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Memorandum

To	Cox Architecture - Jamileh Jahangiri		
cc	Cox Architecture - Kate Macdonald, Cristian Gonzalez Diaz		
From	Patrick Heads	**Date**	06 May 2022
Subject	Summary of Site Conditions - Contamination and Acid Sulfate Soils, Newcastle Airport Terminal Expansion	**Project No.**	211445.00

Introduction

This memorandum presents the results of a brief review of existing information regarding contamination and acid sulfate soils for a proposed development area at the Newcastle Airport Terminal Expansion site.

The document has been provided to inform development consent and to provide recommendations for further assessment and management during construction works.

This document has been prepared at the request of Jamileh Jahangiri of Cox Architecture, with reference to Douglas Partners Pty Ltd (DP) proposal 211445.00.P.001.Rev0 dated 10 December 2021.

Proposed Development

The proposed development includes the realignment of the current ring road and premium car park area, currently located immediately adjacent to the terminal building.

The approximate area of proposed development is shown in the attached drawing (reference NEWCASTLE AIRPORT CAPACITY ENHANCEMENT- 01- ARDRG-DA-09-01).

Existing Information

Review of existing information for preparation of this memo has included a review of published mapping and public information (on-line aerial photos, NSW EPA records). Brief review of existing reports was also conducted for the site, including the following documents:

- GHD (2017), *Proposed East Car Park and Apron Extension, Preliminary Contamination Assessment*, prepared for Newcastle Airport Pty Ltd, Reference 4130336, GHD. This area is located approximately 230 m east-south-east of the proposed airport development;
- DP (2019), A*cid Sulfate Soil Management Plan, Astra Aerolab Stage 1, Williamtown Drive Williamtown*, prepared for APP on behalf of Newcastle Airport Pty Ltd, Project 39728.19, Douglas Partners Pty Ltd. This area is located approximately 400 m south of the proposed airport development;
- Coffey (2009), *Proposed Newcastle Airport Expansion, Gold Car Park Redevelopment, Geotechnical Assessment*, prepared for Coffey Projects on behalf of Newcastle Airport Limited, Coffey Geotechnics.

A summary of relevant information from the above sources is as follows:

- Reference to the Quaternary geological mapping produced by the Geological Survey of NSW for the Comprehensive Coastal Assessment 2004 indicates that the site is underlain by Pleistocene aged coastal barrier dune sand;
- Published acid sulfate soil (ASS) mapping for the site indicates that site soils have a low probability of ASS at depths greater than 3 m below the ground surface;
- Reference to NSW EPA PFAS mapping indicates that the subject site is within the Williamtown RAAF Base area, which is considered to be an impacted area (i.e. source of wider PFAS impact);
- Previous site use:
    - Pre 1940s – rural land use;
    - 1940-1960s – RAAF land use – operations, training, accommodation, offices, fuel use etc;
    - 1962-1994 – land leased from RAAF to Department of Transport for Operation of Newcastle Airport – domestic travel, aeroplane storage, fuel use and storage, building construction and demolition/addition;
    - 1994-Current – Land leased by Commonwealth Government to Newcastle Council and Port Stephens Council for operation of the airport, domestic travel, aeroplane storage, fuel use and storage, building construction and demolition;
- Reports by others indicated the presence of per and poly fluoroalkyl substances (PFAS) in soil, groundwater, sediment and biota within the RAAF site and surrounds, including areas to the north, west and south of the current subject area;
- ASS testing conducted by DP and summarised in DP (2019) recommended that natural soils within the adjacent Aerolab site (i.e. located adjacent to the subject site and within the same geology) be treated as potential acid sulfate soils, with liming rates in the order of 2 kg grade 1 agricultural lime per tonne of ‘low risk’ soils (i.e. in soils within the same mapped area as the current investigation area);

- ASS screening tests conducted as part of GHD (2017) indicated the potential for some acid sulfate soil formation following oxidation of soils. No detailed ASS testing was conducted as part of the works;
- Subsurface conditions in the vicinity of the current subject area, as presented in Coffey (2009), generally comprised upper fill (woodchip/topsoil in garden areas, asphalt and roadbase in existing pavement areas) underlain by sand fill and sand to termination.

Potential for Contamination

On the basis of existing information, potential contamination sources could include, but not be limited to, the following:

- Imported fill;
- Disturbance of soils within the airport area as part of former RAAF activities;
- Demolition of structures;
- Fuel storage and use;
- PFAS use (primary source - RAAF) and subsequent secondary sources (e.g. Lake Cochran, surface waters, groundwater).

Potential site receptors for the above sources include existing and proposed site workers, construction workers, existing and potential site users, adjacent site users, on-site and downgradient groundwater and surface water and terrestrial organisms.

Potential for Exposing Acid Sulfate Conditions

On the basis of the published information, there is a low probability of ASS in soils a depths greater than 3 m from the ground surface. Construction activities that could induce ASS conditions include, but are not limited to:

- Excavation for foundations (e.g. shallow footings for structures, piles, covered walkway footings);
- Excavation for installation of underground utilities (e.g. sewer);
- Dewatering of excavations.

