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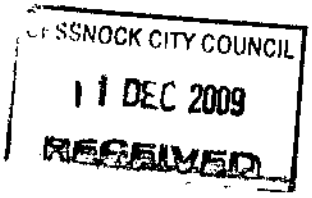
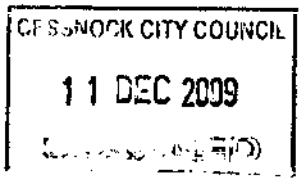


10th December 2009
Our Ref: 0034.ML/CCC-L08-CK
Your Ref:

The General Manager
Cessnock City Council
P.O. Box 152
CESSNOCK NSW 2324



ATTENTION: THE GENERAL MANAGER

Dear Sir,

RE: DRAFT LOCAL ENVIRONMENTAL PLAN (LEP) 2009

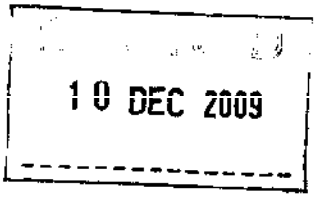
Attached please find a submission on behalf of our clients in respect to the inclusion of Lot 7, DP 263182 and Lot 28, DP 844871 Elrington Road, Elrington.

Whilst our clients support the overall objectives of the draft Local Environmental Plan we respectfully request the inclusion of the afore mentioned lands to be rezoned from 1(a) Rural "A" Zone to R5 – Large Lot Residential and not RU2– Rural landscape as described in the attached submission.

We would welcome the opportunity on behalf of our clients to meet with Council to discuss the submission and specifically the sites nominated for inclusion within the Draft Local Environmental Plan 2009.

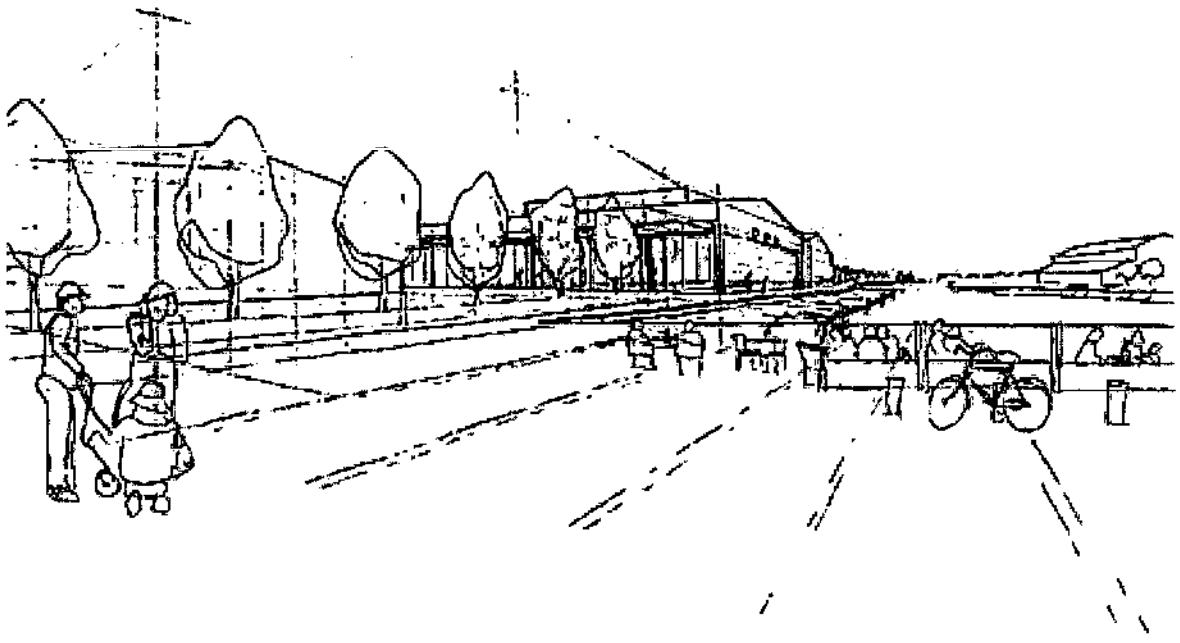
Yours faithfully,

MARK LEEK
Att/Encl



CESSNOCK DRAFT LEP 2009 & CITY WIDE SETTLEMENT STRATEGY SUBMISSION

LOT 7, DP 263182 & LOT 28, DP 844871 – ELRINGTON ROAD ELRINGTON



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APPENDICES

1.0 INTRODUCTION

Photo of Subject Site

Council placed the draft Local Environmental Plan (LEP) 2009 documentation on exhibition from 27th July 2009 to 12th October 2009. Exhibition was extended to December 11th 2009.

During the extended exhibition period Council have sought public comment on the amended Local Environmental Plan the proposed Development Control Plan and the draft City Wide Settlement Strategy.

The submission seeks the inclusion of the subject land within the draft Local Environmental Plan to allow the lands rezoning to permit large lot residential subdivision and therefore the lands logical inclusion within the City Wide Settlement Strategy.

2.0 REGIONAL CONTEXT

The Cessnock Local Government Area sits within the Lower Hunter Region which is an area with significant potential for ongoing economic and population growth.

The area was considered within the NSW Department of Planning Lower Hunter Regional Strategy, October 2006.

The Elrington area sits within an existing rural/residential context within the broad brush mapping of the strategy. The mapping does not nominate future expanded release areas for the site but the retention of the rural context containing the former Elrington Industries industrial buildings.

The strategy also provides capacity for a projected 66,000 new jobs in the region. Whilst the bulk (85%) of those jobs are expected to be within identified employment zones and larger centres the commercial, and more broadly the local employment generated by the lands subsequent development stimulates the local/centres economy and will provide significant employment opportunities for the more local rural localities.

Further, the Regional Strategy seeks to promote the maximizing of home based and localized employment.

The strategy also seeks to ensure a mix of housing types in proximity to employment opportunities to provide necessary labour locally.

With the site location in close proximity to major employment lands to the north east being Hunter Economic Zone (HEZ) provides a unique opportunity to house to a degree, that labour. The subject site and its proposed future development will assist to achieve the outcomes enunciated within the Lower Hunter Regional Strategy.

3.0 LOCAL CONTEXT

The subject site is located on the southern side of Lake Road (Main Road 220) approximately 2.5 kilometres to the south east of the village of Kearsley at Elrington. Figure 1 shows the site location.

The land comprises Lot 7, DP 2631892 of area 5.61 hectares and Lot 28, DP 844871 of area 36 hectares providing a combined area of 41.61 hectares.

Lot 28 surrounds Lot 7 which is served by a Right of Carriageway 20.12 metres wide from the termination of Elrington Drive.

The configurations of the Deposited Plans can be seen as Appendix A.

The land has direct frontage to Elrington Drive and contains a right of carriageway 20.12 metres wide to service adjoining Lot 29 to the west.

The land is predomently cleared and contains isolated trees throughout with some more moderate isolated stands or groups of vegetation on the more eastern and southern slopes. There is a large ephemeral watercourse passing generally south east to north west through the site and a further low depression in the south west to north west meeting the major watercourse toward the north west of the site. The topography of the site can be seen as Figure 2.

Structural improvements on the land and generally on Lot 7 comprise the former Elrington Industries and Elrington Colliery site buildings including machinery shed, bathhouse, stables and workshop. Other improvements include bitumen access road within the right of carriageway and a small reservior upon the ridge to the east which is contained within an easement for watermain of variable width and known as Lot 8, DP 263182 having an area of 200m².

The land has been formerly occupied by Elrington Colliery, Elrington Industries and general storage.

Figure.1 – *Site Location Extract from Google Mapping*

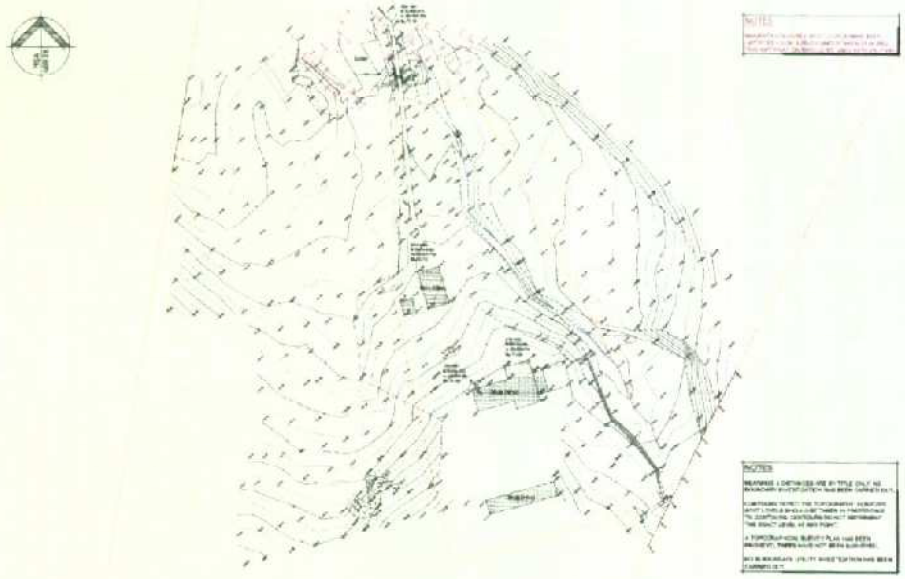


Figure.2 – *Topography Map*

4.0 BACKGROUND

The subject site has undergone significant investigation over very many years including previous consideration and resolution by Council to rezone the land from rural containing industrial uses to rural residential/large lot residential uses.

