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Borg Construction Pty Ltd
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2 August 2018

Dear Pamela

RE: Response to Department of Industry submission for Borg Panels S96 Modification to SSD 7016 – 124 Lowes Mount Road, Oberon

I refer to our prior correspondence and response to submissions for this S96 Modification- further warehouse extension.

This response specifically relates to the Department of Industry submission letter dated 29th June 2018, Appendix B. The Department of Industry provided 3 recommendations prior to approval of the S96 Modification.

1. An assessment should be provided to justify the ability to maintain groundwater flow paths and minimize impacts to groundwater due to the proposed reclamation of part of Spring Fed Dam. If impacts are identified, mitigation measures will need to be developed.

2. An assessment should be provided of the potential to intersect the shallow groundwater table during construction of the extended warehouse facility and associated infrastructure. This is to include an assessment of potential groundwater take and impacts to groundwater quality.

3. The assessment of impacts on groundwater should be in accordance with the requirements of the NSW Aquifer Interference Policy.

Further background.

The spring dam that is currently located on site and is the subject of this reclamation activity was created in 1996 when the proponent at the time required fill for expansion in other area's of the site. It is our understanding that the excavation intercepted the perched and deep aquifers, it is also clear that the perched aquifer exists over the entire site and surrounding areas. Reclamation of the small area will not impact surrounding users as the water will flow via alternative pathways. Regardless, Borg has proposed methodology below to ensure suitable permeability is maintained.

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Borg intends to reclaim part of the spring fed dam for the increase in warehouse space, this warehouse area requires significant filling, a minimum of 1.8m in a previously heavily disturbed area of the site, to ensure that uniform site levels are maintained over the development footprint. Therefore, it is anticipated that no interaction with the perched aquifer will occur.

Response to recommendations

Our specialist geotechnical engineer Karen Allan of Edge Geotechnical has prepared a response to the above matters, summarized in points below. Details of the consideration are contained in the letter dated 23rd July 2018, which is attached as Appendix A

1. The reclamation of the Spring Fed Dam can occur without adversely affecting groundwater, as detailed in the geotechnical engineer response letter attached, using a blend of rock and granular fill that has high permeability. Such underwater reclamation is a routine engineering work and subject to further investigation into local sources of fill materials, a satisfactory and robust reclamation methodology can be prepared. This is accepted as a condition of consent prior to reclamation works commencing.
2. By adopting industry standard reclamation methodologies and practices under the guidance of a qualified geotechnical engineer (such as Edge Geotechncial), the reclamation work will be done whilst the dam contains water. Dewatering is not recommended in this instance due to the anticipated volume of groundwater required for removal.
3. As mentioned above the primary works are related to filling of the area for building construction, Aquifer Interference is not anticipated.

Subject to those considerations, we believe the Department of Planning could issue the modified approval for such reclamation of the Spring Fed Dam.

I am available to discuss the above at any time convenient to yourself.

Yours faithfully

Victor Bendevski
Environment and Regulatory Compliance

Appendix A

Edge Geotechnical

J18017-001 23rd July 2018

Borg Manufacturing Pty Ltd
2 Wella Way
SOMERSBY NSW 2250

By email: bendevskiv@borgs.com.au

Borg Panels Timber Processing Facility Modification 1(SSD 7016 MOD 1)
Comments on Reclamation of Spring Fed Dam

Introduction

At your request, Edge Geotechnical Pty Ltd (Edge) has reviewed Borg Manufacturing Pty Ltd (Borgs) proposal to reclaim part of the Spring Fed Dam as part of its Oberon warehouse extension project.

The spring fed dam lies to the north-east of the existing plant and the proposed expansion to the north requires reclamation of the western portion of the dam (30% of the dam).

This letter is provided to assist in your response to comments made by Department of Industry to the Department of Planning & Environment via a Response to Submissions, Document No: OUT18/8997 (dated 29th June 2018).

Impact of Reclamation on Groundwater Regime

The site is located within an area of elevated/perched and possibly deep artesian groundwater, with significant groundwater inflows observed through the shallow subsurface profile which comprises porous volcanic sandstone with breccia and conglomerate. During original expansion of the factory in 1996, the spring fed dam was excavated and significant groundwater inflow was encountered.

Proposed expansion of the Borg Oberon warehouse requires general fill placement, plus additional fill for reclamation of the western 30% of the spring fed dam, which is up to 9m deep. Given the anticipated significant volume of groundwater inflow, dewatering is not currently considered feasible and reclamation is proposed to be carried out whilst the dam contains water. Underwater reclamation is likely to be carried out using a granular or rock fill (or blend of both), which has high permeability and can be placed below water and compacted when the new surface level is above water. Underwater reclamation with granular or rock fill is considered routine work and its core objective will be to minimise impact on local groundwater flow paths.

It is widely accepted that crushed rock material can provide good strength whilst maintaining high permeability - which would enable reclamation of the spring fed dam with minimal impact on local groundwater flow paths. A suitable granular fill, or blend of granular fill with crushed rock, could also provide sufficiently high permeability reclamation fill with minimal impact on local groundwater flow paths.

The required composition and degree of compaction of the reclamation fill can be tailored to be compatible with the local groundwater regime, minimising impact on local groundwater flows paths whilst meeting the engineering requirements of proposed structures and hardstand areas. Footings for proposed structures can be founded below new reclamation fill, facilitating acceptance of a lower degree of compaction and maximising fill permeability. Hardstand

areas can be designed to accommodate additional settlement that will occur due to acceptance of a lower degree of compaction of the reclamation fill.

