RAMBOLL

ENVIRONMENT
& HEALTH

28 May 2024

Transport Asset Holding Entity of New South Wales (TAHE)
c/o Transport for NSW
Attn: Gaynor Blackadder
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Sydney NSW 2000

By email: gaynor.blackadder@transport.nsw.gov.au

Dear Gaynor,

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Ref: 318002028

Audit Number: RS-170

RE: INTERIM AUDIT ADVICE LETTER NO. 2 - FINAL REVIEW OF PRELIMINARY SITE INVESTIGATION - BUNGENDORE TO CAPTAINS FLAT SITE AUDIT

1. INTRODUCTION

As a NSW Environment Protection Authority (EPA) accredited Contaminated Sites Auditor, I am conducting an Audit (RS-170) under the NSW *Contaminated Land Management Act 1997* (CLM Act) in relation to Bungendore to Captains Flat – Rail Corridor. The site is 3 km of active rail corridor (Bombala Line) and 32 km of the disused Captains Flat Line.

It is understood that in early 2021 an initial contamination investigation of approximately 1.7 kms of the disused portion near Captains Flat was undertaken (the Preliminary Report). The results identified elevated levels of lead, exceeding the adopted assessment criteria under the CLM Act.

Consultants were engaged to complete an X-Ray Fluorescence (XRF) soil assessment with supplementary shallow soil assessment of the active and nonactive rail corridor from Captains Flat to the Bombala intersection (the XRF Report).

The primary objectives of the investigations were to provide a preliminary assessment of the nature and extent of lead concentrations in the surface soils and to use this information to develop a preliminary Conceptual Site Model (CSM). A further objective was to assess potential implications for notification to the NSW Environmental Protection Authority (EPA) under Section 60 of the CLM Act and to assess and manage potential liabilities in relation to ongoing human health and/or environmental risks.

The XRF Report was completed in June 2022. I reviewed the XRF Report and provided comments in *'Interim Audit Advice 1 - Review of Preliminary Site Investigation - Bungendore to Captains Flat Site Audit'* dated 24 March 2023 (IAA1). The XRF Report provided an overview of findings from both investigations. The XRF Report confirmed that there are elevated levels of lead

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concentrations exceeding the applicable screening level criteria along the full length of the non-operational/disused corridor. Elevated levels of lead were not observed in the active portion. Transport for NSW has reported the site to EPA as per Section 60 of the CLM Act and the site is listed by EPA as currently being "under assessment".

A revision to the XRF Report has been prepared dated 5 February 2024. The objective of this IAA2 is to assess whether the XRF Report revision has adequately addressed comments made in IAA1.

2. SCOPE OF WORK

This interim audit advice letter (IAA2) is based on a review of the documents listed below:

- ERM (2024) '*Captain's Flat to Bungendore – Rail Corridor XRF Survey, Bungendore, NSW'*, project number 0608750, Environmental Resources Management Australia Pty Ltd, 5 February 2024 (and earlier version 2 June 2022) (*the XRF Report*).

Consideration was also given to the findings of the following report which was reviewed in the XRF Report:

- Ramboll (2021) '*Captains Flat Rail Corridor – Detailed Site Investigation*', document number 318001025-T05, Ramboll Australia Pty Ltd, 12 April 2021 (*the Preliminary Report*).

I have reviewed the key documents against the requirements of guidelines made or approved under Section 105 of the CLM Act, including the following:

- Chapter 4 Remediation of Land in the Resilience and Hazards State Environment Planning Policy (SEPP) 2021 (formerly known as SEPP 55) and NSW Department of Urban Affairs and Planning and NSW EPA (1998) '*Managing Land Contamination, Planning Guidelines SEPP 55 - Remediation of Land*'
- NSW EPA (2017) '*Guidelines for the NSW Site Auditor Scheme (3rd Edition)'*
- NSW EPA (2020) '*Contaminated Land Guidelines, Consultants Reporting on Contaminated Land'*
- NSW EPA (2022), '*Sampling design guidelines part 1 – application*' and '*Sampling design guidelines part 2 – interpretation*'
- National Environment Protection Council (NEPC) '*National Environment Protection (Assessment of Site Contamination) Measure 1999',* as Amended 2013 (NEPM 2013).

