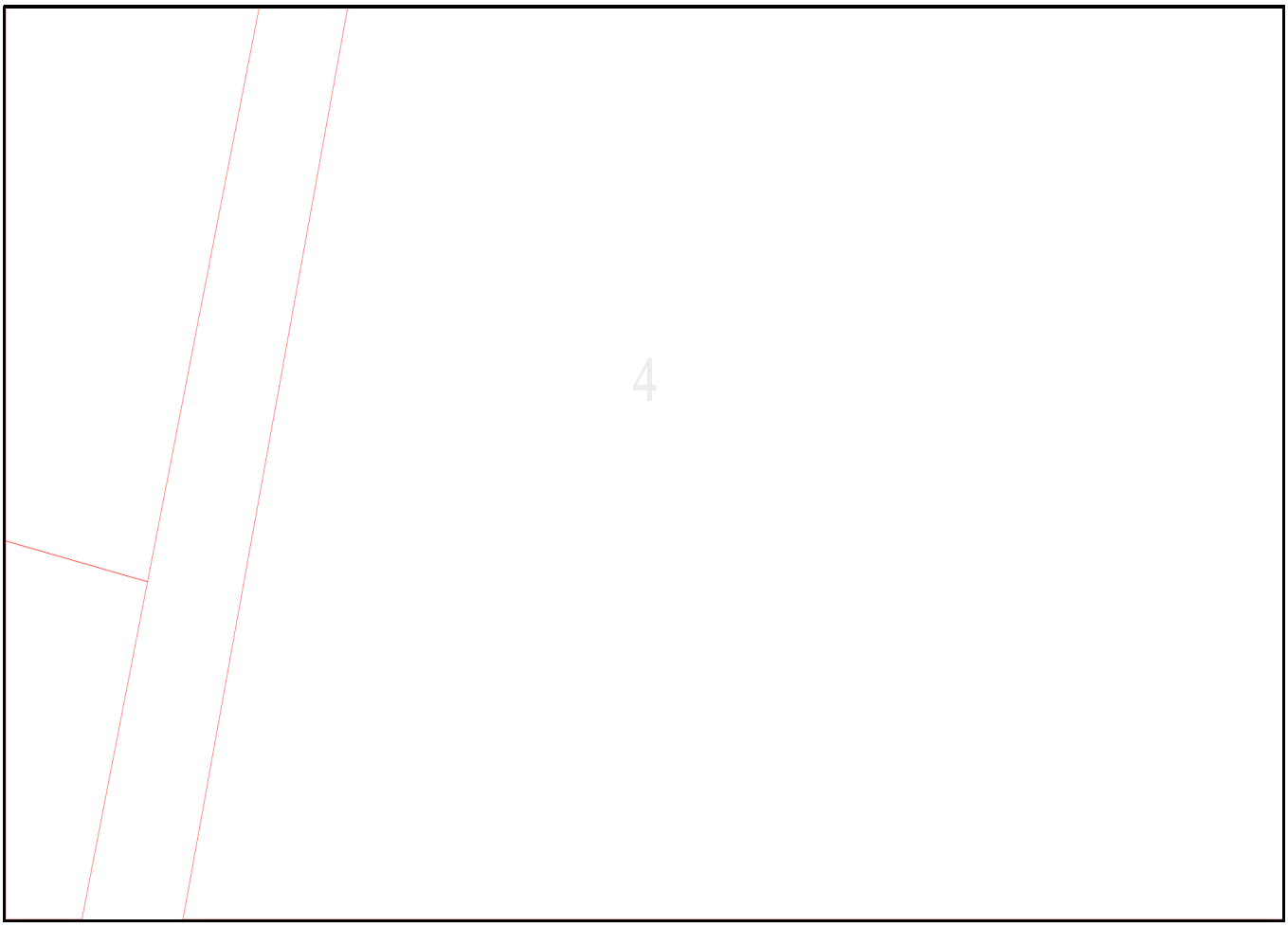
Level 11, 100 Arthur Street, North Sydney NSW 2060

Email info@nbn.com.au Web nbn.com.au



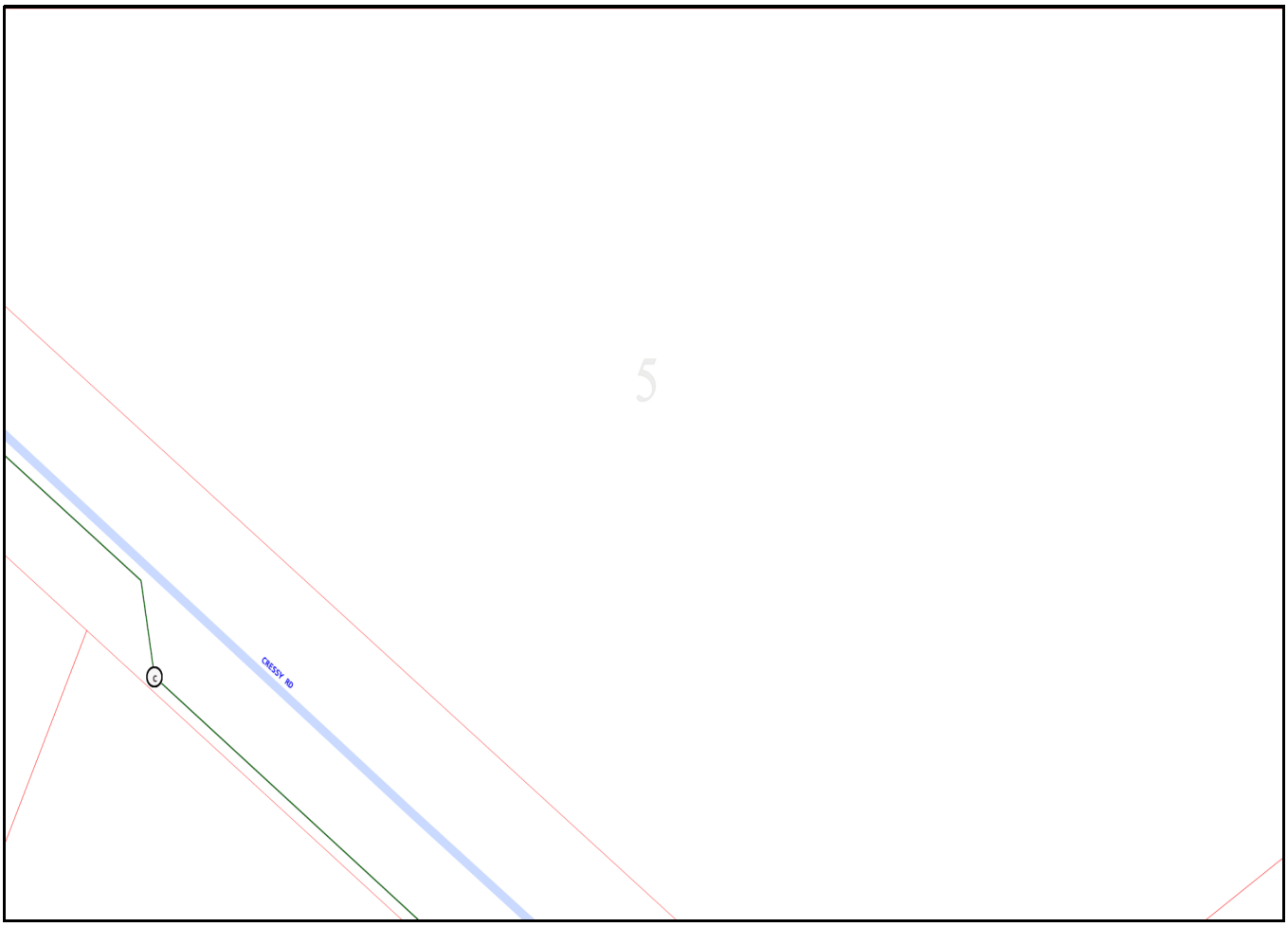
Level 11, 100 Arthur Street, North Sydney NSW 2060

