



NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. 073/2127799

This site audit is a:

- statutory audit
- non-statutory audit

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name Andrew Kohlrusch

Company GHD

Address 133 Castlereagh Street, Sydney

Postcode 2000

Phone 9239 7187

Email andrew.kohlrusch@ghd.com

Site details

Address Durham Street, Rosehill NSW

Postcode 2142

Property description

(Attach a separate list if several properties are included in the site audit.)

Part Lot 100 in DP 1168951 – a survey drawing is included in Attachment A of this site audit statement (referred to as the Stage 1 Area)

Local government area City of Parramatta Council

Area of site (include units, e.g. hectares) 6.998 hectares

Current zoning IN3 - Heavy Industrial under the Parramatta Local Environmental Plan 2011

Regulation and notification

To the best of my knowledge:

- ✓ **the site is** the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*, as follows: (provide the no. if applicable)

Declaration no.

- ✓ Order no. Preliminary Investigation Order 20121001

Proposal no.

Notice no.

- ~~**the site is not** the subject of a declaration, order, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.~~

To the best of my knowledge:

- ✓ the site **has** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*

- ~~the site **has not** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*.~~

Site audit commissioned by

Name Adam Speers

Company Viva Energy Australia Pty Ltd

Address Level 31 (Suite 2), Governor Macquarie Tower, 1 Farrer Place, Sydney NSW

Postcode 2000

Phone +61 400 214 857

Email adam.speers@vivaenergy.com.au

Contact details for contact person (if different from above)

Name

Phone

Email

Nature of statutory requirements (not applicable for non-statutory audits)

- Requirements under the *Contaminated Land Management Act 1997*
(e.g. management order; please specify, including date of issue)

- Requirements imposed by an environmental planning instrument
(please specify, including date of issue)

- ✓ Development consent requirements under the *Environmental Planning and Assessment Act 1979* (please specify consent authority and date of issue)

Development Consent no. SSD9302 granted 7 May 2020 by a delegate of the Minister for Planning and Public Spaces.

- Requirements under other legislation (please specify, including date of issue)

Purpose of site audit

~~A1 To determine land use suitability~~

~~Intended uses of the land:~~

OR

A2 To determine land use suitability subject to compliance with either an active or passive environmental management plan

Intended uses of the land: Commercial / Industrial

OR

(Tick all that apply)

~~B1 To determine the nature and extent of contamination~~

~~B2 To determine the appropriateness of:~~

~~an investigation plan~~

~~a remediation plan~~

~~a management plan~~

~~B3 To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017~~

~~B4 To determine the compliance with an approved:~~

~~**voluntary management proposal** or~~

~~**management order** under the Contaminated Land Management Act 1997~~

~~B5 To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.~~

~~Intended uses of the land:~~

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

Environmental Resources Management Australia Pty Ltd (ERM)

Titles of reports reviewed:

- ERM (2021c). Clyde Western Area Remediation Project - Quarter 4 (2020) Groundwater Monitoring Report, dated 24 March 2021.
- ERM (2021d). Clyde Western Area Remediation Project Stage 1 – Ongoing Groundwater Monitoring Event 2 and Annual Summary Report, dated 12 October 2021.
- ERM (2021e). Clyde Western Area Remediation Project, Stage 1 Long Term Environmental Management Plan, dated 8 November 2021.

Site Audit Statement

Other information reviewed, including previous site audit reports and statements relating to the site:

- Site Audit Statement (SAS) number 043-2127799, 22 June 2020 – Review of the Stage 1 RAP
- Site Audit Report (SAR) number 043-2127799 - Viva Energy Clyde Western Area Remediation Project - Stage 1 - Review of Stage 1 RAP, 22 June 2020
- Site Audit Statement (SAS) number 055-2127799A, February 2021 – Review of Stage 1 Remediation and Validation program
- Site Audit Report (SAR) number 055-2127799A - Viva Energy Clyde Western Area Remediation Project - Stage 1 Remedial and Validation Works – 2 Durham Street, Rosehill, NSW – Site Audit Report_RevA, 2127799, dated 18 February 2021
- Site Audit Report (SAR) number 065-2127799 - Site Audit Report – Stage 1 Area Ongoing Groundwater Monitoring Clyde Western Area Remediation Project, 29 November 2021
- Site Audit Report (SAS) number 065-2127799, dated 29 November 2021

Site audit report details

Title *Site Audit Report – Stage 1 Area, Clyde Western Area Remediation Project, Viva Energy Australia Pty Ltd*

Report no. 073-2127799

Date 2 May 2022

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section. (Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
 - (B1) the nature and extent of contamination, and/or
 - (B2) the appropriateness of an investigation, remediation or management plan¹, and/or
 - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
 - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
 - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

¹ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

~~I certify that, in my opinion:~~

The ~~site is suitable~~ for the following uses:

~~(Tick all appropriate uses and strike out those not applicable.)~~

- ~~Residential, including substantial vegetable garden and poultry~~
 - ~~Residential, including substantial vegetable garden, excluding poultry~~
 - ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
 - ~~Day care centre, preschool, primary school~~
 - ~~Residential with minimal opportunity for soil access, including units~~
 - ~~Secondary school~~
 - ~~Park, recreational open space, playing field~~
 - ~~Commercial/industrial~~
 - ~~Other (please specify):~~
-

OR

- ~~I certify that, in my opinion, the site is not suitable for any use due to the risk of harm from contamination.~~

Overall comments:

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan² (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

- ~~Residential, including substantial vegetable garden and poultry~~
 - ~~Residential, including substantial vegetable garden, excluding poultry~~
 - ~~Residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~
 - ~~Day care centre, preschool, primary school~~
 - ~~Residential with minimal opportunity for soil access, including units~~
 - ~~Secondary school~~
 - ~~Park, recreational open space, playing field~~
 - Commercial/industrial
 - ~~Other (please specify):~~
-

EMP details

Title *Clyde Western Area Remediation Project, Stage 1 Long Term Environmental Management Plan*

Author ERM

Date 8 November 2021

No. of pages 36 (including appendices)

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

- ~~requires operation and/or maintenance of **active** control systems³~~
- requires maintenance of **passive** control systems only³

² Refer to Part IV for an explanation of an environmental management plan.

³ Refer to Part IV for definitions of active and passive control systems.

Purpose of the EMP:

The aims of the updated LTEMP prepared by ERM are to present passive management controls given the residual petroleum hydrocarbon impacts (aesthetic issues) associated with shallow soils/fill within the Stage 1 Area and the presence of asbestos cement materials attached to building footings that remain on site.

The previously endorsed LTEMP was updated, as ongoing groundwater monitoring events are no longer required as the relevant Conditions Consent B22 were met.

Description of the nature of the residual contamination:

The residual contamination present on shallow soils/fill within the Stage 1 Area comprised the following:

- Oily water / sludge associated with former underground drainage infrastructure;
 - Asbestos formwork attached to remaining underground building foundations;
 - Hydrocarbon impacted soils, that are not deemed a health risk, but are an aesthetic consideration
-

A detailed description of residual contamination and the potential human health risks associated with intrusive excavation works is presented the updated LTEMP. A copy of the updated LTEMP is presented as Attachment B of this SAS.

Summary of the actions required by the EMP:

Based on the nature and extent of residual contamination identified within the Stage 1 Area the following management controls are required:

- Non-Intrusive works – No management controls are required.
 - Intrusive Excavation Works – Implementation of environmental management controls as detailed in the LTEMP. A copy of the LTEMP included in Attachment B.
-

How the EMP can reasonably be made to be legally enforceable:

All requirements are legally enforceable via Condition B10(a) of the State Significant Development Consent 9302 issued under Section 4.38 of the Environmental Planning and Assessment Act 1979 (the 'EP&A Act'), as outlined below:

"B10. Upon completion of the Site Audit Statement and Site Audit Report, the Applicant must: (a) Implement the approved LTEMP (b) Provide evidence to the Planning Secretary that the LTEMP is listed on the relevant planning certificate for the land, issued under section 10.7 of the EP&A Act".

How there will be appropriate public notification:

As per condition B10 (b) of SSD9302, Parramatta Council will be requested to add a notation to the planning certificate for the site under section 10.7(5) of the EP&A Act confirming that the property is subject to the LTEMP.

Overall comments:

The requirements of the LTEMP will ensure appropriate identification and management of remaining infrastructure and residual contaminated soils.

Site Audit Statement

Groundwater should not be extracted within the Stage 1 Area for any purpose without further assessment.

Construction of basements should not be allowed within the Stage 1 Area without further assessment.

Section B

Purpose of the plan⁴ which is the subject of this audit:

I certify that, in my opinion:

(B1)

- ~~The nature and extent of the contamination **has** been appropriately determined~~
- ~~The nature and extent of the contamination **has not** been appropriately determined~~

AND/OR (B2)

~~The investigation, remediation or management plan is appropriate for the purpose stated above~~

- ~~The investigation, remediation or management plan **is not** appropriate for the purpose stated above~~

AND/OR (B3)

- ~~The site testing plan:~~

~~is appropriate to determine~~

~~is not~~ appropriate to determine

~~if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*~~

AND/OR (B4)

- ~~The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):~~

~~have~~ been complied with

~~have not~~ been complied with.

~~*voluntary management proposal no.~~

~~**management order no.~~

AND/OR (B5)

- ~~The site **can be made suitable** for the following uses:~~

~~(Tick all appropriate uses and strike out those not applicable.)~~

~~Residential, including substantial vegetable garden and poultry~~

~~Residential, including substantial vegetable garden, excluding poultry~~

~~Residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~

~~Day care centre, preschool, primary school~~

~~Residential with minimal opportunity for soil access, including units~~

⁴ For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Site Audit Statement

Secondary school

Park, recreational open space, playing field

Commercial/industrial

Other (please specify):

~~IF the site is remediated/managed*~~ in accordance with the following plan (attached):

~~*Strike out as appropriate~~

Plan title

Plan author

Plan date

No. of pages

~~SUBJECT to compliance with the following condition(s):~~

Overall comments:

Part III: Auditor's declaration


I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997*.

Accreditation no. 0403

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997*, and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed 

Date 2 May 2022

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of the *Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority:**
nswauditors@epa.nsw.gov.au or as specified by the EPA

AND

- the **local council** for the land which is the subject of the audit.

Attachment A - Survey Plans and Figures

M.G.A

STAGE 1B

GRAND PARADE

101
DP 1168951

101
DP 809340

2
DP 224288

DURHAM STREET

COLQUHOUN STREET

DEVON STREET

21
60.04ha
BY DED'N

6
6.998ha
(INCLUDING RIPARIAN
SETBACK)

5
28.07ha
(INCLUDING RIPARIAN
SETBACK)

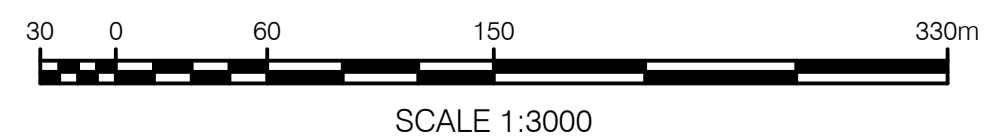
2
DP 884567

DUCK

MEAN
RIVER

NOTES:
1. ALL DIMENSIONS SHOWN HEREON ARE APPROXIMATE
AND SUBJECT TO FINAL SURVEY
2. NO CADASTRAL SURVEY HAS BEEN UNDERTAKEN

(A) EASEMENT TO DRAIN WATER 10.2 & 13.4 WIDE (AC 424785)
(B) EASEMENT 6.095 WIDE (B309159) - SYDNEY WATER PIPELINE
(C) EASEMENT TO DRAIN WATER 13.4 WIDE (AC424784)
(G) PROPOSED EASEMENT FOR SERVICES 5 WIDE
(H) PIPELINE EASEMENT (V540637 & V540638)
(J) PIPELINE EASEMENT (V22813)
(K) PIPELINE EASEMENT WHOLE OF LOT (R297864)
(L) EASEMENT FOR OVERLAND FLOW 5 WIDE
(M) EASEMENT FOR PEDESTRIAN ACCESS 40 WIDE & VARIABLE
WIDTH



CLIENT

VE PROPERTY
PTY LTD

PROJECT

PLAN OF
PROPOSED SUBDIVISION
OF
LOT 100 IN
DP 1168951
STAGE 1B

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.

Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.

Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

6	GKO	11/11/2020	AMEND RIPARIAN SETBACK
5B	GKO	02/11/2020	LANDSCAPE SETBACK REMOVED
4B	GKO	13/10/2020	SY074707.11.4 VER B
4	GKO	06/08/2020	APPROX AUSGRID LINE ADDED
3	GKO	23/07/2020	EASEMENTS ADDED
2	GKO	16/07/2020	LOT 6 DIMENSION AND AREA AMENDED
1	GKO	22/06/2020	INITIAL ISSUE

SYM	CODE	DESCRIPTION	SYM	CODE	DESCRIPTION
⊕	BM	BENCH MARK	⊕	OFM	OPTICAL FIBRE MARKER
⊕	BM	BENCH MARK	⊕	OFP	OPTICAL FIBRE PIT
⊕	BO	BOLLARD	⊕	TM	PALM TREE
⊕	DJM	DRAINAGE MANHOLE	⊕	SE	SEAT
⊕	EFP	ELEC FUSE BOX	⊕	TS	SHRUB
⊕	ELP	ELEC GARDEN LIGHT	⊕	TCA	TELSTRA PIT
⊕	EL	ELEC GREEN PILLAR	⊕	SLH	SEWER LAMP HOLE
⊕	LP	ELEC LIGHT POLE	⊕	SMH	SEWER MANHOLE
⊕	EP	ELECT SINGLE PIT	⊕	SVP	SEWER VENT PIPE
⊕	SPL	ELEC STAY POLE	⊕	SI	SIGN
⊕	PP	ELEC POWER POLE	⊕	BS	BUS STOP SIGN
⊕	ELP	ELEC POLE LIGHT	⊕	T	TREE
⊕	TRANS	ELE POLE/TRANSFORM	⊕	SGL	TRAFFIC LIGHT
⊕	FD	FUEL DIP	⊕	SCL	TRAFFIC CONTROLLER
⊕	GM	GAS MAIN	⊕	SJX	TRAFFIC JUNCTION BOX
⊕	GMR	GAS METER	⊕	US	UNKNOWN SERVICE
⊕	GAS	GAS VALVE	⊕	WAV	WATER AIR VALVE
⊕	AG	GATE	⊕	WMR	WATER METER
⊕	GUL	GULLY PIT	⊕	WEP	WATER PUMP
⊕	HYD	HYDRANT	⊕	WSV	WATER STOP VALVE
⊕	BOR	BORERHOLE	⊕	WTP	WATER TAP

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

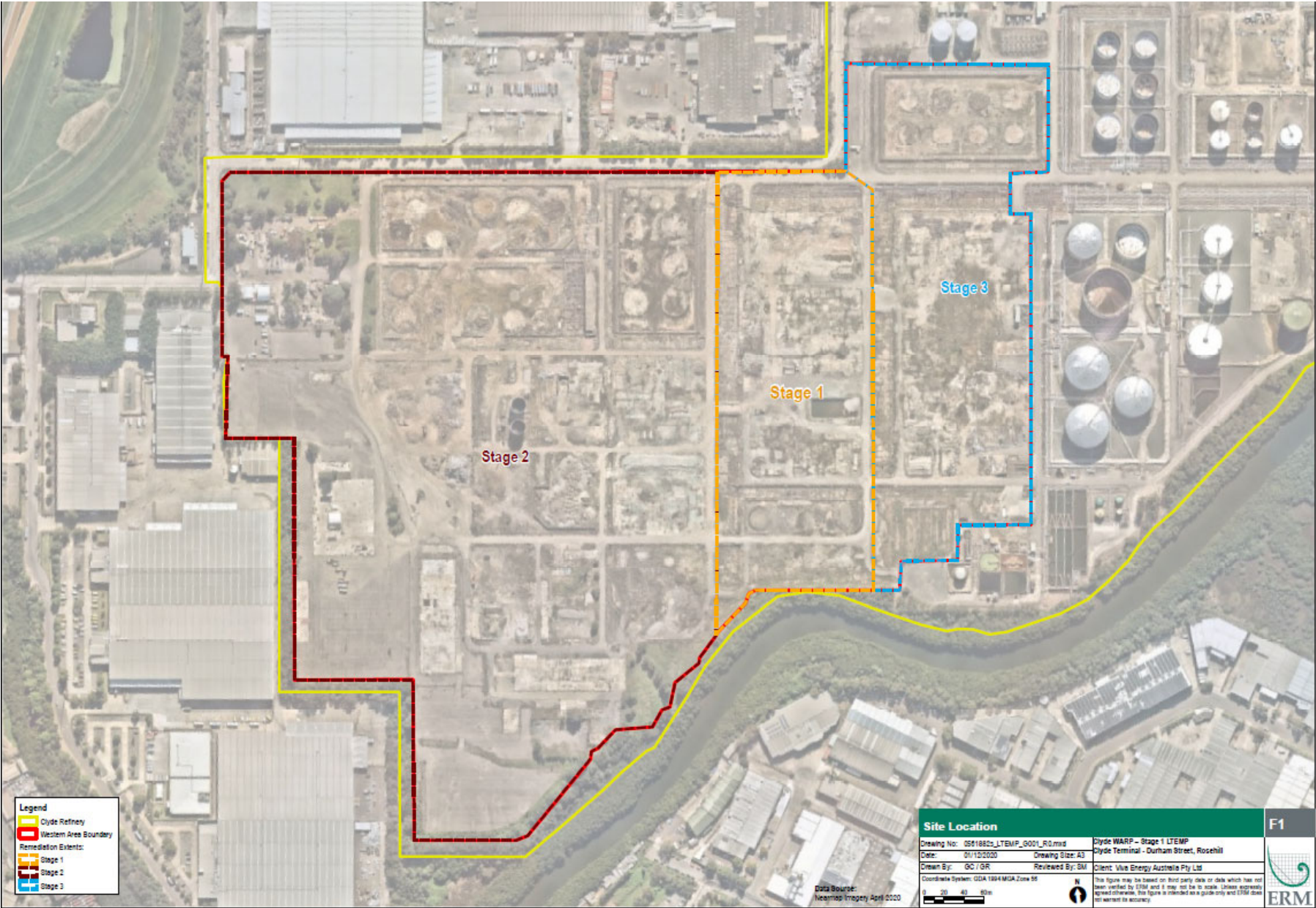
DRAINAGE PIPE U/G	—
DRAIN	—
ELECT CABLE A/G	—
ELEC CABLE U/G	—
GAS PIPE	—
FENCE LINE	—
SEWERAGE PIPE	—
TELSTRA CABLE	—
WATER PIPE	—



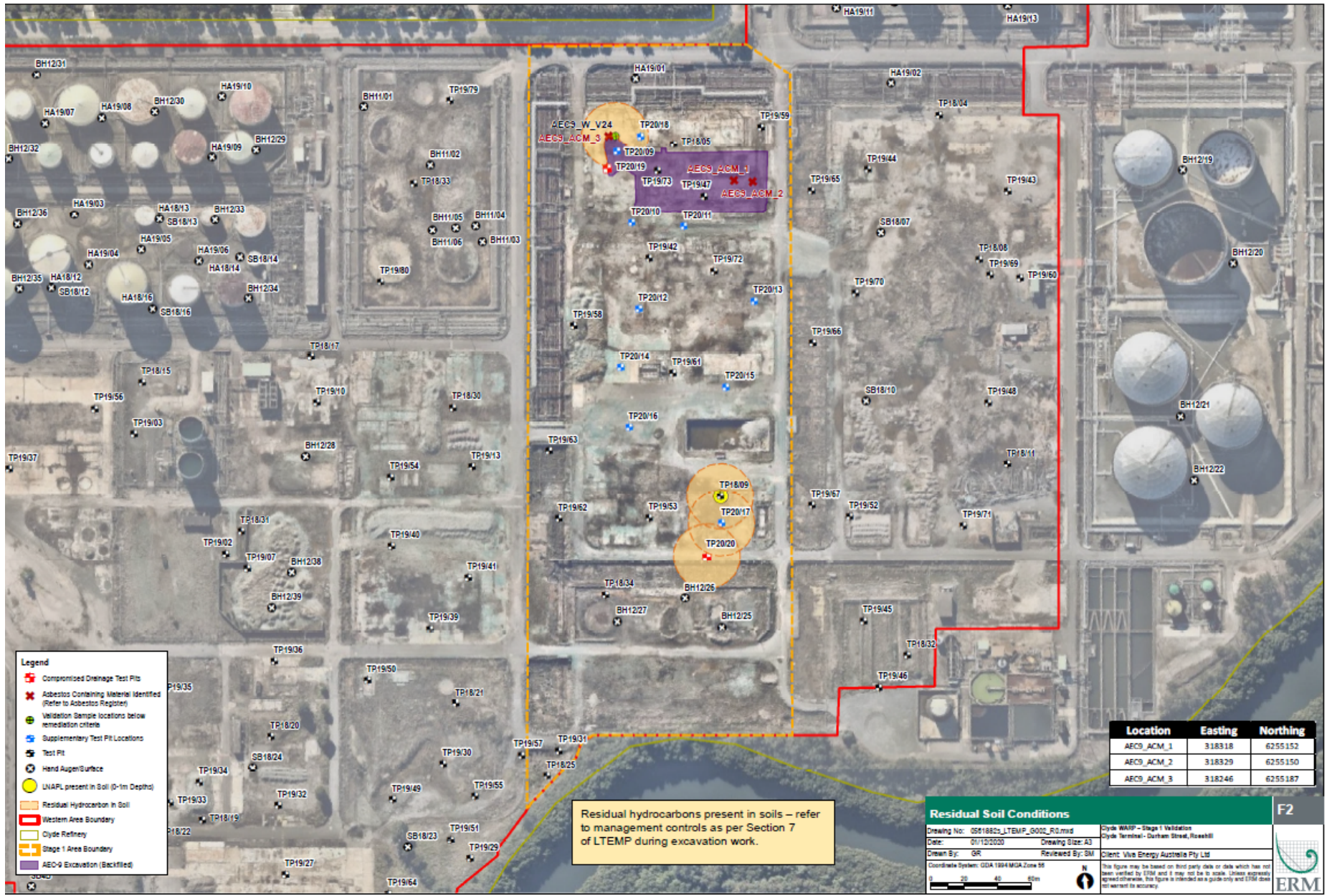
Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117
t (02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au
ISO 9001:2008
FS 535093

HEIGHT DATUM	AHD	LOCAL AUTHORITY	CITY OF PARRAMATTA
HEIGHT ORIGIN	N/A	SCALE	1:3000(A1)
MERIDIAN	56	CONTOUR INTERVAL	N/A
CO-ORD SYSTEM	MGA	SURVEYOR	N/A
DATE OF SURVEY	-	DATE	11/11/2020
CCAD FILE	74707 ver 9 final subdivision	DRAWN	SF/CLP
AUTOCAD FILE	SY074707.000.11B.6	CHECKED	GKO
ARCHIVE FILE	SY074707.000.11.5B	APPROVED	GKO
PLAN NUMBER	SY074707.000.11B.6	SHEET 1 OF 1	

