

Borg Group

RESPONSE TO SUBMISSIONS

**(Application to Amend Development Consent under the Provisions of
Section 75W of the Environmental Planning & Assessment Act, 1979)**

Factory Extensions
Factory Extensions (Borg Panels & JeldWen, Oberon)
Lot 26 DP 1200697 and
Lot 2902 DP 1056754

April, 2015



Borg Group

RESPONSE TO SUBMISSIONS

(Application to Amend Consent under the Provisions of Section 75W of the Environmental Planning & Assessment Act, 1979)

Factory Extensions (Borg Panels Oberon)
Lot 26 DP 1200697 and Lot 2902 DP 1056754

Project No. 14.042

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Report prepared by:

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1. INTRODUCTION

1.1 Background

The Design Partnership has been engaged by Borg to prepare an Environmental Assessment to accompany an application for amendment to existing Ministerial approvals.

This report addresses the submissions received during agency consultation and public exhibition period for the proposed Mod (Mod 7), and should be read in conjunction with the Environmental Assessment prepared for the project.

1.2 The Purpose of the Current Application

The current application the subject to this response to submissions report does not seek to increase production or make any significant amendment to the operations on the site. Rather, the proposal seeks to simply rationalise some of the site uses through the provision of some relatively minor extensions/new buildings.

The proposed development includes:

- Temporary hardstand area on the vacant block (Lot 2902 DP 1056754) adjacent to Woodchem for the short-term storage of materials, machinery, construction materials, plant and equipment for the duration of construction
- Construction of a new Debarker Building, log lifter and log storage area. This encloses the existing debarker and will significantly minimise noise and dust generated by the development.
- New Bark Building and retaining wall.
- Relocation of existing cyclone bunker. The cyclone bunker houses the start up equipment for the plant. The relocation and installation of a new enclosure moves this facility away from surrounding land uses, significantly reducing and minimising noise impacts.
- Relocation of existing the Fire tanks, Pump House and Fire Control Centre to improve emergency service access and site safety
- Relocation of the existing front entry gate and gate house to a more logical position inside the site
- Installation of permanent hardstand area for additional truck parking to the south west corner of the site, replacing an existing grass/gravel area used for storage.

2. SUBMISSIONS

A total of five (5) submissions were received on the project by the Department. Two submissions provided no objection or comment to the proposal (Roads and Maritime Services and Office of Environment and Heritage), one submission raised no concern and provided a number of recommended conditions of consent (EPA) and two submissions were made which required additional information and a more detailed response (Oberon Council and Office of Water).

The following details the agency comments received and provides a response where required. The full submissions are included as Appendix A to this report.

Oberon Council:

Submission

Specific noise testing should be carried out in association with Borg's Existing operations. Furthermore no noise emissions are available for existing plant and equipment operating on site and should be considered

Response

Under the existing approval, the noise levels for the site are set by an EPA licence (environment protection licence 3035). These levels are monitored and recorded, as detailed in Appendix B of the application (Noise Impact Assessment De-Barker/Shredder Plant at Oberon Panels Facility), prepared by Vipac Engineers and this noise monitoring is to continue.

The report referred to above concluded that the noise levels will be lower than current levels on site, as the debarker operations will be being enclosed, rather than being located outside.

As environment protection licence 3035 sets noise levels that have been adhered to and the proposed development will actually decrease noise levels from current operations it is not considered necessary to undertake further noise modelling. Furthermore, the submission received from the EPA raises no objection to the proposed development, and notes that noise levels will decrease.

Noise levels are clearly set within the conditions of consent for the development. This sets out the maximum noise level that can be reached at seven key areas. The proposed development will have no negative impact on these noise levels, and replacing an external debarker with one located inside a structure designed to minimise noise emissions will minimise overall noise levels on the site. This has been illustrated within the Acoustic Report prepared.

Submission

Have EPA been notified of the proposed development as both Council and EPA have raised concerns with yourself and the land owner regarding the temporary stockpiling of material on site without consent or consideration to environmental impacts. The application also fails to specify what is/will be stored on site and what measures will be put into place to reduce environmental impacts such as windborne sawdust leaving site. Impacts associated to amenity have also not been addressed.

Response

The submission from the EPA included a recommended condition of consent addressing this matter. The recommended condition was as follows:

The stockpiling of sawdust on the vacant block (identified as Lot 2902 DP1056754) must be in stockpiles of not more than three (3) metres in height and enclosed on 3 sides so as to prevent the mobilisation of sawdust by wind, unless the stockpiles are fully covered by a tarpaulin.

As a result of this, the proponent will cover all sawdust stockpiles on Lot 2902 DP1056754 with tarpaulins to prevent negative impacts from windborne sawdust on the surrounding area. All stockpiles will be no more than 3m in height.

This should be conditioned in order to ensure certainty of compliance for Council and the community.

Submission

What will the temporary hard stand area be utilised for after the prescribed 12 month period?

Response

The temporary hardstand is an integral component of the overall site operations. The most recently approved Mod (Mod 6) allows for works to be undertaken for the Woodchem facility. The temporary hardstand is vital for this redevelopment to occur. Without approval of this temporary hardstand, sections of the operation will be forced to close in order for the safe construction and movement of materials to be undertaken. As one of the largest employees in the area, this would have damaging impacts on the local economy.

The temporary hardstand is also required for the works proposed under the current Mod (Mod 7, the subject of this report). As with the works under Mod 6, this area will be used for the short term storage of materials, machinery, construction materials, plant and equipment for the duration of construction. This is anticipated to be around two (2) years, in order to minimise any potential plant shutdowns.

As the lot where the temporary hardstand is to be located is not covered within the current masterplan approval, no permanent works can be undertaken on this land without extending the approval, or lodging a new application to include this land. As such, after the construction works under Mod 6 and 7 have been completed, no further use of the land under these approvals will be undertaken.

All works undertaken on site will be accompanied by erosion and sediment control plan prepared in accordance with *Managing Urban Stormwater – Soils and Construction* (Landcom 2004) which can be conditioned.

Submission

Is the applicant aware, as no comment has been made within the assessment, that Lot 2902 is contaminated by past agricultural use, including a sheep dip, as identified in report by PPK in 2002. Has this site been remediated?

Response

Council has provided the 2002 PPK Report referred to in their submission to the applicant. This report is examined later in this section.

The requirements under *State Environmental Planning Policy 55 (Remediation of Land)* have been considered. The object of this policy is as follows:

- (1) *The object of this Policy is to provide for a Statewide planning approach to the remediation of contaminated land.*
- (2) *In particular, this Policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment:*
 - (a) *by specifying when consent is required, and when it is not required, for a remediation work, and*
 - (b) *by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and*
 - (c) *by requiring that a remediation work meet certain standards and notification requirements.*

Given the fact that contaminant levels are far below requirements for triggering a full site investigation, and that no rezoning is to occur, the objects of SEPP 55 are considered to be met.

Cl. 7(1) of the SEPP sets out the following in regards to development applications:

A consent authority must not consent to the carrying out of any development on land unless:

- (a) *it has considered whether the land is contaminated, and*
- (b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

In this instance, the land has been identified as potentially contaminated, and a report (referenced by Council in their submission) prepared by PPK which sets out that the subject site has contamination levels well below the threshold level for further investigation and remediation, as set by the EPA. As such, the consent authority can be satisfied that the land is suitable in its contaminated state for the purpose for which the development is proposed to be carried out.

Cl. 7(2) states:

Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

A sheep-dip is known to have been located on the subject site. This is identified as being a land use referred to in Table 1 of the guidelines prepared by the Department. A preliminary investigation (and indeed, a detailed investigation establishing contamination levels) has been carried out in accordance with the guidelines.

Cl. 7(3) states:

The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

The report referred to by Council clearly states that the levels of contaminants are well below the threshold levels that warrant further investigation and site remediation as per EPA guidelines for Industrial or Commercial land uses. As such, no further action is considered to be warranted under SEPP 55.

Cl. 7(4) states:

The land concerned is:

- (a) land that is within an investigation area,*
- (b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,*
- (c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land:*
 - (i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and*
 - (ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).*

The previous agricultural land use included a sheep-dip. This is a development for a purpose referred to in Table 1 of the contaminated land planning guidelines.

The Department has a document available on their website entitled “Managing Land Contamination Planning Guidelines - SEPP 55 –Remediation of Land”, which is referenced in Cl. 7(4) of SEPP 55. This details a number of aspects for consideration and sets out the approach for consent authorities when dealing with potential site contamination. Section 3.4.1 of this document states the following:

Stage 1—Preliminary Investigation

The main objectives of a preliminary investigation are to identify any past or present potentially contaminating activities, provide a preliminary assessment of any site contamination and, if required, provide a basis for a more detailed investigation. A preliminary investigation is not necessary where contamination is not an issue.

A preliminary investigation has been carried out on the site in question. Due to the previous usage of the site for agricultural activities, further investigations were required.

Stage 2—Detailed Investigation.

A detailed investigation is only necessary when a preliminary investigation indicates that the land is contaminated or that it is, or was, formally used for an activity listed in Table 1 and a land use change is proposed that has the potential to increase the risk of exposure to contamination. A detailed investigation will also need to be

conducted as part of a remediation proposal. The objectives of a detailed investigation are to define the nature, extent and degree of contamination; to assess potential risk posed by contaminants to health and the environment; and to obtain sufficient information to develop a remedial action plan (RAP), if required

A second, more detailed investigation has been carried out on the site by PPK. This provides an assessment of the site contamination levels, which are generally low, and the risk, as a result, also low, particularly for the proposed land use.

Furthermore, Section 3.5.3 of the Departments Guidelines states:

A detailed investigation should provide information about the extent and degree of contamination. It should also include an assessment of the risk posed by the contaminants to health and the environment. Generally, the risk can be assessed by comparing the levels of residue on-site with appropriate predetermined thresholds such as the soil investigation levels specified in the EPA's guidelines (1998a). The risks can also be determined by a site-specific risk assessment undertaken by the proponent's consultant

The PPK report identified by Council sets out the concentration of the following chemicals:

- Dieldrin
- Aldrin
- DDT, DDE and DDD
- Arsenic

The findings in this report have been compared to the soil contamination guidelines under the "Commonwealth of Australia, National Environment Protection Measure (NEPM)" and the "Contaminated site auditor guidelines" as provided by the EPA.