Potential for Exposing Contaminated Soils and Groundwater

Subject to the results of site-specific contamination assessment, there is a potential for construction activities to encounter potentially contaminated soils, including materials associated with the above sources. Construction activities that could encounter contaminated soil conditions include, but are not limited to:

- Excavation for foundations (e.g. shallow footings for structures, piles, covered walkway footings);
- Excavation for installation of underground utilities (e.g. sewer);
- Excavation for pavement construction;
- Dewatering of excavations.

Recommendations

The following is recommended moving forward with the project, from a contamination and acid sulfate soil perspective:

- Preparation of an acid sulfate soil management plan which outlines the management, monitoring and contingency procedures for acid sulfate soils during construction;
- Inclusion of environmental management procedures in the contractor's management plans for the management of potential PFAS impacts in soil, groundwater and surface water during construction. DP has previously prepared similar documentation for NAPL for previous works;
- Inclusion of an unexpected finds protocol in the contractor's management plans outlining the procedures and methodologies for management of unexpected contamination if encountered during construction;
- Inclusion of procedures for assessment, treatment and management of excess soil and groundwater generated as part of construction activities, to be included in the contractor's management plans. Such procedures could include assessment of excess soils for possible site reuse from a contamination perspective, waste classification assessment of excess soils for disposal to an appropriately licensed facility, and treatment/disposal/management of extracted groundwater;
- Assessment of soil, groundwater and surface water contaminant concentrations and ASS conditions within areas proposed to be disturbed as part of the construction works.

It is noted that the above recommended actions could be conducted following development consent for the site, as part of early construction works.

References

GHD (2017), Proposed East Car Park and Apron Extension, Preliminary Contamination Assessment, prepared for Newcastle Airport Pty Ltd, Reference 4130336, GHD.

DP (2019), Acid Sulfate Soil Management Plan, Astra Aerolab Stage 1, Williamtown Drive Williamtown, prepared for APP on behalf of Newcastle Airport Pty Ltd, Project 39728.19, Douglas Partners Pty Ltd.

Coffey (2009), Proposed Newcastle Airport Expansion, Gold Car Park Redevelopment, Geotechnical Assessment, prepared for Coffey Projects on behalf of Newcastle Airport Limited, Coffey Geotechnics.

Douglas Partners Pty Ltd

Patrick Heads
Associate

Limitations

Douglas Partners (DP) has prepared this memorandum for this project at Newcastle Airport with reference to DP's proposal dated 10 December 2021. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Cox Architecture for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after field testing has been completed.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP.

Attachments: About this Report
Premium Car Park – Proposed Site Plan (NEWCASTLE AIRPORT CAPACITY ENHANCEMENT- 01- ARDRG-DA-09-01.)

Rev	Description	By	Date
A	DA SUBMISSION	COX	06/06/2022

CARPARK SITE LEGEND

- EXISTING BUILDING
- CARPARK SCOPE BOUNDARY (OUT OF SCOPE HALFTONE)
- EXISTING TREES
- FIRE HOSE REEL
- FIRE HYDRANT
- FLOOD LIGHT
- SITE BOUNDARY LINES
- EXTENT OF TERMINAL DA
- DIRECTION OF ROOF FALL
- PROPOSED ROOF

EXISTING TERMINAL

1 DA-00-06

1 DA-00-07

NEW PV ROOF

NEW WALKWAY ROOF COVER

CONSTRUCTION SITE OFFICE

EXISTING CARPARK

EXISTING CAR RENTALS

RENTAL CAR PARK
142 CAR SPACES

EXIT

ENTRY

NEW WEATHER PROTECTION COVER OVER BOOM GATES

EXISTING TREES

EXISTING SUBSTATION

TAXI HOLD AREA

LONG STAY

EXISTING DEFENCE SEWERAGE TREATMENT PLANT

451 CAR SPACES

LONG STAY CAR PARK 1

HELICOPTER BUILDING

HELICOPTER CAR PARK

BUILDING

NEW CONCRETE PATHWAY

NEW WEATHER PROTECTION COVER

1 PREMIUM CARPARK - PROPOSED SITE PLAN
SCALE 1 : 500

Scale 1:500

0 5m 10m 25m 50m

Newcastle Airport

Newcastle Airport

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HATCH LCI CONTEXT LANDSCAPE ARCHITECTURE

SCG, Purely Access Pty Ltd, Philip Chun, Ethos Urban, JMT, LTS Lockley, Douglas Partners

Client
Newcastle Airport

Project No.
221139.00

Project
NEWCASTLE AIRPORT CAPACITY ENHANCEMENT
Newcastle Airport Terminal Williamtown Drive, Williamtown NSW 2318, Australia

Drawing Title
NEW PREMIUM CARPARK - SITE PLAN

Document Control Status:
NOT FOR CONSTRUCTION

Co-ordinated: CDG	**Drawn:** AF
Project Architect: KM	**Scale:** 1 : 500 @ A1
Project Director: DH	**Date:** 26/04/17
Drawing Number: NEWCASTLE AIRPORT CAPACITY ENHANCEMENT- 01- AR-DRG-DA-00-04	**Revision:** A

PLOT STAMP DATE: 18/05/2022 19:51:07 PM