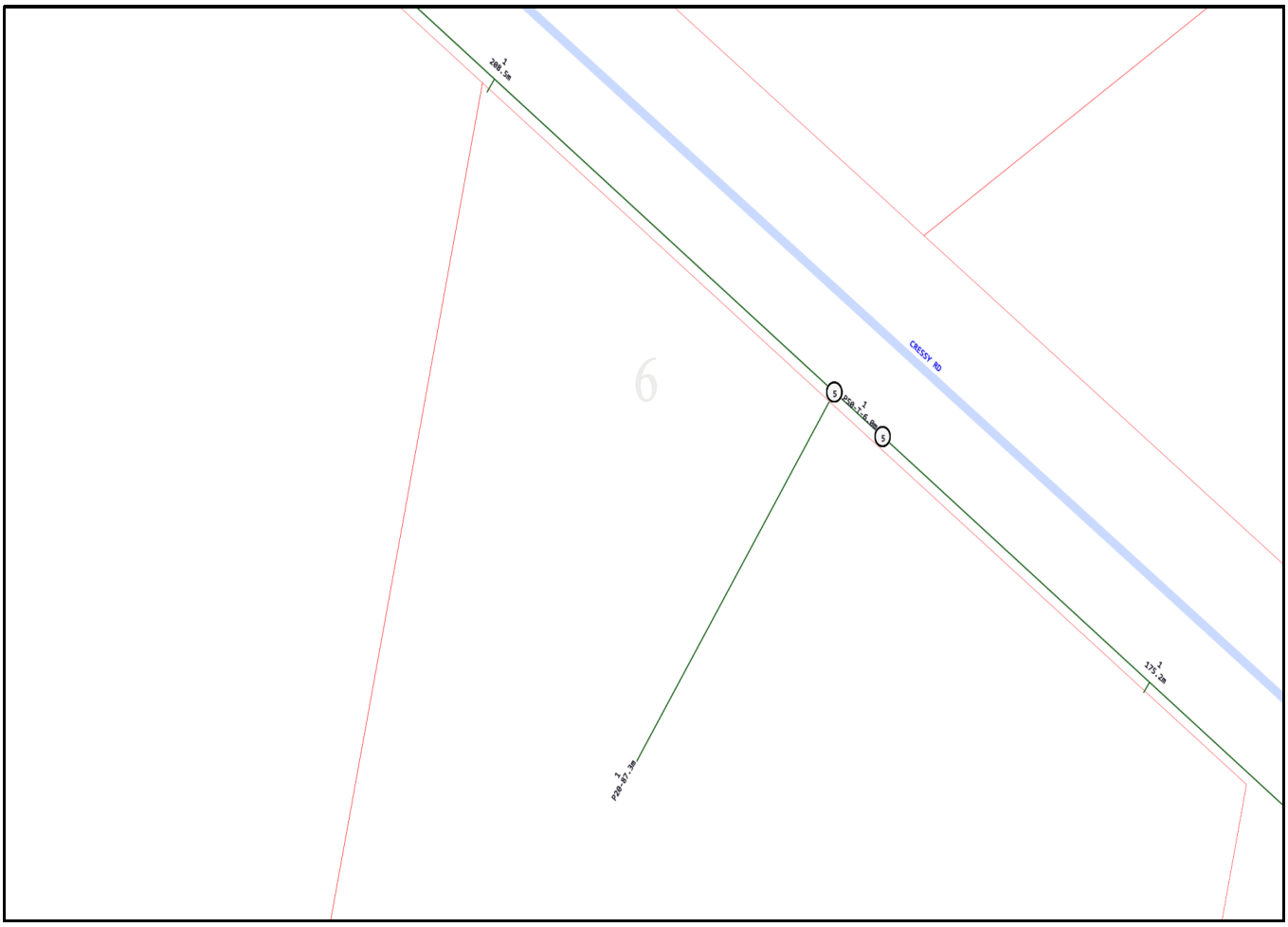
Email info@nbn.com.au Web nbn.com.au

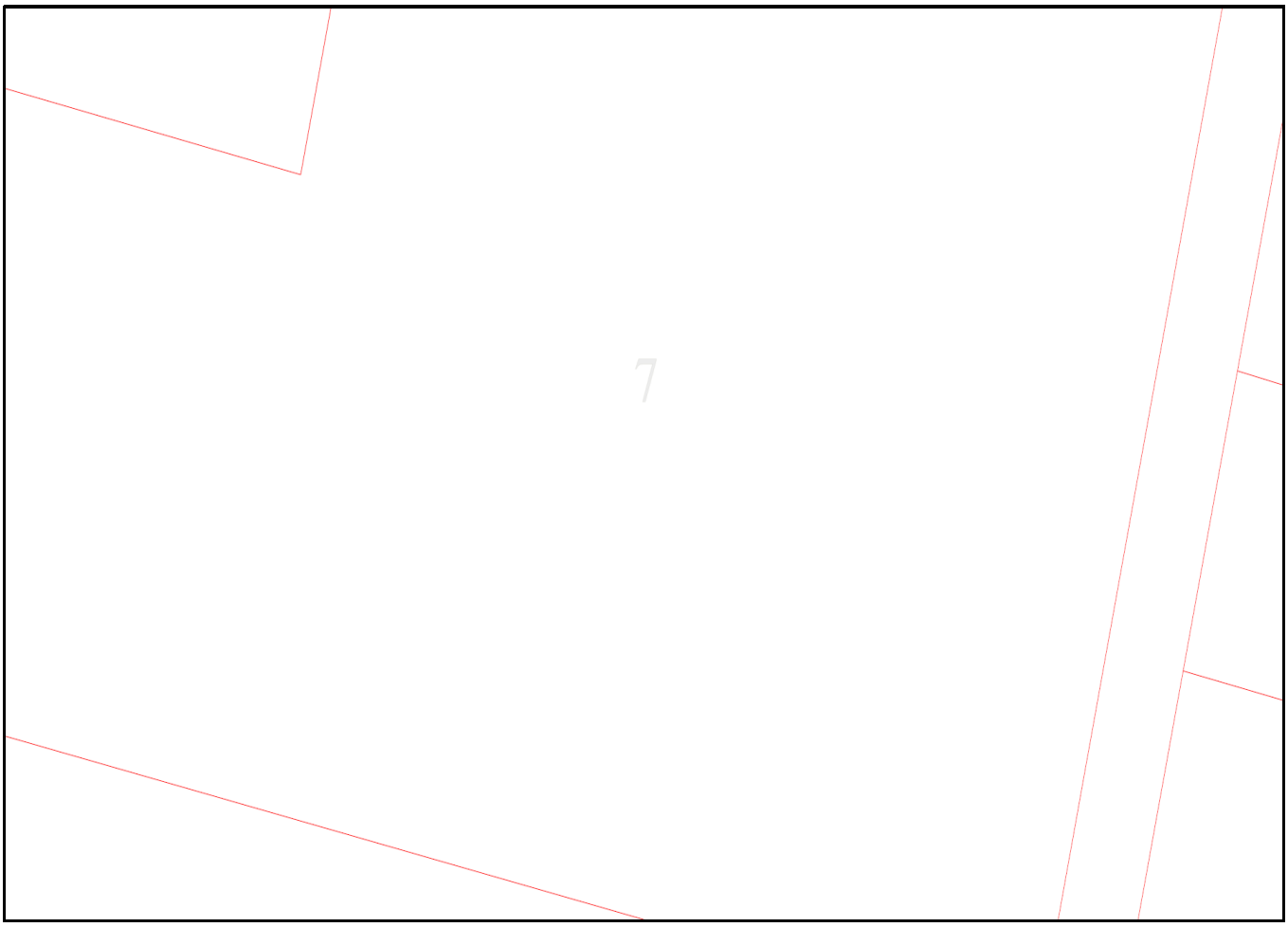


Level 11, 100 Arthur Street, North Sydney NSW 2060