Early investigations over the land included:-

1. Heritage Study - HLA Envirosciences, July 1998.
2. Land Capability Survey - HLA Envirosciences, February 1999.
3. Flora & Fauna Assessment - Environmental Planning & Appraisal, March 1999.
4. Preliminary Contamination Assessment - HLA Envirosciences, March 1999
5. Assessment of Habitat Potential (bats) - Andrews Neil, May 2001.

These reports were previously submitted to Council in 2002, 2003 and 2006 in earlier submissions and is not repeated within this report.

Council considered at its meeting of 31st May 1989 the potential for redevelopment of all land then owned by Elrington Industries. Council resolved to support the first stage rezoning of land fronting Lake Road and Elrington Road to rural residential. The land was rezoned and subdivision approval was granted for seven (7) rural residential lots in 1991. Those lots adjoined existing rural residential development in Jacaranda Grove containing the former colliery dwellings and developed lots.

Application was made to have the subject land then occupied by Elrington Industries rezoned from Rural 1(a) zone to an industrial zone to facilitate the intensification of the then existing industrial use of the site. Council resolved at its meeting of 16th June 1993 not to support the rezoning of the land for industrial uses but to reaffirm the initial use as rural residential.

The owners sought the reuse of the existing buildings on the subject land via development application for a metal foundry in September 1996. Council resolved not to support the Development Application and refused the application due to the likelihood of the proposal having an adverse impact on the quality of life of the existing Elrington residents and the land requiring continued existing use rights in order for the site to have the ability to be used for continuing industrial purposes.

At Councils meeting of 18th June 1997 a report considered the future uses of the site. The report considered various options for the use of the land and resolved to support 'in principle' the use of the land for the purposes of Rural Residential Development following rezoning of the land (Council Minute No. 525 of 6th June 1997).

A development application was sought and Council subsequently approved an application to partially demolish some of the existing structures on the land on 23rd January 2002, DA-8/2000/263/1. This application was considered before full Council. Together with the approval to demolish, Council again resolved to support the use of the land for rural residential purposes. The partial demolition of buildings on the site formed an integral first stage of this future development.

A further development application was lodged to Council for the adaptive re-use of the former Elrington Colliery buildings to contain an earthmoving office and workshop and storage/servicing facilities. Council considered the matter at its meeting of 6th November 2002 and resolved to refuse the application generally on the grounds of likely impact of the development on the locality and heritage concerns.

Council have formally considered the use of the land for rezoning to rural residential to permit subdivision into rural residential lots and supported this use on at least three (3) occasions.

In consideration of the rezoning application over the land in June 1997 Council resolved to support in principle the adaptive reuse of the former Elrington Industries and their surrounding land for rural residential uses.

This in principle support was predicated on nine (9) basic requirements as follows:-

1. Preparation of a Conservation Management Plan for buildings.
2. Structural engineering report for the buildings.
3. Land capability report for the subdivision.
4. Flora and Fauna report.
5. Contamination report.
6. Safety considerations of past mining.
7. Compliance with Section 90 considerations.
8. Amenity of surrounding residents.
9. All studies are to be prepared by appropriate personnel.

All documentation to satisfy the above requirements was prepared save for Item 1 which required further detailed investigation of possible adaptive reuse of the existing structures.

A further rezoning application was submitted to Council in May 2002. This application sought the rezoning of the land from Rural 1(a) to Rural Residential 1(c) small holdings. The application to rezone the land was deferred pending resolution of Item 1 and Council advised "the application will stand deferred until the receipt of the required information" that information being the preparation of a Conservation Management Plan for the adaptive reuse of the buildings.

Subsequently Council resolved to place the Cessnock City Wide Settlement Strategy on exhibition in May 2003. A detailed submission was provided to Council to include the subject land for rezoning to rural residential purposes in accordance with Councils previous resolutions.

The subject land was omitted from the consideration for inclusion within the Cessnock City Wide Settlement Strategy (CWSS).

Council further considered the application to rezone the land at its meeting of 22nd November 2006 whereupon the application was deferred pending further information being provided by the applicant in respect to heritage/building re-use.

A detailed heritage report for the adaptive reuse of the existing buildings which included design plans, was prepared for the site by Insite Heritage Pty Ltd in February 2009.

That report unfortunately was caught within the timing of Councils Draft Development Control Plan – Heritage guidelines being prepared as part of the Draft Cessnock Local Environmental Plan 2008 and as a result underwent significant delays.

The heritage report demonstrates the adaptive reuse of the site buildings and locality and the recommendations included therein have been designed into the concept subdivision. These include:-

1. The retention of structures to be adapted for dwellings.
2. Retention of outbuilding structures.
3. Retention of driveway and tree avenue to the former bathhouse.
4. Retention of the brick floor of the machinery workshop.

A photographic record of the site buildings as recommended by the heritage report has subsequently been undertaken and is available for inspection.

Councils current City Wide Settlement Strategy and the Draft Local Environmental Plan considered eleven (11) spot rezonings for inclusion within the Local Environmental Plan. The subject site was however omitted despite significant further investigation and support by three previous Council resolutions.

Council by letter of 21st September, following a public meeting to consider the current City Wide Settlement Strategy, became aware of the omission and sought further updated information to support the current proposal to rezone the land. This correspondence can be seen as Appendix B.

Clearly Council have supported the rezoning of the land to permit large lot (rural residential uses) over many years and given the current requests for additional information and the previous refusals of proposed commercial/industrial uses of the site the subject land should be considered for inclusion within the current City Wide Settlement Strategy as a further spot rezoning.

The land should not be zoned RU2 – Rural Landscape as proposed but should be zoned R5 – Large Lot Residential.

5.0 EXISTING ZONING

The land is currently zoned 1Rural 1(a) Rural 'A' Zone. The objectives of that zone are as follows and Appendix C shows the current zoning of the land.

1 Objectives of zone

(a) to enable the continuation of existing forms of agricultural land use and occupation,

(b) to ensure that potentially productive land is not withdrawn from production.

(c) to encourage new forms of agricultural land use,

(d) to enable other forms of development which are associated with rural activity and which require an isolated location, or which support tourism and recreation, and

(e) to ensure that the type and intensity of development is appropriate in relation to:

(i) the rural capability and suitability of the land,

(ii) the preservation of the agricultural, mineral and extractive production potential of the land,

(iii) the rural environment (including scenic resources), and

(iv) the costs of providing public services and amenities.

2 Without consent

Agriculture (other than animal boarding, breeding or training establishments, pig keeping establishments, feed lots or poultry farming establishments); commercial vineyards; forestry; stables.

3 Only with consent

Any purpose other than a purpose included in item 2 or 4.

4 Prohibited

Advertising structures; amusement parks; automotive uses; boarding houses; bulk stores (other than those associated with an agricultural use); commercial premises (other than those primarily intended to provide services to tourists); heliports; industries (other than home industries or rural industries); junk yards; liquid fuel depots; mortuary chapels; motor showrooms; multiple dwellings; recreation facilities (other than those ancillary or related to a tourist recreation facility); residential flat buildings; shops (other than those primarily intended to provide services to tourists or general stores); transport terminals (other than the storage and servicing of vehicles associated with the occupation of the owner); warehouses.

The current zoning of the land does not permit the subdivision into rural residential lots as proposed. Consequently the rezoning of the land is required.

The land should more logically be zoned R5 – Large Lot Residential.

6.0 CESSNOCK LOCAL ENVIRONMENTAL PLAN 2009

Council exhibited the Draft Local Environmental Plan document from 27th July 2009 to 11th December 2009. The Local Environmental Plan proposes the alteration of the zone of the subject site and surrounds from 1(a) Rural 'A' Zone to a RU2 – Rural landscape Zone.

1. The objectives of the RU2 Zone are:-
   - To encourage sustainable primary industry production by maintaining and enhancing
   - the natural resource base.
   - To maintain the rural landscape character of the land.
   - To provide for a range of compatible land uses, including extensive agriculture.
   - To enable other forms of development which are associated with rural activity and
   - which require an isolated location, or which support tourism and recreation.

   - To ensure that the type and intensity of development is appropriate in relation to:
     - the rural capability and suitability of the land;
     - the preservation of the agricultural, mineral and extractive production potential of the land;
     - the rural environment (including scenic resources); and
     - the costs of providing services and amenities.

2 Permitted without consent
Extensive agriculture; home occupations; horticulture.

3 Permitted with consent
Agricultural produce industries; cellar door premises; dual occupancies; dwelling houses; environmental protection works; farm buildings; health consulting rooms; hospitals; livestock processing industries; neighbourhood shops; pubs; recreation facilities (indoor) (in association with tourist or visitor accommodation); restaurants; roads; roadside stalls; rural industries; sawmill or log processing works; stock and sale yards; any other development not specified in item 2 or 4.

4 Prohibited
Attached dwellings; boat repair facilities; brothels; business premises; canal estate developments; car parks; charter and tourism boating facilities; depots; entertainment facilities; exhibition homes; exhibition villages; freight transport facilities; hazardous storage establishments; health services facilities; heliports; highway service centres; home occupations (sex services); industrial retail outlets; industries; liquid fuel depots; marinas; moorings; mortuaries; nightclubs; offensive storage establishments; office premises; passenger transport facilities; residential accommodation; retail premises; semi-detached dwellings; sex services premises; storage premises; transport depots; truck depots; vehicle body repair workshops; vehicle repair stations; warehouse or distribution centres; wholesale supplies.

The RU2 zone currently proposed for the land retains the 40 hectare lot size minimum as defined within sheet 11 of the minimum lot size plan.

A more logical zone for the land to ensure the site building restoration are funded for preservation and adaption for reuse is a R5 zone – Large Lot Residential.

