



Vincent Street
CESSNOCK

30 June 2017

ORDINARY MEETING OF COUNCIL

WEDNESDAY, 5 JULY 2017

ENCLOSURES

PAGE NO.

PLANNING AND ENVIRONMENT

PE33/2017 Section 96(2) Modification to an Approved Boarding Kennel to Amend Condition 3 to Increase the Number of Dogs from 72 to 100 and Cats from 20 to 30 and Deletion of Condition 4 to Allow Dogs to Exercise Outside Designated Areas Contained Within The Facility

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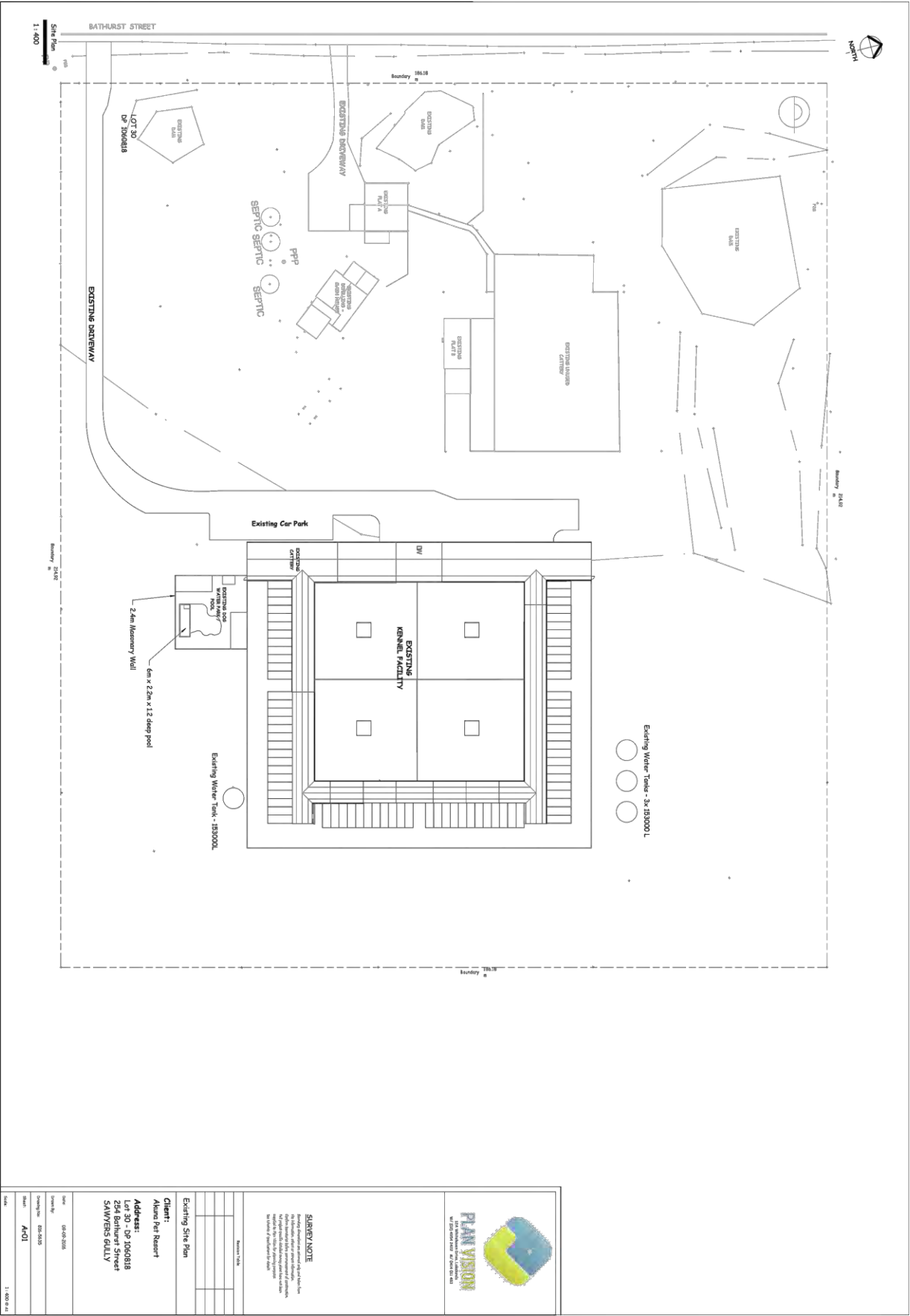
WI49/2017 Dust Abatement - Urban Unsealed Roads - Kline Street, Weston

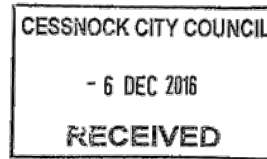
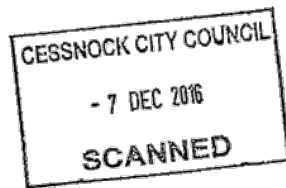
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CO17/2017 New Lower Hunter Hospital - Correspondence from the Hon Brad Hazzard MP

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6/12/16

To whom it may concern,

I object to any changes to the operating conditions of the Akuna Kennels,

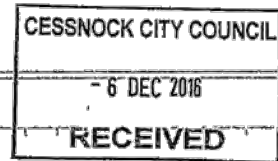
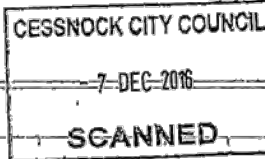
We live up from the kennels and the noise travels up to us at the moment and when they walk their dogs it upsets all the dogs in the neighbourhood and also my dogs then bark and the dogs from the kennels all bark as well, the kennels already impact on our peace and lifestyle.

Several times a day most of the dogs in the kennels have a barking session so any more dogs would just intensify the noise.

Also we are on tank water and the road in front of us is dirt the added traffic sends more dust into our drinking water. There has been many accidents on this road and I would hate to see more.

Kind Regards





To/Att: Mrs Holly Taylor

We are writing to you and to the Council to express our concerns and object to any changes to the current conditions of operation at the Akuna Dog/cat Kennels.

As we live behind the kennels we are already being affected by the noise coming from the kennels.

Any changes will have a greater negative impact on a day to day basis and air quality of life.

We are afraid that any changes to the section 4 will increase the noise level by upsetting all the neighbors dogs as well as the ones already in the kennels. as the dogs are walked around the outside of the kennels as has happened on previous occasions against the kennels operating conditions.

This will increase traffic on Bathurst Street which in its current condition is not practical with all the extra dust etc.

The noise increases from Thursdays to Sundays, which inturns the noise to surrounding neighbors dogs.

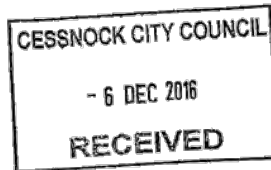
The increase in noise will upset air weekends, mean while the owners of these dogs are away enjoying theirs.

We brought our property and built our name so we could kick back and enjoy the peace and quiet.

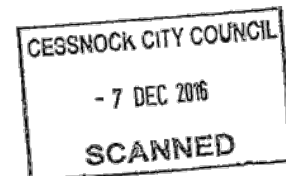
We do hope you take into consideration air concerns. The current noise at feeding time is enough without adding to it.

Yours Faithfully

Cessnock City Council
Planning and Development Department
PO Box 152
Cessnock NSW 2325



6th December 2016



Dear Manager for Planning and Development,

Re: Proposal S96 DA8/2005/1221/3

I would like to raise a number of concerns regarding the proposed approval for Akuna Care to increase its boarding numbers and exercise animals in undesignated exercise areas.

We recently purchased our property in Bathurst Street, Sawyers Gully for the rural aspect and quiet lifestyle. When considering the property, we were aware that Akuna was in operation a few blocks down so we researched the business and observed the noise levels over a number of visits to our potential property. We noted that there were no outstanding approval requests from Akuna and that the noise from the resort, whilst noticeable, was acceptable at its current levels.

If an increase in pet numbers was approved (43% increase in dogs and 50% in cats), there will naturally be an increase in noise and disruption to the peaceful outdoors which we currently enjoy.

This however is not our main concern. If the deletion of the Section 4 condition goes ahead and staff are allowed to exercise animals outside of the designated areas, a number of significant risks would be posed to Akuna staff, the animals and resident pets.

Firstly, Bathurst St is a narrow and hilly dirt road with no designated footpaths. As a result, there is no safe means for Akuna staff to safely walk or exercise animals off leash. We've observed that a number of cars also speed on this road and fail to adequately give way to oncoming traffic which has lead to accidents before our time and one written off car just last month. To further compound this situation, it is not known when the increased traffic from Frame Drive being closed is likely to lessen.

Our second concern is that most residents in vicinity of Akuna have basic fencing at the front of their property which encloses animals or pet dogs. These animals and pet dogs are adequately contained within the fencing provided there is no direct stimulation on the other side of the fence. If dogs are frequently being walked past these properties, neighbourhood pets will become stimulated and excited and may be tempted to break free of the fencing. We have a pet dog ourselves and we are very concerned he might jump the fence or injure himself attempting to get out (he is a Kelpie after all). If he was to get out, this will put the Akuna staff and animals in danger as he is likely to react in anger as they are near his territory.

Section 4 restrictions were put in place to keep the animals safe and give residents of Bathurst St the ability to live in a quite harmonious rural aspect. We'd like to keep it this way.

Kind Regards

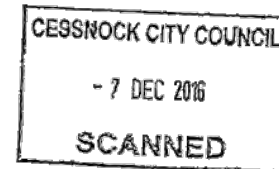
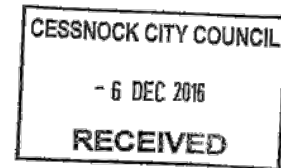


Mr S.M & L.A Hughes
276 Bathurst Street
Sawyers Gully NSW 2326

5th December 2016

The General Manager
Cessnock City Council
PO Box 152
Cessnock NSW 2325

Dear General Manager



Re : Proposal S96 (2) Notification to Approved Boarding Kennels to increase Number of Dogs (100) and Cats (30) and Deletion of Condition 4 to Enable Exercising of dogs outside designated areas Ref : DAS/2005/1221/3

In relation to the proposal for modification to the boarding kennels at 254 Bathurst Street Sawyers Gully, we have no objection to the proposed increase of the number of cats.

We do, however object to the proposal to delete Condition 4 to enable exercising of dogs outside designated areas and the proposal to increase the amount of dogs to 100.

We object to condition 4 being deleted to enable exercising of dogs outside of designated areas. We would like to remind council of our desperate state when there were insufficient regulations in place at the boarding kennels to assist the residential community in the area from the impact of barking and yelping dogs from the Boarding Kennel operation.

Please see attached copy of the previous agreement and copy of related submissions during this time for those members of council who are unaware of our previous circumstances. We agreed to withdraw our submission on the 17/08/06, subject to the 11 conditions being added to the Agreement. As you will notice, these 2 regulations are at the top of the regulations list as number 1 and number 2 as they are very important to the impact of barking dogs on our residential area.

We withdrew our submission to help speed up the building of the updated Kennel complex as the updated complex had increased noise reduction facilities in place. Along with the added regulations to the operation of the Kennel complex, this limited the impact of the dogs barking at the boarding Kennel on the nearby residential area.

Condition 4 is in place to help prevent unnecessary barking and yelping from dogs boarded at the Kennel that are NOT being exercised. The designated exercising areas in the Kennel Complex have been purposefully designed. This prevents dogs in the Kennel complex that are NOT being exercised from reaction barking, by preventing them from seeing or hearing the dog that is being exercised.

We object to the dogs at the boarding Kennel or any other dogs being exercised outside the rear or sides of the fenced Kennel complex, as this area is at the back of the grassed run areas of the kennels in the Complex.

We have witnessed the dogs being exercised in this area (eg last week at the back of the fenced Kennel Complex) we have also witnessed this at other times. This

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increases the barking of some of the dogs inside of the fenced areas while they are in their grassed run areas of their kennels as they can hear the exercising dogs as they are passing by.

This affects us as we hear most of the noise from the barking dogs when they are in the grassed areas of the Kennel complex. If this is to intensify we will ALWAYS be affected by the barking of the dogs.

We object to the dogs being exercised in the now unused exercise area at the front of the property as this area has no noise reduction in place or screening.

We object to the increase of dogs to 100 boarding at the dog Kennels. The reason of this objection is to limit the impact of barking dogs on the residential area. The erection of the upgraded Kennel Complex in 2007 and 2008 has made a positive improvement to noise level of the kennel complex from barking dogs.

Unfortunately we still have periods where we experience enhanced levels of barking from the dogs at the kennels eg in the school holidays long weekends etc. This is when the Kennels are at full capacity. We are very concerned if the numbers of dogs increase that this level of noise from the dogs barking will impact on the surrounding residential area.

The Boarding Kennel complex is currently up for sale, we don't agree that now would be an appropriate time to consider any changes to the regulations that are currently in place. The reason for this objection is so prospective new owners have regulations in place to limit the impact of dogs barking on the surrounding residential area.

We would like to thank you for allowing us to voice our concerns and look forward to receiving a response from you regarding this matter.

Please do not hesitate to contact us at any time

Kind regards



Copy

10 January 2006

Mr. P. Giannopoulos
Corporate & Regulatory Services Department
Cessnock City Council
PO Box 152
CESSNOCK, NSW 2325

Dear Sir,

**Re: Development Application No. 008/2005/00001221/001
Pty: Lot 30, ALT Deposited Plan 1060818
254 Bathurst Street, Abermain
Your Ref: D.A. 8/2005/1221/1**

We refer to your correspondence 22 December 2005 and advise that following perusal of the development application we have identified a number of concerns. Details of these concerns are set out in Annexure A. The impact of current nuisance noise levels from the kennel operation on our lifestyle and well-being is detailed in Annexure B.

We adamantly believe that the current situation regarding the noise levels from the kennel operation is untenable and we acknowledge immediate changes to work practices and the kennel layout are required. However we maintain that the proposal in its current form does not adequately address all of the issues and further research is required to ensure any changes do not result in the further eroding of our wellbeing and our lifestyle. Furthermore we are of the opinion that any increase in the number of dogs held at the kennel **must not** be approved by Council. Kennel numbers (and the maximum number of dogs boarded at the kennel operation) should be held at current levels until such times as these improvements demonstrate they provide satisfactory acoustic shielding and thus have reduced excessive noise levels.

Should you wish to discuss any aspect of the matters raised herein, please do not hesitate to contact the writers.

Thanking you for your attention,
Yours faithfully

Annexure A
Objections re Development Application
No. 008/2005/00001221/001

<i>Nature of Objection</i>	<i>Comments</i>
<i>Overdevelopment of property</i>	<p>The property holding for the proposed development is 10 acres, with the proposal to be contained within 4 ½ acres of this holding. Initial Council approval for the kennel operation was granted at a time when the land holding of the (then) owners was 30 acres. Since that initial approval, subdivision of the land has resulted in three properties now occupying this original 30 acre holding (including the kennel operation). A further consideration is that our property is one of three properties that originated from the subdivision of a thirty acre holding situated to the north of that property at the time of the original approval. Thus six properties now occupy land that was originally occupied by only two land owners (one of whom was the kennel operator) at the time of the original approval for the kennels.</p> <p>In consideration of environmental issues (noise pollution; encroachment on the basic land rights of other property owners) we are very concerned that it would be inappropriate to approve such a large venture on a property of that size, located in an area with a rural zoning and small rural holdings.</p> <p>Furthermore, in view of this reduction in the property holding of the kennel operation since the original approval, and the ensuing noise pollution issues reported to Council by a number of adjacent residents in recent years, one would consider it prudent to consider a <i>reduction</i> in the number of kennels in operation at the property.</p> <p>N.B. Although we have on numerous occasions requested details from Council of the original kennel business approval so as to ascertain how many kennels are currently approved, to date we have been unsuccessful. Thus we are unable to ascertain how many kennels are currently operating at the establishment and whether original licensing guidelines (i.e. number of animals being cared for) are being complied with.</p> <p>We have ascertained from the literature provided that the proposed development will locate the new kennels ten metres from our boundary fence and approximately ninety metres from our residence (although this is difficult to confirm due to conflicting information provided therein). Should this application be successful the result will be even greater free-roaming dog exercise areas, kennels spread over a greater land area, and bringing the potential for greater noise pollution closer to our property.</p> <p>We reside in a rural environment – a proposal of this magnitude is not in keeping with such an environment. We consider it would be detrimental to our property and the area ascetically, and should the planned noise-reduction methods set out in this application not be effective, then we will be subjected to even greater noise pollution than the sixty-to-seventy decibels of noise we currently have to frequently endure.</p>

<p><i>Road condition</i></p>	<p>The condition of the only road that services Bathurst Street, Abermain is sub-standard and at times dangerous. The Sawyers Gully entrance in particular is narrow, frequently corrugated and has blind crests and a sharp curve. Numerous sections along the road have deep gutters that make moving to the left potentially perilous. Sections of the road are also subject to periodic flooding, and much of the road is clay-based and becomes slippery when wet. There is a one-way bridge located near the proposed development site (Abermain end) that is too narrow to allow passing of vehicles traversing the bridge. There are sections that have been tarred, but these too are narrow and not accommodating to two lanes of traffic in some sections. Local residents are aware of the perils of travelling this road and most drive to the prevailing conditions. Visitors often may not be aware of road conditions and speed has been a factor in numerous accidents occurring on this road.</p> <p>Airborne dust is an issue for those of us residents who do not live on a tarred section of Bathurst Street. Any increase in traffic volume must be accompanied by an increase in airborne dust from vehicular traffic. We source our water requirements from tanks located on our property and any increase in airborne dust adversely affects the quality of our tank (drinking) water.</p> <p>Approval of this application will result in a potentially large increase in traffic volume along the street. Any development approval should incorporate funding for road improvements to ensure that the road is improved to safely accommodate any increased traffic flow and ensure no adverse impact on local residents due to this proposal.</p>
<p><i>The Development Proposal</i></p>	<p>The proposal includes a Kwik Wall fence around the perimeter of the operation. Although the acoustic report states that this is an effective acoustic barrier, we have concerns that it will have little effect on noise impacting on our property as we are situated on a rise above the kennels, and sound waves will travel up the hill. This is currently the case with the barriers and noise reduction methods that have been employed to date.</p> <p>The proposal includes six exercise yards. We are of the opinion that the noise emanating from the kennel operation is exacerbated at exercise times, and any additional exercise areas to those currently in operation will only compound the potential for noise problems.</p> <p>When perusing the plan it appeared to us that the new development will be situated only ten metres from our boundary fence. This is much closer than where the current operation is located and brings the potential noise impact closer to our residence.</p> <p>In previous discussions with Mr. Nicholls he advised that any development approval would be completed in stages. Should this still be their plan, how long will it take for the development to be fully completed? What protection do we have from offensive noise levels pending completion? Will the old kennels be utilised until the final stages are complete? We are of the opinion that a clause should be inserted in any approval to ensure timely completion of any improvements to the operation.</p>

Noise Issues- The Spectrum Acoustics Report (undated)

In this report our residence is labelled [REDACTED]
We note that there may be an inconsistency between the submitted plans and the acoustic report. The plan states that our residence is eighty metres from the proposed facility, yet the acoustic report states that this distance is ninety metres. Should the distance be the lesser eighty metres as stated in the plans, we consider an appropriate course of action would be to have the report recalculated to assess the true noise levels impacting on our residence should the development proposal be successful.

We have never been approached for permission to place receivers at our residence during testing of the prototype. How can this report accurately assess potential impacts of noise from the proposed kennels without assessing it at the correct receiver point – thereby taking into account the exact location of our residence and contours of the surrounding land?

No mention is made of the formula/methods utilised to obtain these theoretical calculations.

Table 1 featured in the report calculates the theoretical sound pressure level of one dog barking in a kennel. It would be an unusual scenario for one dog to commence barking and not to be joined by numerous other dogs in the facility, regardless of whether or not they are in sight of the barking dog. By the report's own admission not all barking dogs would be located in adjacent kennels.

We consider Table 2 a more appropriate scenario; however in a proposed facility holding 150 kennels it is still very optimistic to assume that only nineteen dogs would commence barking when they hear another barking dog. Thus we are of the opinion the report is erroneous in submitting this example as a 'worst case scenario'. We maintain that for a 150 kennel proposal it would be pertinent to assess noise levels for 50 dogs (or greater numbers) barking over a fifteen minute period to calculate more accurate theoretical sound pressure levels.

This table (Table 2) presents calculations for dogs barking while held in the kennels at night. Yet in a previous discussion with Ms. Endean she advised Lois that the dogs are not always secured in the kennels at night, but are allowed access to the unenclosed area of the kennels. We are of the opinion a calculation should be made as to noise levels emanating from the unenclosed sections of the kennels at night, thereby providing a more realistic scenario. The calculations presented in Table 2 do not compute for Receiver 3. Our reworked calculations, based on the information provided, are as follows -

Source Leq	86
ADD Area gain	13
Total exterior SPL	99
LESS Directivity Effects	- 5
	94
LESS Barrier Loss	- 12
Received Noise	82

The recalculated SPL is far in excess of the NSW Environmental Protection Authority's recommended 35 decibels and certainly not the same noise as heard in a library (as stated in the report)!

The comments accompanying Table 3 state that noisier dogs will be placed in

<p><i>Noise Issues- The Spectrum Acoustics Report (undated) cont.</i></p>	<p>kennels closest to and on the northern side of the development. While a garage to the west of these kennels may provide additional acoustic shielding to properties located west of the kennel operation, it will offer no shielding for our property, which is the closest property to the development. Why are the noisiest dogs to be placed in kennels situated closest to the nearest neighbours? No table is presented providing a study of the calculated SPL for dogs barking in the exercise yards. The proposal includes six exercise yards and thus we are of the opinion this calculation should have been provided in the report. No table is presented providing a study of the calculated SPL for dogs barking in the kennels and in the unenclosed areas simultaneously. Considering both scenarios reach/exceed noise criterion in isolation for receiver 3, it would be quite probable that dogs barking in the unenclosed areas AND in the kennels simultaneously would exceed the noise criterion by a considerable level. Furthermore it is unrealistic to presume that any one scenario presented in the acoustic report will occur in isolation. The report discusses Table 4, yet this is not presented in the report. No details of a noise management plan were provided to us, although this plan was mentioned in the acoustic report. The NSW Environmental Protection Authority (EPA) states "where a noise source contains certain characteristics, such as tonality, impulsiveness, intermittency, irregularity or dominant low-frequency content, there is evidence to suggest that it can cause greater annoyance than other noise at the same noise level".¹ Dog barking possesses more than one of these characteristics. The EPA provides guidelines for modifying factor corrections yet insufficient information is provided in the acoustic report to ascertain whether correction factors have been applied for each characteristic. The EPA recommends a maximum adjustment of 10 dB(A) where two or more modifying factors are present (excluding the duration correction which may also apply in a number of scenarios).</p>
<p><i>Servicing of Proposed Kennels</i></p>	<p>We have concerns regarding the effective servicing of the kennels in this proposal. The sheer volume of kennels proposed would result in considerable time being required to isolate all problem dogs should the situation arise. Furthermore we have been advised by Mr. Nicholls in the past that there have been times when more than one dog is housed in a kennel. If this was to occur in the future, it would make the isolation process even more time consuming.</p>
<p><i>Previous Actions Taken To Remedy Noise Impact Have Failed</i></p>	<p>All previous efforts to address the noise problems have failed, despite past assurances from kennel operators that these efforts would fix the offensive noise problem. Now we are being asked to consider a proposal for a 150 kennel facility, with no demonstrated proof or guarantees in this proposal that the new development will substantially reduce noise impact. Should the proposal not successfully reduce the offensive noise levels we will be left with a much larger</p>

¹ NSW Environment Protection Authority, (2004). *Noise Guide for Local Government: Appendix 2* [online]. Available: <http://www.epa.nsw.gov.au/resources/nglgappendix2.pdf> [Accessed: 11.01.06].

	<p>facility, potentially holding many more dogs that will quite probably creating a much greater noise problem.</p> <p>Can the applicants furnish details of another boarding kennel utilising comparable kennels and layout to those proposed in this DA and practising comparable noise minimisation methods (and preferably operating in a similar rural setting to ours) so studies can be completed to ascertain real (not theoretical) noise levels?</p> <p>We consider it would be more realistic to limit the number of kennels in any new development to the current number of kennels in operation (maximum!) until such times as a genuine reduction in noise levels is achieved.</p>
Current Impact on Lifestyle	<p>A detailed report on the day to day impact of noise emanating from the current operation is provided in Annexure B.</p> <p>However in summary we are frequently subjected to what is defined by the EPA² as offensive noise. Offensive noise is an acknowledged health risk. The Organisation for Economic Cooperation and Development (OECD) identified four categories of impact from (transport) noise:</p> <ul style="list-style-type: none"> • Productivity losses due to poor concentration, communication difficulties or fatigue due to insufficient rest • health care costs to rectify loss of sleep, hearing problems or stress • lowered property values • loss of psychological well-being.³ <p>The noise levels emanating from the kennel operation has impacted on our psychological well-being. We have experienced great stress, loss of self control, helplessness, agitation and anger at various times in recent years. Stress has direct effects on physiological functioning including (but not limited to) memory, judgment and motivation. Prolonged acute stress has been linked to illnesses such as (but not limited to) diabetes, cardiac arrests, strokes and cancer.^{4&5} We are concerned for both our psychological and physiological health should this noise problem be allowed to continue for any length of time. Our ability to enjoy leisure pursuits both indoors (speech communication and watching television) and out of doors on our 8 ½ acre property – a right taken for granted by most property owners – has been greatly impaired.</p> <p>The noise problem associated with the kennel operation has negatively impacted on property values in our vicinity.</p> <p>We urgently seek resolution to this problem, but we hold concerns as to the effectiveness of the solutions offered in this proposal. We strongly believe that increasing the number of kennels and exercise yards at the facility will NOT</p>

² NSW Environment Protection Authority, (2001). *Questions and Answers to Accompany the Video Managing Rural Noise*. NSW Environment Protection Authority, Sydney. ISBN 0 7347 7510 5

³ Cited in NSW Environment Protection Authority (2003) *Noise Pollution: The Issue* [online] Available: http://www/epa.nsw.gov.au/soe/97/ch1/15_1.htm [Accessed: 10.01.06].

⁴ Schwartz, S. (2000). *Abnormal Psychology*. Mayfair Publishing Company, Mount View California. p.p. 197-215.

⁵ Berglund, B., Lundvall, T. & Schwela, D.H (eds.) (1999) *World Health Organization. Guidelines for Community Noise* [online]. Available: <http://www.who.int/docstore/peh/noise/guidelines2.html> [Accessed: 10.01.06].

	<p>bring resolution and will exacerbate an already untenable situation.</p> <p>We are also of the belief that based on the information provided to us in the proposal the problem noise issue has not been adequately addressed. There is only theoretical evidence cited to support the applicants' claim that noise levels will be reduced as a result of these improvements. Previous 'improvements' have not achieved this result, despite the applicants' assurances otherwise. Far more research is required to ensure that any improvements to the kennel operation do not have further detrimental effects on our day to day lives and psychological and physiological well-being.</p>
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Annexure B

Impact of Kennel Operation on the Lifestyles of Stephen and Lois Hughes

- The property [REDACTED] Bathurst Street, Abermain was purchased by us on 4 August 1995. Prior to this purchase we had visited the property on a daily basis for an extended period of time to hand feed our horse, held on agistment at the property. At no time during these visits was the noise from the adjoining kennel operation considered too elevated or too intrusive by us.
- Prior to the purchase we had discussed noise levels from the kennel operation with the previous owners of our property. They advised us that the noise of dogs barking was heard occasionally, mainly in school holidays, but that the operators of the establishment did not let them bark for prolonged periods of time and the noise did not intrude on their lifestyle.
- Following our acquisition of the property we enjoyed eight years of peace and happiness living here. We were able to walk around our property and enjoy the peace and quiet of the area. We spent much of the time out of doors playing with our young daughters and gardening. We installed a swimming pool one year after purchasing the property and relished in the outdoor lifestyle such an acquisition allows. We installed security screens on all windows and doors to enable us to have our windows open and thus enjoy fresh air inside our residence day and night.
- The noise of barking dogs was occasionally intrusive, but never for a prolonged period of time (i.e. more than 15 minutes and heard mainly at feed times) and never considered to be problematic. In school holiday periods more noise was heard from the operation but never at a level that caused interference to our psychological health and wellbeing. The major source of noise emanating from the kennel operation was the sound of the (then) owner raising his voice to quiet the animals. This was not a regular occurrence, and did not impact on the enjoyment of our lifestyle.
- The noise emanating from the kennel operation gradually increased, until by 2003 it was having a major adverse impact on our day to day lives. This increase in noise levels coincided with the kennel operation being taken over by new owners.
- By Christmas morning 2003, the noise levels had increased to such a level that we were unable to enjoy Christmas breakfast with friends outdoors. The noise was very loud, very aggravating, caused interruption to our conversations and evoked negative comment from our guests.
- On the long weekend in June 2004 the continual noise of barking dogs had escalated to such a point was causing great stress to us personally and so Stephen approached Mr. Marcus Nicholls to discuss the issue. During the conversation [REDACTED] advised Mr. Nicholls that even his wife, Lois was continually complaining about the noise levels and Lois was a person who rarely complained about the actions of others. Both of us were upset and distraught that the situation had become so untenable that we were forced to take such action. We did not want confrontation as we wanted to enjoy an amiable relationship with all of our neighbours.
- By July 2004 the noise levels were so audible and prolonged that they were impacting on our psychological health. We felt stressed, upset, aggravated and helpless to remedy the situation much of the time. [REDACTED] works shift work and the noise was often impacting on his sleeping habits. On one occasion [REDACTED] felt that she was being driven insane by the constant barking noise and resorted to wearing earphones and listening to music when forced to go outside of the residence for any length of time. While hanging washing on the clothes line [REDACTED] realised that in spite of the music being played at the highest volume through her earphones, she could still hear the dogs barking, and thus could not concentrate on the music being played.

- A few days after this episode we were both watching the television at 5.30am one morning while eating breakfast. The noise from barking dogs was so loud that we were forced to increase the volume on the television so as to be able to hear the commentary.
- Following these occurrences [REDACTED] very reluctantly approached Ms. Endean to discuss the noise issue, as previously they had requested that we advise them of any problems with noise that we encountered. Taking this action was personally extremely stressful for Lois, as she abhors any form of confrontation. At this meeting Ms. Endean stated that her and her partner had made improvements to the property to attempt to rectify noise issues. These improvements included –
 - Erecting a fence between the kennels and our property and an iron fence between the kennels and the kennel owners' residence. The latter fence is arched at the top with the arching aimed toward our property. This improvement seems to exacerbate the noise problem, acting as a projection device and causing the sounds to be directed toward our residence rather than elsewhere. Our residence is located on a rise above the kennel operation and the sounds have not been reduced (indeed they have increased) since the erection of these fences.
 - Erecting dirt mounds around the outside of the kennels. This has created a situation where the sound waves reach the dirt mound and (like the fencing) are projected up the rise toward our residence.
 - Removal of trees and undergrowth on their property (n.b. following this action an additional two exercise yards were created at the establishment). The undergrowth in particular acted as a diffuser for the barking noise. Now that trees and undergrowth have been removed there is little to diffuse the noise between the kennel operation and our residence. Furthermore we are of the opinion that exercising of dogs outdoors is contributing to the increase in noise levels. The large number of dogs being cared for by the kennel results in exercising being carried out over extended periods thus elevated noise levels are being experienced by ourselves and our neighbours for extended periods.

During the conversation Ms. Endean stated that she was unaware of the true noise levels as both she and her staff wore earmuffs when working with the dogs. Lois stated that she would not entertain the idea of wearing earmuffs in our own lounge room! Ms. Endean stated that this was not what she meant by the comment. Ms. Endean then stated that she was having difficulty controlling the noise made by the dogs as there were over 70 dogs currently in residence. We hold the opinion that this number of dogs is unacceptably high for a property of that holding and in such close proximity to other residences.

At this meeting Ms. Endean also stated that she did not lock the animals in their kennels overnight as the dogs needed access to the yards to urinate and defecate. We repeat that we are of the opinion that these actions are exacerbating the noise issue.

Ms. Endean also raised the subject of prior occupancy, stating that the kennel had been in operation for over twenty years and that Council had allowed development around the kennels in spite of the nature of the operation. Lois advised Ms. Endean that our residence had also been in existence for over twenty years.

Throughout this conversation Lois felt greatly stressed. Lois advised Ms. Endean that she had called on her not to cause arguments, but in an attempt to have them reduce noise levels. Ms. Endean stated that she would attempt to keep the animals quieter in future.

- In the weeks following this conversation between [REDACTED] and Ms. Endean, the situation did not improve. In late August 2004 [REDACTED] reluctantly approached Cessnock City Council seeking assistance in resolving this matter. She spoke with a council officer named Tina. Lois advised Tina of the noise issue, how it remained unresolved despite speaking with the owners on two occasions. [REDACTED] stated that she was very hesitant to take official action, but that the noise was impacting greatly on our lifestyle, both physically and psychologically. Tina quoted a reference number for future reference (977864) and stated the Council would forward a letter to the kennel

operators advising them of the problem. We subsequently completed the Council's official complaint form.