3. AUDIT REVIEW COMMENTS AND SUMMARY OF XRF REPORT FINDINGS

My detailed comments on the XRF Report dated 2 June 2022 and the response by ERM are provided in the attached register. All comments have been closed to my satisfaction and incorporated where appropriate into the XRF Report dated 5 February 2024.

ERM summarised the distribution of lead in shallow soils at the site as follows:

- Although one exceedance of commercial industrial criteria was noted in the active corridor lead impact did not appear to be widespread through the Active portion of the site.
- Lead concentrations up to 38,399 mg/kg are broadly present along the Non-Operational Corridor which are primarily associated the ballast material used in the construction of the former rail line.
- Concentrations within the ballast generally exceeded the adopted commercial/industrial screening criteria. Concentrations decreased significantly with distance from the rail line,

however remained significantly elevated in areas where degradation of the rail line had resulted in ballast material being washed out.

- Offsite areas, including surface water features have not been assessed. Based on exceedances of criteria at the boundary of the corridor, it is possible that lead impact is present offsite. Due to the link between lead concentrations and the presence of visible ballast gravels it is likely that offsite impacts would be localised to areas where the rail embankment has eroded, allowing ballast material to mobilise. It is noted that surface water bodies near to Captains Flat, including the Molonglo River are known to be impacted by historical mine activities.

ERM considered that a number of potentially complete source-pathway-receptor (SPR) linkages may exist at the site relating specifically to lead. These were considered "potentially complete" as further assessment is required in order to confirm if a risk exists (i.e., if a complete linkage is determined). The receptors listed by ERM were generalised due to the extensive length of the corridor. ERM further noted that the SPR linkages were conservatively identified and have largely been included based on the lack of access controls for the site and the delineated or unassessed areas of impact. In summary, the potential SPR linkages identified by ERM include:

- Intrusive maintenance workers through direct contact or dust inhalation.
- On and offsite agricultural workers, recreational receptors and rural residents through direct contact, dust inhalation or incidental ingestion.
- Recreational users of the site (with unfenced portions of the corridor passing through townships) through direct contact and/or dust inhalation.
- On and offsite ecological receptors (both terrestrial and freshwater aquatic in areas of elevated heavy metals, noting surface water has not been assessed.
- Livestock watering at potentially impacted surface water features and (to a lesser extent) feeding on vegetation in impacted areas.
- Offsite abstraction bore users if lead is present in groundwater and extends to offsite domestic bores, noting ground water has not been assessed.

4. CONCLUSIONS AND RECOMMENDATIONS

I consider that the overall objectives of the XRF Report have been met i.e., a preliminary understanding of the nature and extent of lead in surface soils has been established and the potential contaminant SPR linkages have been identified through the development of a Preliminary CSM of contamination.

I agree with the recommendations made in the XRF Report which are as follows:

- *Notify the Site to the NSW EPA under S.60 of the CLM Act (1997).* Auditor note: this has occurred and the site is listed as "under assessment".
- *Advise landowners and occupants of properties adjacent to the Non-Operational Corridor of the presence of lead within the footprint of the former tracks and immediate vicinity and that access to the corridor should be avoided.*
- *Additional interim management measures may be undertaken including installation of signage along the non-operational corridor to advise appropriate hygiene measures for human health protection.*
- *The following actions should be taken with regards to further develop the CSM:*
    - *A Detailed Site Investigation [DSI] should be undertaken to vertically and laterally delineate concentrations in soil and groundwater.*

- *The SPR linkage to livestock and ecological receptors should be further assessed through surface water and sediment sampling at offsite surface water features within 50 m of the rail line initially.*

- *Further characterisation of the impacts identified are likely required through a DSI. Based on the results and outcomes of the DSI works a formal Human Health and Ecological Risk Assessment (HHERA) to further assess risks to receptors and requirement for remediation and/or ongoing management may be required to effectively manage unacceptable risks.*

I consider that the recommended interim management measures should be implemented.

