ANNEXURE 5

Environmental Management Plans

Gingin Egg Farm

Environmental Management Plan

Prepared by Allerding and Associates for Gingin Egg Farm

Lot 3 (120) Douglas Road, Beermullah

APRIL 2014

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Introduction

This is an environmental management plan for the operations of the free range poultry facility at Lot 3 (120) Douglas Road (corner Brand Highway), Beermullah.

This management plan supports the philosophy at Gingin Egg Farm that best management practices are adopted.

The management plan is intended to minimise the risk of any adverse event with potential to impact on the environment or the surrounding residents.

All management plans will be reviewed biannually.

Odour Management Plan

Objective: To ensure that farm operations do not produce odours that unreasonably impact on neighbours.

The following will be implemented by Gingin Egg Farm:

1. A log of key conditions and activities with potential to affect odour generation is to be put in place prior to commencement of operations and thereafter maintained and periodically reviewed as the basis for minimisation and control of odours. It addresses relevant factors including feed, drinker, litter and climate conditions and flock age. The Daily Critical Checklist is included at the end of this management plan, which provides for a register of the key conditions and activities.
2. Drinker technology equivalent in performance to industry best practice is installed and maintained to minimize formation of wet litter.
3. Equipment and structures are in place and maintained to minimize the potential for odour nuisance to neighbouring properties
4. Best practice equipment for monitoring and control of temperature, ventilation, cooling and water consumption is in place, maintained to manufacturer's specifications and used.
5. Electrical power and phase supply alarms are installed to alert the poultry farm manager of supply failure and a standby generator is provided to maintain normal operating conditions.
6. Feed is sourced only from mills capable of producing an output of assured quality.
7. The prevailing weather conditions and forecasts will be taken into account when scheduling and planning farm operations in order to minimise offsite impacts.
8. The collection of dead birds from within the sheds and paddocks will occur on a daily basis or more frequently should conditions require.
9. The Poultry Farm Manager will record daily mortality and review and take action as required if the mortality is more than double the expected rate for a seven day period.

Noise Management Plan

Objective: To ensure that farm operations control transmission of unreasonable noise by using appropriate design, maintenance and operating procedures.

The following will be implemented by Gingin Egg Farm:

1. Noting that the operation of a poultry farm is 24 hours a day, 7 days a week, standard hours of operation for regular activity shall be limited to 8am – 4pm Monday to Saturday only, unless in the event of an emergency.
2. Operation of all mechanical equipment, including shed fans, feed systems and other equipment will minimise the offsite transmission of mechanical noise or vibration to noise sensitive premises.
3. Equipment will be installed, operated and maintained according to manufacturer's requirements.
4. Equipment will be regularly checked and maintained.
5. Equipment and structures will be maintained to minimize the potential for noise nuisance to residences on neighbouring properties.
6. Ventilation fans, tractors, farm vehicles, transport vehicles and other equipment will be maintained, repaired and operate to the manufacturer's requirements.
7. Faults to equipment that result in additional noise will be rectified as soon as practicable with initial response within 24 hours.
8. Where vehicles have audible beepers for reversing, vehicle reversing will be minimised and/or visual alarms will be used where practicable.
9. Contractors visiting the site will have equipment and appropriate training and comply with procedures that minimise noise.
10. Contractors visiting the site will be supervised and monitored to ensure noise impact is minimised.

11. Deliveries will not take place before 7.00am or after 7.00pm at night, except in emergency situations.

12. All physical noise barriers as required to be installed by the Shire of Gingin will be maintained in effective condition.

13. All vehicles and machinery will be maintained to ensure that noise or emissions do not exceed the manufacturer's specifications.

14. Five (5) kilometre an hour speed limits on site will be signposted and identified by training or instructions to drivers in order to limit noise and dust levels.

15. In the event that there is an equipment failure resulting in a noise incident, the "Actionable Responses" form included at the end of the management plan is to be completed.

16. If a complaint is received in regard to noise, the "Complaints" form included at the end of the management plan is to be completed and follow up action taken and recorded on the form.

17. Bird pick-up contractors will have the equipment and training specified by the poultry farm operator and comply with procedures that minimise noise to noise sensitive premises.

18. Feed deliveries will not take place before 7.00am or after 7.00pm except in the event of an emergency.

19. Farm noise levels will comply with the noise criteria specified in the Environmental Protection (Noise) Regulations.

20. Where problems persist that generate noise that affects a sensitive noise premises on another property that do not comply with the Environmental Protection (Noise) Regulations, the poultry farm manager will initiate advice from a noise consultant.

Dust Management Plan:

Objective: To minimise dust generation with the potential for off-site impact

The following is to be implemented by Gingin Egg Farm:

1. Prior to the introduction of new birds to the rearing sheds, a layer of dry saw dust or wood shavings or rice hulls of minimum depth of 10 centimetres will be distributed over the entire shed floor.
2. Any major wet litter areas in the free range yard will be removed as soon as practicable.
3. The timing of litter removal of the free range shed will be chosen, where reasonably possible, to minimise off-site impacts by taking into account weather conditions such as temperature, wind direction, turbulence and time of day.
4. Following removal of all chickens from the shed, litter will be removed from the shed as part of the cleaning process and loaded directly onto trucks for transport offsite.
5. The poultry farm manager will ensure that contractors responsible for delivery and pick up of manure and litter check that all trucks have secured covers, which are used to prevent any dust or spillage of the litter on arrival and departure from the site.
6. In the event that an unacceptable level of dust is generated due to vehicular movement on unsealed access areas on site, those areas will be wet down or other appropriate action taken in order to reduce the potential for dust generation.
7. If dust is visible on site with potential for off-site impact, action will be taken to control the level of dust emissions.
8. Any landscaping that is installed which assists with reducing dust impact to adjacent properties will be maintained with a watering system/arrangement in place and any dead or diseased plants will be regularly replaced.
9. Equipment and structures will be in place and maintained to minimize the potential for dust nuisance to neighbouring properties.

10. Well designed, constructed and totally enclosed silos and feed systems will be installed in order to provide fresh and wholesome feed without any contamination or generation of dust.

11. Daily inspection will take place of the feed system to ensure no breaches that would result in the potential for dust generation.

Waste and Manure Management Plan:

Objective: To ensure that the potential for off-site impacts in regard to waste is minimised.

The following is to be implemented by Gingin Egg Farm:

1. Manure from the poultry sheds will not be spread on the property.

2. No untreated poultry manure (other than that being collected in the poultry sheds and that which is within the free range paddocks) will be stored on the property (except in accordance with 4. below). All rearing sheds are designed to retain all poultry manure within the shed for the duration of the birds' confinement, usually approximately 16 weeks. Then when the sheds are cleaned of all birds all manure is removed.

3. Prior to the introduction of new birds to the rearing sheds, a layer of dry saw dust or wood shavings or rice hulls of minimum depth of 10 centimetres will be distributed over the entire shed floor. Manure in the rearing sheds is then mixed with sawdust, which assists in drying out the manure.

4. If the untreated poultry manure is unable to be removed from the property at the time of emptying the sheds of birds and manure only (such as due to a natural disaster or impassable road access) the contingency will be for the manure to be stored on the property until it is able to be removed. If such an event arises the manure will be stored in the manure storage compound, located at the end of each shed. The manure storage compound will have concrete floors and walls and a weatherproof roof such that the manure will be covered from the elements of wind and rain and all other reasonable steps taken to ensure there is no groundwater contamination.

5. Dead birds will be collected from within the sheds on a daily basis, or more frequently should the conditions require.

6. Dead birds will be frozen in a separate freezer or removed off site immediately for composting/disposal as appropriate.

7. The frozen dead birds will be taken off site at least 2 times per week or more often if required.

8. The freezer for the dead birds will only be used for that purpose and will be maintained in accordance with the manufacturer's specifications and be provided with on-farm standby power in the event of a power failure.

9. Manure will be collected from the rearing sheds by backhoe and placed in a waiting truck at the end of every cycle of approximately 16 weeks and will be disposed offsite. In the event that the manure can not be transported off site immediately, the manure is to be placed in the manure storage compound, located at the end of the shed, which has a concrete floor and walls and a weatherproof roof.

10. Manure will be collected from the free range sheds at least once every two days by use of a scraper and conveyor belt and transported off site. In the event that the manure can not be transported off site immediately, the manure will be placed in the manure storage compound located at the end of the shed. In the event that the manure is not immediately transported off site from the conveyor, the manure will be placed on a concrete apron and immediately transported to the manure storage compound located at the end of each shed.

11. The concrete apron area, located at the end of each shed, will be sufficient for clean-out operations and will connect between the manure storage compound and the shed opening.

12. Manure stored in the storage compound will be aerated daily.

13. Best practice drinkers (to ensure that overflowing and flooding of the deep litter does not occur) will be installed. Drinkers in the shed will be checked at least daily for any faults.

14. Regular shed inspections will be undertaken daily to ensure major drinker leakages are detected and acted upon as soon as possible.

15. Moisture within the manure within the sheds will be monitored and kept in a reasonably dry condition below the level for the farm known to cause odour. The shed doors will be built up above adjacent surface levels, in order to minimise any potential for manure to leak from the sheds.

16. Litter/Manure monitoring (at least on a 6-point visual scale of "dusty, friable, moist, sticky, wet/sticky/caking or very wet sticky") will be recorded weekly at nine points per shed for the rearing sheds. Measurement of litter moisture percentage by weight will be undertaken in the event of persistent odour problems occurring.

17. Any major wet litter/manure areas in the rearing sheds will be removed and replaced with dry litter where practicable

18. Areas of wet litter exceeding 2 square metres will be replaced with dry litter at least daily. Removal of any such wet litter will follow the litter/manure procedures in this plan (and where relevant, other plans which form part of this Application).

19. The timing of litter/manure removal will be chosen, where it is reasonably possible, to minimise off-site impacts by taking into account weather conditions such as temperature, wind direction, turbulence and time of day.

20. Litter/manure removal will be during the hours of daylight.

21. Litter/manure transported offsite will not contain dead birds.

22. Following removal of all chickens, litter/manure will be removed from each shed as part of the cleaning process and loaded directly onto trucks for transport offsite for further processing or disposal. Sheds will be closed before and after cleaning.

23. Where there is a history of litter or odour concerns, cleanout conditions will be included in the log of key conditions.

24. The Poultry Farm Manager will ensure that all trucks delivering and collecting litter/manure have secured covers, which are used to prevent any dust or spillage of the litter/manure on arrival and departure from site.

25. Where problems have been identified by the poultry farm manager in regard to any vehicles removing manure/litter, evidence or arrangements with contractors and actions taken will be recorded in log books.

26. Any litter spillage will be contained and prompted cleaned in order to minimise generation of contaminated stormwater or dust. Such events and actions will be documented in the Daily Critical Checklist.

27. Provisions in relation to pests are outlined in the Pest Management Plan.

Pest Management Plan:

Objective: To ensure that the potential for pest and fly breeding (stable fly) on site is minimised.

The Pest Management Plan shall be read in conjunction with the Stable Fly Management Plan

The following will be implemented by Gingin Egg Farm:

1. Wild-bird proofing on sheds and silos will be installed and maintained.

2. Vermin and rodents will be controlled by targeted and environmentally safe baiting, using substances and protocols that meet Government requirements.

3. Equipment and procedures for clean-up of feed spills will be available at all times and any such spills are removed daily. All relevant staff will be trained in such matters as part of their formal induction upon commencement.

4. Daily inspection of the feed system shall be undertaken to check for evidence of spillage or breach of the feed system.

5. Fly numbers will be monitored and recorded on a regular basis (at least weekly) using either traps, spot cards or a visual system. In the case of traps, these will be located near the entrance to each shed, in the machinery shed and adjacent to the cool room. The records will identify the type and number of flies. Records will be provided to the Shire of Gingin on an agreed regular basis, or as required, and will be available for inspection.

6. Fly traps will be changed every 3 days.

7. The number of flies will be monitored and recorded by counting the number of flies in each of the fly traps and divided by the number of days the fly trap has been in place.

8. Fly baits will be used in rotation – Quickbait, Dy-Fly and Stimukil - to prevent a build-up of immunity in pests.

9. The Poultry Farm Manager will provide all immediate neighbours with relevant contact details including out of hours access numbers.

10. Owners of neighbouring properties will be encouraged to monitor fly numbers and to contact the Egg Farm owner (or manager) in the event of outbreaks or infestations. The Poultry Farm Manager undertakes to evaluate such data with that held on the Farm and to endeavour to ascertain the cause and remedy same within a reasonable period of time.

11. Sheds and shed surrounds will be monitored daily in case of water leaks, to eliminate or minimise manure and litter moisture. Monitoring to include checking for and repairing broken waterers leaking pipes, ensuring adequate ventilation over manure and litter to facilitate rapid drying and diverting surface water around sheds and the manure storage areas.

12. Pests in manure storage area will be controlled in the first instance by use of aeration of the manure on a daily basis. Any manure stored in the manure compound will be sprayed with Larvadex weekly.

13. In the unlikely event that the manure is still in the manure compound after 3 weeks the spray will be changed to Neporex for 2 weeks and following this and if the manure is still on site then the spray regime will return to Larvadex to break the spray cycle of using the same chemicals and allowing the fly to build up some immunity. Thus a 6 week spray cycle and rotation of sprays will be utilised until the manure is removed.

14. If the manure is stored longer than 6 weeks in the manure compound then the spray Lorsran will be applied for 1 week then the cycle listed above will be resumed.

15. Coopex will be applied to walls and roof of the manure storage compound on a weekly basis and to the walls and roof of other poultry farm buildings, if and when needed in the event of a stable fly outbreak.

16. In the event of a stable fly outbreak, lardadex will be put in the chicken feed for at least seven (7) days after the outbreak.