- When completing the complaints form we were required to substantiate our complaint with reports from at least two other neighbours. To follow is a summary of discussions held with three neighbours-
 - [REDACTED] were the previous owners of the home diagonally opposite our property and the kennel operation. They stated to [REDACTED] that they had constant problems with the noise from the dogs barking, both day and night. [REDACTED] is a shift worker and the noise was impacting on his sleeping patterns so much that he felt forced to wear ear plugs to bed. Eventually they decided to sell their property even though they had only moved into the residence in December 2003. They have stated to us that the noise from the kennel operation was a major reason for selling and that many potential buyers were deterred by the noise emanating from the kennels during inspections. [REDACTED] advised us that she resorted to telephoning the operators of the kennel every time a prospective buyer was due to inspect their property, requesting that they attempt to keep the animals quiet during these inspections. [REDACTED] eventually sold their home, but reduced the price by \$50,000.00 to secure a buyer.
 - Initially when we approached [REDACTED] who live on the northern side of our property, they were reluctant to enter into a complaint. However the couple telephoned us approximately one week later and requested that their names be added to the Council's complaint form. The incident that directly led to their changing their position was a breakfast they held at their home with their friends in that period. Their friends had asked them how they could live there with so much noise from the dogs barking.
 - [REDACTED] reside on the property directly to the rear of our property. They were also initially reluctant to enter into a complaints process, but later stated that they too had to keep their windows closed due to the noise emanating from the kennel operation.
- Following the filing of the official complaints form we were visited by two rangers from Cessnock City Council. Although they stated that they could hear the dogs barking at our residence and that there was definitely a problem, we advised the rangers that the level of noise currently being encountered by them was not an issue. Our issue was when the noise levels increased over and above the level they was experiencing at that time, to much greater decibels. Passing the kennels later that day we noticed their vehicle at the kennel operation.
- Following this visit Council representative Murray Fragar also visited our residence to discuss our complaint. He requested that we monitor the times of the barking. Lois commenced monitoring the noise levels and taking random readings throughout the day and night. Stephen was unable to complete this action due to the amount of stress he experienced when dealing with this issue. A full schedule was provided to Council following completion of the monitoring. Until we monitored the situation we were unaware of how loud, how often and for how long the barking noise was impacting on our lives. It was a major operation both in terms of time and effort to continually note the occurrence of this excessive noise. The report was littered with comments such as "driving me nuts"; "am going out" and "again bad". The Council are also in possession of approximately three cassette tapes we recorded at the rear entrance to our residence over a number of days. These cassettes features the sound of the dogs barking and decibel readings from the noise monitor used while recording was in progress. These cassettes, accompanied by hand written notes detailing noise monitor readouts were handed to Council's Ranger on his last visit to our property.
- We were of the impression that Council representative Murray Fragar, had during this period underestimated the level of noise and the enormity of the problem we faced. In one conversation he suggested to Lois that she mow the lawn when the dogs were barking! Perusal of the

monitoring report would reveal that we would not only need to mow our lawn, but all lawn in Bathurst Street – a semi rural area- if we were to adopt this coping mechanism every time the dogs barking impacted on our lifestyle. During this period we occasionally had our sleep interrupted only intermittently. However far more frequently we were woken night after night by barking dogs. In one period [REDACTED] was woken every night for over three weeks. This interruption to sleep impacted on her ability to perform work duties, her personal relationships and quite possibly her health. In this period we made a conscious decision not to contact Council. Previous efforts had achieved less than satisfactory outcomes and neither of us felt we could be rational and calm in discussing the issues at that time. Furthermore it would have been an added stressor to cope with, at a time when we were already extremely stressed due to lack of sleep and the constant noise of barking dogs. However we were advised by our neighbour [REDACTED] that he had contacted Murray Fragar during this period to lodge a complaint about the noise.

- When I did contact Murray Fragar to voice my complaints he stated that the business operators would soon be submitting a development proposal to Council to address the noise issue and to be patient.
- Gardening is no longer a pleasurable pursuit. In August 2004, when we last attempted to plant seedlings in our vegetable garden the sound of the dogs barking was very aggravating and we made a decision to leave the residence to purchase plants in the hope that by the time we returned the noise would have abated somewhat. On our return we planted the seedlings, but the noise was still constant and very loud. [REDACTED] became very agitated and stated he was going to visit the kennel operators. [REDACTED] was concerned as to his level of anger, and convinced [REDACTED] to telephone the operators rather than visit in person. [REDACTED] proceeded to telephone the operators and left a very heated message on their answering machine stating that they should come to our house immediately to hear what we have to cope with. Marcus Nicholls arrived at our residence approximately two hours later. Although the noise from the dogs had by then abated to an acceptable level (although the barking was still very audible) Marcus apologised. He stated that although he had been aware of the amount of noise the dogs had been making, he did not know how to prevent it. We then advised Mr. Nicholls that we would be in contact with Cessnock City Council to report the matter.
- We subsequently reported this incident to Murray Fragar.
- In December 2004 we received correspondence from Cessnock City Council (copy enclosed) in relation to this matter. This correspondence states that permanent screening of the kennels and other noise attenuation works were working well and had “positively impacted on the duration of barking times”. We disagree with this statement – the noise level was not reduced significantly.
- We continued to monitor the situation throughout 2005. On Easter Saturday 2005 [REDACTED] telephoned Murray Fragar, following being woken at 6.30am by the barking noise and being subjected to three hours of continuous barking. The situation had caused her high levels of stress and [REDACTED] felt she was at breaking point. Mr. Fragar advised [REDACTED] that he would telephone the business operators. The following week Mr. Fragar telephoned [REDACTED] and in the course of the conversation stated that he could detect the desperation in [REDACTED] voice and that he had also heard the dogs barking over the telephone line in the previous phone conversation. [REDACTED] had placed that telephone call in our dining room, with all windows closed and only the rear entrance door to the house open, yet the noise still penetrated enough to cause Mr. Fragar to comment on it. In the course of the second phone conversation [REDACTED] and Mr. Fragar discussed taking further action against the proprietors of the business. We both were loath to commence any formal legal proceedings at that time if it could be averted. We agreed to be patient, pending the lodgement of the development application by the business operators.
- We continued to report to Murray Fragar on this matter throughout 2005. We were requested to give the operators time to erect sound-proof kennels to isolate problem dogs.

- While waiting 'patiently' we continue to monitor noise levels from the rear entrance to our residence. We frequently obtain readings of between 50 and 70 decibels, for extended periods of time.
- What we cannot comprehend is why high noise levels were not an issue for us when the previous owners operated the business. Have business practices been altered or boarding numbers been increased, resulting in unacceptable noise levels?
- At the time of writing the situation has not improved in spite of measures taken by the operators to remedy the situation and is untenable.
 - We are often woken early in the morning by the noise of the dogs barking.
 - Sleep during the day is frequently disrupted by the noise of the dogs barking.
 - We frequently have to listen to our television with the volume up very high to enable us to hear the television over the noise of the dogs barking.
 - Spending extended periods outside on our property is frequently very stressful and unpleasant. We are unable to fully enjoy the rights afforded every other rural property owner.
 - The continual stress brought on by unacceptably high noise levels not only adversely impacts on our sleep and leisure time, but also on our personal relationships with family members. It creates feeling of aggravation, frustration and helplessness and has led to verbal confrontation on a number of occasions.





Copy



Contact: Mr P Giannopoulos
Our Ref: D.A. 8/2005/1221/1
Your Ref: -

Dear Sir/Madam

**DEVELOPMENT APPLICATION NO. 8/2005/1221/1
PROPERTY - LOT: 30 DP: 1060818, 254 BATHURST STREET SAWYERS GULLY**

Council wishes to advise that an application has been received seeking permission to amend the size of additions and alterations to existing dog boarding kennels on the above property. Originally the applicant proposed a development with 125 kennels and 38 cats, the development has been reduced to 72 kennels and 20 cats. A locality map and details of the development proposal are attached.

Cessnock City Council is the consent authority for this application. Council is seeking public comment on the proposal before determining the application. Where a submission is made by way of an objection, the objection must be in writing and the grounds for objection must be clearly specified. The views expressed in written submissions will be considered by Council before a determination is made.

All comments or objections should be made in writing and addressed to the General Manager within the fifteen (15) day notification period commencing 7 July 2006 and finishing 21 July 2006.

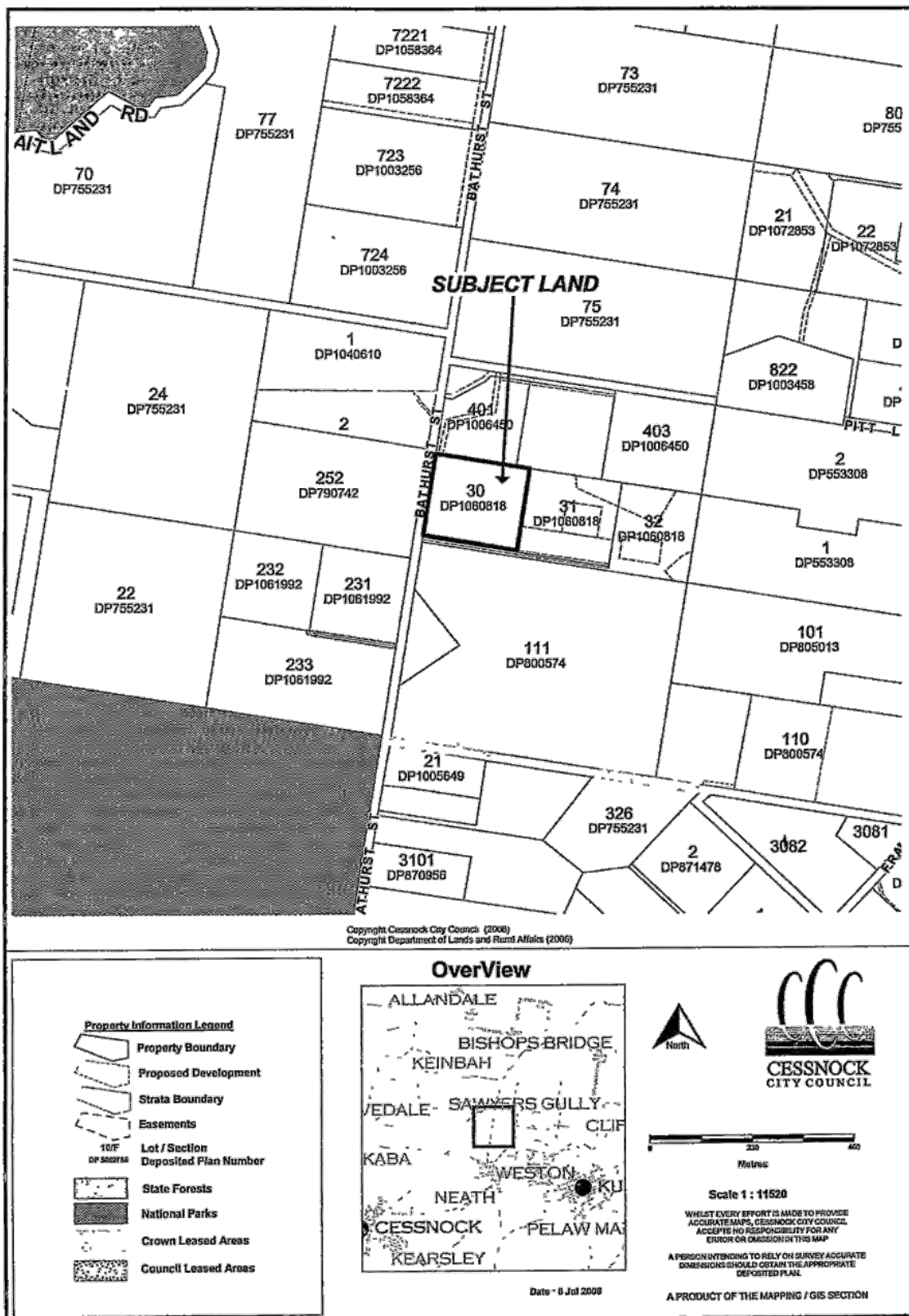
Should you have any enquiries in relation to the application please contact Mr Peter Giannopoulos of Council's Corporate & Regulatory Services Department between 8.40am and 9.30am, Monday to Friday on 4993 4100.

Yours faithfully

P GIANNOPOULOS
For CESSNOCK CITY COUNCIL

6 July 2006
kj
Enc.

TELEPHONE: (02) 4993 4100, FAX: (02) 4993 2500
POSTAL ADDRESS: PO BOX 152, CESSNOCK, NSW, 2325 or DX 21502 CESSNOCK
EMAIL ADDRESS: council@cessnock.nsw.gov.au VISIT US AT: <http://www.cessnock.nsw.gov.au>
ABN 60 919 148 928





copy

21 July 2006.

Mr. P. Giannopoulos
Corporate & Regulatory Services Department
Cessnock City Council
PO Box 152
CESSNOCK, NSW 2325

Dear Sir,
Re: Development Application No. 008/2005/00001221/001
Pty: Lot 30, ALT Deposited Plan 1060818
254 Bathurst Street, Sawyers Gully, NSW
Your Ref: D.A. 8/2005/1221/1

Following perusal of the amended plans for the above development we note the following concerns –

- The existing kennels are shown in the amended plans, yet are not present on the originally submitted plans. Any Council approval should include a clause requiring the demolition of the existing kennels to ensure they cannot be utilised in the future.
- We note that there are additional gates present on the amended proposal. Any approval should include a clause requiring the construction of both the gates and the surrounding fencing to be in Kwik Wall masonry product.
- We refer to the telephone conversation between yourself and [REDACTED] on 19 July 2006. Following this conversation Lois is of the understanding that the dogs are not to be exercised outside of the designated kennel and exercise areas. We would appreciate a clause included in any approval stating this in writing.
- In the aforementioned conversation, you stated the transfer of dogs to and from the kennels will be conducted from within the kennel complex. Any approval should state that all transfers of animals are conducted in this manner, and are not carried out on any other area of the property.
- Any approval should include a condition requiring that only *one* animal may be contained within one kennel at any given time.

We further refer to our correspondence dated 10 January 2006 and advise that all issues raised therein need to be fully addressed in any approval. In particular we draw your attention to the following issues –

- Additional traffic utilising Bathurst Street and the potential additional degradation to an already dangerous road.
- Noise issues – please ensure that any approval addresses noise issues and in particular, requires noise emissions not to exceed the NSW Environmental Protection Authority's recommended levels.

.../2

-2-

Should you wish to discuss any aspect of this correspondence, please do not hesitate to contact the writers. Thanking you for your attention to this matter,
Yours faithfully

[Redacted]

[Redacted]

✓

Appendix b)
Sound Management Plan



SOUND MANAGEMENT PLAN – NEW KENNEL FACILITY

Akuna care has made "reduction of noise" the priority issue in the design of the new kennel facility.

We understand that "reduction in noise emitted from the property" is the most important issue for both council & neighbours and indeed Akuna itself re the longevity of the business & facility.

Sound reduction through design -

Akuna Care's proposed new kennel facility has been designed with sound reduction as the main priority. As such many parts of its design answer specifically to sound reduction/control. They are as follows –

- 1) Reduced visual contact between dogs (Particularly with entrance & departure into run during playtime)
- 2) Reduced visual contact with Animal care attendants (Reducing attention barking)
- 3) Ability to close a dog into a sound proof area (The room component of their run which is approximately 5m2 in size)
- 4) Solid walls, gyprock & insulated ceiling and vinyl flooring all contribute to a reduction in noise by way of dampening noise & not allowing noise to escape. These measures also reduce the amount of external noise getting in, thereby reducing reactional barking to a perceived threat or strange noise.
- 5) Surround sound music in each dog hotel room further mask's any external noise getting in thus reducing reactional barking
- 6) All dogs to be confined to the indoor area of their run from 7pm to 7am (Reducing sporadic nighttime barking and answer barking to other dogs in the neighbourhood.

Management of a consistent barker –

If a dog barks consistently it will be confined to the inside room area of it's run.

Note – The area that the dog is locked into is of a humane size (5m²) that allows a dog to move around freely. Further they have a toileting schedule where they are let out into their grass run section for 5 min before being put away again a number of times per day.

If the dog continues to bark whilst being confined it will be relocated to the inside room component of Block A.

Block A (Our noise proof area) in addition to being made of solid brick walling also backs onto the back wall of the west facing garage shed. Further to this is an external perimeter fence

This means there is no noise pathway between the units in Block A and any neighbour either presently or in the future.

(Our figures show that 40 % of dogs are reactional barkers)

(Our figures show that 1 % of these reactional barkers will continue to bark continually regardless of the removal of stimulus and must therefore be confined to a noise proof area permanently).

On site Managers -

The day manager & onsite night manager are responsible for identifying a noisy dog and the confining of it to the inside component of it's room & of relocation to Block A if necessary (Referred to above)



Sound reduction through work practises

- 1) Noise generating cleaning will be done within reasonable working hours 9am – 5pm
- 2) Noise generating property maintenance (Mowing etc) will be done Mon to Fri within reasonable working hours 9am – 5pm
- 3) Kennel staff start work no earlier than 7am
- 4) Kennel staff finish work no later than 6 pm

Neighbour Contact Strategy –

- 1) All neighbours are to be given the managers contact number in view to having direct access if ever a noise complaint issue is to arise.
- 2) Neighbours to be consulted quarterly as to if any problems have arisen.
- 3) Akuna Care has an open door policy where neighbours are welcome to come and see our work processes at anytime.

1. In total, no more than 72 dogs and 20 cats may be kept on the premises at any one time. Whilst the new facility is being constructed, the dogs and cats may be split between the existing kennel facility and the new kennel facility but the number of dogs may not exceed 72 for the whole facility.

Once the new kennels have been completed, all dogs must be kept in the new facility (no dogs to be kept in the disused old kennels)



Reason

To confirm and clarify the terms of Council's approval and to limit the impact of dogs barking on the surrounding residential area.

2. Dogs may only be exercised in the designated Grassed Exercise Areas, not in the Grasses Access Areas or outside the facility



Reason

To limit the impact of dogs barking on the surrounding residential area.

3. A 2.1m fence in height must be provided perimeter of the 'Access Area' to the north south and east of the facility and between the 'Driveway Access' and the walkway. The fence and all gates must be constructed of Kwik Wall masonry product and sealed so that there are no gaps, including that there are no gaps in the gates.

Reason

To limit the impact of dogs barking on the surrounding residential area.

4. The operator when delivering dogs must park the delivery vehicle at the 'delivery access' point as shown on the approved plans and load/unload all dogs directly via the enclosed compound. Dogs must not be permitted to walk around the car parking areas or other parts of the site beyond the kennel enclosure. Signs must be placed in the car park for visitors to use the 'delivery access' to park their vehicles when picking up/dropping off dogs.

Reason

To restrict dog access and to prevent noise impacts.

5. The Laeq 15 minute operating noise level of the premises, including dogs barking, plant and equipment when measured at the boundary of the worst affected residential premises shall not exceed 35dB(A) during day, evening or night-time hours.

Reason

To ensure project specific noise levels are not exceeded so as to protect the existing amenity of the neighbourhood.

6. During night time hours (between 7.00pm and 7.00am) the Lmax noise level of the premises shall not exceed 45dB(A).

Reason

To ensure that excessive noise levels do not occur at night time to awaken people from their sleep.

7. The applicant shall consider and adopt the recommendations outlined in acoustic report number 05137-1612 dated October 2005 prepared by Spectrum Acoustics when preparing the final building plans and specifications including the provision of additional acoustic lining to the northern area and colorbond fencing. The acoustic consultant shall be engaged to assist with the design criteria to ensure that adequate acoustic attenuation is provided to the development.

Reason

To ensure the building and fences are designed and constructed to ensure that appropriate noise control measures are implemented in order to protect the existing amenity of the neighbourhood.

8. Between the hours of 7.00pm and 7.00am all dogs are to be confined to the indoor area of the dog run. No dogs may be dropped off/picked up between the hours of 7.00pm and 7.00am.

Reason

To limit the impact of dogs barking on the surrounding residential area.

POST OCCUPATION OPERATIONAL REQUIREMENTS

9. Upon completion of the works, a certificate shall be provided to Council from the acoustic consultant certifying that the works have been completed in accordance with the consultant's requirements and that the desired acoustic performance has been achieved.

Reason

To ensure the appropriate noise control measures are implemented in order to protect the existing amenity of the neighbourhood.

10. A Noise Management Plan is to be adhered to at all times. The Noise Management Plan must consider factors such as noisier dog identification, housing and management and isolation, staff procedures and policies for reducing noise disturbances, exercise area use and transferring of dogs, handling of complaints and after hours contacts. A copy of the current Noise Management Policy is to be provided to Cessnock City Council's Environmental Health Coordinator prior to implementation and at any point in which changes are made.

Reason

To ensure the appropriate noise control measures are implemented and the facility is operated in a manner that will not give rise to excessive noise levels and will protect the amenity of the existing neighbourhood.

11. At any time after the completion of the development, if Council has reason to believe that the operating noise level may not be being complied with, the Council may require the business owner to obtain an acoustic report from a recognised acoustic consultant at their expense to determine the Laeq (15 minutes) emitted from the premises.

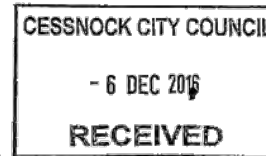
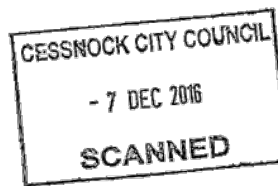
Reason

To ensure that appropriate measures are implemented in order to protect the existing acoustic amenity of the neighbourhood and to determine continued compliance with the project specific noise levels.

17/8/06

We agree to withdraw our submission
Subject to these conditions being agreed to
and complied to, by the applicants.





5/12/16

To whom it may concern,

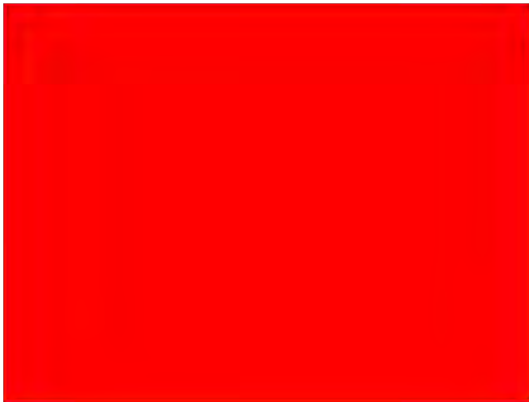
We are writing to council today to object to any changes to the current conditions of operation of the Akuna Dog Kennels, as we live across the road from the kennels we are already effected by the noise coming from the kennels, we have always thought live and let live and have been more than accommodating in the past with the many amendments that have gone ahead over the years but it has got to the point where enough is enough and any changes will have a negative impact on our quality of life, and I just couldn't bare the thought of it getting any worse.

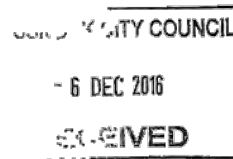
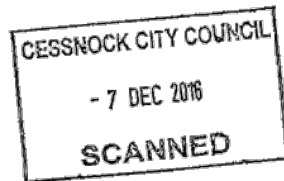
As the kennels driveway is opposite my bedroom window I have had to put up with car lights from the people dropping off dogs at all hours of the night and even 4am in the morning, waking me up.

Any changes to section 4 will increase the noise level by upsetting all the dogs in the surrounding area including mine, as well as the ones in the kennels, the dogs are already walked outside the kennels as has happened on many occasions in the past and currently against the kennels approval conditions, not to mention I have witnessed the dogs droppings not being picked up just left for others to walk in,

It will also increase traffic on Bathurst Street which in its current condition is not practical with all the extra dust etc. I used to go for a walk but the road and extra traffic is now not safe to walk.

Please do not allow these changes.





5/12/2016

To whom it may concern,

We are writing to council to object to the changes to the Akuna dog kennels, the Proposal to increase number of dogs and walk them outside the perimeter of the compound is going to be detrimental to our quality of life and raise our stress levels as they on occasion go against their permit and walk the dogs outside now and when they do all the dogs in the neighborhood start barking including ours, we keep our dogs under control so as not to impact on our neighbours but when the kennel starts walking their dogs outside we can't keep our dogs from barking and also the kennel dogs react to the dogs being outside their wall and they keep barking, also when they do they never pick up the dogs droppings, so obviously they have no consideration for their neighbours.

So if section 4 was altered in anyway they would have open slather and what would stop them from putting their dogs in the front compound area next to Bathurst st and directly across from our house, we would be forced to live inside with windows shut and to TV blaring to try and overcome the noise which we all know would not be practical and we would not be able to move because our property value would drop and we would not be able to afford the move,

Also being on tank water the extra traffic on Bathurst st which is mostly dirt will impact on our water and air quality, we have already had to endure extra traffic, dust etc since Frame drive bridge has been closed but we knew it would eventually be fixed and traffic should settle down, but the extra traffic from the kennels would only get worse and be permanent, the road is already dangerous with narrow crests and numerous ruts and corrugation there has been numerous accidents already and it is only a matter of time before someone is seriously hurt.

The current owners of the kennels are selling them and I'm sure they are just trying to make the kennels more desirable and profitable for the purchaser with no consideration for us that are left here to deal with the aftermath and our quality of life will be greatly affected.

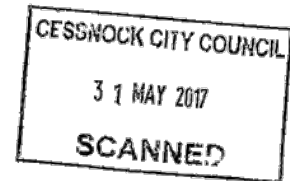
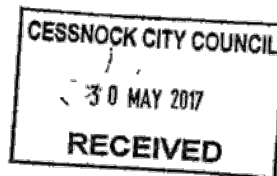
So please think of us residents and don't change the existing conditions in any way.





28th May 2017

The General Manager
Cessnock City Council
P O Box 152
Cessnock NSW 2325



Dear General Manager,

Re: Proposal; S96 (2) Modification to Approved Boarding Kennels to increase Number of Dogs (100) and cats (30) and deletion of condition 4 to enable the Exercising of Dogs Outside Designated Area

Ref: DA 8/2005/1221/3

In relation to the acoustic report some of our concerns are

This report does not cover the holiday periods of noise that we have been experiencing over the holiday periods.

In this report it states. There was no notable difference in noise output from inside kennels when the dogs were being walked page 8 paragraph 6 of acoustic report.

The noise we have heard that impacts on us when we have witnessed dogs being walked around outside of the kennel complex areas is far more than a few dogs (page 7, 4th paragraph from bottom of page) barking in the run areas of the kennel complex.

Our residence is on a rise above the kennel complex and our boundary, this report does not allow for the travel of noise rising from the run areas of the kennel complex to our residence.

According to the acoustic report page 7 paragraph 3 there were about 60 dogs in the complex on the one day that the acoustic levels were monitored.
(I don't believe that proper readings for every day can be concluded from measuring the noise of one to several dogs barking that may have been barking in a one hour period page 4, 2nd paragraph from bottom of page.) The conclusion being page 2 paragraph 9 and page 7 paragraph 3 of the acoustic report An increase of what would be 40 more dogs would not be detectable to the human ear.

We don't agree that this acoustic report has resolved our concerns,
There for we wish for our first submission to still apply.

Thank you for allowing us to voice our concerns and look forward to receiving a response from you concerning this matter.

Please do not hesitate to contact us at any time.





OUR REF: 16/142

YOUR REF: DA 8/2005/1221/2

19 SEPTEMBER 2016

THE GENERAL MANAGER
CESSNOCK CITY COUNCIL
PO BOX 152
CESSNOCK NSW 2325

Dear Sir/Madam,

RE: SECTION 96(1A) APPLICATION TO MODIFY CONSENT
DA 8/2005/1221/2: AMENDEMENT TO SCHEDULE 1, CONDITION 3 & 4
LOT 30 DEPOSITED PLAN 1060818 – 254 BATHURST STREET, SAWYERS GULLY, 2326

The subject site was originally granted approval under DA No. 8/2005/1221/1, issued under Part 4 of the Environmental Planning and Assessment Act, 1979, which allowed for the occupation of Boarding Kennels and Cattery under the business of Akuna Pet Resorts. A modification to consent was submitted to Cessnock Council to amend Condition 15 from the original approval, which was approved on the 20 September 2012 under Development Approval No. 8/2005/1221/2. The proposed modification seeks to amend the following conditions of consent from Development Approval No. 8/2005/1221/2, under Section 96 (1A) of the Environmental Planning and Assessment Act, 1979:

(1) Schedule 1, Condition 3: In total, no more than 72 dogs and 20 cats may be kept on the premises at any one time. Whilst the new facility is being constructed, the dogs and cats may be split between the existing kennel facility and the new kennel facility but the number of dogs may not exceed 72 for the whole facility; and

This proposed modification seeks approval to increase the capacity of Akuna Pet Resort to allow for one-hundred (100) dogs and thirty (30) cats, which would be an increase of twenty-eight (28) dogs and ten (10) cats, respectively.

(2) Schedule 1, Condition 4: Dogs may only be exercised in the designated Grassed Exercise Areas, not in the Grasses Access Areas of outside the facility.

This proposed modification seeks approval to remove Condition 4 of Schedule 1 to allow the caretakers at Akuna Pet Resort to walk the pets around the facility in a controlled and orderly manner, subject to conditions.



Please find enclosed herewith the following documents to accompany the Section 96(1A) Application for the proposed modification:

- (1) Duly completed Modification to Approval Application Form;
- (2) Fee Estimate for \$815.00, being the required amount for a Section 96 Application, inclusive of notification;
- (3) Statement of Environmental Effects, which includes;
 - a. Existing Site Plan
 - b. Development Approval History; and
 - c. Site Acoustic History.
- (4) Notification Plan; and
- (5) CD containing PDF copies of all the documents.

If you require further information or clarification please do not hesitate to contact the undersigned on (02) 4934 3026.

Yours faithfully,

PULVER COOPER AND BLACKLEY

LIAM BUXTON

enc



OUR REF: 16/142
YOUR REF: 8/2005/1221/3

31 JANUARY 2017

THE GENERAL MANAGER
CESSNOCK CITY COUNCIL
PO BOX 152
PORT STEPHENS NSW 2324

ATTENTION: HOLLY TAYLOR

RESPONSE TO COUNCIL – S96(2) 8/2005/1221/3

MODIFICATION TO AN APPROVED BOARDING KENNEL TO INCREASE NUMBER OF DOGS FROM 72 TO 100 AND CATS FROM 20 TO 30 AND DELETION OF CONDITION 4.
LOT 30 DP 1060818 – 254 BATHURST STREET, SAWYERS GULLY

Reference is made to your correspondence, dated 8 December 2016, seeking additional information for Section 96(2) Application No. 8/2005/1221/3 for the proposed modification to an approved boarding kennel to increase the number of dogs from 72 to 100 and cats from 20 to 30 and the deletion of condition 4 to enable exercising of dogs outside designated areas.

Please see below **Response** to the requested information.

Council RFI - Acoustic Impacts

The proposed increase in number of animals kept on site and deletion of Condition No. 4 results in unreasonable acoustic impacts to adjoining residences.

The original application (DA 8/2005/1221/1) for alterations and additions to an existing boarding kennel and cattery was only support on the basis that the proposed dogs and cats was reduced, from 125 to 72 and 28 to 20 respectively, in order to respect the residential amenity of adjoining neighbours.

Furthermore, the submitted acoustic report prepared by Spectrum Acoustics dated 26 October 2016 is considered unreliable as it is dismissive of the offensive and intrusive nature of anticipated noise impacts.

Response

A response has been prepared by Spectrum Acoustics dated 19 December 2016, and is hereby submitted as part of this response. PCB consider that the proposed modification will not have any significant or adverse effect on the locality or neighbours.

Council RFI - Unauthorised Works

Upon assessment of the application, it has been identified that unauthorised structures have been built over the approved transpiration area. This has resulted in a loss of approximately 75% of the approved transpiration area

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and the remainder of the site is unable to contain the wastewater as per conditions of the original consent for the following reasons:

- *There are mature trees within the portion of the site currently being used as the transpiration area which are not suitable for use in wet soil environment;*
- *The transpiration area is immediately adjacent to a dam and an unsealed roadway;*
- *The waste disposal area is currently failing with sodden and boggy areas evidenced along the length of the remaining disposal area; and*
- *Wastewater from unauthorised works is being directed into drainage pipes currently being constructed and directed towards the on-site dam.*

An increase in loading on the waste water system is therefore not supported as the current system is unable to cope with the current demands and will result in the disposal area continuing to fail.

Response

A Waste Water Management Plan dated 30 January 2017, has been prepared by a suitably qualified professional (EP Risk) and is hereby submitted as part of this response. The onsite effluent system can be updated to satisfy relevant standards and PCB do not see this issue as an impediment to approval of the Section 96(2) modification.

Council RFI - Traffic and Parking

The proposed intensification of land use has not been supported by a traffic and parking assessment to justify the suitability of the existing access and parking arrangement.

In light of concerns raised in relation to onsite waste disposal it would need to be demonstrated that the subject site is capable of accommodating any increase in hardstand surface impervious surface area.