ERM note that a comprehensive survey of the corridor has not been completed as part of the scope of works for the XRF Report and therefore recommendations regarding specific remediation/targeted remediation was beyond the scope of the XRF Report.

I make the following additional recommendations:

- A sampling analyses and quality plan(s) (SAQP) should be prepared to inform the DSI and SPR linkage assessment. The SAQP should be reviewed as part of the audit prior to implementation.
- Clarification/survey of the site boundary and mapping of features/factors that will inform the assessment of risk should be undertaken as part of planning for the DSI and should be included in the future SAQP. The appointed consultant should adopt a spatial data management approach to undertake risk mapping considering the following aspects at a minimum:
    - Surface water features
    - Erosion/wash out (and presence of ballast outside site)
    - Public accessibility
    - Offsite land uses
    - Access for agricultural use.
- Depending on the extent of ballast wash out in proximity to surface water receptors, consideration should be given to interim remediation works, for example where ballast has visibly entered surface water receptors.

I note that I have not conducted a site visit to date. Based on the information reviewed and the proposed future works, I consider the most appropriate time to conduct a site inspection would be following review of the SAQP.

5. LIMITATIONS

This interim audit advice letter was conducted on behalf of Transport Asset Holding Entity of New South Wales (TAHE) to provide an independent review of a preliminary site investigation (the XRF Report). This summary report may not be suitable for other uses.

The Auditor has relied on the documents referenced in Section 2 in forming the Auditor's opinions. The consultants included limitations in their reports. This interim audit advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. If the Auditor is unable to rely on any of those documents, the conclusions of this interim audit advice could change.

It is not possible to present all data which could be of interest to all readers of this interim audit advice. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

* * *

Consistent with the NSW EPA requirement for staged 'signoff' of sites that are the subject of progressive assessment, remediation and validation, I advise that:

- This advice letter does not constitute a Site Audit Report or Site Audit Statement.
- At the completion of the remediation and validation I will provide a Site Audit Statement and supporting documentation.
- This interim advice will be documented in the Site Audit Report.

Yours faithfully
Ramboll Australia Pty Ltd

Rowena Salmon
EPA Accredited Site Auditor 1002

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Attachment – Register of Comments

CLIENT:	**TfNSW**
AUDITOR:	**Rowena Salmon**
LEAD CONSULTANT:	**ERM**
REPORT TITLE:	**Captains Flat to Bungendore - Rail Corridor XRF Survey**
DOCUMENT NUMBER	**0608750_Final_02**

