

Site Management Plan for

Major Project Application No. MP09-0166 for Altitude Aspire, Terranora

Submitted to
Metricon (QLD) Pty Ltd
June 2010

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Prepared by
Bradlees Civil Consulting
Level 1, 34 Thomas Drive,
Chevron Island QLD 4217
Tel: (07) 5528 6411
Fax: (07) 5528 6422



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Terranora, NSW”
Gilbert and Sutherland, April 2010

1.0 Introduction

1.1 Background Information

Bradlees Consulting was commissioned by Metricon QLD Pty Limited to prepare this response to Department of Planning (NSW) Director General's Environmental Requirements (DGR) in support of a Part 3A Project Application No. 09-0166 dated 23 November 2009.

This document is in response to Attachment 2 – Plans and Documents to accompany the Application, specifically Item 9 – Site Management Plan – to avoid, remedy or mitigate adverse effects on the surrounding environment during the undertaking of earthworks. The Site Management Plan is to include:-

- a list of buildings, structures and roads to be demolished and removed;
- details of bulk earthworks proposed (including volumes, locations, stockpiles and any other relevant matter);
- proposed measures to avoid adverse impacts on Aboriginal heritage;
- traffic management measures;
- acoustic and vibration management measures;
- stormwater management measures;
- description and plan of erosion and sediment controls measures to be utilised;
- methods for dust management;
- material recycling measures;
- hazardous substances (e.g. asbestos, lead based paint) report and works plan;
- redundant services to be removed;
- vegetation to be cleared;
- site fencing and security;
- waste management and disposal measures;
- a delegated liaison officer for consultation with adjacent property owners;
- emergency and complaint contacts;
- proposed sequencing of activities on site; and
- any other measures required to avoid, remedy, or mitigate any adverse impacts of the activity.

1.0 Introduction – Cont...

1.2 Site – Area E: Altitude 1

The subject property is located at Fraser Drive, Terranora, and is described as:

Lot 1 DP 304649, Lot 1 DP 175235, Lot 1 DP 781687, Lot 2 DP 778727, Lot 1 DP 781697, Lot 1 DP 169490 and Lots 40 and 43 DP 254416 at the southern end of Fraser Drive, Terranora, Tweed LGA.

The site has been designated as Area E in the Tweed Shire's Residential Development Strategy.

For the purpose of this report the subject Site is designated – 'Altitude 1', a section of the overall 'Area E' located to the north-eastern corner of 'Area E' with extensive frontage to Fraser Drive to the east and existing development at Parkes Lane to the South. Refer to the site location shown on B & P Surveys drawing 18053 B Sheet 1 of 8 Rev A. Appendix 1. The site has an approximate area of 36ha.

1.3 Objectives of Report

The objectives of this document are to provide the Engineering response to the Director General's Environmental Assessments Requirements (DGR) in accordance with Attachment 2 and to outline potential impacts and mitigation strategies associated with construction of the subdivisional earthworks.

This document constitutes the Site Management Plan requested in DGR – Attachment 2.

The details requested in Section 1.1 above have been addressed/provided in the various "Specialist" reports and are based on conceptual plans and designs, without the benefit of the detail normally associated with Construction Certificate approval and other information.

As further information becomes available and detail design undertaken for Construction Certificate Approval, this Site Management Plan document will need to be updated and amended.

1.0 Introduction – Cont...

1.4 Proposed Development

The proposed development involves the construction of a residential subdivision comprising internal roads giving access to approximately 311 allotments.

The balance of the site would be dedicated to open space, a constructed wetland and land zoned environmental protection.

The proposed development is shown on B & P Surveys drawing 18053 B sheet 2 of 8 Rev H. – Appendix 2. The Altitude 1 Concept Plan proposes the creation of a residential community that will form Part of and be integrated into the Terranora Area E Urban Land Release. The development would be completed in stages and would include substantial areas of open space, providing a buffer to the SEPP 14 wetland area.

2.0 Demolition

The Area E landscape has been highly disturbed as a result of previous intensive agricultural practices (banana plantations) throughout the site and Altitude 1 in particular.

A site visit of the area identified the following buildings:-

- three small storage sheds with earthen floor
- an above ground diesel storage tank approx. 1000 litre
- a large farm shed approx. 25m x 40m

There are no constructed roadways within the Altitude 1 site.

Prior to any work on site, an inspection of the buildings to be demolished will be undertaken in order to identify the nature of existing building materials (timber, concrete, iron, etc including the presence of any asbestos).

Subject to more detailed information being available at the time of Construction Certificate approval, no demolition work will take place without the appropriate permits, licences, Workplace Health and Safety and Construction Workplace Management Plans being obtained and approved for the demolition and disposal works. Demolished materials shall be disposed off site in accordance with relevant permits and licences. On completion of the demolition work, no building materials shall remain on site. Access will be restricted in accordance with other provisions within this document.

3.0 Vegetation Clearing

In order to protect the ecological values of the site, vegetation management practices will be of the highest importance during the clearing, construction and rehabilitation phases of the development. Native vegetation will be retained, rehabilitated and protected where possible within the 7 (a) zoned buffer areas. Native vegetation will also be retained where possible within Stormwater treatment areas and Open Space areas however, the focus will be on revegetation works and landscaping works in these areas respectively.

The methods proposed to ensure the retention and protection of existing native vegetation where appropriate during the construction phase are discussed in the report by James Warren and Associates Pty Ltd, titled "Vegetation Management and Rehabilitation Plan", April 2010.

The construction of access roads, services and stormwater treatment devices will require bulk earthworks activities. During this time vegetation disturbance should be minimised to the absolute area necessary, in order to conserve ecological values within the proposed Conservation and Open Space areas.