Stable Fly Management Plan

Objective: To ensure that the potential for pest and fly breeding (stable fly) on site is minimised.

The Stable Fly Management Plan shall be read in conjunction with the Pest Management Plan

It is noted that by virtue of the declaration made under section 22 Biosecurity and Agriculture Management Act 2007 that Stable Fly is a declared pest.

The following will be implemented by Gingin Egg Farm:

General Provisions and Approaches/Measures

1. In this clause –

   Commercially derived untreated poultry manure means poultry manure, whether or not mixed with other material, that:

   a) Is the result of a commercial poultry undertaking including egg production through layer farming and meat production through broiler farming; and

   b) Has not been treated by means of a process that is intended to prevent stable fly from breeding in the manure.

2. When the poultry sheds are emptied and prior to the next batch of chickens being introduced, the sheds will be cleaned and the poultry manure from within the sheds will be transported to:

   a) land that is not used for an agricultural purpose; or

   b) an area to which the Biosecurity and Agricultural Management (Stable Fly) Management Plan 2013 does not relate.

3. All animal manure, poultry litter or spilled grain feed that accumulates in an enclosure where poultry is kept, and is not infested with stable fly, or stable fly larvae, will be either –

   a) Monitored at intervals of not less than 7 days for the presence of stable fly or stable fly larvae; or

   b) Dealt with in accordance with sub clause (4) as if it were infested with stable fly or stable fly larvae.

4. Any animal manure, poultry litter or spilled grain on the property that is infested with stable fly or stable fly larvae, will immediately-

   a) If found in an enclosure, be removed from the enclosure; and

   b) Be spread thinly in the manure compound so that it can dry out completely; and

   c) After being spread in accordance with paragraph (b), be treated with an approved pesticide; and

   d) After being treated in accordance with paragraph (c) be covered completely in plastic sheeting; and

   e) Be kept covered in accordance with paragraph (d) until such time that it is not infested with stable fly or stable fly larvae.

5. The manure inspection report shall be completed for all sheds on a daily basis.

6. Only pesticides approved for use under the Biosecurity and Agriculture Management Act 2007 will be applied in the event of an outbreak of stable fly.

Traffic Management Plan:

Objective: To maintain and enhance internal vehicle access areas in good condition, and minimise the potential for traffic conflict and generation of unreasonable off-site noise or dust.

The following is to be implemented by Gingin Egg Farm:

1. The surface of vehicle crossovers, internal access roads loading areas and car parking spaces will be maintained to allow for safe entry, all weather access and minimise generation of dust.
2. Five (5) kilometre an hour speed limits will be signposted and identified by training or instructions to drivers in order to limit noise and dust levels.
3. In the event that an unacceptable level of dust is generated due to vehicular movement on unsealed access areas on site, those areas will be wet down or other appropriate action taken in order to reduce the potential for dust generation.
4. Farm layout and standing instructions to transport contractors will ensure that all vehicles leave the property in a forward direction.
5. Regular monitoring and repairs or upgrades to trafficable areas, where needed, will be completed as soon as practicable.
6. Farm layout and standing instructions to transport contractors will ensure that all vehicles leave the property in a forward direction. These instructions will be an identifiable part of contracts or communications with transport companies.
7. Bird pick-up contractors will be instructed and supervised to ensure bird pick-up and associated activities are undertaken with care to reduce the generation of noise.
8. Special speed limits if necessary on the farm will be identified by training, signs or instructions to drivers in order to limit noise and dust levels.

Landscape and Vegetation Management Plan:

Objective: To maintain and enhance landscaping, visual screening and on site native vegetation to assist to minimise visual impact of the buildings on site.

The following will to be implemented by Gingin Egg Farm:

1. The landscape plan approved by the Shire of Gingin will be implemented.
2. Once landscaping is completed, the poultry farm manager will undertake an inspection to confirm planting has been established in accordance with the approved landscaping plan.
3. Landscaping will be well maintained with:
    - Watering system or arrangements in place
    - Dead/diseased plants regularly replaced and
    - Dust/soil erosion controlled
4. Landscaping will be checked fortnightly for dead and/or diseased plants. Dead or diseased plants will be replaced/treated within 14 days of inspection.

Plant replacements will be consistent with the approved landscaping plan and have regard to seasonal and weather conditions requirements.

Community Liaison Management Plan:

Objective: To provide processes for consultation with farm neighbours and the local Council with a view to develop transparent and cooperative relationships.

The following will to be implemented by Gingin Egg Farm:

1. The register of complaints will be reviewed every 2 months to address any matters that require further investigation and action.
2. Adjacent neighbours will be given emergency contact details of the poultry farm manager, including a mobile phone number.
3. Adjacent landowners will be given notice prior to removal of all birds from the free range sheds.
4. Adjacent landowners will be contacted annually to identify any potential concerns neighbours may have with the operation of the poultry farm. Any such concerns received will be reviewed and actioned where appropriate and possible. Where concerns cannot be resolved, an explanation will be provided to the neighbor.
5. All complaints received by the Shire of Gingin that are conveyed to the Poultry Farm Manager will be detailed in the Complaints register
6. The poultry farm manager will liaise and cooperate with the Shire of Gingin to assist to resolve any complaints received by the Shire.

Drainage and Nutrient Management Plan:

Objective: To ensure that the operation of the poultry farm does not result in adverse impact to groundwater, nearby water bodies and to ensure that stormwater is contained on site.

The attached drainage and nutrient management plan will be implemented by Gingin Egg Farm.

DRAINAGE AND NUTRIENT MANAGEMENT PLAN

LOT 3 DOUGLAS ROAD, BEERMULLAH

Project Number EP14-012

Prepared for Snowdale Holdings Pty Ltd
April 2014

Document Control

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Executive Summary

Snowdale Holdings Pty Ltd proposes to establish a poultry farm within part of the existing Lot 3 Douglas Road, Beermullah, within the Shire of Gingin. Lot 3 is planned to be subdivided into two lots. The poultry farm subdivision area (or the 'site') is bound by Brand Highway in the east, Douglas Road in the south and other rural properties to the west and north.

The poultry farm is proposed to include free to range egg laying chickens for egg production and pullet growing for rearing of chickens (Allerding & Associates 2013). The proposal was granted planning approval on 21 January 2014 subject to conditions. This Drainage and Nutrient Management Plan (DNMP) aims to satisfy Condition 5, which states that "prior to the commencement of the development, an amended DNMP shall be submitted to the Shire and approved by the Chief Executive Officer."

An understanding of the existing environment is required to identify and manage potential risks to the natural environment from the proposed poultry farm. The environmental attributes relevant to this DNMP are:

- The eastern half of the site has a slope of 0.4% and the remainder of the site is flat.
- The western half of the site is Bassendean sands and the eastern half is Dandaragan sands. These soils are characterised by high infiltration rates and consequently, stormwater runoff is anticipated to readily infiltrate.
- The Multiple Use Wetlands on site are highly degraded presumably due to the historical land use of stock grazing. Whitfield Brook, a Resource Enhancement Wetland, and several Conservation Category Wetlands are adjacent to but not within the site.
- A number of man-made open drains are located in the western half of the site. Nutrients are not anticipated to be transported via these surface water features due to the flat topography and soils on site.
- Depth to groundwater ranges from approximately 9 m to 24 m beneath the paddocks, but is relatively close to the natural surface in the west (i.e. from 1 to 2 m). The potential for leached nutrients to reach groundwater is lowest in the eastern portion of the site.

The potential for nutrients from manure deposited within free to range paddocks to enter downstream wetlands and groundwater beneath the site is the key concern raised by stakeholders and identified through the examination of the existing environment. The nutrient balance has shown that 91.5 kg/ha/year of nitrogen and 33 kg/ha/year of phosphorous has the potential to leach into the soil, and consequently groundwater, without appropriate management.

Nutrient loading can be reduced by decreasing the mass of manure in the paddocks or by decreasing the leachability of the soil. Therefore, this DNMP aims to reduce the availability of nutrients and nutrient loading into the soil.

The design and ongoing management measures proposed in this DNMP include buffers between laying sheds and wetlands; fencing of paddock areas; design of the sheds and storage compounds; soil amendment; procedures to remove and transport litter offsite; monitoring; and responsive contingency measures. All management measures that have been proposed to address the potential nutrient risk are summarised in **Table 3** and **Table 4**. Groundwater monitoring is proposed to assess the success of the proposed management measures and to highlight any need for contingency measures.

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1 Introduction

1.1 Background

Snowdale Holdings Pty Ltd proposes to establish a poultry farm within part of the existing Lot 3 Douglas Road, Beermullah. Lot 3 is 27 km from Gingin within the Shire of Gingin (SoG). Lot 3 is zoned as 'General Rural' within the SoG's *Town Planning Scheme No. 9* (SoG 2012).

The lot is planned to be subdivided into two lots; a 324 ha area for the poultry farm and a 31 ha area (which does not form part of this proposal). The poultry farm subdivision area (or the 'site') is bound by Brand Highway in the east, Douglas Road in the south and other rural properties to the west and north. The subdivision boundary of the proposed poultry farm is shown in **Figure 1**.

The proposed poultry farm was granted planning approval from the SoG at its Meeting on 21 January 2014 subject to conditions. Condition 5 states that "prior to the commencement of the development, an amended Drainage and Nutrient Management Plan (DNMP) shall be submitted to the Shire and approved by the Chief Executive Officer." More specifically, the SoG require that the DNMP addresses the following:

- Determine nutrient export from the free range paddocks and the likely, if any, impact
- How any potential impacts on surface water and groundwater are minimised
- If any modifications will be made to the existing open drains
- Address other stakeholder feedback (K Tang [SoG] 2014, p*ers. comm.*, February).

1.2 The proposed poultry farm

The poultry farm is proposed to include free to range egg laying chickens for egg production and pullet growing for rearing of chickens (Allerding & Associates 2013). Snowdale Holdings Pty Ltd aims to create a state of the art free range chicken farm, which utilises world class best management practices and is perceived positively by customers.

The proposal involves two laying sheds (130 m by 17 m each) and two paddocks (20 ha for each shed) to accommodate a total of 60,000 laying chickens. The sheds are weatherproof and will include a concrete foundation, slatted floor, nest boxes, feed and drinking water. The paddocks will be fenced with 1.8 m high chicken fencing.

The proposal also includes two rearing sheds located in the west of the site that will accommodate a total of 60,000 pullets. The pullets will be in completely enclosed pullet-rearing sheds with concrete floors. The proposed location of this infrastructure is shown in **Figure 2**.

1.3 Stakeholder feedback

1.3.1 Department of Health

The following concerns from the Department of Health (DoH) are required to be addressed in this DNMP:

- Contingency plans if manure cannot be removed offsite.
- A dedicated area where manure can be stored such that it is covered from the elements and fly strike, and not cause groundwater contamination.

1.3.2 Department of Agriculture and Food

The following comments from the Department of Agriculture and Food (DAF) are required to be addressed in this DNMP:

- A management plan to address nutrients on the free range paddocks.
- Nutrient export risk analysis (PRI [phosphorous retention index], Colwell P [phosphorous], Total P etc) for the soils on the property.
- Ongoing nutrient monitoring plan.
- Demonstration that the application rate of manure is below the background rate of normal beef grazing (10 kg P/ha) or that management techniques will result in nutrient losses being below this rate.
- Tree revegetation shall not be relied upon to control nutrient export on these soils.
- Nutrient retentive soil amendments should be considered to absorb nutrients from the site. These would need to be re-applied periodically.
- Consider use of an impervious layer between the soil and the livestock of clay or other impervious material.
- Management of any runoff needs to be in contained systems.
- Ongoing monitoring for nutrients in groundwater and soils should be considered.

1.3.3 Department of Parks and Wildlife

The following comment from the Department of Parks and Wildlife (DPaW) is required to be addressed by this DNMP:

- Demonstrate that groundwater and nearby wetlands will not be impacted by nutrients, to the satisfaction of the SoG.

1.4 Guiding documents

There are a number of State Government and Local Government policies of relevance to the proposed poultry farm. There are also some published guidelines that provide direction regarding the environmental outcomes that the operation should aim to achieve. These include:

- *Water quality protection note 33: Nutrient and irrigation management plan* (WQPN 33) (DoW 2010)
- *Environmental Code of Practice for Poultry Farms in Western Australia* (WABGA & PFAWA 2004)
- *State Planning Policy Poultry Farms 4.3* (WAPC 2003)
- *Guidance No. 3: Statement for Separation Distances for the Assessment of Environmental Factors – Separation Distances between Industrial and Sensitivity Land Uses* (EPA 2004)

2 Existing Environment

This section outlines aspects of the existing environment that are relevant to this DNMP. An understanding of the existing environment is required to identify any potential risks to the natural environment from the proposed poultry farm.

2.1 Topography

Topography affects how quickly runoff would be expected to be discharged from the site. Topographic contours are shown in **Figure 2**. Topography on site ranges from 125 m Australian Height Datum (AHD) at Brand Highway to 65 m AHD at the western boundary of the site and 60 m AHD within the existing semi-circular open drain in the west. The eastern third of the site has a slope of approximately 0.4%, as it is on the foothills of the Gingin scarp. The remainder of the site is flat. This means that any runoff would flow relatively slowly towards the west providing ample opportunity for runoff to infiltrate into the soil.