1 The objectives of the zone are:-

- To provide residential housing in a rural setting while preserving and minimizing impacts on, environmentally sensitive locations and scenic quality.
- To ensure that large residential allotments do not hinder the proper and orderly development of urban areas in the future.
- To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.

2 Permitted without consent
Home occupations.

3 Permitted with consent
Bed and breakfast accommodation; dwelling houses; extensive agriculture; health consulting rooms; horticulture; medical centres; neighbourhood shops; roads; sewerage reticulation systems; any other development not specified in item 2 or 4.

4 Prohibited
Agriculture; airstrips; attached dwellings; boarding houses; boat launching ramps; boat repair facilities; boat sheds; brothels; business premises; canal estate development; car parks; cemeteries; charter and tourism boating facilities; crematoriums; depots; electricity generating works; emergency services facilities; entertainment facilities; exhibition homes; exhibition villages; extractive industries; farm buildings; freight transport facilities; function centres; group homes; hazardous storage establishments; helipads; highway service centres; home occupations (sex services); industrial retail outlets; industries; information or education facilities; jetties; liquid fuel depots; marinas; mines; mining; moorings; mortuaries; multi dwelling housing; nightclubs; offensive storage establishments; office premises; passenger transport facilities; recreation facilities (indoor); recreation facilities (major); recreation facilities (outdoor); registered clubs; residential flat buildings; retail premises; rural supplies; rural worker's dwellings; semi-detached dwellings; seniors housing; service stations; sewerage systems; sex service premises; shop top housing; storage premises; tourist and visitor accommodation; transport depots; truck depots; vehicle body repair workshops; vehicle repair stations; warehouse or distribution centres; waste management facilities; waste or resource management facilities; water recreation structures; waterbodies (artificial); wholesale supplies.

By ascribing an R5 – Large Lot Residential Zone to the subject land provides a consistency with the adjoining lands to the north and east and precludes the future use of the site for such commercial, industrial or intensive agricultural purposes which are all permissible within the zone. Such uses include – Agricultural produce industries, livestock processing industries, indoor recreation facilities, rural industries, sawmill or log processing works, stock and sale yards etc.

These permitted uses in immediate proximity to existing large lot residential, which could occupy the existing structures are incompatible. However if the site is to be considered for an R5 Zone then specific buffers and setbacks could be introduced within the subdivision to provide suitable protection from further surrounding RU2 zoned land uses.

A concept subdivision layout has been prepared over the site which provides for thirty one (31) 1 hectare and greater lots and can be seen as Appendix D.

7.0 PRINCIPAL DEVELOPMENT STANDARDS

Part 4 of the Cessnock Local Environmental Plan defines the following:-

Minimum lot area for an R5 Large Lot Residential Zone. The adjoining rural residential area is affected by the T3 buffer as shown on the zone plan. This buffer requires a minimum lot area of 2 hectares for lots which are not capable of being serviced with reticulated water and sewer. This is an anomaly given that the existing lots within this area are all generally a minimum of 1 hectare and 1 hectare lots have sufficient area to sustain either reticulated or roofwater capture and on site disposal. Consequently it is considered that Clause 4(A) T3 should read 1 hectare rather than 2 hectare. This would support consistency of the subject land with that existing on the adjoining land.

8.0 SECTION 117 DIRECTIONS

The minister for planning may direct a public authority or persons having functions under this act or an environmental planning instrument to exercise those functions as or within those times as specified in the directions (117(2)). The minister may direct a Council to exercise its functions to include in a planning proposal prepared by the Council which will achieve or give effect to such principles, or such aims, objections or policies as are specified in the directions.

The following Section 117(2) directions specifically apply to the subject land and its proposed use.

8.1 PLANNING FOR BUSHFIRE PROTECTION

This direction applies to bushfire prone land and the preparation of a draft Local Environmental Plan in a bushfire prone area.

The subject land from Councils bushfire mapping, see Figure 3, is bushfire prone and accordingly consideration to this environmental impact is required.

Appendix E shows a bushfire hazard threat assessment report by Mr R. Free. The report speaks to the potential of the site for development and specifically the proposed concept subdivision layout. The proposal can easily comply with the requirements for Planning for Bushfire Protection 2006.

The report concludes that "the threat of bushfire should not be a barrier to consent for the proposed development".

The report can be seen in its entirety as Appendix E.

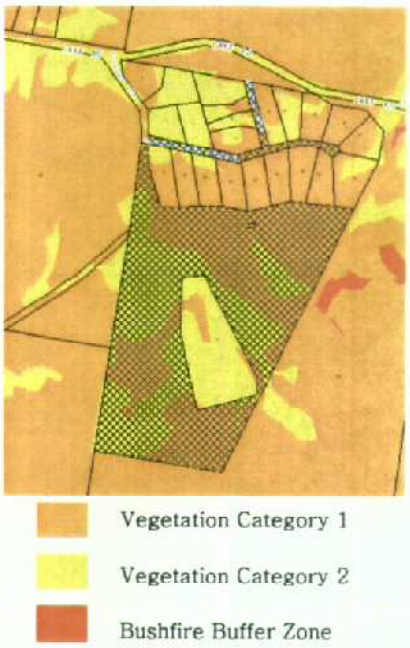


Figure 3. - *Bushfire Extract from CCC maps*

8.2 FLOOD PRONE LAND

The objective of this direction is to ensure that development of flood prone land is in accordance with the NSW State Governments Flood Prone Land Policy.

The subject site is affected by an ephemeral watercourse, which, during major storm events, to a minor extent floods. The concept subdivision layout retains the watercourse within the larger residue lots containing the existing structures and therefore the proposed developable lands are flood free. The natural watercourse does not break the banks of the creek course. This has been evidenced in the June 2007 storm event.

The subdivision concept plan shows the location of the watercourse which has been defined by field survey. The subdivision concept plan can be seen as Appendix D. Previous assessment of the contributing catchment discloses that the Q10 flow is 10.2m³/sec and the corresponding Q100 flow is 22m³/sec. The calculations show that the surface water levels are approximately 71.8 to 74.4 metres AHD in the 100 year event with corresponding bank levels being a minimum from RL 73 metres to RL 78 metres. All concept lots are above flood level with suitable building envelopes.

8.3 MINE SUBSIDENCE AND UNSTABLE LAND

The objectives of this direction is to prevent damage to life, property and the environment on land that is identified as unstable or potentially subject to mine subsidence.

A geotechnical assessment of the site was undertaken by Geotech Solutions Pty Ltd, the report can be seen as Appendix F. The report determined from historical research data that whilst the site has a history of former subterraneous mining the depths of mining being approximately 330 metres does not preclude the use of the site as proposed. Further, correspondence with the Department of Mineral and Energy in 1998 is provided who inspected the standard of surface structures, particularly capping of the shaft and tunnel. Their report recommended some remedial work and demolition. Correspondence from Minerals and Energy can be seen as Appendix G.

The site therefore has minimal limitations from former subterraneous mining. Further, the land is not within a proclaimed mine subsidence area in accordance with Section 15(1) of the Mine Subsidence Compensation Act 1961.

The mine subsidence district of Tomalpin is located to the north of Lake Road (MR 220) al Elrington. Appendix H shows the closest mine subsidence district of Tomalpin.

8.4 ACID SULPHATE SOILS

This direction is to avoid significant adverse environmental impacts from the use of land containing Acid Sulphate Soils.

In assessing the current mapping of Acid Sulphate Soils from the Department of Environment, Climate Change and Water the subject site is shown to be not adversely impacted from this source. Given that Acid Sulphate Soils occur generally below RL 5 metres AHD the subject sites elevation would preclude their occurance.

The geotechnical assessment of the site development area also confirms the lack of this constraint.

8.5 HERITAGE CONSERVATION

The direction objective is to conserve items, objects and places of environmental heritage significance.

The former buildings and place is listed within the Regional environmental Plan Heritage as an item of local significance.

There have been two (2) heritage reports prepared for the site. One by HLA Enviroscience in July 1998 and a further more current study in February 2009.

The concept subdivision layout incorporates the recommendations of the 2009 heritage report as follows:-

- Retention of existing structures for adaptive reuse.
- Retention of existing out buildings within the curtlage of existing major structures.
- Retention of the structures on large rural residential lots.

- Retention of the existing access road treed avenue to the former bathhouse.
- The brick floor within the workshop to be retained as courtyard area on the existing office building to be connected as a rural dwelling.

The rezoning and subdivision of the land will provide capital to conserve and adapt the existing buildings and take the site from the derelict state to a functional heritage adapted site for rural dwelling uses.

The proposal meets the objectives of the 117 direction. A previously approved development consent to remove some of the structures with less heritage significance has been considered by the NSW Heritage Office and formally approved by Council. These buildings have been subsequently removed.

Prior to the buildings demolition a photographic representation of the buildings and site was undertaken in accordance with recommendation No. 6 of the heritage report. The heritage report can be seen in full as Appendix I.

8.6 RURAL LAND

This direction seeks to protect the agricultural production value of rural land and to facilitate the orderly and economic development of rural lands and related purposes.

The land has undergone a capability study carried out by HLA Envirosciences Pty Ltd in 1999. That study found that the majority of the site had slopes in the order of 5% to 10% with some slopes up to 15% in isolated areas. The land capability classifications ranged from Class III lands comprising a small area adjacent to the central creek line to Class VII(b) and VII(c) lands within the wooded ridge/slopes. The bulk of the land is Class IV, V and VI and therefore has limited potential for rural grazing and agriculture.

The full 1999 report has previously provided to Council in earlier documentation.