Existing native vegetation will be retained where possible and weed infestations removed before any supplementary planting is carried out. Any vegetation to be retained will be clearly identified and access to these areas will be restricted prior to the commencement of any earthworks.

Retained vegetation areas should be protected from the following possible on site disturbances:

- Earthworks;
- Construction of pathways;
- Machinery storage;
- Site waste dumping;
- Stockpiling of mulch / chipped material or soil;
- Erosion;
- Unauthorised vegetation removal;
- Herbicide application; and
- Introduction of exotic flora species.

Appropriate vegetation management strategies during the construction phase of the development shall be in accordance with those outlined in the "Vegetation Management and Rehabilitation Plan" by James Warren and Associates Pty Ltd.

4.0 Bulk Earthworks

4.1 Extent of Works

The existing topography of the site is generally steep with slopes of 20% to over 25% grading into two defined gullies, one running south-north along the centre of Area E and a second gully within the Altitude 1 site also running south-north. Preliminary earthworks volume calculations for the proposed works within Altitude 1 site indicate a balanced cut to fill with no borrow/spoil material off site. Refer copy of drawings 09-374-SK2702, SK2703 and SK2763 included as Appendix 3.

Drawing SK2763 indicates a total cut volume of approximately 521,800m³ and total fill volume of 496,100m³ for the Altitude 1 site.

These volumes are preliminary only and have been prepared on the basis of concept drawings for the purposes of the Part 3A Project Application and this document, subject to detail design for Construction Certificate Approval.

Topsoil shall be stripped from the area of proposed earthworks and stockpiled generally, in areas along cut/fill lines where the extent of earthworks is minimal.

4.1.1 Stockpiles shall generally be:-

- Located outside the drip lines of trees that are to remain;
- Away from areas that pond water;
- At least 10m clear of any waterway or drainage channel. Where it is not possible to provide 10m clearance, the stockpile shall be above the normal high water level of the watercourse and additional protection provided to prevent material entering the watercourse;
- In areas where they are protected from wind if possible;
- Not within 3m of fence lines and shall not be located to impact adversely on the public;
- Away from noise sensitive receptors;
- Topsoil stockpiles shall not exceed 1.5m in height;
- Separate stockpile locations shall be provided for different types of spoil, including topsoil, subsoil and different types of waste material (concrete, asphalt etc.), where practicable;
- Proposed locations for the stockpiles shall be as noted on the attached plan;

4.1.1 Stockpiles shall generally be – Cont...

- If stockpiles of soil or fill are to be maintained for longer than 28 days then they will either be grass-seeded with sterile rye-corn to ensure a well-covered mat of rye-corn is established, or an effective coating will be applied to prevent erosion.

On windy days stockpiles not required to be treated will be watered and made damp to prevent dust being blow off it.

Upon completion of the stockpile, the erosion and sediment controls shall be checked for adequacy for the stockpile as constructed.

Upon completion of the works the stockpiles shall be removed and the area reinstated.

4.1.2 Batter Construction

Prior to excavation, a catch drain shall be installed and graded to a sedimentation basin or holding pond on-site, or through sedimentation controls to an approved point of discharge.

A slope drain shall be installed where water is to be disposed of down a batter slope.

Temporary toe drainage shall be provided and maintained as the work progresses.

Permanent drainage shall be installed as per the specification when the batter is complete.

At the completion of each work period, or at the onset of rain, a windrow of compacted soil shall be constructed along the edge of the fill batter to prevent water eroding the fill slope.

Batters shall be vegetated in accordance with landscaping specifications as soon as practicable.

4.0 Bulk Earthworks – Cont...

4.1.3 Temporary Drainage Channels

Excavation for temporary drainage channels shall not be deeper than the topsoil layer.

Diversion drains shall be installed as required to prevent water from off-site mixing with run-off from site.

Catch and intercept drains shall be installed to prevent run-off flowing onto areas to be excavated or onto stockpiles.

Slope drains shall be installed where required to discharge water down a batter or embankment and be formed from wooden flumes, half-round corrugated steel pipe, or plastic pipe. Rock beaching shall be provided at the discharge point to prevent erosion.

Where possible the maximum gradient of drains shall be 0.5%.

4.2 Earthworks Staging

Subject to further detail design and the Principal's requirements, the earthworks staging will be undertaken in three (3) stages as shown on drawing 09-374-SK2763 included with Appendix 3. During the course of further detail design for Construction Certificate approval, it maybe Stage 1 and 2 will be undertaken together, with Stage 3 constructed as stand alone.

The bulk of the earthworks operation is contained within Stage 3 and this allows for minimum disruption time and temporary works in the area of the central drainage gully.

Erosion and sedimentation controls will be managed in accordance with Gilbert and Sutherland report "Conceptual Stormwater Assessment and Management Plan, Proposed Residential Development, Altitude 1 Terranora, NSW" dated May 2010.

4.0 Bulk Earthworks – Cont...

4.3 Dust Management

The risk of reduction in air quality due to dust pollution can be attributed to the following activities in conjunction with high winds: Clearing and Grubbing, Mulching/Tub Grinding, Stripping, Earthworks, Haulage and Stockpiling.

Bad weather conditions could increase the prospects of dust pollution on-site. High winds forecasted could blow dust off earthworks areas, stockpiles and exposed areas into the neighbouring housing area. Storm events prior to rain tend to have high winds and the potential to create dust clouds.

To prepare for such occurrences, the Project Site Representative will obtain daily Bureau of Meteorology weather forecasts for the site. If high winds or stormy activity are predicted, site operations which could generate unreasonable levels of dust will be rearranged so that this does not occur.