2.2 Soils

An understanding of the soils underlying the paddocks is required to estimate infiltration of rainfall and runoff into the soil and the potential for leaching of nutrients into groundwater. Soil mapping from DAF (DoA 2007) shows the western half of the site to be Bassendean sands and the eastern half to be Dandaragan sands. The soil types are shown on **Figure 3** and are described as follows:

- Bassendean, phase 5 and 6: pale brown to light grey sand to 90 cm depth overlying brownish-yellow sand to weak clayey sand and light grey sand to depth between 90-150 cm overlying pale yellow to yellow sand.
- Bassendean, phase 7: bleached sands.
- Bassendean, phase 8 and 9: grey sand to light grey sand over dark iron-organic pan over pale sand. Gleyed clayey layers may be present at depth.
- Bassendean, phase 9: humic dark grey swamp soils.
- Dandaragan, phase 6: light grey sand to depth between 90-150 cm overlaying pale yellow to yellow sand.
- Dandaragan, phase 16: Gingin scarp footslopes 1-5% slopes. Yellow-brown and brown clayey coarse sand.

The soils observed during a site walkover and soil sampling on the 13 March 2014 were consistent with those described above (see **Plate 1** and **Plate 2** below). Test pits (TP) were excavated into the major mapped soil types on site. Yellow sands were observed at TP1 within the Dandaragan, phase 16, soil type and greyer sands were observed at TP2 within the Bassendean, phase 5 and 6, soil type. Most of these sandy soils are characterised by high infiltration rates, which means that low rainfall events are unlikely to result in any runoff. TP locations are shown on **Figure 3**.

Plate 1 Yellow soils observed at TP1

Plate 2 Grey soils observed at TP2

Soil samples were taken at four locations across the site. These were sent to a National Associate of Testing Authorities accredited laboratory for analysis of PRI, Colwell P and Total Phosphorous (TP). Laboratory results are shown in **Table 1** and **Appendix A**.

Table 1 Laboratory testing results

Analyte	TP1	TP2	TP3	TP4
PRI (mL/g)	<2	<2	<2	<2
Colwell P (mg/kg)	16	2	<1	<1
TP (mg/kg)	53	11	<10	20

TP results range from 53 mg/kg to the limit of reporting of 10 mg/kg, which includes organic and inorganic phosphorous. The Colwell P tests for plant-available phosphorous i.e. the portion of TP that can be extracted or leached from the soil. These results show that TP1 is classed as moderate P absorbing and the other sites as low P absorbing. The PRI results are consistent and show that soil at all test pits is classed as very weak P absorbing soil.

2.3 Hydrology

2.3.1 Wetlands

The geomorphic wetlands of the Swan Coastal Plain dataset indicate that there are three wetlands within and adjacent to the site (DEC 2013).

Figure 4 shows the location of all wetlands. A multiple use wetland (MUW) is located near the centre of the site (UFI 15274) with two smaller MUWs further west. Observations on site found that many of these areas are degraded. **Plate 3** shows a degraded MUW area near TP3.

Plate 3 View north-east from TP3

A narrow resource enhancement wetland (REW) of approximately 60 m in width is located to the west of the site (UFI 13438), and is associated with Whitfield Brook. Several conservation category wetlands (CCW) are located adjacent to the northern and southern boundaries of the lot.

2.3.2 Surface water

Whitfield Brook is located to the west of the site in a north-south alignment flowing south and is classed as a MUW, as discussed above.

There are no natural streamlines located within the site, though a number of man-made open drains are located in the western half of the site. **Plate 4** shows a drain that runs in a north-west to south-east alignment, close to TP3. The drains appear to have been created for watering stock and not to lower groundwater, given the following:

- The alignment of drains would not be effective at draining the land
- The drains are of significant depth (1 to 2 m)
- The soil profile above the drain invert does not appear to be seasonally waterlogged.

Plate 4 Drain near centre of site and TP3

The examination of existing surface water features within and near the site, topographic contours and soil types indicates that nutrients are unlikely to be transported from and around the site via surface water flow.

2.3.3 Groundwater

The depth to groundwater is important when investigating the potential for leached nutrients to reach groundwater and be transported towards Whitfield Brook or downstream wetlands (**Section 2.3.1**). Groundwater beneath the lot ranges from approximately 63 mAHD to 57 mAHD, as recorded in the *Perth Groundwater Atlas* (DoW 2014) and shown in **Figure 2**. Note that these are 5 m regional contours and have limited accuracy. These contours suggest that depth to groundwater beneath the eastern portion of the lot (where the free range paddocks are proposed) ranges from 9 m to 24 m. Depth to groundwater in the western portion of the site is at a moderate depth of 2 m to 4 m.

Observations of the open drains suggest depth to groundwater in the western portion generally ranges from 1 to 2 m. Depth to groundwater beneath localised areas of rushes and reeds may be as shallow as 0.5 m, e.g. vegetated area in the south-west corner of the site south of the large open drain. There is no evidence to suggest groundwater rises to the natural surface at any point within the site.

The observed groundwater conditions mean that the potential of leached nutrients to reach groundwater is lowest in the eastern portion of the site where depth to groundwater is high.

2.4 Historical land use

Knowledge of the historical land use assists in understanding the environmental values of the area and the purpose of existing hydrological features. The site has an existing residence, outbuildings and other structures near the southern boundary. Historical land use within Lot 3 has been for stock grazing (sheep and cattle), which suggests the open drains on site were constructed for the purpose of stock watering. However, the site does not appear to have been used for stock grazing purposes for some time.

The remainder of the site is cleared with some isolated vegetation. Land uses surrounding Lot 3 are also rural and include a tree farm, cattle feed lot and piggery.

2.5 Summary of environmental attributes

In summary, the environmental attributes relevant to this DNMP are:

- The eastern half of the site has a slope of 0.4% and the remainder of the site is flat.
- The western half of the site is Bassendean sands and the eastern half is Dandaragan sands. These soils are characterised by high infiltration rates and consequently, stormwater runoff is anticipated to readily infiltrate.
- The MUWs on site have been completely cleared, and are highly degraded presumably due to the historical land use of stock grazing. Whitfield Brook, an REW, and several CCWs are adjacent to but not within the site.
- A number of man-made open drains are located in the western half of the site. Nutrients are not anticipated to be transported via these surface water features due to the flat topography and soils on site.
- Depth to groundwater ranges from approximately 9 m to 24 m beneath the paddocks, but is relatively close to the natural surface in the west (i.e. from 1 to 2 m) with some small areas as potentially shallow as 0.5 m. There is a greater potential for leached nutrients to reach groundwater in the west of the site than in the east due to the significant depth to groundwater in the eastern half of the site.

3 Investigation of Key Issues and Concerns

The potential for nutrients from manure within the free to range paddocks to enter downstream wetlands and groundwater beneath the site is the key concern raised by stakeholders (see **Section 1.3**) and identified through the examination of the existing environment (see **Section 2**). The investigation documented in this section includes:

- A nutrient balance to estimate the nutrient loading on the free to range paddocks.
- An infiltration and runoff assessment to assess the risk to wetlands from nutrients via surface runoff and the risk to groundwater from nutrients via leaching.
- A land capability assessment to assess the P adsorption ability of soils beneath the free to range paddocks.
- The recommended approach for design of the proposed poultry farm and ongoing management in order to address the risks identified.

The design and ongoing management measures proposed to address this key issue are given in **Section 4**.

3.1 Assessment of risk

3.1.1 Nutrient balance

The WQPN 33 (DoW 2010) provides typical organic waste characteristics for various sources. One barn laying hen will produce 0.19 kg/day of waste and the manure from one barn laying hen contains 0.61 kg/yr of nitrogen (N) and 0.22 kg/yr of P. Further, the Code of Practice estimates that 10% of manure from free to range meat bird systems is deposited outside (WABGA & PFAWA 2004). As no similar percentage is provided for free to range layer birds, this percentage was utilised to estimate manure loads to the paddocks.

The mass of manure, N and P deposited onto the paddocks can be calculated from these guidelines and the fact that each of the two free to range paddocks is 20 ha and has 30,000 hens. The results of these calculations are listed in **Table 2**.

Table 2 Nutrient balance results

Unit	Value
Total t/year of manure	4161.0
Total t/year of manure deposited on paddocks	416.1
Total t/year of N in manure deposited on paddocks	3.7
Total kg/ha/year of N in manure deposited on paddocks	**91.5**
Total t/year of P in manure deposited on paddocks	1.3
Total kg/ha/year of P in manure deposited on paddocks	**33.0**

These results show that the P nutrient load estimated from published waste characteristics will be greater than 10 kg/ha (see **Section 1.3.2**) in the absence of a best management practice approach.

3.1.2 Stormwater infiltration and runoff assessment

It is generally accepted that the management of small, frequent rainfall events is required to appropriately manage water quality. The 1 year 1 hour average recurrence interval event at Beermullah is 14.9 mm (BoM 2014). The free to range paddocks are underlain by Dandaragan (phase 16) soils, which are generally coarse sand. Infiltration rates on these soil types are high, in the order of 2 – 5 m/day with an initial loss of at least 20 mm. Therefore, small, frequent rainfall event would be fully infiltrated on site with no runoff entering downstream open drains or wetlands, as was anticipated in **Section 2.3**. On this basis, nutrients from manure deposited on the paddocks are not expected to be transported downstream towards the open drains and wetlands via surface runoff, however there is potential that nutrients may leach through the soil profile.

The soil sampling conducted on site has determined that the P absorbing capability of the soil is low (see **Section 2.2**). On this basis, nutrients from manure deposited on the surface are likely to leach through the soil profile without being removed.

3.2 Recommended approach to address risk

The assessment detailed above has shown that in the absence of other considerations 91.5 kg/ha/year of N and 33 kg/ha/year of P has the potential to leach through the soil beneath the free to range paddocks, and consequently to groundwater. This risk to groundwater quality can be minimised by reducing the availability of nutrients, the nutrient load into the soil and/or by intercepting nutrients to prevent them entering groundwater.

Nutrient loading can be reduced by decreasing the mass of manure in the paddocks or by decreasing the leachability of the soil. The interception of groundwater before it moves offsite is not considered a practical approach due to the depth to groundwater beneath the free to range paddocks. Therefore, the management plan detailed in **Section 4** aims to reduce the nutrient loading into the soil and to increase the ability of soils onsite to retain nutrients.

4 Management Plan

This section presents the infrastructure and design, and ongoing management measures proposed to address the potential nutrient risk investigated in **Section 3**.

4.1 Infrastructure and design measures

4.1.1 Shed and free to range site selection

The location of laying sheds and free to range paddocks was determined by considering the minimum buffer distances recommended by the Code of Practice (WABGA & PFAWA 2004), existing environment and surrounding land uses.

These sheds and paddocks are located in the eastern portion of the site where depth to groundwater is the greatest and ranges from 9 m to 24 below the paddocks. This exceeds the recommended distance of 3 m.

A minimum of 200 m between free to range sheds and wetlands, waterways or floodways is recommended. The laying sheds are approximately 300 m from the nearest wetland, a MUW. Further, the proposed laying sheds are located away from existing surface water drains. No modifications are proposed to the existing drains, as they are not intersected by the proposed sheds or paddocks.

The proposed laying shed locations are set back from Brand Highway and separated for bio-security purposes. These locations meet the recommended minimum buffers of 100 m from the farm boundary and 20 m between enclosures. The land use immediately adjacent to the site and closest to the laying sheds and paddocks is plantation timber.

4.1.2 Fencing

Each free to range paddock will be fenced by 1.8 m high chicken fencing with some vegetation (i.e. trees and shrubs). This will contain birds within the paddocks and minimise the risk of manure directly entering open drains or wetlands. Whilst the laying hens will be free to roam the entire enclosed paddock, they generally do not stray more than 100 m from the shed (and their source of food) and typically will remain within 20 m of the shed.

4.1.3 Shed design

The rearing and laying sheds will all be constructed with concrete floors, concrete walls, fully insulated tunnel ventilation cladding, and insulated metal roofing. This design ensures that manure deposited within the sheds will be contained within the shed until it is removed.

Current practice in laying shed design has birds walking directly upon litter on the concrete floor. The design of the proposed sheds includes a slatted, raised floor, which will ensure that birds cannot carry litter or manure into the paddocks (see **Plate 5**). Birds will stand on a slatted floor that allows all manure to fall through onto the concrete floor.

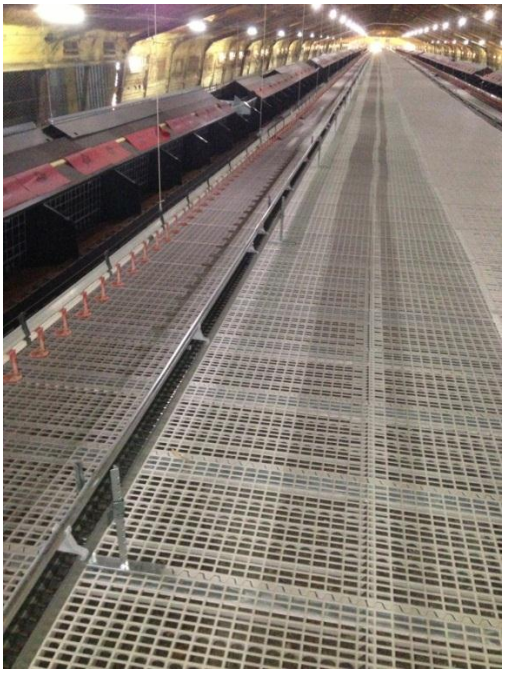

Plate 5 Slatted floor of shed with concrete floor below

This will significantly reduce the percentage of manure deposited outside from 10% (see **Section 3.1**) to an acceptable rate, such that the nutrient loading will easily meet the DAF recommended nutrient loading (*Pers. Comm.* Barry Cocking, 13/3/2014).

4.1.4 Litter storage compounds

DoH queried the lack of a contingency measure within the original development application for when litter could not be transported offsite (see **Section 1.3.1**). Litter can be temporarily stored or stockpiled on site within an appropriate compound (WABGA & PFAWA 2004). A litter storage compound will be constructed adjacent to each shed such that the conveyor belt or bobcat can transport the litter directly into the storage compound over a concrete apron. The compound will be constructed with a concrete floor, concrete wall and weather-proof roof. Provision of this compound provides the farm with a contingency in the event that litter cannot be transported offsite every two days.