"The ability to achieve the maintenance of groundwater flow paths whilst achieving the required fill compaction/stability" can be clearly identified with testing of proposed fill sources, a reclamation methodology and plant design that is compatible with the degree of fill compaction.

Recommendations

Is it understood that after you have obtained planning approval for the proposed extension, further investigation into reclamation materials can be carried out and a reclamation methodology prepared, that meets the above objectives. We anticipate that such work would comprise, but may not be limited to, the following:

- Investigation into local sources of rock fill, including gathering information on material grading curves and collecting samples for laboratory testing where necessary.
- Investigation into local sources of granular fill (other than crushed rock), including gathering information on material grading curves, compaction/density curves and collection samples for laboratory testing where necessary.
- Laboratory testing of fill sources would include particle size distribution, compaction and permeability testing.
- Further investigation (desk top study and/or additional field testing) into in-situ field permeability of the aquifer(s) to provide clear comparison with physical properties of possible fill sources to demonstrate that groundwater flow objectives are satisfied.
- Documentation of a reclamation methodology and construction specification documents and to enable construction verification that main objective of maintaining groundwater flow is satisfied.

Edge is well positioned to assist you in the above detailed investigation. Our Principal Geotechnical Engineer has been involved in numerous reclamation projects in Australia and overseas. During her time with Golder Associates Pty Ltd, Karen played a pivotal role in successful tendering of the Sydney Port Botany reclamation project and was co-author of the paper "Experience In Geotechnical Design Of Overseas Port Facilities", published in GeoEng2000.

If you have any questions, please do not hesitate to contact Edge by email or telephone.

For and on behalf of

Edge Geotechnical Pty Ltd

Karen Allan BEng (Hons), CPEng MIEAust
Principal Geotechnical Engineer, Director

Appendix B

OUT18/8997

Ms Pamela Morales
Industry Assessments
NSW Department of Planning and Environment

By email: pamela.morales@planning.nsw.gov.au

Borg Panels Timber Processing Facility Modification 1(SSD 7016 MOD 1)
Comment on Response to Submissions

I refer to the email of 13 June 2018 with respect to the above matter. Comment has been sought from relevant branches of Lands & Water. Any further referrals to Department of Industry can be sent by email to landuse.enquiries@dpi.nsw.gov.au.

The department provides the following recommendations for consideration in assessment of the proposal, with detailed comments at **Attachment A**.

Recommendations

Prior to approval

- An assessment should be provided to justify the ability to maintain groundwater flow paths and minimise impacts to groundwater due to the proposed reclamation of part of Spring Fed Dam. If impacts are identified, mitigating measures will need to be developed.
- An assessment should be provided of the potential to intersect the shallow groundwater table during construction of the extended warehouse facility and associated infrastructure. This is to include an assessment of potential groundwater take and impacts to groundwater quality.
- The assessment of impacts on groundwater should be in accordance with the requirements of the NSW Aquifer Interference Policy.

Recommended Conditions of Consent

- An Erosion and Sediment Control Plan is to be developed in consultation with NRAR prior to commencement of construction.
- The proponent should update the Stormwater Management Plan in consultation with NRAR prior to commencement of construction.
- Works within waterfront land are to be in accordance with the guideline Guidelines for Controlled Activities on Waterfront Land (DPI 2012).

Yours sincerely

Alison Collaros
A/Manager Assessment Advice
29 June 2018

ATTACHMENT A

Borg Panels Timber Processing Facility Modification 1(SSD 7016 MOD 1)
Comment on Response to Submissions

- The RTS has proposed additional infrastructure that was not included in the original SEE for this modification. Key aspects of this in terms of water issues include:
    - Significant extension of a warehouse in the north of the site which is to extend over the existing Spring Fed Dam.
    - Modifications to the stormwater management system.
- The RTS (Appendix B - Sustainability Workshop, 14 May 2018) indicates the additional impervious areas of the modification will result in a 6% increase (7.1ML/a) in the stormwater yield from the water quality pond and a 0.35% (1ML/a) reduction in volume of runoff from the site. This reduction in runoff is considered minor and the total runoff would still be more than the natural runoff from the site, prior to development. This is considered acceptable.
- The additional warehouse extension requires reclaiming 30% of the Spring Fed Dam. This dam has a current approval and water access licence under the Water Management Act 2000. Dewatering to enable construction is discussed but is considered not economically viable and may impact on the surrounding groundwater source. This is due to the potential for drawdown impacts on the groundwater source and impacts on the surface water source due to discharge water quality. If dewatering is proposed further assessment would be required.
- Reclaiming a part of Spring Fed Dam has potential impacts of groundwater mounding and/or groundwater diversion due to the dam being groundwater fed. This is proposed to be addressed via utilising fill material with a permeability greater than or equal to the site clays. The ability to achieve the maintenance of groundwater flow paths whilst achieving the required fill compaction/stability is uncertain. It is recommended further assessment be completed to justify the ability to maintain groundwater flow paths and hence minimise impacts to the groundwater system.
- The close proximity of the groundwater table to the surface indicates the potential to intersect and impact groundwater during construction over the entire footprint of the extended warehouse facility. No assessment has been provided of this apart from the area in Spring Fed Dam. Further information is requested.
- The RTS has included commitments to include an Erosion and Sediment Control Plan in the CEMP and to update the Surface Water Management Plan to address modifications to the surface water management system. This is supported.

END ATTACHMENT A