The Department of Agriculture Rural Land Classification Mapping. refer Appendix J, indicates that the site comprises predominately Class 4 land generally centrally through the site with a small area of Class 3 land to the north of the site adjacent to Jacaranda Grove and Class 15 land to the south of the site containing the low ridge slopes.

Clearly the predominant area of the subdivision does not contain prime agricultural lands and therefore the rezoning and development proposed does not alienate prime agricultural land.

The land also being a disturbed landscape and containing the former Elrington Colliery infrastructure also limits the lands potential agricultural uses.

8.7 REGIONAL PLANNING

It is recognised that the Lower Hunter Regional Strategy does not include the area of the subject site within any major release area. However the focus of the strategy is predominately on the urban and economic growth context and the rural or large lot residential is ill defined.

Based upon the former Department of Urban Affairs and Planning (DUAP) publication 'Rural Settlement - Guidelines on Rural Settlement 1995' provides a hierarchal approach to settlement patterns.

The subject site could be considered an 'enclave' - Based on a preferred area for rural settlement, it can be a group of small holdings organized development or subdivision. Based on a community focus eg rural hall, historical rural school or service station. Development needs to be clustered to achieve common facilities and services, waste disposal and sealed roads.

The subject site has a common community focus being the existing historic Elrington Colliery structures.

Given that there is a demand for such large lot residential and the subject site is proximate to existing like development and could generally be considered an infill parcel being adequately serviced by roads and intersection, water supply, power and telecommunications and therefore would not generate any undue demands for services, the land should be rezoned to R5 - Large Lot Residential.

9.0 PHYSICAL CONSIDERATIONS

The subject land, as part of the submission for various rezoning applications has undergone significant studies these more recently include:-

- Flora and Fauna Statement of Effect - Wildthing Environmental Consultants Pty Ltd, December 2009.
- Bushfire Hazard and Threat Assessment - Roy Free, December 2009.
- Traffic Impact Assessment - TPK & Associates Pty Ltd
- Heritage Conservation Management Plan - Insite Heritage Pty Ltd, February 2009.
- Geotechnical/Mine Subsidence Report - Geotech Solutions Pty Ltd, December 2009.
- Additional Environmental Site Assessment Report - Geotech Solutions Pty Ltd, December 2009

9.1 FLORA & FAUNA

The report prepared for the site disclosed that there were threatened ecological communities comprising Lower Hunter Spotted Gum Ironbark Forest and Hunter Lowland Redgum Forest on the site. Both of these assemblages were significantly disturbed with sparse canopy and introduced understorey pasture species. Given that the proposal is intended to retain the maximum amount of trees within the lots the report concludes that the proposal is unlikely to adversely affect the extent or adversely modify the composition of these assemblages such that their occurrence is placed at risk of extinction.

Photo of Subject Site

Threatened flora species were also recorded on the site together with threatened fauna species which are detailed within the report.

The conclusion of the report is that provided the recommendation made within the report are implemented and vegetation loss is minimised in accordance with the current proposal then the rezoning and subdivision of the land is unlikely to result in a significant adverse impact upon any viable local communities.

The full report can be seen within the CD of Appendix K.

9.2 BUSFHIRE

The subject site has been designated within Councils bushfire mapping as being bushfire prone. Accordingly consideration of the requirements of Planning for Bushfire Protection 2006 will be necessary.

The bushfire report shown as Appendix E by Mr Roy Free discloses that the site being generally open can accommodate the proposed development and comply with the Planning for Bushfire Protection requirements in terms of appropriate Asset Protection Zones, access and water supply etc.

The report nominates possible Asset Protection Zones which would be required within each lot proposed. These Asset Protection Zones are easily provided within the proposed concept lot arrangement.

The report concludes that "the threat of bushfire should not be a barrier to consent for the proposed development".

9.3 TRAFFIC

A traffic assessment was undertaken on the proposed concept subdivision by TPK & Associates. The assessment considered the impacts of the subdivision on the local road network and Lake Road (MR 220). The report concludes that the subdivision of the land generally as demonstrated in the concept layout, following rezoning of the land, will not have an adverse impact on the public road network.

A full copy of this report can be seen as Appendix L.

9.4 HERITAGE

The site has undergone a number of heritage studies, the most recent study is considered further as it has more relevance to the current proposal and to the conservation outcomes for the existing buildings.

The report considered the adoptive reuse of the major structures on the site as rural dwellings and farm use buildings. Both the existing former office and the bathhouse building and stable have been designed as rural dwellings/garages. The report incorporates plans to demonstrate that the concept subdivision arrangement has incorporated design to retain the existing treed avenue to the former bathhouse and the retention of the structures within the larger lots in the proposal.

The recommendations of the report have been implemented and particularly the retention of structures, adaption of buildings and interpretation of structural elements on the site. Photographic representation, forming one of the integral recommendations has also been completed prior to the continued partial demolition approved by Council. The full Conservation Management Plan can be seen as Appendix M.

9.5 ABORIGINAL ARCHAEOLOGY

The Department of Environment, Climate Change and Water (DECCW) have been contacted in respect to aboriginal archaeology. An Aboriginal Heritage Information Management System (AHIMS) search has been undertaken and DECCW advise that there are no registered archaeological sites on the land.

The site has been previously used for intensive mine operations which included above ground works, buildings, access roads and storage of coal product and waste over an extended area. The coal waste has been recently recovered as part of the Hunter Enviro Mining (HEM) operations and therefore the site disturbance in this regard has been significant.

The remainder of the site not affected by mining/colliery operations has been used for low intensity agricultural grazing.

Given that the site is proposed to be developed into large lot residential the likelihood of any scatted artefacts if present would remain.

Further detailed site investigation is currently being undertaken and will be forwarded under separate cover.

There is considered to be no impediment to the use of the site as proposed from an archaeological perspective.

9.6 GEOTECHNICAL/MINING SUBSIDENCE

The geotechnical assessment by Geotech Solutions Pty Ltd indicate that the site has no geotechnical constraints for the development proposed. Various investigation, pavement designs and lot classifications will be required as part of any subdivision development.

Mine subsidence is not considered an impediment to the proposal given the extreme depth to workings (in excess of 330m) and the duration of last workings of 47 years. The report concludes that any subsidence in the north of the land would be complete. Therefore there is no impediment to the development from mine subsidence. The geotechnical and mine subsidence report can be seen as Appendix F.

9.7 SITE CONTAMINATION ASSESSMENT

The site has undergone supplementary contamination assessment by Geotech Solutions Pty Ltd in November 2009.

Earlier site contamination assessment was undertaken by HLA Envirosciences in 1999. That report recommended a more detailed site investigation to those areas identified with elevated levels of petroleum products, arsenic, lead and chromium.

The supplementary report has undertaken additional site testing consisting of the collection of thirty one (31) samples (including 3 AQ) samples.

The results of the site analysis disclose that the shallow fill material present within the investigated areas of the site contain elevated concentrations of TPH and arsenic in exceedance of the adopted protection of human health guidelines and concentrations of copper and zinc in exceedance of the adopted protection of the environment guidelines.

The investigations indicated low concentrations of the identified contaminants of concern in the underlying natural clay soils. Bonded Asbestos Containing Material (ACM) fragments were also noted across the investigated area and are considered surficial.

The report concludes that the minor contamination of the area of the workshop would not preclude the rezoning and subdivision and that remediation of the site would form part of the works required for the subidivison to proceed. The report also concludes that the recommendation within the HLA report of 1999 have been satisfied.

A full copy of the contamination report can be seen in Appendix N.

10.0 SUMMARY

The subject land has undergone significant investigation including:-

- Land capability.
- Land contamination.
- Geotechnical assessment.
- Flora and Fauna investigations.
- Bushfire assessment.
- Heritage assessment European.
- Structural assessment (structures).
- Traffic impact assessment.
- Site topographic survey.
- Catchment analysis.
- Heritage investigation Aboriginal.
- Mine subsidence.

All of the investigations disclose that the site has the capability to appropriately sustain large lot residential development. The concept subdivision layout provided within the report accommodates those site constraints.

The heritage buildings and their value to the site are assured by their retention and adaption as rural dwellings and rural uses. The rezoning of the land and its future subdivision provides the incentive to restore and adapt the heritage buildings on the land in accordance with the Heritage Conservation Management Plan.

The rezoning of the land to large lot residential R5 is consistent with Councils previous resolutions to support the use of the site for rural residential purposes and removes any possibility of the sites usage for industrial or commercial uses.

There is no physical matter that would preclude the rezoning or use of the site as proposed.

Whilst the land does not specifically fall within the context of the Lower Hunter Regional Strategy, for rural residential uses the site has specific merits such as proximate development, services, access and an infill usage.

The site, given its history, and proximity to existing rural residential uses is a logical extension or infill of a previously developed and disturbed site and accordingly would provide consistency with that existing.

The land therefore is considered appropriate to rezone to R5 Large Lot Residential.

11.0 CONCLUSION

The land has a history of support by Council for rezoning to Rural Residential uses. This support came from the desire to see the end of Industrial uses on the land and provide a use more consistent with the existing rural residential uses adjoining.