4.1.5 Soil amendment

A 1:1 mixture of clay or clay loam soil that has a higher PRI than soils within the site (**Table 1**) will be ploughed into the soils directly surrounding the sheds. It is proposed that this will occur for a 20 m strip around each laying shed, to a depth of approximately 300 mm. The exact soil utilised will be dependent upon availability, but examples include clay or Gingin loam. The amended soil will absorb P and therefore reduce the P that is able to leach into the underlying soil and groundwater.

4.1.6 Summary of infrastructure and design measures

Table 3 summarises the infrastructure and design measures that have been proposed for the poultry farm to address the potential nutrient risk raised in **Section 3**.

Table 3 Infrastructure and design management measures

Proposed measure	Description
Site selection	• Laying sheds and paddocks are located where depth to groundwater is greatest and exceeds the recommended distance of 3 m. • Location of laying sheds and paddocks exceed recommended minimum buffer of 200 m from wetlands. • No modifications to the existing drains are proposed. • Laying sheds are set back from Brand Highway and separated for bio-security reasons. • The closest adjacent land use to the site is plantation timber.
Fencing	• Each paddock will be fenced by 1.8 m high chicken fencing to contain birds to the paddock areas. • Birds generally do not stray further than 100 m from the shed and typically remain within 20 m of the shed.
Shed design	• Sheds will be constructed with concrete floors, concrete walls, fully insulated tunnel ventilation cladding and insulated metal roofing. • They have a slatted raised floor for the birds to walk over to prevent birds carrying litter into the paddocks.
Litter storage compound	• Storage compounds will be constructed with a concrete floor, concrete wall and weather-proof roof. • Litter can be transported into the compound via a conveyor belt or a bobcat over a concrete compound.
Soil amendment	• Amend soils for 20 m surrounding each laying shed by mixing high PRI soils to a depth of 300 m.

4.2 Ongoing management measures

4.2.1 Litter removal

Litter from the rearing sheds will be removed every 16 weeks by a bobcat. This will be transferred directly into a truck for transportation offsite or into the storage compound if the trucks are delayed. This will all occur on a concrete apron to ensure litter is contained.

In the laying sheds, litter will be mechanically scraped onto a cross conveyor every two days, which then directs the litter into the temporary storage compound or a truck for transportation offsite.

Litter removal will occur during the day when potential offsite impacts are minimised by considering temperature, wind direction and turbulence.

It is not proposed to spread manure collected from the sheds over the site.

These practices prevent manure from the laying sheds being carried onto paddocks by the birds, ensure that all manure from pullets is contained and minimises the spillage of litter when cleaning the sheds.

4.2.2 Offsite transport

All trucks transporting litter and manure offsite will have secured covers to prevent spillage. Any spillage will be cleaned immediately and either transported offsite or placed into a storage compound.

4.2.3 Monitoring

The crucial ongoing management measure for nutrient export potential is monitoring of groundwater quality. The proposed monitoring program is detailed in **Section 5**. Further, a number of contingency actions are proposed if monitoring results show that modifications to the ongoing management of the poultry farm are required. These are listed in **Section 5.2**.

4.2.4 Summary of ongoing management measures

Table 4 summarises the ongoing management measures that have been proposed to address the potential nutrient risk raised in **Section 3**.

Table 4 Ongoing management measures

Proposed measure	Description	Schedule	Location	Responsibility
Litter removal	Litter shall be collected and disposed of offsite. Litter removal should occur in the day time when offsite impacts are minimised.	Every 16 weeks.	Rearing sheds.	Farm manager.
		Every 2 days.	Laying sheds.	
Offsite transport	All trucks collecting litter have secured covers.	Whenever trucks collect litter.	Rearing and laying sheds and/or litter storage compound.	
	Clean up any litter spillage.	As soon as spillage is identified.	At spill location.	
Monitoring	Undertake groundwater monitoring.	6 monthly.	At four bores, 1x upstream and 3x downstream.	

5 Monitoring

Ongoing groundwater monitoring at the poultry farm is proposed to monitor nutrients in groundwater and to guide the implementation of contingency measures.

It is proposed that groundwater quality be monitored upstream to measure background levels and downstream of the free to range paddocks to allow any groundwater quality impacts to be attributed to the site itself. Four bores are proposed, as shown in **Figure 2**, one upstream and three downstream. As is recommended in the Code of Practice (WABGA & PFAWA 2004), these bores will be monitored every six months for the following parameters:

- Physical parameters (depth to groundwater, pH, electrical conductivity, dissolved oxygen, temperature, oxidation reduction potential)
- Chemical parameters (N as ammonia, nitrate, nitrite, total nitrogen, total Kjehldahl N, TP, filterable reactive P).

Results (in spreadsheet format) can be provided to the SoG on request.

5.1 Trigger criteria

It is common practice to set groundwater quality trigger values from the ANZECC (2000) guideline default trigger values for slightly disturbed ecosystems. However, these are not considered appropriate for this site, as these default values are for surface water quality and the site is not considered to be a slightly disturbed ecosystem. The trigger criterion proposed for this monitoring program is a 20% increase in nutrient parameters from any of the downstream bores compared to the upstream bore.

5.2 Contingency actions

A number of contingency actions may be employed in the event that trigger criteria are reached during monitoring. **Plate 6** illustrates the monitoring process and the steps that should be completed in the event that the trigger is breached. It also identifies when the SoG must be informed of the results. To summarise, the process is as follows:

1. Undertake 6-monthly monitoring program
    a. If results do not breach trigger criteria continue scheduled monitoring program
    b. If results breach trigger criteria continue to step 2
2. Repeat monitoring within 1 month
    a. If results do not breach trigger criteria continue scheduled monitoring program
    b. If results breach trigger criteria, inform SoG and continue to step 3
3. Implement contingency action 1
4. Repeat monitoring within 1 month
    a. If results do not breach trigger criteria, inform SoG and continue scheduled monitoring program
    b. If results breach trigger criteria, inform SoG and continue to contingency action 2. Results of contingency action 2 will guide the need to implement contingency actions 3 and 4.

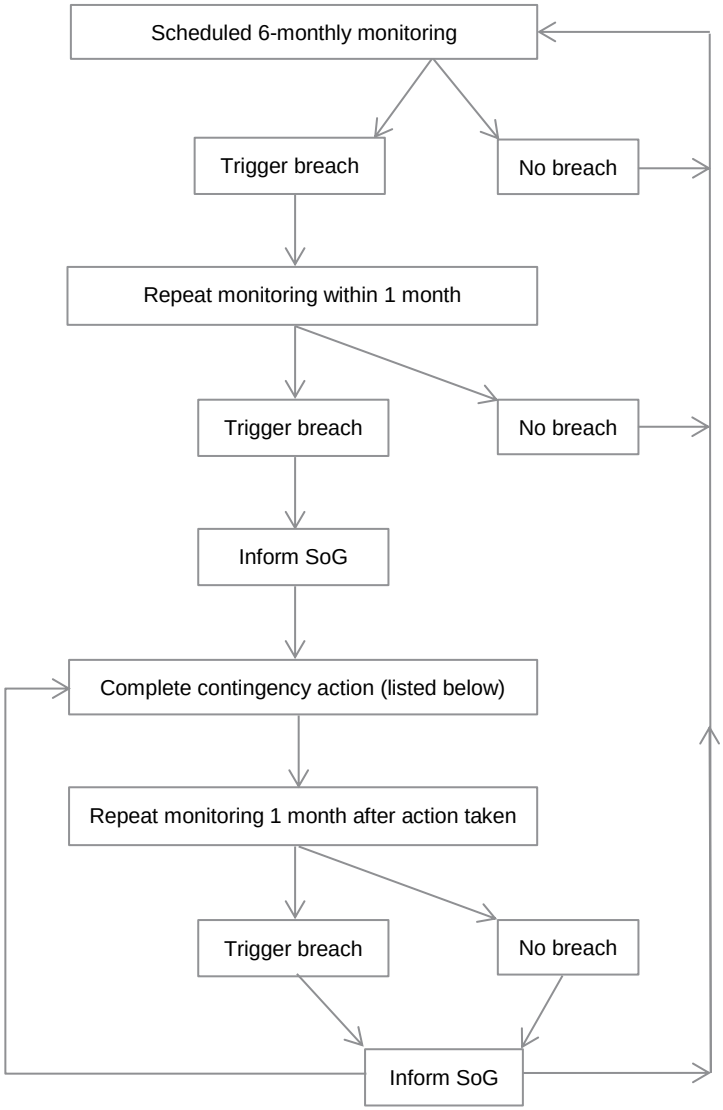

Plate 6 Monitoring and contingency action decision tree

The contingency actions that can be undertaken are listed below:

1. Review litter removal and transportation procedures on site to ensure that they comply with this DNMP and therefore, ensure that manure is contained while onsite.
2. Monitoring shallow soils for PRI and TP to determine when the amended soils are required to be removed or replenished.
3. Scalping of soil around each laying shed to remove manure from the paddocks and consequently, the mass of nutrients available.
4. Add additional amended soils to paddocks to further increase phosphorous retention capacity of the soil.

If the trigger criteria are regularly breached it is necessary to reconsider the monitoring frequency; reconsider the location or density of monitoring locations; and/or trial further contingency actions in consultation with the SoG.

6 Stakeholder Commitment

Snowdale Holdings Pty Ltd is committed to ensuring that the design of the proposed poultry farm is state of the art, by utilising world class best management practices, and is perceived positively by customers. The proponent is dedicated to exceeding current best practices and setting a new benchmark for layer hen farming in Australia.

All management measures outlined within this DNMP will be implemented. Snowdale Holdings Pty Ltd appreciates the necessity of ongoing monitoring to assess the success of the proposed management measures and to highlight the need any contingency management measures.

It is proposed that this DNMP be reviewed after a three year period, when the operations of the proposed poultry farm will be well established and groundwater quality monitoring has been undertaken. The review will provide an opportunity for Snowdale Holdings Pty Ltd to report monitoring results and updates required by this management plan to the SoG.

7 References

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FIGURES

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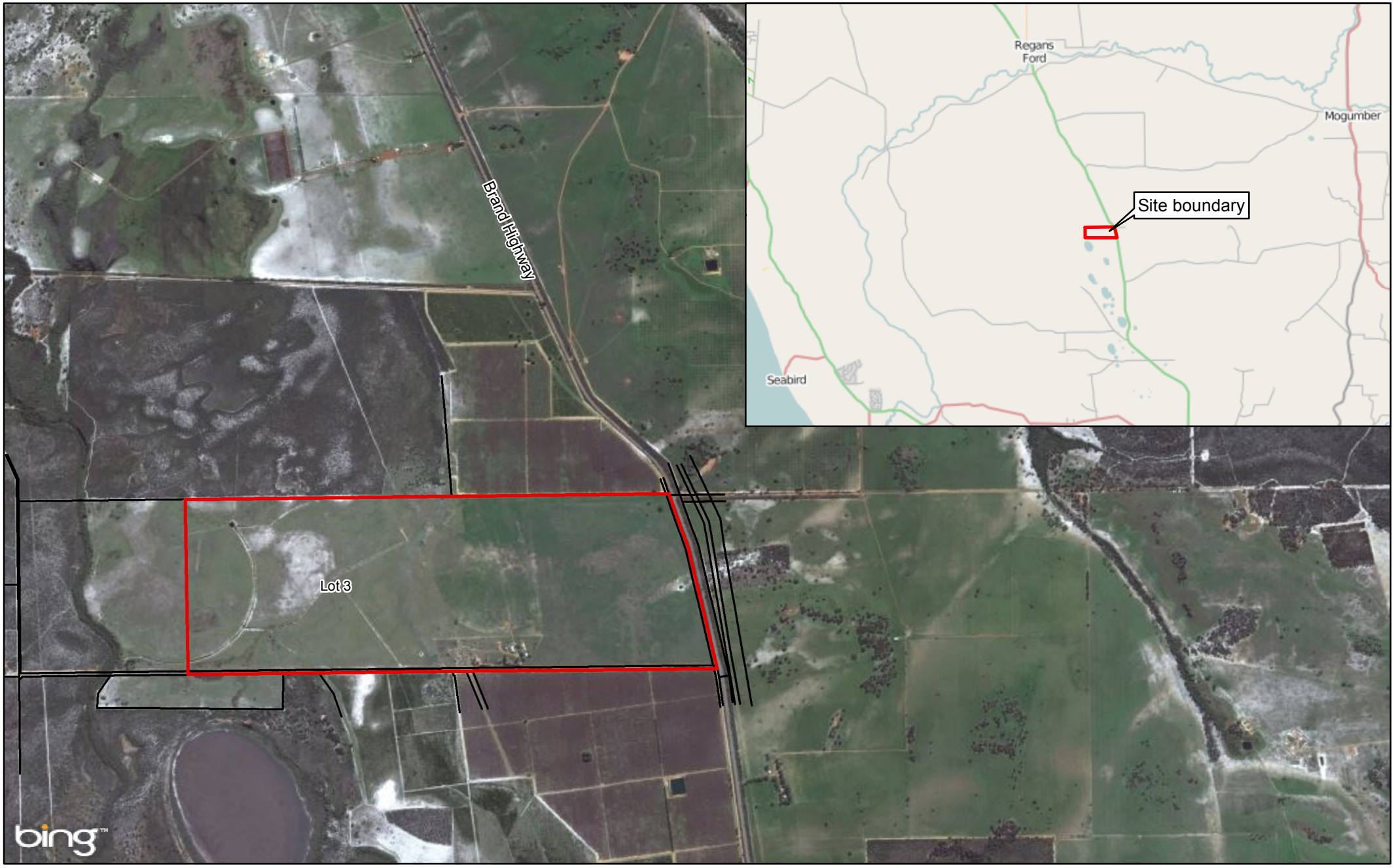