The following table indicates the chemical concentration on Lot 2902 and the relevant level at which further investigation should be undertaken under both the NEPM and the EPA Guidelines.

Chemical concentration	PPK house report Results (mg/kg). 2002.		NEPM Guideline investigation limits (mg/kg) soils	EPA Guidelines investigation limits (mg/kg) soils
	Maximum	Average	Commercial and Industrial Use	
Dieldrin	1.4mg/kg	0.52mg/kg	45	50
Aldrin	-	-	45	50
DDT,DDE & DDD	10.3mg/kg	2.01mg/kg	3600	1000
Arsenic	120mg/kg	48mg/kg	3000	500

The levels are clearly well below the investigation limits for all chemicals given the proposed industrial usage of this land. Given these findings, which places the worst of the contaminants at 4% of the level at which further investigation is required under the NEPM Guidelines, and at 24% of the levels requiring additional investigation as set by the EPA for the use of the site for industrial purposes, any additional studies are clearly not required.

A second, recently commissioned report by Envirowest Consulting has been undertaken in order to ascertain contamination levels over the site. This report is attached.

A total of eight (8) test samples were taken. Slight elevated levels of the arsenic and organochlorine pesticides were detected at two (2) locations. No trace was found at the remaining six (6) test locations. The levels of arsenic and OCP were below commercial/industrial environmental and health based screening levels.

These levels are as follows:

Sample Location	Arsenic	Dieldrin	Other - OCPs
B1	148mg/kg	0.52mg/kg	ND
B2	ND	ND	ND
B3	10mg/kg	0.06mg/kg	ND
B4	ND	ND	ND
B5	ND	ND	ND
B6	ND	ND	ND
B7	ND	ND	ND

These levels are below the Environmental Investigation levels of 160mg/kg for Arsenic and well below the health investigation levels of 3000mg/kg for Arsenic and 45mg/kg for Dieldrin.

A full copy of this report, including testing locations, is attached to this report.

Given the above, it is considered that the approach taken is in line with the requirements of SEPP 55, the detailed investigation into site contamination found that levels were well below the threshold for investigation, and, as a result, no further investigation or remediation is appropriate or justified. There recent report from Envirowest Consulting reaches a similar conclusion.

Environmental Protection Authority

Submission

The EPA has reviewed the proposal and has no objection to the proposal proceeding as described in the EIS

Response

Noted.

Submission

The proponent will need to make a separate application to the EPA to vary environmental protection licence 3035

Response

Noted. The proponent will vary all relevant licences in accordance with the requirements of the EPA.

Submission

Recommended Conditions – Noise,

The EPA considers that the existing noise limits on environment protection licence (licence) 3035 are appropriate and therefore that the activities if approved must comply with the existing noise limits under licence 3035

Response

This comment is noted. Borgs will continue to monitor noise levels to ensure compliance with both the requirements under the EPA licence as well as the Conditions of Consent. This is an existing requirement of the operations on the site.

Submission

The stockpiling of sawdust on the vacant block (identified as Lot 2902 DP 1056754) must be in stockpiles not more than 3 metres in height and enclosed on 3 sides so as to prevent the mobilisation of sawdust by wind, unless the stockpiles are fully covered by a tarpaulin

Response

As detailed above in the response to Oberon Council the proponent will cover all sawdust stockpiles on Lot 2902 DP1056754 with tarpaulins to prevent negative impacts from windborne sawdust on the surrounding area. All stockpiles will be no more than 3m in height.

Submission

All sediment control structures on the vacant block (identified as Lot 2902 DP 1056754) must be constructed in accordance with Managing Urban Stormwater: Soils and Construction, vol. 1 (Landcom 2004).

Response

Noted. As detailed in the response to Oberon Council above, all sediment control measures will be undertaken in accordance with this industry standard document.

Office of Water

Submission

The aspects of the project relevant to the Office of Water include

- 1) the permanent hardstand area at the south-west corner of the site on Lot 26 in DP1200697 and*
- 2) the temporary hardstand area for use during construction on Lot 2902 in DP1056754.*

Response

Noted

Submission

In relation to the permanent hardstand area clarification is requested on:

- whether the proposed swale is to connect to the existing sediment pond to the east of this area, and*
- whether any modifications are required to what appears to be an existing swale and associated stormwater management adjacent to the existing infrastructure on the north-eastern boundary of the area.*

Response

The proposed open swale drain detailed in the application involves the relocation of the existing open swale drain (referred to as the north east boundary area by Office of Water) which currently drains to the existing sediment pond to the east. The new open swale drain will continue to drain to the existing sediment pond to the east.

Appendix B illustrates how this will be implemented.

Submission

It is recommended stormwater management at the permanent and temporary hardstand areas be designed in accordance with the guideline, Managing Urban Stormwater – Soils and Construction (Landcom 2004).

Response

Noted. All works are to be undertaken in accordance with this industry standard guideline. A condition requiring this can be imposed upon the Project.

Submission

Office of Water records indicate a monitoring bore with licence 80BL242606 is located on Lot 2902 in DP1056754 and monitoring bore licences 80BL243025 and 80BL243026 are located on Lot 26 in DP1200697. It is recommended the proponent clarify any potential changes to these bores and/or ensure how the bores will be maintained during construction and operation of the proposed activities.

Response

It is noted that a monitoring bore with bore licence 80BL242606 is located on Lot 2902 DP 1056754 and a further two monitoring bores (licences 80BL243025 & 80BL243026) are located on Lot 26 DP1200697.

Under the Environment Protection License 3035 Borg Panels are not required to monitor these.

These bores appear to have been related to a site assessment for Organo-Chlorine Pesticides contamination. The contamination identified prior to 2000 was rectified as part of a Remediation Action Plan (RAP) in 2008.

As such it is considered that these monitoring bores are obsolete and are to be removed and the licence terminated during construction.

Office of Environment and Heritage

Submission

We note the reported highly disturbed nature of the land adjoining the site, Lot 2902 DP 1056754. The proponent's conclusions regarding the lack of native vegetation at the site have been taken at face value at this stage in the absence of details on the ground cover composition (eg actual species observed and status ie native or exotic). Given that the proposed activities on the land are relatively low impact and temporary, OEH will not be requiring further information at this time.

Response

Noted

Roads and Maritime Services

Submission

Roads and Maritime make no submission for the modification to DA27/95

Response

Noted.

3. CONCLUSIONS AND UNDERTAKINGS

The Mod the subject of this response to submission report is generally as follows:

- The proposed development includes relatively minor alteration and additions to an existing business which operates under a previously issued Ministerial approval. For this reason, this application has been made under the provisions of Section 75W of the *Environmental Planning & Assessment Act 1979* (which relates to modification of Ministerial approvals). As such, the proposed development will be determined by the Minister for Planning.
- The proposed development is as follows:
 - Temporary hardstand area on the vacant block (Lot 2902 DP 1056754) adjacent to Woodchem for the short-term storage of materials, machinery, construction materials, plant and equipment for the duration of construction
 - Construction of a new Debarker Building, log lifter and log storage area. This encloses the existing debarker and will significantly minimise noise and dust generated by the development.
 - New Bark Building and retaining wall.
 - Relocation of existing cyclone bunker. The cyclone bunker houses the start up equipment for the plant. The relocation and installation of a new enclosure moves this facility away from surrounding land uses, significantly reducing and minimising noise impacts.
 - Relocation of existing the Fire tanks, Pump House and Fire Control Centre to improve emergency service access and site safety
 - Relocation of the existing front entry gate and gate house to a more logical position inside the site
 - Installation of permanent hardstand area for additional truck parking to the south west corner of the site, replacing an existing grass/gravel area used for storage.
- The subject land has a current zoning **IN1 - General Industrial**, and the proposed development is permissible in the zone.
- The proposed development is consistent with the provisions of Council's Development Control Plan, including Part D – 'Commercial & Industrial Development',
- The proposed development is consistent with the context and setting of the locality, being consistent with the existing development on the site and appropriately set back from the front boundary.
- The proposed development will not have any adverse impacts in terms of flora/fauna, soils, water, heritage, or other impacts.

The economic importance of the plant to the Oberon town (and region) is widely known. The timber/wood manufacturing industries contribute approximately \$111million to the local economy each year with the Borg plant being an important part of this industry. The proposal will:

- Assist in ensuring the ongoing commercial viability of the overall Borgs operation on site
- Pave the way for potential future expansion to manufacturing process
- Improve movements between different facilities on the site
- Provide for the rationalisation of the existing operations on the site
- Allow for the modernisation of manufacturing processes on site
- Improve worker safety on site
- Improve the overall level of cleanliness over the site
- Reduce levels of noise pollution from the site to surrounding properties

The submissions raised by agencies are generally minor in nature. Additional details have been provided where appropriate, including additional information detailing erosion and stormwater control measures.

The majority of concerns raised by Council (specifically air pollution and noise) have been directly addressed by the conditions recommended by the EPA in their submission. The proponent has no objection to these conditions of consent being applied to the Mod. This will largely address the concerns of Council. In addition, the concerns over noise clearly do not relate to the subject of this application, and are instead concern over the existing approval. As current noise levels are

monitored and comply with the EPA licence conditions, as set out in the Conditions of Consent issued for the current development, and the proposed Mod will enclose an existing noise generator, it is anticipated that overall noise levels will decrease.

The other main area of concern appears to be the question of contamination on Lot 2902 from previous agricultural activities. It is noted that Council refers to a previous PPK report carried out which set the site contamination levels. It is also noted that the Department has prepared guidelines for assessing such reports. In this document, it is clearly noted that the comparison needs to be made between site contamination levels, and the levels set by the EPA which require further investigation. The highest any contaminants reach is 24% of the level required for any further investigation. This clearly indicates, as per Department guidelines, that no further action is required to remediate this land given the industrial zoning and industrial usage proposed.