Email info@nbn.com.au Web nbn.com.au

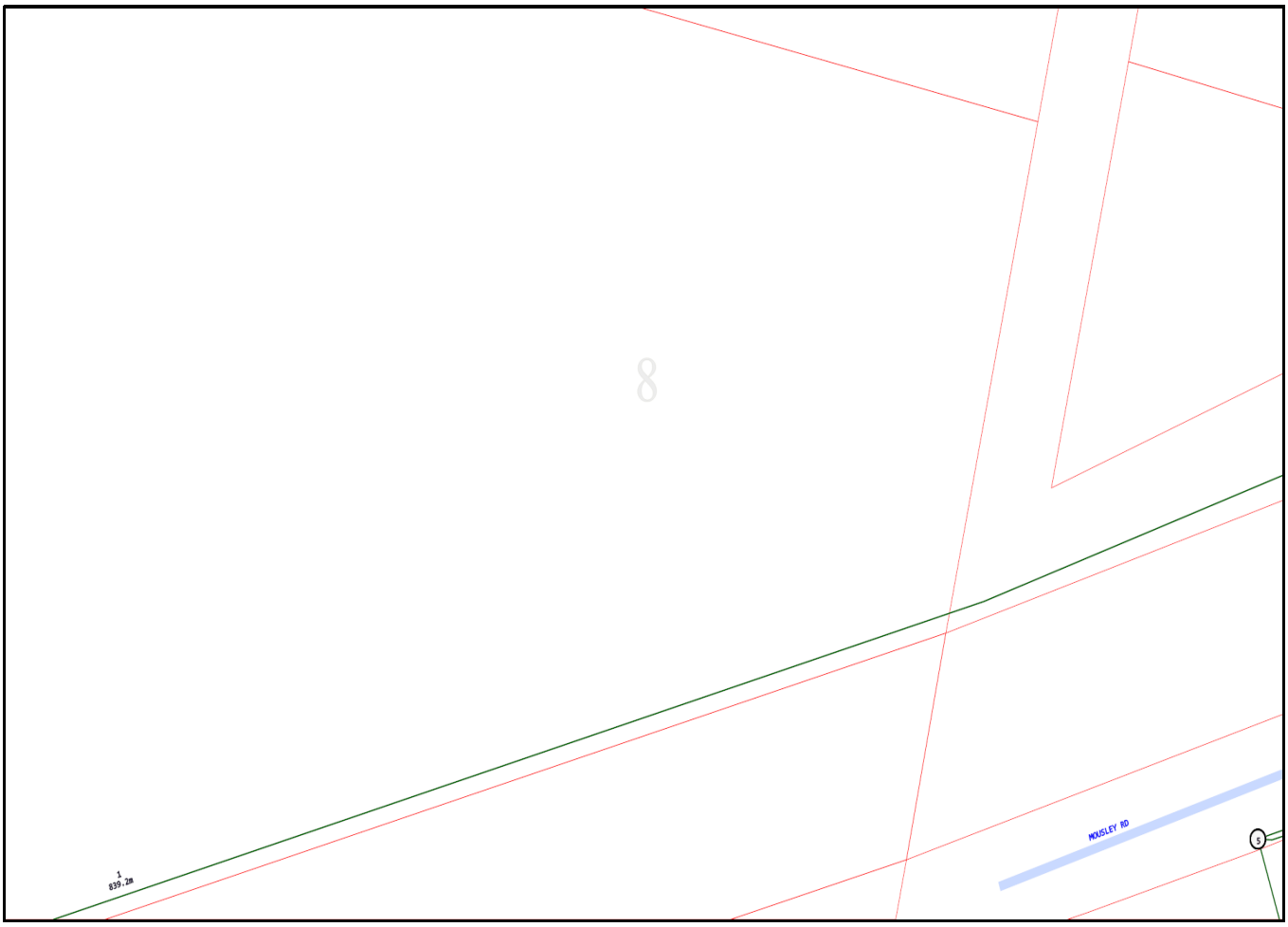






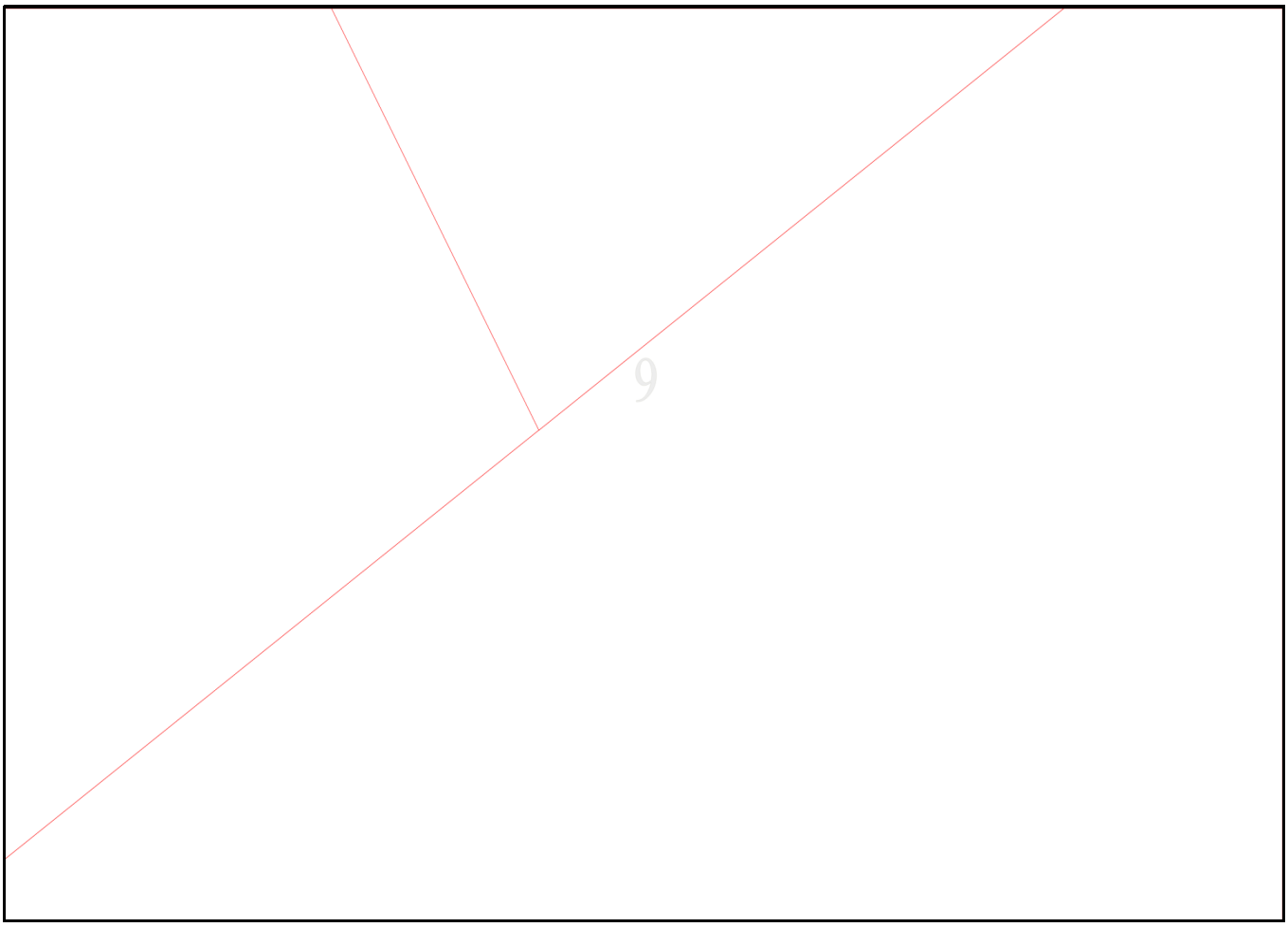
Level 11, 100 Arthur Street, North Sydney NSW 2060

