FJM Consulting Pty Ltd
ACN 637 923 614

+61 438 483 852

Fjmohen@gmail.com

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Kael Williams
Project Manager

MostynCopper
Suite 2 Level 8
60 Pitt Street, Sydney
NSW 2000

Interim Site Audit Advice (Site Audit Memo 19) Site Audit FM121 – Cricket NSW – Interim validation of Buildcorp area

Dear Kael

Introduction

FJM Consulting Pty Ltd was engaged by MostynCopper on behalf of NSW Cricket Association (Cricket NSW) to provide Frank Mohen as a NSW EPA Accredited Contaminated Site Auditor (the Site Auditor) under the Contaminated Land Management (CLM) Act 1997, for the investigation and remediation of Wilson Park, where Cricket NSW propose to build the Western Sydney Cricket and Community Centre.

This Interim Site Audit Advice (ISAA) does not constitute a Site Audit Report or Site Audit Statement (SAR/SAS), as defined in the Contaminated Land Management Act 1997, but rather provides interim advice as part of the site audit.

Purpose of Memo/ Documents Reviewed

The purpose of this memo is to provide interim advice in relation to the following documents which have been reviewed by the Site Auditor:

> Report on Completion of FCC Works Buildcorp Handover Area, Western Sydney Cricket and Community Centre, 4 Newington Road, Silverwater, Douglas Partners Pty Ltd (DP), 30 April 2021, document reference 86694.09.R.010.Rev1 (the Interim Validation Report)

Site Auditor Review Comments

The Auditor has reviewed the above documents and provides the following comments.

General

Section 1 of the Interim Validation Report describes the extent of the site referred to as the "*handover area*" and reported shown on "*Drawing A0100 (as marked up)*". The Auditor cannot find this drawing.

The only figure provided in the Interim Validation Report that clearly shows a boundary of the handover area is Drawing No. 1 (pdf page 353), which shows the location of various soil vapour monitoring/gas well locations.

The Auditor requires that a figure (or figures) is provided showing the boundary of the handover area and key features discussed in the Interim Validation Report, including but not limited to:

- the location of test pits (eg TP23) where asbestos containing materials were previous identified, and the extent of the asbestos clearance works undertaken to remediate those soils.
- the location of excavation areas and trenches.
- the location of contaminated materials and tar impacted material emplacement areas.
- the location(s) of areas where capping thickness at completion is less than the required thickness.

The Auditor also notes that the Interim Validation Report refers to Attachments A to I but the additional information did not include headers to segregate the data. A substantial amount of data is included to support that validation works. This makes it confusing and difficult to find relevant information. Please amend.

Asbestos in surface soils

Section 2 of the Interim Validation Report documents the remediation of asbestos impacted soils, noting the following:

- NAC Services was commissioned to prepare a clearance inspection following removal and remediation of non-friable asbestos containing surface fragments.
- only one former test pit location (TP23) where asbestos was present is located in the handover area. Impacted soils from this location were "*delineated, excavated and placed in the landscaped area to the east of Oval 1, and capped with a minimum 0.5 m of approved imported soils*".
- The Interim Validation Report stated that, on the basis of the NAC Services report, "*it is considered that the asbestos impact observed at TP23 was appropriately managed and validated in accordance with the CMP/RAP*".

The DP (2020) Contamination Management Plan / Remediation Action Plan (CMP/RAP) includes a procedure for addressing asbestos in surface soils which is summarised below:

- an initial site walk over "*over the entire development footprint*", with collection and removal of asbestos fragments and preparation of a clearance certificate;
- excavation of up to a 100 m^2 footprint to depth of 0.2 m around the test pit locations, plus any other locations identified during the site walkover;

- relocation of materials to Oval 2 (Stage 2 area); and
- sorting, picking and inspection of the excavated materials and either re-use or stockpile for placement beneath the capping layer.

The NAC Services report provided with the Interim Validation Report states that surface soils were visually inspected "*across the entire site following removal of all visible ACM surface fragments*". The NAC Service report then states that its scope of work included collection of samples of suspected ACM, but also notes that works completed by Ford Civil included removal of asbestos containing fragments.

No discussion on the excavation of soil to a depth of 0.2 m (as per the CMP/RAP) was provided in either the NAC Services report or the Interim Validation Report. Additionally, no figure showing the extent of the clearance works undertaken, and how this relates to the location TP23, was provided (despite a reference being made to Drawing 201316-7 in the Interim Validation Report).