From the above, the following undertakings are made by Borg:

Comment	Applicants Undertaking and Mitigation Measures
Ground Contamination	A Contamination Report has been prepared by a suitably qualified consultant. This details the low level ground contamination from the former sheep dip on Lot 2902 DP 1056574 and illustrates no further remediation measures are required for this land to be used for the proposed purposes.
Air/Dust Contamination	All sawdust stockpiles will be kept below 3m in height. They will be covered on all 4 sides by tarpaulin. This should be a condition of consent as per the submission from the EPA. Ongoing discussions with Oberon Council will be carried out to ensure that impacts associated with the stockpiles are minimised.
Stormwater Management	All works carried out on site will be designed to comply with <i>Managing Urban Stormwater – Soils and Construction (Landcom 2004)</i> .
Noise Levels	Noise levels are continually monitored by Borgs, and compliance with the EPA Licence 3035 requirements are a Condition of Consent. The Vipac report prepared found no additional impacts from the proposed development over existing noise levels. Ongoing monitoring of noise levels will continue, as per the licence requirements detailed in the Conditions of Consent.
Ongoing use of temporary hardstand area	Upon completion of the works under Mod 6 (approved) and Mod 7 (the subject of this report) no additional, permanent, works will be carried out on this lot under this approval.
Groundwater monitoring bores	The bores identified by NOW appear to have been related to a site assessment for Organo-Chlorine Pesticides contamination. The contamination identified prior to 2000 was rectified as part of a Remediation Action Plan (RAP) in 2008. As such these bores are no longer required to be monitored and are to be removed.
EPA Licence Variation	Where required the proponent will vary the current EPA licence. This will be carried out in consultation with the EPA.

Given the above it is considered that no significant amendments are required to the application, and that those submissions providing recommended agency conditions of consent largely address the items raised in the submission by Oberon Council. As a result, it is considered that the submissions received provide no impediment to the approval of the Application to Amend Consent under the Provisions of Section 75W of the Environmental Planning & Assessment Act,

1979) for the Borgs Panels facility at Lot 26 DP 1200697 and Lot 2902 DP 1056754.

Attachment A: Submissions



Planning & Environment

Contact: Pamela Morales
Phone: (02) 9228 6386
Fax: (02) 9228 6466
Email: pamela.morales@planning.nsw.gov.au

Our Ref: DA 25/97 MOD 7

Mr Tony Preston
Borg Constructions Pty Ltd
2 Wella Way
Somersby NSW 2250

Dear Mr Preston,

**Oberon Timber Complex (DA 27/95)
Section 75W Modification – Additions to MDF Facility (MOD 7)**

The Department has received several agency submissions on the proposed modification. I have attached copies for your review. Please provide a "Response to Submissions" report giving particular attention to the issues concerning the temporary hardstand area raised by Council and the NSW Office of Water.

I would appreciate a response to the submissions by **Thursday 12 February 2015**.

If you have any enquiries, please contact me on (02) 9228 6386 or via email pamela.morales@planning.nsw.gov.au

Yours sincerely,

28.1.15

David Mooney
A/Team Leader
Industry Assessments

Pamela Morales

From: Jaclyn Burns <Jaclyn.Burns@oberon.nsw.gov.au>
Sent: Wednesday, 21 January 2015 3:59 PM
To: Pamela Morales
Subject: RE: Oberon Timber (Borg) - DA 27/95 Modification 7 - Additions to MDF Facility (Oberon LGA)

Hi Pamela,

Gary Wallace is on leave at the moment so I am responding to your email seeking comment to the Mod.

I am aware that Gary has had discussions with you in the past relating to the temporary hardstand area and our ongoing concerns relating to its unauthorised use and associated environmental impacts. Accordingly please include the previous comments from Gary regarding the operation of this site with my submission to you.

Other concerns/comments are as follows:

1. Specific noise testing should be carried out in association with Borg's existing operations . Furthermore no noise emissions are available for existing plant and equipment operating on site and should be considered.
2. Have EPA been notified of the proposed development as both Council and EPA have raised concerns with your self and the land owner regarding the temporary stockpiling of material on site without consent or consideration to environmental impacts. The application also fails to specify what is/will be stored on site and what measures will be put into place to reduce environmental impacts such as windborne sawdust leaving site. Impacts associated to amenity have also not been addressed.
3. What will the temporary hard stand area be utilised for after the prescribed 12 month period?
4. Is the applicant aware, as no comment has been made within the assessment, that Lot 2902 is contaminated by past agricultural use, including a sheep dip, as identified in report by PPK in 2002. Has this site been remediated?

Consideration and appropriate response to these issues by the applicant would be appreciated.

Should you require further clarification please don't hesitate in contacting me.

Kind regards

Jaclyn Burns
Health and Building Manager



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From: "Pamela Morales" <pamela.morales@planning.nsw.gov.au>
To: "Gary Wallace" <Gary.Wallace@oberon.nsw.gov.au>
Cc: "council" <council@oberon.nsw.gov.au>
Subject: Oberon Timber (Borg) - DA 27/95 Modification 7 - Additions to MDF Facility (Oberon LGA)

Hi Gary,

The Department has received a modification application and Environmental Assessment (EA) from Borg Constructions Pty Ltd in respect of the existing timber mill at its Oberon property, Endeavour Street, Oberon (Lot 26 DP 1200697).

The proposed modification involves additions to the existing MDF facility including a new debarker and bark building, temporary hardstand area and relocation of various plant and equipment. The modification application has been made under section 75W (Part 3A) of the *Environmental Planning and Assessment Act 1979* and it relates to a Part 4 consent, which was granted by the Minister in October 1995.

The Department would like to invite Council to comment on the modification application and EA by **Wednesday 28 January 2015**

The application and EA is attached which can also be downloaded from the website:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6817

Please feel welcome to telephone me if you have any questions.

Regards,

Pamela Morales

Planning Officer

Industry Assessments

Department of Planning & Environment

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Our reference: EF13/3921: DOC15/11474-01
Contact: Andrew Helms (02) 6332 7604

Ms Pamela Morales
Planning Officer
Industry Assessments
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

19 January 2015

Dear Ms Morales

Environment Impact Statement – Borg Panels, Oberon – DA 27/95 (Mod 7)

I refer to an e-mail from the Department of Planning and Environment (DPE) received by the Environment Protection Authority (EPA) on 14 January 2014 requesting comments on the Environmental Impact Statement (EIS) prepared for the Borg Panels Oberon facility.

The EPA has reviewed the proposal and has no objection to the proposal proceeding as described in the EIS. If the DPE determines the project application by granting consent, the EPA recommends that the conditions provided within Attachment 1 be incorporated into the consent.

It is noted that the facility is currently licensed by the EPA under the *Protection of the Environment Operations Act 1997*. In the event that the project is approved by the DPE the proponent will need to make a separate application to the EPA to vary environment protection licence 3035 such that the licence incorporates the relevant conditions of the planning approval including the proposed addition of a new parcel of land to the premises.

Should you have any enquiries regarding this matter please contact Mr Andrew Helms at the EPA's Central West Regional Office (Bathurst) by telephoning (02) 6332 7604.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Darryl Clift'.

DARRYL CLIFT
Head Central West Unit
Environment Protection Authority

Attachment 1: EPA comments and recommended conditions of project approval

Attachment 1:

Comments and recommended conditions of Project Approval

Noise:

The EPA has reviewed Section 5.3.11 of the EIS and Attachment B (Noise Impact Assessment for the de-barker/shredder plant) and notes that the general noise environment at the premises will be improved following the construction of the de-barker building, bark shed and following the relocation of the cyclone bunker as these facilities will be undertaken within enclosed structures rather than out in the open as is currently the case. The EPA also notes that noise modelling indicates that the enclosed de-barking facility will not be audible at sensitive receivers.

EPA recommended conditions of Project Approval:

The EPA considers that the existing noise limits on environment protection licence (licence) 3035 are appropriate and therefore that the activities if approved must comply with the existing noise limits under licence 3035.

Air Quality:

The EPA notes that the proposed modifications to the operations at the Borg Panels facility are likely to provide an overall improvement in air quality with the enclosure of several potentially dust generating operations and the concrete paving of a truck parking area in the south-west corner of the facility.

The proposed temporary hardstand area on the vacant block of land to the east of the Borg Panels facility has the potential to generate dust from increased traffic movements during the construction period if not managed appropriately. The EPA is also aware that this vacant block currently has a large stockpile of sawdust generated from within the Borg Panels premises. The stockpile is not enclosed on any sides and therefore exposed to prevailing winds and has the potential to impact upon neighbouring businesses and the Oberon local environment in general.

EPA recommended conditions of Project Approval:

The EPA is satisfied that the current conditions on the environment protection licence for the premises are appropriate for the regulation of any dust issues that may arise from activities associated with the proposal. The EPA recommends however the addition of the following condition to assist in the prevention of dust from existing stockpiles of sawdust on the vacant block.

- The stockpiling of sawdust on the vacant block (identified as Lot 2902 DP1056754) must be in stockpiles not more than three (3) metres in height and enclosed on 3 sides so as to prevent the mobilisation of sawdust by wind, unless the stockpiles are fully covered by a tarpaulin.

Surface Water Management:

The EIS states that there will be no changes to the existing stormwater management system and that all new works will drain to this system. The EIS also states that 'appropriate erosion and sediment control regimes will be implemented' for the temporary hardstand area although no discussion of these controls is provided.

EPA recommended conditions of Project Approval:

The EPA recommends that DPE includes the following condition in order to ensure that dirty water discharges from the temporary hardstand area are minimised:

- All sediment control structures on the vacant block (identified as Lot 2902 DP1056754) must be constructed in accordance with *Managing urban stormwater: soils and construction*, vol. 1 (Landcom 2004).



Pamela Morales
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Contact Tim Baker
Phone 02 6841 7403
Mobile 0428 162 097
Fax 02 6884 0096
Email Tim.Baker@dpi.nsw.gov.au
Our ref ER21640

Dear Pamela

**OBERON TIMBER (BORG) – DA27/95 MODIFICATION 7 –
ADDITIONS TO MDF FACILITY [ER21640]**

I refer to your email dated 14th January 2015 requesting comments from the NSW Office of Water on a proposed modification application at the Oberon Timber Complex. The Office of Water has reviewed the Environmental Impact Statement (EIS) and provides the following comments to aid in assessment of the project.

- The aspects of the project relevant to the Office of Water include 1) the permanent hardstand area at the south-west corner of the site on Lot 26 in DP1200697 and 2) the temporary hardstand area for use during construction on Lot 2902 in DP1056754.
- In relation to the permanent hardstand area clarification is requested on :
 - whether the proposed swale is to connect to the existing sediment pond to the east of this area, and
 - whether any modifications are required to what appears to be an existing swale and associated stormwater management adjacent to the existing infrastructure on the north-eastern boundary of the area.
- It is recommended stormwater management at the permanent and temporary hardstand areas be designed in accordance with the guideline, *Managing Urban Stormwater – Soils and Construction* (Landcom 2004).
- Office of Water records indicate a monitoring bore with licence 80BL242606 is located on Lot 2902 in DP1056754 and monitoring bore licences 80BL243025 and 80BL243026 are located on Lot 26 in DP1200697. It is recommended the proponent clarify any potential changes to these bores and/or ensure how the bores will be maintained during construction and operation of the proposed activities.