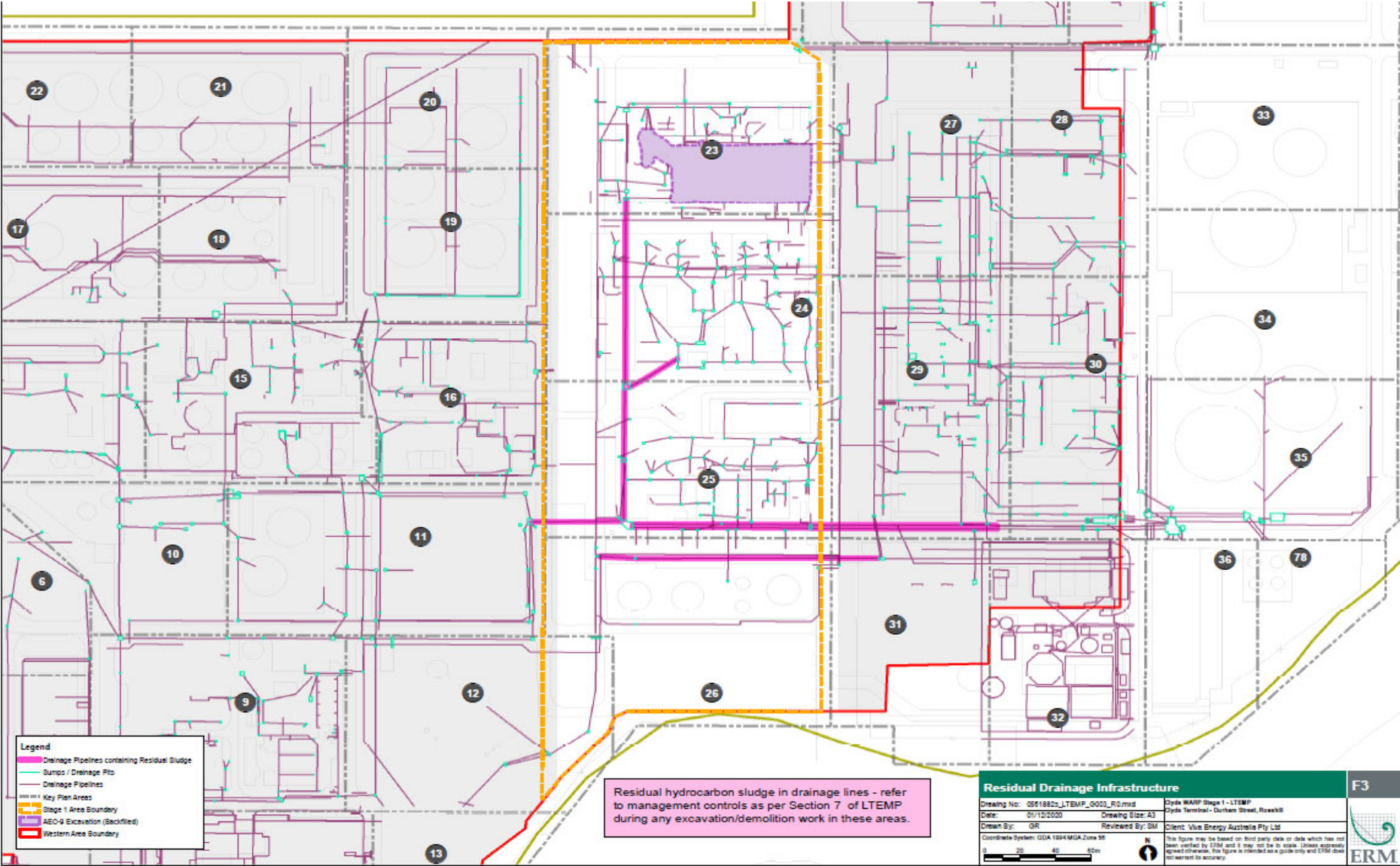
Site Audit Statement



Site Audit Statement



Site Audit Statement



Attachment B – Updated LTEMP



Clyde Western Area Remediation Project



Stage 1 – Long Term Environmental
Management Plan

8th November 2021

Project No.: 0515132

Document details	
Document title	Clyde Western Area Remediation Project
Document subtitle	Stage 1 – Long Term Environmental Management Plan
Project No.	0515132
Date	8 th November 2021
Version	Final Rev 02
Author	Stephen Mulligan
Client Name	Viva Energy Australia Pty Ltd

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Preliminary Draft	00	Ian Batterley	Peter Lavelle	Michael Gaggin	05.05.2020	Preliminary Draft for Viva Energy Review
Draft	01	Ian Batterley	Peter Lavelle	Michael Gaggin	12.05.2020	Draft
Draft	02	Ian Batterley	Peter Lavelle	Michael Gaggin	25.11.2020	Draft – incorporating residual conditions following remediation
Draft	03	Ian Batterley	Peter Lavelle	Michael Gaggin	1.12.2020	Draft – for Site Auditor Review
Draft	04	Ian Batterley	Stephen Mulligan	Michael Gaggin	2.12.2020	Amended Draft – for Site Auditor Review
Revised Draft	05	Ian Batterley	Stephen Mulligan	Michael Gaggin	7.12.2020	Revised Draft – based on Site Auditor Review
Final Draft	06	Ian Batterley	Stephen Mulligan	Michael Gaggin	16.12.2020	Final Draft
Final	00	Ian Batterley	Stephen Mulligan	Michael Gaggin	17.12.2020	Final
Final	01	Stephen Mulligan	Michael Gaggin	Michael Gaggin	29.01.2020	Final – Updated based on DPIE Review
Final	02	Stephen Mulligan	Peter Lavelle	Michael Gaggin	8.11.2021	Updated to remove groundwater monitoring requirements

Signature Page

8th November 2021

Clyde Western Area Remediation Project

Stage 1 – Long Term Environmental Management Plan



Stephen Mulligan
Senior Environmental Scientist



Michael Gaggin
Partner

Environmental Resources Management Australia Pty Ltd

Level 15

309 Kent Street

Sydney NSW 2000

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EXECUTIVE SUMMARY

Introduction

Environmental Resources Management Australia Pty Ltd (ERM) was engaged by Viva Energy Australia Pty Ltd (Viva Energy) to prepare this Long-Term Environmental Management Plan (LTEMP) to outline required environmental management procedures and controls for intrusive works within the 'Stage 1' portion of the Clyde Western Area Remediation Project (WARP), herein referred to as 'The Stage 1 Area'

Background Information

The Stage 1 Area contained former refinery processing units, aboveground pipework for the transfer of product, electrical sub stations, the refinery Central Control Room (CCR), underground drainage pipe system and oil-water separator unit.

Remediation works completed within the Stage 1 Area were undertaken to reduce contaminant concentrations to enable future commercial / industrial land uses and mitigate potential risks to human health / ecological receptors.

Upon completion of remediation and validation works, ERM considered the site was suitable for commercial / industrial land uses including the proposed bitumen manufacturing plant with no basement structures or beneficial re-use of groundwater on site.

Application of this LTEMP

This LTEMP will be applied immediately upon the initiation of any works which involve intrusive excavation from the Site surface.

All works are to be undertaken in accordance with relevant licensing / permitting and regulatory requirements is outlined within **Section 2.0** and **Section 3.0**.

This LTEMP is considered to be 'passive' in the sense that there are no mechanical components incorporated into the plans and that the primary purpose of the plan is to document the residual contamination on-site and outline mechanisms for managing potential risk into the future.

Residual Contamination Following Remediation Works

Following completion of remediation works within the Stage 1 Area, the following residual contamination may be present within the Site:

- Oily water / sludge associated with former underground drainage infrastructure;
- Asbestos associated with former underground building structures; and
- Hydrocarbon impacted soils.

A description of residual contamination and the associated risks where intrusive excavation works are undertaken is presented within **Section 4.0** and **Section 5.0**. The location and extent of residual contamination within the Site is illustrated on **Figure 2** and **Figure 3** (Appendix A).

Required Environmental Management Controls

Based on the nature and extent of residual contamination identified within the Site the following management controls are required under various operational scenarios:

- No Intrusive Excavation (i.e. normal site operations) – No Management Controls Required
- Intrusive Excavation Works Required – Implementation of environmental management controls as detailed within **Section 7** and **Section 8** of this LTEMP.

GLOSSARY

Glossary Term	Definition
the Site	Viva Energy owned land on the Camellia Peninsula consisting of the following Lots: Lot 398 DP41324, Lots 100 and 101 of DP 1168951, Lot 101 DP809340, Lot 2 DP 224288, and Lot 1 DP 383675. It includes the Clyde Terminal, the Parramatta Terminal, the Wetland, the Western Area and other land that is currently vacant or leased to third parties
the Western Area	A largely vacant area of land, approximately 40 Ha in size, located in the south western part of the Site. The land previously contained a variety of refinery assets that have now been removed.
the Clyde Terminal	A part of the Site currently operating as an import, storage and distribution terminal for finished petroleum products including diesel, jet and gasoline fuels. The Clyde Terminal makes up the majority of the central part of Site and operates under SSD 5147 and NSW EPL 570
the Wetland	A large undeveloped wetland area in the north-eastern part of the Site close to the confluence of the Parramatta and Duck Rivers.
the Project	The proposal to remediate the contaminated soils in the Western Area to a commercial/industrial standard alongside associated infrastructure removal, waste management, soil and groundwater management, land forming and storm water management activities.
the Stage 1 Area	Stage 1 Area is situated within the eastern portion of the former Process West area and extends from Devon Street to the North to the Duck River at the southern boundary of the Western Area, the extent of which is shown on Figure 1.
The Land Custodian	The legal owner of the site identified as the Stage 1 Area

1. INTRODUCTION AND PURPOSE

Environmental Resources Management Australia Pty Ltd (ERM) was engaged by Viva Energy Australia Pty Ltd (Viva Energy) to prepare this Long-Term Environmental Management Plan (LTEMP) to outline required environmental management procedures and controls for intrusive works within the 'Stage 1' portion of the Clyde Western Area Remediation Project (WARP), herein referred to as 'The Stage 1 Area'.

- The site layout of the Stage 1 Area and portions of the Stage 1 Area, subject to this LTEMP identified to contain residual contamination, is illustrated within **Figure 1**.

ERM notes that this LTEMP is to be implemented following completion of remediation and validation works. All specific environmental management requirements during site development / construction should also be outlined within a Construction Environmental Management Plan (CEMP).

Prior to the commencement of any intrusive works, all site personnel / contractors are to be inducted into the requirements of this LTEMP and provide the Land Custodian with written confirmation that they acknowledge and understand the requirements and obligations outlined within the LTEMP.

Site specific biodiversity management measures for the Green and Golden Bell Frog, will be detailed within subsequent operational site management plans. Such plans are to be consistent with the *Revised Plan of Management: Restoration of Green and Gold Bell Frog Habitat, Clyde Terminal, January 2019 (where applicable), or its latest version*.

1.1 Purpose of the LTEMP

The specific objectives of this LTEMP are to:

- summarise background environmental information, known and likely conditions at the site, and provide a mechanism to inform the Land Custodian, workers and managers of the potential risks to human health and / or the environment arising from contact with residual contamination;
- outline methods and procedures that will avoid and / or mitigate adverse effects on human health and / or the environment;
- provide a recommended methodology for the appropriate environmental management of excavation works that may encounter residual contaminated soil and / or groundwater;
- provide environmental requirements for the sourcing and placement of backfill material;
- discuss safety measures / considerations for dealing with potentially contaminated soil; and
- outline restrictions to potential future land uses as detailed within Table 3.

All work related to excavation, movement, handling, importation and placement of fill and soil materials and / or groundwater within the site should be carried out in accordance with this LTEMP and in compliance with relevant legislation detailed within **Section 2.0**.

The requirements outlined within this LTEMP relating to residual soil / asbestos contamination will remain in place until residual contamination is appropriately removed and validated with no remaining potential risks to identified human health / ecological receptors. Any changes to the requirements outlined within this LTEMP will require review / endorsement by a NSW EPA accredited Site Auditor.

Where beneficial re-uses of groundwater are proposed, further assessment of the suitability of groundwater is to be completed by a suitably qualified environmental specialist with findings reviewed / endorsed by a NSW EPA accredited site auditor.

This LTEMP is considered to be 'passive' in the sense that there are no mechanical components incorporated into the plans and that the primary purpose of the plan is to document the residual contamination on-site and outline mechanisms for managing potential risk into the future.

1.2 LTEMP Revision

The Land Custodian of the Stage 1 Area are responsible for ensuring that all required stakeholders are provided with the current revision of this LTEMP.

The current revision of this LTEMP is detailed within the table below. Updates to this document must be undertaken in accordance with the requirements detailed within **Section 2.4**.

- Any subsequent revisions of this LTEMP must include a clear date / revision identifier to ensure the most current version of the LTEMP is implemented.

Table 1 – LTEMP Revision

Document Name	Document Revision Number	Date
Clyde Western Area Remediation Project: Stage 1 – Long Term Environmental Management Plan	■ Final Rev02	■ 28/10/2021

1.3 Limitations to this LTEMP

This LTEMP may not be applicable to potential future redevelopment that is not consistent with the current proposed use of the Stage 1 Area.

Where future land uses differ from the commercial / industrial land uses assumed within the ERM (2020) Human Health and Ecological Risk Assessment (HHERA), a review of the HHERA should be undertaken to assess the requirements for potential additional / modified site management provisions.

As the HHERA was based on a slab on grade commercial/ industrial land use, basement construction was not contemplated and is currently not permitted. Further specific assessment and review by a NSW EPA Accredited Site Auditor will be required prior to any such construction.

