

APPENDIX V – CONTAMINATED LAND TECHNICAL NOTE

Range Environmental Consultants



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Our Reference: J000926
Date: 21/06/2022

TOOWOOMBA CLAY TARGET CLUB CONTAMINATED LAND ADVICE - PROPOSED CHARLTON SPORTS PRECINCT

Dear Leigh

Please find enclosed our advice regarding land contamination matters for the proposed Charlton Sports Precinct. The Charlton Sports Precinct is proposed to occur across several land parcels including Lot 24 SP214746 and Lot 276 SP268921. The Toowoomba Clay Target Club (TCTC) current occurs wholly across Lot 276 SP268921 and across a portion of Lot 24 SP214746 (Figure 1).

Lot 276 on SP268921 and Lot 24 on SP214746 are included on the Department of Environment and Science's (DES) Environmental Management Register (EMR) for Notifiable Activity 18 - operating a gun, pistol or rifle range. Search certificates are provided at Appendix A:.



Lot 276 on SP268921 or Lot 24 on SP214746 are not included on the Contaminated Land Register (CLR) and are not managed under an approved Site Management Plan (SMP).

Site History



The TCTC established on Lot 276 SP268921 in 1966 and extended their facility to the north onto the adjoining Lot 24 SP268921 between 1975 and 1984. It was unable to be determined based on aerial imagery if shooting operations were conducted within the portion of the TCTC across Lot 24 on SP268921 between 1984 and 1999. It was considered likely based on a review of historical aerial imagery that shooting operations occurred across both Lot 276 on SP268921 and the extent of the TCTC footprint within Lot 24 on SP214746 since 1999.

The chronology of the TCTC development is briefly described in Table 1. Historical aerial imagery for the TCTC development is located at Appendix B:.

Table 1 Brief chronology of gun range development

Period	Land use activities & development
Pre-1965	<p>Undeveloped - rural</p> <ul style="list-style-type: none"> The site was undeveloped with some sporadic overstorey vegetation. An unsealed track occurred within the southern extent of Lot 276 on SP268921.
1965-1975	<ul style="list-style-type: none"> The TCTC moved to its current location in 1966.¹ A small structure occurred in the north-western corner of Lot 276 on SP268921. This was considered likely to be associated with the TCTC.
1975-1984	<ul style="list-style-type: none"> A large rectangular area (considered likely to be the footprint of the TCTC) extended north into Lot 24 on SP214746 (circled in blue). 
1984-1999	<ul style="list-style-type: none"> Shooting activities were considered likely to occur on both Lot 276 on SP2686921 and Lot 24 on SP214746. Shooting stations and a clay target trap occurred in the northern extent of the TCTC footprint within Lot 24 on SP214746 (circled in blue). 

¹ [Toowoomba Clay Target Club](#)

Period	Land use activities & development
1999-2021	<p>Toowoomba Clay Target Club</p> <ul style="list-style-type: none"> The TCTC footprint extended further north, with an additional shooting station occurring on Lot 24 on SP214746 (circled in blue).  <p>Toowoomba Company of Archers</p> <ul style="list-style-type: none"> The archery club began operations from the southern extent of Lot 276 on SP268921 between 1999 and 2022 (circled in green).  <ul style="list-style-type: none"> A review of historic aerial imagery determined it was unlikely that shooting activities occurred across the southern extent of Lot 276 on SP268921. This portion of the site remained undeveloped until the archery club began operations between 1999 and 2021.

Contaminants of Potential Concern

Contaminants of Potential Concern (COPC) identified from the current land use include lead in soil and lead shot (pellets) from shotguns poses the highest potential impact to human health. Lead is the key COPC, but COPC can also include antimony, arsenic, copper, zinc, nickel, tin, strontium, magnesium, barium, and mercury². Lead concentrations in soil above 10,000 mg/kg are commonly reported in

² Environment Protection Authority Victoria EPA Guide for managing contamination at shooting ranges. Publication 1710. p. 9 (Guideline 1710, Vic EPA).

shooting range soils³. The health-based investigation level for lead in soil for recreational areas (HIL-C) is 600 mg/kg⁴. Clay targets may also contain Polycyclic Aromatic Hydrocarbons (PAH).

Location of Contaminants

Shot from shotguns can be dispersed over a much larger area due to the nature of shooting and the number of projectiles within a shot (approximately 300-500 individual pieces). Skeet and trap provide fixed firing stations which can limit the wide spread of projectiles. However, lead can build up quickly in these confined areas.⁵

Contamination is expected to be highest within 180 m of the firing points⁶. Maximum contaminants are expected to occur at about 150 m from the firing points. The estimated highest risk area for contamination (based on an approximate radius of impact of 180 m) is shown at Figure 1.

Summary

It is likely that soil contamination, primarily by lead, will occur at the proposed Charlton Sports Precinct site within approximately 180 m of the firing points at the TCTC.