Should you have any further queries in relation to this submission please do not hesitate to contact Tim Baker on (02) 6841 7403.

Yours sincerely

Mitchell Isaacs
Manager Strategic Stakeholder Liaison
27 January 2015



**Office of
Environment
& Heritage**

Your reference: DA 27/95 MOD 6
Our reference: DOC15/12571
Contact: Michelle Crawford 02 6883 5339
Date: 22 January 2015

Pamela Morales
Planning Officer
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Pamela

RE Oberon Timber Complex – Modification 6

I refer to your email dated 15 January 2015 requesting comments on the exhibited Environmental Impact Statement (EIS) for the above proposal from the Office of Environment and Heritage (OEH).

We have reviewed the information provided and at this stage OEH does not have any major issues to raise.

We note the reported highly disturbed nature of the land adjoining the site, Lot 2902 DP 1056754. The proponent's conclusions regarding the lack of native vegetation at the site have been taken at face value at this stage in the absence of details on the ground cover composition (eg actual species observed and status ie native or exotic). Given that the proposed activities on the land are relatively low impact and temporary, OEH will not be requiring further information at this time.

Should you require further information regarding issues that are the responsibility of the OEH please contact Michelle Crawford, Conservation Planning Officer on (02) 6883 5339.

Yours sincerely,

SONYA ARDILL
Senior Team Leader Planning, North West Region
Regional Operations



SF2014/052971; WST14/00072

Industry Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Dear Sir

DA 27/95 MOD 7; Additions to MDF Facility, Oberon

Thank you for your email received 14 January 2015 referring a modification to DA27/95 to Roads and Maritime Services for comment. The information submitted in support of the application has been reviewed. As the modification will not result in changes to transportation of products or traffic impacts, Roads and Maritime makes no submission for the modification to DA27/95.

Please forward a copy of the determination of the application to Roads and Maritime at the same time it is sent to the applicant.

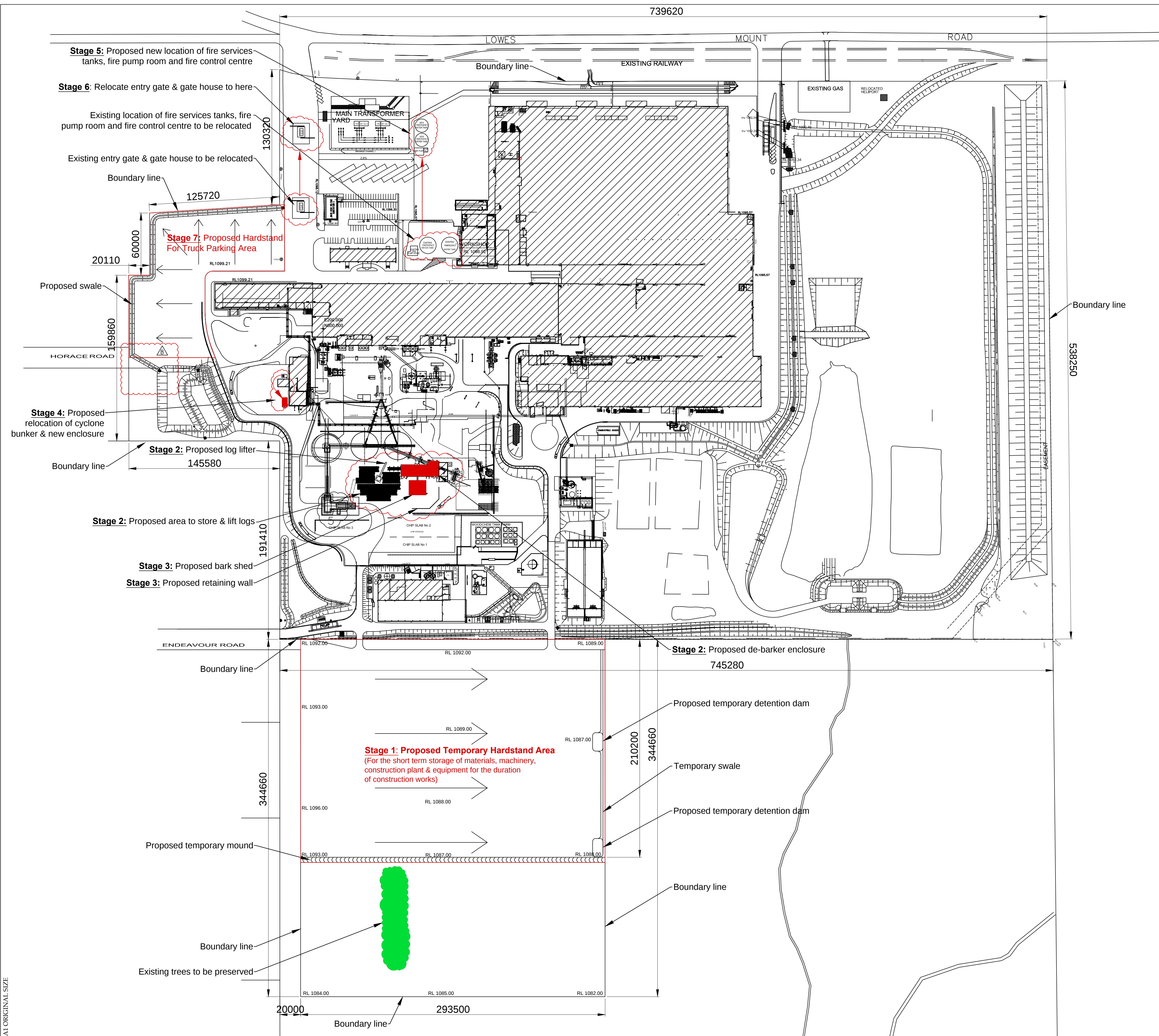
Should you require further information please contact Fiona Francis on (02) 6861 1688.

Yours faithfully

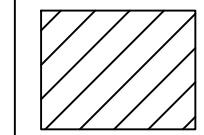

Susie Mackay
Network & Safety Manager
Western

27/01/15

Attachment B: Revised Drainage Swale



LEGEND



B	10.03.15	Revised drainage swale stage 7
A	16.10.14	For application to DQP
REVISION	DATE	AMENDMENT DESCRIPTION

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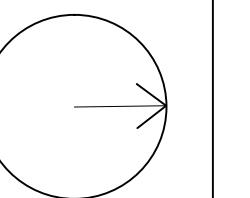


OFFICE
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Project Heading & Address:

PROPOSED NEW BUILDINGS & SITE CHANGES

PROPOSED NEW BUILDINGS & SITE CHANGES



PROPOSED NEW BUILDINGS & SITE CHANGES

124 Lowes Mount Rd Oberon

Drawing Title:

DATE: 16/10/14	SCALE: 1:1750	DRW NO.: DA01	REV.: A
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Attachment C: Envirowest Consulting Soil Contamination Report

Detailed contamination investigation of former sheep dip

Lot 2902 DP1056754, BORG Manufacturing, Oberon NSW 2787



Ref: R5840c
Date: 17 April 2015

Envirowest Consulting Pty Ltd ABN 18 103 955 246

- 9 Cameron Place, PO Box 8158, Orange NSW 2800 • Tel (02) 6361 4954 •
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Environmental
Geotechnical
Asbestos
Services



Prepared by: Envirowest Consulting Pty Ltd
9 Cameron Place
Orange NSW 2800

Client: BORG Manufacturing

Assessors: Dane Graham BEnvSc
Environmental Scientist

Greg Madafiglio CPSS
Senior Soil Scientist

Authorised by: Greg Madafiglio CPSS
Senior Soil Scientist

Interested authorities: Oberon Shire Council

Date: 17 April 2015

Report Number: R5840c

Executive summary

Background

A former sheep dip is located in a storage area at Lot 2902 DP1056754, BORG Manufacturing, Oberon NSW. A preliminary investigation in November 2001 by PPK Environment and Infrastructure indicates the presence of a sheep dip. The PPK report assessed the contamination status of the sheep dip site and surrounding area prior to acquisition. No elevated levels of contaminants were detected in the investigation area. The sheep dip was decommissioned in 2012 and transported to landfill. An investigation of the site is required to determine the soil contamination status of the soil surrounding of the decommissioned sheep dip and assess against commercial/industrial environmental and health based screening levels (NEPC 1999).

Objectives of the investigation

A contaminated site investigation was conducted in accordance with the contaminated land management planning guidelines State Environmental Planning Policy No. 55 (SEPP 55) to determine the soil contamination status at the location of the decommissioned sheep dip.

Investigation and conclusions

An inspection of the site was made on 31 March 2015. The site is in a commercial setting east of the BORG Manufacturing plant and the area of investigation has an area of approximately 200m². The location of the sheep dip was identified by the PPK report and assistance of the former sheep dip. Drainage lines are located on the western boundary of the site and flows north towards Kings Stockyard Creek.

The investigation was undertaken by construction of test pits at eight locations with an excavator in a systematic sampling pattern. Soil samples were collected from each test pit. The soil samples were analysed for arsenic and organochlorine pesticides (OCP) which were the identified chemicals of concern.

The site walkover and review of historic evidence did not identify any additional potentially contaminated areas. All evidence of the sheep dip was removed.

Slight elevated levels of the arsenic and organochlorine pesticides were detected at two locations. The levels of arsenic and OCP were below commercial/industrial environmental and health based screening levels.

Recommendations

The site is suitable for commercial/industrial land use.

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1. Introduction

A former sheep dip is located in a storage area at Lot 2902 DP1056754, BORG Manufacturing, Oberon NSW. A preliminary investigation in November 2001 by PPK Environment and Infrastructure indicates the presence of a sheep dip. The PPK report assessed the contamination status of the sheep dip site and surrounding area prior to acquisition. No elevated levels of contaminants were detected in the investigation area. The sheep dip structure was decommissioned in 2012 and transported to landfill. An investigation of the site is required to determine the soil contamination status of the soil surrounding the decommissioned sheep dip and assess against commercial/industrial environmental and health based screening levels (NEPC 1999).