Comment Category Guidance

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Review 1

ITEM	ORGANISATION	REVIEWER NAME	DATE	SECTION	PAGE	CATEGORY	STATUS	DOCUMENT REVISION	COMMENT	LEAD CONSULTANT RESPONSE
1	Ramboll	Rowena Salmon	17/04/2023	Table 2.1	10		Closed	02	a) Can the approximate dimensions of the site (width(s) and length) be provided to provide further context to the site area (2.38 km2). b) Can the respective site areas (e.g., ha, m2 or km2 and dimensions) for the active and non-operational corridors be stated. Page 64 identifies the Non-Operational Rail Corridor as a site area of 95 Ha. c) While the site location, the transect lines and samples are well shown, the actual “site” boundary is not clear. Can further clarity be provided including indicating the boundary on appropriate figures(s) if practicable. I have assumed this is largely the cadastral boundaries, however, some sampling locations are shown outside these boundaries (e.g., page 52, F3.23). Based on the figures provided, the site may include part lots. Please clarify. d) The “legal description” is stated as “public infrastructure lands” and this does not seem to be a legal description. Can this be clarified? e) I note it may not be necessary to accurately define the site boundary for this initial report (such as via a survey). However, this will be required to be undertaken for the next stages to allow for assessment of risks, inform potential management actions, the site audit report documentation etc.	a) added into table 2.1. Site area updated to 95Ha for consistency b) As above, tables and text updated. c) The Site boundaries are the Cadastral boundaries. However the boundaries were not easily discernible in the field at all locations so some sampling location may be outside of the site boundaries. d) Legal description should relate to the lot/DPs for the Site. The list of Lot/DPs associated with the Site is significant so has been included in Table 1, Appendix B. e) Noted
2	Ramboll	Rowena Salmon	17/04/2023	2.3	11		Closed	02	land use zonings are illustrated on Figure 2 (not Figure 1 as stated). The majority of adjoining zoning is RU1. More detail on specific land uses within this zoning will be required to inform planning for the DSI.	Noted. Reference Updated. Land use within RU1 is mix of agricultural, low density residential and public open space. An SAQP would be required to inform location densities and location specific screening criteria.
3	Ramboll	Rowena Salmon	17/04/2023	3	13		Closed	02	please describe the sample numbering convention e.g., B/E/W, numbered from proximity to rail line.	B = between tracks E = east of tracks, with sample 1 mid corridor and sample 2 on eastern corridor boundary (further from tracks) W = west of tracks, with sample 1mid corridor and sample 2 on western corridor boundary (further from tracks)
4	Ramboll	Rowena Salmon	17/04/2023	3	13		Closed	02	please clarify how sample locations/coordinates were recorded in the field (e.g., GPS, Survey?). Can coordinates be provided to allow distances between samples to be determined and allow subsequent accurate location?	Coordinates were recorded in the field with GPS. The accuracy of this method should be considered if relying on the coordinates available to pin point precise sample locations in the field. The eastings/northings for each sample location have been added to Table 4a/4b, Appendix B for reference.