4.3.1 Control Methods

For the most part, dust will be prevented through incorporating measures into earthworks procedures. Strategies which shall be implemented for minimising dust generation include:-

- Minimising the area cleared at any one time;
- Stabilising materials stockpiled for longer than 1 month;
- Covering materials stockpiled for less than 1 month;
- Revegetating disturbed areas as soon as possible;
- Watering of works areas with a water cart;
- Dust suppression during unloading of materials;
- Dampening of loads in vehicles carting excavated materials within the site;
- Covering of excavated material in trucks for transporting off-site, if required;
- Restricting activities during windy conditions;
- Reducing the speed limit of construction plant and vehicles;
- Ensuring that all plant and equipment is properly maintained;
- Fitting rock drilling equipment with dust collection devices;

4.3.1 Control Methods – Cont...

- Ensuring that all construction facilities erected on the site are designed and operated to prevent the emission of smoke, dust, cement dust or other objectionable matter into the atmosphere;
- Promptly removing and disposing of materials, mud, concrete or the like spilled on to the road surface from vehicles transporting materials to and from the site and which may cause a dust nuisance.

A water cart shall be kept on-site at all times. The operator shall be on stand-by and be available to water the site on an as-needs basis during the regular working day.

More specific dust management measures are included with Gilbert and Sutherland's Stormwater Management Plan included in Appendix 4.

5.0 Stormwater Management

The principle objective of the Stormwater Management Plan (SWMP) is to provide mitigation measures to minimise the potential impacts of the development.

Additionally, the SWMP provides information on specific site management issues relating to potential environmental impacts from the development during the construction and operational phases. For the purposes of this document, to focus on construction during the undertaking of earthworks, refer to Gilbert and Sutherland "Stormwater Management Plan, Proposed Residential Development, Altitude 1, Terranora NSW" report dated April 2010 and included with Appendix 4. Section 1 and 2 of the SWMP refer specifically to management measures to mitigate impacts during the earthworks construction stage, although the complete document detailing management measures during the "maintenance" phase is also included.

5.1 Erosion and Sediment Control

The soils identified on the site are assessed as low to very low fertility soils. Nevertheless, it is considered that nutrient transport from the site during the construction phase should be minimised by implementation of appropriate control measures.

Prior to commencement of earthworks construction, detailed erosion and sediment control plans will be prepared, based on the requirement of the Gilbert and Sutherland SWMP and the NSW Landcom, "Managing Urban Stormwater Soils and Construction".

Although no MUSIC modelling has been completed for the construction phase, it is evident that temporary sedimentation ponds and other sediment control measures should be installed during this phase.

Prior to commencement of earthworks in any stage, temporary sedimentation ponds should be installed. The exact number, location and size will be determined at the detailed design stage concurrently with the development of the staging plan. All runoff from disturbed areas is to be collected by means of surface drains and diverted to a sedimentation pond. Where practicable, runoff from undisturbed areas should be diverted around disturbed areas and away from the sedimentation pond. The temporary sedimentation ponds may be removed when the site has been revegetated, after completion of the bulk earthworks.

Other control measures such as (but not limited to) temporary sedimentation basins, silt fences and contour drains should be installed and maintained in accordance with recommendations contained in the NSW Landcom, *Managing Urban Stormwater Soils and Construction*. Refer to Gilbert and Sutherland SWMP Appendix 4.

6.0 Acoustic and Vibration Management

The objective of noise and vibration management is to conduct all activities on site in a manner that will limit the impact from both noise and vibration nuisance for the local community.

Noise control measures will include, but not limited to:-

- Construction activity shall be limited to the working hours of 7:00am to 6:00pm, Monday to Saturday unless approval from the Principal's Representative is obtained. Work outside of the restricted hours will be undertaken in emergencies, where situations would create significant delays and/or hazardous conditions on the major roads and where plant breakdown or extenuating circumstances have delayed an activity that cannot be stopped. In these circumstances, the Principal's Representative will immediately be notified and surrounding properties that will be affected shall be advised;
- Alternative processes will be considered in the planning of all construction activities and the most appropriate shall be adopted;
- All plant machinery and equipment shall be fitted with appropriate silencers;
- The office facilities and compound will be sited so that there is no noise nuisance to occupiers of adjoining properties;
- Telephones shall not be connected to outdoor alarms;
- Temporary screens or enclosures will be considered for drilling and piling activities and for compressors and pumps, based on the level of risk of noise nuisance to occupiers of adjoining properties;
- In general, trucks will be able to wait on-site rather than on surrounding roads, thereby minimising any vibration or noise nuisance to adjoining properties. Where it becomes necessary for trucks to wait outside the site adjoining the residential areas, this will only occur within the times specified and the driver will be directed to turn the engine off until the truck can move onto the site;
- Vehicle parking areas shall be located away from noise sensitive receptors.

Vibration control measures will include, but not limited to:-

- Construction method shall be utilised that minimise ground vibrations near existing buildings, structures and underground services;
- No vibratory compaction equipment shall be used within 100m of residential dwellings;
- Upon receipt of a vibration related complaint spot check monitoring shall be carried out at the complainant's premises for validation;

6.0 Acoustic and Vibration Management – Cont...

- **Limitation of Ground Vibration**
Construction methods shall be utilised that minimise ground vibrations near existing buildings, structures and underground services. Ground particle velocities shall be measured immediately adjacent to any of these areas when considered at risk of damage from vibrations;
- Vibration due to roller compaction may be controlled by adjusting the frequency or amplitude of vibration or changing to a smaller roller if problems persist.

7.0 Traffic Management

There are no external roads or intersections to be constructed prior to or during the earthworks operation and accordingly no traffic management is required on such roads.