The Auditor considers that the scope of works undertaken to remediate asbestos contamination soil in the vicinity of TP23 is unclear and cannot be verified based on the information provided in the Interim Validation Report. Please provide:

- a site plan showing the handover area boundary, the location of TP23 and the extent of asbestos clearance activities;
- a clear and chronological scope of work undertaken and by whom;
- a plan accompanying the NAC Services report clearly delineating the area to which the clearance certificate applies;
- a plan showing the placement area for soils excavated as part of the asbestos remediation works and supporting materials tracking documentation (noting that the material tracking forms provided do not reference asbestos impacted soils or materials from in the vicinity of TP23);
- validation of the 0.5 m capping layer installed over the emplaced asbestos materials, as this area appears to be outside the handover area; and
- confirmation of why excavated materials were placed at "*Oval 1*" rather than being picked and sorted for re-use, as per the requirements of the CMP/RAP.

Existing topsoil and capping layer

The Interim Validation Report noted in Section 3:

- topsoil was stripped and stored in the Stage 2 area, where it remains;
- manufactured (nutrient rich) capping soils were stripped from the rainwater tank excavation area, for re-use as capping over tar impacted soils in the field of play area (Oval 1); and

- relocation of tar impacted soils and manufactured (nutrient rich) capping soils from the rainwater tank area was documented in the materials tracking register and associated drawings, reportedly in 'Attachment B'.

As noted above, there are no dividers in the additional information attached to the Interim Validation Report and therefore it is difficult to determine which drawings and materials tracking forms are being referred to. The Auditor has assumed Drawings 210203_1, 210316_1 and 210316_8 and the tracking form in pdf pages 34 and 35 are of relevance.

Based on the information provided it is not clear where topsoil has been stripped from and where this material has been stored/placed, in the context of the handover area or the site as a whole. The Auditor notes the following:

- the materials tracking form refers to 'Tank Spoil' which was placed in the 'contaminated material emplacement area'. The location of this area is not clearly shown on any figures provided.
- the tracking form also refers to 'manufactured sandstone' and 'sandstone' which was variably used for capping or stockpiled for re-use. Is 'manufactured sandstone' the same as "*manufactured (nutrient rich) capping soil*" as referred to in the Interim Validation Report?
- Drawings 210316_1 and 210316_8 present 'point level' and 'design level' for various survey points as well as the vertical difference between the two. The units measured are not provided (m AHD, m bgs, etc?).
    - Notes added to Drawing 210316_1 state that this information shows "*the depth of the top of the contaminated material compared to the bulk excavation level (i.e. it shows that the top of the contaminated material is >1000 mm below the bulk excavation level)*". Is the 'bulk excavation level' a finished level, with the placement of contaminated material beneath this level? What was the total depth of the excavation? Is this excavation the 'contaminated material emplacement area'?
    - Drawing 210316_8 reportedly shows the "*top of the manufactured sandstone material compared to the bulk excavation level (i.e. it shows that the top of the manufactured sandstone is >500 mm below the bulk excavation level. It also shows that a 500 mm layer of manufactured sandstone has been installed when compared to the previous survey)*". If the manufactured sandstone was used as a capping layer, what has been placed on top of the sandstone to reach the 'bulk excavation level'?
- The Auditor considers that further detail is required to adequately demonstrate how the survey drawings relate to the removal and separation of topsoil and the excavation and placement of contaminated spoil at the site.

Unexpected Finds

Section 4 of the Interim Validation Report states that no unexpected finds were identified in the hand over area.

North-west mound

In accordance with the CMP/RAP, material in the north-west mound was required to be relocated within the field of play area (Oval 1) and covered by up to 2 m of imported fill. The Interim Validation Report states that part of the mound was relocated within Oval 1, and part was spread within the north-western area within and adjacent to the mound footprint.

Ford Civil and DP did not identify tar impacts during excavation, in excavation walls or within the spread materials. As a result, "*spreading the materials within the mound footprint and adjacent was approved by DP*".

Photographs provided with the Interim Validation Report noted that the north west mound was filled with imported sandstone. The materials tracking form documents that 'west mound spoil' was placed in a separate stockpile (approximately 210 m^3, stockpile 210111S3), was 'pushed across into adjacent depression where it will be covered by >1m of clean fill material', or was placed in the contaminated material emplacement area. Sandstone imported to the site on 13, 14 and 19 January 2021 was reportedly used to cap the western mound.

Drawings 210413 and 210409 reportedly demonstrate the design and surveyed capping thickness, respectively.

The Auditor queries why no information was provided regarding the changes in management of material from the north west mound (i.e. using the contaminated material within the mound to backfill as depression adjacent to the mound footprint, instead of placement within the contaminated materials area)? Further information needs to be provided regarding the 'depression' to ensure it is suitable for the placement of contaminated materials (drainage patterns, underlying materials, etc).

In addition, the Auditor queries the fate of Stockpile 210111S3 containing spoil from the north west mound. Where is this stockpile and how is it being managed?

The CMP/RAP states that the north west mound material will be surveyed prior to placement of imported fill (cap) over the materials. Please provide this survey (including the materials located in the north-western area and the contaminated material emplacement area), as the drawings provided only appear to show survey details of the capping layer.