5	Ramboll	Rowena Salmon	17/04/2023	3.4	13		Closed	02	Section 3.4 indicates sample depth was upper 0.1 m. Page 66, Table 3, the sample depths are stated at 0.0-0.5 m. The sample depth will be important to inform the CSM and future sampling for vertical delineation. Please clarify.	Table 3 updated. All samples were 0 - 0.1m (surface)
6	Ramboll	Rowena Salmon	17/04/2023	3.4	14		Closed	02	Section 3.4 states “Areas of interest such as areas of washed out rail ballasts and/or drainage channels were also targeted”. Only a limited number of locations in page 66, Table 3 are described as within a “washed out” area although proximity to a drainage channel is reported more frequently. Can further detail on the sample location/targeted features be provided? Also, can the column of location information from Tables 4a and 4b (Location in Transect) be included? Ideally details of the adjoining land uses should also be presented/ retained with the analytical data.	Note, the objective of the assessment was not to characterise all impacts associated with the corridor but to provide preliminary assessment. The entire 40km corridor was not accessed and surveyed for wash outs etc. Where wash out was evident at areas where the corridor was accessed (i.e. where sediments within the former rail line appeared to have mobilised), these areas were briefly assessed using XRF within the time constraints of the program. Where it is noted in this report that a location is in proximity to a drainage line, this does not necessarily indicate that the channel is receiving surface water or sediment wash out from the former rail line. The information is only to indicate the proximity of the potential receptor for future DSI planning.
7	Ramboll	Rowena Salmon	17/04/2023	4.1	16		Closed	02	a subset of data was compared to HIL A/EIL and Ecological Significance EIL. Can Tables 4a and 4b in Appendix B indicate which samples were compared to these criteria?	Table 4a includes a footnote on the applicability of HIL-A. All samples in the Table 4b were screened against HILA as a conservative preliminary screening measure due to the unrestricted access to the Site. Transects screened against the Ecological significance EIL have been noted on the header portion of Table 4b.
8	Ramboll	Rowena Salmon	17/04/2023	4.2 / App G	16		Closed	02	Comparability Requirements – Please review the formula used for moisture content correction to comprise either percentage or decimal values for moisture content.	Formula in report updated to: *Corrected XRF Lead Concentration = XRF Lead Concentration / (100 – Average moisture content %)*100)*
9	Ramboll	Rowena Salmon	17/04/2023	4.2	17		Closed	02	can separate data sets be provided in Appendix B for each of the 6 columns of Tables 4-1 and 4-2 (noting Table 4a and 4b in Appendix B represent the fourth columns).	Each sample is categorised in Tables 4a and 4b. Excel spreadsheets can be provided to the Auditor for interrogation.