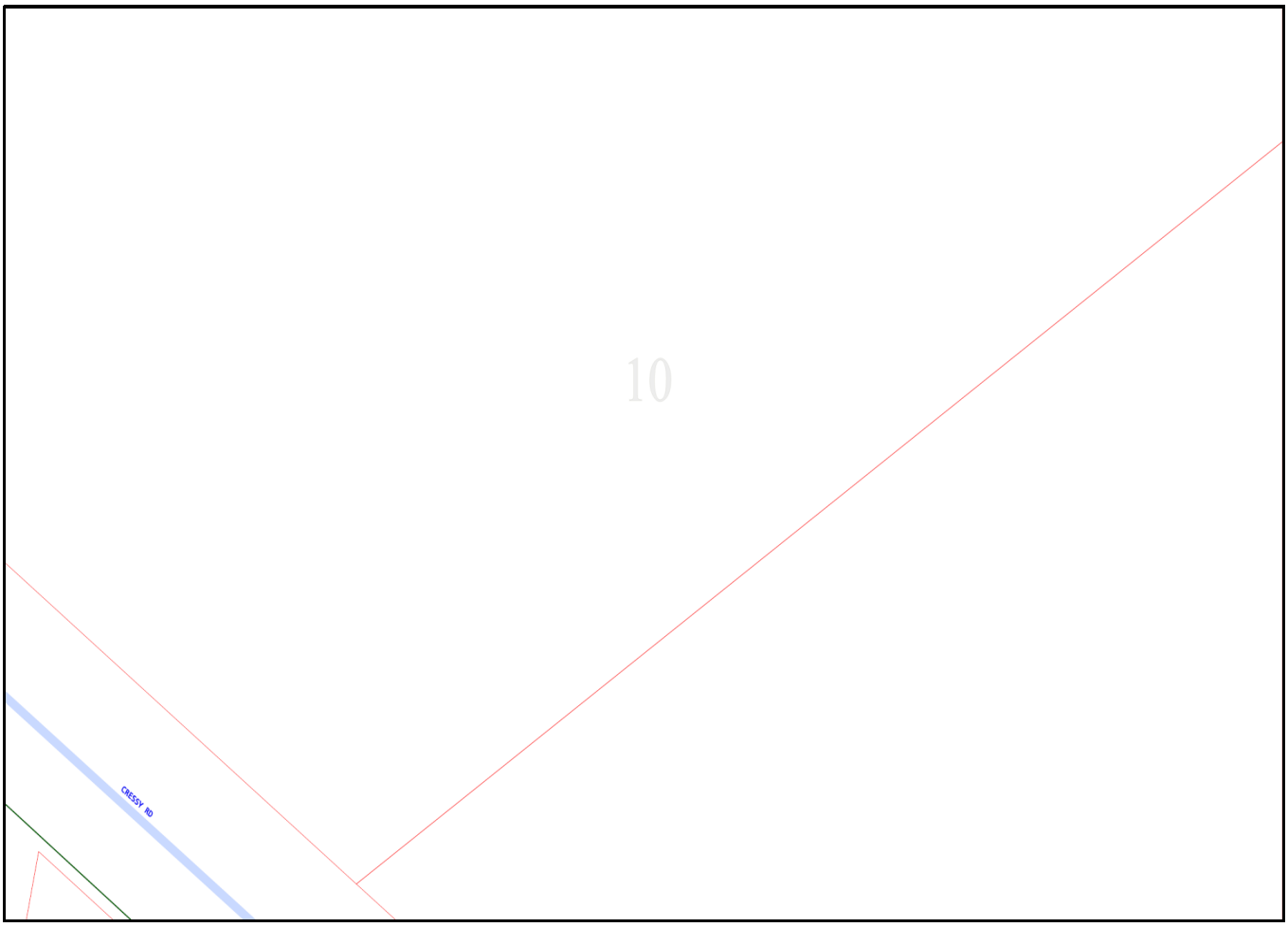
Email info@nbn.com.au Web nbn.com.au

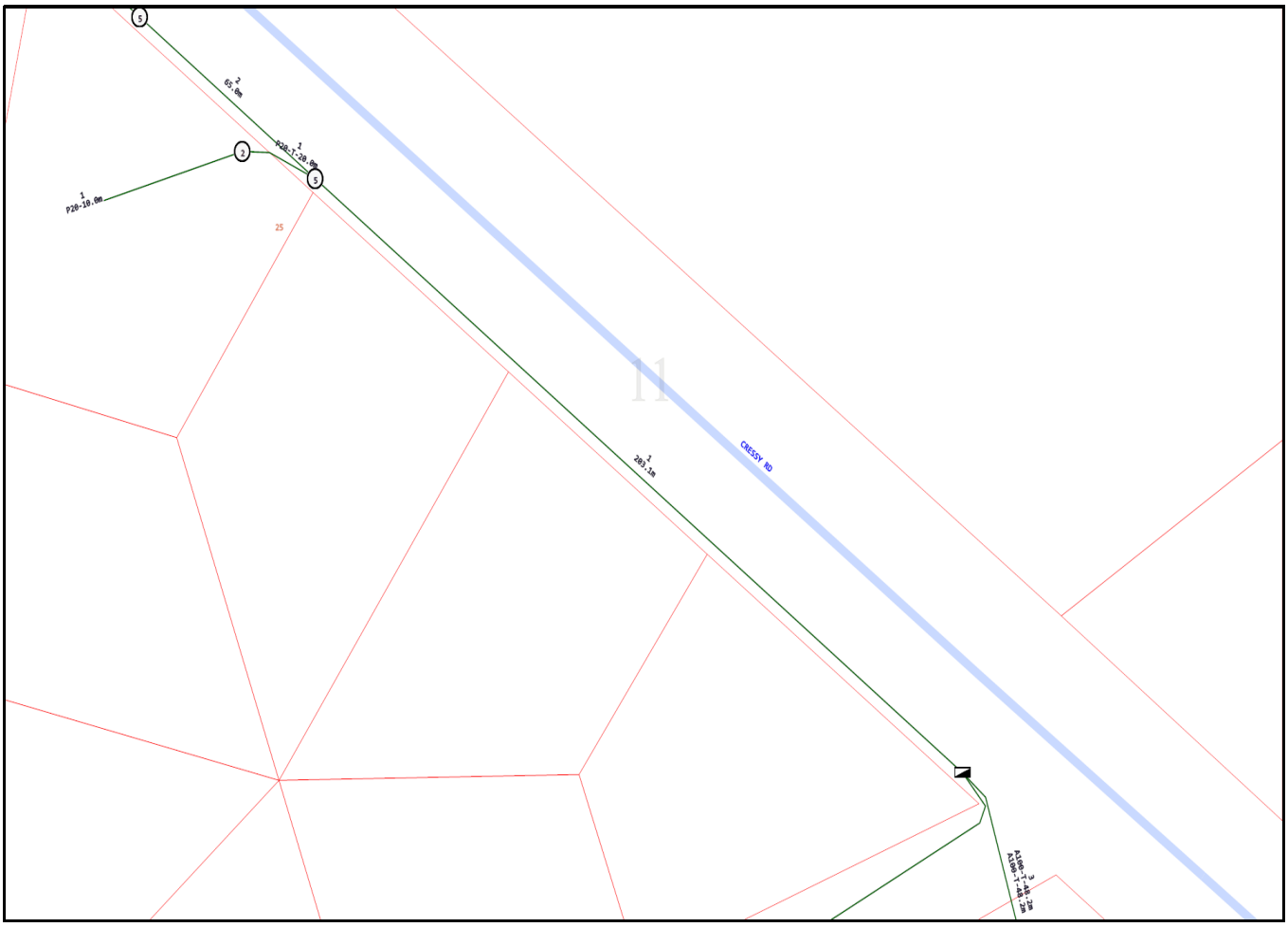


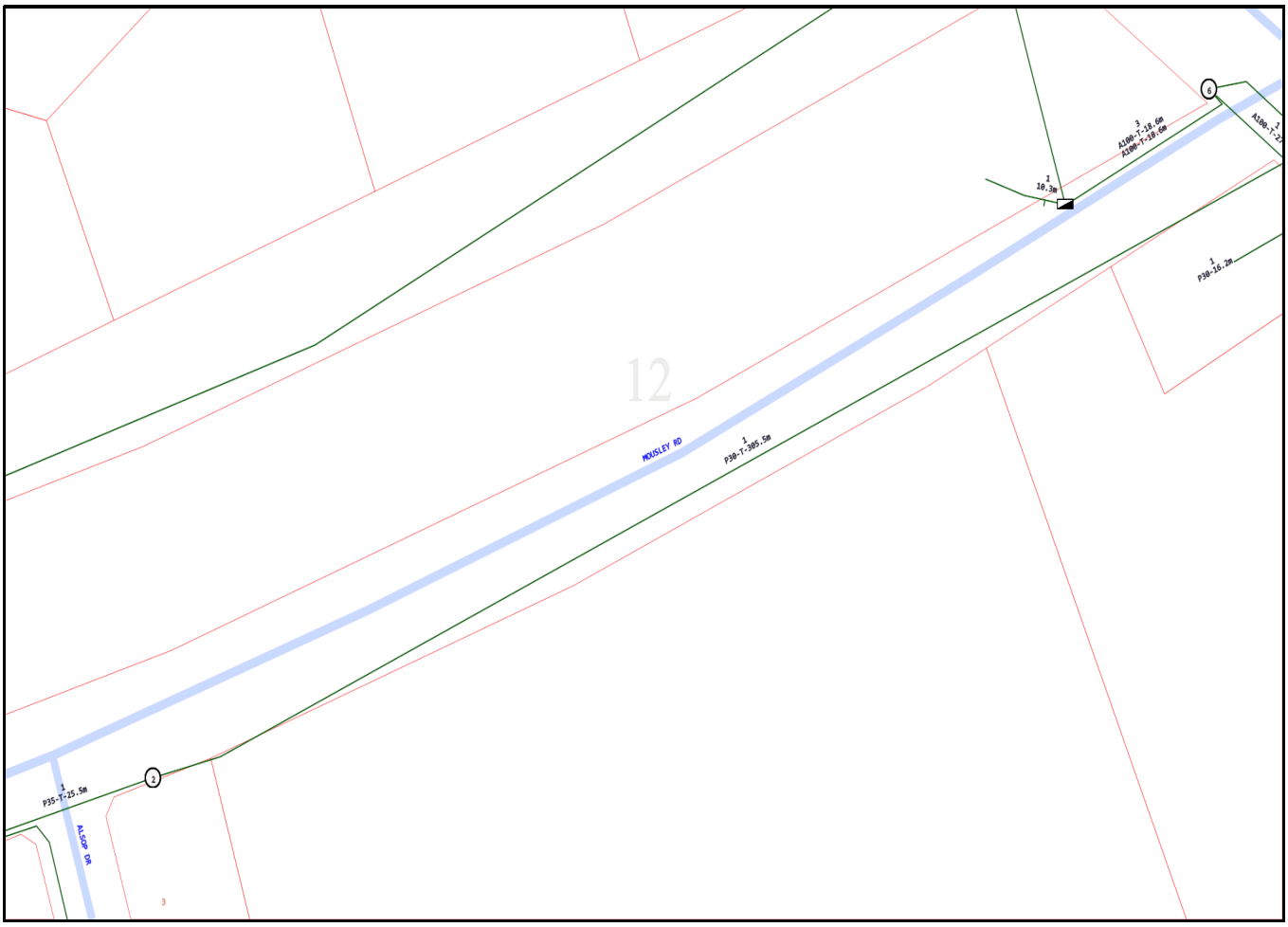
Level 11, 100 Arthur Street, North Sydney NSW 2060

