

Our Ref: PSM2808-013L

2 August 2022

Goodman Property Services (Aust) Pty Ltd
Level 10, 60 Castlereagh Street
James.Crouch@goodman.com

Attention: James Crouch

Dear James

**RE: 1 - 3 BURROWS ROAD, ST PETERS, NSW
SALINITY MANAGEMENT PLAN**

G3 56 Delhi Road
North Ryde NSW 2113

P +61-2 9812 5000

F +61-2 9812 5001

E mailbox@psm.com.au

www.psm.com.au

1. Introduction

This letter presents salinity management advice for the proposed development at 1 -3 Burrow Street, St Peters (the Site). This work has been undertaken in accordance with PSM proposal PSM2808-010L dated 13 July 2022.

Inset 1 presents the site aerial photograph.



Inset 1: Nearmap Aerial Photograph of the site conditions on 17 May 2022 Background

This plan has been prepared to address the requirement of salinity analysis in “Section 12. Ground and Water Conditions” of the SEARs deliverables list for the SSDA lodgement. The requirement is reproduced below.

“Provide an assessment of salinity and acid sulfate soil impacts.”

With regards to acid sulfate soil, PSM has undertaken a desktop study for the site, refer to PSM2808-012R, dated 1 August 2022. Should further assessment / testing and acid sulfate soil management plan be required, we suggest Goodman engage an environmental consultant to undertake the work.

2. Objective

The objective of this salinity management plan (SMP) is to effectively manage site salinity, to minimise the effect of the proposed development on the salinity processes and to protect the proposed development from salinity damage.

We have not been provided with bulk earthworks drawing for the site and details of the proposed earthworks and fill depths are not known to PSM. With regards to the potential impacts of salinity damage on the proposed development, we expect no major earthworks will be undertaken on the site and site salinity will have minimal impact on the proposed development. This assessment is based on the following considerations:

- The proposed development does not include bulk excavations

3. Salinity and Sodicty Assessment

PSM have undertaken a salinity and sodicity investigation at the Site as part of our geotechnical site investigation (ref: PSM2808-012R, dated 2 August 2022).

The investigation included a total of 4 boreholes, from which 4 samples were taken for salinity and sodicity testing. Figure 1 presents the locality plan of the site.

It is assessed that the soil units tested (as follows) are classified as “Slightly saline” to “Moderately saline”.

- Four (4) samples from EXISTING FILL

Furthermore, it is assessed that the soil units on the site are classified as “Non-sodic”.

The report also presented laboratory test results for soil aggressivity assessment as follows:

- The pH of the soil samples analysed was in the range of 7.8 to 8.6, with an average of 8.1
- The concentrations of chlorides in samples analysed was in the range of 10 mg/kg to 30 mg/kg
- The concentrations of soluble sulphate in samples analysed was in the range of 20 mg/kg to 500 mg/kg
- The moisture content ranged from 10.1 to 37.1 %
- The resistivity of the soil samples ranged from 2,330 ohm.cm to 6,540 ohm.cm.

4. Discussion

4.1 Development Components

This Salinity Management Plan (SMP) addresses the components of the proposed development at construction stage for the permanent works. Recommendations regarding the following development components are provided in the following sections:

- Importation of soil
- Roads, footpaths and paved areas
- Landscaped area
- Surface water, stormwater and drainage
- Durability of concrete structures in contact with the ground
- Durability of steel structures in contact with the ground.

4.1.1 Importation of Soil

It may be required to import topsoil or other soil onto site. Materials to be imported to site should be assessed for suitability for the intended use. Highly saline or contaminated soils should not be imported to site.

4.1.2 Roads, Footpaths and Paved Areas

The proposed development will result in the majority of the site comprising roads, footpaths and paved areas for warehouse buildings. The design and construction of roads, footpaths and paved areas should consider the following recommendations:

- Roads, footpath and paved surfaces should be graded, and the grades maintained at all times to prevent ponding of surface water at locations where this can result in infiltration into the underlying soils (e.g., pavement joints)
- Connections between the roads, footpath and paved surfaces and the surface water and stormwater drainage infrastructure should be designed, constructed and maintained to restrict infiltration into underlying soils
- Services that are to be located below the roads, footpath and paved surfaces should be installed, where practical at the time of construction
- Provision for a damp-proof course or membrane beneath slabs should be considered by the slab designer.