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AUDITOR:	**Rowena Salmon**
LEAD CONSULTANT:	**ERM**
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10	Ramboll	Rowena Salmon	17/04/2023	4.2	18		Closed	02	Active Corridor, discussion of C/I EIL and HIL-C exceedances is not presented	HIL-A and C were only applied to corridor boundary locations (as per footnote in table 4a), therefore they are not discussed in this section as there were no exceedances of corridor boundary locations compared to these criteria.
11	Ramboll	Rowena Salmon	17/04/2023	4.2	18		Closed	02	No-Operational Corridor, discussion of C/I EIL, HIL-C and less sensitive (where relevant) criteria exceedances is not presented.	This section provides a summary of results which have been used to inform the preliminary CSM which begins to discus the implications of the exceedances highlighted
12	Ramboll	Rowena Salmon	17/04/2023	5.3	20		Closed	02	offsite recreational users should also be considered as a potential receptor (where contamination extends offsite).	Added in to section 5.3
13	Ramboll	Rowena Salmon	17/04/2023	5.4	20		Closed	02	livestock ingesting surface water from dams has been identified later as a potential pathway and should be included here.	Added in to section 5.4
14	Ramboll	Rowena Salmon	17/04/2023	5.6 / 6 / Exec Summ	22		Closed	02	the "offsite" potentially complete exposure pathways only include ecological receptors (or are "agricultural receptors" human, please clarify). Human receptors should be considered given lead is anticipated to extend offsite in some areas and also may migrate via dust. Offsite recreational receptors may have exposure to contamination soil and surface water (i.e., terrestrial and aquatic). Also, there appear to be inconsistencies with the summary provided in Section 6 (i.e., offsite agricultural workers and rural residents are identified).	Additional receptors added to section 5.6 to better align with section 6 and executive summary.
15	Ramboll	Rowena Salmon	17/04/2023	6	24		Closed	02	the last dot point should be expanded as per bold "…risks to receptors and remediation and/or ongoing management may be required…".	Last dot point amended
16	Ramboll	Rowena Salmon	17/04/2023				Closed	02	Interim management measures beyond advice to adjacent landowners and occupants are not proposed. a) Depending on the extent of public access available and results reported in publicly accessible areas of the non-operational corridor, consideration should be given to signage to prevent access or to advise of appropriate hygiene measures for the protection of human health. b) Depending on the extent of ballast wash out in proximity to surface water receptors, consideration should be given to interim remediation works, for example where ballast has visibly entered surface water receptors. It is difficult to assess the need for these measures based on the level of detail provided in the XRF Report. The report should identify key issues/areas that may warrant additional interim management or interim remediation works.	A) an interim recommendation around signage has been added as requested. B)Note that a comprehensive survey of the corridor has not been completed as part of this scope of works and therefore specific remediations on areas a targeted remediation are beyond the scope of this report.
17	Ramboll	Rowena Salmon	17/04/2023				Closed	02	Clarification/survey of the site boundary and mapping of features/factors that will inform the assessment of risk will be required as part of planning for the DSI and should be included in the future SAQP. The appointed consultant should adopt a spatial data management approach to undertake risk mapping considering the following aspects at a minimum: • Surface water features • Erosion/wash out (and presence of ballast outside site) • Public accessibility • Offsite land uses • Access for agricultural use	Noted
18	Ramboll	Rowena Salmon	17/04/2023	Table 1	64		Closed	02	Table 1 refers to site information for the non-operational corridor. Is this relevant to the entire site or is there equivalent information for the active corridor?	Refers to both, Table 1 has been updated
19	Ramboll	Rowena Salmon	17/04/2023	Table 4b	74		Closed	02	Table 4b includes annotation "x" as a far left column that is not defined. Please clarify.	This is a formatting error - resolved.
20	Ramboll	Rowena Salmon	17/04/2023	Table 4b	75		Closed	02	Table 4b, header rows do not carry through multiple pages of this table.	Addressed
21	Ramboll	Rowena Salmon	17/04/2023	App D	83		Closed	02	the calibration certificate states the recommended calibration due date to be 27 April 2021. Sampling was undertaken in November and December 2021. Please clarify.	This was clarified at the time of reporting, the supplier provided the following response regarding the out of date calibration: "It's recommended for every 12months but not necessary unless the self-checks are failing". ERM do not necessarily agree with this response but we are confident that the XRF was reading accurately enough to meet the requirements of this investigation.
22	Ramboll	Rowena Salmon	17/04/2023	App D	84-99		Closed	02	includes field sheets under the Appendix D Calibration cover sheer. Please include in a separate appendix if appropriate.	Appendix D title changed to reflect contents.
23	Ramboll	Rowena Salmon	17/04/2023	App G	Table G1		Closed	02	QA/QC program includes duplicate samples – General comment: please review text for misspelling of acronym for Relative Percentage Difference (RPD).	Updated in text and in App G
24	Ramboll	Rowena Salmon	17/04/2023	App G	Table G1		Closed	02	QA/QC program includes duplicate samples – Confirmatory duplicate samples were analysed by a laboratory to correlate to the XRF data. Please clarify the selection process for the laboratory confirmatory samples (i.e., were these selected to cover a range of contaminant concentrations?).	Yes, they were selected to cover a range of contaminant concentrations.