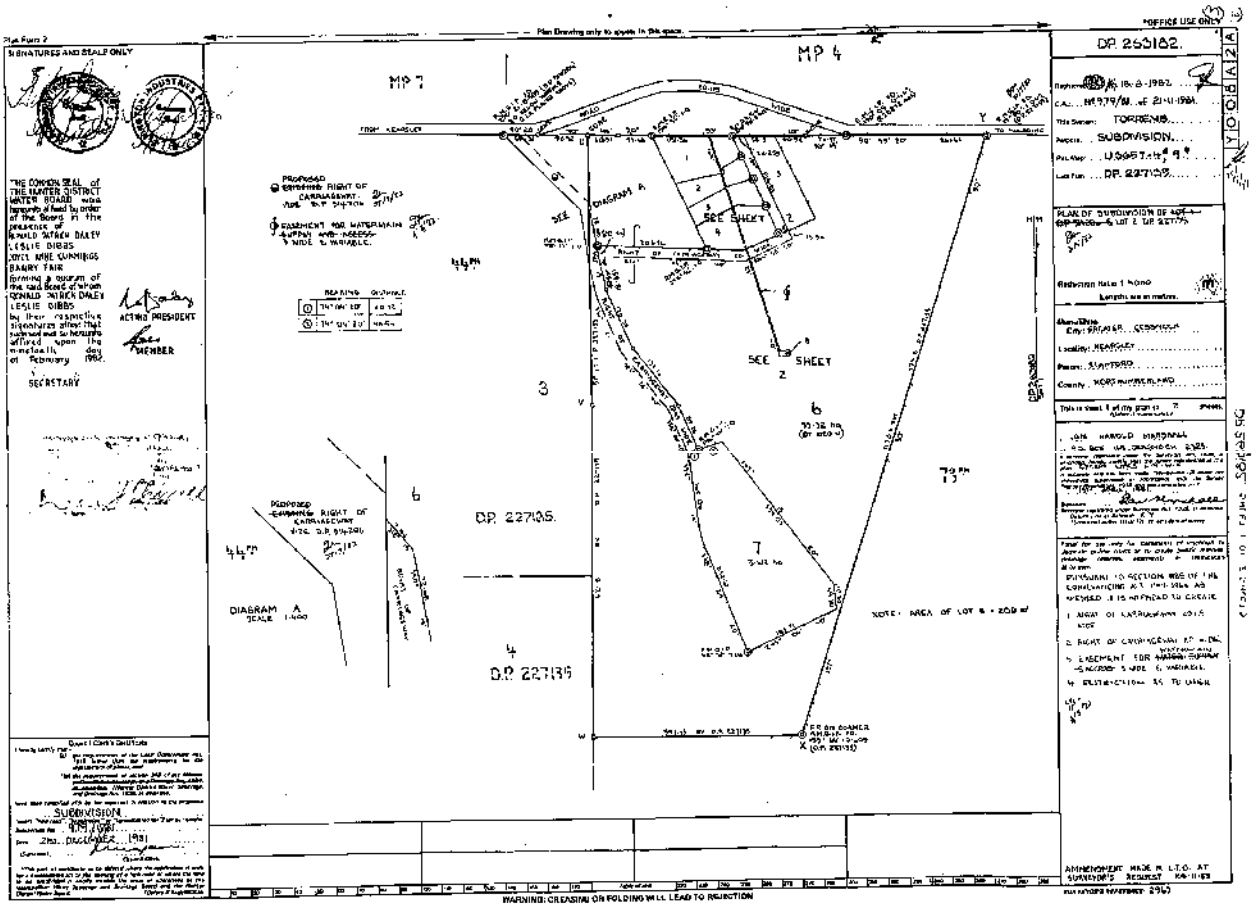
The land has been inadvertently omitted from the City Wide Settlement Strategy and should form one of the spot rezoning under consideration in accordance with Councils previous resolutions.

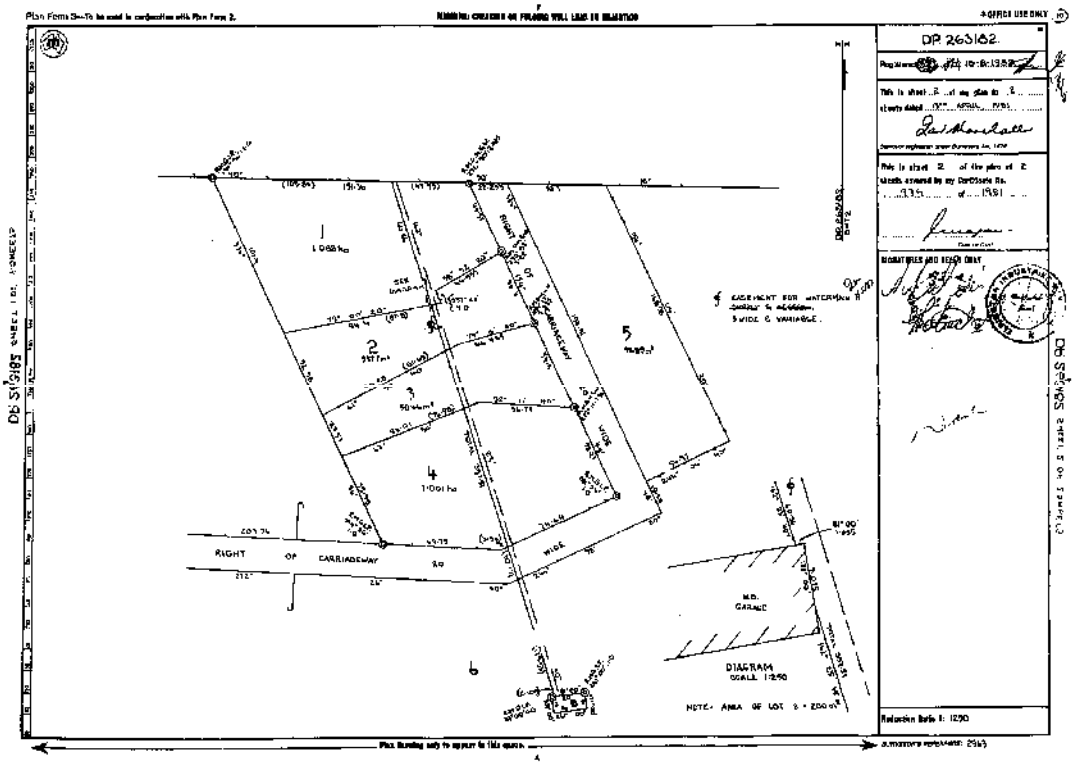
The land is more logically zoned R5 – Large Lot Residential on its merits and would not be inconsistent with the regional strategy.

We respectfully urge Council to not zone the subject site RU2 – Rural landscape as proposed but to zone the land R5 – Large Lot Residential.

Appendix A

DEPOSITED PLANS





AMENDMENTS AND/OR ADDITIONS MADE ON PLAN IN THE LAND TITLES OFFICE

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day. 25th November, 1988

2

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT, 1919.

This is Sheet 1 of 2 Sheets

PART 1

PLAN: DP253182 — Subdivision Covered by Council Clerk's Certificate No: 959/1981

FULL NAME AND ADDRESS OF PROPRIETOR OF THE LAND: — Silvington Industries Pty Limited, Lake Road, MEADOWLEY.

FULL NAME AND ADDRESS OF MORTGAGEE OF THE LAND: — Commercial Banking Company of Sydney Limited, Vincent Street, SYDNEY.

1. Identity of easement or restriction firstly referred to in abovementioned plans — Right of Carriageway 20.~~000~~ wide

Schedule of lots etc affected

Lots Burdened: 6

Lots and names of road or authority benefited: 1, 2, 3, 4, 5, 7 Hunter District Water Board E

2. Identity of easement secondly referred to in abovementioned plan: — Rights of Carriageway 20 wide

Lots Burdened: 6

Lots and name of road or authority benefited: 1, 2, 3, 4, 5 Hunter District Water Board D

3. Identity of easement thirdly referred to in abovementioned plan: — Easement for watermain 3 wide and variable

Lots Burdened: 1, 2, 3, 4, 6

Lots, name of road or authority benefited: Hunter District Water Board B

4. Identity of restriction fourthly referred to in abovementioned plan: — Restriction as to user

Schedule of lots etc affected

Lots burdened: 1, 2, 3, 4, 6

Lots, name of road or authority benefited: Hunter District Water Board A

FRAME 1

I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photographic made as a permanent record of a document in my custody this day.

31st August, 1983

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919

(This is Sheet 2 of 2 Sheets)

Plan: PART 2 Subdivision covered by Council Clerk's Certificate No. [illegible]

3. Terms of easement for watermain 3 wide and variable width firstly referred to in abovementioned plan:

FULL AND FREE right title liberty and licence for the Hunter District Water Board its successors and assigns to CONSTRUCT lay maintain repair renew cleanse inspect replace and divert or alter the position of a watermain or pipeline with the apparatus and appurtenances thereof in or under the surface of such part of the land described hereinbefore as is delineated in the abovementioned plan (hereinafter called the servient tenement) and to carry and convey water through the said watermain or pipeline and for the purposes aforesaid or any of them by its officers servants and or contractors with or without motor or other vehicles horses or other animals plant and machinery to enter upon and break open the surface of the servient tenement and to deposit soil temporarily on the servient tenement but subject to a liability to replace the soil and to restore the surface of the said servient tenement in a proper and workmanlike manner as soon as the operations are completed.

4. Terms of Restrictions as to user fourthly referred to in abovementioned plan:

No building shall be erected nor any structures of any kind placed on or over the servient tenement except with the prior consent in writing of The Hunter District Water Board and except in compliance with any conditions which The Hunter District Water Board may specify in such consent.

The person having the right to release, vary or modify these restrictions is The Hunter District Water Board, its successors or assigns.