1.4 Related Documentation

The following documentation provides a summary of site conditions prior to the completion of remediation works within the Site and may be made available to the responsible entity upon request.

- ERM 2020a. Clyde Western Area Remediation Project – Remediation Site Investigation. Final V3. February 2020.
- ERM 2020b. Clyde Western Area Remediation Project – Human Health and Ecological Risk Assessment. Final V3. February 2020.

The following documentation relating to the environmental condition of the Stage 1 Area prior to and following the completion of remediation / validation works within the Site should be made available to the responsible entity for ongoing environmental management.

- ERM 2020c Clyde Western Area Remediation Project – Stage 1 – Detailed Remediation Action Plan V2. May 2020.
- ERM 2020d Clyde Western Area Remediation Project – Stage 1 - Validation Report. December 2020.
- ERM 2020e Clyde Western Area Remediation Project – Drainage Decommissioning Validation Report (Stage 1). December 2020.

2. STATUTORY REQUIREMENTS

2.1 Legal Enforceability and Public Notification of this EMP

Upon Site Auditor endorsement of this LTEMP all requirements are legally enforceable via existing Development Consent Condition B10(a) and (b) of the State Significant Development 9302, as issued under Section 4.38 of the Environmental Planning and Assessment Act 1979 (the 'EP&A Act'). This condition is outlined below:

B10. Upon completion of the Site Audit Statement and Site Audit Report, the Applicant must:

- (a) Implement the approved LTEMP***
- (b) Provide evidence to the Planning Secretary that the LTEMP is listed on the relevant planning certificate for the land, issued under section 10.7 of the EP&A Act***

As per condition B10 (b), Parramatta Council will be requested to add a notation under section 10.7(5) of the *EP&A Act* that the property is subject to this LTEMP.

2.2 Licence and Approval Requirements

The Land Custodian or its designated representative is responsible for obtaining all necessary / required environmental, safety and occupational hygiene approvals and licences prior to the commencement of any works that may impact underlying residual contamination.

- All required permits, approvals and notifications (e.g. SafeWork NSW notifications) required at the time of works must be complete, finalised and (where necessary) approved prior to works commencing;
- All site personnel, contractors, sub-contractors etc. must comply with the terms and conditions of all approvals and licences obtained; and
- Upon commencement of any intrusive works, all processes and procedures outlined in the LTEMP must be implemented immediately.

2.3 Regulatory Framework

During the course of any intrusive works within the Stage 1 Area, all operational personnel working within the site shall comply with the applicable environmental regulatory requirements in New South Wales (NSW) at the time of works.

Any works that require the handling, movement or disposal of contaminated soils / groundwater are to be undertaken in accordance with the operational site specific Environmental Protection Licence (EPL) and all relevant made / approved NSW EPA guidelines at the time of works.

2.4 Document Revision

This LTEMP may be reviewed and updated as necessary. Therefore, it is the responsibility of the reader of this document to ensure they have the current version of the LTEMP.

Where onsite works or inspections / audits identify that the LTEMP requires updating, the LTEMP should be updated as required. ERM notes that any updates to this LTEMP will require review and endorsement from a NSW EPA Accredited Site Auditor.

The master document, with the up-to-date version of the LTEMP will be available from the Land Custodian.

3. APPLICATION AND RESPONSIBILITIES

3.1 Implementation of this LTEMP

To ensure all site personnel / contractors are aware of the requirements detailed within this LTEMP, this LTEMP will be recorded on the Land Custodians site management / induction database (or any subsequent iterations / versions of the database).

Prior to the commencement of any intrusive works, site personnel / contractors will be required to complete all necessary access induction and works permitting which will include induction into the requirements of this LTEMP.

No works are to be undertaken until all relevant induction documentation has been received by the Land Custodian from onsite personnel / contractors including acknowledgement that they are aware and understand all requirements detailed within this LTEMP.

This LTEMP is to be implemented following completion of remediation and validation works. All specific environmental management requirements during site development / construction should also be outlined within a Construction Environmental Management Plan (CEMP)).

3.2 Area to which this LTEMP applies

The site is identified as Part Lot 100 in DP 1168951 and is located within the Stage 1 portion of the Clyde WARP.

- This LTEMP applies to the entire site, however specific management is required for areas within a 20 m buffer of where residual contamination (residual hydrocarbon impacted soil, residual asbestos formwork and residual site infrastructure) will remain in-situ following completion of remediation works. These locations requiring specific management are illustrated on Figure 1 and described within Section 5 of this LTEMP; and
- ERM notes that due to the historical land uses within the Site (i.e. former Refinery), all works must be undertaken in consideration of potential unexpected finds of contamination. Where unexpected finds are encountered during works, they too are to be managed in accordance with the requirements outlined within Section 7.1 of this LTEMP.

3.3 Application of LTEMP

This LTEMP will be applied immediately upon the initiation of any works which involve intrusive excavation from the Site surface, which may involve the following activities:

- excavation of fill and natural soil materials to facilitate removal, realignment or construction of any subsurface infrastructure;
- maintenance and / or upgrade of site utility services;
- temporary stockpiling of excavated material resulting from onsite intrusive works; and
- offsite disposal of any waste contaminated soil / groundwater (if required).

Controls outlined within this LTEMP are to be implemented where intrusive works / excavation works are undertaken. ERM further notes that additional controls including engagement of an environmental specialist, environmental monitoring and development of a task specific works plan (detailed within **Section 7.1**) are required for any works undertaken within 20 m of identified residual contamination (**Figure 2**).

- ERM notes that provided the site surface is not disturbed, including groundwater extraction, none of the controls in this LTEMP are necessary
- Where groundwater is proposed for future beneficial re-uses, an assessment of suitability must be undertaken by a suitably qualified environmental professional. The assessment and any recommendations for beneficial re-use. must be reviewed and endorsed by a NSW EPA Accredited Site Auditor.

3.4 Roles and Responsibilities

The following table summarises potential requirements to be implemented within the Stage 1 Area.

Table 2 – LTEMP Roles and Responsibilities

Position / Company	Responsibility
Stage 1 Area Land Custodian , Viva Energy and Site Auditor	<ul style="list-style-type: none"> ■ Approve the LTEMP
Stage 1 Area Land Custodian (Downer)	<ul style="list-style-type: none"> ■ Ensure all workers and contractors understand the nature and extent of residual contamination. ■ Require all contractors and sub-contractors comply with statutory and license requirements. ■ Maintain records of all works undertaken within the site as required within this LTEMP. ■
Stage 1 Area - Site Operational Staff, Contractors and Subcontractors	<ul style="list-style-type: none"> ■ Implement the LTEMP at site level. ■ Provide adequate training for all employees and contractors during site induction, and as required on an ongoing basis during the works. ■ Comply with the relevant conditions of the consents and licenses (i.e. comply with all regulatory requirements). ■ Require any sub-contractors to comply with statutory and license requirements and conditions of the LTEMP. ■ Conduct monitoring as required in the LTEMP. ■ Complete all necessary registers, databases and records required in the LTEMP. ■ Meet all OH&S regulatory requirements. ■ Ensure that all environmental protection measures are in place and are functioning correctly. ■ During excavation works, assess any potentially contaminating unexpected finds in consideration of the sites use. ■ During intrusive excavation works, as required, undertake site inspections and monitoring of the site operations to ensure they are carried out in an environmentally responsible manner and meet the requirements of this LTEMP. ■ Complete, audits, non-conformance, incident, complaint and corrective action reports and follow up as required. ■ Ensure all non-conformance and/or complaints are reported to the appropriate responsible agent / authority. ■ Undertake corrective actions in response to requests made by the responsible agent regarding specific environmental or safety issues. ■ Notify the Land Custodian / nominated representative of any significant environmental issues. ■ Assess the requirement and (where necessary) engage an environmental specialist / scientist to undertake additional monitoring of excavations / unexpected finds.
Qualified Environmental Specialist	<ul style="list-style-type: none"> ■ Where required, a suitably qualified environmental specialist is to be engaged to manage, monitor and evaluate environmental controls , demonstrate compliance with this LTEMP and assess specific requirements associated with excavation works within areas of known residual contamination and / or unexpected finds.

4. BACKGROUND INFORMATION

4.1 Site Details

The Western Area is an approximately 40 hectare (ha) parcel of land currently owned by Viva Energy within the footprint of the wider Clyde Terminal Site and is bordered to the south by the Duck River, to the east by current Clyde Terminal Operations and to the north and west by other Industrial zoned properties.

The Stage 1 Area extends from Devon Street to the North to the Duck River at the southern boundary of the Western Area. A Site Survey showing the Extent of the Stage 1 Area is provided as *Appendix C*.

The Stage 1 Area contained former refinery processing units, aboveground pipework for the transfer of product, electrical sub stations, the refinery Central Control Room (CCR), underground drainage pipe system and oil-water separator units.

Specific site identification details are summarised in *Table 3*, below.

Table 3 – Site Identification

Item	Description
Site Owner	■ Viva Energy Australia Pty Ltd (Viva)
Site Occupier	■ Downer EDI Works Pty Ltd (Downer) – anticipated early 2020
Site Address	■ Devon Street, Rosehill NSW
Legal Description	■ Part Lot 100 in DP 1168951
Local Government Authority	■ City of Parramatta Council
Current Zoning	■ IN3 – Heavy Industrial under the Parramatta Council Local Environmental Plan 2011
Current Land Uses	■ Vacant site
Future Proposed Land Use	<ul style="list-style-type: none"> ■ Bitumen manufacturing plant (slab on grade commercial/ industrial) ■ Upon completion of remediation and validation works, the site is suitable for commercial / industrial land uses with no basement structures or beneficial re-use of groundwater.
Permissible Land Use(s)	Any permissible use allowed under the sites zoning (with consent), which includes: <ul style="list-style-type: none"> ■ Agricultural produce industries; Building identification signs; Business identification signs; Depots; Freight transport facilities; General industries; Hardware and building supplies; Hazardous storage establishments; Heavy industries; Horticulture; Kiosks; Medical centres; Offensive storage establishments; Pubs; Roads; Rural supplies; Sawmill or log processing works; Take away food and drink premises; Timber yards; Warehouse or distribution centres; Water storage facilities.
Area ¹	■ 7 hectares
Elevation	■ Between 3 and 4 metres Australian Height Datum (m AHD)

Source:

1. City of Parramatta Council LEP (2011)

5. RESIDUAL CONTAMINATION REQUIRING MANAGEMENT

Remediation works completed within the Stage 1 Area were undertaken to reduce contaminant concentrations to enable future commercial / industrial land uses and mitigate potential risks to human health / ecological receptors.

Based on field observations and results of validation sampling undertaken during completion of remediation and validation works, residual contamination is present within locations illustrated (including X and Y co-ordinates) on **Figure 2** and **Figure 3**.

A detailed description of residual contamination within the Stage 1 Area is provided below.

Table 4 –Stage 1 Area Residual Contamination

Potential Residual Contamination	Descriptions
Oily water / sludge associated with former underground drainage infrastructure	<ul style="list-style-type: none"> ■ Due to the former operational history of the Site, there are 11 redundant underground pipes/drains throughout the Site that may require consideration during future potential intrusive excavation works which were decommissioned and decontaminated in-situ during site remediation works (to the extent practical due to access / structural considerations) (see Figure 2). ■ ERM notes that underground drainage lines were subject to cleaning, decontamination and were decommissioned in-situ via permanent disconnection from operational portions of Viva Energy’s Clyde Terminal drainage network and backfilling pits and junctions with stabilised sand. ■ While drainage infrastructure within the Site is not considered to pose a risk to future site operations, residual hydrocarbon impacted sludge and sediment within pipes and pits shown on Figure 3 should be managed to avoid inadvertent release of LNAPL during future construction works and manage potential safety risks for workers (via dermal contact/inhalation) during and future excavation works undertaken to remove this infrastructure. <p>Residual conditions are discussed in detail within the Drainage Decommissioning Validation Report (ERM 2020e). The location of drainage infrastructure is provided on Figure 3.</p>
Asbestos associated with former underground building structures	<ul style="list-style-type: none"> ■ Due to former site infrastructure located within the Site, there are three (3) redundant structures associated with former buildings located within the subsurface (redundant concrete footings etc.). During remedial works, asbestos formwork was noted to be present within a limited number of underground structures, which, due to structural reasons were not removed during site remediation. ■ Following completion of remedial works, several concrete structures containing asbestos formwork remain in-situ as illustrated on Figure 2. ■ ERM notes that based on site observations made during remedial works, asbestos is considered to be limited to isolated use as formwork for concrete footings and was not identified to be present within residual fill / soil material located within the Site. ■ While ERM notes that asbestos formwork within subsurface structures do not pose a risk to identified receptors under normal site operations/conditions, where intrusive excavation works are planned, additional controls such as health and safety planning, air / dust monitoring, spoil management and unexpected finds management may be required.