Response

Due to the nature of the Section 96(2) application it has been considered not relevant to prepare a full traffic and parking assessment, as the proposed modification has a negligible impact on traffic movements too and from the site. The existing access, car parking and infrastructure are adequate for modified proposal. The Waste Water Management Plan prepared by EP Risk addresses Councils concerns in relation to any increase of impervious hardstand surface area, and concludes the following: *'EP Risk considers that the hardstand surface impervious areas would not affect the operation of the proposed effluent system'.*

Council RFI - Public Interest

Significant objection from surrounding neighbours has been received in response to the public exhibition period. Valid concerns have been raised in relation to intensification of land use and acoustic impacts.

In light of the abovementioned matters, it is considered that the proposed development is contrary to public interest.

Response

In addition to the above RFI, an email correspondence from Holly Taylor, dated 22 December 2016, illustrated the following objections were received by Council:



'Noise from the kennels travels up to surrounding houses'

The acoustic impacts from the proposed modification have been assessed by Spectrum Acoustics and provided as part of the Section 96(2) application. This report concludes that the proposed modification will have a negligible impact on local surrounds and is considered to be compliant with the Industrial Noise Policy (INP). Additionally, Spectrum Acoustics have provided further information in relation to the RFI and is included as part of this response letter.

'Dogs barking set other dogs off in the neighbourhood, particularly when dogs are walked outside the complex which is a breach of consent condition'

Noted. Akuna Pet Resorts have operational management plans in place to reduce the noise generated from the resident pets. The impact of 'walking dogs' was included within the Spectrum Acoustics report and submitted as part of the original Section 96(2) application; which deemed it compliant with the relevant INP.

'More dogs would intensify the current noise impacts'

The original acoustic report, prepared by Spectrum Acoustics dated 26 October 2016, concludes that *'the proposed intensification to the original consent (8/2005/1221/2) will not create any adverse noise impacts and there is no acoustic reason why the changes can not be approved'*.

'Dust from the added traffic on the unsealed road'

Noted. The proposed modification to increase dogs and cats, will not result in any significant increase in traffic. Akuna Pet Resort expects that this added capacity could generate an additional 2-3 car visits per day. Plus, Akuna has always operated a pick-up/ drop-off system to help minimise any traffic coming too and from the site by pet owners. The internal driveway and car park is already sealed, and produces no dust. Additionally, the proposed modification is therefore considered to have negligible impact on any dust generation from the Council's public road Bathurst Street.

'The property owner is concerned for profit and not about the quality of life for adjoining residents'

Noted.

'Residents have been more than accommodating in not objecting to previous amendments and don't want further changes to disrupt quality of life'

Noted.

'Light overspill from vehicles attending site'

The proposed modification sought by this Section 96(2) application is considered to have negligible impact on vehicular movements, and therefore will have very minor, if any, additional impact on neighbours in terms of light spill. Akuna advises that the majority of pet owners and movement of pets is during daytime hours at any rate.

'The deletion of Condition 4 will result in neighbouring fenced dogs being aggravated'

Noted.



'There are insufficient regulations in place to assist the community from noise impacts'

Noted. The proposed Section 96(2) has demonstrated compliance with all the current regulations applicable to the site for noise.

'The original application was only supported on condition that the number of dogs was restricted and condition 4 restricting areas for walking dogs'

Noted. This Section 96(2) application has been submitted to amend the original Development Approval Consent Conditions. This S96(2) application has demonstrated compliance with all relevant development and planning controls and is considered acceptable, and we request approval from Council.

Please see attached herewith the following documents to assist in the determination of the Section 96(2) Application No. 8/2005/1221/3:

- (1) Acoustic Report, submitted as part of the original Section 96(2) application (8/2005/1221/3);
- (2) Request for further information issued by Cessnock Council, dated 8 December 2016;
- (3) Response to Acoustic Concerns, prepared by Spectrum Acoustics, dated 19 December 2016; and
- (4) Waste Water Management Plan, prepared by EP Risk dated 30 January 2017.

If you require further information please do not hesitate to contact the undersigned or Mark Daniels on **(02) 4934 3026**.

Yours faithfully

PULVER COOPER & BLACKLEY

LIAM BUXTON
Enc



8 December 2016

Mr M Nicholls & Ms A Endean
254 Bathurst Street
ABERMAIN NSW 2326

Contact: Holly Taylor
Our Ref: Section 96 8/2005/1221/3
Your Ref:

Dear Sir,

Section 96(2) Application No. 8/2005/1221/3

Description of Development –Modification to an Approved Boarding Kennel to Increase Number of Dogs from 72 to 100 and Cats from 20 to 30 and Deletion of Condition 4 to Enable Exercising of Dogs Outside Designated Areas
Property – LOT: 30 DP: 1060818 254 Bathurst Street SAWYERS GULLY

I refer to the above Section 96(2) Application which was received by Council on 23 September 2016. A preliminary assessment of the proposal has been undertaken and it is advised that Council is unable to support the Application for the following reasons:

Acoustic impacts

The proposed increase in number of animals kept onsite and deletion of Condition No. 4 results in unreasonable acoustic impacts to adjoining residences.

The original application (DA 8/2005/1221/1) for alterations and additions to an existing dog boarding kennel and cattery was only supported on the basis that the proposed number of dogs and cats was reduced, from 125 to 72 and 28 to 20 respectively, in order to respect the residential amenity of adjoining neighbours.

Furthermore, the submitted acoustic report prepared by Spectrum Acoustics dated 26 October 2016 is considered unreliable as it is dismissive of the offensive and intrusive nature of anticipated noise impacts.

Unauthorised works

Upon assessment of the application, it has been identified that unauthorised structures have been built over the approved transpiration area. This has resulted in a loss of approximately 75% of the approved transpiration area and the remainder of the site is unable to contain the wastewater as per conditions of the original consent for the following reasons:

- There are mature trees within the portion of the site currently being used as the transpiration area which are not suitable for use in wet soil environment;

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Page 2

- The transpiration area is immediately adjacent to a dam and an unsealed roadway;
- The waste disposal area is currently failing with sodden and boggy areas evidenced along the length of the remaining disposal area; and
- Wastewater from unauthorise works is being directed into drainage pipes currently being constructed and directed towards the on-site dam.

An increase in loading on the waste water system is therefore not supported as the current system is unable to cope with the current demands and will result in the disposal area continuing to fail.

Traffic and Parking

The proposed intensification of land use has not been supported by a traffic and parking assessment to justify the suitability of the existing access and parking arrangement.

In light of concerns raised in relation to onsite waste disposal it would need to be demonstrated that the subject site is capable of accommodating any increase in hardstand surface impervious surface area.

Public interest

Significant objection from surrounding neighbours has been received in response to the public exhibition period. Valid concerns have been raised in relation to intensification of land use and acoustic impacts.

In light of the abovementioned matters, it is considered that the proposed development is contrary to public interest.

On the basis of the above, it is recommended that the subject Section 96 (2) Application be withdrawn. In accordance with Council's adopted fees and charges, a partial refund of fees paid may be due.

Accordingly, please advise Council of your intentions within seven (7) days from the date of this letter.

In the event that the Application is not withdrawn within the required timeframe, Council will proceed to determine the application on the basis of the information submitted to date. It should be noted that the Development Application will be not be supported by Council staff for the reasons outlined above.

Please note that comments have not yet been received from NSW Office of Water with respect to the modification of works approved within 40 metres of a natural watercourse.

Should you have any further enquiries please contact me directly on (02) 4993 4117 or email holly.taylor@cessnock.nsw.gov.au.

Yours faithfully



Holly Taylor
Senior Planning Assessment Officer

Liam Buxton

From: Liam Buxton
Sent: Tuesday, January 31, 2017 11:37 AM
To: Liam Buxton
Subject: Objections (8/2005/1221/3)

From: Holly Taylor [mailto:Holly.Taylor@cessnock.nsw.gov.au]
Sent: Thursday, December 22, 2016 5:23 PM
To: Liam Buxton <lbuxton@pcbnsw.com.au>
Subject: RE: S.96(2) No. 8/2005/1221/3 - Response

Hi Liam,

I am yet to hear the results of the inspection, however, if the results directly impact on the subject application and I am informed I will pass on any details I receive.

I can't provide a copy of the submissions, however, I have summarised the concerns raised as follows:

- Noise from the kennels travels up to surrounding houses
- Dogs barking set other dogs off in the neighbourhood, particularly when dogs are walked outside the complex which is a breach of consent conditions
- More dogs would intensify the current noise impacts
- Dust from the added traffic on the unsealed road
- The property owner is concerned for profit and not about the quality of life for adjoining residents
- Residents have been more than accommodating in not objecting to previous amendments and don't want any further changes to disrupt quality of life
- Light overspill from vehicles attending the site
- The deletion of condition 4 will result in neighbouring fenced dogs being aggravated
- There are insufficient regulations in place to assist the community from noise impacts
- The original application was only supported on condition that the number of dogs was restricted and condition 4 restricting areas for walking dogs

Regards,



Holly Taylor
Senior Planning Assessment Officer | Planning and Environment
Cessnock City Council | 62-78 Vincent Street Cessnock NSW 2325 | PO 152 Cessnock NSW 2325
p 02 4993 4117 | w www.cessnock.nsw.gov.au | e holly.taylor@cessnock.nsw.gov.au

I am in the office on Mondays, Wednesdays, Thursdays and Fridays.



19 December 2016

Ref: 161322/6883

Mr Marcus Nicholls
Akuna Care
254 Bathurst Street,
Abermain NSW 2326

RE: CHANGES TO D.A. CONDITIONS

This letter relates to the acoustic assessment for the proposed modification to the approved operations of the Akuna Care Kennel and Cattery (Akuna Care) at Sawyers Gully. Cessnock City Council has reviewed the original acoustic assessment for the development (Spectrum Acoustics Report no. 161322/6797, dated October 2016) and raised the following queries (shown in extract below) which are addressed here;

Acoustic impacts

The proposed increase in number of animals kept onsite and deletion of Condition No. 4 results in unreasonable acoustic impacts to adjoining residences.

The original application (DA 8/2005/1221/1) for alterations and additions to an existing dog boarding kennel and cattery was only supported on the basis that the proposed number of dogs and cats was reduced, from 125 to 72 and 28 to 20 respectively, in order to respect the residential amenity of adjoining neighbours.

Furthermore, the submitted acoustic report prepared by Spectrum Acoustics dated 26 October 2016 is considered unreliable as it is dismissive of the offensive and intrusive nature of anticipated noise impacts.

Response

The council response refers to "intrusive" and "offensive" noise. The acoustic report is based on a technical assessment and, therefore, considers noise on an objective analysis and not a subjective one.

The acoustic report assessed the noise from the dogs against the "Intrusiveness Criterion" as defined in the NSW Industrial Noise Policy (INP). Noise levels were found to be in compliance with this criterion, under the assessed conditions. This is in keeping with previous compliance measurements made in January 2009 (and detailed in Spectrum Acoustics Rpt. No., 5137/2922). It can, therefore, be concluded that the noise is not "intrusive".



In terms of “offensive noise”, the POEO Act, defines this as noise:

- that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:
 - a)
 - (i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or
 - (ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
 - b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances, prescribed by the regulations.

It is significant that in part a) offensive noise, in this sense, does not refer to noise that is unpleasant, irritating, annoying, abhorrent, abusive, detestable, disagreeable or any other like words. Moreover, it refers to noise that is either harmful or interferes unreasonably with comfort. The POEO Act does not define a means of quantifying these qualities.

In relation to the nature, character or quality of a noise the INP does contain procedures to quantify these in a series of “Modifying Factor” adjustments (INP Chapter 4) which consider the tonality, impulsiveness, intermittency or low frequency components of a particular noise source. This is due to the fact that there is evidence to suggest that these factors can cause greater annoyance than other noise at the same level. The correction factors were determined following a review of Australian and overseas practises and literature.

It is noted that the proposed changes to the operation of Akuna will add an additional maximum of 28 dogs. As described in the original report, as an absolute worst case, with all dogs barking simultaneously, this could lead to an increase of 1.4 dB(A) (over current dog numbers). The *nature, character or quality* of the noise will not change.

The noise measurements made on 25th October 2016 (and reported upon by Spectrum Acoustics) were done so during a typical day when dogs were variously in their kennels or in the main exercise yard under supervision. The measured noise was from individual dogs barking and not from all dogs barking at the same time. This is a typical scenario at the kennels and will not necessarily change under the proposed altered operating conditions. That is, an increase in the maximum number of dogs present will not necessarily mean an increase in the number of dogs barking at any one time.

An analysis of the measurement periods made on October 25, during those times when the dogs were barking, shows that, on occasion, the individual barking noises were tonal at the measurement locations. It is important to note that not all of the barking noise was tonal and that when the noise was considered over a full 15 minute compliance period the total noise was not tonal.



Akuna Care – Council Queries

Under definitions in the INP the noise could be considered intermittent in that, when dogs are barking, the noise drops to the level of the background and changes by about 5 dB(A) several times throughout a measurement period. The modifying factor for intermittency, however, is only applicable at night.

All of the noise measurements shown the Spectrum report were made during the day, at times when, as described previously, dogs were in outdoor areas in either the yards or kennel run sections.

At night, (between 7pm and 7am) all of the dogs are secured into their individual enclosures and are not free to be in outdoor areas. Previous acoustic work undertaken by Spectrum Acoustics and reported upon in October, 2005 (Spectrum Acoustics Report No. 5137/1612) showed that the structure of the kennels can attenuate the noise from dogs barking by over 25 dB(A). Under such circumstances the noise from dogs inside their kennels would not be intermittent, when measured at the receiver (as per procedures detailed in the INP).

Notwithstanding the discussion above, to consider a worst case of noise from the operation of the kennels at night, Table 1 from the Spectrum Acoustics report of October, 2016 has been revised as shown below. The results include a theoretical calculation of the sound transmission loss (STL) of the kennel and a modifying factor allowance of + 5dB(A) for the noise being intermittent. To apply a degree of conservatism the STL of the Kennel has been considered to be 20 dB(A).

Table 1					
Akuna Care - Noise Monitoring Results – 25 October 2016					
Location	Time	dB(A)_{Leq}	Measured Noise	STL of Kennel	+5 Intermittency
North Boundary	12:02 pm	42	Birds (41), Kennel (33)	Kennel (13)	Kennel (18)
South Boundary	12:20 pm	46	Birds (46), Kennel (33)	Kennel (13)	Kennel (18)
West Boundary	12:35 pm	47	Birds (47), Kennel (30)	Kennel (10)	Kennel (18)

The results in Table 1 show that the noise from the kennels at night, even applying a modifying factor allowance for the dogs barking, will not exceed the relevant noise criterion.

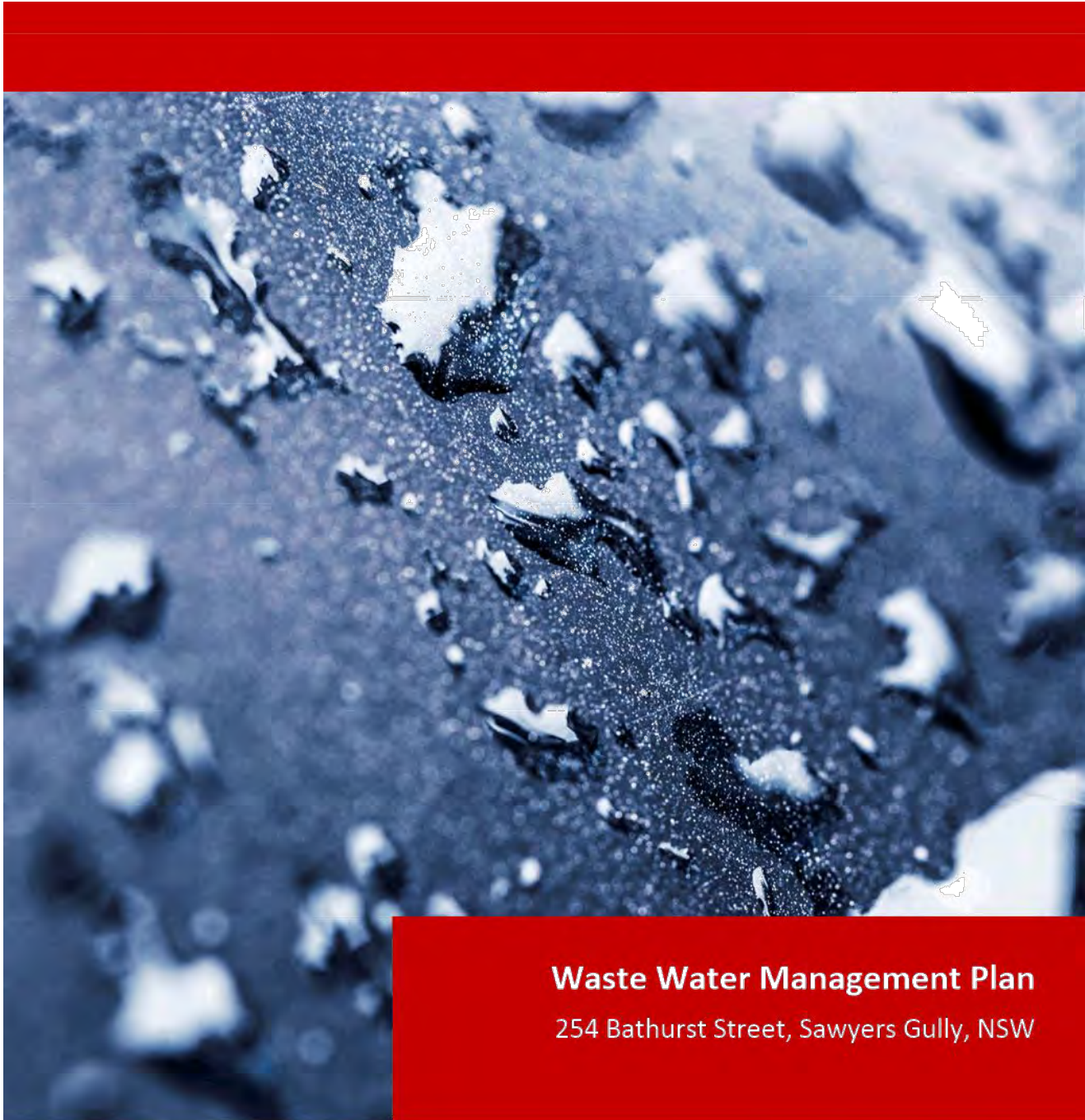
We trust this letter fulfils your requirements at this time, however, should you require additional information or assistance please do not hesitate to contact the undersigned.

Yours faithfully

SPECTRUM ACOUSTICS PTY LIMITED

Ross Hodge
Acoustical Consultant





Waste Water Management Plan

254 Bathurst Street, Sawyers Gully, NSW

Prepared for: Akuna Pet Resort
EP0441 30 January 2017





Waste Water Management Plan

254 Bathurst Street, Sawyers Gully, NSW

Akuna Pet Resort
C/- Pulver, Cooper and Blackley Pty Ltd
254 Bathurst Street,
Sawyers Gully, NSW

30 January 2017

Our Ref: EP0441

LIMITATIONS

This Waste Water Management Plan was conducted on the behalf of Akuna Pet Resort C/- Pulver, Cooper and Blackley Pty Ltd for the purpose/s stated in **Section 1**.

EP Risk has prepared this document in good faith, but is unable to provide certification outside of areas over which EP Risk had some control or were reasonably able to check. The report also relies upon information provided by third parties. EP Risk has undertaken all practical steps to confirm the reliability of the information provided by third parties and do not accept any liability for false or misleading information provided by these parties.

It is not possible in an Waste Water Management Plan to present all data, which could be of interest to all readers of this report. Readers are referred to any referenced investigation reports for further data.

Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

All work conducted and reports produced by EP Risk are based on a specific scope and have been prepared for Akuna Pet Resort and therefore cannot be relied upon by any other third parties unless agreed in writing by EP Risk.

The report(s) and/or information produced by EP Risk should not be reproduced and/or presented/reviewed except in full.

QUALITY CONTROL

Version	Author	Date	Reviewer	Date	Quality Review	Date
v1	S Lord	24.01.17	P Simpson	24.01.17	P Simpson	24.01.17
v2	P Simpson	27.01.17	N McGuire	27.01.17	N McGuire	27.01.17
v3	P Simpson	30.01.17	N McGuire	30.01.17	N McGuire	30.01.17

DOCUMENT CONTROL

Version	Date	Reference	Submitted to
v1	24.01.17	EP0441 Akuna Pet Resort_WWMP v1	Pulver, Cooper and Blackley Pty Ltd
v2	27.01.17	EP0441 Akuna Pet Resort_WWMP v1	Pulver, Cooper and Blackley Pty Ltd
V3	30.01.17	EP0441 Akuna Pet Resort_WWMP v1	Pulver, Cooper and Blackley Pty Ltd



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Waste Water Management Plan
254 Bathurst Street, Sawyers Gully, NSW
Akuna Pet Resort

Executive Summary

Background

EP Risk Management Pty Ltd ('EP Risk') was engaged by Pulver, Cooper and Blakely Pty Ltd ('PCB') on behalf of Akuna Pet Resort ('Akuna') to prepare a Waste Water Management Plan ('WWMP') at a property located at 254 Bathurst Street, Sawyers Gully, NSW (the Site).

It is understood that a Section 96(2) Application has recently been submitted to Cessnock City Council ('Council') in relation to the modification of the previous application for the facility to accommodate up to 100 dogs and 30 cats. Upon a preliminary assessment undertaken by Council, unauthorised works in relation to the current waste water management system for the Site were identified. As a result, a Proposed Order in accordance with Section 124 (Order No. 21) of the Local Government Act 1993 was submitted to Akuna where an amendment to the current waste water management system was requested.

This report presents the findings of an onsite effluent disposal assessment ('the Assessment') conducted at a property located at 254 Bathurst Street, Sawyers Gully, NSW ('the Site'). A pet resort operates at the eastern portion of the Site and the Assessment was required to assess the land space available for onsite effluent disposal from this facility.

Results of Soil Assessment

The Assessment comprised the collection of soil samples from three locations across the Site. Selected soil samples were submitted to a National Association of Testing Authorities ('NATA') accredited laboratory for analysis. The results of analytical testing were assessed against the adopted criteria with a summary of the findings provided below.

- Moderate and severe limitations were identified for sodicity at all sampling locations. Exchangeable sodium percentages were reported between 14.3% and 36.4%, indicating the soil profile may be prone to structural degradation and waterlogging if not treated with the application of gypsum or lime.
- Minor limitations were identified for salinity at the Site.
- No groundwater or indications of, were identified at the Site. As the depth of investigations were limited to 1.2 metres below ground surface ('mBGS'), a moderate limitation has been adopted. However, this is seen to be conservative.
- Minor limitations were observed at locations BH02 and BH03 while moderate limitations were observed at BH01.
- Minor limitations were identified at locations BH02 and BH03. Slightly moderate limitations were identified at BH01. The application of aglime within this area would improve the conditions for plant growth.
- Moderate limitations were observed with the soils at all sampling locations in the ability to hold on to and exchange cations.
- Results indicate that the soils at the Site are slightly dispersive.



Waste Water Management Plan
254 Bathurst Street, Sawyers Gully, NSW
Akuna Pet Resort

- Moderate limitations were identified for the soil to absorb phosphorus at the Site. The average P sorption capacity for the Site was calculated at being 3,436 kg/ha.
- There are several trees located in the proposed effluent disposal areas. However, these areas face north and were observed to receive adequate sunlight. In addition, the trees contribute to the process of evapotranspiration, removing water from the subsurface. Based on the aspect of the proposed effluent disposal areas and their contribution towards evapotranspiration, no trees are proposed to be removed within these areas.
- The elevated nutrient and microbiological impact to surface water in the dam is attributed to the waterlogged soils in the portion of the existing effluent disposal area located within the 40m buffer zone. Water quality in the dam would be improved by decommissioning the portion of the existing effluent disposal area located within the 40 m buffer zone.

Recommendations

Based on calculations using estimated nutrient and phosphorous loading, it is considered that the Site is suitable for onsite effluent disposal provided the following recommendations are implemented:

- Effluent is treated at the Site via the use of a nutrient removal system so that a high-grade effluent can be produced.
- The minimum effluent disposal area should be no smaller than 1,092 m² for a facility with standard water fixings. It is noted that smaller disposal areas can be adopted if water reducing fixings are fitted.
- Aglime should be applied to the proposed effluent disposal areas to improve the conditions for plant growth.
- Several of the irrigation lines of the existing effluent disposal area are within the 40m buffer zone of the dam and were observed to have waterlogged soils. The irrigation lines in the buffer zone should be decommissioned; which will improve the water quality in the dam.
- Warning signs should be installed at the boundaries of the irrigation areas, with wording such as 'Recycled Water – Avoid Contact – DO NOT DRINK'.

Council Concerns

EP Risk provides the following comments in relation to concerns raised by Council:

- 1. *'There are mature trees within the portion of the site currently being used as the transpiration area which are not suitable for use in wet soil environment.'***

Several mature trees were observed to be overhanging the eastern portion of the existing effluent disposal area. EP Risk recommends that the portion of the existing effluent disposal area within the 40m buffer zone should be decommissioned to reduce the potential for waterlogging of surface soils and migration of effluent to the dam.

- 2. *'The transpiration area is immediately adjacent to a dam and an unsealed roadway.'***

The proposed effluent disposal areas have been located to maintain a buffer distance of 40m from the dam and 6m from the southern property boundary.



Waste Water Management Plan
254 Bathurst Street, Sawyers Gully, NSW
Akuna Pet Resort

3. *'The transpiration area is currently failing with sodden and boggy areas evidenced along the length of the remaining disposal area.'*

Based on the calculations undertaken, EP Risk considers that the new proposed extension of the effluent disposal area will be able to accommodate the overall loading and satisfy the Section 96(2) application based on a maximum occupancy of 100 dogs and 30 cats.

4. *'Wastewater from unauthorise works is being directed into the drainage pipes currently being constructed and directed towards the on-site dam.'*

Water from the pool is filtered by a cartridge filter that does not require any backwash and therefore does not produce any wastewater. The pipes connecting the pool area and the dog exercise areas to the dam transport stormwater only. The animals are constantly supervised by site staff in these areas and all faeces are removed immediately to reduce the risk of microbiological contamination of stormwater.

5. *'In light of the concerns raised in relation to onsite waste disposal, it would need to be demonstrated that the subject site is capable of accommodating any increase in hardstand surface impervious surface area.'*

The current access and parking areas are located approximately 15 m from the proposed effluent disposal areas, are not located within the recommended buffer distances and are not located directly upgradient of the proposed effluent disposal areas. EP Risk considers that the hardstand surface impervious areas would not affect the operation of the proposed effluent disposal system.



Waste Water Management Plan
254 Bathurst Street, Sawyers Gully, NSW
Akuna Pet Resort

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1 Introduction

1.1 Overview

EP Risk Management Pty Ltd ('EP Risk') was engaged by Pulver, Cooper and Blackley Pty Ltd ('PCB') on behalf of Akuna Pet Resort ('Akuna') to prepare a Waste Water Management Plan ('WWMP') at a property located at 254 Bathurst Street, Sawyers Gully, NSW ('the Site').

It is understood that a Section 96(2) Application has recently been submitted to Cessnock City Council ('Council') in relation to the modification of previous application in order to accommodate up to 100 dogs and 30 cats. Upon a preliminary assessment undertaken by Council¹, unauthorised works in relation to the current waste water management system for the Site were identified. As a result, a Proposed Order in accordance with Section 124 (Order No. 21) of the Local Government Act 1993 was submitted to Akuna where an amendment to the current waste water management system was requested.

Council has raised the following concerns in relation to the proposed Section 96(2) Application:

1. *'There are mature trees within the portion of the site currently being used as the transpiration area which are not suitable for use in wet soil environment.'*
2. *'The transpiration area is immediately adjacent to a dam and an unsealed roadway.'*
3. *'The transpiration area is currently failing with sodden and boggy areas evidenced along the length of the remaining disposal area'*
4. *'Wastewater from unauthorise works is being directed into the drainage pipes currently being constructed and directed towards the on-site dam.'*
5. *'In light of the concerns raised in relation to onsite waste disposal, it would need to be demonstrated that the subject site is capable of accommodating any increase in hardstand surface impervious surface area.'*

1.2 Objective and Scope

It is considered that the specific objective of the WWMP is to assess whether the current waste water management system is suitable for the design provided within the Section 96(2) application and provide recommendations for any amendments if found unsuitable.

The scope of work completed to achieve the objective include:

- Undertake a site visit to observe onsite and offsite conditions.
- Conduct an audit of the current waste water management system at the Site.
- Undertake fieldwork investigations at the Site for the collection of soil data.
- Submit selected soil samples to a National Association of Testing Authorities ('NATA') accredited laboratory for the analysis of the analytes of concern.
- Based on the results of analytical testing, prepare an amended WWMP design.

¹ Cessnock City Council (2016), Section 96(2) Application No. 8/2005/121/3, Description of Development – Modification to an approved Boarding Kennel to increase number of dogs from 72 to 100 and cats from 20 to 30 and deletion of Condition 4 to enable exercising of dogs outside designated areas. Property – Lot: 30 DP



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1.3 Site Identification

The Site Identification details are presented in **Table 1**.

Table 1 – Site Identification	
Item	Description
Site Address	254 Bathurst Street, Sawyers Gully, NSW (Figure 1)
Legal Description	Lot 30 DP 1060818
Municipality	Cessnock City Council (Council)



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2 Site Condition and Surrounding Environment

2.1 Current Land Use and Layout

The Site currently comprises of a large single lot of approximately 4 hectares in size. EP Risk undertook a Site inspection on 19 December 2016 comprising of a Site walkover and visual assessment. The inspection was limited to the area containing the dog and cat accommodation in the eastern portion of the property. The general features and infrastructure observed during the inspection were:

- Dog kennels (**Plate 1**);
- Dam in the south-eastern corner (**Plate 2**);
- Water tanks (**Plate 3**);
- Existing septic system underground tanks consisting of a holding tank and an aeration tank (**Plate 4**);
- Existing irrigation area (**Plate 5**);
- Proposed extension to the existing irrigation area (**Plate 6**).

Site photos attached as **Appendix A**.

2.2 Surrounding Land Use

The Site is located within a RU2 Rural Landscape zoned area. As of the 19 December 2016, surrounding land use comprised of the following:

To the North

-
- Rural Landscape (RU2) zoned land adjacent and beyond.

To the South

-
- Rural Landscape (RU2) zoned land adjacent
 - Mix of Large Lot Residential (R5) and Low Density Residential (R2) zoned land.

To the East

-
- Rural Landscape (RU2) zoned land adjacent and beyond.

To the West

-
- Bathurst Street adjacent.
 - Mix of Rural Landscape (RU2) and National Parks and Reserve (E1) zoned land beyond.



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2.3 Topography and Drainage

The general topography of the Site and surrounding area slopes down from north to south with an approximate gradient loss of 7.6% as shown in **Figure 2.1.1**. Five surface water collection pits are installed across the Site collecting localised surface water runoff. Surface water collected from these pits drain into dam located in the south-eastern corner of the Site. Surface water not collected from the pits will likely migrate as overland flow towards the south, south east.



Figure 2.1.1 – North to south profile of the Site

2.4 Geology

With reference to the NSW Department of Industry Resources and Energy Newcastle geological map sheet SI/56-01 (1969), first edition, the Site is underlain by Rutherford formation mudstone, conglomerate sandstone, sandstone and shale of the Dalwood Group.

2.5 Hydrogeology

Two registered groundwater bores were identified to be located with 2 km of the Site. Registered bore GW078284, located approximately 1.8 km south west of the Site was identified to be 38.1 m in depth and utilised for stock/domestic purposes. Limited information was available for the remaining registered bore located approximately 1.6 km to the north. Copies of the licensed bore logs are contained in **Appendix F**.

2.6 Acid Sulfate Soils

With reference to the CSIRO National Acid Sulfate Soil Database, the Site is located within an area of no known occurrence of acid sulfate soils. In relation to the Cessnock LEP (2011) the Site is in an Acid Sulfate Soils Class 5, which requires Development Consent for Works within 500 metres of adjacent Class 1, 2, 3 or 4 land, which are likely to lower the water table below one metre Australian Height Datum (AHD) on adjacent Class 1, 2, 3 or 4 land.

2.7 Climate

With reference to the Bureau of Meteorology (BOM) the mean annual rainfall for the area has been identified as approximately 743.3 mm. Average wind speed for the area has been identified as being approximately 11.6 km/h at 9am and 16.9 km/h at 3pm. The total annual evapotranspiration for the area has been identified to be between 800 and 900 mm. The evapotranspiration data has been calculated based on the transfer and balance of energy from temperature, vapour pressure and solar global exposure. Data was taken from the Cessnock airport centre located approximately 8 km from the Site.



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2.8 Sensitive Receptors

The identified sensitive receptors at the Site are:

- Current and Future residential occupiers of the Site.
- Current and future staff at the Site.
- Current and future occupiers of the surrounding rural properties.
- Local flora and fauna at the Site.

2.9 Site Assessment

A summary of the site assessment when rating for onsite systems is provided in **Table 2**.