Some traffic management may be required to control construction access to and from the site, however, because the earthwork operation will have a cut to fill balance, there will be no importing or exporting of earthwork material to and from the site.

Construction site access is proposed off Fraser Drive, approximately 120m north of Parkes Lane (the same location as for Stage 1 subdivision temporary access) – refer to Bitzios Consulting report “Altitude 1 Transport Assessment Report” dated 7 May 2010.

Control measures for management of traffic during construction would typically consist of:-

- appropriate project signage for delineation of site access;
- supply and erect temporary fencing to Fraser Drive to control access location in accordance with approved Temporary Site Access Traffic Management Plan;
- supply and install temporary signs, bollards and barriers as required.

8.0 Cultural Heritage

Everick undertook searches of the relevant Aboriginal and historic heritage registers. A search of applicable historic heritage registers identified no items of cultural heritage significance within the Subject Lands. A search requested on 5 October 2009 of the Department of Environment, Climate Change and Water ('DECCW') Aboriginal Heritage Information Management System ('AHIMS') identified 40 recorded sites for the broader search area. None were recorded within the Subject Lands. There are no Indigenous places within the Subject Lands listed in other heritage registers.

A survey for Aboriginal and historic cultural heritage was carried out on 22 September 2009 confirming the majority of the Subject Lands were highly disturbed.

Everick engaged in consultation with the Aboriginal community of the Tweed and surrounding regions in accordance with the DECCW's Draft Interim Community Consultation Guidelines (2005) which involved the identification of Aboriginal persons who expressed an interest in the cultural heritage values of the Subject Lands. No secret or sacred sites were identified by the Aboriginal stakeholders within the Subject Lands and no items of Indigenous heritage were identified.

Recommendations: Indigenous Cultural Heritage

The following recommendations are based upon the results of the desktop review, field inspections and consultation with the Sites Officer of the Tweed Byron LALC and Aboriginal stakeholders. The recommendations are cautionary in nature.

Recommendation 1: Aboriginal Human Remains

It is recommended that if human remains are located at any stage during construction works within the Subject Lands, all works must halt in the immediate area to prevent any further impacts to the remains. The site should be cordoned off and the remains themselves should be left untouched. The nearest police station, the Tweed Byron LALC, and the DECCW Regional Office, Coffs Harbour are to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and the DECCW should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

- (a) work in the surrounding area is to stop immediately;
- (b) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;
- (c) an appropriately qualified archaeological consultant is to be engaged to identify the material; and
- (d) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the DECCW guidelines: *"Interim Community Consultation Requirements for Applicants"* (2005).

It is recommended that if Aboriginal cultural material is uncovered as a result of development activities within the Subject Lands, it is to be registered as a Site in the Aboriginal Heritage Information Management System (AHIMS) managed by the DECCW. Any management outcomes for the site will be included in the information provided to the AHIMS.

It is recommended that all effort must be taken to avoid any impacts on Aboriginal cultural heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent and the Aboriginal community.

There are no recommendations with regard to historic cultural heritage.

9.0 Waste Management and Disposal

The following strategies shall be adopted to ensure that waste generation is minimised and appropriately disposed of:-

- All domestic garbage and industrial waste shall be disposed of into proper industrial bins with lids for regular collection. Open or ground rubbish areas shall not be permitted;
- Contaminants shall be kept separate from general waste;
- The site shall be regularly cleaned and site rubbish and waste shall be disposed of in accordance with Local and State Government requirements;
- Waste oil, chemicals and other regulated waste shall be disposed of off site in accordance with the requirements of the Local Government and/or EP Agency;
- Hazardous wastes and contaminated material shall be disposed of in accordance with the requirements of the EP Agency – Hazardous Wastes and Contaminated Sites Section;
- Fuels, Oils or other hazardous materials shall be stored in a bunded area with a compacted base designed and constructed in accordance with AS1940;
- Tar paper shall be disposed of in an allocated landfill that is capable of accepting this type of waste;
- Waste will be prevented by ordering materials in correct sizes, obtaining materials in minimum or reusable packaging and requesting suppliers to take back used packaging (eg steel drums, pallets) for recycling;
- As far as practical, different types of wastes shall be placed into separate stockpiles;
- Domestic garbage shall be kept in rubbish bins with fitted lids. Such bins will be strategically located around the site;
- Waste of any kind shall not be buried on the site;
- Waste material shall not be deposited in waterways or where it can gain access to waterways;
- Material, soil or debris shall not be stored or dumped within the drip-line of trees that are to remain or within defined protected sites;
- Where possible, concrete trucks shall be washed at the Supplier's batching plant. Where trucks have to be washed on-site, concrete or cement wastes or washings shall not be discharged into waterways or drainage lines leading to waterways;
- Washout water from concrete supply trucks and pumping systems shall be collected in containers (eg steel drums, on-site sumps) and sent to a waste-water recycling depot. Where this is not practicable it shall be disposed of as a regulated waste;
- Vehicle and plant maintenance shall be carried out off-site if possible to reduce the potential for leakage of oil and fuel;

9.0 Waste Management and Disposal – Cont...

- Wash down of trucks and equipment shall be undertaken only where there are appropriate handling facilities, off-site where possible;
- There shall be no pre-coating or storage of aggregate on-site;
- Transfers or decanting of chemicals shall occur either within a bunded area at a stockpile site or on a compacted hardstand area within the site compound;
- Where it is necessary for bitumen trucks to have their spray bars cleaned on-site, this shall only occur at a specifically dedicated location;
- Empty steel drums shall be picked up by drum recycling companies for reprocessing or recycled through scrap metal dealers;
- Lubricating oil from construction vehicles shall be sent for recycling if practicable;
- Materials shall be obtained in reusable packaging where possible;
- Cleared trees and shrubs will be milled if the size and quality of the timber is sufficient. Alternatively they shall be mulched or used as firewood for the local community;
- Waste concrete, asphalt, metals, timber, pallets, soil, rock, plastic, bricks, tyres, polystyrene, cardboard and paper shall be sent for recycling where practicable;
- A hydrocarbon spill kit capable of containing or cleaning up a spill of 100 litres minimum shall be available on-site to contain any spills or leaks. Material from any clean-up operation shall be disposed of as regulated waste. The spill kit shall be replenished after each use;
- Upon completion of the works, the site shall be cleared and left in a clean and tidy condition.