Potential Residual Contamination	Descriptions
Hydrocarbon impacted soil	<ul style="list-style-type: none"> ■ Remediation works were focussed on the selective excavation and removal of contaminated soils. Following completion of remediation works within the Stage 1 Area, the potential exists for hydrocarbon impacted soils to be present within the Site boundary at known and unknown locations. ■ Following completion of remedial works, residual LNAPL or soil contamination exceeding TRH Management limits are present in a limited number of locations within the walls and base of the remediation excavation and within fill materials surrounding subsurface drainage infrastructure that has been decommissioned in-situ. ■ While ERM notes that results from the HHERA indicate that the presence of residual hydrocarbon impacted soils does not pose a risk to identified receptors under normal site operations and are limited to aesthetic considerations (presence of hydrocarbon staining and/or odours). Where intrusive excavation works are planned in identified areas, additional controls such as health and safety monitoring, gas testing, spoil management and unexpected finds management may be required.
Residual hydrocarbon impacted groundwater	<ul style="list-style-type: none"> ■ Based on information obtained as part of previous investigations, groundwater is present within the Stage 1 Area at a depth of approximately 1 – 1.5 m bgl. ■ Remediation works within the site have removed the primary sources of impact (hydrocarbon impacted soils exceeding site suitability criteria). Previous investigations within the Stage 1 Area and broader Clyde Terminal site have identified degraded and non-volatile LNAPL within soil and groundwater at concentrations which do not pose a risk to human health or the environment. ■ ERM notes that results from previous investigations indicate that dissolved phase groundwater concentrations are stable or decreasing and do not pose a risk to identified receptors where intrusive excavation and / or contact with groundwater does not occur. ■ Where intrusive works are planned within the Site, additional controls such as health and safety monitoring, gas testing, excavation dewatering management and unexpected finds management may be required. ■

5.1 Location and Extent of Residual Contamination

As outlined in Section 3.2, this LTEMP applies to the whole site but more specifically to areas of the site where residual contaminated materials are retained under the site surface, as indicated in **Figure 2** and **Figure 3**. Following completion of remediation works, the following residual sources of contamination are known to exist within the Stage 1 Area:

- Residual soil impacts – limited to presence of LNAPL or hydrocarbon impacts exceeding TRH management limits:
 - Northern portion - AEC9_W_V24, TP19/42
 - Southern Portion - TP20/17, TP20/20 and TP18/09
- Asbestos associated with sub-grade footings and infrastructure (detailed within Appendix B):
 - AEC9_ACM_1
 - AEC9_ACM_2
 - AEC9_ACM_3
- Residual hydrocarbon sludge remaining within the decommissioned drainage pipes/pits (as per Figure 3).

ERM notes that due to the historical land uses within the Site, all future ground disturbance works or site redevelopment activity must be undertaken in consideration of potential unexpected finds of contamination.

Where unexpected finds are encountered during works, they too are to be managed in accordance with the requirements outlined within this LTEMP.

It should be noted the presence of stained or odorous material may be identified beneath the site during future intrusive works outside of those locations outlined in this LTEMP, however these conditions may not be representative of unacceptable exposure scenarios. Advice should be sought from an Environmental Consultant as per the roles and responsibility outlined in **Table 2**.

6. POTENTIAL RISKS TO HUMAN HEALTH AND THE ENVIRONMENT

6.1 Risks Where No Intrusive Excavation Works Are Undertaken

The following table outlines the potential risk to human health and the environment if residual contamination as illustrated within Figure 2 remains undisturbed (i.e no intrusive excavation works). As outlined previously.

Contaminant	Source	Management Controls	Human Health Risks	Environmental Risks	Exposure Pathways
Total Recoverable Hydrocarbons (C10-C16, C16-C34) and Light Non Aqueous Phase Liquids	Residual contamination within soils, groundwater and oily water / sludge	NA – no controls required	Negligible	Negligible	Negligible
Asbestos	Asbestos located within concrete formwork	NA – no controls required	Negligible	Negligible	Negligible

6.2 Potential Risks Where Intrusive Excavation Works Are Undertaken

The following table outlines the potential risk to human health and the environment if the material is disturbed without proper management controls. These risks may result from excavation works, installation of services, stockpiling of excavated materials and works that encounter residual contamination identified within Figure 2 or additional unexpected finds.

Contaminant	Source	Disturbed	Human Health Risks	Environmental Risks	Exposure Pathways
Total Recoverable Hydrocarbons (C10-C16, C16-C34) and Light Non Aqueous Phase Liquids	Residual contamination within soils, groundwater and oily water / sludge	Intrusive works such as excavation works, stockpiling of materials etc.	<p>The effects on human health depend on a number of factors such as how long exposure occurs, concentrations in air, soil or water, and the health and age of the affected individual.</p> <ul style="list-style-type: none"> ■ Potential for generation of odours during subsurface intrusive works resulting from degraded hydrocarbons within open excavations. 	Risks associated with contamination transported to potentially sensitive receptors	<p>Human Exposure Pathways: Limited to aesthetic considerations including potential for generation of odours during subsurface intrusive works</p> <p>Environmental Exposure pathways: Surface water / sediment run off to adjacent stormwater drains. Uncontrolled release of dust/ odours generated during excavation works.</p>

Contaminant	Source	Disturbed	Human Health Risks	Environmental Risks	Exposure Pathways
Asbestos	Asbestos located within concrete formwork	Asbestos fibres can cause asbestosis, lung cancer and mesothelioma	<ul style="list-style-type: none"> Asbestos fibres can cause asbestosis, lung cancer and mesothelioma if inhaled 	Asbestos is inert within the environment and therefore poses no known environmental risk	<p>Human Exposure Pathways: Inhalation could occur through breathing in fibres in dust generated during soil disturbance activities.</p> <p>Environmental Exposure pathways: Nil</p>

7. ENVIRONMENTAL MANAGEMENT

As outlined above the primary targets / goals of this LTEMP are to ensure that:

- the assessed risks to human health and the environment arising from contact with residual contamination is understood by all site workers and managers;
- prior to the commencement of any intrusive excavation works, appropriate systems and controls are put in place; and
- ensuring all ongoing operational, monitoring and maintenance requirements are adhered to by Site owners and/or managers.

7.1 Environmental Management Requirements

Prior to the commencement of works, it is the responsibility of Stage 1 Area Land Custodian and / or their nominated representative to determine if works within the Stage 1 Area will require intrusive excavation.

- Where any intrusive excavation works are undertaken within the Site the following controls must be implemented.

Table 5 – Stage 1 Area Environmental Management Requirements

Item	Requirements
All Intrusive Excavation Works Undertaken within the Stage 1 Area	
Training and Competence	<p>The Land Custodian is to ensure that all site workers are suitably qualified to undertake required works and inducted into all relevant requirements stipulated within this LTEMP.</p> <ul style="list-style-type: none"> ■ The induction will include outlining all requirements within the relevant documentation, training on the location of known residual contamination and in the identification of visual and olfactory indications of additional unexpected finds of contamination.
Health and Safety Plan	<p>The contractor is to prepare a task specific health and safety plan that includes suitable protection measures for working with residual hydrocarbon contamination including but not limited to:</p> <ul style="list-style-type: none"> ■ training requirements; ■ air / dust / odour monitoring action levels and monitoring procedures; ■ required respiratory protection; ■ minimum Personnel Protective Equipment (PPE) requirements; ■ site signage requirements; ■ site security; ■ required exposure route pathway mitigation measures (dust suppression etc.); ■ vehicle/machinery/plant safety; and ■ general site safety.

Item	Requirements
<p>Excavation works and temporary stockpiling</p>	<p>To reduce and/or prevent the exposure of human receptors at the site to potential contamination within onsite soils, the following will be undertaken during any intrusive excavation works:</p> <ul style="list-style-type: none"> ■ To reduce the area of disturbed material, the number of areas subject to excavation works at any one time should be minimised. ■ During excavation works, measures to reduce dust emissions such as spraying with water, addition of soil binding agents etc. should be undertaken. ■ Where works are undertaken within the vicinity of known asbestos materials, dust monitoring (as detailed below) is also to be undertaken to assess the suitability of controls for mitigating potential for fugitive airborne asbestos. ■ During excavation and materials handling sufficient odour control such as covers, tarps, odour control sprays etc. are to be implemented during works to minimise any disturbance to adjacent workers / receptors. ■ Where material requires offsite disposal, excavated material should be placed directly into a tipper truck and where possible material should not be placed into temporary stockpiles awaiting offsite disposal. ■ Where material requires stockpiling prior to offsite disposal, appropriate dust and sediment controls must be in place. Smaller volumes should be contained within an enclosed or covered skip. ■ All materials movement within the site must be recorded within an appropriate Materials Tracking Register.
<p>Materials handling and disposal</p>	<ul style="list-style-type: none"> ■ Soil - Excavated materials are to be either re-instated within the same location (in accordance with relevant planning / DA conditions) or disposed offsite to a suitably licenced landfill / receiving facility in accordance with relevant NSW EPA waste disposal guidance at the time of works. ■ Concrete – Excavated concrete footings containing asbestos formwork are to be disposed offsite to a suitably licenced facility in accordance with NSW EPA waste classification requirements at the time of works. ■ Groundwater - Any groundwater extracted from excavation works is to be managed as per the site specific EPL or disposed in accordance with relevant NSW EPA made or endorsed waste disposal guidance at the time of works. ■ Residual Oily Water / Sludge – Oily water / sludge associated with redundant drainage infrastructure if encountered during excavation works should be classified and disposed offsite to a suitably licenced facility in accordance with relevant NSW EPA waste disposal guidance at the time of works.
<p>Sediment and Stormwater Runoff Controls</p>	<p>During works, sediment and surface water runoff controls will be implemented to minimise generation and transport of potentially contaminated sediments and surface water within and off the Site. While ERM notes that controls will be developed based on the specific location / nature of works to be undertaken, controls may include (but not be limited to):</p> <ul style="list-style-type: none"> ■ Sediment control; ■ Clean water diversions; and ■ Stormwater drain protection. <p>Sediment control is required. Sediment control measures (i.e. silt fencing and hay bales) will be strategically placed at the following locations:</p> <ul style="list-style-type: none"> ■ Down-gradient of temporary stockpiles or highly disturbed areas; ■ Up-gradient of temporary stockpiles to redirect water; and ■ Down-gradient of any surrounding stormwater channels that flow within/through the Site, as contingency against overflow into adjacent site areas. <p>Clean water diversions are required to minimise ingress to excavations and soil erosion. Where necessary, clean water diversions (hay bales and gravel bags) will be strategically placed in the following locations:</p> <ul style="list-style-type: none"> ■ Up-gradient of temporary stockpile or excavation areas to redirect water; and ■ Down-gradient of any surrounding stormwater channels that flow within/through the Site as contingency against overflow into bunded stockpile locations. <p>Stormwater drain protection is required to prevent ingress of sediments to the stormwater infrastructure and will comprise:</p> <ul style="list-style-type: none"> ■ Installation of sediment socks in any identified stormwater drains located down-gradient of any temporary stockpile areas.