Table 2 – Site Assessment		
Site Feature	Limitation Category ²	Comments/Restrictive Feature
Flood potential	Minor	Not mapped as flood liable.
Exposure	Moderate	Data obtained from the BOM indicates the Site has adequate evapotranspiration. Some shading of existing irrigation area was observed by overhanging trees.
Slope (%) <ul style="list-style-type: none"> - Surface irrigation - Sub surface irrigation - Absorption system 	Moderate	The Site has a gentle slope from north to south of approximately 7.6%.
	Minor	
	Minor	
Landform	Minor	Local landform comprises of low lying plains.
Erosion potential	Minor	No evidence of erosion observed.
Site drainage	Minor	No visible signs of surface dampness observed.
Fill	Minor	No fill observed.
Buffer distances	Minor to major	Buffering distances outlined in Table 5 of the Environment and Health Protection Guidelines (1998), Onsite Sewage Management for Single Households Guidelines are to be adopted.
Land area	Minor	Current disposal area approved by Council has been identified as 1,400 m ² . Therefore, it is considered that sufficient and appropriate land is available.
Rocks and rock outcrop	Minor	No rocks/rock outcrops observed on land surface.

² In accordance with Table 4 for the Environment and Health Protection Guidelines (1998), Onsite Sewage Management for Single Households Guidelines and Table 2.1 NSW DEC (2004) Environmental Guidelines, Use of Effluent by Irrigation.



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Table 2 – Site Assessment		
Site Feature	Limitation Category ²	Comments/Restrictive Feature
Geology/regolith	Minor	Site is underlain by Rutherford formation mudstone, conglomerate sandstone, sandstone and shale of the Dalwood Group.



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3 Sampling and Analysis

3.1 Data Quality Objectives

To assess whether an appropriate sampling strategy was adopted for the Assessment, EP Risk has adopted the data quality objectives (DQOs) planning process as:

- Recommended in the National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM, 2013);
- Required within the NSW Department of Environment and Conservation 2006, Guidelines for the NSW Site Auditors Scheme (2nd edition) (DEC, 2006); and
- With consideration to technical details outlined in United State Protection Agency: Guidance on Systematic Planning Using the Data Quality Objectives Process, ref: EPA QA/G-4 (US EPA, 2006) and AS 4482.1 2005, Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds.

State the Problem

An assessment on the land space available for onsite septic disposal is required for the onsite septic system for the proposed expansion to the facility to accommodate 100 dogs and 30 cats.

Identify the Decision

To satisfy the requirements of the Assessment, the following decisions need to be addressed:

- Will the additional information obtained adequately characterise the soil suitability for on-site effluent disposal at the Site?

Identify Inputs into the Decision

The inputs required to make the decision include the following:

- Onsite and offsite conditions observed at the Site; and
- Concentrations of the additional soil chemical properties gathered from Site.

Define the Boundaries of the Study

The spatial boundaries of the assessment comprise the south-eastern corner of Lot 30 DP1060818.

Develop a Decision Rule to Identify the Decision

The assessment criteria for the adopted analyte schedule is presented in Section 4.

Data Representativeness

Expresses the accuracy and precision with which sample data represents an environmental condition. Data representativeness is achieved by the collection of samples at an appropriate pattern and density as well as consistent and repeatable sampling techniques and procedures.



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Completeness

Refers to the percentage of data that can be considered valid data. Sufficient data is required to enable an assessment of the decision rules.

Comparability

A qualitative comparison of the confidence with which one data set can be compared to another. This is achieved through consistent sampling and analytical testing and reporting techniques.

Precision

Is a measure of the reproducibility of on measurements under a given set of conditions the relative percent difference (RPD) has been adopted to assess the precision of data between duplicate sample pairs according to the following equation.

$$RPD\% = \frac{[Cp - Cd]}{Cp + Cd} \times 200$$

Where:

Cp = Primary sample

Cd = Duplicate Sample

An acceptance criterion of $\pm 30\%$ had been adopted for inorganic field duplicates and triplicates and $\pm 50\%$ for organic field duplicates and triplicates.

Accuracy

Is a measure of the bias in the analytical results and can often be attributed to field contamination, insufficient preservation or sample preparation or inappropriate analytical techniques. Accuracy of the analytical data is assessed by consideration of laboratory control samples, laboratory spikes and analytical techniques in accordance with appropriate standards.

Optimise the Design for Obtaining Data

A targeted sampling pattern was adopted for the Assessment based on the Site layout and features. The adopted analyte suite is consistent with regulatory recommendations designed to provide an adequate characterisation of the soil suitability at the Site.



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3.2 Data Quality Indicators

The DQOs, requirements and indicators for the assessment are presented in **Table 3**.

Table 3 – DQO, Requirements and Indicators		
DQO	Requirement	Data Quality Indicator
Precision		
Standard operating procedures appropriate and complied with	The sampling methods comply with industry standards and guidelines	Meet Requirement
Laboratory Duplicates	Minimum of 1 per batch per analyte.	RPDs < 50%
Accuracy		
Laboratory Control Samples	At least 1 per batch per analyte tested for	Result < Limit of reporting
Representativeness		
Sampling methodology - preservation	Appropriate for the sample type and analytes	Meet Requirement
Samples extracted and analysed within holding times	Specific to each analyte	Meet Requirement
Laboratory Method Blanks	At least 1 per batch per analyte tested for	Result < Limit of reporting
Comparability		
Sampling approach	Consistent for each sample	Meet Requirement
Analysis methodology	Consistent methodology for each sample	Meet Requirement
Handling conditions and sampler	Consistent for each sample	Meet Requirement
Field observations and analytical	Field observations to support analytical results	Meet Requirement
Consistent laboratory Limit of Reporting (LOR)	Consistent between primary and secondary laboratories	Meet Requirement
Completeness		
Sampling staff	Consistent sampling staff used.	Meet Requirement
Laboratory accreditation	NATA Accredited laboratory for methods used	Meet Requirement
Accredited methods	NATA accredited methods used appropriate for each analyte.	Meet Requirement
Limits of reporting	Limits of reporting consistent and appropriate	Meet Requirement



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Table 3 – DQO, Requirements and Indicators		
DQO	Requirement	Data Quality Indicator
Consistent weather / field conditions	Consistent	Meet Requirement
Chain of Custody Documentation	Appropriately completed	Meet Requirement
Field Sampling Documentation	Appropriately completed	Meet Requirement

3.3 Sampling and Analysis Methodology

The methodology for soil sampling was outlined as follows:

- 1 Soil samples were collected from three bore holes in targeted areas at the Site.
- 2 Bore holes were advanced via hand auger to a maximum depth of 1.2 meters below ground surface (mBGS).
- 3 Soils were logged for type, colour, texture, other characteristics and indications of contamination as presented in the bore logs attached as **Appendix C**.
- 4 A dedicated pair of nitrile gloves was used for each sample to prevent cross contamination.
- 5 Sufficient samples were collected and placed into laboratory prepared sampling jars with the sample details added to the label on the jar.
- 6 The sample jars were preserved in a chilled esky containing ice immediately after sampling and during shipment to the laboratory. The laboratory chain of custody documentation was completed and accompanied the samples during shipment.

The methodology for water sampling was undertaken as follows:

- 1 The water sample was collected from one location from the dam.
- 2 The sample was collected using a grab sampler with a disposable sample container and placed into a laboratory prepared sampling jar with the sample details added to the label on the jar.
- 3 The sample jars were preserved in a chilled esky containing ice immediately after sampling and during shipment to the laboratory. The laboratory chain of custody documentation was completed and accompanied the samples during shipment.



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3.4 Analytical testing

EP Risk used ALS Global as the project laboratory. The laboratory analysis was undertaken in accordance with **Table 4**.

Table 4 – Analytical Testing of Primary Samples			
Media	Sampling locations	Sample Depth (mBGS)	Number of Analysis
Soil	3	0.0	• pH – 3
		0.0-0.4	• Cation Exchange Capacity – 3
		0.0-0.7	• Electrical Conductivity – 3
		0.4-1.0	• Cation Exchange Capacity – 3
		0.7-1.0	• Electrical Conductivity – 3
		0.0-1.0	• Emerson aggregate test, phosphorus sorption – 3
Water	1	-	• Total coliforms and E. coli - 1

3.5 Field and Laboratory Quality Assurance and Quality Control

An assessment of the quality assurance/quality control (QA/QC) procedures is presented in **Table 5**.

Table 5 – QA/QC Results Summary		
DQO	Results	DQO met?
Precision		
Laboratory Duplicates	1 per batch per analyte RPDs < 50%	Yes Yes
Accuracy		
Laboratory Control Samples	At least 1 per batch per analyte tested for Result < Limit of reporting	Yes Yes
Laboratory Method Blanks	At least 1 per batch per analyte tested for Result < Limit of reporting	Yes Yes
Representativeness		
Sampling methodology - preservation	Appropriate for the sample type and analytes	Yes
Samples extracted and analysed within holding times	Specific to each analyte	Yes
Laboratory Method Blanks	At least 1 per batch per analyte tested for	Yes
Comparability		
Sampling Approach	Consistent for each sample	Yes
Analysis Methodology	Consistent methodology for each sample	Yes



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Table 5 – QA/QC Results Summary		
DQO	Results	DQO met?
Handling conditions and sampler	Consistent for each sample	Yes
Field observations and analytical results	Field observations to support analytical results	Yes
Consistent laboratory Limit of Reporting (LOR)	Consistent between primary and secondary laboratories	Yes
Completeness		
Chain of Custody Documentation	Appropriately completed	Yes
Field Sampling Documentation	Appropriately completed	Yes
Satisfactory quality assurance/quality control procedures	In accordance with relevant guidance	Yes

Based on the results presented in **Table 5**, it is considered that the DQOs for the project have been met and the data is appropriate for the purposes of this assessment.



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4 Assessment Criteria

4.1 Soil

For the purposes of assessing the results of analytical testing of soils at the Site, the following guidelines were considered:

- NSW DEC (2004) Environmental Guidelines, Use of Effluent by Irrigation; and
- Environment and Health Protection Guidelines (1998), Onsite Sewage Management for Single Households Guidelines (Silver Book).

The adopted typical soil characteristics are listed in **Table 6**.

Property	Depth	Minor Limitation	Moderate Limitation	Severe Limitation ³	Restrictive Feature
Exchangeable sodium %	0-0.4	0-5	5-10 ⁴	>10	Structural degradation and waterlogging
Exchangeable sodium %	0.4-1.0	<10	>10	-	
Electrical conductivity	0-0.7	<2	2-4	>4 ⁵	Excess salt may restrict plant growth
Electrical conductivity	0.7-1.0	<4	4-8	>8	Excess salt may restrict plant growth, potential seasonal groundwater rise
Depth to top of seasonal high water table (m)	-	>3 ⁶	0.5-3 ⁸	<0.5	Poor aeration, restricts plant growth, risk to groundwater
Depth to bedrock or hardpan (m)	-	>1	0.2-1	<0.5	Restricts plant growth, excess runoff, waterlogging
Soil pH	0.0	>6-7.5	3.5 ⁷ -6>7.5	<3.5	Reduces optimum plant growth

³ Sites with severe properties are generally considered not suitable for irrigation.

⁴ May require application of gypsum or lime to maintain long-term suitability.

⁵ May contain calcium salts that are not necessarily considered severe.

⁶ If no indications of groundwater were observed in excavation depth of 1 mBGS local knowledge should be used.

⁷ Soil pH may need to be increased to improve plant growth.



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Table 6 – Typical Soil Characteristics for Effluent Irrigation Systems					
Property	Depth	Minor Limitation	Moderate Limitation	Severe Limitation ³	Restrictive Feature
Effective Cation Exchange Capacity	0-0.4	>15	3-15 ⁸	<3	Unable to hold plant nutrients
Emerson aggregate test	0-1.0	3,4	2	1	Poor structure
Phosphorus sorption (0-1.0m for irrigation)	0-1.0	>6000	2000-6000	<2000	Unable to immobilise and excess phosphorus

4.2 Water

For the purposes of assessing the results of analytical testing of water in the dam at the Site, the following guidelines were considered:

- ANZECC⁹ & ARMCANZ¹⁰ (2000) Australian and New Zealand guidelines for fresh and marine water quality, Volume 1.
- NHMRC (2011) National Water Quality Management Strategy, Australian Drinking Water Guidelines 6, Version 3.3, Updated November 2016.

The adopted typical soil characteristics are listed in **Table 7**.

Table 7 – Water Quality Criteria					
Analyte	Irrigation ¹ (cfu / 100 mL)	Drinking Water for Livestock (cfu / 100 mL)	Recreational Waters (cfu / 100 mL)	Fresh Water (mg/L)	Potable Drinking Water (mg/L)
Thermotolerant Coliforms	1,000 ¹¹	100	150		
E. Coli	-	-	35		
Nitrite + Nitrate					
Total Nitrogen				0.9	

⁸ Soil may become more sodic with effluent irrigation. In some cases, this may be ameliorated with addition of a calcium source.

⁹ ANZECC - Australian and New Zealand Environment and Conservation Council.

¹⁰ ARMCANZ - Agriculture and Resource Management Council of Australia and New Zealand.

¹¹ Trigger value for Thermotolerant Coliforms in waters used for food and non-food crops.



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5 Interpretation of Analytical Results

A summary of the analytical results is provided below. Analytical summary tables are attached to the rear of the report with NATA accredited laboratory reports are attached as **Appendix D**.

5.1 Soil

Exchangeable Sodium Percentage

Moderate and severe limitations were identified for sodicity at all sampling locations. Exchangeable sodium percentages were reported between 14.3% and 36.4%, indicating the soil profile may be prone to structural degradation and waterlogging if not treated with the application of gypsum or lime.

Electrical Conductivity

Minor limitations were identified for salinity at both sites.

Depth to top of Groundwater

No groundwater or indications of, were identified at the Site. As the depth of investigation was limited to 1.2 mBGS, a moderate limitation has been adopted. However, this is seen to be conservative.

Depth to Bedrock or Hardpan

Minor limitations were observed at locations BH02 and BH03 while moderate limitations were observed at BH01.

Soil pH

Minor limitations were identified at locations BH02 and BH03. Slightly moderate limitations with were identified at BH01. The application of aglime within this area would improve the conditions to plant growth.

Effective Cation Exchange Capacity

Moderate limitations were observed with the soils at all sampling locations in the ability to hold on to and exchange cations.

Emerson Aggregate Test

Results indicate that the soils at the Site are slightly dispersive.



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Phosphorus Sorption

Moderate limitations were identified for the soil to absorb Phosphorus at the Site. The average P sorption capacity for the Site was calculated at being 3,436 kg/ha.

5.2 Water

Nutrients

Total phosphorus concentrations and total nitrogen concentrations were recorded in excess of the ANZECC (2000) irrigation and ANZECC 2000 Fresh Water criteria respectively. All other analytical concentrations were recorded below the adopted criteria.

Microbiology

Escherichia Coli (E. coli) and total coliform concentrations were recorded more than the ANZECC and ARMCANZ (2000) primary contact recreations and potable criteria.

The elevated nutrient and microbiological impact to surface water in the dam is likely to be sourced from the waterlogged soils of the existing effluent disposal area located within the 40m buffer zone.



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6 Area Available for Effluent Disposal

6.1 Nutrient Balance

To assess the minimum irrigation area for effluent disposal at the Site the following calculations were undertaken:

- Nitrogen loading; and
- Phosphorus loading.

Nitrogen Loading

To assess the area requirements based on nutrient and organic matter, the following formula was used:

$$A = \frac{C \times Q}{L_x}$$

Where

- A = land area (m²)
- C = concentration of nutrient or Biological oxygen demand (BOD) (mg/L)
- Q = treated wastewater flow rate (L/d)
- L_x = critical loading rate of nutrient or BOD (mg/m²/d)

As outlined in the NSW guidelines for onsite effluent disposal, N uptake values vary between 18 and 36 mg/m²/day nitrogen for perennial pasture. Therefore, for the assessment a N uptake value of 27 mg/m²/ day has been adopted for this assessment.

Phosphorus Loading

Based on the Phosphorus (P) sorption results, the mean P sorption capacity across the Site has been calculated as being 3,436 kg/ha. As recommended in the Silver Book for land application, a soil with a P sorption ability of a minimum of 50 years has been adopted for the assessment. A third of the total P sorption capacity after which leaching can occur through the soil profile has also been adopted as the nominal value for the assessment.

To assess the area requirements based on phosphorous sorption capacity of the soil at the Site, the following equation was used:

$$A = P_{\text{generated}} / (P_{\text{adsorbed}} + P_{\text{uptake}})$$

Where:

A = irrigation area (m²)
P_{generated} = total phosphorus concentration x volume of waste water produced over 50 years
P_{adsorbed} = mean phosphorus sorption capacity multiplied by 1/3 (kg/m²)
P_{uptake} = critical loading rate (mg/m²/d) x 365 (days) x 50 (years)

The minimum effluent disposal area for the pet resort facility was assessed with consideration to several variables detailed in the sections below.



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6.2 Waste Water Generation

It is noted that the waste water generation scenarios outlined in the Silver Book are based on family households varying in the number of bedrooms. As the Site operates as a kennel a conservative approach has been adopted for the Assessment with the adopted number of equivalent persons based on single households with 5 bedrooms. This equated to a total number of ten persons within the household.

Water Supply

As reticulated water supply is provided to the Site the adopted hydraulic loading rates are 20% to 30 % higher than the waste water generation rates for rainwater tank supply outlined in AS/NZ1547:2000.

Waste Water Flow Allowance

With reference to the waste water generation rates outlined in AS/NZ1547:2012 the following allowances were adopted for reticulated water supply.

Table 8 – Waste Water Flow Allowances	
Water Reduction Features	Flow Allowance (L/person or animal/day)
Non-resident staff	30 ¹²
Animals (dogs)	9 ¹³
Animals (cats)	2 ¹⁴

Number of Equivalent Persons

The following waste water generation scenarios were adopted in **Table 9**.

Table 9 – Waste Water Generation Scenario (L/day)				
Water Reduction Features	Number of Non-resident Staff	Dogs	Cats	Total Wastewater Generated (L/day)
	5	100	30	
Standard fixtures	150	900	60	1,110

¹² Adopting the value for a motel / hotel non-resident staff.

¹³ Assuming an average dog produces 27% of the effluent of a human by weight (motel/hotel guest); the average occupancy is 75% and assuming the waste from five dogs is flushed at once.

¹⁴ Assuming an average cat produces 6% of the effluent of a human by weight (motel/hotel guest); an average occupancy of 75% and the waste from five cats is flushed at once.



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6.3 Summary of the Minimum Effluent Disposal Area Calculations

A summary of the minimum effluent disposal areas for the development scenario is provided in **Table 10**. Calculations are provided in **Appendix E**.

Table 10 – Minimum Effluent Disposal Area (m²)	
Calculation method	Effluent Disposal Area (m²)
Nitrogen Loading	329
Phosphorous Loading	1,092

Based on the calculations above, the estimated phosphorous balance has been identified as more limiting. It is noted that conservative expected concentrations after treatment in an aerated waste water treatment system (AWTS) of 37 mg/L for nitrogen and 13 mg/L for phosphorous was adopted for the initial calculation. Based on the above information recommended areas for effluent disposal are shown in **Figure 3**.



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7 Conclusion

This report presents the findings of an onsite effluent disposal assessment conducted at the Site located at 254 Bathurst Street, Sawyers Gully, NSW. It is understood that the eastern portion of the Site is an operational pet resort and that the Assessment was required to assess the land space available for onsite effluent disposal from this facility.

The Assessment comprised the collection of soil samples from three locations across the Site. Selected soil samples were submitted to a NATA accredited laboratory for analysis. The results of analytical testing were assessed against the adopted criteria with a summary of the findings provided below.

- Moderate and severe limitations were identified for sodicity at all sampling locations. Exchangeable sodium percentages were reported between 14.3% and 36.4%, indicating the soil profile may be prone to structural degradation and waterlogging if not treated with the application of gypsum or lime.
- Minor limitations were identified for salinity at the Site.
- No groundwater or indications of, were identified at the Site. As the depth of investigations were limited to 1.2 mBGS a moderate limitation has been adopted. However, this is seen to be conservative.
- Minor limitations were observed at locations BH02 and BH03 while moderate limitations were observed at BH01.
- Minor limitations were identified at locations BH02 and BH03. Slightly moderate limitations were identified at BH01. The application of aglime within this area would improve the conditions for plant growth.
- Moderate limitations were observed with the soils at all sampling locations in the ability to hold on to and exchange cations.
- Results indicate that the soils at the Site are slightly dispersive.
- Moderate limitations were identified for the soil to absorb Phosphorus at the Site. The average P sorption capacity for the Site was calculated at being 3,436 kg/ha.
- There are several trees located in the proposed effluent disposal areas. However, these areas face north and were observed to receive adequate sunlight. In addition, the trees will contribute to the process of evapotranspiration, removing water from the subsurface. Based on the aspect of the proposed effluent disposal areas and their contribution towards evapotranspiration, no trees are proposed to be removed within these areas.
- The elevated nutrient and microbiological impact to surface water in the dam is attributed to the waterlogged soils in the portion of the existing effluent disposal area located within the 40m buffer zone. Water quality in the dam would be improved by decommissioning the portion of the existing effluent disposal area located within the 40 m buffer zone.

Based on calculations using estimated nutrient and phosphorous loading, it is considered that the Site is suitable for onsite effluent disposal provided the following recommendations documented in Section 8 are implemented.



Waste Water Management Plan
254 Bathurst Street, Sawyers Gully, NSW
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8 Recommendations

Based on the results of the assessment, EP Risk recommends that the following is implemented:

- Effluent is treated at the Site via the use of a nutrient removal system so that a high-grade effluent can be produced.
- The minimum effluent disposal area should be no smaller than 1,092 m² for a facility with standard water fixings. It is noted that smaller disposal areas can be adopted if water reducing fixings are fitted.
- Aglime should be applied to the proposed effluent disposal areas to improve the conditions for plant growth.
- Several of the irrigation lines of the existing effluent disposal area are within the 40m buffer zone of the dam and were observed to have waterlogged soils. The irrigation lines in the buffer zone should be decommissioned; which will improve the water quality in the dam.
- Warning signs should be installed at the boundaries of the irrigation areas, with wording such as 'Recycled Water – Avoid Contact – DO NOT DRINK'.

EP Risk provides the following comments in relation to concerns raised by Council:

1. ***'There are mature trees within the portion of the site currently being used as the transpiration area which are not suitable for use in wet soil environment.'***

Several mature trees were observed to be overhanging the eastern portion of the existing effluent disposal area. EP Risk recommends that the portion of the existing effluent disposal area within the 40m buffer zone should be decommissioned to reduce the potential for waterlogging of surface soils and migration of effluent to the dam.

2. ***'The transpiration area is immediately adjacent to a dam and an unsealed roadway.'***

The proposed effluent disposal areas have been located to maintain a buffer distance of 40m from the dam and 6m from the southern property boundary.

3. ***'The transpiration area is currently failing with sodden and boggy areas evidenced along the length of the remaining disposal area.'***

Based on the calculations undertaken, EP Risk considers that the new proposed extension of the effluent disposal area will be able to accommodate the overall loading and satisfy the Section 96(2) application based on a maximum occupancy of 100 dogs and 30 cats.

4. ***'Wastewater from unauthorise works is being directed into the drainage pipes currently being constructed and directed towards the on-site dam.'***

Water from the pool is filtered by a cartridge filter that does not require any backwash and therefore does not produce any wastewater. The pipes connecting the pool area and the dog exercise areas to the dam transport stormwater only. The animals are constantly supervised by site staff in these areas and all faeces are removed immediately to reduce the risk of microbiological contamination of stormwater.



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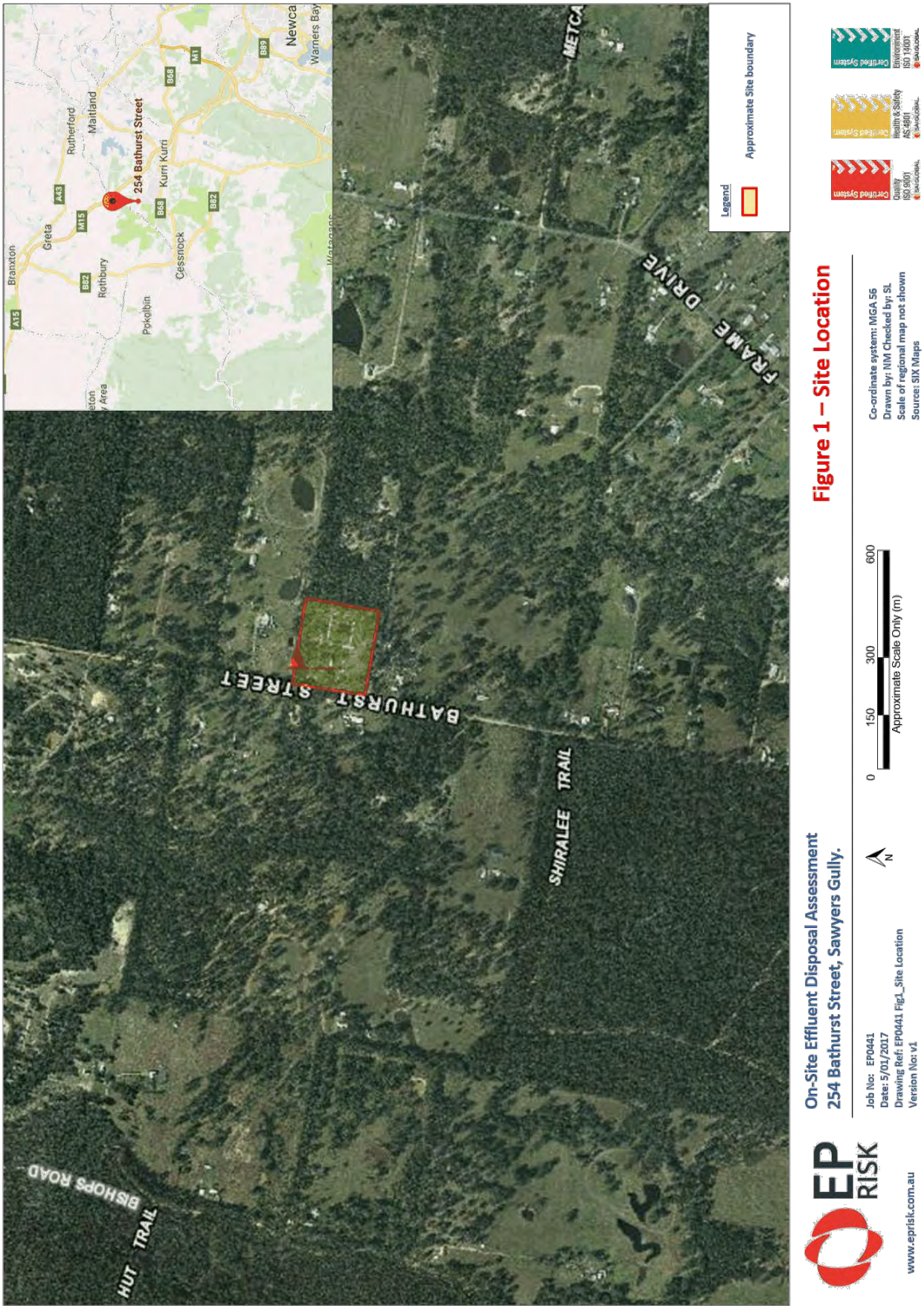
- 5. *'In light of the concerns raised in relation to onsite waste disposal, it would need to be demonstrated that the subject site is capable of accommodating any increase in hardstand surface impervious surface area.'***

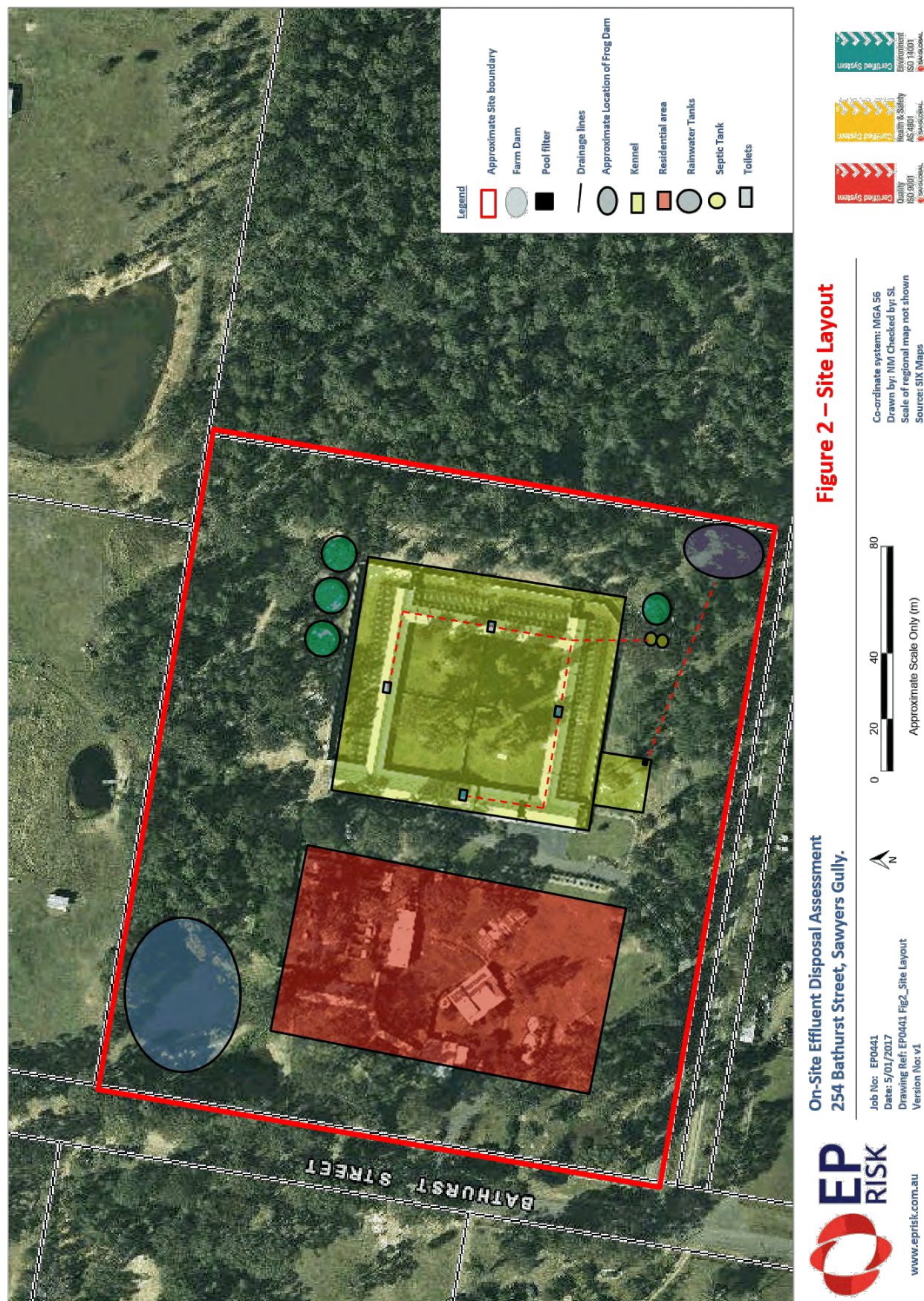
The current access and parking areas are located approximately 15 m from the proposed effluent disposal areas, are not located within the recommended buffer distances and are not located directly upgradient of the proposed effluent disposal areas. EP Risk considers that the hardstand surface impervious areas would not affect the operation of the proposed effluent disposal system.



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Figures









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Analytical Tables

Onsite Effluent Disposal Assessment
254 Bathurst Street, Sawyers Gully, NSW

Analytical Summary - Soil



Property	Units	Depth (m)	Limitation			BH01	BH02	BH03
			Minor	Moderate	Severe			
Exchangeable sodium Percentage	%	0-0.4	0-5	5-10	>10	14.3	22.9	24.2
	%	0.4-1.0	<10	>10	-	27.1	36.4	29.5
Electrical conductivity	dS/m	0-0.7	<2	2-4	>4	0.360	0.289	0.156
	dS/m	0.7-1.0	<4	4-8	>8	0.320	0.412	0.508
Depth to top of seasonal high water table (m)	-	-	>3	0.5-3	<0.5	>1	>1	>1
Depth to bedrock or hardpan (m)	-	-	>1	0.2-1	<0.2	0.9	>1	>1
Soil pH	pH units	0	>6.7.5	3.5-6	<3.5	6.0	6.2	6.2
Effective Cation Exchange Capacity	cmol (+)/kg	0-0.4	>15	3-15	<3	9.1	9.6	9.1
Emerson aggregate test	-	0-1.0	3-4	2	1	2.0	1.0	2.0
Phosphorus sorption	kg/ha	0-1.0	>6000	2000-6000	<2000	2730	3723	3854

EP00441 Onsite Effluent Disposal Assessment
254 Bathurst Road, Sawyers Gully, NSW

**Analytical Summary - Water
Miscellaneous**

Group	Analyte	Units	ANZECC 2000/ Primary Contact Recreation	ANZECC 2000/ Drinking Water for Livestock	ANZECC 2000 Irrigation ¹	WHMHS 2011, Drinking Water	Sample Date	Sample ID
Ammonia as N	Ammonia as N	mg/L					19/12/2016	DAN01
Nitrate as N	Nitrate as N	mg/L						
Nitrate + Nitrate as N (Nox)	Nitrate as N	mg/L						
TKN (g/dm ³)	Nitrate + Nitrate as N (Nox)	mg/L				3		
Total Phosphorus as P	TKN (g/dm ³)	mg/L			0.05			
Total Nitrogen as N (TKN+Nox)	Total Phosphorus as P	mg/L					0.9	
Faecal Coliforms and E.coli	Total Nitrogen as N (TKN+Nox)	mg/L	35					
	Faecal Coliforms	cfu/100mL	150	0	1000			
	Escherichia Coli	cfu/100mL						

1. Reference has been made to long term irrigation criteria provided in ANZECC (2000).





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Appendices

Appendix A



PHOTO LOG

EP0441

30 January 2017



Appendix A

	<p>Plate 1</p> <p>Description: Dog kennels</p> <p>Date: 19/12/2016</p>
	<p>Plate 2</p> <p>Description: Dam in the south east</p> <p>Date: 19/12/2016</p>



Appendix A



Plate 3

Description:
Water tank

Date:
19/12/2016



Plate 4

Description:
Existing septic system.