10.0 Access and Security

The objective of any site access and security measures is to prevent unauthorised access to the works and to those parts of the site to which the Site Contractor has been given access, and thereby prevent any environmental problems.

Site access and security management measures also provide security to working zones.

This procedure concerns controlling access to the site to protect public safety and to minimise damage to the works. Controlling access will also assist in preventing vandalism of the works and plant and equipment including the unauthorised dumping of waste materials.

Control measures will typically consist of:-

- Supply and erect temporary chainmesh fencing to;
 - Areas of the site as shown on the approved drawings
 - Site compounds
- Supply and install all temporary signs, bollards and barriers in accordance with the approved drawings;
- Regularly inspect all fencing, and repair any defect promptly;
- Remove all temporary fencing and traffic control items at the end of the Contract, or sooner if no longer required and reinstate any affected areas.

11.0 Redundant Services

Due to the previous agricultural land uses on the site (banana plantation) there are no identified items of public infrastructure services on the site except for an existing 600mm dia trunk water main and existing 250mm dia sewer rising main which both traverse the northern boundary of the site. These existing trunk services will be incorporated in the future road construction of Broadwater Parkway. There will be no connection or alteration to these services during bulk earthworks of the site.

The only other existing services are private electrical and water services to existing farm sheds which will be terminated and removed during demolition work of the farm buildings prior to the earthworks operation.

12.0 Emergency and Complaints

12.1 Emergency Preparedness

Selected staff will be trained in emergency procedures for chemical spills, or other potential incidents, including use of spill kits to be provided on-site.

Appropriate spill kits shall be provided and maintained at all times.

In the event of an emergency the persons/authorities nominated on the Site Emergency Sheet (to be prepared by the Site Contractor as part of Construction Workplace Plan) shall be notified as applicable.

The Site Emergency Sheet Evacuation Procedure and Emergency Evacuation Plan (Mustering Points) is to be included with, and displayed in accordance with the procedure in the Construction Workplace Plan.

12.2 Evacuation Procedure

The Project Manager or nominee prepares an Emergency Evacuation Procedure and a plan showing the location of the mustering points (s) in the event of an evacuation.

Factors to consider include but may not be limited to:-

- The location of the worksite;
- The number of areas worked on at any one time;
- The availability of a large enough open/protected area to house all persons evacuated;
- The topography of the site (ease of travel to the marshalling area).

The nominated Site Representative shall ensure that all on-site employees are familiar with emergency evacuation procedures and location of the marshalling areas through induction when they commence on-site.

If it becomes necessary to evacuate the site, the Evacuation Coordinator shall implement the appropriate Evacuation Procedure in accordance with the Site Contractor's Construction Workplace Plan.

12.0 Emergency and Complaints – Cont...

12.3 Complaints

- The Site Contractors Representative shall notify the Project Manager of all site environmental incidents, issues, concerns and complaints;
- Complaints from other parties shall be directed to the Project Manager for investigation;
- The Project Manager shall complete the Environmental Incidents, Issues, Concerns and Complaints Form & Register (included in the Construction Workplace Plan) and include the following detail:-
 - i) Date & Time
 - ii) Location
 - iii) Apparent Cause
 - iv) Corrective Action, if relevant
 - v) Other relevant information
- The Project Manager shall nominate corrective action, if required;
- Completed corrective action shall be documented;
- Copies of the report shall be distributed to the relevant parties indicated on the report;
- The relevant administering authority shall be notified by the Project Manager of any incident where required by the relevant legislation. Where this occurs, the Principal's Representative shall also be provided with the same information as that provided to the relevant administering authority;
- The Project Manager shall notify the Principal's Representative of any incident that causes or has the potential to cause unauthorised material or serious environmental harm;
- All occurrences shall be documented in the Environmental Incident/Complaint Register.

13.0 Consultation and Liaison Officer

The delegated liaison officer for consultation with adjacent property owners will be the Principal's Representative as follows (or his nominated delegate): -

Metricon Project Manager: Mr Shaun Nicholson
Address: Suite 205, Level 2 Eastside
232 Robina Town Centre Drive
Robina QLD 4226
Telephone: 07-5501 7222
Fax: 07-5562 5634
Mobile: 0422 814 936
Email: shaunnicholson@metricon.com.au

Appendix 1

- B & P Surveys Drawing 18053B
Sheet 1 of 8 Rev H Site Location

2017 National Planning Policy Framework (NPPF) Approved
June 2019

Appendix 2

- B & P Surveys Drawing 18053B
Sheet of 2 of 8 Rev H
Proposed Subdivision

Appendix 2 - B & P Surveys Drawing 18053B, Sheet of 2 of 8 Rev H
Proposed Subdivision



PROPOSED RIGHT OF CARRIAGEWAY
OVER INITIAL ENTRANCE ROAD
IN FAVOUR OF THEED SHIRE COUNCIL
- TO BE EXTINGUISHED ONCE THE ESTATE
HAS BEEN CONNECTED TO BROADWATER
PARKWAY AND BROADWATER PARKWAY
HAS BEEN CONSTRUCTED TO FRASER DRIVE