Item	Requirements
	<p>All sediment and surface water controls will be inspected by the Land Custodian's nominated representative during works, to inspect the controls in operation.</p> <p>Should any control measures be damaged or defective, the issue will be reported to the contractors project manager / representative, to arrange for repair or modification of the control systems in place.</p>
<p>Imported Fill Material</p>	<p>If imported fill is required at the site, only construction materials or certified Excavated Natural Material (ENM) or 'Virgin Excavated Natural Material' (VENM) materials are to be imported for use. If ENM / VENM is imported to the site accompanied by a VENM certificate, sampling will not be required. The ENM / VENM certificate should at a minimum:</p> <ul style="list-style-type: none"> ■ state that the material has been classified as VENM (in accordance with relevant NSW EPA guidance) and is suitable for re-use within the site; and ■ include a summary of the site history of the source site, the findings of any environmental site investigations undertaken at that site and the results of any soil analysis undertaken. <p>If the ENM / VENM certificate does not meet these requirements or fill material other than VENM (i.e. 'clean fill') is imported to the site, a site visit to the source site by an environmental consultant to enable collection and analysis of soil samples may be required. Samples are to be analysed for relevant contaminants of concern for the specific conditions of the source site.</p> <p>All VENM / imported material classification reports are to be provided to Land Custodian or their nominated representative and included within compliance reporting upon completion of works (Section 7.3).</p>
<p>Unexpected Finds Management</p>	<p>During excavation works there is the potential of encountering additional in-ground finds. Unexpected finds may include (but not be limited to):</p> <ul style="list-style-type: none"> ■ asbestos containing materials; ■ additional LNAPL / hydrocarbon impact; ■ buried building rubble; ■ unusual soil staining and discoloration; and ■ odours emanating from the ground during earthworks. <p>Where unexpected finds are uncovered:</p> <ul style="list-style-type: none"> ■ Works are to cease immediately in the vicinity of the excavation; ■ the Land Custodian or their nominated representative is to be informed immediately; ■ the area surrounding the unexpected find is to be barricaded to ensure the area is not further disturbed; and ■ a suitably qualified environmental specialist is to visit the site, assess the discovery and undertake assessment / provide recommendations. <p>The environmental consultant is to advise on the required course of action for the find, this may include:</p> <ul style="list-style-type: none"> ■ Sample collection and analysis; ■ a detailed assessment (if required); and ■ preparation of an assessment report and remediation plan (if required). <p>All reports are to be prepared in accordance with relevant NSW EPA guidance and provided to relevant regulatory / approval authority and Land Custodian for record keeping requirements.</p> <p>Where analysis of unexpected finds indicates a potential risk to either human health and or the environment necessary, a Task Specific Works Plan (as detailed below) may be prepared. The plan is to be developed to outline task specific procedures / processes to be adopted to minimise the risk to human health and / or the environment from any unexpected finds.</p>

Item	Requirements
<p>Vehicle and Equipment Cleaning and Operation</p>	<p>The following controls will be placed on operation and movement of equipment:</p> <ul style="list-style-type: none"> ■ All equipment will be operated by suitably qualified operators. ■ Equipment working within any area containing contaminated materials will be washed inside the area. Wash water must be prevented from leaving the site / entering drains. ■ The surface of internal access roads carrying vehicular traffic will be kept clean. ■ All equipment will be maintained at optimum operating conditions and any servicing of equipment will be undertaken in areas specified by the Contractor. It is recommended that such activities be undertaken on concrete or bitumen surfaces to prevent impact to surface soils by oils, fuels or cleaning agents. ■ Any fuel stored onsite will be held in a designated area. The area will be appropriately bunded to contain any potential spillages and/or leaks. ■ Vehicles carrying spoil or rubble from the site (if required) will at all times be covered with an “enviro-tarp” or similar impervious material to prevent the escape of dust or other material. ■ All heavy vehicle access and egress to and from the site will be via the designated heavy vehicle route. ■ The wheels and wheel arches of all vehicles having had access the site will be inspected and if required, cleaned by the use of a broom or water spray to prevent mud and sediment from being deposited on local roadways. ■ After wheel and wheel arch cleaning, vehicles will be inspected for the presence of rocks between tyres and sediment within the undercarriage of the vehicle. Any material will be removed and placed at a designated point within the site.
<p>Excavation Re-instatement</p>	<p>Upon completion of excavation works, the area must be re-instated with excavated material in the order in which it was excavated or with other approved imported fill materials.</p>
<p>Intrusive Excavation Works Within 20 m of Identified Residual Contamination (Figure 2)</p>	
<p>Engagement of Environmental Specialist</p>	<p>Where excavation works are undertaken within 20m of identified residual contamination (Figure 2) prior to the commencement of any intrusive works the Land Custodian or nominated representative is to engage a suitably qualified environmental specialist to undertake a review of health and safety management procedures, manage, monitor and evaluate environmental controls and demonstrate compliance with this LTEMP.</p> <ul style="list-style-type: none"> ■ ERM notes that where unexpected finds of contamination are identified within other areas of the Site during excavation works, scientist suitably qualified environmental specialist should be engaged to manage, monitor and evaluate environmental controls, demonstrate compliance with this LTEMP and assess specific requirements for unexpected finds detailed above.
<p>Environmental Monitoring</p>	<p>Environmental monitoring is to be undertaken for Volatile Organic Compounds in ambient air during all excavation and construction works within 20 m of identified residual hydrocarbon contamination to evaluate the effectiveness of control measures (Figure 2).</p> <p>Where works are to be undertaken within the vicinity of identified asbestos, dust monitoring should be undertaken to assess the effectiveness of environmental controls on preventing airborne releases of asbestos fibres. Air monitoring is to be undertaken by a suitably qualified occupational hygienist.</p> <ul style="list-style-type: none"> ■ The specific monitoring methodology / regime should be developed by the environmental specialist / occupational hygienist and based on the specific tasks / construction mythology to be undertaken. ■ Action levels (vapour / dust / airbourne fibre levels where intrusive works are to cease and control measures are to be re-assessed / implemented) will be required to be developed within the health and safety plan and are to be based on relevant regulatory guidance at the time of works.

Item	Requirements
<p>Task Specific Works Plan</p>	<p>Where intrusive excavation works are undertaken within 20 m of identified residual contamination illustrated on Figure 2, prior to undertaking works, the contractor is to ensure that a Task Specific Works Plan is prepared by a suitably qualified environmental professional to ensure all environmental risks are appropriately managed.</p> <ul style="list-style-type: none"> ■ The Works Plan should be prepared for the specific works to be undertaken. ■ The Works Plan should be prepared in accordance with industry best practice standards at the time of works and must comply with all relevant NSW EPA regulatory guideline criteria relating to contaminated sites. <p>The plans should include (but not be limited to) the following details:</p> <ul style="list-style-type: none"> ■ Risks to human health and the environment – potential risks associated with the work should be highlighted. ■ General site management – Details of required inductions of employees or contractors. ■ Procedures and methodologies to be used for undertaking the works. ■ Specific details of ways to limit disturbance of impacted soils / groundwater / redundant site drainage infrastructure etc. (e.g. soil boring as opposed to open trenching). ■ Mitigation measures. ■ Air / dust monitoring action levels, including monitoring procedures for Lower Explosive Limit (LEL) and Volatile Organic Compounds (VOCs) around areas of residual hydrocarbon impacts; ■ Personal protective equipment. ■ Other protection measures (cabin ventilation, etc.). ■ Roles and responsibilities for implementing the mitigation measures. ■ Soil and groundwater management controls - As a minimum the following requirements should be detailed: <ul style="list-style-type: none"> ▪ Any groundwater extracted during intrusive works is to be disposed in accordance with the site EPL and / or NSW EPA waste disposal guidance. ▪ Excavated soils should be placed on within a bunded area to minimise potential run off. ▪ Excavated concrete containing asbestos formwork should be covered following excavated to prevent wind-blown emissions of potential asbestos. ▪ Soil / concrete material should be kept moist to limit dust. ▪ Excavated materials, where possible, be replaced in the same location. Where this is not practicable, material must be disposed of in accordance with NSW EPA waste disposal regulations. ▪ ERM notes that excavated concrete materials containing asbestos formwork are not to be replaced within the Site and are to be disposed offsite in accordance with NSW waste disposal requirements at the time of works. ■ Reinstatement of the site surface. ■ Waste management including waste disposal. ■ Record Keeping, audit and review.

Biodiversity Management Measures (Green and Golden Bell Frog)

<p>Green and Golden Bell Frog (GGBF)</p>	<p>Consistent with Viva Energy's existing GGBF management measures for the Clyde Terminal, to mitigate against potential impacts to the GGBF population, the following measures are to be included in an administered by the Stage 1 Land Custodian as part of an operational Environmental Management Plan:</p> <ul style="list-style-type: none"> ■ Works inductions that focus on the potential occurrence of the species; ■ Pre-clearance surveys by an environmental representative as needed for stockpiles and excavations to check for the presence of GGBF; ■ Management of the site to minimise potential for creating habitat (i.e. no ponding of water); ■ Measures to minimise indirect impacts to GGBF through spread of Chytrid fungus; and ■ An unexpected find protocol which outlines the need to engage a suitably qualified ecologist to relocate any GGBF encountered.
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7.2 Stage 1 Area Emergency Response

In the event of any incident, the first priority shall be the safety of all personnel and the community in the immediate vicinity.

In the event of a serious emergency at the site, the following procedure will be followed:

- Stop work;
- All personnel shall leave the work zone via established entry/exit routes;
- Leave the site and assemble at the emergency assembly area (as designated by the Site manager); and
- Await further instructions from the designated site manager. No project personnel or visitors are to leave the assembly area unless advised to do so by the site manager or their onsite representative to be nominated at a later stage.

The Site manager or their designated entity will notify the relevant service as to the details regarding any emergency.

Following emergency response, all practical steps should be taken to minimise the risk of further environmental damage as soon as possible after the event. The situation should be stabilised by following the appropriate incident management or contingency plan procedures. The appropriate staff should be notified and emergency procedures enacted.

Typical first response actions may include:

- Assessment of vapour concentrations / asbestos fibre counts from air monitoring in excavation areas and associated risk to human health;
- Temporary repair or isolation of failed plant / equipment component; and
- Sampling of impacted site media, be it soil, groundwater and / or surface water.

Follow-up action will include the development of a work plan to remediate or manage the impacted site media. The work plan would detail any sampling and analysis requirements to define the nature and extent of impact, methods for the recovery, handling, storage and treatment of impacted material, disposal and/or reuse options for impacted material and personal protective equipment requirements.

Records will be kept of any incidents, accidents, hazardous situations, unusual events and unsafe health exposures and the corrective action taken. Where necessary, the LTEMP should be updated based on findings of corrective actions / improvements etc.

7.3 Communication, Reporting and LTEMP Auditing Requirements

The table below outlines the reporting and auditing requirements to communicate information related to the Stage 1 Area LTEMP,

Table 6 –Stage 1 Area LTEMP Reporting and Auditing

Report	Requirement
Material Classification Reports	<ul style="list-style-type: none"> ■ All reports relating to unexpected finds, offsite disposal of fill materials and importation of any materials used for construction / backfilling purposes are to be provided to the Land Custodian upon completion of works. ■ Reports are to include details laboratory analysis and subsequent classification information and materials tracking information detailing the total volume and final placement / disposal location.
Non-Conformance Reporting	<ul style="list-style-type: none"> ■ Non-conformances will be recorded in a Non-Conformance and Corrective Action Report. Details of the non-conformance, including any immediate corrective actions undertaken, are to be recorded by the operational staff. ■ It is the responsibility of the site manager to immediately initiate corrective actions, if required. Once completed, the site foreman will provide details of the actions undertaken on the Non-Conformance Report and sign, date and file the report.
Incident Reporting	<ul style="list-style-type: none"> ■ Records will be kept of any environmental incidents, accidents, hazardous situations, unusual events and unsafe health exposures and the corrective action taken. ■ The contractor / site superintendent will adequately investigate the cause of any incident so that necessary changes in work practices can be made to prevent the incident recurring.
Complaints Reporting	<p>During intrusive works undertaken the Site, the contractor will maintain a register of complaints, which will include a record of any action taken with respect to the complaints.</p> <ul style="list-style-type: none"> ■ If a complaint identifies a non-conformance, a Non-Conformance and Corrective Action Report must be initiated. ■ A copy of all complaint reports and subsequent investigations are to be provided to the Land Custodian or their nominated representative for filing and included within compliance reporting (detailed below).
LTEMP Compliance Reporting	<p>Upon completion of any intrusive works, the contractor is to provide the Land Custodian or their nominated representative an Environmental Compliance Report detailing the following:</p> <ul style="list-style-type: none"> ■ Details of the works undertaken including relevant photographs. ■ Details of management provisions in place to ensure compliance with this LTEMP, the HASP and SMP during the works. ■ Details of any non-conformances, complaints and corrective actions. ■ Details of any unexpected finds (nature, extent and results of testing / analysis undertaken, photographs). ■ Details of the appropriate classification, volume and disposal location of any material disposed offsite. ■ Details (including photographs) of any imported fill materials including volumes and confirmation of the suitability for use within the Site <p>The report is to be provided to Land Custodian or their nominated representative within 21 days of completion of works.</p>