Date:
19/12/2016



Appendix A



Plate 5

Description:
Existing
irrigation area.

Date:
19/12/2016



Plate 6

Description:
Proposed
extension to the
existing
irrigation area.

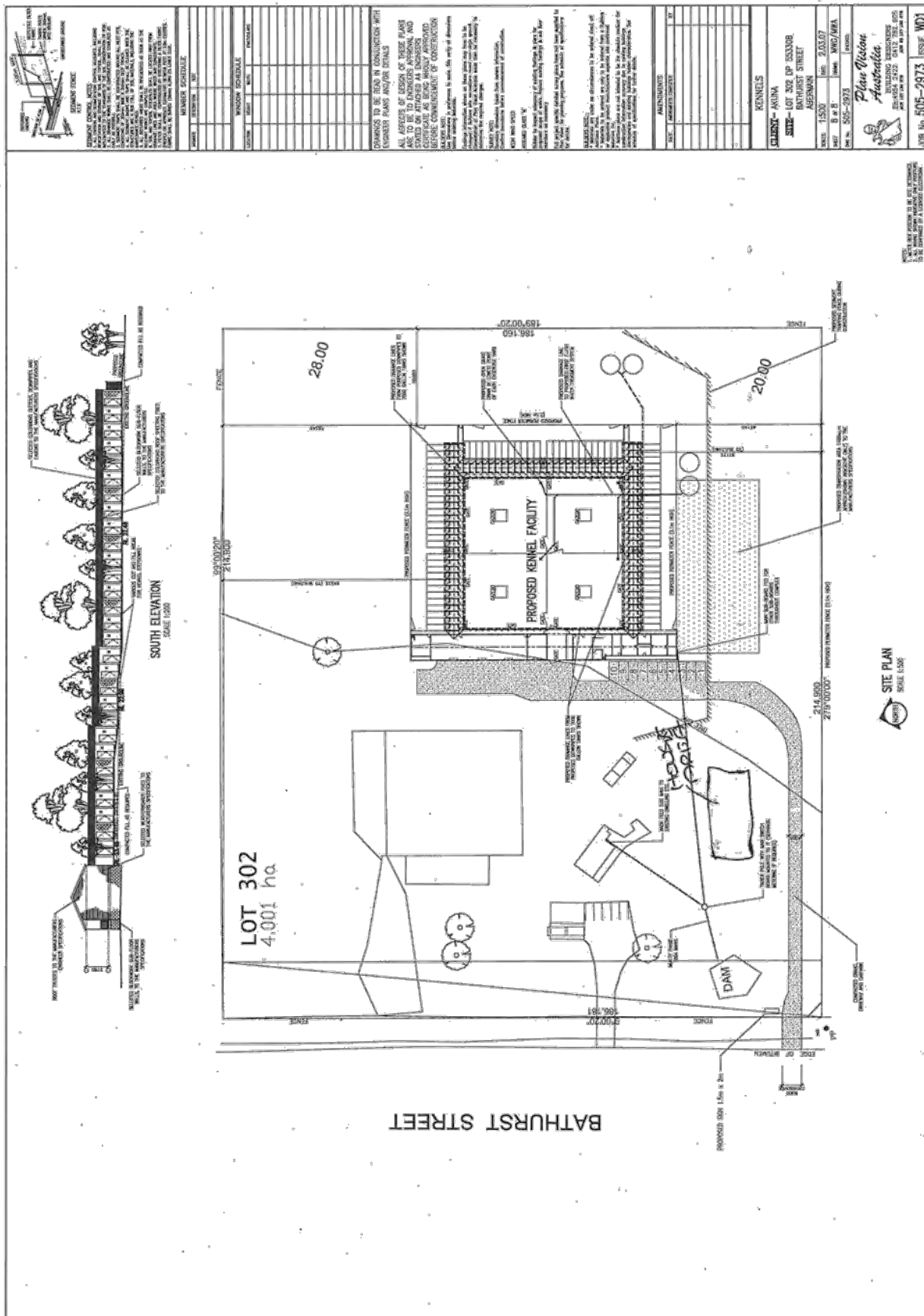
Date:
19/12/2016



Waste Water Management Plan
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Appendix B

SITE SURVEY DRAWING

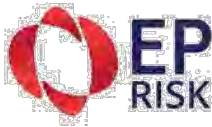




Waste Water Management Plan
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Appendix C

TEST PIT LOGS



BOREHOLE BH01

PROJECT NUMBER EP0441		DRILLING DATE 19/12/2016		EASTING 353317.01	
PROJECT NAME Effluent Disposal Assessment		DRILLING METHOD Hand Auger		NORTHING 6371017.46	
CLIENT Akunas Pet Resort		TOTAL DEPTH 0.9 mBGS		ZONE 56 H	
ADDRESS 254 Bathurst Street, Sawyers Gully, NSW				LOGGED BY SL	
				CHECKED BY PS	
COMMENTS					
Depth (m)	Graphic Log	USCS	Material Description	Additional Observations	
0.1		SM	sandy SILT: Brown, loose, fine to medium grained, dry to moist, some small gravel (rounded), non plastic fines.	Sample collected at 0.0	
0.2		SC	sandy CLAY: Reddy-brown, stiff, fine grained, dry, medium plastic fines.		
0.3					
0.4					Sample collected from 0.0-0.4 and 0.4-1.0
0.5		SC	As above. Some light brown/orange mottling, some secondary sand deposit (rounded).		
0.6					
0.7		SC	As above. Orange, increase in stiffness.	Sample collected form 0.0-0.7 and 0.7-1.0	
0.8					
0.9			Termination Depth at 0.9 mBGS. Refusal.	Sample collected from 0.0-1.0	

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BOREHOLE BH02

PROJECT NUMBER EP0441		DRILLING DATE 19/12/2016	EASTING 353334.26	
PROJECT NAME Effluent Disposal Assessment		DRILLING METHOD Hand Auger	NORTHING 6371026.74	
CLIENT Akunas Pet Resort		TOTAL DEPTH 1.2 mBGS	ZONE 56 H	
ADDRESS 254 Bathurst Street, Sawyers Gully, NSW		LOGGED BY SL	CHECKED BY PS	
COMMENTS				
Depth (m)	Graphic Log	USCS	Material Description	Additional Observations
0.1		SM	sandy SILT: Brown, loose, fine to medium grained, dry to moist, some small gravel (rounded), non plastic fines.	Sample collected at 0.0
0.2		SC	sandy CLAY: Reddy-brown, stiff, fine grained, dry, medium plastic fines.	Sample collected from 0.0-0.4 and 0.4-1.0
0.3				
0.4				
0.5				
0.6		SC	As above. Orange/brown, some light brown mottling.	Sample collected form 0.0-0.7 and 0.7-1.0
0.7				
0.8				
0.9				Sample collected from 0.0-1.0
1.0				
1.1				
1.2			Termination Depth at 1.2 mBGS.	
1.3				
1.4				

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ENVIRONMENTAL BOREHOLE / TESTPIT BH03

PROJECT NUMBER EP0441		DRILLING DATE 19/12/2016	EASTING 353349.48	
PROJECT NAME Effluent Disposal Assessment		DRILLING METHOD Hand Auger	NORTHING 6371024.90	
CLIENT Akunas Pet Resort		TOTAL DEPTH 1.2 mBGS	SURFACE ELEVATION 56 H	
ADDRESS 254 Bathurst Street, Sawyers Gully, NSW		LOGGED BY SL	CHECKED BY PS	
COMMENTS				
Depth (m)	Graphic Log	USCS	Material Description	Additional Observations
0.1		SM	SANDY SILT: Brown loose, fine to medium grained, dry to moist, some small gravel (rounded), non-plastic fines.	Sample collected at 0.0
0.2		SC	SANDY CLAY: Reddy-brown, stiff, fine grained, dry, medium plastic fines.	
0.3				
0.4				Sample collected from 0.0-0.4 and 0.4-1.0
0.5		SC	As above. Orange/brown, some light mottling.	
0.6				
0.7				Sample collected from 0.0-0.7 and 0.7-1.0
0.8				
0.9				
1				Sample collected from 0.0-1.0
1.1				
1.2			Termination Depth at:1.2 mBGS	
1.3				
1.4				

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Appendix D

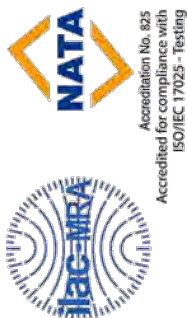
NATA ACCREDITED LABORATORY REPORTS



Environmental

CERTIFICATE OF ANALYSIS

Work Order	: ES1629193	Page	: 1 of 7
Client	: EP Risk Management	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Contact	: Customer Services ES
Address	: Suite 3 / 19 Bolton Street Newcastle NSW 2300	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ---	Telephone	: +61-2-8784 8555
Project	: Sawyers Gully WWMP	Date Samples Received	: 19-Dec-2016 14:40
Order number	: EP0441	Date Analysis Commenced	: 20-Dec-2016
C-O-C number	: ---	Issue Date	: 30-Dec-2016 14:31
Sampler	: SL		
Site	: ---		
Quote number	: EN/084/16		
No. of samples received	: 20		
No. of samples analysed	: 20		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ben Felgendrejeris		Brisbane Acid Sulphate Soils, Stafford, QLD
Dian Dao		Sydney Inorganics, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER



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Work Order : ES1629193
Client : EP Risk Management
Project : Sawyers Gully WWMP

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 extractions/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 no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

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

= ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

● EA058 Emerson: V. = Very, D. = Dark, L. = Light, VD. = Very Dark

● ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).



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 Work Order : ES1629193
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Client sample ID							
		Client sampling date / time							
Compound	CAS Number	LOR	Unit	BH01_0.0	BH01_0.0-0.4	BH01_0.0-0.7	BH01_0.4-1.0	BH01_0.7-0.9	
				19-Dec-2016 00:00 ES1629193-001	19-Dec-2016 00:00 ES1629193-002	19-Dec-2016 00:00 ES1629193-003	19-Dec-2016 00:00 ES1629193-004	19-Dec-2016 00:00 ES1629193-005	
				Result	Result	Result	Result	Result	
EA002 : pH (Soils)									
pH Value		0.1	pH Unit	6.0	---	---	---	---	
EA010: Conductivity									
Electrical Conductivity @ 25°C	---	1	µS/cm	---	---	360	---	320	
EA058: Emerson Aggregate Test									
Color (Munsell)		-	-	---	---	---	---	---	
Texture		-	-	---	---	---	---	---	
Emerson Class Number	EC/TC	-	-	---	---	---	---	---	
ED007: Exchangeable Cations									
Exchangeable Calcium		0.1	meq/100g	---	1.0	---	0.5	---	
Exchangeable Magnesium		0.1	meq/100g	---	5.5	---	7.9	---	
Exchangeable Potassium		0.1	meq/100g	---	1.2	---	1.0	---	
Exchangeable Sodium		0.1	meq/100g	---	1.3	---	3.5	---	
Cation Exchange Capacity		0.1	meq/100g	---	9.1	---	12.9	---	
EK072: Phosphate Sorption Capacity									
Phosphate Sorption Capacity		250	mg P sorbed/kg	---	---	---	---	---	
Phosphate Sorption Index		1	mg/kg-1/log10 ug/L-1	---	---	---	---	---	



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 Work Order : ES1629193
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Client sample ID							
Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time	
Compound	CAS Number	LOR	Unit	BH01_0.0-0.9	BH02_0.0	BH02_0.0-0.4	BH02_0.0-0.7	BH02_0.4-1.0	
				19-Dec-2016 00:00	19-Dec-2016 00:00	19-Dec-2016 00:00	19-Dec-2016 00:00	19-Dec-2016 00:00	
				ES1629193-006	ES1629193-007	ES1629193-008	ES1629193-009	ES1629193-010	
				Result	Result	Result	Result	Result	
EA002 : pH (Soils)									
pH Value		0.1	pH Unit	---	6.2	---	---	---	
EA010: Conductivity									
Electrical Conductivity @ 25°C		1	µS/cm	---	---	---	289	---	
EA058: Emerson Aggregate Test									
Color (Munsell)		-	-	Dark Reddish Brown		---	---	---	
Texture		-	-	Clay Loam		---	---	---	
Emerson Class Number	EC/TC	-	-	2		---	---	---	
ED007: Exchangeable Cations									
Exchangeable Calcium		0.1	meq/100g	---	---	0.6	---	<0.1	
Exchangeable Magnesium		0.1	meq/100g	---	---	6.1	---	6.5	
Exchangeable Potassium		0.1	meq/100g	---	---	0.8	---	0.4	
Exchangeable Sodium		0.1	meq/100g	---	---	2.2	---	4.0	
Cation Exchange Capacity		0.1	meq/100g	---	---	9.6	---	11.0	
EK072: Phosphate Sorption Capacity									
Phosphate Sorption Capacity		250	mg P sorbed/kg	<250		---	---	---	
Phosphate Sorption Index		1	mg/kg-1/log10 µmol-1	53		---	---	---	



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 Work Order : ES1629193
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Client sample ID							
Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time		Client sampling date / time	
Compound	CAS Number	LOR	Unit	BH02_0.7-1.0	BH02_0.0-1.0	BH03_0.0	BH03_0.0-0.4	BH03_0.0-0.7	
				19-Dec-2016 00:00	19-Dec-2016 00:00	19-Dec-2016 00:00	19-Dec-2016 00:00	19-Dec-2016 00:00	
				ES1629193-011	ES1629193-012	ES1629193-013	ES1629193-014	ES1629193-015	
				Result	Result	Result	Result	Result	
EA002 : pH (Soils)									
pH Value		0.1	pH Unit	---	---	6.2	---	---	
EA010: Conductivity									
Electrical Conductivity @ 25°C		1	µS/cm	412	---	---	---	156	
EA058: Emerson Aggregate Test									
Color (Munsell)		-	-	---	Dark Reddiah Brown	---	---	---	
Texture		-	-	---	Clay Loam	---	---	---	
Emerson Class Number	EC/TC	-	-	---	1	---	---	---	
ED007: Exchangeable Cations									
Exchangeable Calcium	0.1	meq/100g		---	---	---	0.4	---	
Exchangeable Magnesium	0.1	meq/100g		---	---	---	5.9	---	
Exchangeable Potassium	0.1	meq/100g		---	---	---	0.6	---	
Exchangeable Sodium	0.1	meq/100g		---	---	---	2.2	---	
Cation Exchange Capacity	0.1	meq/100g		---	---	---	9.1	---	
EK072: Phosphate Sorption Capacity									
Phosphate Sorption Capacity	250	mg P sorbed/kg		---	341	---	---	---	
Phosphate Sorption Index	1	mg/kg-1/log10 µmol-1		---	66	---	---	---	



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 Work Order : ES1629193
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Client sample ID			
Compound	CAS Number	LOR	Client sampling date / time	Unit	
EA002 : pH (Soils)					
pH Value		0.1		pH Unit	
EA010: Conductivity					
Electrical Conductivity @ 25°C		1		µS/cm	
EA058: Emerson Aggregate Test					
Color (Munsell)		-		-	
Texture		-		-	
Emerson Class Number	EC/TC	-		-	
ED007: Exchangeable Cations					
Exchangeable Calcium		0.1		meq/100g	
Exchangeable Magnesium		0.1		meq/100g	
Exchangeable Potassium		0.1		meq/100g	
Exchangeable Sodium		0.1		meq/100g	
Cation Exchange Capacity		0.1		meq/100g	
EK072: Phosphate Sorption Capacity					
Phosphate Sorption Capacity		250		mg P sorbed/kg	
Phosphate Sorption Index		1		mg/kg-1/log10 ug/L-1	



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 Work Order : ES1629193
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		DAM01				
Client sampling date / time										
Compound	CAS Number	LOR	Unit							
EKO55G: Ammonia as N by Discrete Analyser										
Ammonia as N	7664-41-7	0.01	mg/L			0.03				
EKO57G: Nitrite as N by Discrete Analyser										
Nitrite as N	14797-85-0	0.01	mg/L			<0.01				
EKO58G: Nitrate as N by Discrete Analyser										
Nitrate as N	14797-55-8	0.01	mg/L			0.16				
EKO59G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser										
Nitrite + Nitrate as N		0.01	mg/L			0.16				
EKO61G: Total Kjeldahl Nitrogen By Discrete Analyser										
Total Kjeldahl Nitrogen as N		0.1	mg/L			1.9				
EKO62G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser										
Total Nitrogen as N		0.1	mg/L			2.1				
EKO67G: Total Phosphorus as P by Discrete Analyser										
Total Phosphorus as P		0.01	mg/L			0.10				



Environmental

QUALITY CONTROL REPORT

Work Order	: ES1629193	Page	: 1 of 5
Client	: EP Risk Management	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Contact	: Customer Services ES
Address	: Suite 3 / 19 Bolton Street Newcastle NSW 2300	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ---	Telephone	: +61-2-8784 8555
Project	: Sawyers Gully WWMP	Date Samples Received	: 19-Dec-2016
Order number	: EP0441	Date Analysis Commenced	: 20-Dec-2016
C-O-C number	: ---	Issue Date	: 30-Dec-2016
Sampler	: SL		
Site	: ---		
Quote number	: EN/084/16		
No. of samples received	: 20		
No. of samples analysed	: 20		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.
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

Signatories

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

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 Project : Sawyers Gully WWMP

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

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 intra-laboratory 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-EN28 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%.

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report			
						Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002: pH (Soils) (QC Lot: 699616)									
ES1629193-001	BH01_0.0	EA002: pH Value	---	0.1	pH Unit	6.0	6.0	0.00	0% - 20%
EA010: Conductivity (QC Lot: 699617)									
ES1629193-003	BH01_0.0-0.7	EA010: Electrical Conductivity @ 25°C	---	1	µS/cm	360	341	5.42	0% - 20%
ED007: Exchangeable Cations (QC Lot: 703054)									
ES1628854-001	Anonymous	ED007: Exchangeable Calcium		0.1	meq/100g	8.1	8.1	0.00	0% - 20%
		ED007: Exchangeable Magnesium		0.1	meq/100g	12.9	12.9	0.00	0% - 20%
		ED007: Exchangeable Potassium		0.1	meq/100g	1.1	1.1	0.00	0% - 50%
		ED007: Exchangeable Sodium		0.1	meq/100g	21.1	21.0	0.691	0% - 20%
		ED007: Cation Exchange Capacity		0.1	meq/100g	43.5	43.3	0.462	0% - 20%
		ED007: Exchangeable Calcium		0.1	meq/100g	5.9	5.9	0.00	0% - 20%
		ED007: Exchangeable Magnesium		0.1	meq/100g	1.7	1.7	0.00	0% - 50%
		ED007: Exchangeable Potassium		0.1	meq/100g	0.4	0.4	0.00	No Limit
		ED007: Exchangeable Sodium		0.1	meq/100g	0.3	0.3	0.00	No Limit
		ED007: Cation Exchange Capacity		0.1	meq/100g	8.3	8.3	0.00	0% - 20%
ED007: Exchangeable Cations (QC Lot: 703055)									
ES1629193-004	BH01_0.4-1.0	ED007: Exchangeable Calcium		0.1	meq/100g	0.5	0.5	0.00	No Limit
		ED007: Exchangeable Magnesium		0.1	meq/100g	7.9	8.0	0.00	0% - 20%
		ED007: Exchangeable Potassium		0.1	meq/100g	1.0	1.0	0.00	No Limit
		ED007: Exchangeable Sodium		0.1	meq/100g	3.5	3.6	0.00	0% - 20%
		ED007: Cation Exchange Capacity		0.1	meq/100g	12.9	13.0	0.00	0% - 20%
EK072: Phosphate Sorption Capacity (QC Lot: 700725)									
EM1615430-001	Anonymous	EK072: Phosphate Sorption Capacity		250	mg P sorbed/kg	<250	<250	0.00	No Limit
		EK072: Phosphate Sorption Index		1	mgkg ⁻¹ /log10g L ⁻¹	16	16	0.00	0% - 50%



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Sub-Matrix: SOIL									
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK072: Phosphate Sorption Capacity (QC Lot: 700725) - continued									
ES1629193-018	BH03_0.0-1.0	EK072: Phosphate Sorption Capacity	----	250	mg P sorbed/kg	353	375	6.04	No Limit
		EK072: Phosphate Sorption Index	----	1	mg/kg-1log10ug L-1	92	92	0.00	0% - 20%
Sub-Matrix: WATER									
Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 702558)									
ES1629117-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	<0.01	0.00	No Limit
ES1629192-005	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 701371)									
ES1629342-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
ES1629342-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.00	No Limit
EK059G: Nitrite plus Nitrate as N (NOX) by Discrete Analyser (QC Lot: 702557)									
ES1629117-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.06	0.00	No Limit
ES1629192-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.06	0.07	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 702541)									
ES1629192-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	4.7	4.6	0.00	0% - 20%
EW1604806-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	6.6	7.7	14.9	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 702540)									
ES1629117-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.01	0.00	No Limit
ES1629192-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.22	1.23	0.887	0% - 20%



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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				Laboratory Control Spike (LCS) Report				
				Method Blank (MB) Report		Spike Concentration	Spike Recovery (%)	Recovery Limits (%)
Method/Compound	CAS Number	LOR	Unit	Result				
EA010: Conductivity (QCLot: 698617)								
EA010: Electrical Conductivity @ 25°C	---	1	µS/cm	<1	1412 µS/cm	96.7	92 108	
ED007: Exchangeable Cations (QCLot: 703054)								
ED007: Exchangeable Calcium	---	0.1	meq/100g	<0.1	1 meq/100g	111	76 122	
ED007: Exchangeable Magnesium	---	0.1	meq/100g	<0.1	1.67 meq/100g	97.0	76 118	
ED007: Exchangeable Potassium	---	0.1	meq/100g	<0.1	0.51 meq/100g	100	80 120	
ED007: Exchangeable Sodium	---	0.1	meq/100g	<0.1	0.87 meq/100g	102	80 120	
ED007: Cation Exchange Capacity	---	0.1	meq/100g	<0.1	---	---	---	
ED007: Exchangeable Cations (QCLot: 703055)								
ED007: Exchangeable Calcium	---	0.1	meq/100g	<0.1	1 meq/100g	110	76 122	
ED007: Exchangeable Magnesium	---	0.1	meq/100g	<0.1	1.67 meq/100g	99.4	76 118	
ED007: Exchangeable Potassium	---	0.1	meq/100g	<0.1	0.51 meq/100g	108	80 120	
ED007: Exchangeable Sodium	---	0.1	meq/100g	<0.1	0.87 meq/100g	113	80 120	
ED007: Cation Exchange Capacity	---	0.1	meq/100g	<0.1	---	---	---	

Sub-Matrix: **WATER**

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
Method/Compound		CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)
EK055G: Ammonia as N by Discrete Analyser (QCLot: 702558)								
EK055G: Ammonia as N	7664-41-7	0.01		mg/L	<0.01	1 mg/L	102	90 114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 701374)								
EK057G: Nitrite as N	14797-65-0	0.01		mg/L	<0.01	0.5 mg/L	103	82 114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 702557)								
EK059G: Nitrite + Nitrate as N	---	0.01		mg/L	<0.01	0.5 mg/L	100	91 113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 702541)								
EK061G: Total Kjeldahl Nitrogen as N	---	0.1		mg/L	<0.1	10 mg/L	93.7	69 101
					<0.1	1 mg/L	87.1	70 118
					<0.1	5 mg/L	117	74 118
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 702540)								
EK067G: Total Phosphorus as P	---	0.01		mg/L	<0.01	4.42 mg/L	92.8	71 101
					<0.01	0.442 mg/L	86.4	72 108
					<0.01	1 mg/L	118	78 118

Matrix Spike (MS) Report



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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: **WATER**

Laboratory sample ID	Client sample ID	Method/Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery (%) MS	Recovery Limits (%)	
						Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 702568)							
ES1629117-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	115	70	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 701371)							
ES1629342-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	106	70	130
EK059G: Nitrite plus Nitrate as N (NOX) by Discrete Analyser (QCLot: 702557)							
ES1629117-001	Anonymous	EK059G: Nitrite + Nitrate as N	---	0.5 mg/L	101	70	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 702541)							
ES1629192-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	---	5 mg/L	110	70	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 702540)							
ES1629117-002	Anonymous	EK067G: Total Phosphorus as P	---	1 mg/L	110	70	130



Environmental

QA/QC Compliance Assessment to assist with Quality Review

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Client	: EP Risk Management	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Telephone	: +61-2-8784 8555
Project	: Sawyers Gully WWMP	Date Samples Received	: 19-Dec-2016
Site	: ---	Issue Date	: 30-Dec-2016
Sampler	: SL	No. of samples received	: 20
Order number	: EP0441	No. of samples analysed	: 20

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- NO Quality Control Sample Frequency Outliers exist.

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Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results. This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing 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 time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

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.

Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation		Analysis	
		Date extracted	Due for extraction	Date analysed	Due for analysis
EA002 : pH (Soils)					
Soil Glass Jar - Unpreserved (EA002) BH01_0.0, BH03_0.0	19-Dec-2016	20-Dec-2016	26-Dec-2016	20-Dec-2016	20-Dec-2016
				✓	✓
EA010: Conductivity					
Soil Glass Jar - Unpreserved (EA010) BH01_0.0-0.7, BH02_0.0-0.7, BH03_0.0-0.7	19-Dec-2016	20-Dec-2016	26-Dec-2016	20-Dec-2016	17-Jan-2017
				✓	✓
EA058: Emerson Aggregate Test					
Snap Lock Bag (EA058) BH01_0.0-0.9, BH03_0.0-1.0	19-Dec-2016	—	—	28-Dec-2016	17-Jun-2017
				---	✓
ED007: Exchangeable Cations					
Soil Glass Jar - Unpreserved (ED007) BH01_0.0-0.4, BH02_0.0-0.4, BH03_0.0-0.4	19-Dec-2016	22-Dec-2016	16-Jan-2017	22-Dec-2016	16-Jan-2017
				✓	✓
EK072: Phosphate Sorption Capacity					
Soil Glass Jar - Unpreserved (EK072) BH01_0.0-0.9, BH03_0.0-1.0	19-Dec-2016	—	—	21-Dec-2016	17-Jun-2017
				---	✓

Matrix: WATER

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation		Analysis	
		Date extracted	Due for extraction	Date analysed	Due for analysis
EK055G: Ammonia as N by Discrete Analyser					
Clear Plastic Bottle - Sulfuric Acid (EK055G) DAM/01	19-Dec-2016	—	—	22-Dec-2016	16-Jan-2017
				---	✓
EK057G: Nitrite as N by Discrete Analyser					
Clear Plastic Bottle - Natural (EK057G) DAM/01	19-Dec-2016	—	—	21-Dec-2016	21-Dec-2016
				---	✓



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Method		Extraction / Preparation		Analysis	
Container / Client Sample ID(s)	Sample Date	Date extracted	Due for extraction	Date analysed	Due for analysis
Evaluation: * = Holding time breach ; ✓ = Within holding time.					
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser Clear Plastic Bottle - Sulfuric Acid (EK059G) DAM01	19-Dec-2016	---	---	22-Dec-2016	16-Jan-2017
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser Clear Plastic Bottle - Sulfuric Acid (EK061G) DAM01	19-Dec-2016	22-Dec-2016	16-Jan-2017	22-Dec-2016	16-Jan-2017
EK067G: Total Phosphorus as P by Discrete Analyser Clear Plastic Bottle - Sulfuric Acid (EK067G) DAM01	19-Dec-2016	22-Dec-2016	16-Jan-2017	22-Dec-2016	16-Jan-2017



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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.

Quality Control Sample Type		Count		Rate (%)		Evaluation		Quality Control Specification	
Method		QC	Regular	Actual	Expected				
Matrix: SOIL									
Analytical Methods									
Laboratory Duplicates (DUP)									
Electrical Conductivity (1:5)	EA010	1	6	16.67	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
Exchangeable Cations	ED007	3	25	12.00	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
P Sorption Index & P Sorption Capacity	EK072	2	15	13.33	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
pH (1:5)	EA002	1	4	25.00	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
Laboratory Control Samples (LCS)									
Electrical Conductivity (1:5)	EA010	1	6	16.67	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Exchangeable Cations	ED007	2	25	8.00	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Method Blanks (MB)									
Electrical Conductivity (1:5)	EA010	1	6	16.67	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Exchangeable Cations	ED007	2	25	8.00	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Matrix: WATER									
Analytical Methods									
Laboratory Duplicates (DUP)									
Ammonia as N by Discrete analyser	EK055G	2	18	11.11	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	20	10.00	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite as N by Discrete Analyser	EK057G	2	19	10.53	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✓		NEPM 2013 B3 & ALS QC Standard	
Laboratory Control Samples (LCS)									
Ammonia as N by Discrete analyser	EK055G	1	18	5.56	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite as N by Discrete Analyser	EK057G	1	19	5.26	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	3	20	15.00	15.00	✓		NEPM 2013 B3 & ALS QC Standard	
Total Phosphorus as P By Discrete Analyser	EK067G	3	20	15.00	15.00	✓		NEPM 2013 B3 & ALS QC Standard	
Method Blanks (MB)									
Ammonia as N by Discrete analyser	EK055G	1	18	5.56	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite as N by Discrete Analyser	EK057G	1	19	5.26	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Matrix Spikes (MS)									
Ammonia as N by Discrete analyser	EK055G	1	18	5.56	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	20	5.00	5.00	✓		NEPM 2013 B3 & ALS QC Standard	
Nitrite as N by Discrete Analyser	EK057G	1	19	5.26	5.00	✓		NEPM 2013 B3 & ALS QC Standard	



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Matrix: WATER							
Quality Control Sample Type		Quality Control Specification					
Analytical Methods	Method	Count	QC	Regular	Rate (%)		Evaluation
					Actual	Expected	
Matrix Spikes (MS) - Continued							
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1		20	5.00	5.00	✓ NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1		20	5.00	5.00	✓ NEPM 2013 B3 & ALS QC Standard



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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
pH (1:5)	EA002	SOIL	In house: Referenced to APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 104)
Emerson Aggregate Test	EA058	SOIL	In house: Referenced to AS1289.3.8.1. Testing is performed only on soils with suitable aggregates; sands and gravels are usually unsuitable for this test. The test classifies the behaviour of soil aggregates, when immersed, on their coherence in water.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as mg/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
P Sorption Index & P Sorption Capacity	EK072	SOIL	In house: Referenced to Rayment & Higginson (1992) Method 9H1 & 9I. Soil is brought to equilibrium with a solution of P at known concentration. P absorbed, released is determined by FIA analysis of the final solution.
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3-G. Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2-B. Nitrite is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3-F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined separately by direct colorimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM (2013) Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3-F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colorimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg-D (in house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P-H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Higginson (1992) method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.