Acid sulphate soils

Section 6 of the Interim Validation Report states that acid sulphate soils (ASS) were excavated from within the handover area, stockpiled on Oval 1 and treated using lime. The materials were then "*spread across part of Oval and covered with a minimum thickness of new capping material*". These works were undertaken by SLR Consulting and documented in a report provided as an attachment to the Interim Validation Report (NSW Cricket Centre for Excellence, SLR Consulting Australia Pty Ltd (SLR), 19 February 2021).

The Auditor notes that the SLR report includes groundwater testing, ASS testing and waste classification. The scope of the work undertaken by SLR, in relation to ASS, included:

- collection of two samples from a stockpile of excavated materials (approx. 190 m^3);
- pH field screening of each sample;
- application of lime; and
- verification sampling (four samples) following reuse of the material.

The results of post-liming field screening indicated that the liming was effective. Laboratory analysis to determine net acidity indicated that further liming was not required.

The SLR report provides very limited information regarding the source of the ASS subject to treatment and the placement areas following treatment. Please provide a site plan showing these areas, as well as the treatment area for ASS. The Interim Validation Report should also confirm that the ASS treatment area was established as per the requirements of the ASS Management Plan (ASSMP, WSP, 2021).

The Auditor notes that the materials tracking form includes two entries for 'Potential ASS' totaling 224 m^3, not 190 m^3 as indicated in the SLR report). Please clarify.

The SLR report states that "*given the small size of the stockpile, two soil samples … were submitted for analysis*". However, the ASSMP (Section 6.2) requires that stockpiles be kept to a maximum of approximately 100 m^3 and that four samples be collected from each quadrant of the stockpile. Please provide further justification for the reduced sampling undertaken.

The SLR report also states that "*an additional four composite samples were collected in a third round of sampling once the material had been reused on site*" and "*the stockpiles on site was divided into four quadrants prior to the collection of soil samples*". When was the second round of sampling undertaken? Please also clarify if the 'third' round of sampling was undertaken from stockpiles or after reuse, as the SLR report is not clear.

Please confirm that the excavated materials were suitable for re-use at the site in accordance with Section 5.4.2 of the ASSMP.

Tar impacted fill

Section 7 of the Interim Validation Report stated that tar impacted materials encountered during the rainwater tank excavation were relocated within Oval 1 and capped in accordance with the CMP/RAP (with a minimum of 0.5 m of manufactured, nutrient rich soils).

The materials tracking form shows two entries for 'tank spoil' that relate to tar impacted materials, which were reportedly placed within the contaminated material emplacement area. The materials tracking form also records one entry for manufactured sandstone, which was reportedly used to cap the "*tar impacted material emplacement area*". Please confirm if the 'manufactured sandstone' is the same as the nutrient rich soil required by the CMP/RAP? Is the 'tar impacted emplacement area' the same as the 'contaminated materials emplacement area', or is there a distinction between the two, and if so, please define and show on a figure.

The Interim Validation Report also refers to the "*FCC continuous gas monitoring sheet*", which is include as an attachment. However, no detail on what gas monitoring was undertaken is provided. Please confirm if the monitoring was in accordance with the requirements of the CMP/RAP and the Hazardous Ground Gas Management Plan (HGGMP, WSP, 2021).

Rainwater Tank

The Interim Validation Report stated that the rainwater tank area was over-excavated by 0.5 m and backfill with approved imported fill, and referred to Drawing 210203_1.

The Auditor notes that Drawing 210203_1 reportedly shows the base of the rainwater tank excavation, however, it is unclear how this drawing demonstrates the placement of a 0.5 m capping layer. Please clarify.

Groundwater / leachate management

Section 9 of the Interim Validation Report states that no groundwater was encountered during the Ford Civil works.

Groundwater level measurements were taken by SLR on two occasions and reported in the SLR report, attached to the Interim Validation Report. The SLR report stated that "*groundwater samples collected are consistent with the understanding of the site and projected construction plans. If construction proceeds as planned, all bores can be decommissioned utilising a 5% bentonite cement grout*". The Interim Validation Report stated that groundwater monitoring wells within the handover area were decommissioned "*as approved by DP, SOPA and the Site Auditor*".

The Groundwater Management Plan (GMP, WSP, 2021) required that weekly groundwater gauging be undertaken on existing wells, to demonstrate that dissolved contaminants were not being mobilized

because of changes in hydraulic gradients. A groundwater monitoring event was also to be undertaken at the end of dewatering activities.

The SLR report stated that the purpose of the weekly gaging was to "*define … groundwater levels underneath the proposed site, including the risk of groundwater being encountered in any sub-surface works*" and "*to determine groundwater quality across the site*". This is not entirely consistent with the objectives of the GMP.