Recommendations

Range Environmental recommends that TRC undertake investigative works at the site to meet their General Environmental Duty (GED) and to determine how best to make the site safe for the proposed future land use and inform soil management during development works. These investigative works should be guided by the following as a minimum:

- National Environmental Protection (Assessment of Site Contamination) Measure 1999 (Amendment No.1 2013) (NEPM) (NEPC, 2013).
- Guide for Managing Contamination at Shooting Ranges. Environment Protection Authority (EPA) Victoria (2019) (publication 1710).

The results of site investigations should be used by TRC to determine the most appropriate approach to managing contamination to minimise risks to human health and the environment. Options may include (but not be limited to): mechanical remediation, chemical stabilisation and capping.

³ CRC Care. 2013. Lead Contamination in Shooting Range Soils.

⁴ NEPC. 2013. National Environment Protection (Assessment of Site Contamination) Measure 1999.

⁵ Guideline 1710, Vic EPA. p. 23.

⁶ Guideline 1710, Vic EPA p. 25.

We trust the information provided is suitable for your purposes. If you require any additional information, please do not hesitate to contact myself on 0428 918 007 or at lucas.talbot@rangeenviro.com.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read "L. Talbot", is positioned above the printed name.

Lucas Talbot
Director
Range Environmental Consultants

Figure 1

High Risk Area of Contamination

Project: Charlton Sports Precinct - Letter of Advice

Client: RMA Engineers

Project No.: J000926

Compiled by: MCW Date: 15/06/2022
Approved by: LT Date: 15/06/2022

0 20 40 80

Metres

Legend

- Site boundary
- Roads
- Cadastral
- Highest Contamination Risk Zone

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data. Source: Cadastral data sourced from DNRME (2021) and aerial imagery sourced from Metromap (2021).





Appendix A: EMR Certificates



Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50787617 EMR Site Id: 220096 16 June 2022
This response relates to a search request received for the site:
Lot: 276 Plan: SP268921

EMR RESULT

The above site IS included on the Environmental Management Register.

Lot: 276 Plan: SP268921

Address: 10648 TOOWOOMBA CONNECTION ROAD
CHARLTON QLD 4350

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
GUN, PISTOL OR RIFLE RANGE - operating a gun, pistol or rifle range.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DES has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority



Department of Environment and Science (DES)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.des.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50787618 EMR Site Id: 220097 16 June 2022
This response relates to a search request received for the site:
Lot: 24 Plan: SP214746

EMR RESULT

The above site IS included on the Environmental Management Register.

Lot: 24 Plan: SP214746
Address: WARREGO HIGHWAY
CHARLTON QLD 4350

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.
GUN, PISTOL OR RIFLE RANGE - operating a gun, pistol or rifle range.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DES has not been notified
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If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Administering Authority

Appendix B: Historical Aerial Imagery

1965 Historic Aerial Imagery

Project: Noise
Impact Assessment

Client: RMA Engineers

Project No.: J000926

Compiled by: MW Date: 17/12/2021
Approved by: RM Date: 17/12/2021



Legend





 Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

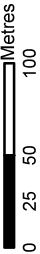



Source: Cadastral data sourced from DNRME (2021) and aerial imagery sourced from Metromap (2021).







1975 Historic Aerial Imagery		Project: Noise Impact Assessment		Client: RMA Engineers		Project No.: J000926		Compiled by: MW Date: 17/12/2021 Approved by: RM Date: 17/12/2021		 Metres 0 25 50 100		Legend  Site boundary		<small>The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data. Source: Cadastral data sourced from DNRME (2021) and aerial imagery sourced from Metromap (2021).</small>		 	
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1984 Historic Aerial Imagery		Project: Noise Impact Assessment		Client: RMA Engineers		Project No.: J000926		Compiled by: MW Date: 17/12/2021 Approved by: RM Date: 17/12/2021		 Metres 0 25 50 100		Legend  Site boundary		<small>The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data. Source: Cadastral data sourced from DNRME (2021) and aerial imagery sourced from Metromap (2021).</small>		 	
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1999 Historic Aerial Imagery		Project: Noise Impact Assessment		Client: RMA Engineers		Project No.: J000926		Compiled by: MW Date: 17/12/2021 Approved by: RM Date: 17/12/2021		0 25 50 100 Metres		Legend <div><div></div> Site boundary</div>		The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data. Source: Cadastral data sourced from DNRME (2021) and aerial imagery sourced from Metromap (2021).		 N 	
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2021 Aerial Imagery		Project: Noise Impact Assessment		Client: RMA Engineers		Project No.: J000926		Compiled by: MW Date: 17/12/2021 Approved by: RM Date: 17/12/2021		 Metres 0 25 50 100		Legend  Site boundary		<small>The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data. Source: Cadastral data sourced from DNRME (2021) and aerial imagery sourced from Metromap (2021).</small>		 N 	
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