Figure 1:	**Locality Plan**
Project:	Drainage and Nutrient Management Plan Lot 3 Douglas Road, Beermullah
Client:	Snowdale Holdings Pty Ltd

Legend

- Site boundary
- Cadastral boundaries

Plan Number: EP14-012 (01)--F02			
Drawn:	GRO	Date:	06/03/14
Approved:	DPC	Date:	07/04/14
Checked:	ASC	Scale:	1:30,000@A4

0 300 600 1,200 Metres

emerge ASSOCIATES
Integrated Science & Design

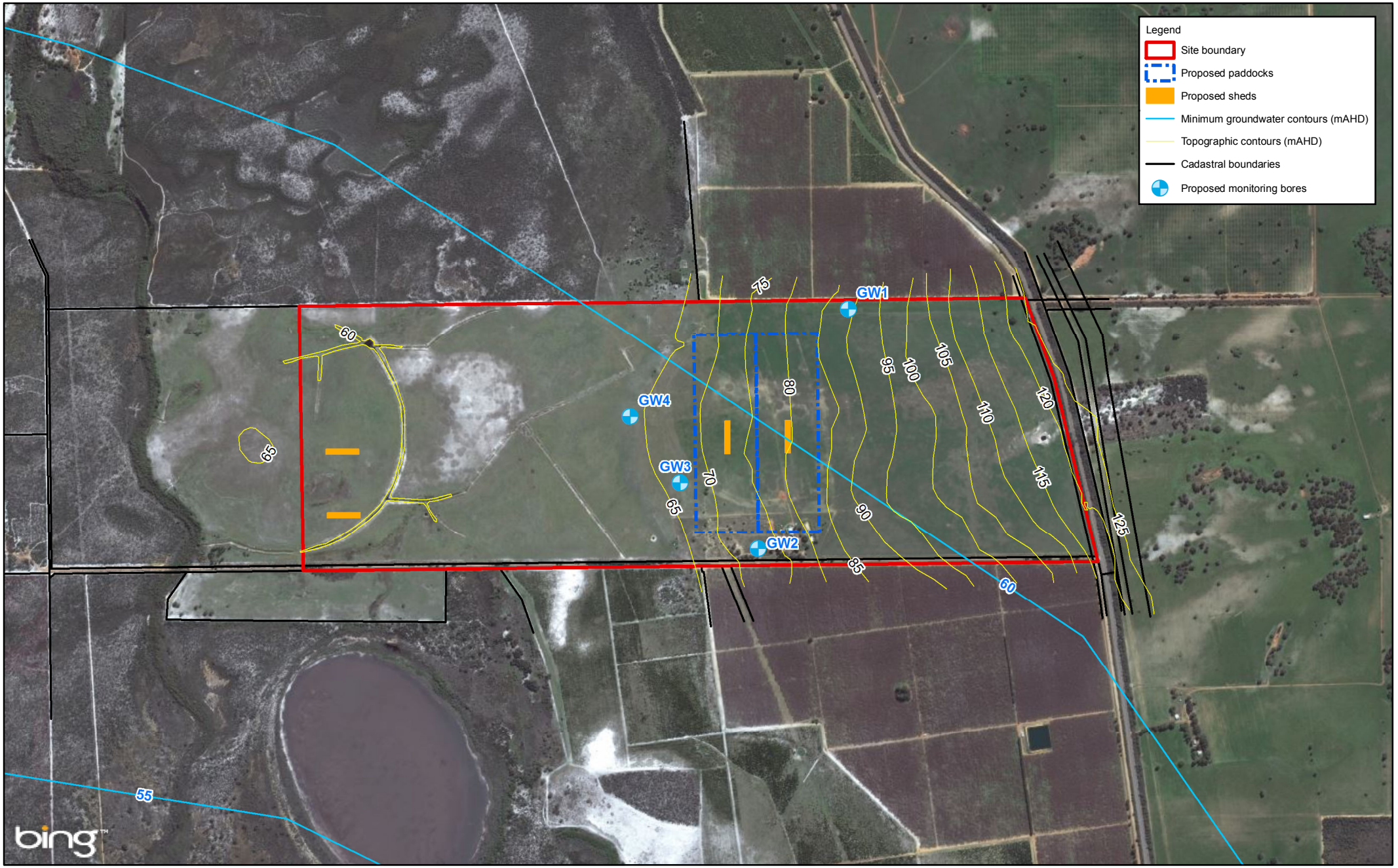

Figure 2:	**Topographic and Groundwater Contours**
Project:	Drainage and Nutrient Management Plan Lot 3 Douglas Road, Beermullah
Client:	Snowdale Holdings Pty Ltd

Plan Number: EP14-012 (01)--F03			
Drawn:	GRO	Date:	06/03/14
Approved:	DPC	Date:	07/04/14
Checked:	ASC	Scale:	1:20,000@A4

0 200 400 800 Metres

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Sources: The following datasets were used in the production of this map: Minimum groundwater contours - DoW (2003)

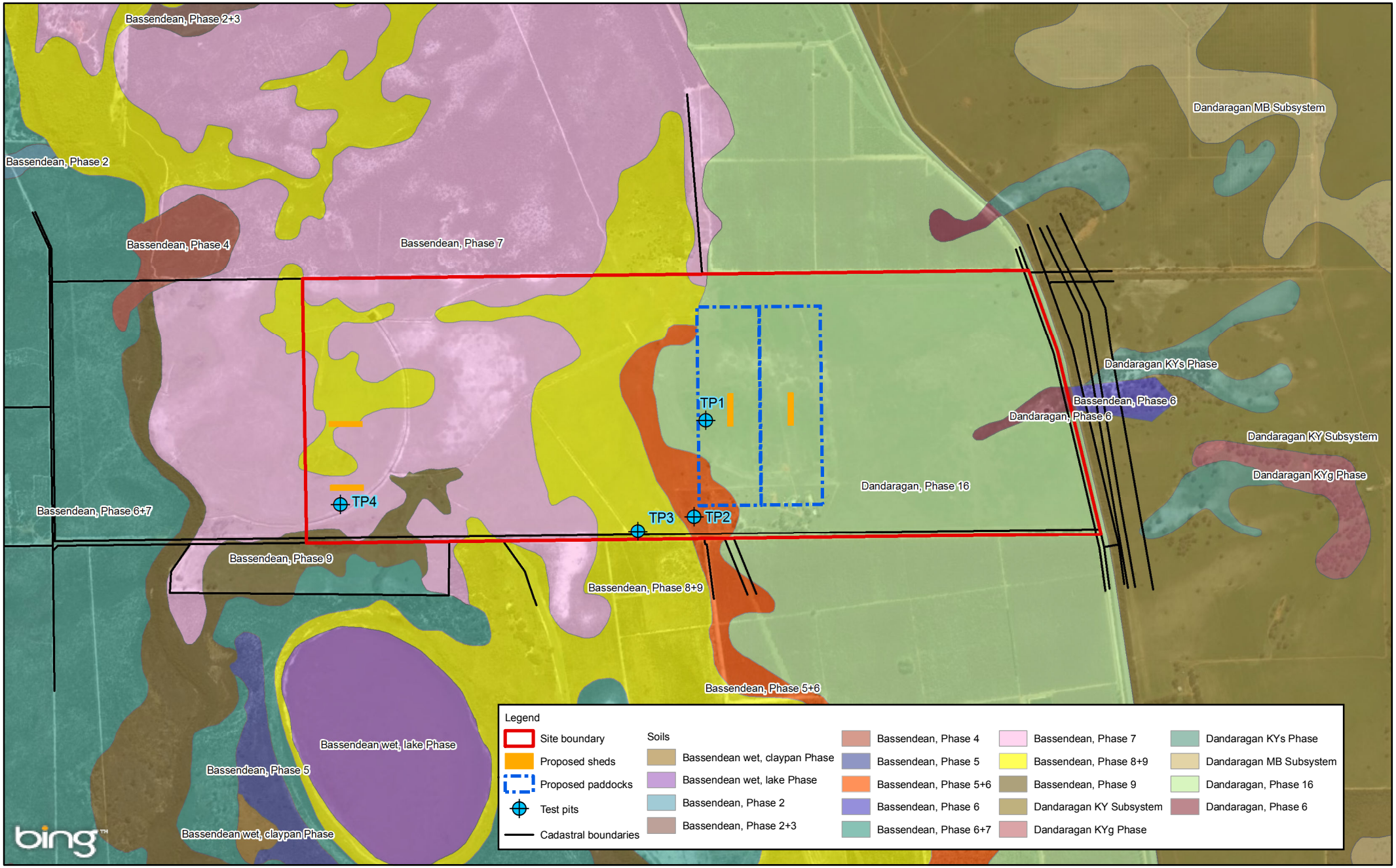

Figure 3:	**Soil Types**
Project:	Drainage and Nutrient Management Plan Lot 3 Douglas Road, Beermullah
Client:	Snowdale Holdings Pty Ltd

Plan Number: EP14-012 (01)--F04			
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Approved:	DPC	Date:	07/04/14
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Sources: The following datasets were used in the production of this map: Soils - DoA (2007)

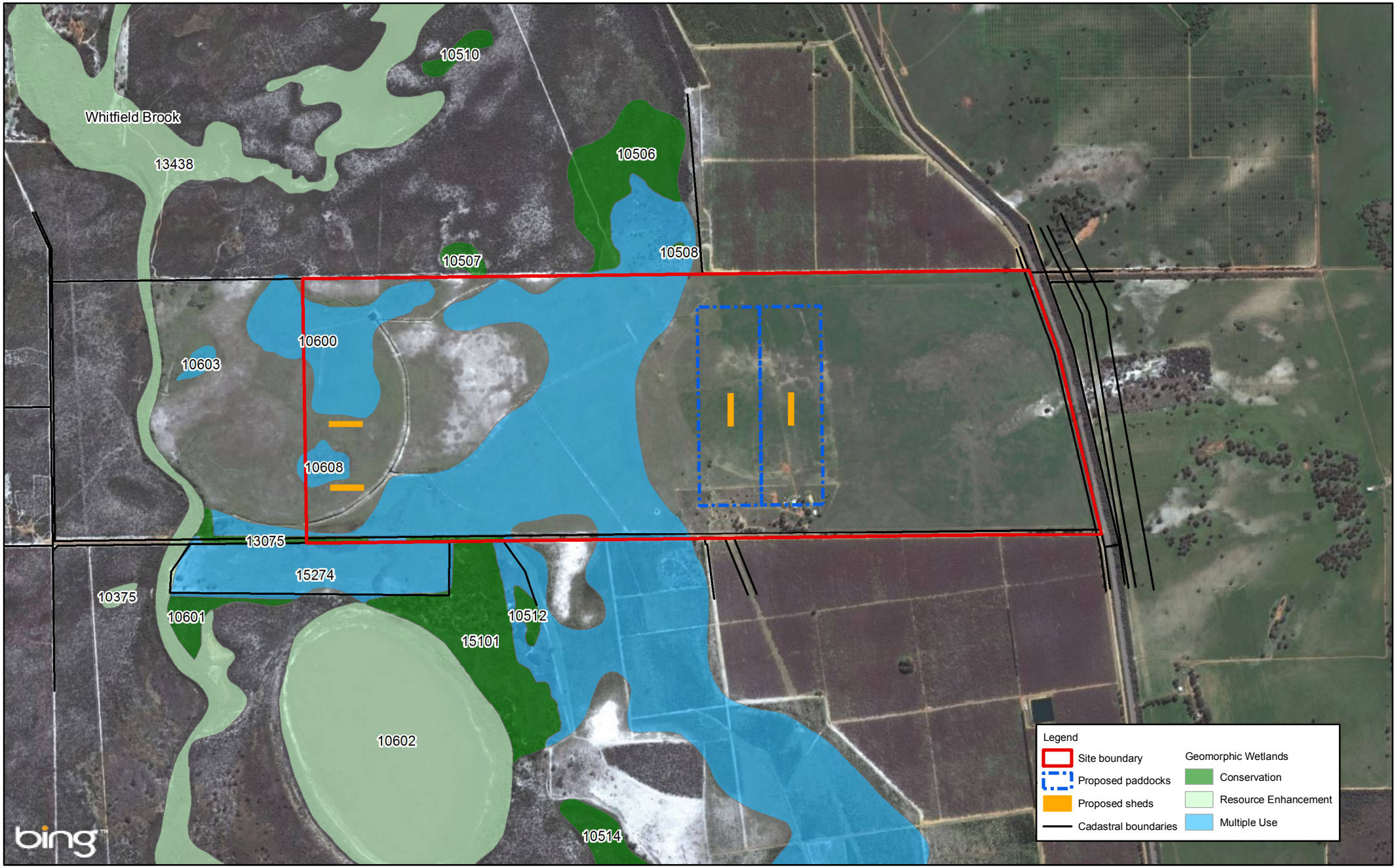

Figure 4:	**Wetlands and Surface Water Features**
Project:	Drainage and Nutrient Management Plan Lot 3 Douglas Road, Beermullah
Client:	Snowdale Holdings Pty Ltd

Plan Number: EP14-012 (01)--F05			
Drawn:	GRO	Date:	06/03/14
Approved:	DPC	Date:	07/04/14
Checked:	ASC	Scale:	1:20,000@A4

0 200 400 800 Metres

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Sources: The following datasets were used in the production of this map: Geomorphic Wetlands - DEC (2013)

APPENDIX A

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LABORATORY ANALYTICAL REPORT

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Standard forms:

1. The following standard forms (contained in Annexure 1) will be used for recording as appropriate:

    a) Actionable response

    b) Complaints form

    c) Daily Critical Checklist

    d) Daily Manure Inspection

2. Investigation of complaints received will commence within 1 working day of receipt or earlier if practicable or possible.