The Common Seal of Stringtim Industries Pty Limited was hereunto affixed pursuant to its Articles of Association in the presence of:

Director

Secretary

The Common Seal of THE HUNTER DISTRICT WATER BOARD was hereunto affixed by order of the Board in the presence of: RONALD PATRICK DATEY LESLIE GIBBS JOYCE ANNE CUMMINGS BARRY PAGE forming a quorum of the said Board of whom RONALD PATRICK DATEY and LESLIE GIBBS by their respective signatures attest that such seal was so hereunto affixed upon the 19th day of February 1982.

Secretary.

ACTING PRESIDENT

VICE-PRESIDENT (or member)

The Common Seal of THE COMMERCIAL BANKING COMPANY OF SYDNEY LIMITED was hereunto affixed pursuant to a resolution of the Board of Directors and in the presence of:

[illegible]

Witness

DP263182

FRAME 2

I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

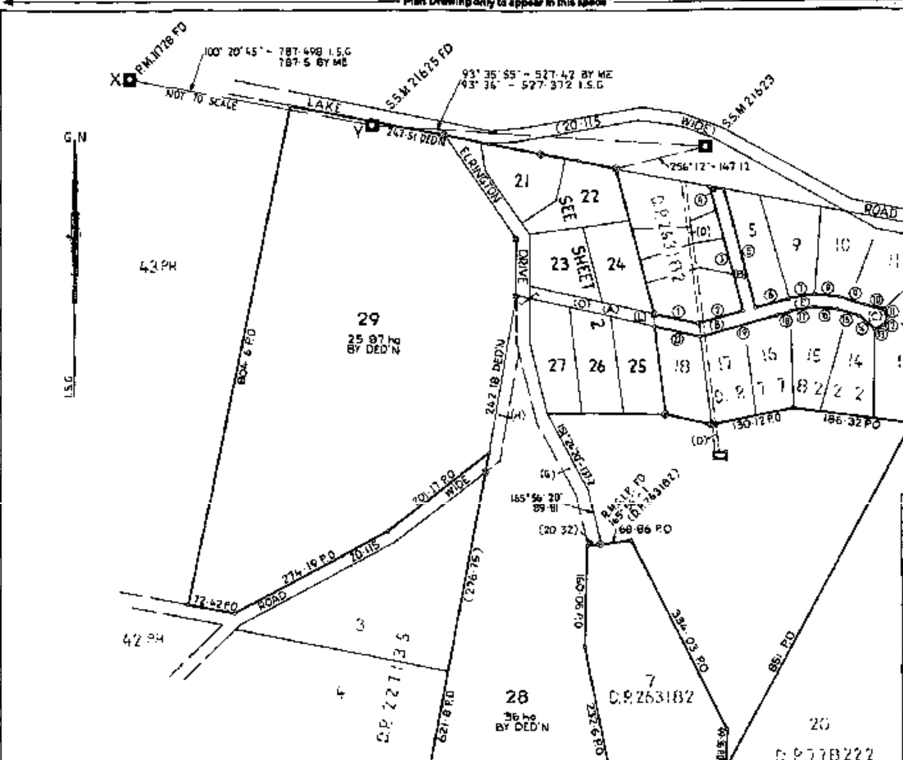
23rd August, 1982

PLAN FORM 2

SIGNATURE AND SEALS ONLY.

Plan Drawing only to appear in this space

OFFICE USE ONLY



(A) RIGHT OF CARRIAGEWAY 20 WIDE VIDE D.P. 778222.
(B) RIGHT OF CARRIAGEWAY 20 WIDE VIDE D.P. 263182.
(C) RIGHT OF CARRIAGEWAY 20 WIDE & VARIABLE VIDE D.P. 778222.
(D) EASEMENT FOR WATERMAIN 3 WIDE & VARIABLE VIDE D.P. 263182.
(E) EASEMENT FOR SERVICES VIDE D.P. 778222.
(F) EASEMENT FOR ELECTRICITY TRANSMISSION LINE VARIABLE WIDTH.
(G) RIGHT OF CARRIAGEWAY 20·115 WIDE VIDE D.P. 263182.
(H) RIGHT OF WAY 20·115 WIDE VIDE D.P. 636650.
(J) EASEMENT FOR ELECTRICITY TRANSMISSION LINE 6·9 WIDE.
(K) EASEMENT FOR ELECTRICITY TRANSMISSION LINE 8·1 WIDE.
(L) RIGHT OF CARRIAGEWAY 20 WIDE.
(O) EASEMENT FOR SERVICES 20 WIDE.

BOUNDARIES

LINE	DISTANCE
1	69·8 P.D
2	74·65 P.D
3	204·06 P.D
4	22·255 P.D
5	194·83 P.D
6	54·37 P.D
7	40 P.D
8	39·5 P.D
9	39 P.D
10	34·555 P.D
11	15·51 P.D
12	13·26 P.D
13	15·485 P.D
14	32·845 P.D
15	35·01 P.D
16	34·82 P.D
17	36·465 P.D
18	21·73 P.D
19	125·07 P.D
20	70 P.D

SURVEY PRACTICE REGULATION 1990 · CLAUSE 37 (2)

MARK	I.S.G CO-ORDINATES EASTING	NORTHING	ZONE	ACC
P.M 11728	337 972·417	1 361 940·833	56/1	2
S.S.M 21625	338 697·113	1 361 799·409	56/1	2
S.S.M 21623	339 223·445	1 361 766·295	56/1	2

SOURCE: I.S.G CO-ORDINATES ADOPTED FROM N.S.W LANDS DEPARTMENT AT 29TH APRIL 1994.

DP 844871

Registered 21 1 1995

Pol Map: U3657 - 4; U3657 - 5

PLAN OF SUBDIVISION OF LOT 19, D.P. 778222 AND LOT 44, D.P. 755259

Lengths are in metres. Reduction Ratio 1: 4000

L.G.A: CESSNOCK CITY
Locality: ELRINGTON
Parish: STANFORD
County: NORTHUMBERLAND

This is sheet 1 of my plan in 2 sheets

IAN H. MARSHALL & ASSOCIATES
P.O. BOX 165 CESSNOCK, 2325

7th JUNE 1994

X-Y

Plans used in preparation of survey/compilation.
D.P. 778222
D.P. 755259
D.P. 514206
D.P. 263182

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919-1964 AS AMENDED IT IS INTENDED TO CREATE:-

1. RIGHT OF CARRIAGEWAY 20 WIDE.
2. EASEMENT FOR ELECTRICITY TRANSMISSION LINE 6·9 WIDE.
3. EASEMENT FOR ELECTRICITY TRANSMISSION LINE 8·1 WIDE.
4. EASEMENT FOR ELECTRICITY TRANSMISSION LINE 6·9 WIDE.
5. EASEMENT FOR ELECTRICITY TRANSMISSION LINE 8·1 WIDE.
6. EASEMENT FOR ELECTRICITY TRANSMISSION LINE VARIABLE WIDTH
7. RESTRICTION(S) ON THE USE OF LAND.
8. EASEMENT FOR SERVICES 20 WIDE.
9. EASEMENT FOR WATERMAIN 4 WIDE.

IT IS INTENDED TO DEDICATE ELRINGTON DRIVE AS PUBLIC ROAD.

Crown Lands Office Approval

Plan APPROVED ....
Authorised Officer
Land District ....
Paper No ....
Field Book .... pages ....

Council's Certificate

I hereby certify that –

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans); and

(b) the requirements of Part 6 Division 7 of the Hunter Water Board (Corporatisation) Act 1991,

have been complied with by the applicant in relation to the proposed SUBDIVISION

Subdivision No. 34/91

Date 19/10/1994

(Signature)
General Manager/Authorised Person

Council File No. 150/501/96

*This part of certificate to be deleted where the application is only for a consolidation of lots or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

Delete if inapplicable

SURVEYORS REFERENCE: 11009 CHECKLIST

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

PLAN FORM 3 — To be used in conjunction with Plan Form 3 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION — OFFICE USE ONLY