INITIAL ROAD ACCESS POINT VIA TEMPORARY ROAD (RIGHT OF CARRIAGEWAY) - ROAD TO BE REMOVED AND LOTS CREATED UPON CONSTRUCTION AND CONNECTION OF THE ESTATE TO BROADWATER PARKWAY & BROADWATER PARKWAY TO FRASER DRIVE. (REFER DIAGRAM)

[illegible]

PROPOSED STAGING		
STAGE 1	LOTS 108 - 156	
STAGE 2	LOTS 160 - 212	
STAGE 3	LOTS 216 - 233	(INCLUDES 1 PUBLIC RESERVE)
STAGE 4	LOTS 237 - 254	
STAGE 5	LOTS 401 - 436	(INCLUDES 1 PUBLIC RESERVE)
STAGE 6	LOTS 439 - 456	
STAGE 7	LOTS 459 - 476	(INCLUDES 1 PUBLIC RESERVE)
STAGE 8	LOTS 479 - 514	(INCLUDES 1 PUBLIC RESERVE AND 1 RESIDENT LOT)
STAGE 9	LOTS 517 - 552	
STAGE 10	LOTS 555 - 590	
STAGE 11	LOTS 593 - 628	
STAGE 12	LOTS 631 - 666	
STAGE 13	LOTS 669 - 704	
STAGE 14	LOTS 707 - 742	
STAGE 15	LOTS 745 - 780	
STAGE 16	LOTS 783 - 818	
STAGE 17	LOTS 821 - 856	
STAGE 18	LOTS 859 - 894	
STAGE 19	LOTS 897 - 932	
STAGE 20	LOTS 935 - 970	
STAGE 21	LOTS 973 - 1008	
STAGE 22	LOTS 1011 - 1046	
STAGE 23	LOTS 1049 - 1084	
STAGE 24	LOTS 1087 - 1122	
STAGE 25	LOTS 1125 - 1160	
STAGE 26	LOTS 1163 - 1198	
STAGE 27	LOTS 1201 - 1236	
STAGE 28	LOTS 1239 - 1274	
STAGE 29	LOTS 1277 - 1312	
STAGE 30	LOTS 1315 - 1350	
STAGE 31	LOTS 1353 - 1388	
STAGE 32	LOTS 1391 - 1426	
STAGE 33	LOTS 1429 - 1464	
STAGE 34	LOTS 1467 - 1502	
STAGE 35	LOTS 1505 - 1540	
STAGE 36	LOTS 1543 - 1578	
STAGE 37	LOTS 1581 - 1616	
STAGE 38	LOTS 1619 - 1654	
STAGE 39	LOTS 1657 - 1692	
STAGE 40	LOTS 1695 - 1730	
STAGE 41	LOTS 1733 - 1768	
STAGE 42	LOTS 1771 - 1806	
STAGE 43	LOTS 1809 - 1844	
STAGE 44	LOTS 1847 - 1882	
STAGE 45	LOTS 1885 - 1920	
STAGE 46	LOTS 1923 - 1958	
STAGE 47	LOTS 1961 - 1996	
STAGE 48	LOTS 1999 - 2034	
STAGE 49	LOTS 2037 - 2072	
STAGE 50	LOTS 2075 - 2110	
STAGE 51	LOTS 2113 - 2148	
STAGE 52	LOTS 2151 - 2186	
STAGE 53	LOTS 2189 - 2224	
STAGE 54	LOTS 2227 - 2262	
STAGE 55	LOTS 2265 - 2300	
STAGE 56	LOTS 2303 - 2338	
STAGE 57	LOTS 2341 - 2376	
STAGE 58	LOTS 2379 - 2414	
STAGE 59	LOTS 2417 - 2452	
STAGE 60	LOTS 2455 - 2490	
STAGE 61	LOTS 2493 - 2528	
STAGE 62	LOTS 2531 - 2566	
STAGE 63	LOTS 2569 - 2604	
STAGE 64	LOTS 2607 - 2642	
STAGE 65	LOTS 2645 - 2680	
STAGE 66	LOTS 2683 - 2718	
STAGE 67	LOTS 2721 - 2756	
STAGE 68	LOTS 2759 - 2794	
STAGE 69	LOTS 2797 - 2832	
STAGE 70	LOTS 2835 - 2870	
STAGE 71	LOTS 2873 - 2908	
STAGE 72	LOTS 2911 - 2946	
STAGE 73	LOTS 2949 - 2984	
STAGE 74	LOTS 2987 - 3022	
STAGE 75	LOTS 3025 - 3060	
STAGE 76	LOTS 3063 - 3098	
STAGE 77	LOTS 3101 - 3136	
STAGE 78	LOTS 3139 - 3174	
STAGE 79	LOTS 3177 - 3212	
STAGE 80	LOTS 3215 - 3250	
STAGE 81	LOTS 3253 - 3288	
STAGE 82	LOTS 3291 - 3326	
STAGE 83	LOTS 3329 - 3364	
STAGE 84	LOTS 3367 - 3402	
STAGE 85	LOTS 3405 - 3440	
STAGE 86	LOTS 3443 - 3478	
STAGE 87	LOTS 3481 - 3516	
STAGE 88	LOTS 3519 - 3554	
STAGE 89	LOTS 3557 - 3592	
STAGE 90	LOTS 3595 - 3630	
STAGE 91	LOTS 3633 - 3668	
STAGE 92	LOTS 3671 - 3706	
STAGE 93	LOTS 3709 - 3744	
STAGE 94	LOTS 3747 - 3782	
STAGE 95	LOTS 3785 - 3820	
STAGE 96	LOTS 3823 - 3858	
STAGE 97	LOTS 3861 - 3896	
STAGE 98	LOTS 3899 - 3934	
STAGE 99	LOTS 3937 - 3972	
STAGE		