3. A register will be maintained of all complaints received and the solution, action or recorded response taken.

Audit Protocol:

1. The attached compliance assessment audit table will be completed by a suitably qualified and experienced person and will be submitted to the Shire on an annual basis.
2. The annual compliance assessment report will record the nature and source of any environmental impacts that exceed predicted levels or agreed performance criteria and describe the mitigation measures taken.
3. The annual compliance assessment report will review operation and management practices and other measures to prevent or minimise environmental impact.
4. The annual compliance assessment report will, where possible, provide any further information requested by the Shire in relation to the operation and management of the poultry farm.

Audit Table

Audit Code	Assessment Task	Timing	Comply Y/N	Compliance Date	Action Taken	Action Date
1	**Odour**					
1.1	Log of Key Conditions	Daily				
1.2	Drinker maintained	Daily				
1.3	Equip maintained	annually				
1.4	Maintain temp control	ongoing				
1.5	Standby generator	On start up				
1.6	Feed quality review	3 monthly				
1.7	Weather checked for farm operations	Sheds emptied				
1.8	Dead Bird Collection	Daily				
1.9	Mortality recorded	Daily				
2	**Noise**					
2.1	Hours of operation	Ongoing				
2.2	Equipment maintained	annually				
2.3	Installation of equipment	On start up				
2.4	Actionable Response for equipment failure resulting in noise incident	annually				
2.5	Review noise generation	3 monthly				
2.6	Farm equipment maintained	Annually				
2.7	Faults response	24 hours				
2.8	Audible beepers	Ongoing				
2.9	Contractor training	Start up Ongoing				
2.10	Contractors supervised	Ongoing				
2.11	Delivery restrictions	Ongoing				
2.12	Speed limit	Start up Ongoing				
2.13	Noise complaint form	Ongoing				
2.14	Bird pick up training	Start up Ongoing				
2.15	Compliance with Noise Regulations	Ongoing				
2.16	Noise consultant for ongoing issue	As required				
3	**Dust**					
3.1	Dry saw dust or Clean plastic slat floors	Sheds emptied				
3.2	Clean major wet litter areas	Ongoing				
3.3	Timing of litter removal	Ongoing				
3.4	Litter straight to truck	Ongoing				
3.5	Trucks covered	Ongoing				
3.6	Dust generation action from vehicle movement	As required				
3.7	Dust action	As required				
3.8	Landscaping installed	Start up				
3.9	Equipment maintained	Annually				
3.10	Silo and Feed System	Start up				
3.11	Inspection of feed system	Daily				

Audit Code	Assessment Task	Timing	Comply Y/N	Compliance Date	Action Taken	Action Date
4	**Waste and Manure Management**					
4.1	Manure stored in sheds or compund	Ongoing				
4.2	Manure not spread	Ongoing				
4.3	Collection of dead birds	Daily				
4.4	Freezer for dead birds	Start up / ongoing				
4.5	Freezer maintained	Start up / annually				
4.6	Manure removal from sheds	Ongoing				
4.7	Concrete hardstand	Start up				
4.8	Litter moisture monitored	Ongoing				
4.9	Litter monitoring	Weekly				
4.10	Wet litter 2m2 removed	Ongoing				
4.11	Drinkers installed and checked	Daily				
4.12	Drinker inspections	Daily				
4.13	Litter removal minimise impact	Ongoing				
4.14	Litter removal during daytime	Ongoing				
4.15	Litter and dead birds separate	Ongoing				
4.16	Litter removed	Ongoing				
4.17	Log clean out conditions	As required				
4.18	Deliver trucks cover secured	Ongoing				
4.19	Contractor actions	As required				
4.20	Clean up	As required				
5	**Pest Management**					
5.1	Wild bird proofing	Start up				
5.2	Baiting	Start up / Ongoing				
5.3	Feed spills removed	Daily as required				
5.4	Inspection of feed system	Daily				
5.5	Removal of manure	Ongoing				
5.6	Monitor of stable fly	Daily				
5.7	Treatment of stable fly	As required				
5.8	Manure Daily Inspection Report	Daily				
6	**Drainage and Nutrient Management**					
6.1	groundwater not contaminated	Start up and 6 monthly monitoring				
6.2	Stormwater disposal	Start up / on going				
6.3	Stormwater from roof sheds to rainwater tanks	Start up				
6.4	Stormwater retained on site	Ongoing				
7	**Landscape and Vegetation Management Plan**					
7.1	Landscaping implemented	Start up				
7.2	Landscape inspection	Start up				
7.3	Landscaping maintained	Start up / ongoing				
7.4	Dead plants removed	Fortnightly				
7.5	Plant replacement	1 week				
8	**Community Liaison Management Plan**					
8.1	Review of complaint register	Bimonthly				
8.2	Emergency contact for neighbours	Start up / annually				
8.3	Notice prior to bird removal	7 days before shed emptied				
8.4	Neighbour liaison	Annually				
8.5	Complaints register	Ongoing				
8.6	Shire Complaints	Ongoing				

ANNEXURE 1

STANDARD FORMS

Gingin Eggs Farm: Actionable Response Form

To be completed by the Farm Hand and signed off by the Poultry Farm Manager

Date of incident	Location and description of Incident	Action taken	Resolved (Y/N)	Further action required by who and when	Manager Sign off & date

Gingin Eggs Farm: Actionable Response Form

To be completed by the Farm Hand and signed off by the Poultry Farm Manager

Date of incident	
Location and description of Incident	
Action taken	
Resolved (Y/N)	
Further action required by who and when	
Manager Sign	
Date Resolved	

Gingin Eggs Farm: Complaints Form

To be completed by the person receiving the complaint and signed off by the Poultry Farm Manager

Date of incident	
Complaint from	
Contact details	
Description of Incident (record wind direction, temperature or other relevant details)	
Action taken	
Resolved (Y/N)	
Date complainant advised of outcome	
Further action required by who and when	
Manager Sign	
Date Resolved	

DAILY CRITICAL CHECK LIST

Week commencing Monday Date:_____ Shed:_____

Week Commencing Monday _____/_____/_____ NAME	Mon	Tues	Wed	Thu	Fri	Sat	Sun
CHECK EGG BELTS FOR OBSTRUCTIONS LOOK & WALK DOWN AISLE & BACK UP THE OTHER AISLE. PULL ON BELTS.							
CHECK WATER LEVELS FRONT & BACK (AM)							
CHECK WATER LEVELS FRONT & BACK (PM)							
CHECK THAT CHICKENS HAVE FEED							
CHECK SHED TEMPERATURE (AM) FANS/COOLING							
CHECK SHED TEMPERATURE (PM)							
CHECK SILO WEIGHT CELLS (VISUALLY)							
EMPTY FEED TRAYS INTO BARROW / HOPPER							
ADVISE OFFICE OF ANY PROBLEMS							
CHECK ELECTRICAL BOARDS (VISUALLY)							
CHECK EGG WASTE TRAYS AND CLEAN							
CLEAN FLOOR WASTE DAILY							
CHECK FLOURESCENT LIGHTS							
CHECK MANURE DRYER IS WORKING							
CHECK BIRD HEALTH & WELL BEING (VISUAL)							
CHECK FOR DEAD BIRDS EVERY 2 DAYS							
RUN MANURE BELTS STRAIGHTEN CLEAN ENDS							

Farm Hand to complete on a daily basis, sign and date on completion of each week and file with HACCP Records.

*Completed By:*_____ *Date:*_____

DAILY MANURE INSPECTION

MUST BE COMPLETED EVERY DAY

WHEN FORM IS FULL BRING TO OFFICE

DATE	MAGGOTS yes/no	FLIES N = nill M = moderate L = lots	Spray with lavadex Yes/no	signed

ANNEXURE 2

AUDIT PROTOCOL

Audit Table

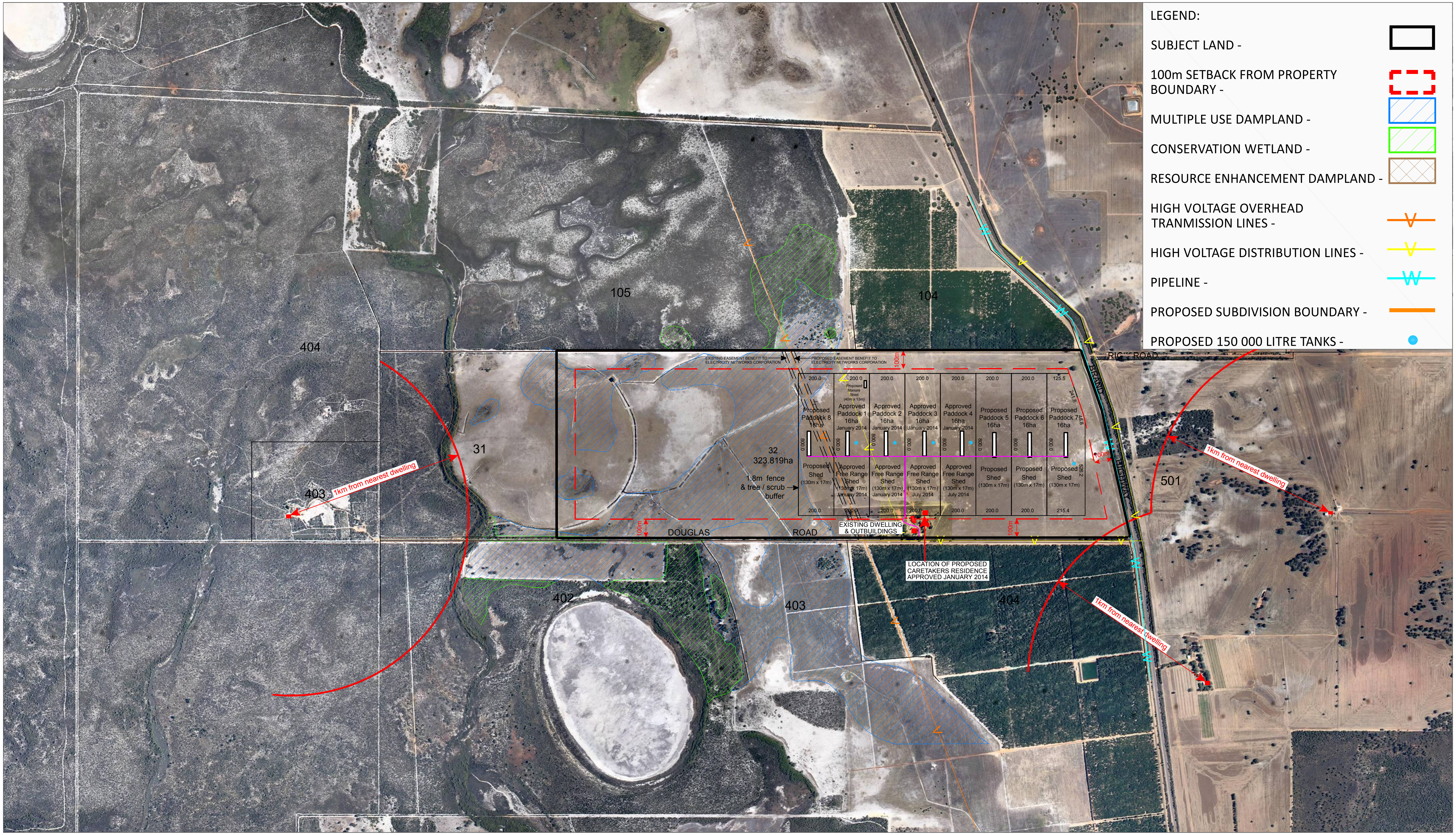
Audit Code	Assessment Task	Timing	Comply Y/N	Compliance Date	Action Taken	Action Date
1	**Odour**					
1.1	Log of Key Conditions	Daily				
1.2	Drinker maintained	Daily				
1.3	Equip maintained	annually				
1.4	Maintain temp control	ongoing				
1.5	Standby generator	On start up				
1.6	Feed quality review	3 monthly				
1.7	Weather checked for farm operations	Sheds emptied				
1.8	Dead Bird Collection	Daily				
1.9	Mortality recorded	Daily				
2	**Noise**					
2.1	Hours of operation	Ongoing				
2.2	Equipment maintained	annually				
2.3	Installation of equipment	On start up				
2.4	Actionable Response for equipment failure resulting in noise incident	annually				
2.5	Review noise generation	3 monthly				
2.6	Farm equipment maintained	Annually				
2.7	Faults response	24 hours				
2.8	Audible beepers	Ongoing				
2.9	Contractor training	Start up Ongoing				
2.10	Contractors supervised	Ongoing				
2.11	Delivery restrictions	Ongoing				
2.12	Noise Barriers maintained	Ongoing				
2.13	Vehicle maintenance	Ongoing				
2.14	Speed limit	Start up Ongoing				
2.15	Actionable response form for noise issues	Ongoing				
2.16	Response to noise complaint	As required				
2.17	Bird pick up training	Start up Ongoing				
2.18	Feed deliveries	Ongoing				
2.19	Compliance with Noise Regulations	Ongoing				
2.20	Noise consultant for ongoing issue	As required				
3	**Dust**					
3.1	Timing of litter removal	Ongoing				
3.2	Litter straight to truck	Ongoing				
3.3	Trucks covered	Ongoing				
3.4	Dust generation action from vehicle movement	As required				
3.5	Dust action	As required				
3.6	Landscaping installed	Start up				
3.7	Equipment maintained	Annually				
3.8	Silo and Feed System	Start up				
3.9	Inspection of feed system	Daily				