2. Scope of work

Envirowest Consulting Pty Ltd was commissioned by Victor Bendevski of BORG Manufacturing to undertake a contamination investigation, in accordance with the contaminated land management planning guidelines, from the *Contaminated Land Management Act 1997* and the *State Environmental Policy No. 55 (SEPP 55)*, of the former sheep dip on Lot 2902 DP1056754, BORG Manufacturing, Oberon NSW. The objective was to identify any contamination of soil following the decommissioning of the former sheep dip and discuss the site condition, provide an assessment of site contamination and assess the need for further investigation.

3. Site identification

Address	Lot 2902 DP1056754 BORG Manufacturing Oberon NSW 2787
Owner(s)	BORG Manufacturing
Deposited plans	Lot 11 DP1056754
Locality map	Figure 1
Site plan	Figure 2
Photographs	Figure 3
Area	Site – approximately 200m ²

4. Site history

4.1 Zoning

Current zoning is General Industrial (IN1).

4.2 Land-use

The site is located north of Oberon on the eastern side of the BORG Manufacturing plant. Currently land-use for the site at the time of inspection was storage space for BORG Manufacturing.

4.3 Sources of information

- Site inspection 31 March 2015 by Greg Madafiglio and Dane Graham
- Aerial photograph 2015
- Luke Fitzpatrick- former farm owner

4.4 Chronological list of site uses

The original land use was farming practices including grazing activities. Grazing activities have continued till purchase BORG Manufacturing in 2010. The livestock activity had been primarily sheep with intermittent cattle.

The sheep dip is expected to have had intermittent usage and not operated after 1988. The dip was used in the control of parasites on sheep by submersing in a bath containing chemicals. The chemicals commonly used were arsenic based compounds and organochlorines. The sheep dip was decommissioned by removing all concrete structures and levelling.

Current land-use is general storage for BORG Manufacturing including timer pallets and sealed plastic chemical containers.

4.6 Buildings and infrastructure

Currently a storage shed stands north east of the area under investigation. A hard stand storage area is proposed for the area under investigation.

4.7 Previous investigations

PPK Environmental and Infrastructure (November 2001)

A preliminary environmental investigation was undertaken by PPK Environmental and Infrastructure and reported in January 2002. Purpose of the preliminary environmental investigation was to determine the contamination status prior to demolition and removal of the sheep dip.

The investigation was undertaken by inspecting the sheep dip, surrounding area and sampling and analysed for arsenic and organochlorine pesticides.

A former sheep dip located on a property owned by Mr W.H. Cunynhame in North Oberon was the subject of a Preliminary Site Investigation. The purpose of the investigation was to determine the potential for contamination as a result of past activities at the site. PPK understand that the investigation was required as part of the proposed sale of the site to Woodchem. The site was assessed using NSW EPA (1998) commercial/industrial guidelines.

Based on the information outlined in this report, the outlined scope of work, laboratory results as tabled and our Statement of Limitations, PPK conclude the following:

- *The site is north of the township of Oberon, immediately east of the CHH site.*
- *Local topography is gently undulating, with a general slope to the north and east.*
- *Site sampling and site observation have not identified any significant potential soil contamination issues on the site.*

Based on these Conclusions, information contained in this report, the outlined scope of work, laboratory results as tabled and our Environmental Limitations (attached), PPK make the following recommendations.

- *No constraints have been identified that would limit the site for Commercial/industrial Land use.*
- *The sheep dip and soil in contact with it will require remediation and validation in accordance with relevant NSW EPA guidelines.*
- *Any solid or liquid waste generated will require classification prior to disposal, in accordance with NSW EPA (1999) Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-liquid Wastes.*

4.8 Relevant complaint history

Nil

4.9 Contaminated site register

The site is not listed on the NSW EPA register of contaminated sites.

4.10 Potential contaminants

Chemicals most likely used in the sheep dip were those registered for the control of sheep exoparasites. These could have included arsenic and organochlorine compounds. Arsenic and organochlorines are highly persistent in the soil.

Specific organochlorine chemicals commonly registered and used for application to sheep for the control of exo-parasites (lice and ichmite) in the dip were: arsenic, DDT, lindane (BHC), dieldrin, chlorpyrifos, diazinon and malathion.

4.11 Neighbouring land-use

North – Rural

South – Rural

East – Rural

West – Commercial/industrial

No neighbouring land-uses are expected to have impacted on the contaminated status of the site.

4.12 Integrity assessment

The information is consistent with the current site condition and to the best of the assessor's knowledge is accurate.

5. Site condition and environment

5.1 Vegetation

The site was compacted soil to the east and north. The western area of the site contained dense grass vegetation. Small trees are located in the southern half of the western boundary fence line.

5.2 Topography

The landscape of the site was upper slope with inclinations of 1% to 5%. The site has a northern and eastern aspect.

5.3 Soils and geology

The site is located within the Oberon Soil Landscape (Kovac *et al.* 1990). The site is dominated by red earth soils comprising of topsoil of a reddish fine sandy loam to loam and subsoil of dark reddish brown sandy clay loam to dark reddish brown clay. The soil landscape has moderate to low fertility. No erosion was observed.

The geology consists of red earths dominant on mid-upper slopes and yellow earths appear in drainage areas and lower slopes.. Parent rock is andesite, tuff, grey slate, quartz and feldspathic greywacke. Parent material is *in situ* and alluvial-coluvial materials derived from the parent rock (Kovac *et al.* 1990).

5.4 Water

5.4.1 Surface water

The soil is expected to have a moderate permeability. Surface water flows north along a drainage line into King Stockyard Creek that flows south into the Fish River which is located approximately 3km east from the site.

5.4.2 Groundwater

No groundwater bores are located within 250m of the site.

5.5 Evidence of contamination checklist

Site layout showing industrial processes	Nil
Sewer and service plans	Nil
Manufacturing processes	None known
Underground tanks	None known
Product spills and loss history	No specific details known. It is assumed that some chemical spills would have occurred on the soil surrounding the sheep dip during its use.
Discharges to land, water and air	The process of sheep dipping is expected to have resulted in the splashing of some chemical solution on soil near the dip and drainage pen. Discharge of chemicals into water is not expected to have occurred due to the location of the site on an upper slope, away from drainage lines. Chemicals used were not gaseous therefore no discharge into the air would have occurred.
Disposal locations, presence of drums, wastes and fill materials	After dipping, the chemical solution remained in the dip or was pumped out onto adjacent land for cleaning. The disposal of solution would have resulted in movement downslope from the dip.
Soil staining	Nil
Visible signs of plant stress, bare areas	The areas surrounding the former sheep dip were vegetated. There were no signs of plant stress.
Odours	Nil
Ruins	Nil
Other	Nil

6. Sampling analysis plan and sampling methodology

6.1 Sampling strategy

6.1.1 Sampling design

A systematic sampling strategy was undertaken over the sheep dip site.

6.1.2 Sampling density

The sheep dip soil samples were collected on a systematic pattern in the former sheep dip area. Soil sampling and laboratory analysis is considered indicative of the site as a whole.

6.1.3 Sampling locations

The soil samples were collected on 31 March 2015. The approximate location of each soil sampling site is described in Figure 3.

Eight discrete samples were collected from the sheep dip site. Soil samples were collected on a systematic pattern over and surrounding the former sheep dip site.

Chemical movement to the soil surrounding the sheep dip occurs from splash of the dip solution in the treatment process, dripping of the solution from the sheep after treatment and flows from the cleaning out process. The contaminated area is expected to be immediately adjacent to the sheep dip.

Schedule of samples collected for laboratory analysis is outlined in Table 1.

6.1.4 Sampling depth

The pits were constructed to 1m or natural soil. The sampling depth was in the previously disturbed topsoil at 500mm below the surface.

6.2 Analytes

Soil samples taken from the sheep dip site were analysed for arsenic and organochlorine pesticides (OCP).

Table 1. Schedule of samples and analyses

Sample ID	Location	Analysis undertaken
B1	Sheep dip	Arsenic (As) and organochlorine pesticides (OCP)
B2	Sheep dip	As and OCP
B3	Sheep dip	As and OCP
B4	Sheep dip	As and OCP
B5	Sheep dip	As and OCP
B6	Sheep dip	As and OCP
B7	Sheep dip	As and OCP
DA	Sheep dip	As and OCP

6.3 Sampling methods

Soil samples were taken using a stainless steel hand shovel from pits created by an excavator. Soil was taken at each individual sampling location below the vegetated and detrital layer.

Discrete samples were analysed from the sheep dip site.

Tools were decontaminated between sampling locations to prevent cross contamination by: brushing to remove caked or encrusted material, washing in detergent and tap water, rinsing in an organic solvent, rinsing with clean tap water and allowing to air dry or using a clean towel.

7. Quality assurance and quality control

7.1 Sampling design

The sampling program is intended to provide data as to the presence and levels of contaminants.

Eight discrete soil samples were collected from the sheep dip site.

The number and location of samples taken is expected to provide an adequate assurance that the soil samples are representative of the areas targeted.

7.2 Field

The collection of samples was undertaken in accordance with accepted standard protocols (NEPM 1999).

Sampling equipment was decontaminated between each sampling event. The appropriate storage conditions and duration were observed between sampling and analysis. A chain of custody form accompanied the samples to the laboratory (Appendix 3).

A single sampler was used to collect the samples using standard methods. Soil collected was a fresh sample from the push corer or hand shovel. After collection the samples were immediately placed in new glass sampling jars and placed in a cooler.

One field duplicate laboratory sample was collected. Each duplicate was from the same sampling location and analysed for the same analytes. Additional details on field sampling procedures are presented in Appendix 1. One trip blank was submitted for analysis.

No field blank, rinsate or matrix spikes were submitted for analysis. Some samples from all batches did not contain contaminants which confirm the absence of cross contamination during transport and storage.

A field sampling log is presented in Appendix 4.

7.3 Laboratory

Chemical analysis was conducted by ALS Laboratories, Smithfield, which is NATA accredited for the tests undertaken. The laboratories have quality assurance and quality control programs in place, which include internal replication and analysis of spike samples and recoveries.

Method blanks, matrix duplicates and laboratory control samples were within acceptance criteria. The quality assurance and quality control report is presented together with the laboratory report as Appendix 2.

7.4 Data evaluation

The laboratory quality control report indicates the data variability is within acceptable industry limits. The data is considered representative and usable for the purposes of the investigation. Data quality indicators are presented in Appendix 2.