Email info@nbn.com.au Web nbn.com.au









Emergency Contacts

You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

Dial Before You Dig (DBYD)
Electrical Asset Location Information

CitiPower/Powercor
Locked Bag 14090, Melbourne VIC 8001
General Enquiries Telephone: 132 206

To: ('Enquirer')
Jet Environmental - Mr Matt Simmenauer
48 Chessy Park Drive
New Gisborne VIC 3438

Enquiry Details

Utility ID	50020
Sequence Number	99478230
Enquiry Date	08/07/2020 11:46
Response	**ALL CLEAR**
Address	25 Cressy Road Winchelsea
Location in Road	Not Supplied
Activity	Vertical Boring

Enquirer Details

Customer ID	1692498		
Contact	Mr Matt Simmenauer		
Company	Jet Environmental		
Email	matt@jetenvironmental.com.au		
Phone	0423099604	**Mobile**	0423099604

Enquirer Responsibilities

This notification is valid for 28 days from the issue date. CitiPower/Powercor assets are critical infrastructure and great care must be taken to avoid asset damage and risk to public safety. The information supplied in the DBYD Response is intended to be indicative only. External parties should make their own enquiries to ensure the accuracy of the information, including but not limited to:

- Check that the location of the dig site indicated is correct, if not you must submit a new enquiry.
- Should your scope of works change or the plan validity dates expire, you must submit a new enquiry.
- If you do not understand the plans provided please contact CitiPower/Powercor prior to works commencing.
- Always perform an onsite inspection to establish the presence of assets.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.

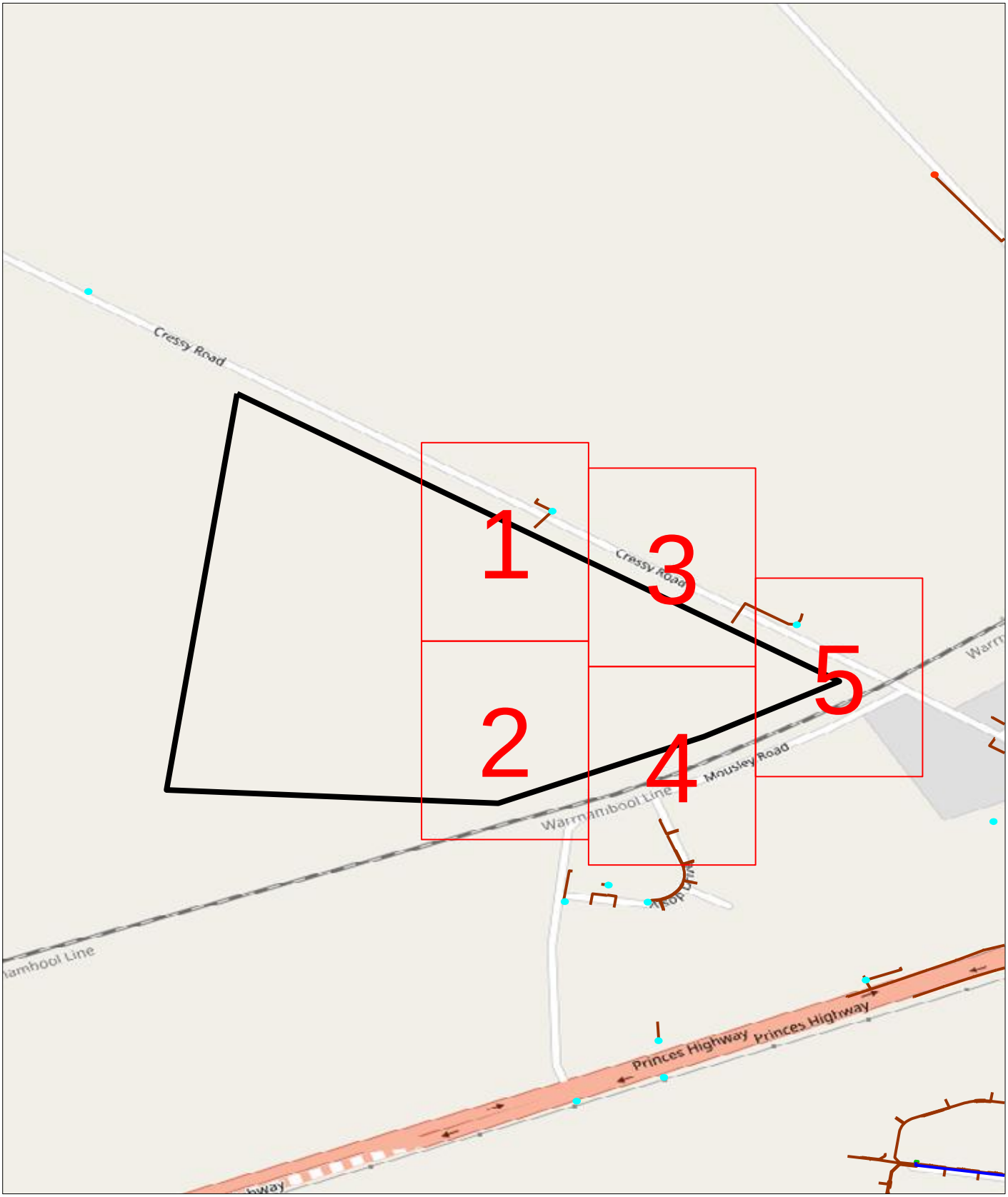
Report any asset damage immediately on 132 206. Note: CitiPower/Powercor reserves the right to recover compensation for damages.

Locality Map

Sequence No: 99478230

25 Cressy Road Winchelsea

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS



LEGEND:

DBYD Work Area | SWER Substation | High Voltage Cable | Communication Cable

Zone Substation | Distribution Substation | Low Voltage Cable | Earth Cable

This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.07km

N

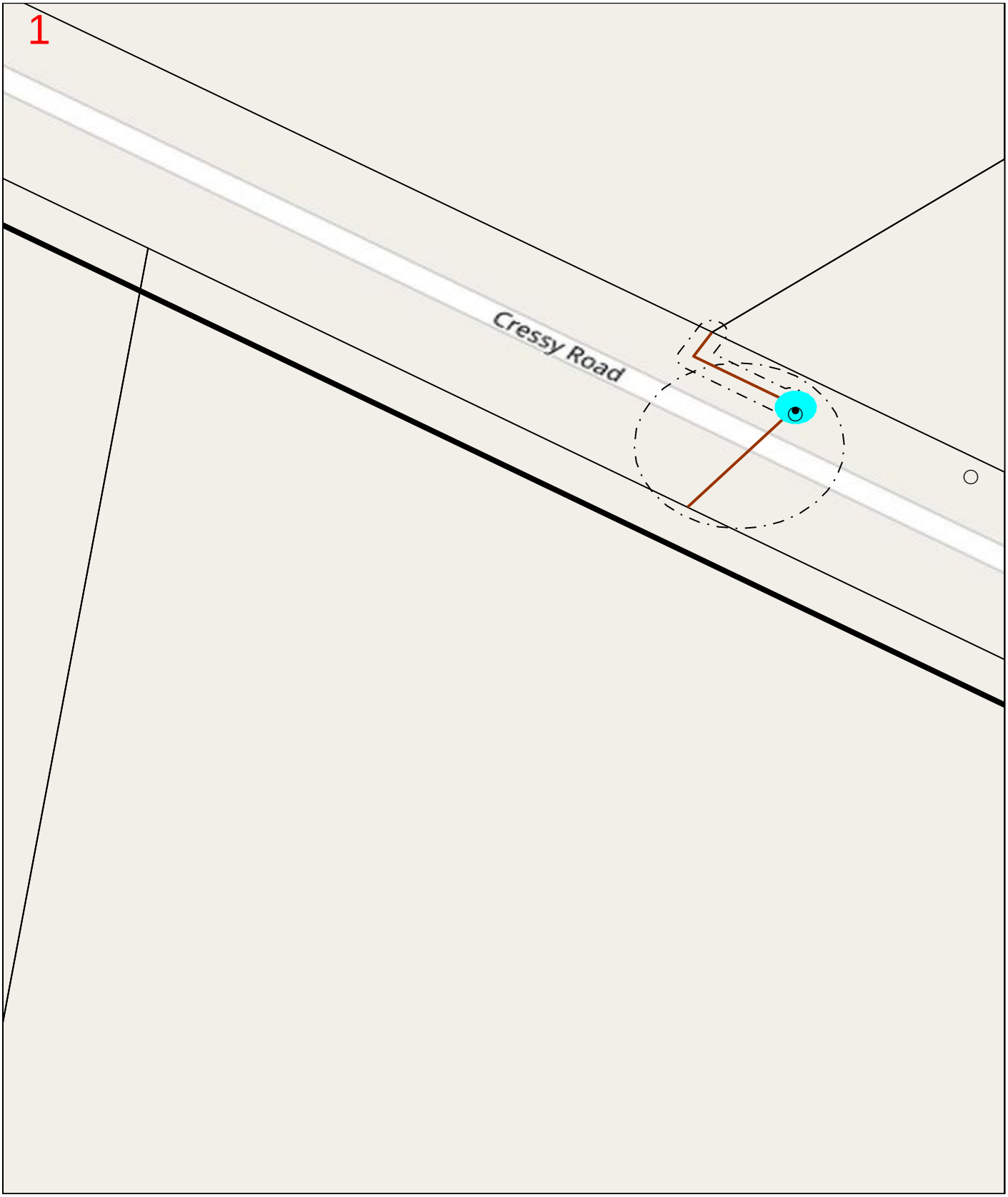
Imagery sourced from Open StreetMaps

Powered by dbyd

Map 1

Sequence No: 99478230

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS



LEGEND:

DBYD Work Area
SWER Substation
High Voltage Cable
Communication Cable
Pole (Subtransmission)
Pole (LV)
Zone Substation
Distribution Substation
Low Voltage Cable
Earth Cable
Pole (HV)
Property Boundary

This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.01km

N

Imagery sourced from Open StreetMaps

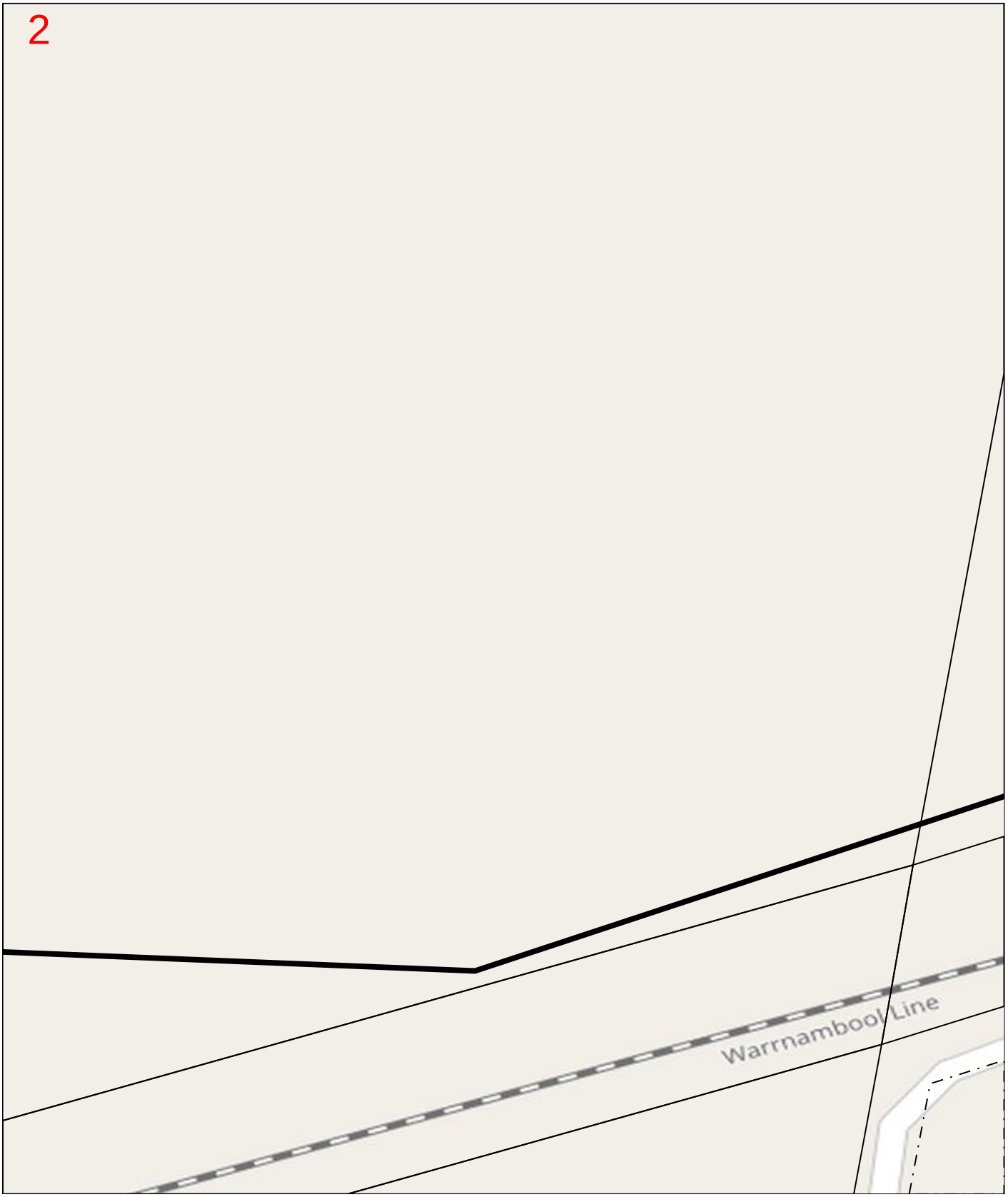
Powered by dbyd

CITIPOWER Powercor AUSTRALIA

Map 2

Sequence No: 99478230

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS



LEGEND:

- DBYD Work Area
- SWER Substation
- High Voltage Cable
- Communication Cable
- Pole (Subtransmission)
- Pole (LV)
- Zone Substation
- Distribution Substation
- Low Voltage Cable
- Earth Cable
- Pole (HV)
- Property Boundary

This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.01km

N

Imagery sourced from Open StreetMaps

Map 3

Sequence No: 99478230

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS

LEGEND:

DBYD Work Area
SWER Substation
High Voltage Cable
Communication Cable
Pole (Subtransmission)
Pole (LV)
Zone Substation
Distribution Substation
Low Voltage Cable
Earth Cable
Pole (HV)
Property Boundary