Report	Requirement
<p>LTEMP Performance Monitoring</p>	<p>This LTEMP should be reviewed by the Land Custodian or their nominated representative upon completion of all intrusive excavation activities and / or after incidents or reported findings, to ensure that:</p> <ul style="list-style-type: none"> ■ information and environmental management strategies remain current; ■ any opportunities for improvement are identified; and ■ changes to legislation, licence and approval conditions are identified and complied with. <p>The assessment should take into account all changes such as (but not limited to):</p> <ul style="list-style-type: none"> ■ changes to site conditions; ■ work requirements; ■ legislation; and ■ environmental condition. <p>If during the review process described above, areas for improvement are identified, or it be determined that the LTEMP requires revision, any changes to the document will require agreement by at least the following stakeholders:</p> <ul style="list-style-type: none"> ■ Land Custodian (or nominated representative); ■ a suitable qualified environmental consultant; and ■ a NSW EPA accredited Site Auditor.
<p>Record Keeping</p>	<p>All records related to implementation and ongoing auditing of the LTEMP should be maintained by the Land Custodian or their nominated representative in a consolidated and easily accessible location.</p>

8. CONTINGENCY ACTIONS

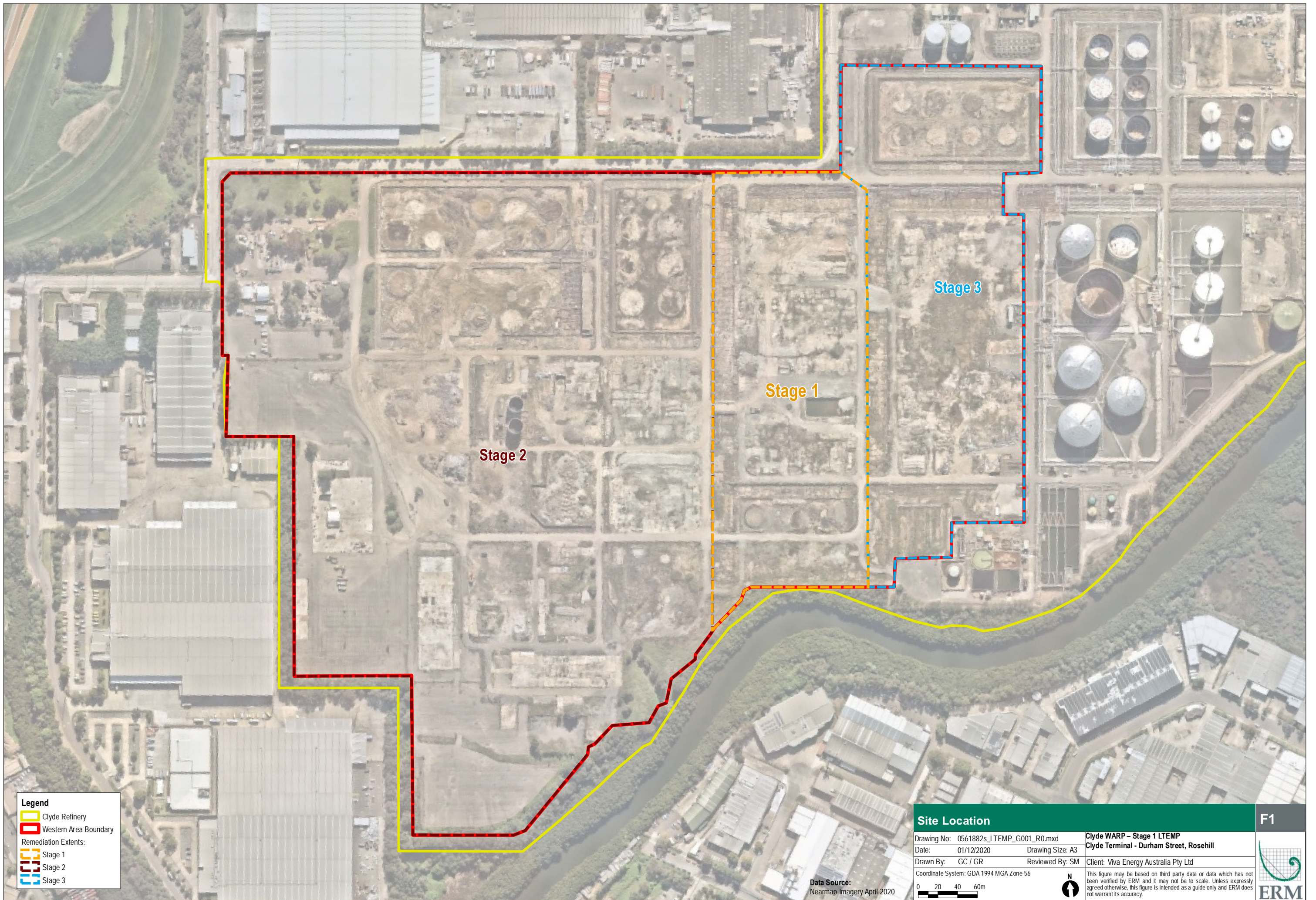
The purpose of the contingency plan is to identify unexpected situations that could occur, and specify procedures that can be implemented to manage such situations and prevent or minimise adverse impacts to the environment and human health.

Details of the procedures are defined in the table below:

Table 7 –Stage 1 Area Contingency Actions

Item	Contingency Action
	<ul style="list-style-type: none"> ■
Asbestos Contamination	<ul style="list-style-type: none"> ■ While asbestos has been identified within formworks associated with former site infrastructure, asbestos (fragments and / or fibres) in soils have not been identified within the Stage 1 Area. ■ While it is the opinion of ERM that the risk of significant and / or widespread asbestos contamination within the Stage 1 Area is unlikely, where asbestos contaminated soil is identified during development works, any finds should be investigated as per the unexpected finds methodology detailed within Section 7.1. ■ Identified asbestos remaining on site should be included on an updated version of the Asbestos Register (provided as Appendix B).
Additional/ unexpected LNAPL / Hydrocarbon Contamination resulting in Potential Vapour Risk	<ul style="list-style-type: none"> ■ While it is the opinion of ERM that the likelihood of vapour risk from additional / unexpected finds of LNAPL / hydrocarbon impacted soil and / or groundwater is unlikely, during future development works, where a potential indicators of vapour risk is identified, the Land Custodian should engage an environmental specialist to undertake further assessment.

APPENDIX A FIGURES



Legend

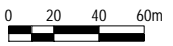
- Clyde Refinery
- Western Area Boundary
- Remediation Extents:
- Stage 1
- Stage 2
- Stage 3

Site Location

Drawing No: 0561882s_LTEMP_G001_R0.mxd
 Date: 01/12/2020 Drawing Size: A3
 Drawn By: GC / GR Reviewed By: SM
 Coordinate System: GDA 1994 MGA Zone 56

Clyde WARP - Stage 1 LTEMP
Clyde Terminal - Durham Street, Rosehill
 Client: Viva Energy Australia Pty Ltd

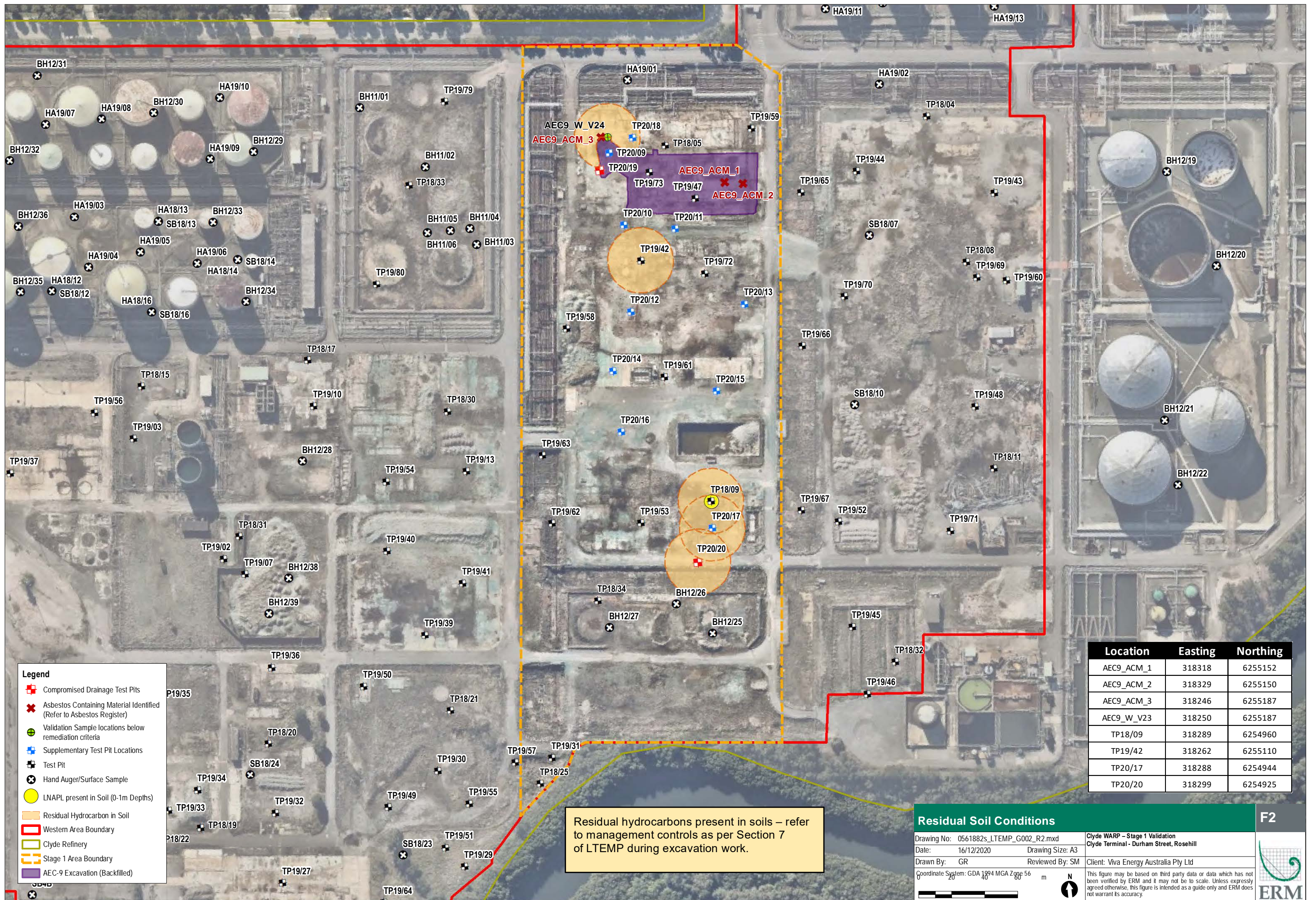
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