8. Assessment criteria

The laboratory results were assessed against the commercial/industrial land-use thresholds. The health-based and environmental-based investigation levels of contaminants in the soil for commercial industrial sites, for the substances for which criteria are available, are listed in Table 2, as recommended in the NEPM (1999).

Table 2. Assessment criteria for soil samples (mg/kg)

Analyte	Commercial/industrial (NEPM 1999)	
	Environmental investigation levels	Health investigation levels
Arsenic	160	3,000
DDT+DDE+DDD	640	3,600
Aldrin and dieldrin	-	45
Chlordane	-	530
Endosulfan	-	2,000
Endrin	-	100
Heptachlor	-	50
HCB	-	80
Methoxychlor	-	2,500
Mirex	-	100
Toxaphene	-	160

9. Results and discussion

Vegetation cover within the site primarily consisted of pasture species and weeds including ryegrass, phalaris, saffron thistle, Indian hedge mustard, sub clover, wireweed and native grasses. Land-use is vacant adjacent to the gravel storage area.

Two soil samples contained levels of arsenic and dieldrin above the detection limit. Contamination of soil surrounding the dip is expected to have occurred as a result of splashing in the dipping process, spills in mixing the chemicals and draining the dip in the cleaning operation.

Levels of all analytes in (Table 3) were less than the commercial/industrial land-use threshold (NEPM 1999).

Table 3. Analytical results and threshold concentrations (mg/kg)

Sample ID	Arsenic	Dieldrin	Other - OCP's
B1	148	0.52	ND
B2	ND	ND	ND
B3	10	0.06	ND
B4	ND	ND	ND
B5	ND	ND	ND
B6	ND	ND	ND
B7	ND	ND	ND
Commercial/industrial (NEPM 1999)			
Environmental	160	-	-
Health	3000	45	-

ND = not detected at the detection limit.

10. Site characterisation

10.1 Environmental contamination

Nil

10.2 Chemical degradation production

Arsenic is an element and consequently does not degrade, rather forms complexes with other compounds. Arsenic can exist in a variety of valencies and forms. The binding of arsenate to oxides and hydroxides is at a maximum between pH 3-7 (Holm and Curtis 1989). The pH at the dip site is expected to fall within this range.

10.3 Exposed population

Nil

11. Conclusions and recommendations

11.1 Summary

An inspection of the site was made on 31 March 2015. The site is in a commercial setting east of the BORG Manufacturing plant and the area of investigation has an area of approximately 200m². The location of the sheep dip was identified by the PPK report and assistance of the former sheep dip. Drainage lines are located on the western boundary of the site and flows north towards Kings Stockyard Creek.

The investigation was undertaken by construction of test pits at eight locations with an excavator in a systematic sampling pattern. Soil samples were collected from each test pit. The soil samples were analysed for arsenic and organochlorine pesticides (OCP) which were the identified chemicals of concern.

The site walkover and review of historic evidence did not identify any additional potentially contaminated areas. All evidence of the sheep dip was removed.

Slight elevated levels of the arsenic and organochlorine pesticides were detected at two locations. The levels of arsenic and OCP were below commercial/industrial environmental and health based screening levels.

11.2 Assumptions in reaching the conclusions

It is assumed the sampling sites are representative of the site. An accurate history has been obtained and typical past farming practices were adopted.

11.3 Extent of uncertainties

The analytical data relate only to the locations sampled. Soil conditions can vary both laterally and vertically and it cannot be excluded that unidentified contaminants may be present. The sampling density was designed to detect a 'hot spot' in the area.

11.4 Suitability for proposed use of the site

The area within and surrounding the sheep dip site is suitable for commercial/industrial land use.

11.5 Limitations and constraints on the use of the site

Nil

11.6 Recommendation for further work

Nil

12. Report limitations and intellectual property

This report has been prepared for the use of the client to achieve the objectives given the clients requirements. The level of confidence of the conclusion reached is governed by the scope of the investigation and the availability and quality of existing data. Where limitations or uncertainties are known, they are identified in the report. No liability can be accepted for failure to identify conditions or issues which arise in the future and which could not reasonably have been predicted using the scope of the investigation and the information obtained.

The investigation identifies the actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing is interpreted by geologists, engineers or scientists who then render an opinion about overall subsurface conditions, the nature and extent of the contamination, it's likely impact on the proposed development and appropriate remediation measures. Actual conditions may differ from those inferred to exist, because no professional, no matter how well qualified, and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock or time. The actual interface between materials may be far more gradual or abrupt than a report indicates. Actual conditions in areas not sampled may differ from predictions. It is thus important to understand the limitations of the investigation and recognise that we are not responsible for these limitations.

This report, including data contained and its findings and conclusions, remains the intellectual property of Envirowest Consulting Pty Ltd. A licence to use the report for the specific purpose identified is granted for the persons identified in that section after full payment for the services involved in preparation of the report. This report should not be used by persons or for purposes other than those stated and should not be reproduced without the permission of Envirowest Consulting Pty Ltd.

13. References

DEC (2006) *Contaminated Sites: Guidelines for the NSW Site Auditors Scheme* (NSW Department of Environment and Conservation, Chatswood)

Environment Protection Authority (1995) *Contaminated sites: Sampling Design Guidelines* (NSW Environment Protection Authority, Chatswood)

Land Information Centre (1988) *Oberon 8831-3-NS Topographic Map 1:25 000* (New South Wales Department of Lands)

National Environment Protection Council (1999) *National Environment Protection (Assessment of Site Contamination) Measure 1999; revised 2013* (National Environment Protection Council Service Corporation, Adelaide)

Kovac M, Murphy, BW and Lawrie JA (1990) *Soil Landscapes of the Oberon 1:250 000 Sheet* (Soil Conservation Service of NSW, Sydney)

McDougall KW, Macoun TW (1996) *Guidelines for the Assessment and Cleanup of Cattle Tick Dip Sites for Residential Purposes* (NSW Agriculture and NSW Environment Protection Authority)

Figures

Figure 1. Locality plan

Figure 2. Site and soil sampling locations

Figure 3. Photographs of the site



Area under investigation

Figure 1: Locality map	
Lot 2902 DP1056754, BORG Manufacturing, Oberon NSW 2787	
	Envirowest Consulting Pty Ltd
Job: R5840c	Date: 17/04/2015



Approximate Scale 1: 2000



Legend

- ⊗ Sampling locations
- - Sheep dip area boundary
- - Slope

Figure 2. Site and soil sampling locations

Lot 2902 DP 1056754, BORG Manufacturing, Oberon NSW



Envirowest Consulting Pty Ltd

Job: R5840c

Drawn by: DG

Date: 17/04/2015

Figure 3. Photograph of the site



Excavated pits

Appendices

Appendix 1. Soil sampling protocol

Appendix 2. Sample analysis, quality assurance and quality control (QAQC) report

Appendix 3. Soil analysis results – ALS report number ES1025850 and chain of custody form.

Appendix 4. Field sampling log

Appendix 1. Soil sampling protocol

1. Sampling

The samples will be collected from the auger tip, mattock, hand auger or shovel immediately on withdrawal.

The time between retrieval of the sample and sealing of the sample container was kept to a minimum.

The material was collected using single use disposal gloves or a stainless steel spade which represented material which had not been exposed to the atmosphere prior to sampling.

All sampling jars were filled as close to the top as possible to minimise the available airspace within the jar.

2. Handling, containment and transport

Daily sampling activities will be recorded including sampling locations, numbers, observations, measurements, sampler, date and time and weather condition.

The sampling jars will be new sterile glass jars fitted with plastic lid and airtight Teflon seals, supplied by the laboratories for the purpose of collecting soil samples for analysis. Sample containers will be marked indelibly with the sample ID code to waterproof labels affixed to the body of the container.

All samples will be removed from direct sunlight as soon as possible after sampling and placed in insulated containers. Samples were stored in a refrigerator at 4°C prior to transportation to the laboratory in insulated containers with ice bricks in accordance with AS4482.1.

Handling and transportation to the laboratory will be accompanied with a chain of custody form to demonstrate the specimens are properly received, documents, processed and stored.

Maximum holding time for extraction (AS4482.1) are:

Analyte	Maximum holding time
Metals	6 months
Mercury	28 days
Sulfate	7 days
Organic carbon	7 days
OCP, OPP, PCB	14 days
TPH, BTEX, PAH, phenols	14 days

3. Decontamination of sampling equipment

Sampling tools will be decontaminated between sampling locations by

- Removing soil adhering to the sampling equipment by scraping, brushing or wiping
- Washing with a phosphate-free detergent
- Rinsing thoroughly with clean water
- Repeating if necessary
- Dry equipment with disposable towels or air

Appendix 2. Sample analysis, quality assurance and quality control (QA/QC) report

1. Data quality indicators (DQI) requirements

1.1 Completeness

A measure of the amount of usable data for a data collection activity. Greater than 95% of the data must be reliable based on the quality objectives. Where greater than two quality objectives have less reliability than the acceptance criterion the data may be considered with uncertainty.

1.1.1 Field

Consideration	Requirement
Locations and depths to be sampled	Described in the sampling plan. The acceptance criterion is 95% data retrieved compared with proposed. Acceptance criterion is 100% in crucial areas.
SOP appropriate and compiled	Described in the sampling plan.
Experienced sampler	Sampler or supervisor
Documentation correct	Sampling log and chain of custody completed

1.1.2 Laboratory

Consideration	Requirement
Samples analysed	Number according to sampling and quality plan
Analytes	Number according to sampling and quality plan
Methods	EPA or other recognised methods with suitable PQL
Sample documentation	Complete including chain of custody and sample description
Sample holding times	Metals 6 months, OCP, PAH, TPH, PCB 14 days

1.2 Comparability

The confidence that data may be considered to be equivalent for each sampling and analytical event. The data must show little or no inconsistencies with results and field observations.

1.2.1 Field

Consideration	Requirement
SOP	Same sampling procedures to be used
Experienced sampler	Sampler or supervisor
Climatic conditions	Described as may influence results
Samples collected	Sample medium, size, preparation, storage, transport

1.2.2 Laboratory

Consideration	Requirement
Analytical methods	Same methods, approved methods
PQL	Same
Same laboratory	Justify if different
Same units	Justify if different

1.3 Representativeness

The confidence (expressed qualitatively) that data are representative of each media present on the site.