DP 844871

Registered 27.1.1995

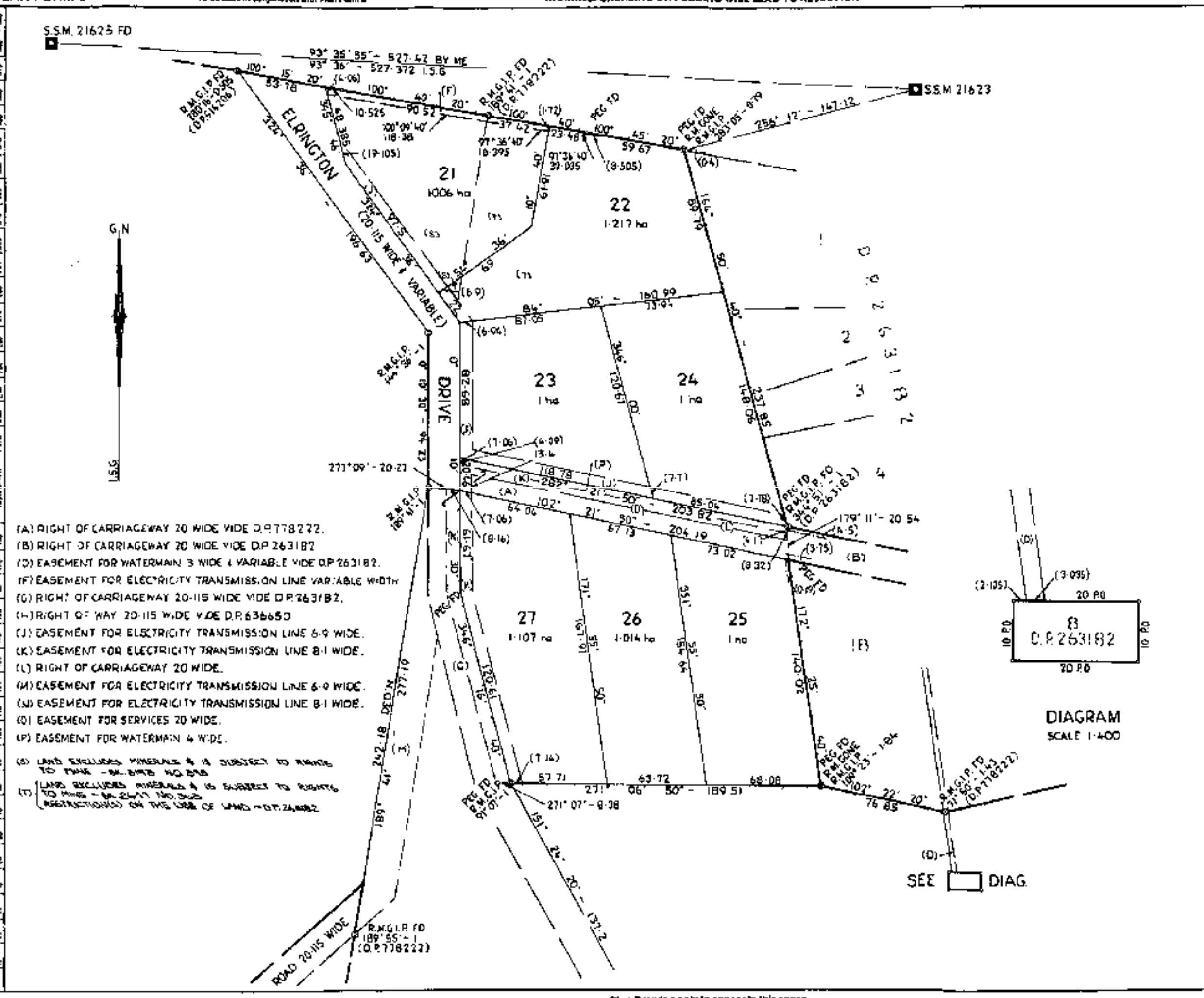
This is sheet 2 of my plan in 2 sheets
dated 7th JUNE 1994

Surveyor registered under Surveyors Act 1929

This is sheet 2 of the plan of 2 sheets covered by my Certificate No 34/94 of 19.10.1994

Council Clerk

For use where space is insufficient in any panel on Plan Form 2



(A) RIGHT OF CARRIAGEWAY 20 WIDE VIDE D.P.778222.
(B) RIGHT OF CARRIAGEWAY 20 WIDE VIDE D.P 263182
(D) EASEMENT FOR WATERMAIN 3 WIDE & VARIABLE VIDE D.P 263182.
(F) EASEMENT FOR ELECTRICITY TRANSMISSION LINE VARIABLE WIDTH
(G) RIGHT OF CARRIAGEWAY 20.115 WIDE VIDE D.P.263182.
(H) RIGHT OF WAY 20.115 WIDE VIDE D.P.636650
(J) EASEMENT FOR ELECTRICITY TRANSMISSION LINE 6.9 WIDE.
(K) EASEMENT FOR ELECTRICITY TRANSMISSION LINE 8.1 WIDE.
(L) RIGHT OF CARRIAGEWAY 20 WIDE.
(M) EASEMENT FOR ELECTRICITY TRANSMISSION LINE 6.9 WIDE.
(N) EASEMENT FOR ELECTRICITY TRANSMISSION LINE 8.1 WIDE.
(O) EASEMENT FOR SERVICES 20 WIDE.
(P) EASEMENT FOR WATERMAIN 4 WIDE.

(S) LAND EXCLUDES MINERALS & IS SUBJECT TO RIGHTS TO MINE [illegible]
(T) LAND EXCLUDES MINERALS & IS SUBJECT TO RIGHTS TO MINE [illegible] (RESTRICTIONS) ON THE USE OF LAND [illegible]

Plan Drawing only to appear in this space

Reduction Ratio 1: 1500

Lengths are in metres. 1:1009

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919.

Lengths are in metres

Subdivision covered by Council Clerk's Certificate
No. 34/95 of 19 Jan 1994

PART 1

Plan:
DP 844871

Plan of subdivision of Lot 19, D.P. 778222 and Lot 44, D.P. 755259

Full name and address of Proprietor of the land:

Elrington Industries Pty Limited
C/- Lot 13, Wollombi Road
BISHOPS BRIDGE

Kenneth Ross Roe and Valerie Roe
As Joint Tenants
Lake Road, ELRINGTON

1. Identity of easement first referred to in the plan:

Right of Carriageway
20 Wide

Schedule of Lots affected

Lot Burdened	Lots Benefited
28	23, 24, 25, 26 & 27

2. Identity of easement secondly referred to in the plan:

Easement for Electricity Transmission Line 6.9 wide

Schedule of Lots affected

Lot Burdened	Name of Authority Benefited
21, 22, 23 & 24	Shortland Electricity

REGISTERED 27.1.1995

Valerie Roe
K. Ross Roe

G. Wells

DP 844871

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919.

Lengths are in metres

Plan of Subdivision covered by Council Clerks Certificate No 34/91 of 15.10.1994

3.	Identity of easement thirdly referred to in abovementioned plan:	Easement for Electricity Transmission Line 8.1 Wide

Schedule of Lots affected

Lot Burdened	Name of Authority Benefited
28	Shortland Electricity

4.	Identity of easement fourthly referred to in the plan:	Easement for Electricity Transmission Line 6.9 Wide

Schedule of Lots affected

Lot Burdened	Name of Authority Benefited
27	Shortland Electricity

5.	Identity of easement fifthly referred to in the plan:	Easement for Electricity Transmission Line 8.1 Wide

Schedule of lots affected

Lots Burdened	Name of Authority Benefited
28	Shortland Electricity

6.	Identity of easement sixthly referred to in the plan:	Easement for Electricity Transmission Line variable width

Valerie Rae
K. Ross Rae

G. Wells

DP 844871

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919.

Lengths are in metres

Plan of Subdivision covered by Council Clerks Cert. Filed No 34/91 of 19.10.1994.

SCHEDULE OF LOTS BURDENED

Lots Burdened	Name of Authority Benefited
21 & 22	Shortland Electricity

7. Identity of easement seventhly referred to in the plan: — Restriction(s) on The Use of Land

SCHEDULE OF LOTS EFFECTED

Lots burdened:	Lots Benefited
Each Lot Except 28 & 29	Every other Lot

8. Identity of easement eighthly referred to in abovementioned plan: — Easement for Services 20 wide

SCHEDULE OF LOTS EFFECTED

Lots Burdened:	Lots benefited
28	23, 24, 25, 26 & 27

9. Identity of easement ninthly referred to in abovementioned plan: — Easement for Watermain 4 wide

SCHEDULE OF LOTS EFFECTED

Lots Burdened:	Name of Authority Benefited
28	The Hunter Water Corporation Limited

Valerie Roe
K. Roe

G A Wells
G. Wells.

DP 844871

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919.

Lengths are in metres

Plan of Subdivision covered by Council Clerks Certificate No 34/91 of 19.10.1994.

PART 2

Terms of Easement for Electricity Transmission Lines secondly, thirdly, fourthly, fifthly and sixthly referred to in abovementioned plan:-

1. **FULL AND FREE** right leave liberty and licence for the Shortland County Council (the Council) its successors and assigns, its and their officers, servant, agents, workman and contractors and all other persons authorised by it or them to act on its or their behalf.

a. To erect construct place inspect alter repair renew maintain and use of the servient tenement overhead and/or underground electricity transmission main wires and cables and the supports therefore (including towers and poles) and other ancillary works for the transmission of electricity (the ownership of all of which works the transferor hereby acknowledges is vest in the transferee); and

b. To cause or permit electricity to flow or be transmitted through and along the said mains wires and cables; and

c. With or without vehicles and plant and equipment to enter and be in the servient tenement for the purpose of exercising any right leave liberty or licence granted hereunder; and

d. To cut trim or lop trees branches and other growths or foliage which now at any time hereafter may overhang encroach or be in or on the servient tenement and which in the opinion of the Transferee may or may be likely to interfere with any right leave liberty or licence granted hereunder.

Valerie Roe
K. Ross Roe

S A Wells
G. Wells

DP 844871

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919.

Lengths are in metres

Plan of Subdivision covered by Council Clerks Certificate No 94/93 of 19.10.1994

e. To, for the purpose of gaining access to the servient tenement, with or without vehicles, plant and equipment enter be upon traverse and part for land adjoining the servient tenement owned by the Transferor its successors and assigns.

Terms of Restriction(s) On the Use of Land seventhly referred to in abovementioned plan:

(a) Not more that one main building shall be erected or be permitted to remain on the land burdened;

(b) No Lot shall be used for training, boarding, breeding or other wise used for or in connection with dog kennels of any kind.

Terms of Easement for Services eighthly referred to in abovementioned plan:

The right to run electricity power supply lines and other services including water mains and telephone connections either above or under the ground within the site of right of way hereby created provided such services are constructed in accordance with the requirements of the relevant authorities together with the right for the owners for the time being of Lots in whose favour this easement is created and every person authorised by them with any tools, implements and machinery necessary for the purpose of enter upon the servient tenement and to remain there for any reasonable time for the purpose of laying, inspecting, cleaning, repairing, maintaining or renewing such power supply lines, water mains, pipes or telephone or other connections or any part thereof and for any of the aforesaid purposes to open the soil of the servient tenement to such extent as may be necessary provided that the owner of the Lot or Lots in whose favour this easement is created and the person who is authorised by such owner will take all reasonable precautions to ensure as little disturbance as possible to the surface of the servient tenement and will restore that surface as nearly as practical to its original condition.