Audit Code	Assessment Task	Timing	Comply Y/N	Compliance Date	Action Taken	Action Date
4	**Waste and Manure Management**					
4.1	Manure not spread	Ongoing				
4.2	Manure stored in sheds	Ongoing				
4.3	Manure Storage compound					
4.4	Collection and disposal of dead birds	Daily				
4.5	Disposal of dead birds	Start up / ongoing				
4.6	Freezer maintained	Start up / annually				
4.7	Manure removal from sheds	Ongoing				
4.8	Manure storage compound	Start up / as required				
4.9	Concrete hardstand	Start up				
4.10	Aeration of manure	Daily when in use				
4.11	Drinkers installed and checked	Daily				
4.12	Drinker inspections	Daily				
4.13	Moisture of manure monitored	Daily				
4.14	Wet litter exceeding 2m2 removed	Daily check				
4.15	Timing of Litter removal	Ongoing				
4.16	Litter removal during daytime	Ongoing				
4.17	Litter and dead birds separate	Ongoing				
4.18	Shed clean up	Ongoing				
4.19	Log clean out conditions	As required				
4.20	Deliver trucks cover secured	Ongoing				
4.21	Contractor actions – log book	As required				
4.20	Clean up – log book	As required				
5	**Pest Management**					
5.1	Wild bird proofing	Start up				
5.2	Baiting	Start up / Ongoing				
5.3	Feed spills removed	Daily as required				
5.4	Inspection of feed system	Daily				
5.5	Fly number monitoring	Weekly				
5.6	Fly traps changed every 3 days	3 days				
5.7	Record fly numbers	3 days				
5.8	Fly bait rotation	ongoing				
5.9	Farm contacts provided to neighbours	Start up / as required				
5.10	Monitor neighbour fly data	As required				
5.11	Monitor for leaks	Daily				
5.12	Aeration of manure in the storage compound + Larvadex	Daily when in use				
5.13	Cycling of spraying in manure compound	As required when in use				
5.14	Spraying go Lorsran after 6 weeks	As required				
5.15	Spraying of Coopex	As required				
5.16	Larvadex in chicken feed	As required				
6	**Stable Fly Management**					
6.1	Definition	N/A				
6.2	Transport of manure	When sheds emptied				
6.3	Monitor of stable fly	Weekly				
6.4	Stable fly treatment of infestation	As required				
6.5	Manure inspection reports	Daily				
6.6	Pesticide use if outbreak	If required				

7	**Traffic Management**					
7.1	Surface of trafficable areas maintained	Ongoing				
7.2	5km hour speed limit signs	Start up				
7.3	Wetting down of areas if dust issue	As required				
7.4	Vehicles leave in forward gear	Ongoing				
7.5	Repair of trafficable areas	As required				
7.6	Transport instructions	Start up and on going				
8	**Landscape and Vegetation Management Plan**					
8.1	Landscaping implemented	Start up				
8.2	Landscape inspection	Start up				
8.3	Landscaping maintained	Start up / ongoing				
8.4	Dead plants removed	Fortnightly				
8.5	Plant replacement	As required				
9	**Community Liaison Management Plan**					
9.1	Review of complaint register	Bimonthly				
9.2	Emergency contact for neighbours	Start up / annually				
9.3	Notice prior to bird removal	7 days before shed emptied				
9.4	Neighbour liaison	Annually				
9.5	Complaints register	Ongoing				
9.6	Shire Complaints	Ongoing				

ANNEXURE 6

Development Application Plans



PROPOSED FREE RANGE POULTRY FARM

ALTERATIONS AND ADDITIONS TO APPROVED POULTRY FARM

LOT 32 (No. 120) DOUGLAS ROAD
BEERMULLAH

SHIRE OF GINGIN

0 200 400 600 800 1000m

SCALE: 1:20 000
ORIGINAL PLAN SIZE: A3

JOB CODE:
SNW GIN DA

DATE:
12.12.2014

Allerding & Associates
Town Planners, Advocates and Subdivision Designers

125 Hamersley Road, Subiaco WA 6008
T: (08) 9382 3000 | F: (08) 9382 3005 | W: allerdingassoc.com

SITE PLAN

LOT 32 (No. 120) DOUGLAS ROAD
BEERMULLAH

SHIRE OF GINGIN

0 10 20 30 50m

SCALE: 1:1000
ORIGINAL PLAN SIZE: A3

JOB CODE:
SNW GIN DA

DATE:
19.12.2014

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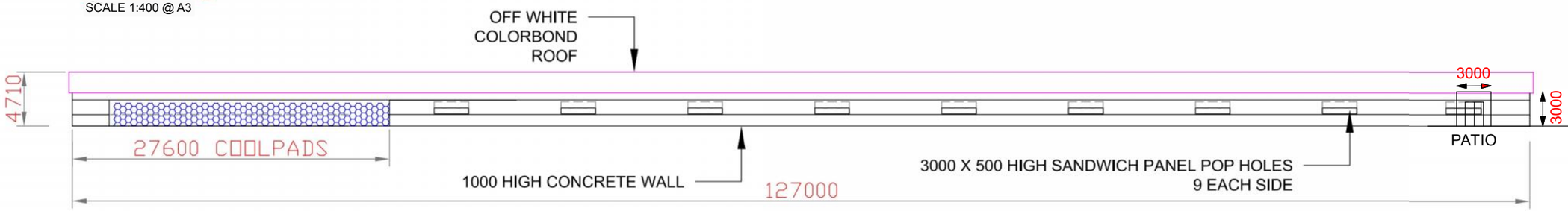
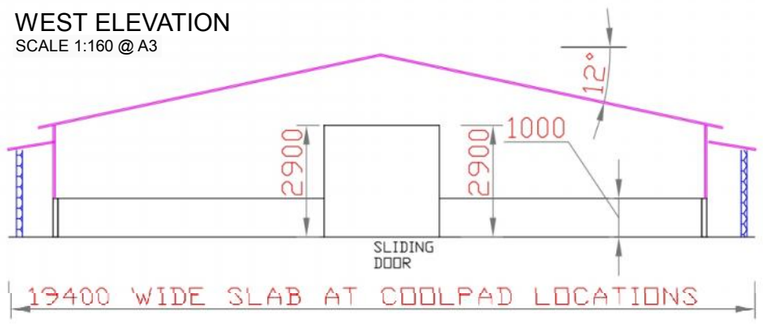
PLAN VIEW
SCALE 1:400 @ A3

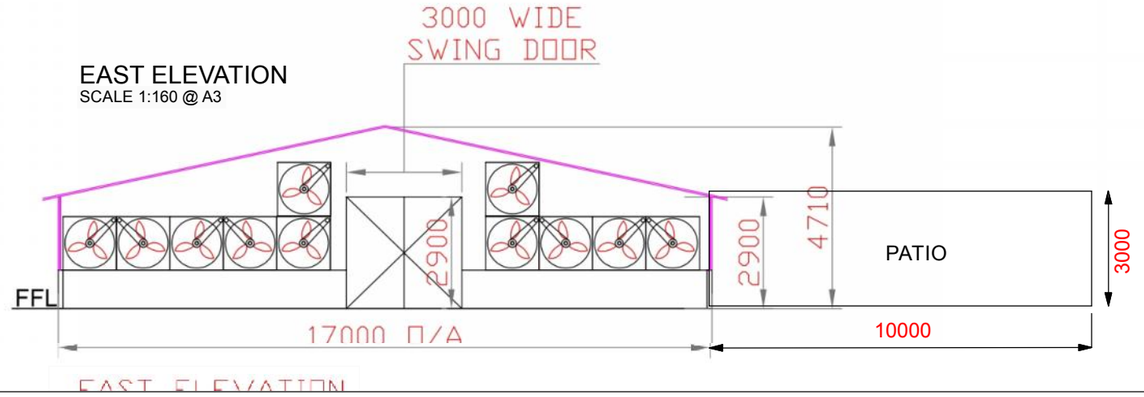


NORTH ELEVATION, MIRROR FOR SOUTH ELEVATION
SCALE 1:400 @ A3

WEST ELEVATION
SCALE 1:160 @ A3



EAST ELEVATION
SCALE 1:160 @ A3



ELEVATIONS AND FLOOR PLAN OF FREE RANGE SHEDS

ALTERATIONS AND ADDITIONS TO APPROVED POULTRY FARM

LOT 32 (No. 120) DOUGLAS ROAD
BEERMULLAH

SHIRE OF GINGIN

SOURCE: B & M SLOTS PTY LTD

SCALE: AS SHOWN
ORIGINAL PLAN SIZE: A3

JOB CODE:
SNW GIN DA

DATE:
19.12.2014

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Town Planners, Advocates and Subdivision Designers

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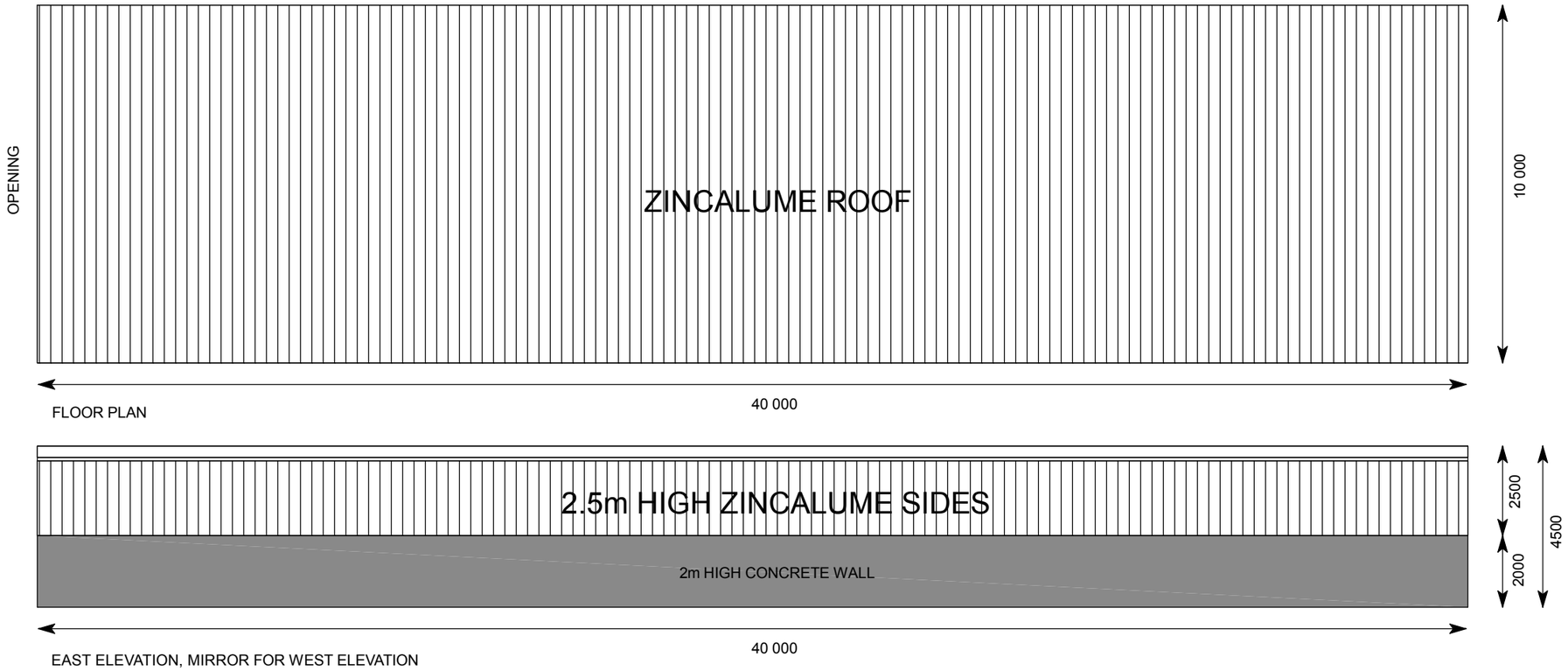