4.1.3 Landscaped Areas

The proposed development will include two landscaped setback areas to both the Burrows and Canal Roads site frontage. The design and construction of the landscaped areas should consider the following recommendations:

- Selection of plant species should consider the soil conditions, including moderate salinity, relatively poor fertility and clayey low permeability soil profiles. Promotion of successful revegetation is likely to require use of nutrient rich topsoil. Saline topsoils should not be imported to site.
- Potential for water logging should be minimised by:
 - Adopting plant species with minimal watering requirements
 - Adopting ‘waterwise’ gardening principles
 - Minimising use of potable water in landscaped areas
 - Properly designed and implemented irrigation systems
 - Establishment of perennial species and deep-rooted trees.

4.1.4 Surface Water, Stormwater and Drainage

Surface water, stormwater and drainage design should aim at restricting infiltration into the ground resulting in groundwater recharge. The design and construction of surface water, stormwater and drainage measures should thus consider the following recommendations:

- Disturbance of natural drainage patterns should be reduced. Where these are disturbed or altered appropriate artificial drainage should be installed
- Stormwater and surface water should be managed to restrict infiltration
- Temporary water retaining structures used during construction should be managed to restrict infiltration
- Stormwater and surface water infrastructure should be designed and constructed to minimise the likelihood of leakage
- Guttering and down pipes should be connected and maintained
- Surface water runoff should be directed around all exposed surfaces, temporary stockpiles and landscaped areas.

4.1.5 Durability of Concrete Structures in Contact with The Ground

In designing structural concrete elements in contact with the ground the design should consider the results of the salinity assessment and the durability requirements in AS2159:2009 Piling “Design and Installation” and AS3600:2018 “Concrete Structures”.

Both these standards provide guidance on minimum concrete grade/strength and minimum cover requirements.

Based on the salinity and aggressivity test results (ref. PSM2808-012R, dated 1 August 2022), it is recommended that:

1. The design of structural concrete members in contact with the ground (excluding piles) adopt an “A2” exposure classification as defined in AS3600:2018.
2. The design of concrete cast in situ piles adopt a “mild” classification as defined in AS2159:2009.

4.1.6 Durability of Steel Structures in Contact with The Ground

Table 6.5.2(C) of Australian Standard AS2159:2009, Piling – Design and Installation provides criteria for exposure classification for steel piles based on resistivity, soil and groundwater pH, and chlorides in soil and groundwater. On the basis of soil chlorides, resistivity and pH testing completed we assess the exposure classification for steel piles in the soil to be “non-aggressive”.

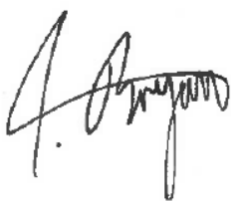
5. Sign off

We recommend the following:

- The designer(s) and contractor(s) responsible for construction of the various development components be required to sign-off their design and the as built, certifying that:
“The works have been designed/constructed having given appropriate consideration to the recommendations in the SMP (Ref. PSM2808-013L)”.

The designer and contractors should contact PSM during the works if they have any queries with regards to the requirements in the SMP or if conditions significantly differ from those described in this SMP.

For and on behalf of
PELLS SULLIVAN MEYNINK



BRYAN TAM
GEOTECHNICAL ENGINEER



AGUSTRIA SALIM
PRINCIPAL

Encl.

Figure 1 Site Locality Plan



P:\PSM2808\Docs Out\PSM2808-013L\Tool\Locality plan.dwg Layout: A3_Landscape\template_V1_QGIS

- Legends:**
- ▬ Site Boundary
 - ❖ Boreholes undertaken at 2019
 - ❖ Boreholes undertaken at 2022

Notes:
Aerial image sourced from Nearmap.com dated 17 May 2022



PSM	Created By:	PSM	Revision:	A
	Date:	02 Aug 2022	Paper Size:	A3

Revision:	A
Paper Size:	A3

Goodman Property Services (Aust) Pty Ltd
1-3 Burrows Road
St Peters
Site Locality Plan
Borehole Locations

PSM2808-013L Figure 1