[illegible][illegible]

ALTITUDE
ASPIRE

Appendix 3

- Earthworks Cut and Fill Shading
Plan and Bulk Earthworks Staging
Plan Drawings 09-374-SK2702,
SK2703 and SK2763



DESIGN SURFACE CONTOURS	— 12 —
EXISTING SURFACE CONTOURS	— 12 —
LIMIT OF EARTHWORKS	

ALTITUDE 1 - FRASER DRV. TERRANORA

CUT & FILL SHADE PLAN

SHEET 1 OF 2

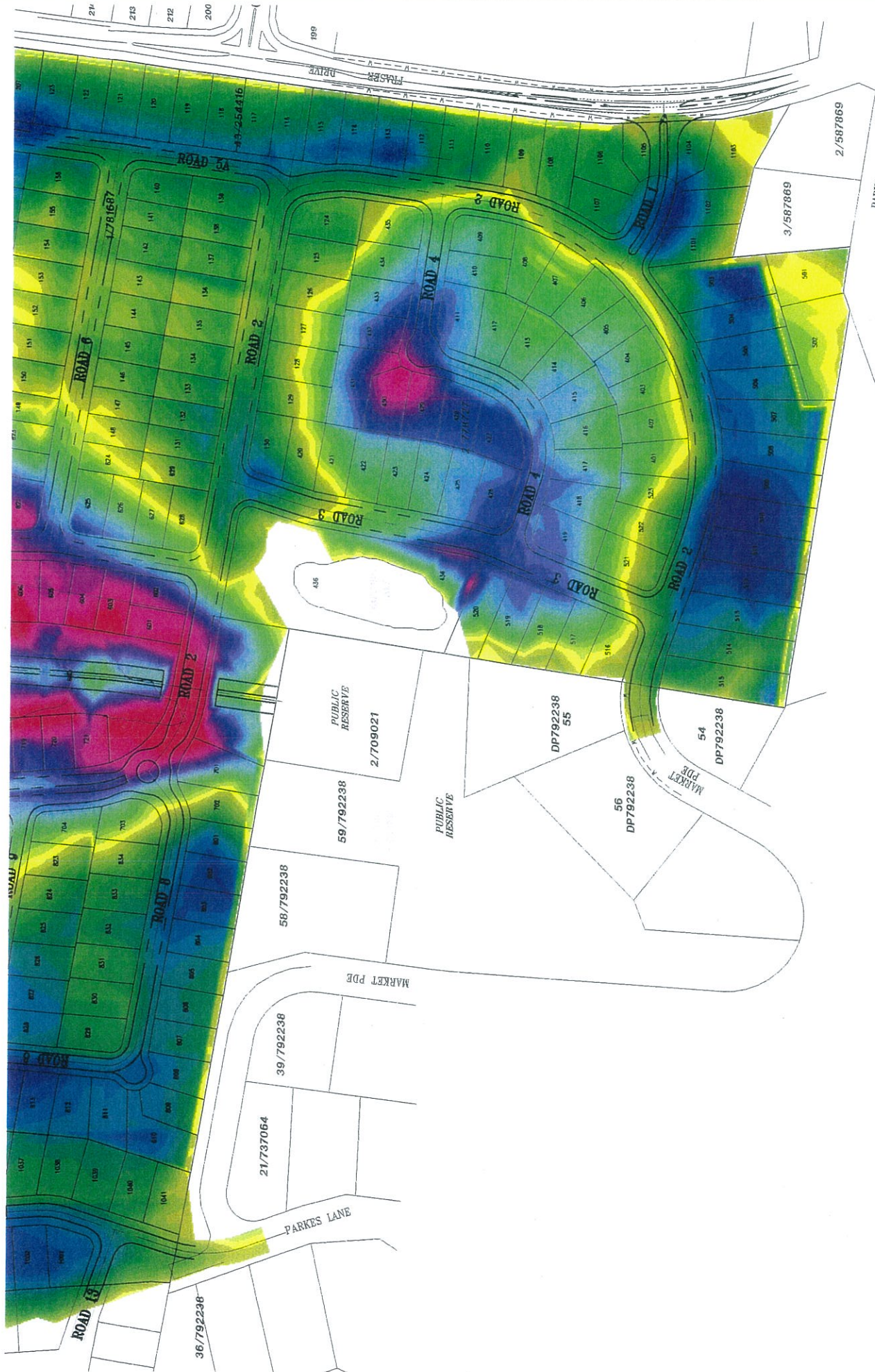
D.A.PROJECT APPL No. MP09-0166

09-374



CUT/FILL LEGEND

CUT 0m to 1m	FILL 0m to 1m
CUT 1m to 1.5m	FILL 1m to 1.5m
CUT 1.5m to 2m	FILL 1.5m to 2m
CUT 2m to 2.5m	FILL 2m to 2.5m
CUT 2.5m to 3m	FILL 2.5m to 3m
CUT 3m to 3.5m	FILL 3m to 3.5m
CUT 3.5m to 4m	FILL 3.5m to 4m
CUT 4m to 4.5m	FILL 4m to 4.5m
CUT 4.5m to 5m	FILL 4.5m to 5m
CUT 5m to 5.5m	FILL 5m to 5.5m
CUT 5.5m to 6m	FILL 5.5m to 6m
CUT 6m to 6.5m	FILL 6m to 6.5m
CUT 6.5m to 7m	FILL 6.5m to 7m
CUT 7m to 7.5m	FILL 7m to 7.5m
CUT 7.5m to 8m	FILL 7.5m to 8m
FILL 0m to 1m	FILL 8m to 8.5m
FILL 1m to 1.5m	FILL 8.5m to 9m
FILL 1.5m to 2m	FILL 9m to 9.5m
FILL 2m to 2.5m	FILL 9.5m to 10m
FILL 2.5m to 3m	FILL 10m to 10.5m
FILL 3m to 3.5m	FILL 10.5m to 11m
FILL 3.5m to 4m	FILL 11m to 11.5m
FILL 4m to 4.5m	FILL 11.5m to 12m
FILL 4.5m to 5m	FILL 12m to 12.5m
FILL 5m to 5.5m	FILL 12.5m to 13m
FILL 5.5m to 6m	FILL 13m to 13.5m
FILL 6m to 6.5m	FILL 13.5m to 14m
FILL 6.5m to 7m	FILL 14m to 14.5m
FILL 7m to 7.5m	FILL 14.5m to 15m
FILL 7.5m to 8m	
FILL 8m to 8.5m	
FILL 8.5m to 9m	
FILL 9m to 9.5m	
FILL 9.5m to 10m	
FILL 10m to 10.5m	
FILL 10.5m to 11m	
FILL 11m to 11.5m	
FILL 11.5m to 12m	
FILL 12m to 12.5m	
FILL 12.5m to 13m	
FILL 13m to 13.5m	
FILL 13.5m to 14m	
FILL 14m to 14.5m	
FILL 14.5m to 15m	



LEGEND

- DESIGN SURFACE CONTOURS
- EXISTING SURFACE CONTOURS
- LIMIT OF EARTHWORKS



METRICON (QLD) PTY LTD
ALTITUDE 1 - FRASER DRV, TERRANORA
CUT & FILL SHADE PLAN
SHEET 2 OF 2

SK2703

09-374

D.A. PROJECT APPL. No. MPO9-0166

17-11-2010

REVISION 0

17-11-2010

17-11-2010

BBradlees

CONSULTING

BRADLEES CONSULTING PTY LTD
 10/11-12/13
 10/11-12/13



PRELIMINARY EARTHWORKS VOLUMES

STAGE	CUT Vol. m ³	FILL Vol. m ³
1	137,900	31,800
2	63,700	117,000
3	320,200	347,300
TOTAL	521,800	496,100

NOTE:
EARTHWORKS VOLUMES ARE APPROXIMATE. SOLID
VOLUMES ONLY AND SUBJECT TO FINAL DETAIL
DESIGN.

LEGEND

- FILL 5m to 13.5m
- CUT 5m to 8.0m
- STAGE 1 EARTHWORKS
- STAGE 2 EARTHWORKS
- STAGE 3 EARTHWORKS