Page : 7 of 7
 Work Order : ES1629193
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

Preparation Methods	Method	Matrix	Method Description
1.5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
TKN/TP Digestion	EK061/EK067	WATER	In house. Referenced to APHA 4500 Norg - D, APHA 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)



Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES1629193

Client : EP Risk Management
Contact : MR STUART LORD
Address : Suite 3 / 19 Bolton Street
Newcastle NSW 2300

E-mail : stuart.lord@eprisk.com.au
Telephone : ---
Facsimile : ---

Project : Sawyers Gully WWMP
Order number : EP0441
C-O-C number : ---
Site : ---
Sampler : SL

Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield
NSW Australia 2164

E-mail : ALSEnviro.Sydney@alsglobal.com
Telephone : +61-2-8784 8555
Facsimile : +61-2-8784 8500

Page : 1 of 3
Quote number : EM2016EPRISK0001 (EN/084/16)
QC Level : NEPM 2013 B3 & ALS QC Standard

Dates

Date Samples Received : 19-Dec-2016 14:40
Client Requested Due : 29-Dec-2016
Date :

Issue Date : 19-Dec-2016
Scheduled Reporting Date : 29-Dec-2016

Delivery Details

Mode of Delivery : Undefined
No. of coolers/boxes : 1
Receipt Detail :

Security Seal : Not intact.
Temperature : 0.3°C - Ice present
No. of samples received / analysed : 20 / 19

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Sample TRP01 will be sent to Envirolab as per coc request.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Emerson Aggregate analysis will be conducted by ALS Brisbane.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

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Issue Date : 19-Dec-2016
Page : 2 of 3
Work Order : ES1629193 Amendment 0
Client : EP Risk Management



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA010 (solids), Electrical Conductivity (1:5)	SOIL - EA058 Emerson Aggregate Test	SOIL - ED008 Def Exchangable Cations with pre-treatment Default	SOIL - EK072 P Sorption Index & P Sorption Capacity
ES1629193-001	19-Dec-2016 00:00	BH01_0.0	✓				
ES1629193-002	19-Dec-2016 00:00	BH01_0.0-0.4				✓	
ES1629193-003	19-Dec-2016 00:00	BH01_0.0-0.7		✓			
ES1629193-004	19-Dec-2016 00:00	BH01_0.4-1.0				✓	
ES1629193-005	19-Dec-2016 00:00	BH01_0.7-0.9		✓			
ES1629193-006	19-Dec-2016 00:00	BH01_0.0-0.9			✓		✓
ES1629193-007	19-Dec-2016 00:00	BH02_0.0	✓				
ES1629193-008	19-Dec-2016 00:00	BH02_0.0-0.4				✓	
ES1629193-009	19-Dec-2016 00:00	BH02_0.0-0.7		✓			
ES1629193-010	19-Dec-2016 00:00	BH02_0.4-1.0				✓	
ES1629193-011	19-Dec-2016 00:00	BH02_0.7-1.0		✓			
ES1629193-012	19-Dec-2016 00:00	BH02_0.0-1.0			✓		✓
ES1629193-013	19-Dec-2016 00:00	BH03_0.0	✓				
ES1629193-014	19-Dec-2016 00:00	BH03_0.0-0.4				✓	
ES1629193-015	19-Dec-2016 00:00	BH03_0.0-0.7		✓			
ES1629193-016	19-Dec-2016 00:00	BH03_0.4-1.0				✓	
ES1629193-017	19-Dec-2016 00:00	BH03_0.7-1.0		✓			
ES1629193-018	19-Dec-2016 00:00	BH03_0.0-1.0			✓		✓
ES1629193-019	19-Dec-2016 00:00	DUP01	✓				

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested
ES1629193-020	19-Dec-2016 00:00	DAM01	✓

Issue Date : 19-Dec-2016
Page : 3 of 3
Work Order : ES1629193 Amendment 0
Client : EP Risk Management



Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)

Email catriona.custance@eprisk.com.au

Catriona Custance

- A4 - AU Tax Invoice (INV)

Email catriona.custance@eprisk.com.au

STUART LORD

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- A4 - AU Tax Invoice (INV)
- Chain of Custody (CoC) (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)

Email stuart.lord@eprisk.com.au
Email stuart.lord@eprisk.com.au
Email stuart.lord@eprisk.com.au
Email stuart.lord@eprisk.com.au
Email stuart.lord@eprisk.com.au
Email stuart.lord@eprisk.com.au
Email stuart.lord@eprisk.com.au
Email stuart.lord@eprisk.com.au

CHAIN OF CUSTODY
ALS Laboratory: please tick →

CLIENT: EP Risk Management
OFFICE: Newcastle
PROJECT: Sam's Gully WWMP
ORDER NUMBER: 690441
PROJECT MANAGER: SL
SAMPLER:
CONTACT PH: 0403768722
SAMPLER MOBILE:
EDD FORMAT (for default): Smart. loc@eprisk.com.au
Email Reports to (will default to PM if no other addresses are listed):
Email Invoice to (will default to PM if no other addresses are listed):

TURNAROUND REQUIREMENTS:
Standard TAT (List due date):
Non Standard or urgent TAT (List due date):

FOR LABORATORY USE ONLY (Circle):
Closely sealed (tick)?
Protein or toxin or both present (tick)?
Reason: Sample with name in preservative (tick)?
Other comments:

RECEIVED BY: L. Mc Mahon
DATE/TIME: 19/12/16 14:40
RELINQUISHED BY: DB
DATE/TIME: 19/12/16 5pm

ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price)
Where Made are required, specify Total (withstand bottle required) or Shaded (field filled bottle required):

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price)	Additional Information
1	BH01-0.0	19/12/16	S		1	Electrical Conductivity	
2	BH01-0.0-0.4					Phosphorus	
3	BH01-0.0-0.7					Ammonia	
4	BH01-0.4-1.0					Ammonia	
5	BH01-0.7-0.9					Ammonia	
6	BH01-0.0-0.9					Ammonia	
7	BH02-0.0					Ammonia	
8	BH02-0.0-0.4					Ammonia	
9	BH02-0.0-0.7					Ammonia	
10	BH02-0.4-1.0					Ammonia	
11	BH02-0.7-1.0					Ammonia	
12	BH02-0.0-1.0					Ammonia	

Comments on likely contaminant levels, odours, or samples requiring specific QC analysis etc.

Environmental Division
Sydney
Work Order Reference
ES1629193

Barcode: [Barcode]

Telephone: +61 2 9781 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORO = Nitric Preserved ORO; BH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial; SQ = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTM Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

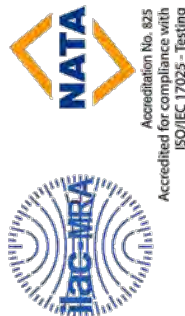
[illegible]



Environmental

CERTIFICATE OF ANALYSIS

Work Order	: ES1629689	Page	: 1 of 2
Client	: EP Risk Management	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Contact	: Customer Services ES
Address	: Suite 3 / 19 Bolton Street Newcastle NSW 2300	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ---	Telephone	: +61-2-8784 8555
Project	: Sawyers Gully WWMP	Date Samples Received	: 23-Dec-2016 09:31
Order number	: EP0441	Date Analysis Commenced	: 23-Dec-2016
C-O-C number	: ---	Issue Date	: 28-Dec-2016 13:07
Sampler	: ---		
Site	: ---		
Quote number	: EN/084/16		
No. of samples received	: 1		
No. of samples analysed	: 1		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	Position	Accreditation Category
Sarah Axisa	Microbiologist	Sydney Microbiology, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER



Page : 2 of 2
 Work Order : ES1629689
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

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 extractions/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 no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

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

Ⓢ = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

● MF = membrane filtration

● CFU = colony forming unit

● Microbiological Comment: Membrane filtration results are reported as estimate (~) due to the presence of many non-target organism colonies that may have inhibited the growth of the target organisms on the filter membrane. It may be informative to record this fact.

● MW006 is ALS's internal code and is equivalent to AS4276.7.

● MW007 is ALS's internal code and is equivalent to AS4276.5.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Client sample ID		DAM 01					
Compound		CAS Number	LOR	Client sampling date / time	Unit	23-Dec-2016 00:00			
MW006: Faecal Coliforms & E.coli by MF						ES1629689-001		Result	
Faecal Coliforms			1	CFU/100mL		230			
Escherichia coli			1	CFU/100mL		230			
MW007: Coliforms by MF									
Coliforms			1	CFU/100mL		~250			



Environmental

QUALITY CONTROL REPORT

Work Order	: ES1629689	Page	: 1 of 3
Client	: EP Risk Management	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Contact	: Customer Services ES
Address	: Suite 3 / 19 Bolton Street Newcastle NSW 2300	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Sawyers Gully WWMP	Date Samples Received	: 23-Dec-2016
Order number	: EP0441	Date Analysis Commenced	: 23-Dec-2016
C-O-C number	: ----	Issue Date	: 28-Dec-2016
Sampler	: ----		
Site	: ----		
Quote number	: EN/084/16		
No. of samples received	: 1		
No. of samples analysed	: 1		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

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

Signatories

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

Signatories	Position	Accreditation Category
Sarah Axisa	Microbiologist	Sydney Microbiology, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER



Page : 2 of 3
Work Order : ES1629689
Client : EP Risk Management
Project : Sawyers Gully WWMP

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

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 intra-laboratory 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-EN38 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%.

- No Laboratory Duplicate (DUP) Results are required to be reported.



Page : 3 of 3
Work Order : ES1629689
Client : EP Risk Management
Project : Sawyers Gully WWMP

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.

- **No Method Blank (MB) or Laboratory Control Spike (LCS) Results are required to be reported.**

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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**



Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1629689	Page	: 1 of 4
Client	: EP Risk Management	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Telephone	: +61-2-8784 8555
Project	: Sawyers Gully WWMP	Date Samples Received	: 23-Dec-2016
Site	: ---	Issue Date	: 28-Dec-2016
Sampler	: ---	No. of samples received	: 1
Order number	: EP0441	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- NO Quality Control Sample Frequency Outliers exist.

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Page : 2 of 4
 Work Order : ES1629689
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results. This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing 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 time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

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.

Matrix: WATER

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation		Analysis	
		Date extracted	Due for extraction	Date analysed	Due for analysis
MW006: Faecal Coliforms & E.coli by MF					
Sterile Plastic Bottle - Sodium Thiosulfate (MW006)	23-Dec-2016	-----	---	23-Dec-2016	24-Dec-2016
DAM 01					✓
MW007: Coliforms by MF					
Sterile Plastic Bottle - Sodium Thiosulfate (MW007)	23-Dec-2016	-----	---	23-Dec-2016	24-Dec-2016
DAM 01					✓

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



Page : 3 of 4
Work Order : ES1629689
Client : EP Risk Management
Project : Sawyers Gully WWMP

Quality Control Parameter Frequency Compliance

- No Quality Control data available for this section.



Page : 4 of 4
 Work Order : ES1629689
 Client : EP Risk Management
 Project : Sawyers Gully WWMP

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
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	In house: Referenced to AS 4276.7 2007
Coliforms by Membrane Filtration	MW007	WATER	In house: Referenced to AS 4276.5 - 2007



Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES1629689

Client : EP Risk Management
Contact : MR STUART LORD
Address : Suite 3 / 19 Bolton Street
Newcastle NSW 2300

E-mail : stuart.lord@eprisk.com.au
Telephone : ---
Facsimile : ---

Project : Sawyers Gully WWMP
Order number : EP0441
C-O-C number : ---
Site : ---
Sampler :

Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield
NSW Australia 2164

E-mail : ALSEnviro.Sydney@alsglobal.com
Telephone : +61-2-8784 8555
Facsimile : +61-2-8784 8500

Page : 1 of 2
Quote number : EM2016EPRISK0001 (EN/084/16)
QC Level : NEPM 2013 B3 & ALS QC Standard

Dates

Date Samples Received : 23-Dec-2016 09:31
Client Requested Due : 05-Jan-2017
Date :

Issue Date : 23-Dec-2016
Scheduled Reporting Date : 05-Jan-2017

Delivery Details

Mode of Delivery : Undefined
No. of coolers/boxes : 1
Receipt Detail :

Security Seal : Intact.
Temperature : 3 - Ice present
No. of samples received / analysed : 1 / 1

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

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Issue Date : 23-Dec-2016
Page : 2 of 2
Work Order : ES1629689 Amendment 0
Client : EP Risk Management



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	
ES1629689-001	23-Dec-2016 00:00	DAM 01	✓

WATER - MS - ES6B/FM
FC-E cell & TC By MF

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

ACCOUNTS PAYABLE

- A4 - AU Tax Invoice (INV)

Email catriona.custance@eprisk.com.au

Catriona Custance

- A4 - AU Tax Invoice (INV)

Email catriona.custance@eprisk.com.au

STUART LORD

- *AU Certificate of Analysis - NATA (COA)
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)
- A4 - AU Tax Invoice (INV)
- Chain of Custody (CoC) (COC)
- EDI Format - ENMRG (ENMRG)
- EDI Format - ESDAT (ESDAT)

Email stuart.lord@eprisk.com.au
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Email stuart.lord@eprisk.com.au

CHAIN OF CUSTODY			
<p>CLIENT: <u>EP Risk Management</u></p> <p>OFFICE: <u>Warragul</u></p> <p>PROJECT: <u>Sony's Cuddly Wimp</u></p> <p>ORDER NUMBER: <u>EP0441</u></p> <p>PROJECT MANAGER: <u>SL</u></p> <p>SAMPLER:</p> <p>DATE: <u>23/12/16</u></p> <p>TIME: <u>9:30am</u></p> <p>RELINQUISHED BY: <u>K. McManon</u></p> <p>DATE/TIME: <u>23/12/16 9:30</u></p> <p>RECEIVED BY: <u>23/12/16 17:45</u></p> <p>DATE/TIME: <u>23/12/16 17:45</u></p>			
<p>TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date); <input type="checkbox"/> Non Standard or urgent TAT (List due date):</p> <p>ALST QUOTE NO.:</p> <p>COUNTRY OF ORIGIN:</p> <p>CONTACT PH: <u>0403768722</u></p> <p>SAMPLER MOBILE:</p> <p>EDD FORMAT (or default):</p> <p>Small Reports to (will default to PM if no other addresses are listed): <u>stuart.jodary@risk.com.au</u></p> <p>Small Invoice to (will default to PIM if no other addresses are listed):</p> <p>COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:</p>			
<p>FOR LABORATORY USE ONLY (Circle)</p> <p>Custody Seal Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Protein / frozen too brittle present upon receipt? <input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Random Sample Temperature on Receipt: <u>3.0°C</u></p> <p>Other comment:</p>			
<p>ANALYSIS REQUIRED INCLUDING SUITES (via Suite Codes must be listed to attract suite price)</p> <p>Where Matrix are required, specify Total (unfiltered bottles required) or Unfiltered (field filtered bottles required).</p>			
<p>CONTAINER INFORMATION</p> <p>TYPE & PRESERVATIVE (refer to codes below)</p> <p>MATRIX</p> <p>DATE / TIME</p> <p>SAMPLE ID</p> <p>LAB ID</p>			
<p>ADDITIONAL INFORMATION</p> <p>Comments on likely combination of bottles, dilutions, or samples requiring specific QC analysis etc.</p>			
<p>Environmental Division</p> <p>Sydney</p> <p>Work Order Reference</p> <p>ES1629689</p> <p>Barcode</p> <p>Telephone: +61-2-9704 8655</p>			



Waste Water Management Plan
254 Bathurst Street, Sawyers Gully, NSW
Akuna Pet Resort
Appendices

Appendix E

NITROGEN AND PHOSPHOROUS LOADING
CALCULATIONS



Nitrogen Loading

$$A = \frac{C \times Q}{L_x}$$

Where:

	land area	Unit	Value Input
A		m ²	
C	concentration of nutrient or BOD [*]	mg/L	8
Q	treated waste water flow rate	L/d	1110
Lx	critical loading rate of nutrient or BOD ^{**}	mg/m ² /d	27

^{*} Based on the average total nitrogen concentrations for a AVTS system in the Environment and Health Protection Guidelines (1998), Onsite Sewage Management for Single Households Guidelines
^{**} Based on the average N uptake values provided in the Environment and Health Protection Guidelines (1998), Onsite Sewage Management for Single Households Guidelines

A = 329 m²



Phosphorous Loading

A = Irrigation area

P generated = total phosphorus concentration x volume of waste water produced over 50 years

P adsorbed = mean phosphorus sorption capacity x by 1/3

P uptake = critical loading rate x 50

Unit	Value Input
m ²	1092.00
kg	101.2875
kg/m ²	0.04
kg/m ²	0.055

P adsorbed mean phosphorus sorption capacity [*]	Input Value	Unit
	3436	kg/ha
	33%	
Therefore P adsorbed	1133.77	kg/ha
	0.113377	kg/m ²
P uptake critical loading rate ^{**}	Input Value	Unit
	3	mg/m ² /d
	365 days	
	50 years	
Therefore P uptake	54750	mg/m ²
	0.05475	kg/m ²
P generated total phosphorus concentration ^{***} Volume of waste water	Input Value	Unit
	3	mg/L
	1110	L/day
	365 days	
	405150	
	50 years	
Therefore P generated	101287500	mg
	101.2875	kg

* Based on average phosphorus sorption capacity concentrations from Coffey, 2006 data and SP Bill, 2018 data.

** Based on the average critical loading rates provided in the Environment and Health Protection Guidelines (EHPL), Onsite Sewage Management for Single Households Guidelines.

*** Based on the average total phosphorus values provided in the Environment and Health Protection Guidelines (EHPL), Onsite Sewage Management for Single Households Guidelines.



Waste Water Management Plan
254 Bathurst Street, Sawyers Gully, NSW
Akuna Pet Resort
Appendices

Appendix F

LICENSED BORE DOCUMENTATION

05/01/2017

allwaterdata.water.nsw.gov.au/wgen/users/455200194/gw078284.wsr.htm

NSW Office of Water Work Summary

GW078284

Licence: 20BL153622	Licence Status: CANCELLED
Authorised Purpose(s): STOCK, DOMESTIC	
Intended Purpose(s): STOCK, DOMESTIC	
Work Type: Bore	
Work Status: Abandoned	
Construct.Method: Rotary Air	
Owner Type: Private	
Commenced Date:	Final Depth: 38.10 m
Completion Date: 23/11/1993	Drilled Depth: 38.10 m
Contractor Name: Watermin Drillers Pty Ltd	
Driller: Barry Trevor Miles	
Assistant Driller:	
Property: N/A NSW	Standing Water Level (m):
GWMA: -	Salinity Description:
GW Zone: -	Yield (L/s):

Site Details

Site Chosen By:

County	Parish	Cadastre
Form A: NORTH	NORTH.28	18//755231
Licensed: NORTHUMBERLAND	HEDDON	Whole Lot //
Region: 20 - Hunter	CMA Map:	
River Basin: - Unknown	Grid Zone:	Scale:
Area/District:		
Elevation: 0.00 m (A.H.D.)	Northing: 6370022.0	Latitude: 32°47'52.0"S
Elevation Unknown	Easting: 351804.0	Longitude: 151°25'02.2"E
Source:		
GS Map: -	MGA Zone: 0	Coordinate Source: Unidentified Location

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	38.10	150			Rotary Air

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
----------	--------	---------------	----------	------------	------------	-------------	----------------	---------------	-----------------

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	5.00	5.00	SANDSTONE	Sandstone	
5.00	9.00	4.00	BLUE SHALE	Shale	
9.00	14.00	5.00	SANDSTONE	Sandstone	
14.00	38.10	24.10	BLUE SHALE	Shale	

05/01/2017

allwaterdata.water.nsw.gov.au/wgen/users/455200194/gw078284.wsr.htm

Remarks

10/09/2008: Nat Carling, 10-Sept-2008: Added missing coordinates based on cadastre/IPW information.

***** End of GW078284 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

05/01/2017

allwaterdata.water.nsw.gov.au/wgen/users/455200194/gw079969.wsr.htm

NSW Office of Water Work Summary

GW079969

Licence:	Licence Status:
	Authorised Purpose(s): Intended Purpose(s):
Work Type: Bore	
Work Status:	
Construct.Method:	
Owner Type:	
Commenced Date:	Final Depth:
Completion Date:	Drilled Depth:
Contractor Name:	
Driller:	
Assistant Driller:	
Property:	Standing Water Level (m):
GWMA:	Salinity Description:
GW Zone:	Yield (L/s):

Site Details

Site Chosen By:	County Form A: GLOUC Licensed:	Parish GLOUC.049	Cadastre
Region: 20 - Hunter	CMA Map:		
River Basin: - Unknown Area/District:	Grid Zone:	Scale:	
Elevation: 11.42 m (A.H.D.) Elevation Source: Unknown	Northing: 6372681.0 Easting: 353679.0	Latitude: 32°46'26.6"S Longitude: 151°26'15.7"E	
GS Map: -	MGA Zone: 0	Coordinate Source: Unknown	

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
------	------	-----------	------	----------	--------	-----------------------	----------------------	----------	---------

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
----------	--------	---------------	----------	------------	------------	-------------	----------------	---------------	-----------------

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
----------	--------	---------------	----------------------	---------------------	----------

Remarks

15/02/2000: Form A Remarks:
RZM MONITORING BORE SK 8097
01/12/2009: Reviewed data - nothing to update.

<http://allwaterdata.water.nsw.gov.au/wgen/users/455200194/gw079969.wsr.htm>

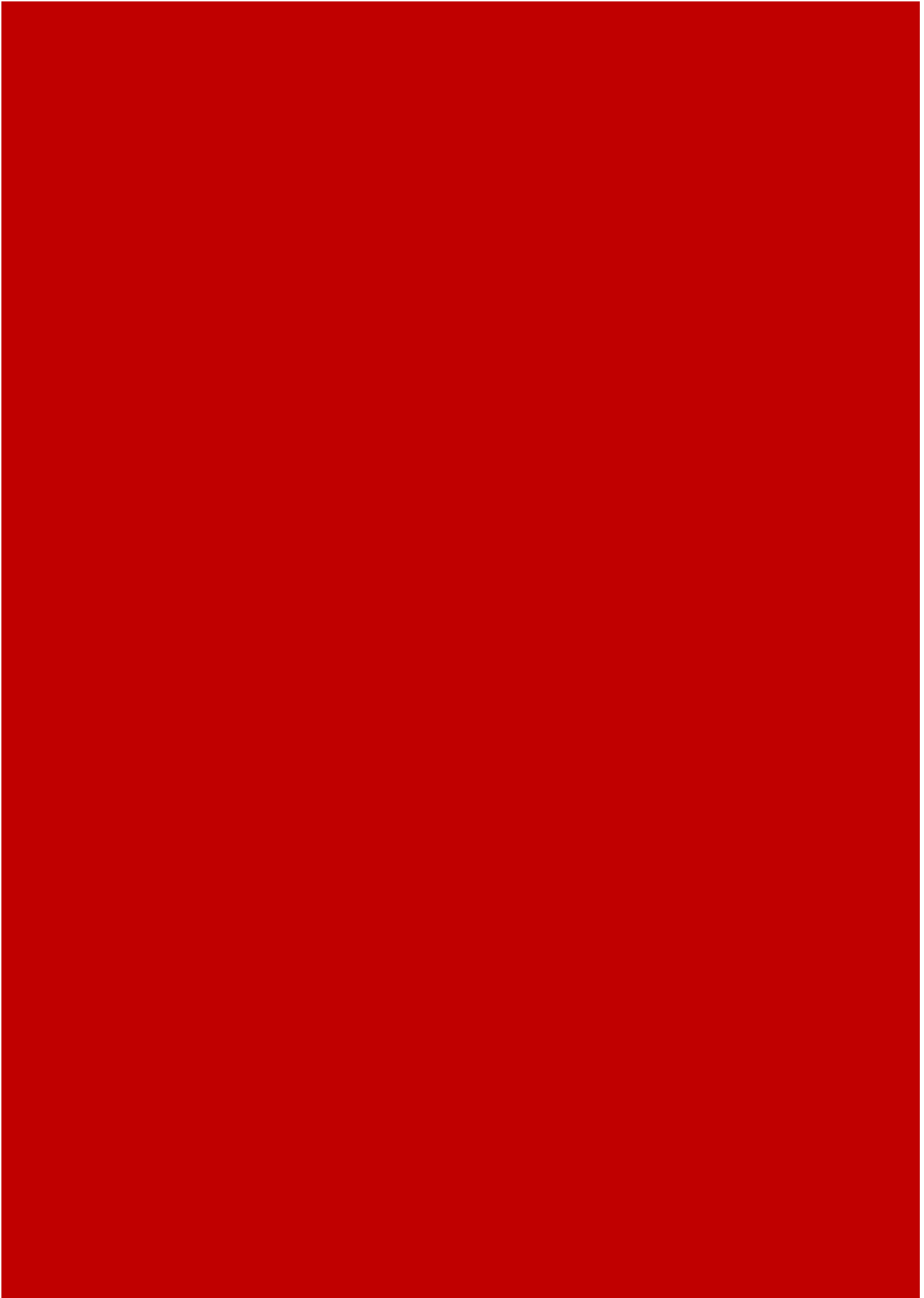
1/2

05/01/2017

allwaterdata.water.nsw.gov.au/wgen/users/455200194/gw079969.wsr.htm

*** End of GW079969 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.





26 October 2016

Ref: 161322/6797

Mr Marcus Nicholls
Akuna Care
254 Bathurst Street,
Abermain NSW 2326

RE: CHANGES TO D.A. CONDITIONS

This letter report presents the results of an assessment of the potential noise impacts from a proposed modification to the approved operations of the Akuna Care Kennel and Cattery (Akuna Care) at Sawyers Gully.

The proposed modification seeks to amend the following conditions of consent from Development Approval No. **8/2005/1221/2**:

- (a) **Schedule 1, Condition 3:** *In total, no more than 72 dogs and 20 cats may be kept on the premises at any one time. Whilst the new facility is being constructed, the dogs and cats may be split between the existing kennel facility and the new kennel facility but the number of dogs may not exceed 72 for the whole facility.*
- (b) **Schedule 1, Condition 4:** *Dogs may only be exercised in the designated Grassed Exercise Areas, not in the Grasses Access Areas of outside the facility.*

DESCRIPTION OF THE MODIFICATION

SCHEDULE 1, CONDITION 3

Proposed amendment to Schedule 1, Condition 3 is reworded as follows;

In total, no more than 100 dogs and 30 cats may be kept on the premises at any one time.

This modification will represent an increase of twenty-eight (28) dogs and ten (10) cats. The existing facility has been design to cater for numbers far greater than this proposal. The proposed modification does not require the construction of additional kennels or infrastructure and will result in substantially the same development.



Akuna Care Section 96 Modifications – October 2016

Acoustic Assessment

The NSW Industrial Noise Policy (INP) is specifically aimed at assessing noise from industrial noise sources scheduled under the *Protection of the Environment Operations Act 1997*. Its focus is on the noise emitted from industrial sites and how this may affect the amenity of nearby receivers.

The policy is designed for large and complex industrial sources and specifies substantial monitoring and assessment procedures that may not always be applicable to the types of sources councils need to address.

In the absence of specific criteria relating to the operation of a commercial kennel, the noise from the operation will be assessed here as an industrial noise source against the requirements of the INP.

In setting noise goals for a particular project the INP considers both Amenity and Intrusiveness criteria. The former is set to limit continuing increase in noise from industry, whilst the latter is set to minimise the intrusive impact of a particular noise source. The site under assessment is relatively remote with no existing industrial noise. As such, the intrusiveness criteria are those applicable to setting the project specific noise goals. That is, the 15 minute Leq noise level should not exceed the Rating Background Level (RBL) for each time period, plus 5 dB(A).

In circumstances where the background noise level (RBL) is not known or for use as a screening level, the INP allows for the adoption of a minimum background noise level of 30 dB(A) L90. For the current assessment the measured background noise level has been previously measured during the day at 30 dB(A) and, therefore, it can be assumed that the night time background will be less than this.

Under such circumstances the most restrictive intrusiveness criteria are as follows;

Day/Evening/Night	35 dB(A) L_{eq} (15 min)
-------------------	---

From an acoustic point of view the increase in the number of cats will have no impact and will not be further considered here.

The increase in the number of dogs will have minimal impact in relation to the Leq noise level. That is, even if all dogs were barking constantly for a full 15 minutes (which will never occur) an increase from 72 to 100 dogs would lead to an increase in noise (that is, the total possible increase in the sound power level of the site) of about 1.4 dB(A) Leq (15 min). An increase in noise of this amount would not be detectable to the human ear.

The construction of the kennels has incorporated significant noise control. Each dog is housed in an individual kennel which is constructed of block work with insulated steel roofing. The yard areas where dogs play and are exercised are surrounded by Hebel panel walls.





Akuna Care Section 96 Modifications – October 2016

To determine the effectiveness of the noise control and quantify the contribution to the noise from dogs to the overall acoustic environment, noise levels were measured on site on Tuesday, October 25th, 2016. The noise measurements were made with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements.

The noise from the dogs was measured over several minutes at locations at the boundary of the site in the directions of each of the nearest receivers. It was noted that the noise from dogs was intermittent and generally only lasted for periods of up to 20 to 40 seconds. Noise levels were measured at the boundary with number 276 Bathurst Street (north boundary), number 240 Bathurst Street (south boundary) and at the Bathurst Street front of the site (west boundary).

At the time of the monitoring noise from birds dominated the measurements. Noise from dogs barking could be heard at all monitoring locations. Noise from distant traffic and wind in the foliage of trees also contributed to the overall measured levels.

The one third octave band frequency spectrum of noise from insects and birds is generally concentrated in the high frequency range above 1k Hz. This is particularly true for insects whose range is relatively specific at above 2k Hz, whilst birds can have a broader range. The one third octave band spectrum for dogs, on the other hand, is variable depending on the dog but is generally from 1.25k Hz down.

The analysis of the results was undertaken on the basis of accepting that all noise in the one third octave bands below 1.25k Hz was attributable to the dogs. This is considered a worst case estimate as the low frequency range of the noise would also be influenced by noise from some birds, distant traffic and wind (although at most times this contribution wouldn't be significant).

Table 1			
Akuna Care - Noise Monitoring Results – 25 October 2016			
Location	Time	dB(A)_{Leq}	Identified Noise Sources
North Boundary	12:02 pm	42	Birds (41), Kennel (33)
South Boundary	12:20 pm	46	Birds (46), Kennel (33)
West Boundary	12:35 pm	47	Birds (47), Kennel (30)

The results shown in Table 1 represent the potential noise impacts from the current operation of the kennel. The noise level shown as "Kennel" in the table represents a calculation of the Leq (15 min) noise level attributable to barking and howling dogs. Each dog was audibly barking or howling for between 10 and 40 seconds, with the measured level for each "event" calculated out to a 15 minute Leq and then each of these logarithmically added to calculate the total contribution of the dogs to the overall.

At the time of the monitoring there were approximately 40 dogs at the kennels. Throughout the entire survey period the dogs were rarely heard to bark simultaneously. That is, individual dogs would bark





Akuna Care Section 96 Modifications – October 2016

occasionally but then be calmed or calm down themselves. Under such circumstances the proposed increase in the number of dogs would not result in an increase in received noise.

The potential for sleep disturbance would need to be considered as a result of the noise from dogs barking at night (between 10pm and 7am). Based on the adopted background noise level of 30 dB(A), the sleep disturbance criterion would be set at 45 dB(A) L1 (1 min) (effectively the maximum noise level (Lmax) from dogs barking). The sleep disturbance criterion is applicable at a point 1m from a bedroom window.

The L1 (1 min) noise levels (as maximum and range) from the dogs barking are shown in **Table 2**.

Table 2 Akuna Care - Noise Monitoring Results – 25 October 2016			
Location	Time	dB(A), L1 (1 min)	Range of Measured Levels/Average
North Boundary	12:02 pm	53	41 – 53 – Average (51)
South Boundary	12:20 pm	52	42 – 52 – Average (48)
West Boundary	12:35 pm	48	40 – 48 – Average (45)

For access reasons the noise measurements were made at locations on the site of Akuna Care (at, or near, the boundary fence). These locations are significantly removed from the sleep disturbance assessment location (i.e. a bedroom window). The additional distance loss from the measurement location to the bedroom (assuming there is a bedroom window facing the site) is shown in **Table 3**.

Table 3 Akuna Care – Calculated Noise Levels			
Location	dB(A), L1 (1 min)	Additional Distance Loss	Adjusted Range of Measured Levels/Average
North Boundary	53	-8	Maximum 45 – Range 33 – 45 – Average (43)
South Boundary	52	-8	Maximum 44 – Range 34 – 44 – Average (40)
West Boundary	48	-5	Maximum 43 – 35 – 43 – Average (40)

The results in Table 3 show that there will be no exceedance of the adopted sleep disturbance criterion as a result of the noise from dogs barking.

The sleep disturbance criterion was first described in the, now superseded, *Environmental Noise Control Manual* (ENCM) and more recent Application Notes to the INP state that;

"From the research, EPA recognised that current sleep disturbance criterion of (background plus 15 dB(A)) is not ideal. Nevertheless, as there is insufficient evidence to determine what should replace it, EPA will continue to use it as a guide to identify the likelihood of sleep disturbance. This means that where the criterion is met, sleep disturbance is not likely, but where it is not met, a more detailed analysis is required."

Guidance on assessing the potential for adverse impacts from maximum noise levels can be gained from Appendix B of the RMS *Environmental Criteria for Road Traffic Noise* (ECRTN). This document





Akuna Care Section 96 Modifications – October 2016

outlines the results of research into the possible causes and effects of sleep disturbance as a result of traffic noise and concludes that;

- *"Maximum internal noise levels (i.e. inside a residence) below 50 – 55 dB(A) are unlikely to cause awakening reactions, and*
- *One or two noise events per night, with maximum internal noise levels of 65 – 70 dB(A) are not likely to affect health and wellbeing significantly.*

It is generally accepted that the façade of a typical dwelling with the windows open will attenuate approximately 10 dB(A) of traffic noise. A light framed house with the windows closed will attenuate up to 20 dB(A). The noise from dogs barking is in the mid to high frequencies, which are more readily attenuated by the façade of a building than those related to traffic noise.

Thus, an external noise level of 45 dB(A) corresponds to 35 dB(A) internal with windows open and 25 dB(A) internal with windows closed.

Based on the discussion above it is considered unlikely that an occasional external noise level of 45 dB(A) L1 (1 min) will create any adverse sleep disturbance reactions as a result of noise from dogs barking.

SCHEDULE 1, CONDITION 4:

Proposed amendment to Schedule 1, Condition 4 is to be removed or deleted as per below;

Remove Condition 4.