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25	Ramboll	Rowena Salmon	17/04/2023	App G	Table G1		Closed	02	Appropriate calibration procedures were undertaken – daily calibrations were reportedly performed on the XRF analyser using a known standard. Please provide the associated calibration records. It is unclear if these comprised calibration checks or if calibration of the instrument was required. Please clarify.	Records of the field verification calibrations are not available. My information suggests that these checks are logged internally in the unit. A note has been added to Table G1.
26	Ramboll	Rowena Salmon	17/04/2023	App G	Table G1		Closed	02	Appropriate calibration procedures were undertaken – US EPA (2007) Method 6200 and the XRF analyser manufacturer's manual recommend a calibration energy check. Please confirm if this was carried out and at what frequency.	The energy calibration may have been completed (as the staff were suitably qualified and trained in the use of XRF), however this cannot be confirmed given the lack of field records. It is assumed that this would have been logged internally in the unit, similar to the verification checks.
27	Ramboll	Rowena Salmon	17/04/2023	App G	Table G1		Closed	02	Appropriate calibration procedures were undertaken – Please review the appendix reference for calibration certificates.	XRF Calibration cert is in Appendix D.
28	Ramboll	Rowena Salmon	17/04/2023	App G	Table G1		Closed	02	Appropriate decontamination procedures were adopted – the Consultant describes decontamination procedures for reusable equipment and field hygiene (disposable nitrile gloves). Please include the decontamination procedures for the XRF instrument analyser window between samples. The Auditor notes that the majority of samples were described as 'damp' and having a silt component, which indicate a higher potential for adherence to the analyser window.	Analyser window was wiped with dedicated paper towel moistened with deionised water in between XRF readings. This has been added to Table G1.
29	Ramboll	Rowena Salmon	17/04/2023	App G	Table G1		Closed	02	Sample collection handling and transportation procedures – the Consultant describes laboratory samples were placed in laboratory provided sampling bags and stored in a cool box. The laboratory SRN for work order CA2107572 reported a receipt temperature of 22.3C. The laboratory SRN for work order ES2146882 did not note a receipt temperature, however no ice or ice bricks were reported on the COC. Please provide comment on how the sample handling/preservation may affect the moisture content determined by the laboratory and how this may affect the overall data quality considering average or specific laboratory moisture content was used in the correction of the XRF data and whether this might have a material impact on conclusions drawn from the data. Correcting the data to an underestimated material moisture content could potentially lead to an underestimation of the concentrations determined by XRF.	Receival of results at 22 degrees Celsius, whilst not ideal, is unlikely to largely impact results as based on correlation coefficient the data is useful at a screening level (not definitive) so slight fluctuations should not impact the interpretation of data and would only impact data from samples on the borderline of adopted criteria (where a reduce moisture dropped the lead result into the lower criteria bracket). Given the assessment is very broad and is not reliant on the accuracy of any particular samples, any sample variability in results would not affect the overall conclusions of the assessment. Furthermore the soil jars were filled to minimise headspace, so release of water vapour into the headspace would be minimal within the jars.
30	Ramboll	Rowena Salmon	17/04/2023	App G			Closed	02	Table G2, Appropriate methodologies used for sample analyses – US EPA (2007) Method 6200 states that for laboratory confirmatory samples, complete digestion of soil samples may be valuable to improve accurate correlation, depending on the extraction efficiency of the target analytes for the partial digestion method. Please provide comment on the laboratory method employed in this context and potential impact on results.	According to laboratory documentation, samples were digested in accordance with USEPA 6020.
31	Ramboll	Rowena Salmon	17/04/2023	App G			Closed	02	XRF and Laboratory Correlation – US EPA (2007) Method 6200 states that for the linear regression analysis, if measured concentrations span more than one order of magnitude the data should be log-transformed to standardise the variance. Please present the data on logarithmic scale.	Graphs have been reformatted to be in log scale.
32	Ramboll	Rowena Salmon	17/04/2023	App G			Closed	02	XRF and Laboratory Correlation – please include the % moisture content used in the correction of the XRF data.	Average moisture content for the 19 samples analysed was used (18% w/w). This has been specified in Sect 4.2 and Table G1.
33	Ramboll	Rowena Salmon	17/04/2023	App G			Closed	02	XRF and Laboratory Correlation – US EPA (2007) Method 6200 states that data with a correlation coefficient of greater than 0.7 (between XRF and lab data) can be considered as screening level data, whereas a correlation coefficient of greater than 0.9 or greater is required for the data to be considered definitive (in conjunction with other confirmatory data). Please provide the correlation coefficient for the dataset and provide comment.	The correlation coefficient (R2) value is 0.88 when comparing the uncorrected lead vs laboratory lead, and 0.8992 when comparing the corrected vs laboratory lead. This suggests the corrected values provide a higher correlation coefficient (better fit than uncorrected) and may be used as screening level data (>0.7), but is noted to be at the upper end of this correlation category. This data is presented in Figure G1.
34	Ramboll	Rowena Salmon	17/04/2023	App G	QAQC Report		Closed	02	QAQC Report – general comment: please review section 9.0 of US EPA (2007) Method 6200 for quality control in the use of field portable XRF, including the analysis of instrument blanks (to demonstrate no contamination exists in the spectrometer or analyser window), calibration verification check samples, and precision measurements of replicates. Please provide comment on adherence to US EPA (2007) Method 6200.	US EPA (2007) Method 6200 is acknowledged. Whilst it is assumed that all field calibrations etc were completed, no record was made and cannot be verified.