1.3.1 Field

Consideration	Requirement
Appropriate media sampled	Sampled according to sampling and quality plan or in accordance with the EPA (1995) sampling guidelines.
All media identified	Sampling media identified in the sampling and quality plan. Where surface water bodies on the site sampled.

1.3.2 Laboratory

Consideration	Requirement
Samples analysed	Blanks

1.4 Precision

A quantitative measure of the variability (or reproduced of the data). Is measured by standard deviation or relative percent difference (RPD). A RPD analysis is calculated and compared to the practical quantitation limit (PQL) or absolute difference AD.

- Levels greater than 10 times the PQL the RPD is 50%
- Levels between 5 and 10 times the PQL the RPD is 75%
- Levels between 2 and 5 times the PQL the RPD is 100%
- Levels less than 2 times the PQL, the AD is less than 2.5 times the PQL

Data not conforming to the acceptance criterion will be examined for determination of suitability for the purpose of site characterisation.

1.4.1 Field

Consideration	Requirement
Field duplicates	Frequency of 5%, results to be within RPD or discussion required indicate the appropriateness of SOP

1.4.2 Laboratory

Consideration	Requirement
Laboratory and inter lab duplicates	Frequency of 5%, results to be within RPD or discussion required. Inter laboratory duplicates will be one sample per batch.
Field duplicates	Frequency of 5%, results to be within RPD or discussion required
Laboratory prepared volatile trip spikes	Not required as volatiles not analysed

1.5 Accuracy

A quantitative measure of the closeness of the reported data to the true value.

1.5.1 Field

Consideration	Requirement
SOP	Complied
Inter laboratory duplicates	Frequency of 5%. Analysis criterion 60% RPD for levels greater than 10 times the PQL 85% RPD for levels between 5 to 10 times the PQL 100% RPD at levels between 2 to 5 times the PQL Absolute difference, 3.5 times the PQL where levels are, 2 times PQL

1.5.2 Laboratory

Recovery data (surrogates, laboratory control samples and matrix spikes) data subject to the following control limits:

- 60 to 140% acceptable data
- 20-60% discussion required, may be considered acceptable
- 10-20% data should be considered as estimates
- 10% data should be rejected

Consideration	Requirement
Field blanks	Frequency of 5%, <5 times the PQL, PQL may be adjusted
Rinsate blanks	Frequency of 5%, <5 times the PQL, PQL may be adjusted
Method blanks	Frequency of 5%, <5 times the PQL, PQL may be adjusted
Matrix spikes	Frequency of 5%, results to be within +/-40% or discussion required
Matrix duplicates	Sample injected with a known concentration of contaminants with tested.
Surrogate spikes	Frequency of 5%, results to be within +/-40% or discussion required QC monitoring spikes to be added to samples at the extraction process in the laboratory where applicable. Surrogates are closely related to the organic target analyte and not normally found in the natural environment. Frequency of 5%, results to be within +/-40% or discussion required
Laboratory control samples	Externally prepared reference material containing representative analytes under investigation. These will be undertaken at one per batch. It s to be within +/-40% or discussion required
Laboratory prepared spikes	Frequency of 5%, results to be within +/-40% or discussion required

2. Laboratory analysis summary

One analysis batch was undertaken over the investigation program. Samples which do not form part of this investigation are included in the batch and comprise the quality control / quality assurance program.

The samples were analysed at the laboratories of ALS, Smithfield, NSW which is National Association of Testing Authorities (NATA) accredited for the tests undertaken. The analyses undertaken, number of samples tested and methods are presented in the following tables:

Laboratory analysis schedule

Sample id. (sampling location)	Number of samples	Duplicate	Analyses	Date collected	Substrate	Lab report
B1, B2, B3, B4, B5, B6, B7	7	1	Arsenic (As), organochlorine pesticides (OCP),	31/03/15	Soil	ES1507532

Analytical methods

Analyte	Extraction	Laboratory methods
Metals	USEPA 200.2 Mod	APHA USEPA SW846-6010
Mercury	USEPA 200.2 Mod	APHA 3112
TPH(C6-C9)	USPEA SW846-5030A	USPEA SW 846-8260B
TPH(C10-C36)	Tumbler extraction of solids	USEPA SW 846-8270B
PCB	Tumbler extraction of solids	USEPA SW 846-8270B
OC Pesticides	Tumbler extraction of solids	USEPA SW 846-8270B
BTEX	Tumbler extraction of solids	USEPA SW 846-8260B

3. Field quality assurance and quality control

One laboratory duplicate sample was collected for intra-laboratory comparison. The frequency was greater than the recommended frequency of 5%. Table A1.2 outlines the samples collected and differences in replicate analyses. Relative differences were deemed to pass if they were within the acceptance limits of +/- 40% for replicate analyses or less than 5 times the detection limit.

3.1.1 Duplicate frequency

A total of one field duplicate sample was analysed. This is a frequency of 14% which is greater than the recommended frequency of 5%.

A1.1. Field duplicate frequency

Sample location)	id. (sampling)	Number of samples	Duplicate	Frequency (%)	Date collected	Substrate	Lab report
B1, B2, B3, B4, B5, B6, B7		7	1	14	31/03/15	Soil	ES1507532

The following table outlines the samples collected and differences in replicate analyses and acceptance limits for replicate analyses.

A1.2. Relative differences for intra-laboratory duplicates

Laboratory report	Duplicate sample comparison	Analyte	Difference in replicate analyses (%)	Acceptance limits (%)
ES1507532	B1 – DA	Arsenic	0.75	40
		Dieldrin	0.06	40
		Other OCP's	0.00	40

No trip spike or field blanks were submitted for laboratory analysis. This is not considered to create significant uncertainty in the analysis results because of the following rationale:

- The fieldwork was completed within a short time period and consistent methods were used for sampling.
- Samples were placed in insulated cooled containers after sampling to ensure preservation during transport and storage.
- The samples were placed in single use jars using clean sampling tools and disposable gloves from material not in contact with other samples. This reduces the likelihood of cross contamination.
- Samples in the analysis batch contain analytes below the level of detection. It is considered unlikely that contamination has occurred as a result of transport and handling.

4. Laboratory quality assurance and quality control

Sample holding times are recommended in NEPM (1999). The time between collection and extraction for all samples was less than the criteria listed below:

Analyte	Maximum holding time
Metals	6 months
Mercury	28 days
Sulfate	7 days
OCP, OPP, PCB	14 days
TPH, BTEX, PAH	14 days

The laboratory interpretative reports are presented with individual laboratory report. Assessment is made of holding time, frequency of control samples and quality control samples. No outliers exist for the sampling batch. The laboratory report also contains a detailed description of preparation methods and analytical methods.

The results, quality report, interpretative report and chain of custody are presented in the attached appendices. The quality report contains the laboratory duplicates, spikes, laboratory control samples, blanks and where appropriate matrix spike recovery (surrogate).

5. Data quality indicators (DQI)

5.1 Completeness

A measure of the amount of usable data for a data collection activity (total to be greater than 90%)

5.1.1 Field

Consideration	Accepted	Comment
Locations to be sampled	Yes	In accordance with sampling methodology, described in the report.
SOP appropriate and compiled	Yes	In accordance with sampling methodology
Experienced sampler	Yes	Environmental scientist
Documentation correct	Yes	Chain of custody completed

5.1.2 Laboratory

Consideration	Accepted	Comment
Samples analysed	Yes	In accordance with chain of custody and analysis plan
Analytes	Yes	In accordance with chain of custody and analysis plan
Methods	Yes	Analysed in NATA accredited laboratory with recognised methods and suitable PQL
Sample documentation	Yes	Completed including chain of custody and sample results and quality results
Sample holding times	Yes	Metals < 6 months Mercury < 28 days OCP, OPP, PAH, TPH, PCB, BTEX < 14 days

5.2 Comparability

The confidence that data may be considered to be equivalent for each sampling and analytical event.

5.2.1 Field

Consideration	Accepted	Comment
SOP	Yes	Same sampling procedures used and sampled on one date
Experienced sampler	Yes	Experienced environmental scientist
Climatic conditions	Yes	Sampling log
Samples collected	Yes	Suitable size and storage

5.2.2 Laboratory

Consideration	Accepted	Comment
Analytical methods	Yes	Same methods all samples
PQL	Yes	Suitable for analytes
Same laboratory	Yes	-
Same units	Yes	-

5.3 Representativeness

The confidence (expressed qualitatively) that data are representative of each media present on the site

5.3.1 Field

Consideration	Accepted	Comment
Appropriate media sampled	Yes	Sampled according to sampling and quality plan
All media identified	Yes	Soil sampling media identified in the sampling and quality plan

5.3.2 Laboratory

Consideration	Accepted	Comment
Samples analysed	Yes	Undertaken in NATA accredited laboratory. Samples in the analysis batch contain analytes below the level of detection. It is considered unlikely that contamination has occurred as a result of transport and handling.

5.4 Precision

A quantitative measure of the variability (or reproduced of the data)

5.4.1 Field

Consideration	Accepted	Comment
SOP	Yes	Complied
Field duplicates	Yes	Greater than 5% frequency

5.4.2 Laboratory

Consideration	Accepted	Comment
Laboratory duplicates	Yes	Frequency of 5%, results to be within +/-40% or discussion required
Field duplicates (intra-laboratory)	Yes	Frequency of 5%. Comparisons described in Appendix 2 section 3. Results within +/-40 or <5 times detection limit.
Laboratory prepared volatile trip spikes	N/A	Volatiles analytes were not analysed

5.5 Accuracy

A quantitative measure of the closeness of the reported data to the true value

5.5.1 Field

Consideration	Accepted	Comment
SOP	Yes	Complied
Field blanks	Yes	Frequency of 5%, <5 times the PQL, PQL may be adjusted

5.5.2 Laboratory

Consideration	Accepted	Comment
Method blanks	Yes	Frequency of 5%, <5 times the PQL, PQL may be adjusted
Matrix spikes	Yes	Recovery lower than upper control limit
Matrix duplicates	Yes	RPD does not exceed LOR based limits
Surrogate spikes	Yes	Frequency of 5%, results to be within +/-40% or discussion required
Laboratory control samples	Yes	Frequency of 5%, results to be within +/-40% or discussion required
Laboratory prepared spikes	Yes	Frequency of 5%, results to be within +/-40% or discussion required Results outside limits due to laboratory instrumentation

No outliers were observed.