F1



Data Source:
 Nearmap Imagery April 2020

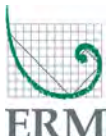


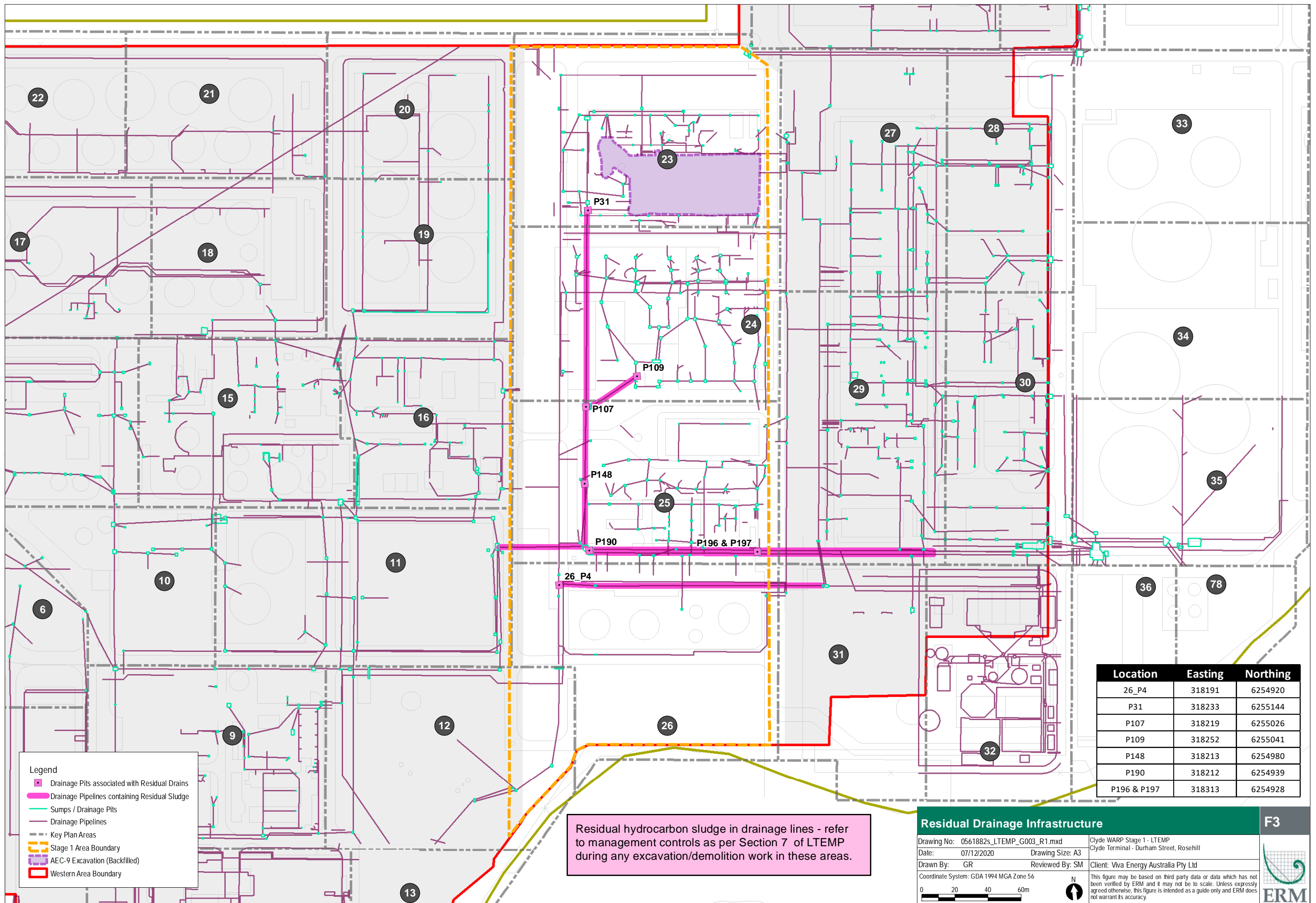
- Legend**
- + Compromised Drainage Test Pits
 - x Asbestos Containing Material Identified (Refer to Asbestos Register)
 - + Validation Sample locations below remediation criteria
 - + Supplementary Test Pit Locations
 - + Test Pit
 - x Hand Auger/Surface Sample
 - LNAPL present in Soil (0-1m Depths)
 - Residual Hydrocarbon in Soil
 - Western Area Boundary
 - Clyde Refinery
 - - - Stage 1 Area Boundary
 - AEC-9 Excavation (Backfilled)

Location	Easting	Northing
AEC9_ACM_1	318318	6255152
AEC9_ACM_2	318329	6255150
AEC9_ACM_3	318246	6255187
AEC9_W_V23	318250	6255187
TP18/09	318289	6254960
TP19/42	318262	6255110
TP20/17	318288	6254944
TP20/20	318299	6254925

Residual hydrocarbons present in soils – refer to management controls as per Section 7 of LTEMP during excavation work.

Residual Soil Conditions		F2
Drawing No: 0561882s_LTEMP_G002_R2.mxd	Clyde WARP – Stage 1 Validation	
Date: 16/12/2020	Clyde Terminal - Durham Street, Rosehill	
Drawn By: GR	Reviewed By: SM	Client: Viva Energy Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56 m		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>





Residual hydrocarbon sludge in drainage lines - refer to management controls as per Section 7 of LTEMP during any excavation/demolition work in these areas.

Location	Easting	Northing
26_P4	318191	6254920
P31	318233	6255144
P107	318219	6255026
P109	318252	6255041
P148	318213	6254980
P190	318212	6254939
P196 & P197	318313	6254928

- Legend**
- Drainage Pits associated with Residual Drains
 - Drainage Pipelines containing Residual Sludge
 - Sumps / Drainage Pits
 - Drainage Pipelines
 - Key Plan Areas
 - Stage 1 Area Boundary
 - AEC-9 Excavation (Backfilled)
 - Western Area Boundary

Residual Drainage Infrastructure

F3

Drawing No: 0561882s_LTEMP_G003_R1.mxd
 Date: 07/12/2020 Drawing Size: A3
 Drawn By: GR Reviewed By: SM
 Coordinate System: GDA 1994 MGA Zone 56
 Client: Viva Energy Australia Pty Ltd
 This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



APPENDIX B ASBESTOS REGISTER

Asbestos Register

As outlined within Section 5.0, residual asbestos formwork is present within subsurface redundant historical site infrastructure (footings etc). ERM notes that while no asbestos in soil has been identified, where works are to be undertaken within 20m of the below locations, asbestos management controls outlined within Section 7.0 are to be implemented.

Date identified	ID	Eastings	Northings	Approximate Depth (m BGL)	Description	Friable or non-friable	Observed condition	Accessibility
19 October 2020	AEC9_ACM_1	318318	6255152	1.0m	■ Suspected ACM formwork (corrugated sheeting) attached to concrete foundation	Non-friable	■ Good – bonded corrugated sheeting attached to concrete foundation	Inaccessible under normal site conditions – only accessed via excavation
19 October 2020	AEC9_ACM_2	318329	6255150	1.3m	■ Suspected ACM formwork (corrugated sheeting) attached to concrete foundation	Non-friable	■ Good – bonded corrugated sheeting attached to concrete foundation	Inaccessible under normal site conditions – only accessed via excavation
11 November 2020	AEC9_ACM_3	318246	6255187	Approximately 2.5m	■ Suspected ACM formwork (corrugated sheeting) located on the northern excavation extent	Non-friable	■ Good – bonded corrugated sheeting attached to concrete foundation	Inaccessible under normal site conditions – only accessed via excavation

APPENDIX C SITE SURVEY

M.G.A

STAGE 1B

GRAND PARADE

238.42

101
DP 1168951

465.765

101
DP 809340

2
DP 224288

458.43

1 DP 383675
1 DP 1190873

DURHAM STREET

DEVON STREET

5
28.07ha
(INCLUDING RIPARIAN
SETBACK)

6
6.998ha
(INCLUDING RIPARIAN
SETBACK)

21
60.04ha
BY DED'N

(K)

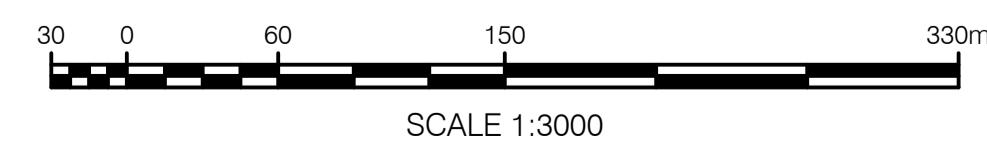
MEAN
RIVER

40m
RIPARIAN
BOUNDARY
SETBACK

DUCK

NOTES:
1. ALL DIMENSIONS SHOWN HEREON ARE APPROXIMATE
AND SUBJECT TO FINAL SURVEY
2. NO CADASTRAL SURVEY HAS BEEN UNDERTAKEN

- (A) EASEMENT TO DRAIN WATER 10.2 & 13.4 WIDE (AC 424785)
- (B) EASEMENT 6.095 WIDE (B309159) - SYDNEY WATER PIPELINE
- (C) EASEMENT TO DRAIN WATER 13.4 WIDE (AC424784)
- (G) PROPOSED EASEMENT FOR SERVICES 5 WIDE
- (H) PIPELINE EASEMENT (V540637 & V540638)
- (J) PIPELINE EASEMENT (V22813)
- (K) PIPELINE EASEMENT WHOLE OF LOT (R297864)
- (L) EASEMENT FOR OVERLAND FLOW 5 WIDE
- (M) EASEMENT FOR PEDESTRIAN ACCESS 40 WIDE & VARIABLE WIDTH



CLIENT

VE PROPERTY
PTY LTD

PROJECT

PLAN OF
PROPOSED SUBDIVISION
OF
LOT 100 IN
DP 1168951
STAGE 1B

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.

Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.

Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

6	GKO	11/11/2020	AMEND RIPARIAN SETBACK
5B	GKO	02/11/2020	LANDSCAPE SETBACK REMOVED
4B	GKO	13/10/2020	SY074707.11.4 VER B
4	GKO	06/08/2020	APPROX AUSGRID LINE ADDED
3	GKO	23/07/2020	EASEMENTS ADDED
2	GKO	16/07/2020	LOT 6 DIMENSION AND AREA AMENDED
1	GKO	22/06/2020	INITIAL ISSUE

SYM	CODE	DESCRIPTION	SYM	CODE	DESCRIPTION
⊕	BIN	BIN	⊕	OFM	OPTICAL FIBRE MARKER
△	BM	BENCH MARK	=	OFP	OPTICAL FIBRE PIT
●	BO	BOLLARD	🌳	TM	PALM TREE
■	DJM	DRAINAGE MANHOLE	☹	SE	SEAT
⊕	EFP	ELEC FUSE BOX	🌿	TS	SHRUB
⊕	ELP	ELEC GARDEN LIGHT	☑	TCA	TELSTRA PIT
⊕	EL	ELEC GREEN PILLAR	⊕	SLH	SEWER LAMP HOLE
⊕	LP	ELEC LIGHT POLE	⊕	SMH	SEWER MANHOLE
⊕	EP	ELECT SINGLE PIT	⊕	SVP	SEWER VENT PIPE
⊕	SPL	ELEC STAY POLE	⊕	SI	SIGN
⊕	PP	ELEC POWER POLE	⊕	BS	BUS STOP SIGN
⊕	ELP	ELEC POLE LIGHT	🌳	T	TREE
⊕	TRANS	ELE POLE/TRANSFORM	⊕	SGL	TRAFFIC LIGHT
⊕	FD	FUEL DIP	⊕	SCL	TRAFFIC CONTROLLER
⊕	GM	GAS MAIN	⊕	SJX	TRAFFIC JUNCTION BOX
⊕	GMR	GAS METER	⊕	US	UNKNOWN SERVICE
⊕	GAS	GAS VALVE	⊕	WAV	WATER AIR VALVE
⊕	AG	GATE	⊕	WMR	WATER METER
⊕	GUL	GULLY PIT	⊕	WEP	WATER PUMP
⊕	HYD	HYDRANT	⊕	WSV	WATER STOP VALVE
⊕	BOR	BORHOLE	⊕	WTP	WATER TAP

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

DRAINAGE PIPE U/G	— IV — IV — IV — IV — IV —
DRAIN	— I — I — I — I — I —
ELECT CABLE A/G	— E — E — E — E — E —
ELEC CABLE U/G	— e — e — e — e — e —
GAS PIPE	— G — G — G — G — G —
FENCE LINE	— F — F — F — F — F —
SEWERAGE PIPE	— S — S — S — S — S —
TELSTRA CABLE	— T — T — T — T — T —
WATER PIPE	— W — W — W — W — W —



Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

(02) 9685 2000
e info@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535093

HEIGHT DATUM	AHD	LOCAL AUTHORITY	CITY OF PARRAMATTA
HEIGHT ORIGIN	N/A	SCALE	1:3000(A1)
MERIDIAN	56	CONTOUR INTERVAL	N/A
CO-ORD SYSTEM	MGA	SURVEYOR	N/A
DATE OF SURVEY	-	DATE	-
OCAD FILE	74707 ver 9 final subdivision	DRAWN	SF/CLP
DATE	11/11/2020	DATE	11/11/2020
AUTOCAD FILE	SY074707.000.11B.6	CHECKED	GKO
DATE	11/11/2020	DATE	11/11/2020
ARCHIVE FILE	SY074707.000.11.5B	APPROVED	GKO
DATE	11/11/2020	DATE	11/11/2020
PLAN NUMBER	SY074707.000.11B.6	SHEET 1 OF 1	

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ERM Sydney Office

Level 15
309 Kent Street
Sydney NSW 2000

T: +61 2 884 8888
F: +61 2 8584 8800

www.erm.com