*This modification proposal seeks to remove **Schedule 1, Condition 4** from the Development Consent and allow for the caretakers at Akuna Pet Resort to walk the pets around the facility in a controlled and orderly manner.*

The dog walking procedure involves a single dog (or maybe two dogs if they come from the same household) being taken out of the kennels and being walked on leads around the outside of the enclosure. The dog will be with a member of the Akuna staff at all times, and as such, it is unlikely that there will be any uncontrolled barking. The dog walking will only be done during the middle of the day.

To consider a worst case, however, a dog was assessed to be barking on the walking circuit for 10 seconds. The results of the calculation of the potential impacts of this are shown in **Table 4**. Impacts were calculated to the nearest potentially affected receivers 120m away.

The sound power level for the dog has been taken from noise measurements, made previously at Akuna Care, of a loud dog barking uncontrolled (note that the dog was deliberately excited to allow for the worst case measurements to be made). The calculation shown assumes a direct line of sight





Akuna Care Section 96 Modifications – October 2016

between the barking dog and the receiver and does not allow for any shielding or barrier effects from any intervening buildings or other structures.

Table 4	
Calculated SPL at Nearest Residential Receiver (120m)	
Item	dB(A)
Source Lw (1 dog in open)	102
Adjustment for duration (10 seconds out of 15 minutes)	-19
Distance loss (120 m)	-50
SPL @ receiver	33
Criterion Leq (15 min)	35
Impact	0

The results in Table 4 show that, under the assessed scenario, there will be no adverse acoustic impacts as a result of the noise from dogs being walked outside of the radio.

Conclusion

The results of this assessment have shown that the proposed Section 96 changes to the Development Approval No. 8/2005/1221/2 will not create any adverse noise impacts and there is no acoustic reason why the changes cannot be approved.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please do not hesitate to contact the undersigned.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:

A handwritten signature in black ink, appearing to read 'Ross Hodge'.

Ross Hodge
Acoustical Consultant

Review:

A handwritten signature in black ink, appearing to read 'Neil Pennington'.

Neil Pennington
Acoustical Consultant





Our Ref: 16/142

Your Ref: DA 8/2005/1221/3

26 April 2017

The General Manager
Cessnock City Council
PO Box 42
Cessnock NSW 2325

ATTN: Holly Taylor

RE: Response to Council

Section 96(2) Application – Modification to Approved Boarding Kennels to Increase Number of Dogs (1)) and Cats (3) and Deletion of Condition 4 to Enable Exercising of Dogs Outside Designated Areas.

DA No. 8/2005/1221/3

Lot 30 DP 1060818 – 254 Bathurst Street, Sawyers Gully

Correspondence was received from Cessnock Council, dated 8 March 2017, detailing the minutes from the meeting with Akuna Pet Resorts ('The Proponent'), which took place on the 27 February 2017. The following items were identified, which were required to be addressed to continue the assessment of the Section 96 application:

- (1) Form and Application;
- (2) Acoustic Impacts;
- (3) Wastewater Management; and
- (4) Parking and Traffic.

Please see enclosed herewith the following in response to Councils recommendations:

- (1) Acoustic Impact Assessment, prepared by Spectrum Acoustics, dated 4 April 2017;
- (2) Wastewater Management Plan, prepared by EP Risk, dated 21 April 2017; and
- (3) Traffic and Parking Review, prepared by SECA Solution, dated 10 April 2017.



Council Request for Further Information Form and Application

Janine advised that the likely impacts of a development form part of the characterisation of a development. In assess the category of application that a proposal fits into, there needs to be an assessment of the qualitative and quantitative impacts. That is, to determine if an application may be approved as a Section 96(1A), which is defined a modification with minor impacts, or a Section 96(2) defined as a modification with more substantive impacts but substantially the same development, or a development that warrants a separate consent. In some circumstances, there needs to be an assessment of the impacts in order to determine the type of application that is appropriate, it is not always possible for this to be done until the application has progressed. Council is reaching the conclusion that the development proposed is, by way of the likely impacts, no longer substantially the same development as that which was originally approved and therefore requires separate consent.

Response

The proposed section 96(1A) application no. 8/2005/1221/3 should be considered as an appropriate application to vary a condition of consent. The proposed application results in substantially the same development, as well as, minimal environmental impact; as concluded within the various subconsultant reports that were commissioned, and included with this letter. We request that Council, continue assessment, under Section 96(2) of the Environmental Planning and Assessment Act, 1979; as it satisfies the respective regulatory requirements.

Acoustic Impact

The proposal present a significant increase in intensity, a 25% increase in the number of dogs kept. There is concern about peak use noise impacts and the likely impacts have not been suitably addressed. The submitted report is considered to be ambiguous, rather than definitive. The reports should be amended to include specific measures that will be taken to abate noise impacts. Ariel advised that feeding is staggered and a noise management plan has been implemented and that they have not received complaints. Submission of a noise management along with modelling that utilises data from noise monitoring is recommended. The monitoring is to be conducted during peak use periods (Easter Holidays suggested).

Response

An Acoustic Assessment was prepared by Spectrum Acoustics, dated 4 April 2017 which followed the completion of an attended noise monitoring event, which is included with this submission, refer to **Attachment A**. The report presents the results of an update to the original assessment that was lodged as part of the Section 96 application to Council. The data obtained from the attended noise monitoring event was assessed against the governing *Industrial Noise Policy (INP)* and demonstrated compliance against the rigorous noise criteria. The report concludes that the proposed Section 96 application (DA 8/2005/1221/3)



will not create any adverse noise impacts and there is no acoustic reason why the changes cannot be approved.

Wastewater Management

The information provided in the application is conceptual and lacks specifics. Quantities of all liquid waste, including detergents, water used in cleaning is required. A wastewater report must be prepared by a suitable qualified and experienced wastewater consultant and include:

- a) Identification of the subject lot;
- b) Identification of the relevant Australian Standards and Guidelines to which the plan/ report will demonstrate compliance with;
- c) Description of the proposed development;
- d) Description of the characteristics of the subject lot (eg. Lot size, shape, slope/ gradient) including a statement as to whether there are any site limitations;
- e) Climatic assessment;
- f) A detailed soil analysis of each soil profile, depths of horizons, geological bore logs, NATA accredited laboratory certificate/s, and soil category, texture and profile used to determine the design loading rate (DLR);
- g) Description of wastewater physics, chemical and biological characteristics for both current (if applicable) and proposed uses;
- h) Hydraulic load calculation for both current (if applicable) and proposed uses;
- i) Water balance calculations;
- j) Description of the proposed/ recommended treatment system/s and land application area;
- k) Summary table of design parameters, specifications and details of the proposed land application area;
- l) Recommendation and conclusion; and
- m) Details of person who prepared/ completed the plan/ report.

Response

A Wastewater Management plan was prepared by EP Risk, dated 21 April 2017, to address the aforementioned items of concern identified by Council. The report concludes that the on-site effluent system is suitable for the proposed use, provided the recommendations in the report are implemented. This report is included as **Attachment B**.

Parking and Traffic

A traffic and parking survey is required to demonstrate the adequacy of the proposed parking and access arrangements. Whilst it is acknowledged that the existing animal pick up and drop off service assists with



on-site parking and traffic; the consent is not specific to the current operators and will need to consider the long term for parking and access.

Response

A Traffic and Parking review was conducted by SECA Traffic solutions, dated 10 April 2017, to investigate the associated traffic and parking implications of the proposed Section 96 application. The report is included with this submission as **Attachment C**. The assessment was prepared in accordance with the RTA guide to Traffic Generating Development with consideration to the relevant planning requirements outlined within the Cessnock Development Control Plan, 2010. The report concludes that the proposed development to increase the capacity of the existing Pet Resort ('Akuna') has an acceptable impact upon the local road network. The proposed additional capacity will create a very small increase in traffic generated by the site. While the existing parking demands associated with Akuna can be fully contained within the site, with the 'at grade carpark'. Therefore, the proposed expansion should therefore be approved, subject to conditions, with respect to traffic and parking.

If you require further information please do not hesitate to contact the undersigned on **(02) 4934 3026**.

Yours faithfully

PULVER COOPER & BLACKLEY

LIAM BUXTON

Enc



Attachment A

Acoustic Assessment – Spectrum Acoustics





Attachment B

Wastewater Management Plan – EP Risk

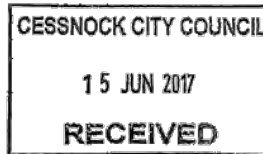




Attachment C

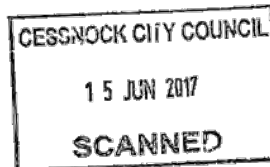
Traffic and Parking Review – SECA Traffic Solutions





Our Ref 16/142

Your Ref DA 8/2005/1221/3



9 June 2017

The General Manager
Cessnock City Council
PO Box 152
Cessnock NSW 2325

To whom it may concern,

RE. Section 96(2) Application No. 8/2005/1221/3
Lot 30 DP 1060818 – 254 Bathurst Street, Sawyers Gully

In accordance with previous advice provided to Council dated 2 June 2017, please see herewith further clarification provided by the respective expert consultants, which address Council's concerns in relation to noise impacts and wastewater management

- (1) Response to anticipated noise impacts, prepared by Spectrum Acoustics, dated 7 June 2017, and
- (2) Response to adverse wastewater management concerns, prepared by EP Risk, dated 7 June 2017

In relation to the singular response Council received from the second notification period (public submission dated 28 May 2017), the Applicant, Pulver Cooper and Blackley and Spectrum Acoustics, believe we have adequately proved that the proposed Section 96(2) application is compliant within the relevant Industrial Noise Policy in the circumstances for this site

We look forward to Council responding to this attached information and finalising your assessment.

If you require further information please contact the myself or Liam Buxton on (02) 4934 3026.

Yours faithfully
Pulver Cooper and Blackley

Mark Daniels
Enc



7 June 2017

Ref 161322/7197

Mr Marcus Nicholls
c/- Akuna Care
254 Bathurst Street,
Abermain NSW 2326

RE Akuna Section 96(2) application 8/2005/1221/3 - Acoustic Response to Council letter dated 31st May 2017

This letter relates to the acoustic assessment for the proposed modification to the approved operations of the Akuna Care Kennel and Cattery (Akuna Care) at Sawyers Gully Cessnock City Council (CCC) has reviewed the original acoustic assessment for the development (Spectrum Acoustics Report no 161322/6797, dated October 2016) and further reporting 161322/6797, dated April 2017 and is unsupportive of the proposal for the following reasons (shown in extract below) which are addressed here,

1. Noise Impact Assessment

The concerns in relation to anticipated noise impacts were discussed in detail at Council's Meeting held 27 February 2017. It was confirmed in writing on 8 March 2017 that:

"The submitted report is considered to be ambiguous, rather than definitive. The report should be amended to include specific measures that will be taken to abate noise impacts. Submission of a noise management plan along with modelling that utilizes data from noise monitoring is recommended. The monitoring to be conducted during peak use periods (Easter Holidays suggested)".

A third Acoustic Report dated April 2017 was received on 1 May 2017. Data was collected at four locations on or near the boundary of the site, in the direction of the nearest receivers.

Noise measurements were obtained for a one-hour period on Friday, 31 March 2017 which was outside the requested peak use period and not in compliance with the INP for "measurement period for low risk sources". Similarly to the earlier report received 28 October 2016, this report failed to address the impact of F-Class temperature inversions, which according to the INP dataset for the location would further impact noise measurements, occurring at between 25-30% of the time during the winter months.

Sufficient evidence that the acoustic impacts of the proposed modification are within the limits provided by the NSW Industrial Noise Policy has not been provided. Accordingly, the conclusions of the revised acoustic report are not supported.



Response

The statement that the noise measurements made by Spectrum Acoustics are not in compliance with the NSW Industrial Noise Policy (INP), is incorrect

To arrive at this conclusion CCC has referenced Table 3.2 of Section 3.2 in the INP. This table relates specifically to the determination of existing noise levels for amenity criteria. This has no relevance to the current assessment.

Chapter 3 of the INP relates to "Determining existing noise levels" that is, from existing industry and other noise sources in an area. It does not relate to measuring the noise from an industry or development under assessment. In fact, procedures in the INP detail that, in setting noise goals for a development, the measurement of existing noise levels in an area must be done in the absence of noise from that development.

Below is an extract from Spectrum Acoustics Report no. 161322/6797 which explains how the noise criteria for the current assessment were arrived at:

"In setting noise goals for a particular project the INP considers both Amenity and Intrusiveness criteria. The former is set to limit continuing increase in noise from industry, whilst the latter is set to minimise the intrusive impact of a particular noise source. The site under assessment is relatively remote with no existing industrial noise. As such, the intrusiveness criteria are those applicable to setting the project specific noise goals. That is, the 15 minute Leq noise level should not exceed the Rating Background Level (RBL) for each time period, plus 5 dB(A)."

"In circumstances where the background noise level (RBL) is not known or for use as a screening level, the INP allows for the adoption of a minimum background noise level of 30 dB(A) L90."

By way of explanation this extract explains that there is no existing industrial noise in the area and, therefore, the Amenity criteria are not applicable. As such Section 3.2, and the requirements of Table 3.2 of the INP in particular, do not apply to the current assessment and any reference to them is erroneous.

Spectrum Acoustics previous reporting has detailed the justifications for the noise monitoring programme that was undertaken. This noise monitoring was undertaken over a one hour period at four locations to ensure capture of sufficient data for comparison with the noise assessment criterion based on the Intrusiveness Criterion, that being an Leq (15 min) noise level.

CCC has also indicated that the Spectrum Acoustics report failed to address the impact of F-Class temperature inversions.

It is agreed that temperature inversions would likely be a feature of the area at night, particularly in winter.





The effects of temperature inversions are generally not considered in assessing potential noise impacts at receivers within a few hundred metres of a noise source as the increase in noise due to an inversion at these distances is not significant

The assessment of the effects of temperature inversions requires the use of a computer noise model. It is Spectrum Acoustics experience that none of the available noise modelling software can produce accurate noise predictions for noise propagation under temperature inversion conditions at relatively short distances (i.e. < about 300m)

Table D1 in the INP details that the increase in noise levels due to a +3°/100m temperature gradient (the INP default level) is +1dB(A) at distances up to 300m. It must be noted that this is based on calculations performed using ENM noise modelling software and the comments above should be borne in mind.

Notwithstanding the above it can be seen, from the previous noise monitoring results at Akuna Care, that increasing the predicted noise level by +1 dB(A) at the most potentially affected receiver will not result in the adopted noise goal being exceeded (see the copy of Table 2 from the previous Spectrum report No. 161322/6797 shown below)

Table 2			
Akuna Care – Calculated Received Noise Levels – 31 March 2017			
Location	Time	dB(A)_{Leq}	Identified Noise Sources
1	10 15 am	51	Local traffic (51), birds & insects (39), domestic noise (35), distant traffic (34) Kennel (25)
R2	10 15 am	44	Birds & insects (43), Kennel (31) , traffic (34)
R3	11 20 am	46	Birds & insects (45), Kennel (26) , traffic (33)
4	11 20 am	46	Birds & insects (42), traffic (40), domestic noise (36), other dogs (20), Kennel occasional audible

Furthermore, temperature inversions are only included in the assessment of noise, during the night (from 10pm to 7am). At Akuna Care the practise is that all dogs are locked into individual kennels (except in the case of two dogs coming from the same house where both may share a kennel) during the night. There are no dogs in outdoor areas between 10pm and 7am. This practise is detailed in the Akuna Care management procedures.

Having all dogs locked away in individual kennels significantly reduces noise emissions from the site.

Spectrum Acoustics undertook noise measurements inside and outside of a prototype of the kennels in 2005 (prior to the upgrade of the entire facility). The results of this work were detailed in Report No. 5137/1612, dated October 2005. These results showed that "by putting dogs inside the new kennel design Leq noise emissions can be reduced by up to 29dB(A)".

It can be clearly seen, therefore, that with the dogs inside the kennels at night, the received noise will not exceed the adopted criterion at any residences even under the worst case enhancing conditions due to a temperature inversion.





Akuna Care – Council Queries

It is accepted that the noise monitoring was undertaken outside of what is considered peak times (that being Easter). As indicated in the previous letter report, however, at the time of the monitoring there were approximately 60 dogs at the kennels. The capacity of the facility is currently for 72 dogs. The increase in the number of dogs will have minimal impact in relation to the Leq noise level. An increase from 60 to 72 dogs would lead to an increase in noise (that is, the total possible increase in the sound power level of the site) of about 0.8 dB(A) Leq (15 min). An increase in noise of this amount would not be detectable to the human ear.

Even if twice the amount of dogs barked at the same time as those that were measured during the monitoring period this would lead to an increase in total noise of 3 dB(A). That is a doubling in sound power level or sound pressure level leads to an increase in noise of 3 dB(A). For example, one dog barking may have a calculated Leq sound power level of, say, 80 dB(A). Adding another identical dog alongside the first one and barking at exactly the same level would increase the total sound power level to 83 dB(A).

Using the same analysis, 60 dogs would have a combined sound power level of 97.8 dB(A) (i.e. $80 + (10 \times \log 60)$). 72 dogs would have a combined sound power level of 98.6 dB(A). 100 dogs would have a combined sound power level of 100 dB(A), an increase of 2.2 dB(A) in total sound power level over the scenario that was monitored on March 31, 2017.

In conclusion, Spectrum Acoustics considers that the acoustic assessments undertaken to date in relation to the operation of Akuna Care, and proposed modifications to that operation, have been undertaken in keeping with all requirements of the INP. Through the reporting of the assessments sufficient evidence has been provided to show that the proposed modification to Akuna Care will not create adverse noise impacts at any receivers.

We trust this letter fulfils your requirements at this time, however, should you require additional information or assistance please do not hesitate to contact the undersigned.

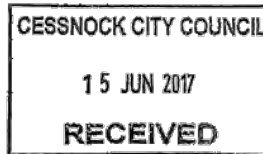
Yours faithfully

SPECTRUM ACOUSTICS PTY LIMITED

A handwritten signature in black ink, appearing to read 'Ross Hodge'.

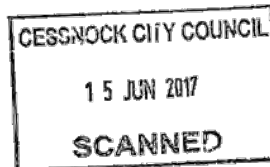
Ross Hodge
Acoustical Consultant





Our Ref 16/142

Your Ref DA 8/2005/1221/3



9 June 2017

The General Manager
Cessnock City Council
PO Box 152
Cessnock NSW 2325

To whom it may concern,

RE. Section 96(2) Application No. 8/2005/1221/3
Lot 30 DP 1060818 – 254 Bathurst Street, Sawyers Gully

In accordance with previous advice provided to Council dated 2 June 2017, please see herewith further clarification provided by the respective expert consultants, which address Council's concerns in relation to noise impacts and wastewater management

- (1) Response to anticipated noise impacts, prepared by Spectrum Acoustics, dated 7 June 2017, and
- (2) Response to adverse wastewater management concerns, prepared by EP Risk, dated 7 June 2017

In relation to the singular response Council received from the second notification period (public submission dated 28 May 2017), the Applicant, Pulver Cooper and Blackley and Spectrum Acoustics, believe we have adequately proved that the proposed Section 96(2) application is compliant within the relevant Industrial Noise Policy in the circumstances for this site

We look forward to Council responding to this attached information and finalising your assessment.

If you require further information please contact the myself or Liam Buxton on (02) 4934 3026.

Yours faithfully
Pulver Cooper and Blackley

Mark Daniels
Enc



7 June 2017
Ref. EP0441 002_LR1

Akunas Pet Resort Pty Ltd
C/- Pulver, Cooper and Blackley Pty Ltd
98 Lawes Street
East Maitland, NSW, 2323

Attention. Liam Buxton

Akuna Section 96(2) application 8/2005/1221/3 – Wastewater Management, Response to Council letter dated 31st May 2017

EP Risk Management Pty Ltd ('EP Risk') has prepared a Waste Water Management Plan for a property located at 254 Bathurst Street, Sawyers Gully, NSW ('the Site') The site is known as Lot 30 in Deposited Plan ('DP') 1060818

The report was required for submission with a s96 Application¹ for the modification of boarding kennels to increase the number of dogs (100) and cats (30) and deletion of Condition 4 to enable exercising of dogs outside designated areas

EP Risk has reviewed a letter from Cessnock City Council² ('Council') which states the following

'The provided wastewater report does not address the management of wastewater from the grassed dog exercise yard'.

Council in their letter are requesting treatment of surface water runoff (stormwater) from the grassed dog exercise yard The EP Risk (2017) Wastewater Management Plan³ presents a wastewater design to address the wastewater loading from the operational boarding kennel business at the Site EP Risk has not been engaged address stormwater treatment from the dog exercise yards at the Site.

Akunas Pet Resort Pty Ltd ('Akunas') have management practices in place to reduce the risk of faecal impact to stormwater within the dog exercise yards. The dogs are supervised at all times within the exercise yards and faeces removed immediately after placement All collected dog and cat faecal matter is flushed down the on-site toilets where they are treated by the on-site wastewater treatment system EP Risk considers that the management practices adopted by Akuna are appropriate to reduce the risk of faecal impact to stormwater at the Site

As stated in the EP Risk (2017) report, the likely cause of the elevated nutrient and microbiological impact to surface water in the dam is runoff from waterlogged soils in the portion of the former effluent disposal area located within the 40m buffer zone.

¹ Section 96(2) Application No 8/2005/1221/3

² Cessnock City Council letter to Mr M Nicholls & Ms A Endean, dated 31 May 2017 (ref DA 8/2005/1221/3)

³ EP Risk Management Pty Ltd (2017) Wastewater Management Plan, 254 Bathurst Street, Sawyers Gully, NSW, dated 21 April 2017 (ref EP0441)



Melbourne
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T 03 8540 7300

Sydney
G11/283 Alfred Street
North Sydney, NSW, 2060
T 02 8324 7508

Newcastle
3/19 Bolton Street
Newcastle, NSW, 2300
T 02 4913 5650

W www.eprisk.com.au

ABN 81 147 147 591



7 June 2017
Ref: EP0441.002_LR1

Based on these findings, the portion of the former effluent disposal area within the 40m buffer zone was decommissioned and the effluent disposal area expanded to accommodate the predicted wastewater flows.

EP Risk considers that decommissioning the effluent disposal area within the 40m buffer zone and further expansion of this area to accommodate the predicted wastewater flows will minimise waterlogging and reduce the risk of nutrient and microbiological impact to water quality in the dam

Please feel free to contact the undersigned if you have any queries

Yours sincerely

A handwritten signature in black ink, appearing to be 'Paul Simpson', written over a horizontal line.

Paul Simpson
Principal Environmental Engineer
EP Risk Management Pty Ltd



7 June 2017
Ref: EP0441.002_LR1

QUALITY CONTROL

Version	Author	Date	Reviewer	Date	Quality Review	Date
1	P Simpson	07 06 17	S Lord	07 06 17	S Lord	07 06 17

DOCUMENT CONTROL

Version	Date	Reference	Submitted to
1	07 06 17	EP0499 001LR	Pulver, Cooper and Blackley Pty Ltd

LIMITATIONS

This letter was prepared for Akunas Pet Resort Pty Ltd c/- Pulver, Cooper and Blackley Pty Ltd for the purpose/s stated above.

EP Risk has prepared this document in good faith, but is unable to provide certification outside of areas over which EP Risk had some control or were reasonably able to check. The report also relies upon information provided by third parties. EP Risk has undertaken all practical steps to confirm the reliability of the information provided by third parties and do not accept any liability for false or misleading information provided by these parties.

It is not possible in this letter to present all data, which could be of interest to all readers of this document. Readers are referred to any referenced investigation reports for further data.

Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

All work conducted and reports produced by EP Risk are based on a specific scope and have been prepared for Akunas Pet Resort Pty Ltd c/- Pulver, Cooper and Blackley Pty Ltd and therefore cannot be relied upon by any other third parties unless agreed in writing by EP Risk.

The report(s) and/or information produced by EP Risk should not be reproduced and/or presented/reviewed except in full.

Enclosure 1 - Unsealed Laneway

Asset Name	Suburb	Hierarchy	Segment Length
unnamed Road	Aberdare	URBAN LOCAL	217.00
unnamed Road	Aberdare	URBAN LOCAL	222.00
unnamed Road	Aberdare	URBAN LOCAL	220.00
unnamed Road	Aberdare	URBAN LOCAL	156.00
unnamed Road	Aberdare	URBAN LOCAL	148.00
unnamed Road	Aberdare	Laneway	230.00
unnamed Road	Aberdare	URBAN LOCAL	51.00
unnamed Road	Aberdare	URBAN LOCAL	221.00
unnamed Road	Aberdare	URBAN LOCAL	135.00
unnamed Road	Aberdare	Laneway	199.00
unnamed Road	Aberdare	URBAN LOCAL	114.00
unnamed Road	Aberdare	URBAN LOCAL	226.00
unnamed Road	Aberdare	Laneway	217.00
unnamed Road	Aberdare	URBAN LOCAL	220.00
unnamed Road	Aberdare	URBAN LOCAL	169.00
unnamed Road	Aberdare	URBAN LOCAL	231.00
unnamed Road	Aberdare	URBAN LOCAL	210.00
unnamed Road	Aberdare	URBAN LOCAL	212.00
unnamed Road	Aberdare	URBAN LOCAL	226.00
unnamed Road	Aberdare	URBAN LOCAL	219.00
unnamed Road	Aberdare	URBAN LOCAL	225.00
unnamed Road	Aberdare	URBAN LOCAL	222.00
unnamed Road	Aberdare	URBAN LOCAL	267.00
unnamed Road	Aberdare	URBAN LOCAL	211.00
unnamed Road	Aberdare	URBAN LOCAL	215.00
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Melbourne Lane	Abermain	URBAN LOCAL	132.00
Melbourne Lane	Abermain	URBAN LOCAL	170.00
Melbourne Lane	Abermain	URBAN LOCAL	264.00
Dubbo Lane	Abermain	URBAN LOCAL	260.00

Hay Lane	Abermain	Laneway	113.00
Maitland Lane	Abermain	Laneway	158.00
Armidale Lane	Abermain	URBAN LOCAL	158.00
Armidale Lane	Abermain	URBAN LOCAL	169.00
Armidale Lane	Abermain	URBAN LOCAL	217.00
Tamworth Lane	Abermain	URBAN LOCAL	199.00
Tamworth Lane	Abermain	URBAN LOCAL	157.00
Tamworth Lane	Abermain	URBAN LOCAL	202.00
Lismore Lane	Abermain	URBAN LOCAL	163.00
Lismore Lane	Abermain	URBAN LOCAL	144.00
Lismore Lane	Abermain	URBAN LOCAL	217.00
Lismore Lane	Abermain	URBAN LOCAL	242.00
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unnamed Road	Abernethy	URBAN LOCAL	202.00
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unnamed Road	Bellbird	Laneway	273.00
unnamed Road	Bellbird	URBAN LOCAL	149.00
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Internal Access Road	Branxton	URBAN LOCAL	73.00
Internal Access Road	Branxton	URBAN LOCAL	142.40
Internal Access Road	Branxton	URBAN LOCAL	146.40
Internal Access Road	Branxton	URBAN LOCAL	50.50
Internal Access Road	Branxton	URBAN LOCAL	20.00
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unnamed Road	Cessnock	Laneway	225.00
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unnamed Road	Kearsley	URBAN LOCAL	221.00
unnamed Road	Kearsley	URBAN LOCAL	223.00
unnamed Road	Kearsley	URBAN LOCAL	218.00

unnamed Road	Kearsley	URBAN LOCAL	219.00
unnamed Road	Kearsley	URBAN LOCAL	218.00
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Aberdare Lane	Kurri Kurri	Laneway	223.00
Aberdare Lane	Kurri Kurri	URBAN LOCAL	220.00
Aberdare Lane	Kurri Kurri	URBAN LOCAL	216.00
Aberdare Lane	Kurri Kurri	URBAN LOCAL	214.00
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Aberdare Lane	Kurri Kurri	URBAN LOCAL	181.00
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Maitland Lane	Kurri Kurri	URBAN LOCAL	213.00
Maitland Lane	Kurri Kurri	URBAN LOCAL	214.00
Maitland Lane	Kurri Kurri	URBAN LOCAL	218.00
Maitland Lane	Kurri Kurri	URBAN LOCAL	221.00
Maitland Lane	Kurri Kurri	URBAN LOCAL	217.00
Maitland Lane	Kurri Kurri	Laneway	77.00
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Main Lane	Kurri Kurri	URBAN LOCAL	188.00
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Barton Lane	Kurri Kurri	URBAN LOCAL	135.00
Barton Lane	Kurri Kurri	URBAN LOCAL	225.00
Barton Lane	Kurri Kurri	URBAN LOCAL	187.00
Barton Lane	Kurri Kurri	URBAN LOCAL	167.00
Rawson Lane	Kurri Kurri	URBAN LOCAL	80.00
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Rawson Lane	Kurri Kurri	URBAN LOCAL	196.00
Rawson Lane	Kurri Kurri	URBAN LOCAL	197.00
Rawson Lane	Kurri Kurri	URBAN LOCAL	216.00
Rawson Lane	Kurri Kurri	URBAN LOCAL	147.00
Rawson Lane	Kurri Kurri	URBAN LOCAL	152.00
Hopetoun Lane	Kurri Kurri	URBAN LOCAL	216.00
Hopetoun Lane	Kurri Kurri	URBAN LOCAL	123.00
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Hopetoun Lane	Kurri Kurri	URBAN LOCAL	194.00
Hopetoun Lane	Kurri Kurri	URBAN LOCAL	215.00
Edward Lane	Kurri Kurri	Laneway	164.00

Edward Lane	Kurri Kurri	URBAN LOCAL	134.00
Coronation Lane	Kurri Kurri	URBAN LOCAL	125.00
Coronation Lane	Kurri Kurri	URBAN LOCAL	129.00
Coronation Lane	Kurri Kurri	URBAN LOCAL	42.00
Rawson Lane	Kurri Kurri	Laneway	183.00
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unknown Road	Nulkaba	URBAN LOCAL	213.00
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unnamed Road	Pelaw Main	URBAN LOCAL	216.00
unnamed Road	Pelaw Main	URBAN LOCAL	216.00
Railway Lane	Pelaw Main	Laneway	140.00
Milfield Lane	Pelaw Main	URBAN LOCAL	216.00
Short Lane	Pelaw Main	URBAN LOCAL	143.00
Allandale Lane	Pelaw Main	Laneway	176.00
Abermain Lane	Pelaw Main	URBAN LOCAL	82.00
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Abermain Lane	Pelaw Main	URBAN LOCAL	213.00
Aberdare Lane	Pelaw Main	URBAN LOCAL	215.00
Aberdare Lane	Pelaw Main	URBAN LOCAL	159.00
Aberdare Lane	Pelaw Main	Laneway	184.00
Anvil Lane	Stanford Merthyr	Rural Local	217.00
Wickham Lane	Stanford Merthyr	URBAN LOCAL	167.00
Maitland Lane	Stanford Merthyr	URBAN LOCAL	294.00
Maitland Lane	Stanford Merthyr	Laneway	192.00
Maitland Lane	Stanford Merthyr	URBAN LOCAL	230.00
Wallsend Lane	Stanford Merthyr	URBAN LOCAL	293.00
Wallsend Lane	Stanford Merthyr	URBAN LOCAL	211.00
Wallsend Lane	Stanford Merthyr	Laneway	61.00
Unnamed Laneway	Weston	Laneway	198.00
Unnamed Laneway	Weston	Laneway	180.00
Unnamed Laneway	Weston	Laneway	88.00
Unnamed Laneway	Weston	Laneway	86.00
			34,044.60
			34km

Enclosure 2 - Rural Local Unsealed

Asset Name	Suburb	Hierarchy	Segment Length
Baileys Lane	Abermain	Rural Local	250.00
Baileys Lane	Abermain	Rural Local	112.00
Charles Street	Abermain	Rural Collector	753.00
Old School Hill Rd	Abermain	Rural Local	182.00
Howells Road	Abernethy	Rural Local	982.00
Big Yango Road	Big Yengo	Rural Local	1,006.00
Big Yango Road	Big Yengo	Rural Local	980.00
Big Yango Road	Big Yengo	Rural Local	987.00
Big Yango Road	Big Yengo	Rural Local	997.00
Big Yango Road	Big Yengo	Rural Local	998.00
Big Yango Road	Big Yengo	Rural Local	983.00
Big Yango Road	Big Yengo	Rural Local	1,015.00
Big Yango Road	Big Yengo	Rural Local	1,004.00
Big Yango Road	Big Yengo	Rural Local	990.00
Big Yango Road	Big Yengo	Rural Local	1,000.00
Big Yango Road	Big Yengo	Rural Local	1,000.00
Big Yango Road	Big Yengo	Rural Local	988.00
Big Yango Road	Big Yengo	Rural Local	997.00
Big Yango Road	Big Yengo	Rural Local	518.00
Yango Track Track	Big Yengo	Rural Local	1,064.00
Boundary Street	Bishops Bridge	Rural Local	111.00
Boundary Street	Bishops Bridge	Rural Local	552.00
James Lane	Bishops Bridge	Rural Local	220.00
Browns Road	Black Hill	Rural Local	81.00
Browns Road	Black Hill	Rural Local	147.00
Browns Road	Black Hill	Rural Local	745.00
Browns Road	Black Hill	Rural Local	318.00
Tatlors Road	Black Hill	Rural Local	1,104.00
Edward Street	Brunkerville	Rural Local	987.00
Edward Street	Brunkerville	Rural Local	697.00
Gills Road	Brunkerville	Rural Local	395.00
Gills Road	Brunkerville	Rural Local	171.00
Gills Road	Brunkerville	Rural Local	398.00
Leiberts Lane	Brunkerville	Rural Local	873.00
Averys Lane	Buchanan	Rural Local	186.00
Averys Lane	Buchanan	Rural Local	355.00
Averys Lane	Buchanan	Rural Local	702.00
Averys (North) Lane	Buchanan	Rural Local	191.00
Averys (North) Lane	Buchanan	Rural Local	275.00
Old Buttai Road	Buchanan	Rural Local	1,028.00
Old Buttai Road	Buchanan	Rural Local	119.00
Lings Road	Buttai	Rural Local	957.00
Lings Road	Buttai	Rural Local	993.00
Old Buttai Road	Buttai	Rural Local	124.00
Old Buttai Road	Buttai	Rural Local	276.00
Old Buttai Road	Buttai	Rural Local	156.00
Old Buttai Road	Buttai	Rural Local	275.00
Old Buttai Road	Buttai	Rural Local	183.00