6. Conclusion

All media appropriate to the objectives of this investigation have been adequately analysed and no area of significant uncertainty exist.

It is concluded the data is usable for the purposes of the investigation.

Appendix 3. Soil analysis results – ALS report number ES1507532 and chain of custody form.

Appendix 4. Field sampling log

Client BORG Manufacturing
 Contact Victor Bendevski
 Job number R5804c
 Location Lot 1 DP1056754, Borg Manufacturing, Oberon NSW
 Date 31/042015
 Investigator(s) Dane Graham and Greg Madafiglio
 Weather conditions Fine and mild

Sample id	Matrix	Date	Depth (mm)	Analysis required	Observations/comments
B1	Soil	31/03/2015	0-100	As, OCP	Nil
B2	Soil	31/03/2015	500-600	As, OCP	Nil
B3	Soil	31/03/2015	0-100	As, OCP	Nil
B4	Soil	31/03/2015	500-600	As, OCP	Nil
B5	Soil	31/03/2015	500-600	As, OCP	Nil
B6	Soil	31/03/2015	0-100	As, OCP	Nil
B7	Soil	31/03/2015	0-600	As, OCP	Nil
DA	Soil	31/03/2015	0-100	As, OCP	Duplicate of B1

CERTIFICATE OF ANALYSIS

Work Order	: ES1507532	Page	: 1 of 5
Client	: ENVIROWEST CONSULTING	Laboratory	: Environmental Division Sydney
Contact	: MR GREG MADAFIGLIO	Contact	: Client Services
Address	: 9 CAMERON PLACE PO BOX 8158 ORANGE NSW, AUSTRALIA 2800	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: greg@envirowest.net.au	E-mail	: sydney@alsglobal.com
Telephone	: +61 63614954	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 63603960	Facsimile	: +61-2-8784 8500
Project	: 5840	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 5840		
C-O-C number	: 5840	Date Samples Received	: 01-APR-2015
Sampler	: GM	Issue Date	: 09-APR-2015
Site	: 5840		
Quote number	: SY/542/14	No. of samples received	: 8
		No. of samples analysed	: 8

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				B1	B2	B3	B4	B5
				31-MAR-2015 15:00	31-MAR-2015 15:00	31-MAR-2015 15:00	31-MAR-2015 15:00	31-MAR-2015 15:00
Compound	CAS Number	LOR	Unit	ES1507532-001	ES1507532-002	ES1507532-003	ES1507532-004	ES1507532-005
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	5.5	8.1	10.0	15.4	15.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	148	<5	10	<5	<5
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	0.52	<0.05	0.06	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	0.52	<0.05	0.06	<0.05	<0.05
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	95.6	89.1	86.3	102	96.7
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	107	95.7	89.9	96.0	101



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Client sample ID

Client sampling date / time

				B6	B7	DA	----	----
				31-MAR-2015 15:00	31-MAR-2015 15:00	31-MAR-2015 15:00	----	----
Compound	CAS Number	LOR	Unit	ES1507532-006	ES1507532-007	ES1507532-008	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1.0	%	14.8	14.7	7.2	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	67	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.46	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	0.46	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	97.9	95.0	95.9	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	104	91.8	104	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143

QUALITY CONTROL REPORT

Work Order	: ES1507532	Page	: 1 of 5
Client	: ENVIROWEST CONSULTING	Laboratory	: Environmental Division Sydney
Contact	: MR GREG MADAFIGLIO	Contact	: Client Services
Address	: 9 CAMERON PLACE PO BOX 8158 ORANGE NSW, AUSTRALIA 2800	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: greg@envirowest.net.au	E-mail	: sydney@alsglobal.com
Telephone	: +61 63614954	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 63603960	Facsimile	: +61-2-8784 8500
Project	: 5840	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: 5840		
C-O-C number	: 5840	Date Samples Received	: 01-APR-2015
Sampler	: GM	Issue Date	: 09-APR-2015
Order number	: 5840		
Quote number	: SY/542/14	No. of samples received	: 8
		No. of samples analysed	: 8

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits



NATA Accredited
Laboratory 825

Accredited for
compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories

Celine Conceicao
Pabi Subba
Pabi Subba

Position

Senior Spectroscopist
Senior Organic Chemist
Senior Organic Chemist

Accreditation Category

Sydney Inorganics
Sydney Inorganics
Sydney Organics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 3889352)									
ES1507532-003	B3	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	10.0	10.3	3.2	0% - 50%
ES1507705-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	13.6	11.0	21.5	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 3885355)									
ES1507403-006	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.0	No Limit
ES1507438-006	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3883606)									
ES1507532-001	B1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	0.52	0.48	9.1	0% - 50%
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) LowHigh	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005T: Total Metals by ICP-AES (QCLot: 3885355)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.9	92	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3883606)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	71	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	78.1	66	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	79.3	69	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	71	115
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	65	113
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	68	116
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	68	118
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	68	116
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	68	120
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	69	119
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	67	121
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	66	118
EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	69	117
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	76	120
EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	76	120
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	57.3	115
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	60	124
EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	98.6	67	127
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	76.0	65	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	104	65	129

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.



Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3885355)							
ES1507403-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	88.7	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 3883606)							
ES1507532-001	B1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	87.3	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	76.7	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	82.6	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	77.3	70	130
		EP068: Endrin	72-20-8	2 mg/kg	89.4	70	130
		EP068: 4,4`-DDT	50-29-3	2 mg/kg	85.2	70	130

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

The quality control term Matrix Spike (MS) and Matrix Spike Duplicate (MSD) refers to intralaboratory split samples spiked with a representative set of target analytes. The purpose of these QC parameters are to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EP068A: Organochlorine Pesticides (OC) (QCLot: 3883606)										
ES1507532-001	B1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	87.3	----	70	130	----	----
		EP068: Heptachlor	76-44-8	0.5 mg/kg	76.7	----	70	130	----	----
		EP068: Aldrin	309-00-2	0.5 mg/kg	82.6	----	70	130	----	----
		EP068: Dieldrin	60-57-1	0.5 mg/kg	77.3	----	70	130	----	----
		EP068: Endrin	72-20-8	2 mg/kg	89.4	----	70	130	----	----
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	85.2	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3885355)										
ES1507403-006	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	88.7	----	70	130	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: ES1507532	Page	: 1 of 5
Client	: ENVIROWEST CONSULTING	Laboratory	: Environmental Division Sydney
Contact	: MR GREG MADAFIGLIO	Contact	: Client Services
Address	: 9 CAMERON PLACE PO BOX 8158 ORANGE NSW, AUSTRALIA 2800	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: greg@envirowest.net.au	E-mail	: sydney@alsglobal.com
Telephone	: +61 63614954	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 63603960	Facsimile	: +61-2-8784 8500
Project	: 5840	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: 5840		
C-O-C number	: 5840	Date Samples Received	: 01-APR-2015
Sampler	: GM	Issue Date	: 09-APR-2015
Order number	: 5840		
Quote number	: SY/542/14	No. of samples received	: 8
		No. of samples analysed	: 8

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Evaluation	Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation		Date analysed	Due for analysis	Evaluation
EA055: Moisture Content									
Soil Glass Jar - Unpreserved (EA055-103)		31-MAR-2015	----	----	----	08-APR-2015	14-APR-2015	✓	
B1,	B2,								
B3,	B4,								
B5,	B6,								
B7,	DA								
EG005T: Total Metals by ICP-AES									
Soil Glass Jar - Unpreserved (EG005T)		31-MAR-2015	02-APR-2015	27-SEP-2015	✓	07-APR-2015	27-SEP-2015	✓	
B1,	B2,								
B3,	B4,								
B5,	B6,								
B7,	DA								
EP068A: Organochlorine Pesticides (OC)									
Soil Glass Jar - Unpreserved (EP068)		31-MAR-2015	01-APR-2015	14-APR-2015	✓	02-APR-2015	11-MAY-2015	✓	
B1,	B2,								
B3,	B4,								
B5,	B6,								
B7,	DA								



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	8	12.5	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	20	10.0	10.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Pesticides by GCMS	EP068	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Pesticides by GCMS	EP068	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Pesticides by GCMS	EP068	1	8	12.5	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	20	5.0	5.0	✔	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 21st ed., 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Tumbler Extraction of Solids	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- For all matrices, no Method Blank value outliers occur.
- For all matrices, no Duplicate outliers occur.
- For all matrices, no Laboratory Control outliers occur.
- For all matrices, no Matrix Spike outliers occur.

Regular Sample Surrogates

- For all regular sample matrices, no surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- No Quality Control Sample Frequency Outliers exist.

Chain of Custody Form – Ref 5840

Sheet 1 of 1

Ref: 5840 Investigator: Envirowest Consulting 9 Cameron Place PO Box 8158 ORANGE NSW 2800 Telephone: (02) 6361 4954 Facsimile: (02) 6360 3960 Email: admin@envirowest.net.au Contact Person: Greg Madafiglio Cc invoice: martine@envirowest.net.au			Sample matrix			Sample preservation			Analysis			
ALS Method Code												
EG005T	EP068A											
Laboratory: Australian Laboratory Services 277 Woodpark Road SMITHFIELD NSW 2164 Quotation #: SY-435-14 Courier/CN:			Water	Soil	Sludge	Cool	HNO3/H Cl	Unpre- served	Arsenic	OCP		
Sample ID	Container*	Sampling Date/Time										
B1	A	31/03/2015		X		X		X	X	X		
B2	A	31/03/2015		X		X		X	X	X		
B3	A	31/03/2015		X		X		X	X	X		
B4	A	31/03/2015		X		X		X	X	X		
B5	A	31/03/2015		X		X		X	X	X		
B6	A	31/03/2015		X		X		X	X	X		
B7	A	31/03/2015		X		X		X	X	X		
DA	A	31/03/2015		X		X		X	X	X		
Investigator: I attest that the proper field sampling procedures were used during the collection of these samples.						Sampler name: Greg Madafiglio Date : 31/03/2015						
Relinquished by: Jessica Hobbs (print and signature)						Date 31/03/2015		Time 17:00		Received by: _____ (print and signature)		
						Date		Time				

Please return completed form to Envirowest Consulting. *A = Solvent rinsed glass jar with Teflon lined lid and orange label, B = 2x40mL vials solvent rinsed Teflon lined septum caps, C 1x500mL glass bottles , solvent rinsed, Teflon lined cap, D= 200mL plastic bottle with nitric acid.