Douglas PARTNERS | GROUNDED EXPERTISE

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Project 204098.07
11 February 2025
R.003.Rev0
BAH

Attention: Ben Prior
Email: ben.prior@rpinfrastructure.com.au

Report on Salinity Review
Proposed Civil Construction and Service Installation
253 - 267 Aldington Road, Kemps Creek NSW

As requested, Douglas Partners Pty Ltd (Douglas) has reviewed the provided construction plans for the proposed Civil Works Package for 253 – 267 Aldington Road, Kemps Creek (State Significant Development Application Drawing No.21-860-C000 Issue G, C001 Issue F, C002 Issue F, C003 Issue G, C004 Issue B, C011 Issue F, C012 Issue F, C013 Issue F, C015 Issue E, C016 Issue E, C017 Issue F, C030 Issue H, C031 Issue E, C101 Issue I, C102 Issue G, C103 Issue G, C104 Issue G, C105 Issue D, C120 Issue G, C121 Issue G, C122 Issue F, C150 Issue G, C151 Issue F, C152 Issue B, C153 Issue B, C170 Issue B, C171 Issue B, C175 Issue B, C180 Issue B, C181 Issue B, C201 Issue F, C202 Issue F, C250 Issue, E, C251 Issue E, C301 Issue G, C302 Issue F, C310 Issue F, C401 Issue F, C402 Issue F prepared by AT&L Pty Ltd.

The purpose of this review was to provide comment on the Civil Works Package with respect to the previously prepared Salinity Management Plan (SMP) provided within Douglas Report on *Preliminary Geotechnical Investigation, Proposed Industrial Development, 253 – 267 Aldington Road, Kemps Creek,* Project Number 204098.00 Revision 1, dated 27 October 2023.

This review was completed in response to the DPHI comment provided below.

Salinity – Comment 14 – *The Geotechnical Report in Appendix J of the EIS indicates that some portions of the site fall into the very saline and high sodicity range. During bulk earthworks, large volumes of potentially saline or sodic soils will be moved around the site, which could potentially leach into the existing waterway. The Salinity Management Plan submitted with the EIS only provides high level details of how salinity will be managed on-site. Provide further details of construction mitigation measures to minimise salinity impacts and expand on proposed measures such as maintaining vegetation along the existing waterway.*

Douglas understands that the drawing set provided is for the civil works which includes bulk earthworks and service installation. As such this review was to provide comment on the proposed plans with respect to the management strategies provided in the SMP for the bulk earthworks and service installation.

Based on review of the drawing set issued to Douglas, the following comments are offered:

SMP Points A and D: A review of plans indicates that topsoil will be spread over embankments and cut batters at the completion of bulk earthworks. This is in effect, capping the sodic soils and adding organic matter which may help infiltration and leaching of sodium.. This capping of more permeable topsoil will assist in the prevention of ponding, to reduce capillary rise, act as a drainage layer and reduce the potential for erosion.

SMP Point B: A review of the bulk earthworks plans indicates that there is significant bulk earthwork proposed and that an import of 127,250 m3 is proposed for the site. A review of the plans indicates that materials that are classified as slightly saline to very saline will be excavated and placed as fill within the site. No placement restrictions have been detailed for the very saline soil within the bulk earthworks plans. As detailed within the Point B, where cut to fill is completed without tracking, the entire site will require to be treated and moderately aggressive to steel and very saline. This is considered appropriate subject to the recommended post earthworks salinity investigation being undertaken upon completion of the bulk earthworks phase to confirm durability requirements for any future proposed construction works.

SMP Point C: No detail of the proposed imported material is provided on the plans, however, the review of the import source material documentation is usually completed at the time of import works. It is noted that the imported material should be non-aggressive and non-saline to slightly saline where possible, but in any case, not more aggressive or more saline than the material on which it is to be placed.

SMP Point E: A review of plans indicates that allowances have been made to avoid water collecting in low lying areas, in depressions or behind fill (i.e. construction of surface drainage channels directing surface water flow to trunk drainage corridor).

SMP Point F: Allowances have generally been made for the construction of pavements to allow drainage of surface water.

SMP Point G: Allowances have generally been made for the construction of surface drains and drainage channels directing surface water flow to swales and the trunk drainage corridor.

SMP Point H: Salt Tolerant grasses and trees are to be considered for landscaping. The landscape planner, architect or agronomist will need to confirm that this is the case with respect to the current proposed landscaping plan.

SMP Point I: A review of the Concrete Notes for vehicular base indicates compliance with the minimum recommendations provided in the SMP. With respect to the nominated concrete strengths for kerbs, paths and pits, the nominated concrete strength of 25 MPa is lower than the minimum recommendation of 32 MPa for concrete foundations, however as these are not foundations, Douglas does not consider this to be a non-conformance of the SMP.

SMP Point J: A review of the Stormwater Drainage Notes indicates that corrosion allowances have been made for concrete pipes that are 300 mm and larger in diameter. It is noted that the supplier of the concrete pipes must ensure the supplied pipes are AS-4058 compliant steel reinforced pipes of general purpose Portland cement, with minimum cover to reinforcement of 10 mm or should be fibre reinforced.

SMP Point K – A review of the plans indicates that no steel piles are proposed for the proposed civil works.

In summary, Douglas considers that if the civil and construction works are undertaken in accordance with the reviewed plans and the above comments then the works will be in compliance with the previously prepared Salinity Management Plan (SMP).

With respect to managing salinity and sodicity during construction works, these characteristics are naturally occurring features of the local landscape and are not considered significant impediments to the proposed development. The standard earthworks controls adopted for development sites for which bulk earthwork is to be undertaken are considered sufficient to address the salinity and sodicity characteristics of the site. These standard controls, with particular reference to sediment and surface water controls, are to be detailed within the earthworks contractor's construction environmental management plan (CEMP). These should include the standard requirements to control sediment runoff to both offsite and to any waterway. A monitoring program will require to be detailed within the CEMP.

With respect to future waterway, management strategies A, D and H will need to be considered. These are to reduce future erosion potential and maintain the existing evapo – transpiration and groundwater levels.

This review has only been undertaken to confirm compliance of the civil construction and service installation. The review has not been undertaken to confirm conformance of any future building construction.

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Stage 2 – 3, Emerald Hills. The work was carried out under Douglas Conditions of Engagement. This report is provided for the exclusive use of Macarthur Developments Pty Ltd 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 Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

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. Douglas 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 Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Reviewed by

Bradley Harris
Environmental Engineer/Associate

Paul Gorman
Principal

Attachments: About this Report

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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