EARTHWORKS AREAS

TOTAL SITE AREA = 34.32 ha
 TOTAL AREA >5.0m HEIGHT = 1.67 ha
 FILL AREA >5.0m DEPTH = 4.38 ha*
 % OF TOTAL AREA >5.0m = 17.8%*
 * INCLUDES THE AREA OF FILL SPECIFIC TO
 THE RAISING AND FORMATION OF THE CENTRAL
 OPEN DRAIN = 3.15ha

METRICON (QLD) PTY LTD
 ALTITUDE 1 - FRASER DRV. TERRANORA
 EARTHWORKS STAGING
 PLAN

D:\PROJECT APPL. No. MP09-0166
 09-374

SK2763
 17-11-2010

B BradLees
 CONSULTING

Appendix 4

- “Stormwater Management Plan,
Proposed Residential Development
Altitude 1, Terranora, NSW”
Gilbert and Sutherland, April
2010

**Stormwater Management Plan
Proposed Residential Development
Altitude Aspire
Terranora, NSW**

Prepared for:
Metricon Qld. Pty Ltd

April, 2010

Document control

Document:	GJ0901-1_SMP_RAG1F.doc	Gilbert & Sutherland P/L ABN 56 077 310 840 Originating Office: Robina Eastside 5/232 Robina Town Centre Drive, Q4230 PO Box 4115, Robina Q4230 Telephone 07 5578 9944 Facsimile 07 5578 9945 robina@access.gs Also at Kawana and Brisbane
Title:	Stormwater Management Plan Altitude Aspire, Terranora NSW	
Project Manager:	Allan Genn	
Author:	Allan Genn	
Client:	Metricon Qld. Pty Ltd	
Client Contact:	Shaun Nicholson	
Client Reference:		
Synopsis:	This management plan supports the Stormwater Assessment for the Altitude Aspire development. It establishes responsibilities and procedures for the management of erosion, sediment and stormwater during the construction and operational phases of this project.	

Revision History

Revision #	Date	Edition By		Approved By	
1	22/04/10	AGG		LJV	NMS
2					

Distribution

	Revision Number									
Distribution	1	2	3	4	5	6	7	8	9	10
Metricon	1									
G&S file and library	2									

GJ0901-1_SMP_RAG1F.doc

Summary

Metricon Qld. Pty Ltd (Metricon) commissioned Gilbert & Sutherland Pty Ltd (G&S) to prepare a Stormwater Assessment and Stormwater Management Plan (SWMP) for the proposed residential subdivision known as Altitude Aspire at Terranora Urban Release Area E, Terranora, New South Wales.

This Stormwater Management Plan provides procedures aimed at achieving site specific stormwater quality objectives during the construction and operational phases. Ideally it should be included in the contract documents for the earthworks, roadworks and drainage construction works in this project.

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