This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.01km

N

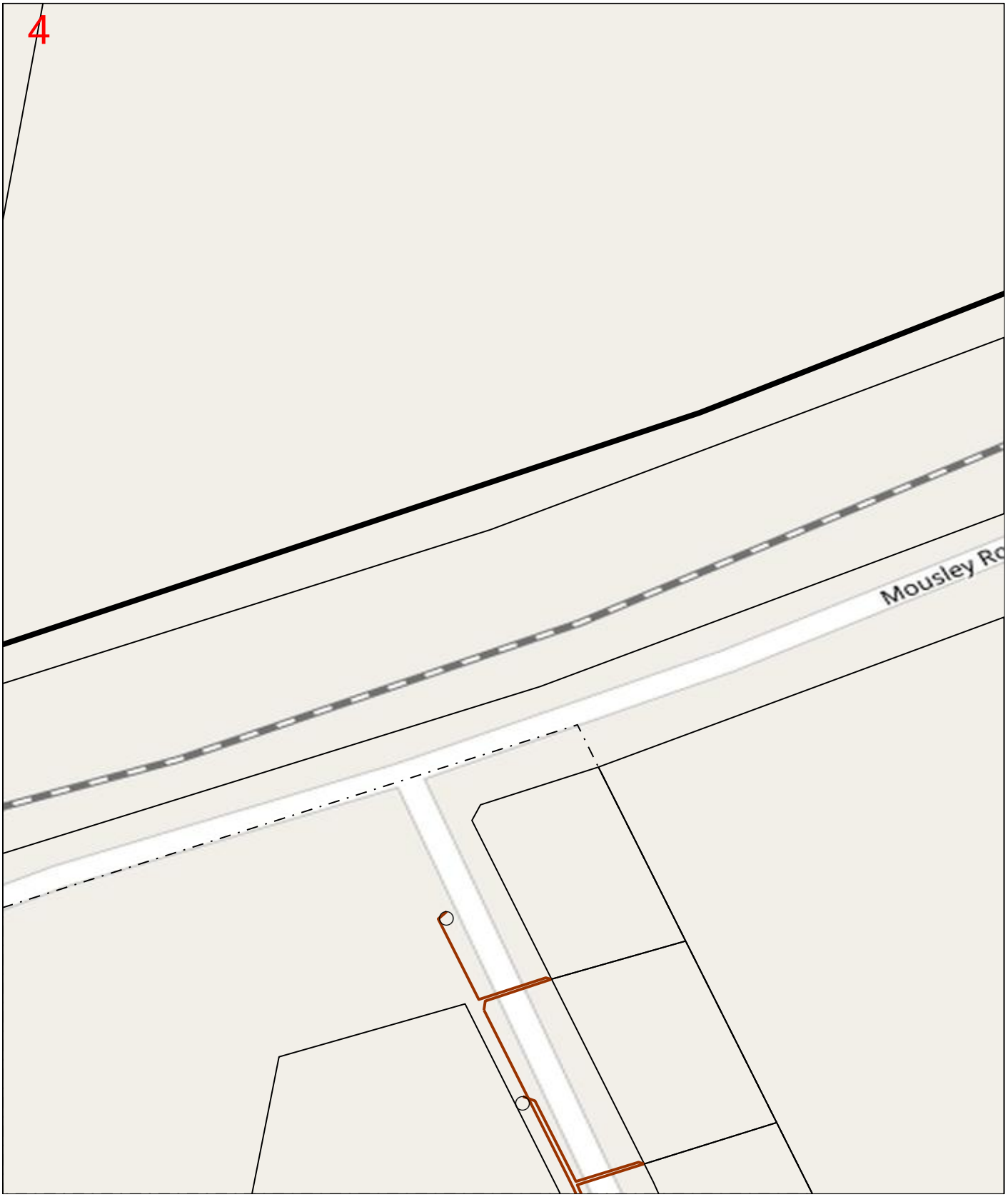
Imagery sourced from Open StreetMaps

Powered by dbyd

Map 4

Sequence No: 99478230

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS



LEGEND:

DBYD Work Area
SWER Substation
High Voltage Cable
Communication Cable
Pole (Subtransmission)
Pole (LV)
Zone Substation
Distribution Substation
Low Voltage Cable
Earth Cable
Pole (HV)
Property Boundary

This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.01km

N

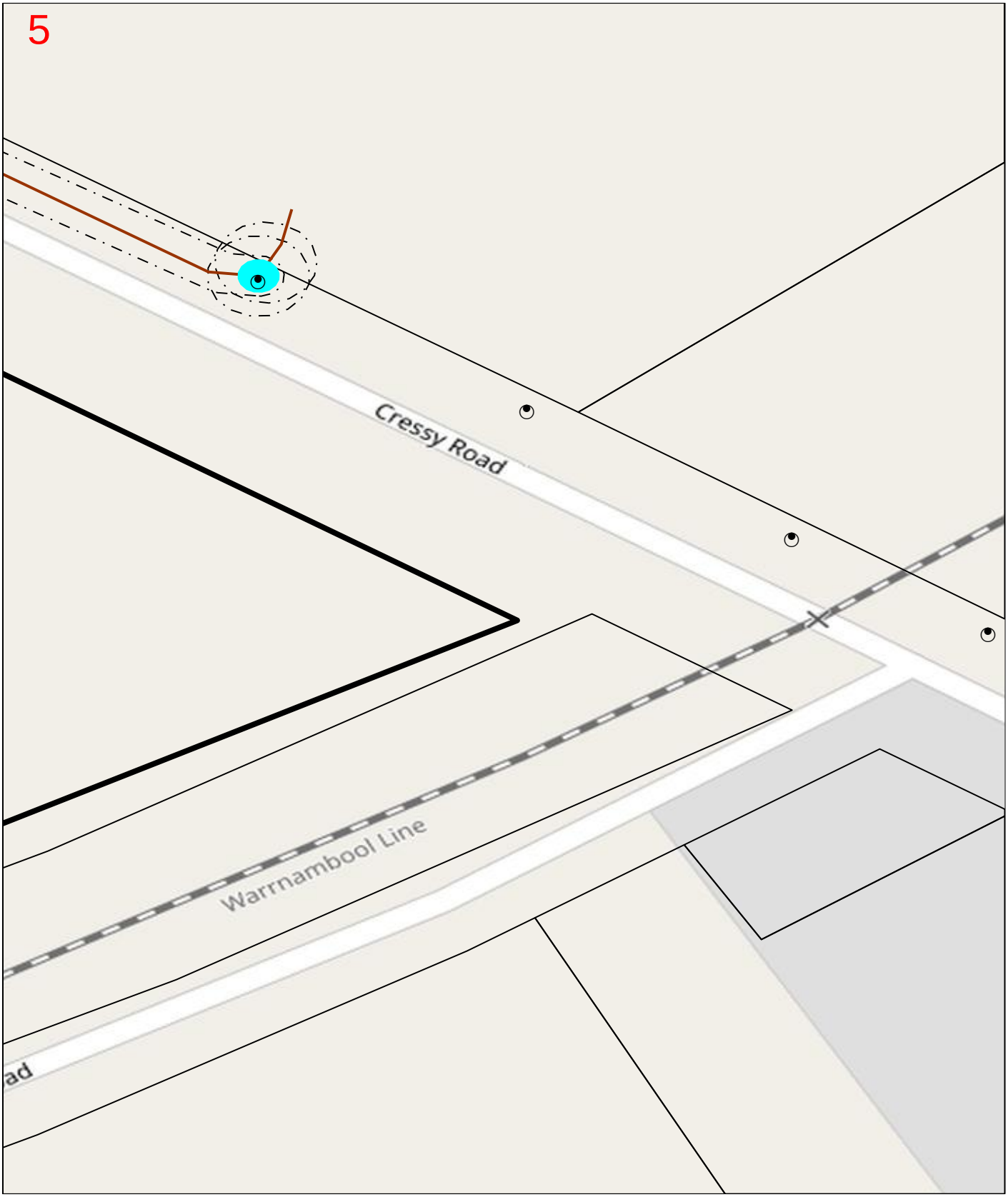
Imagery sourced from Open StreetMaps

Powered by dbyd

Map 5

Sequence No: 99478230

MAP IS A GUIDE ONLY- REFER TO CABLE PLANS FOR ACCURATE ASSET LOCATIONS



LEGEND:

DBYD Work Area
SWER Substation
High Voltage Cable
Communication Cable
Pole (Subtransmission)
Pole (LV)
Zone Substation
Distribution Substation
Low Voltage Cable
Earth Cable
Pole (HV)
Property Boundary

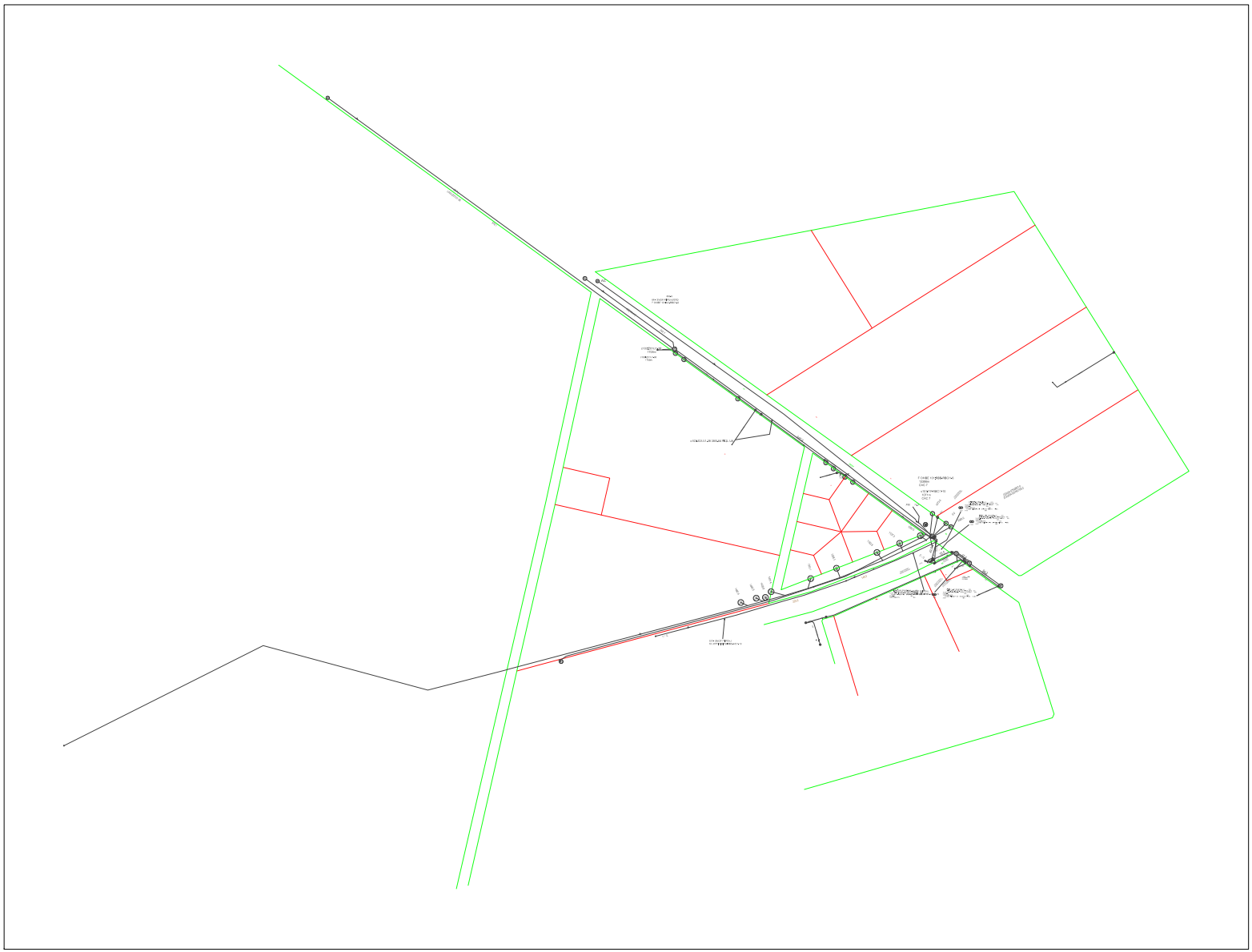
This map represents the location of the submitted DBYD Work Area and all CitiPower/Powercor responses are based on this location. It is the responsibility of the enquirer to ensure the accuracy of the DBYD Work Area.