However, as no groundwater was reportedly encountered, no dewatering was required. The results of the weekly gauging showed no discernable drawdown of groundwater levels over the monitoring period (11 – 19 January 2021).

Imported fill

The Interim Validation Report summarized the procedures adopted to assess fill imported to the site.

The Auditor has provided approval for the materials imported in interim advice:

- Concrete Recyclers: SAM10, 4 March 2021
- Boral: email from the Auditor to Paul Gorman, Ben Ryan, Kael Williams, 2 February 2021.
- Blacktown: SAM04, 26 November 2020
- Lane Cove: SAM06, 8 January 2021
- Rozelle Interchange: SAM09, 21 January 2021

The Auditor also provided interim advice pertaining to the check sampling undertaken in SAM17, 14 May 2021. Please refer to these documents for further comments.

Capping thickness

Section 11 of the Interim Validation Report noted that, excluding pits, capping at the site ranged between 0.7 m and 1.5 m thick. The CMP/RAP requires a thickness of 1 m in the handover area. Remaining capping to be installed includes a gravel drainage layer, sand layer and turf/wicket clay and turf totaling an additional 350 mm. In landscaping areas topsoil and top dressing will be used to achieve the final levels, while under the building footprint the building slab will form the final surface level "*ensuring minimum 1000 mm capping to the building footprint for the areas that have bulk levels lower than 1000 mm currently*".

The capping design and survey drawings (200413 and 210409, respectively) do not clearly show the areas where capping thickness does not meet the required 1 m thickness. Both drawings are titled "*Final as built survey*". Please clarify.It is also unclear how the final capping layers integrate with the capping layers installed over the contaminated materials placement area and the area filled with the mound spoil. Are the capping thicknesses cumulative?

Gas monitoring

The Interim Validation Report stated that monitoring was undertaken during excavations for the rainwater tank and no persistent readings exceeding the triggers were identified. The Interim Validation Report also provided the procedure for calibrating the PID and landfill gas monitor.

The continuous gas monitoring results provided as an attachment indicated no elevated concentrations of HGG.

Deep trenching

The Interim Validation Report stated that no evidence of tar impacts was observed during trenching works by Ford Civil or DP.

The Interim Validation Report did not provide gas monitoring results for trenching works. Please confirm if gas monitoring was undertaken during the trenching works?

The Auditor also requests a plan showing the location of the trenching works undertaken as it relates to the handover area.

Validation at final surface level

In accordance with the CMP/RAP, a program of soil and soil gas sampling and testing was required at finished levels. The Interim Validation Report noted that validation sampling was undertaken by DP, "*albeit final levels had not yet been completed*". The scope of validation works undertaken comprised:

- collection of soil samples to 1m below the finished surface on a 30 m grid across the handover area (total of 21 sample locations);
- screen the samples using a PID;
- analyse the samples (three per location) for metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs) and asbestos; and
- compare the analytical results to the site acceptance criteria (SAC) in the CMP/RAP.

Gas probes were also inserted at 10 m intervals within the building footprint and at 30 m intervals across the remaining site area, with VOC readings taken using a PID (calibrated with isobutylene gas at 100 ppm and set to benzene measurement) and compared to the trigger level of 4 ppm.

Additional soil vapour testing was also undertaken, based on the results of the gas probes, comprising installation and sampling of three soil vapour bores in the area of highest PID readings. The analytical results of soil vapour samples were then compared to the SAC. The Auditor notes that the results of the soil vapour analysis reported for benzene were a maximum of 2 ppb (well below the 4 ppm SAC).

There is no comment in the report on a comparison of the total VOCs reported and the magnitude of PID readings. Please comment.

The validation works encountered sandstone (0.4 – 1 m below ground level (bgl)), and clayey sand, sandy clay, sand, shaley clay, shale gravel and sandstone gravel, intersected between 1 and 1.1 m bgl in most boreholes. The soil laboratory results were reportedly less than the SAC. VOC concentrations in soil vapour were reported as "*trace levels (i.e. typically at least an order of magnitude or more below the Tier 1 screening levels available)*".

The Interim Validation Report stated that data was of sufficient quality and was considered acceptable for the validation assessment.

The Auditor notes that the PID was reportedly set to benzene measurement, and PID readings were recorded above the 4 ppm trigger level in 16 samples from eight locations.

The Auditor also seeks clarification on how validation will be finalized once the capping layers have been completed?

Conclusions

The Interim Validation Report concluded that Ford Civil have completed their works within the handover area in accordance with the CMP/RAP.

The Auditor notes that, in accordance with the CMP/RAP, the Interim Validation Report is required to make an assessment of the suitability of the handover area for the proposed land use.

Yours faithfully,

Frank Mohen
NSW Site Auditor No. 9801
FJM Consulting Pty Ltd