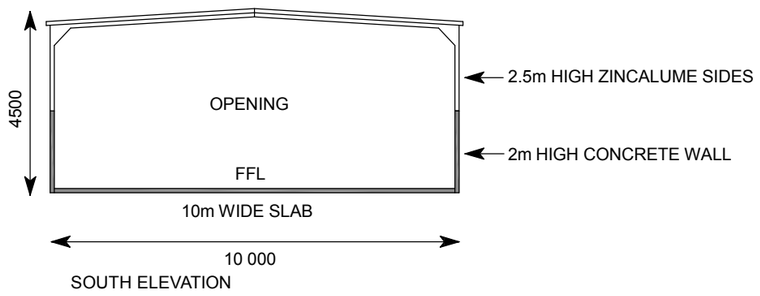

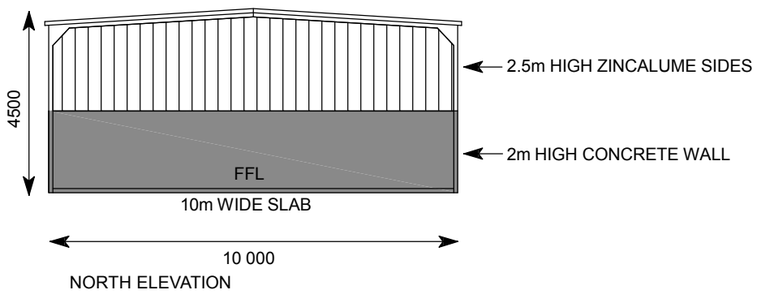

ELEVATIONS AND FLOOR PLAN OF MANURE SHED

ALTERATIONS AND ADDITIONS TO APPROVED POULTRY FARM

LOT 32 (No. 120) DOUGLAS ROAD
BEERMULLAH

SHIRE OF GINGIN

0 2 4 6 8m

SCALE: 1:150
ORIGINAL PLAN SIZE: A3

JOB CODE:
SNW GIN DA

DATE:
12.12.2014

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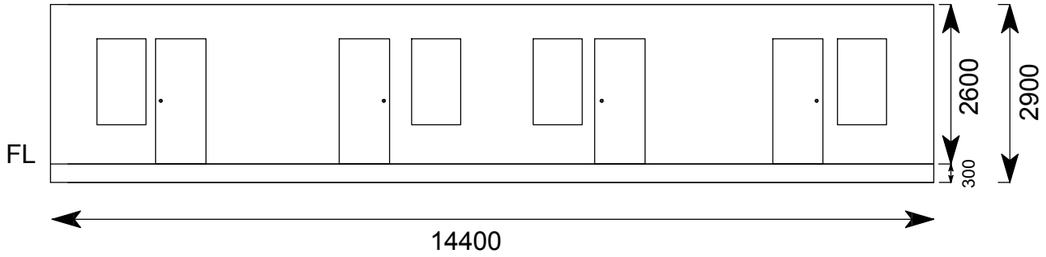
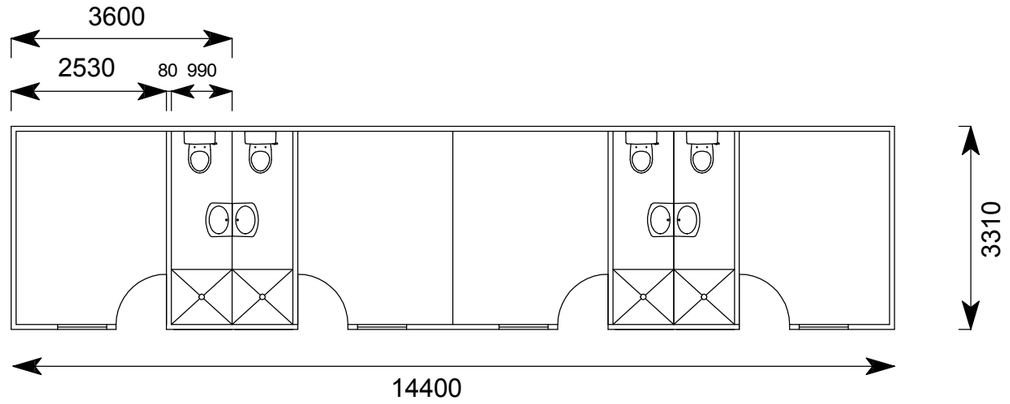


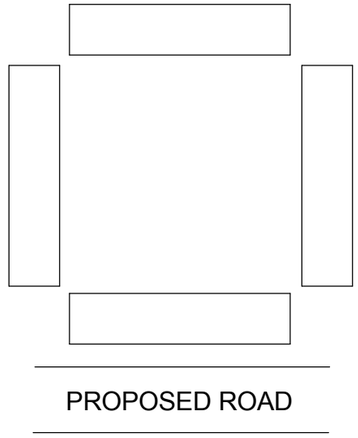
FRONT VIEW



PLAN VIEW

REAR VIEW

SIDE VIEW



SITE PLAN (Not to scale)

ELEVATIONS AND FLOOR PLAN OF WORKERS ACCOMMODATION

ALTERATIONS AND ADDITIONS TO APPROVED POULTRY FARM

LOT 32 (No. 120) DOUGLAS ROAD
BEERMULLAH

SHIRE OF GINGIN

0 1 2 3 4 5m

SCALE: 1:100
ORIGINAL PLAN SIZE: A3

JOB CODE:
SNW GIN DA

DATE:
22.12.2014

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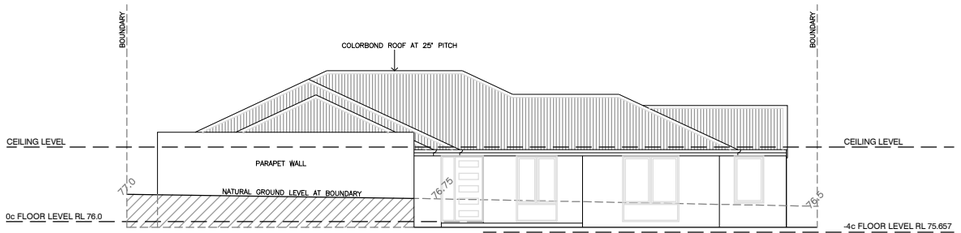
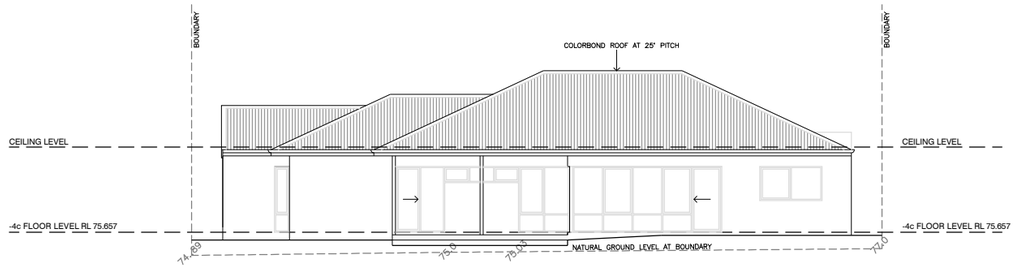
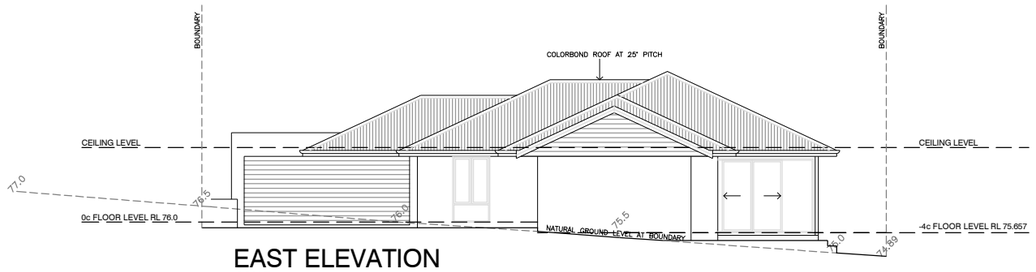


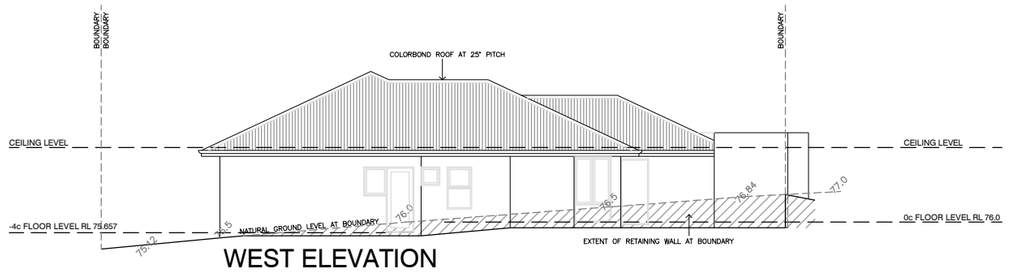
SOUTH ELEVATION
SCALE 1:200



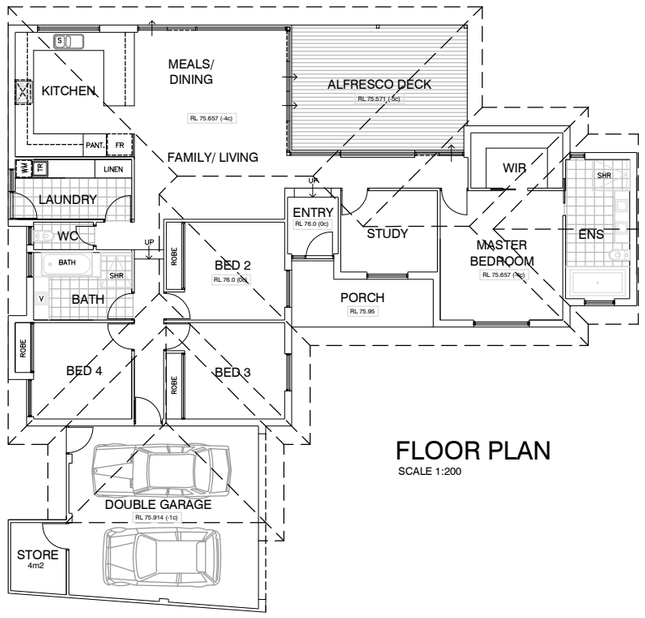
NORTH ELEVATION
SCALE 1:200



EAST ELEVATION
SCALE 1:200



WEST ELEVATION
SCALE 1:200



FLOOR PLAN
SCALE 1:200

AREA CALCULATIONS

HOUSE	176.1m2
GARAGE & STORE	42.5m2
ALFRESCO	23.2m2
PORCH	8.0m2
TOTAL AREA	249.8m2

PROPOSED CARETAKERS RESIDENCE
FLOOR PLANS AND ELEVATIONS

LOT 3 (No. 120) DOUGLAS ROAD
BEERMULLAH

SHIRE OF GINGIN

0 2 4 6 8 10m

SCALE: 1:200
ORIGINAL PLAN SIZE: A3

JOB CODE:
SNW GIN DA

DATE:
30.08.2013

Allerding & Associates
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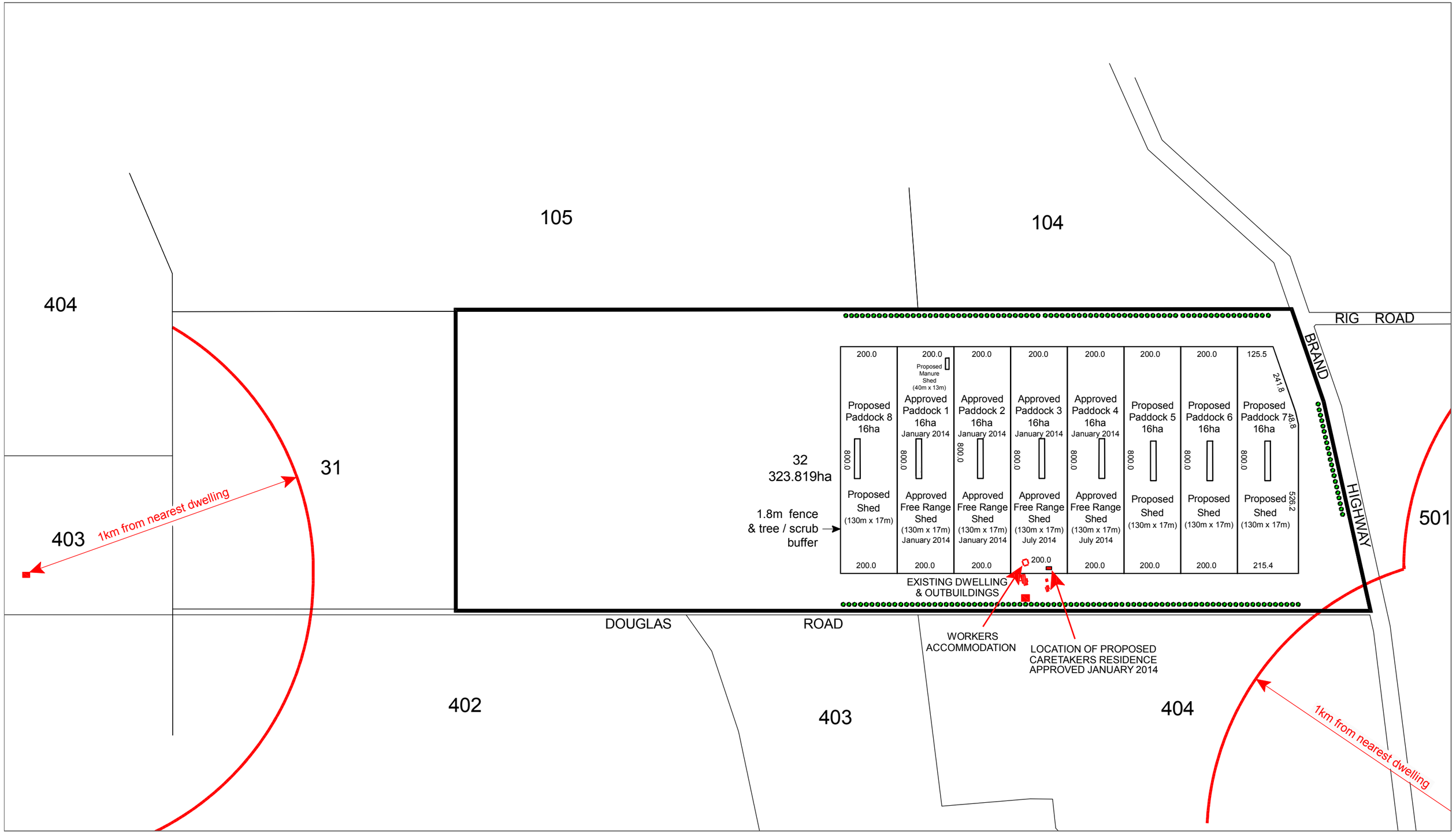

LANDSCAPE PLAN

ALTERATIONS AND ADDITIONS TO APPROVED POULTRY FARM

LOT 32 (No. 120) DOUGLAS ROAD
BEERMULLAH

SHIRE OF GINGIN

0 200 400 600m

SCALE: 1:12 500
ORIGINAL PLAN SIZE: A3

JOB CODE:
SNW GIN DA

DATE:
19.12.2014

LEGEND:

SUBJECT LAND -

PROPOSED LANDSCAPING -

Allerding & Associates
Town Planners, Advocates and Subdivision Designers

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