0 0.01km

N

Imagery sourced from Open StreetMaps

Powered by dbyd



APPENDIX VI:

Calibration Certificate

Equipment Calibration Form
GA5000

Enqip #: 12161
Company: Jet Environmental
Consultant: Peter King
PO #: J1214
Certificate #: 17465

INSTRUMENT IDENTIFICATION

Model Number: GA5KA0F-100
Serial Number: G506198
Instrument Type: GTI - GA5000

INSPECTION RECORD

Date & Time: PASS
Flow Rate: 639 mL/min

CALIBRATION DETAILS

Sensor	Standard	Reading	Traceability Lot #
CH_4	N_2 UHP	0 %	1218973
	2.5 %	2.5 %	1185587
	60 %	60.0 %	1327131
CO_2	5 %	5.0 %	1199086
	40 %	40.0 %	1327131
O_2	N_2 UHP	0 %	1218973
	20.9 %	20.9 %	N/A
CO	N_2 UHP	0 ppm	1218973
	100 ppm	100 ppm	1185587
H_2S	N_2 UHP	0 ppm	1218973
	25 ppm	25 ppm	1273370

Calibration Successful: YES

Calibrated By: Doyle Schapendonk

Test Date: 9/07/2020

enqip
116 Thistlethwaite St, South Melbourne 3205
P 1300 218 987
E info@enqip.com.au | **W** www.enqip.com.au

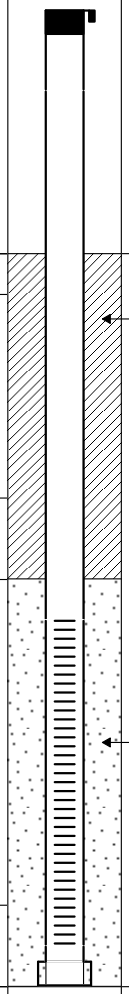
APPENDIX VII:

Gas Monitoring Bore Logs

Gas Bore: LFG01

Job No: J1214
Client: Earl Civil
Site: 25 Cressy Rd, Winchelsea
Bore Casing Diameter (mm): 50
Bore Depth (mbgl): 0.8

Date: 10 July 2020
Logged: PJK
Driller: PJK
Method: Hand auger
Screen Interval (mbgl): 0.45 - 0.9

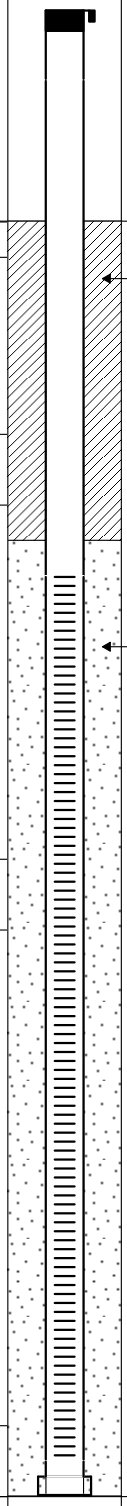
Depth (m)	Graphic	Description	Sample	PID	Bore Details	Comments
0.0		**FILL** moist, dark brown, disturbed natural sandy clay, firm, moderate plasticity	-	-		No odour
		CLAY moist, mottled orangish brown, stiff, moderate to high plasticity, minor sand, trace gravel	-	-		No odour
		CLAY moist, dark grey, stiff, high plasticity, trace highly weathered basalt	-	-		No odour
1.0						Bore terminated at 0.9 m due to refusal on basalt

Gas Bore: LFG02

Job No: J1214
Client: Earl Civil
Site: 25 Cressy Rd, Winchelsea
Bore Casing Diameter (mm): 50
Bore Depth (mbgl): 1.8

Date: 10 July 2020
Logged: PJK
Driller: PJK
Method: Hand auger
Screen Interval (mbgl): 0.5 - 1.8

Depth (m)	Graphic	Description	Sample	PID	Bore Details	Comments
0.0		**FILL** slightly moist, brown, disturbed natural sand, dense, fine to medium grained	-	-		No odour
		CLAY moist, mottled orangish brown, stiff, moderate to high plasticity, minor sand, trace gravel	-	-		No odour
		becoming grey	-	-		No odour
1.0			-	-		No odour
2.0						



Gas Bore: LFG03

Job No: J1214
Client: Earl Civil
Site: 25 Cressy Rd, Winchelsea
Bore Casing Diameter (mm): 50
Bore Depth (mbgl): 2.0

Date: 10 July 2020
Logged: PJK
Driller: PJK
Method: Hand auger
Screen Interval (mbgl): 0.5 - 2.0

Depth (m)	Graphic	Description	Sample	PID	Bore Details	Comments
0.0		**FILL** slightly moist, brown, disturbed natural sandy silt, dense	-	-		No odour
		CLAY moist, mottled orangish brown, stiff, moderate to high plasticity, minor sand, trace gravel	-	-		No odour
		becoming grey				
			-	-		No odour
1.0		becoming orangish brown				
			-	-		No odour
2.0						

Bentonite seal

Gravel pack

Gas Bore: LFG04

Job No: J1214
Client: Earl Civil
Site: 25 Cressy Rd, Winchelsea
Bore Casing Diameter (mm): 50
Bore Depth (mbgl): 1.5

Date: 10 July 2020
Logged: PJK
Driller: PJK
Method: Hand auger
Screen Interval (mbgl): 0.5 - 1.5

Depth (m)	Graphic	Description	Sample	PID	Bore Details	Comments
0.0		**FILL** very moist, orange, sandy clay, firm, non-plastic, with fine gravel	-	-		No odour
		CLAY slightly moist, grey, stiff, high plasticity				
			-	-		No odour
		becoming orange, with weathered basalt gravel	-	-		No odour
1.0			-	-		No odour
						Bore terminated at 1.5 m due to refusal on basalt

APPENDIX VIII:

Landfill Gas Monitoring Sheets

Landfill Gas Monitoring Sheet

JET environmental

Project No: J1214 Equipment: GA 5000 Date: 10/7/20

Site: 25 CRESSY RD, WINCHELSEA Conditions: COOL, GENTLE BREEZE Staff: PJK

Location ID	Start Time	Flow Rate (L/hr)	Relative Pressure (mb)	Atmospheric Pressure (mb)	Peak concentrations (% v/v)			Stabilised concentrations (% v/v)				Stabilisation Time (sec)	Comments (e.g. Location/bore condition, direction & rate of change if unstabilised)
					Max. CH_4	Max. CO_2	Min. O_2	CH_4	CO_2	O_2	Bal.		
LFG01	15.12	0.0	0.03	1010	0.0	0.2	19.6	0.0	0.2	19.6	80.2	180	BORE IN GOOD CONDITION
LFG02	15.23	0.1	0.05	1011	0.0	0.8	19.7	0.0	0.8	19.7	79.5	180	" " "
LFG03	15.38	0.0	0.02	1011	0.0	0.3	19.1	0.0	0.3	19.1	80.6	180	" " "
LFG04	15.48	0.0	0.05	1010	0.0	0.6	18.6	0.0	0.6	18.6	80.8	180	" " "
WV1	16.18	—	—	1010	0.0	1.0	20.2	0.0	1.0	20.2	78.8	120	WATER MAIN VALVE


JET
environmental