Us/Rd Off Road	Buttai	Rural Local	176.00
Cedar Creek Road	Cedar Creek	Rural Local	988.00
Cedar Creek Road	Cedar Creek	Rural Local	1,001.00
Cedar Creek Road	Cedar Creek	Rural Local	687.00
Sawpit Road	Cedar Creek	Rural Local	1,043.00
Sawpit Road	Cedar Creek	Rural Local	964.00
Sawpit Road	Cedar Creek	Rural Local	996.00
Sawpit Road	Cedar Creek	Rural Local	214.00
Old Maitland Road	Cessnock	Rural Local	941.00
Buttaba Avenue	Cessnock	Rural Local	21.00
Buttaba Avenue	Cessnock	Rural Local	663.00
Old Maitland Rd	Cessnock	Rural Local	293.00
Congewai Road	Congewai	Rural Local	1,004.00
Congewai Road	Congewai	Rural Local	1,019.00
Congewai Road	Congewai	Rural Local	1,031.00
Congewai Road	Congewai	Rural Local	1,005.00
Congewai Road	Congewai	Rural Local	1,105.00
Congewai Road	Congewai	Rural Local	953.00
Congewai Road	Congewai	Rural Local	998.00
Congewai Road	Congewai	Rural Local	996.00
Congewai Road	Congewai	Rural Local	714.00
Lowes Road	Congewai	Rural Local	822.00
Northams Road	Congewai	Rural Local	993.00
Northams Road	Congewai	Rural Local	247.00
Hayes Road	Congewai	Rural Local	188.00
Off Congewai Road	Congewai	Rural Local	901.00
Off Congewai Road	Congewai	Rural Local	897.00
Dry Creek Road	Ellalong	Rural Local	638.00
Wallaby Gully Road	Ellalong	Rural Local	959.00
Wallaby Gully Road	Ellalong	Rural Local	998.00
Wallaby Gully Road	Ellalong	Rural Local	1,009.00
Wallaby Gully Road	Ellalong	Rural Local	1,001.00
Wallaby Gully Road	Ellalong	Rural Local	424.00
Wallaby Gully Road	Ellalong	Rural Local	93.00
Holmes Street	Ellalong	Rural Local	181.00
Dry Creek Road	Ellalong	Rural Local	647.00
Mimosa Lane	Ellalong	Rural Local	1,042.00
Us/Rd Off Road	Ellalong	Rural Local	919.00
Off Sandy Road	Ellalong	Rural Local	110.00
Orient Street	Greta	Rural Local	473.00
Orient Street	Greta	Rural Local	546.00
Tuckers Lane	Greta	Rural Local	1,035.00
Orient St	Greta	Rural Local	248.00
Mears Lane	Keinbah	Rural Local	143.00
Yango Creek Road	Laguna	Rural Local	1,007.00
Yango Creek Road	Laguna	Rural Local	1,022.00
Yango Creek Road	Laguna	Rural Local	984.00
Yango Creek Road	Laguna	Rural Local	992.00
Yango Creek Road	Laguna	Rural Local	220.00
Yango Creek Road	Laguna	Rural Local	988.00

Blaxlands Arm Road	Laguna	Rural Local	1,016.00
Blaxlands Arm Road	Laguna	Rural Local	986.00
Blaxlands Arm Road	Laguna	Rural Local	760.00
Boree Track Track	Laguna	Rural Local	995.00
Boree Track Track	Laguna	Rural Local	1,003.00
Boree Track Track	Laguna	Rural Local	1,000.00
Boree Track Track	Laguna	Rural Local	982.00
Boree Track Track	Laguna	Rural Local	990.00
Boree Track Track	Laguna	Rural Local	1,007.00
Boree Track Track	Laguna	Rural Local	1,010.00
Boree Track Track	Laguna	Rural Local	1,010.00
Boree Track Track	Laguna	Rural Local	1,005.00
Boree Track Track	Laguna	Rural Local	1,021.00
Boree Track Track	Laguna	Rural Local	1,015.00
Boree Track Track	Laguna	Rural Local	1,001.00
Boree Track Track	Laguna	Rural Local	927.00
Dairy Arm Road	Laguna	Rural Local	999.00
Dairy Arm Road	Laguna	Rural Local	1,000.00
Dairy Arm Road	Laguna	Rural Local	1,022.00
Dairy Arm Road	Laguna	Rural Local	1,012.00
Dairy Arm Road	Laguna	Rural Local	989.00
Dairy Arm Road	Laguna	Rural Local	1,020.00
Dairy Arm Road	Laguna	Rural Local	983.00
Knights Road	Laguna	Rural Local	1,048.00
Knights Road	Laguna	Rural Local	720.00
Murrays Run Road	Laguna	Rural Local	670.00
Murrays Run Road	Laguna	Rural Local	993.00
Murrays Run Road	Laguna	Rural Local	993.00
Murrays Run Road	Laguna	Rural Local	1,000.00
Murrays Run Road	Laguna	Rural Local	620.00
Murrays Run Road	Laguna	Rural Local	217.00
Murrays Run Road	Laguna	Rural Local	1,058.00
Murrays Run Road	Laguna	Rural Local	1,015.00
Murrays Run Road	Laguna	Rural Local	221.00
Murrays Run Road	Laguna	Rural Local	428.00
Murrays Run Road	Laguna	Rural Local	957.00
Upper Yango Road	Laguna	Rural Local	997.00
Upper Yango Road	Laguna	Rural Local	995.00
Upper Yango Road	Laguna	Rural Local	440.00
Upper Yango Road	Laguna	Rural Local	990.00
Upper Yango Road	Laguna	Rural Local	1,003.00
Upper Yango Road	Laguna	Rural Local	980.00
Upper Yango Road	Laguna	Rural Local	1,008.00
Upper Yango Road	Laguna	Rural Local	875.00
Finchleys Track	Laguna	Rural Local	979.00
Finchleys Track	Laguna	Rural Local	988.00
Finchleys Track	Laguna	Rural Local	999.00
Finchleys Track	Laguna	Rural Local	967.00
Finchleys Track	Laguna	Rural Local	348.00
Watagan Creek Road	Laguna	Rural Local	1,054.00

Watagan Creek Road	Laguna	Rural Local	1,188.00
Watagan Creek Road	Laguna	Rural Local	79.00
Watagan Creek Road	Laguna	Rural Local	1,010.00
Watagan Creek Road	Laguna	Rural Local	552.00
Watagan Creek Road	Laguna	Rural Local	141.00
Watagan Creek Road	Laguna	Rural Local	203.00
Watagan Creek Road	Laguna	Rural Local	186.00
Watagan Creek Road	Laguna	Rural Local	1,006.00
Watagan Creek Road	Laguna	Rural Local	106.00
Watagan Creek Road	Laguna	Rural Local	166.00
Watagan Creek Road	Laguna	Rural Local	1,019.00
Watagan Creek Road	Laguna	Rural Local	980.00
Watagan Creek Road	Laguna	Rural Local	994.00
Watagan Creek Road	Laguna	Rural Local	995.00
Watagan Creek Road	Laguna	Rural Local	1,005.00
Yango Creek Road	Laguna	Rural Local	902.00
Yango Track Track	Laguna	Rural Local	1,019.00
Yango Track Track	Laguna	Rural Local	979.00
Yango Track Track	Laguna	Rural Local	984.00
Yango Track Track	Laguna	Rural Local	1,001.00
Yango Track Track	Laguna	Rural Local	1,002.00
Yango Track Track	Laguna	Rural Local	1,002.00
Yango Track Track	Laguna	Rural Local	996.00
Yango Track Track	Laguna	Rural Local	1,082.00
Yango Track Track	Laguna	Rural Local	930.00
Yango Track Track	Laguna	Rural Local	992.00
Little Wallabadah Road	Laguna	Rural Local	1,000.00
Little Wallabadah Road	Laguna	Rural Local	700.00
Big Wallabadah Road	Laguna	Rural Local	1,000.00
Watagan Creek Rd	Laguna	Rural Local	104.00
Wills Hill Road	Lovedale	Rural Local	519.00
Wills Hill Road	Lovedale	Rural Local	829.00
Lodge Road	Lovedale	Rural Local	660.00
Lodge Road	Lovedale	Rural Local	200.00
Londons Road	Lovedale	Rural Local	488.00
Londons Road	Lovedale	Rural Local	228.00
Londons Road	Lovedale	Rural Local	954.00
Ironbank Road	Lovedale	Rural Local	376.00
Olgen Road	Lovedale	Rural Local	1,015.00
Brickmans Lane	Lovedale	Rural Local	778.00
Off Lovedale Road	Lovedale	Rural Local	27.00
Off Lovedale Road	Lovedale	Rural Local	302.00
Green Lane	Lovedale	Rural Local	1,000.00
Green Lane	Lovedale	Rural Local	339.00
Bowditch Avenue	Loxford	Rural Local	1,176.00
Dickson Road	Loxford	Rural Local	616.00
Horton Street	Loxford	Rural Local	447.00
Bishops Bridge Road	Loxford	Rural Local	1,052.00
Scales Avenue	Loxford	Rural Local	478.00
Mount View Road	Millfield	Rural Collector	425.00

Mount View Road	Millfield	Rural Collector	191.00
Mount View Road	Millfield	Rural Collector	151.00
Mount View Road	Millfield	Rural Collector	261.00
Mount View Road	Millfield	Rural Collector	230.00
Mount View Road	Millfield	Rural Collector	588.00
Mount View Road	Millfield	Rural Collector	110.00
Hayes Road	Millfield	Rural Local	971.00
Hayes Road	Millfield	Rural Local	1,066.00
Hayes Road	Millfield	Rural Local	1,012.00
Mitchells Road	Mount View	Rural Local	1,004.00
Mitchells Road	Mount View	Rural Local	544.00
Mt Bright Road	Mount View	Rural Local	925.00
Mount View Road	Mount View	Rural Collector	1,113.00
Mount View Road	Mount View	Rural Collector	545.00
Mount View Road	Mount View	Rural Collector	793.00
Mount View Road	Mount View	Rural Collector	251.00
Mount View Road	Mount View	Rural Collector	1,165.00
Mount View Road	Mount View	Rural Collector	410.00
King Road	Mount View	Rural Local	272.00
Off Bimbadeen Road	Mount View	Rural Local	109.00
Mt Bright Rd	Mount View	Rural Local	649.00
Off Bimbadeen 2800M N W	Mount View	Rural Local	489.00
New Street	Mulbring	Rural Local	611.00
North Street	Mulbring	Rural Local	94.00
Vermont Road	Mulbring	Rural Local	229.00
Vermont Road	Mulbring	Rural Local	598.00
Vermont Road	Mulbring	Rural Local	698.00
Wallis Creek Lane	Mulbring	Rural Local	399.00
Charles Street	Neath	Rural Sub Arterial	59.00
Carrs Road	Neath	Rural Local	19.00
Lindsay Road	North Rothbury	Rural Local	1,004.00
Lindsay Road	North Rothbury	Rural Local	355.00
Tuckers Lane	North Rothbury	Rural Local	973.00
Tuckers Lane	North Rothbury	Rural Local	1,000.00
Littlewood Road	North Rothbury	Rural Local	1,004.00
Littlewood Road	North Rothbury	Rural Local	127.00
Littlewood Road	North Rothbury	Rural Local	697.00
Washery Road	North Rothbury	Rural Local	918.00
Fleming Street	Nulkaba	Rural Local	100.00
Phillips Lane	Nulkaba	Rural Local	197.00
Lomas Lane	Nulkaba	Rural Local	236.00
Lomas Lane	Nulkaba	Rural Local	771.00
Lomas Lane	Nulkaba	Rural Local	681.00
Ironbank Road	Nulkaba	Rural Local	1,012.00
Ironbank Road	Nulkaba	Rural Local	1,004.00
Ironbank Road	Nulkaba	Rural Local	94.00
Off Lomas Lane	Nulkaba	Rural Local	976.00
O'Connors Rd	Nulkaba	Rural Local	822.00
Watagan Creek Road	Olney	Rural Local	503.00
Stockyard Creek Road	Paynes Crossing	Rural Local	983.00

Stockyard Creek Road	Paynes Crossing	Rural Local	988.00
Stockyard Creek Road	Paynes Crossing	Rural Local	1,012.00
Stockyard Creek Road	Paynes Crossing	Rural Local	1,005.00
Stockyard Creek Road	Paynes Crossing	Rural Local	998.00
Stockyard Creek Road	Paynes Crossing	Rural Local	506.00
Finchleys Track	Paynes Crossing	Rural Local	983.00
Finchleys Track	Paynes Crossing	Rural Local	989.00
Finchleys Track	Paynes Crossing	Rural Local	996.00
Finchleys Track	Paynes Crossing	Rural Local	968.00
Finchleys Track	Paynes Crossing	Rural Local	994.00
Stockyard Creek Rd	Paynes Crossing	Rural Local	211.00
Mt Bright Road	Pokolbin	Rural Local	109.00
O'Connors Road	Pokolbin	Rural Local	1,111.00
De Beyers Road	Pokolbin	Rural Local	462.00
De Beyers Road	Pokolbin	Rural Local	694.00
De Beyers Road	Pokolbin	Rural Local	95.00
De Beyers Road	Pokolbin	Rural Local	1,007.00
De Beyers Road	Pokolbin	Rural Local	1,000.00
De Beyers Road	Pokolbin	Rural Local	579.00
De Beyers Road	Pokolbin	Rural Local	691.00
De Beyers Road	Pokolbin	Rural Local	222.00
De Beyers Road	Pokolbin	Rural Local	1,000.00
De Beyers Road	Pokolbin	Rural Local	976.00
Ekerts Road	Pokolbin	Rural Local	481.00
Ekerts Road	Pokolbin	Rural Local	994.00
Ekerts Road	Pokolbin	Rural Local	688.00
Palmers Lane	Pokolbin	Rural Local	965.00
Palmers Lane	Pokolbin	Rural Local	565.00
Pokolbin Mountains Road	Pokolbin	Rural Local	29.00
Pokolbin Mountains Road	Pokolbin	Rural Local	989.00
Pokolbin Mountains Road	Pokolbin	Rural Local	991.00
Pokolbin Mountains Road	Pokolbin	Rural Local	730.00
Pokolbin Mountains Road	Pokolbin	Rural Local	816.00
Broken Back Road	Pokolbin	Rural Local	996.00
Broken Back Road	Pokolbin	Rural Local	1,044.00
Broken Back Road	Pokolbin	Rural Local	538.00
Maxwells Road	Pokolbin	Rural Local	597.00
Racecourse Lane	Pokolbin	Rural Local	320.00
Us/Rd Off Road	Pokolbin	Rural Local	267.00
Us/Rd Off Road	Pokolbin	Rural Local	225.00
Us/Rd Off Road	Pokolbin	Rural Local	306.00
Us/Rd Off Road	Pokolbin	Rural Local	65.00
Us/Rd Off Road	Pokolbin	Rural Local	1,149.00
Thompsons Rd	Pokolbin	Rural Local	162.00
Barraba Lane	Quorrobolong	Rural Local	991.00
Barraba Lane	Quorrobolong	Rural Local	995.00
Barraba Lane	Quorrobolong	Rural Local	256.00
Barraba Lane	Quorrobolong	Rural Local	1,001.00
Barraba Lane	Quorrobolong	Rural Local	517.00
Mill Lane	Quorrobolong	Rural Local	829.00

Mill Lane	Quorrobolong	Rural Local	994.00
Mill Lane	Quorrobolong	Rural Local	413.00
Mill Lane	Quorrobolong	Rural Local	399.00
Whitings Lane	Quorrobolong	Rural Local	737.00
Whitings Lane	Quorrobolong	Rural Local	1,000.00
Whitings Lane	Quorrobolong	Rural Local	303.00
Whitings Lane	Quorrobolong	Rural Local	414.00
Wollong Road	Quorrobolong	Rural Local	507.00
Wollong Road	Quorrobolong	Rural Local	1,014.00
Wollong Road	Quorrobolong	Rural Local	70.00
Coney Creek Lane	Quorrobolong	Rural Local	1,038.00
Mill (East) Lane	Quorrobolong	Rural Local	843.00
Nash Lane	Quorrobolong	Rural Local	994.00
Nash Lane	Quorrobolong	Rural Local	834.00
Barraba Lane	Quorrobolong	Rural Local	928.00
Whitings Lane	Quorrobolong	Rural Local	750.00
Wilderness Road	Rothbury	Rural Local	994.00
Wilderness Road	Rothbury	Rural Local	741.00
Old North Road	Rothbury	Rural Local	997.00
Old North Road	Rothbury	Rural Local	999.00
Old North Road	Rothbury	Rural Local	785.00
Old North Road	Rothbury	Rural Local	987.00
Old North Road	Rothbury	Rural Local	739.00
Talga Road	Rothbury	Rural Local	691.00
Wilderness Rd	Rothbury	Rural Local	594.00
Wilderness Rd	Rothbury	Rural Local	591.00
Old Maitland Road	Sawyers Gully	Rural Local	633.00
Old Maitland Road	Sawyers Gully	Rural Local	487.00
Old Maitland Road	Sawyers Gully	Rural Local	182.00
Old Maitland Road	Sawyers Gully	Rural Local	184.00
Old Maitland Road	Sawyers Gully	Rural Local	999.00
Old Maitland Road	Sawyers Gully	Rural Local	381.00
Lumby Lane	Sawyers Gully	Rural Local	710.00
Lumby Lane	Sawyers Gully	Rural Local	66.00
Pitt Lane	Sawyers Gully	Rural Local	1,027.00
Pitt Lane	Sawyers Gully	Rural Local	305.00
Metcalfe Lane	Sawyers Gully	Rural Local	290.00
Metcalfe Lane	Sawyers Gully	Rural Local	135.00
Metcalfe Lane	Sawyers Gully	Rural Local	737.00
James Lane	Sawyers Gully	Rural Local	995.00
Hinds Lane	Sawyers Gully	Rural Local	174.00
Hinds Lane	Sawyers Gully	Rural Local	111.00
Native Dog Road	Sawyers Gully	Rural Local	995.00
Native Dog Road	Sawyers Gully	Rural Local	744.00
Us/Rd Serendipity Road	Sawyers Gully	Rural Local	513.00
Slaughterhouse Road	Sawyers Gully	Rural Local	269.00
Slaughterhouse Road	Sawyers Gully	Rural Local	459.00
Slaughterhouse Road	Sawyers Gully	Rural Local	894.00
Old Maitland Rd	Sawyers Gully	Rural Local	206.00
Sweetmans Creek Road	Sweetmans Creek	Rural Local	308.00

Baileys Lane Lane	Weston	Rural Local	776.00
Date Avenue	Weston	Rural Local	61.00
Narone Creek Road	Wollombi	Rural Local	868.00
Narone Creek Road	Wollombi	Rural Local	992.00
Narone Creek Road	Wollombi	Rural Local	995.00
Narone Creek Road	Wollombi	Rural Local	991.00
Narone Creek Road	Wollombi	Rural Local	643.00
Yango Creek Road	Wollombi	Rural Local	991.00
Yango Creek Road	Wollombi	Rural Local	974.00
Yango Creek Road	Wollombi	Rural Local	1,010.00
Yango Creek Road	Wollombi	Rural Local	1,127.00
Milsons Arm Road	Wollombi	Rural Local	1,005.00
Milsons Arm Road	Wollombi	Rural Local	993.00
Milsons Arm Road	Wollombi	Rural Local	986.00
Milsons Arm Road	Wollombi	Rural Local	999.00
Milsons Arm Road	Wollombi	Rural Local	992.00
Milsons Arm Road	Wollombi	Rural Local	643.00
Dry Arm Road	Wollombi	Rural Local	989.00
Dry Arm Road	Wollombi	Rural Local	1,000.00
Canning Street	Wollombi	Rural Local	450.00
Christina Street	Wollombi	Rural Local	181.00
Negro Street	Wollombi	Rural Local	144.00
Narone Lane	Wollombi	Rural Local	274.00
			259,871.00
			260km

Enclosure 3 - Urban Local Unsealed

Asset Name	Suburb	Hierarchy	Segment Length
Melbourne Street	Abermain	URBAN LOCAL	96.00
Montgomery Street	Abermain	URBAN LOCAL	130.00
Ridley Street	Abermain	URBAN LOCAL	249.00
Torrens Street	Abermain	URBAN LOCAL	99.00
Truscott Street	Abermain	URBAN LOCAL	93.00
York Street	Abermain	URBAN LOCAL	175.00
Hebburn Road	Abermain	URBAN LOCAL	998.00
Hebburn Road	Abermain	URBAN LOCAL	966.00
Hebburn Road	Abermain	URBAN LOCAL	1,000.00
Hebburn Road	Abermain	URBAN LOCAL	830.00
Old School Road	Abermain	URBAN LOCAL	119.00
Bruce Street	Abernethy	URBAN LOCAL	573.00
Ferguson Street	Abernethy	URBAN LOCAL	108.00
Ferguson Street	Abernethy	URBAN LOCAL	295.00
Howells Road	Abernethy	URBAN LOCAL	63.00
Southams Road	Abernethy	URBAN LOCAL	804.00
Off Howells Road	Abernethy	URBAN LOCAL	375.00
Hetton Street	Bellbird	URBAN LOCAL	65.00
Drinan Street	Branxton	URBAN LOCAL	38.00
King Street	Branxton	URBAN LOCAL	37.00
Queen Street	Branxton	URBAN LOCAL	41.00
Stanford Road	Buchanan	URBAN LOCAL	920.00
Us/Rd Off Road	Buchanan	URBAN LOCAL	309.00
Us/Rd Off Road	Buchanan	URBAN LOCAL	217.00
Orchid Rd	Buchanan	URBAN LOCAL	926.00
Railway Street	Cessnock	URBAN LOCAL	121.00
Buttaba Avenue	Cessnock	URBAN LOCAL	165.00
Neath Street	Cessnock	URBAN LOCAL	197.00
Quarry Street	Cessnock	URBAN LOCAL	79.00
O'Shea Circuit	Cessnock	URBAN LOCAL	184.00
Cessnock Street	Cessnock	URBAN LOCAL	104.00
Off Tunnel Road	Cessnock	URBAN LOCAL	377.00
Alexander Street	Ellalong	URBAN LOCAL	248.00
Hecla Street	Ellalong	URBAN LOCAL	125.00
Hecla Street	Ellalong	URBAN LOCAL	117.00
Hunter Street	Ellalong	URBAN LOCAL	99.00
Hunter Street	Ellalong	URBAN LOCAL	499.00
Hunter Street	Ellalong	URBAN LOCAL	436.00
Hunter Street	Ellalong	URBAN LOCAL	108.00
Holmes Street	Ellalong	URBAN LOCAL	224.00
Dora Street	Ellalong	URBAN LOCAL	115.00
Hamilton Street	Ellalong	URBAN LOCAL	452.00
Truro Street	Ellalong	URBAN LOCAL	137.00
Bell Street	Greta	URBAN LOCAL	97.00
John Street	Greta	URBAN LOCAL	229.00
Lloyd Street	Greta	URBAN LOCAL	103.00
Mary Street	Greta	URBAN LOCAL	110.00
Scott Street	Greta	URBAN LOCAL	75.00

Mary Street	Greta	URBAN LOCAL	114.00
Bell Street	Greta	URBAN LOCAL	132.00
Florence Street	Greta	URBAN LOCAL	128.00
Usher St	Greta	URBAN LOCAL	68.00
Averys Lane	Heddon Greta	URBAN LOCAL	226.00
Stanford Road	Heddon Greta	URBAN LOCAL	553.00
Earp Street	Heddon Greta	URBAN LOCAL	94.00
Colliery Road	Kearsley	URBAN LOCAL	24.00
Colliery Road	Kearsley	URBAN LOCAL	575.00
Cessnock Street	Kearsley	URBAN LOCAL	139.00
Dunlop Street	Kearsley	URBAN LOCAL	172.00
Congewai Street	Kearsley	URBAN LOCAL	157.00
Ellalong Street	Kearsley	URBAN LOCAL	571.00
Government Circuit	Kearsley	URBAN LOCAL	625.00
Government Circuit	Kearsley	URBAN LOCAL	246.00
Government Circuit	Kearsley	URBAN LOCAL	79.00
Jeffries Street	Kearsley	URBAN LOCAL	598.00
Kearsley Selections Road	Kearsley	URBAN LOCAL	373.00
Mulbring Street	Kearsley	URBAN LOCAL	124.00
Wilkinson Place	Kearsley	URBAN LOCAL	451.00
Wilson Street	Kearsley	URBAN LOCAL	504.00
Eddenville Road	Kearsley	URBAN LOCAL	153.00
Ellalong Street	Kearsley	URBAN LOCAL	60.00
Government Circuit	Kearsley	URBAN LOCAL	540.00
Us/Rd Off Lane	Keinbah	URBAN LOCAL	618.00
Aberdare Street	Kitchener	URBAN LOCAL	136.00
Abermain Street	Kitchener	URBAN LOCAL	73.00
Bellbird Street	Kitchener	URBAN LOCAL	217.00
Richmond Street	Kitchener	URBAN LOCAL	266.00
Southams Road	Kitchener	URBAN LOCAL	1,000.00
Cessnock Street	Kitchener	URBAN LOCAL	137.00
Stanford Street	Kitchener	URBAN LOCAL	117.30
Aberdare Street	Kurri Kurri	URBAN LOCAL	354.00
Heddon Street	Kurri Kurri	URBAN LOCAL	259.00
Ninth Avenue	Millfield	URBAN LOCAL	137.00
Lewis Lane	Millfield	URBAN LOCAL	429.00
Eleventh Avenue	Millfield	URBAN LOCAL	62.00
Shingle Gully Road	Millfield	URBAN LOCAL	839.00
Crump Street	Millfield	URBAN LOCAL	175.00
Walmsley Street	Millfield	URBAN LOCAL	150.00
Bellamy Street	Millfield	URBAN LOCAL	720.00
Kemp Street	Neath	URBAN LOCAL	49.00
David Street	Neath	URBAN LOCAL	234.00
Caledonia Street	Neath	URBAN LOCAL	45.00
Caledonia Street	Neath	URBAN LOCAL	54.00
Mayne Street	North Rothbury	URBAN LOCAL	126.00
Scott Street	North Rothbury	URBAN LOCAL	42.00
Scott Street	North Rothbury	URBAN LOCAL	204.00
Kerlew Street	Nulkaba	URBAN LOCAL	136.00
Kerlew Street	Nulkaba	URBAN LOCAL	369.00

Pinchen Street	Nulkaba	URBAN LOCAL	134.00
Boreas Street	Nulkaba	URBAN LOCAL	63.00
Greta Street	Pelaw Main	URBAN LOCAL	59.00
Campbells Lane	Pokolbin	URBAN LOCAL	805.00
Bakers Lane	Sawyers Gully	URBAN LOCAL	871.00
FINDLEY Lane	Sawyers Gully	URBAN LOCAL	400.00
Date Avenue	Weston	URBAN LOCAL	253.00
East Esplanade	Weston	URBAN LOCAL	207.00
East Esplanade	Weston	URBAN LOCAL	97.00
Ellis Street	Weston	URBAN LOCAL	150.00
Ellis Street	Weston	URBAN LOCAL	111.00
Embelton Street	Weston	URBAN LOCAL	101.00
West Esplanade Esplanade	Weston	URBAN LOCAL	395.00
Kline Street	Weston	URBAN LOCAL	120.00
Seventh East Street	Weston	URBAN LOCAL	10.00
Butcher Street	Wollombi	URBAN LOCAL	75.00
Cedar Street	Wollombi	URBAN LOCAL	58.00
Cedar Street	Wollombi	URBAN LOCAL	57.00
Cedar Street	Wollombi	URBAN LOCAL	617.00
Prudence Street	Wollombi	URBAN LOCAL	92.00
Off Milsons Lane	Wollombi	URBAN LOCAL	190.00
Off Milsons Lane	Wollombi	URBAN LOCAL	465.00
Christina Street	Wollombi	URBAN LOCAL	801.00
			33,832.30
			34km



The Hon Brad Hazzard MP
Minister for Health
Minister for Medical Research

Cr Bob Pynsent
Mayor of the City of Cessnock
Cessnock City Council
PO Box 152
CESSNOCK NSW 2325

Your ref DOC2017/022002
Our ref M17/2546

Dear Cr Pynsent

I refer to your letter to the Hon Anthony Roberts MP, Minister for Planning, regarding the resolution passed by Cessnock City Council in April 2017 regarding the new Maitland Hospital. As this matter relates to my portfolio of Health, the Minister has forwarded your letter for my consideration.

I appreciate the interest that Cessnock City Council has in the new Maitland Hospital project and Council's advocacy on behalf of your community.

The new Maitland Hospital will proceed at the Metford site, which was purchased after a rigorous selection process. Enabling and preparatory works are scheduled to begin in late 2017. Engagement with the community will continue as the project progresses.

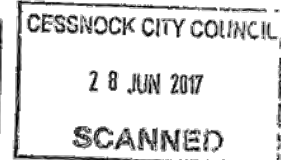
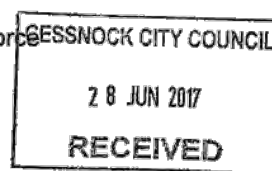
Land for the new Maitland Hospital was sought through a public expression of interest (EOI) from within a preferred zone that stretched from Ashtonfield to East Branxton and Lorn to Heddon Greta.

In the development of the EOI, the Hunter Valley Research Foundation provided information and analysis in relation to population. This included likely population growth and its capacity to drive future demand for clinical services. The data was sourced from the NSW Planning – Demography Unit, being the NSW SLA Population projections 2006-2036, Detailed Data 2010, and compiled in consultation with the NSW Population Projections Group.

An evaluation panel undertook extensive research and investigations on the shortlisted sites, including visiting each site. In August 2013, the preferred site for the new hospital was identified following a rigorous selection process. The selection process involved 35 candidate sites assessed against a wide range of criteria to determine the most suitable location.

The criteria included:

- accessibility to existing communities, transport links and support services
- proximity to areas of population growth
- access to a skilled and specialised workforce
- travel time to other health facilities
- development costs
- land characteristics
- cultural heritage considerations
- environmental and geotechnical factors



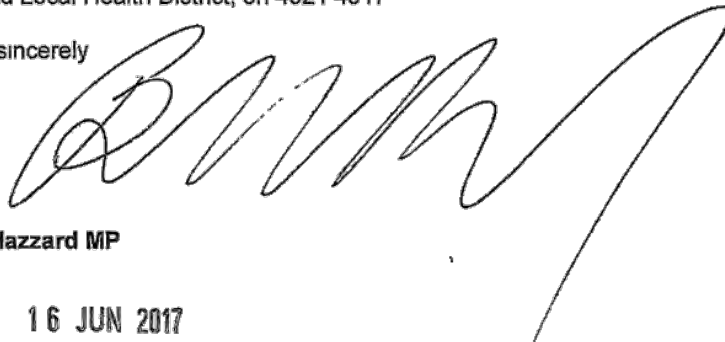
The Metford site is within about 15 minutes of the Hunter Expressway and is close to the New England Highway and other major link roads. Importantly, the site is also close to an existing train station and public transport routes.

The NSW Government invited Expressions of Interest from non-government hospital operators to design, construct, operate and maintain the new Maitland Hospital under a Public Private Partnership in September 2016. The NSW Government is currently considering the Expressions of Interest.

The Government will only proceed with the partnership approach if we are certain that a partnership will offer significant benefits to patients and local communities. If the partnership approach does not offer additional benefits to patients and the community then the new Maitland Hospital will revert to a traditional model of delivery.

Thank you again for your letter regarding the new Maitland hospital. If you have any further questions, please contact Eddie Pinilo, Executive Lead, New Maitland Hospital, Hunter New England Local Health District, on 4921 4917.

Yours sincerely

A large, stylized handwritten signature in black ink, appearing to read 'B. Hazzard', is written over the 'Yours sincerely' line and extends down towards the date.

Brad Hazzard MP

16 JUN 2017