Valerie Rae
K. Ross Rae

G. Wells

DP 844871

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919.

Lengths are in metres

Plan of Subdivision covered by Council Clerks Certificate No 34/91 of 19.10.1994.

Terms of Easement for Watermain ninthly referred to in abovementioned plan:

FULL AND FREE right title liberty and license for the Hunter Water Corporation Limited its successors and assigns **TO CONSTRUCT** lay maintain repair renew cleanse inspect replace and divert or alter the position of a watermain or pipeline with apparatus and appurtenances thereof in or under the surface of such part of the land described hereinbefore as is delineated in the abovementioned plan (hereinafter called the servient tenement) and to carry and convey water through the said watermain or pipeline and for the purposes aforesaid or any of them by its officers servants and or contractors with or without motor or other vehicles plant and machinery to enter upon and break open the surface of the servient tenement and to deposit soil temporarily on the servient tenement but subject to a liability to replace the soil and to restore surface of the said servient tenement in a property and workmanlike manner as soon as operations are completed.

The person having the right to release, vary or modify these restrictions is the Hunter Water Corporation Limited, its successor or assigns.

Signed in my presence by
VALERIE ROE
who is personally known to me.

.....
Valerie Roe

.....
Signature of Witness

(PHILIP W. HILL)
SOLICITOR
KOZEL KOZEL

Signed in my presence by
KENNETH ROSS ROE
who is personally known to me.

.....
Kenneth Ross Roe

.....
Signature of Witness

G. Wells

DP 844871

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS AS TO USER INTENDED TO BE CREATED PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT 1919.

Lengths are in metres

Subdivision covered by Council Clerk's Certificate No 34/91 of 19.10.1994.

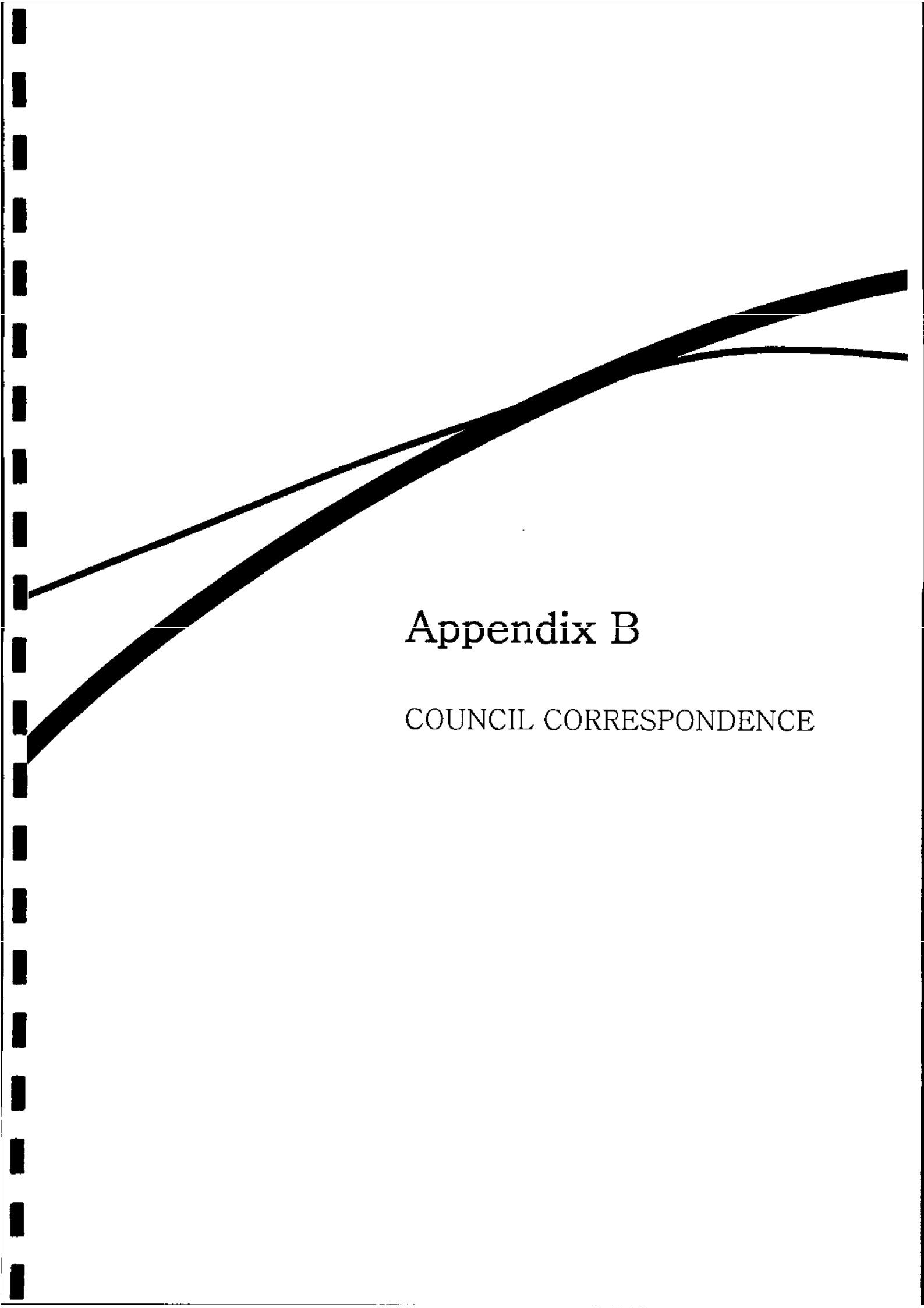
The Common Seal of Elrington Industries Pty Limited was hereunto affixed pursuant to its Articles of Association in the presence:-

Elrington Industries Pty Limited A.C.N. 000 621 072 Common Seal

.....
Director

.....
Secretary

REGISTERED 27.1.1995



Appendix B

COUNCIL CORRESPONDENCE

CESSNOCK
CITY COUNCIL

ACM Landmark Pty Ltd
PO Box 627
CESSNOCK NSW 2325
Attention: Mark Leek

Contact: Sarah McMillam
Our Ref: 8/2002/2/1
Your Ref: 0034.CP/CCC-L06-CP.doc

Dear Mr Leek,

REZONING APPLICATION NO.8/2002/2/1
LOT 7, DP 263182 & LOT 28, DP 844871
29 ELRINGTON ROAD AND LAKE ROAD, ELRINGTON

Further to your discussion with the Manager of Land Use Planning on 9 September 2009 in relation to the above, the following information is provided.

A review of the rezoning proposal indicates that there are a number of outstanding issues that must be addressed in order for Council to proceed. It is therefore requested that you provide Council with the following information:

Conservation Management Plan:
As previously requested by Council (correspondence dated 25 October 2002), a conservation management plan/policy indicating that rural-residential development and or 'low-key' commercial activities are suitable uses capable of being satisfactorily adapted to Elrington colliery buildings, associated structures and their environs without significant adverse impact on their heritage value. Such a plan/policy will clearly show how such an adaption is able to be achieved.

Flora and Fauna:
The flora and fauna assessment prepared for the site by HLA – Envirosciences Pty Ltd is dated March 1999 while the subsequent addendum to this report, prepared by Andrews Neil Pty Ltd, is dated May 2001. These reports are now dated and must be updated in accordance with legislative changes and additional species and communities listed on the Threatened Species Conservation Act, 1995. Council's records indicate that the site contains Lower Hunter Spotted Gum – ironbark Forest, which was listed on the TSC Act as an Endangered Ecological Community in February 2005. The impact of the proposal on this EEC must be addressed.

Bushfire Prone Land:
The application predates amendments to the Rural Fires Act 1997 and as such a bushfire risk assessment has not been provided. An assessment of the site must be undertaken in accordance with Planning for Bushfire Protection Guidelines 2006. This may require an amendment to the proposed lot layout to address asset protection zones and emergency access requirements.

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

Mine Subsidence:
Given the past use of the land for underground mining, a geotechnical report needs to be undertaken to determine if the site is suitable for rural residential development.

Contamination:
A Preliminary Contamination Assessment Report prepared by HLA – Envirosciences Pty Ltd dated March 1999 was submitted with the proposal. The report recommends that additional investigations are required to determine if the contaminated areas of the site are suitable for residential uses. These additional investigations need to be undertaken. The report must also address State Environmental Planning Policy No. 55 – Remediation of Land.

Prescribed waterways, drainage, flooding:
The subject site contains a number of waterways and these have not been taken into consideration. A flooding and drainage study needs to be undertaken over the site. The impact of the proposal on the waterways that transverse through the site must be addressed.

Aboriginal heritage:
The rezoning proposal does not address Aboriginal Heritage. It is therefore requested that an Aboriginal Heritage Impact Assessment be undertaken in accordance with the provisions of Part 6 the *National Parks and Wildlife Act 1974* and the *Interim Community Consultation Requirements for Applicants 2004*. This consultation is required for all rezoning submissions to enable appropriate consideration of the cultural impacts of the proposal.

Traffic:
A traffic impact assessment is required. Of particular concern is the impact that the proposal will have on Lake Road.

Section 117 Directions:
The proposal needs to address all relevant S117 Directions applicable to the proposal, which includes:

- 1.2 Rural Zones
- 1.3 Mining, Petroleum and Extractive Industries
- 2.3 Heritage Conservation
- 3.1 Residential Zones
- 3.4 Integrating Land Use and Transport
- 4.2 Mine Subsidence and Unstable Land
- 4.3 Flood Prone Land
- 4.4 Planning for Bushfire Protection
- 5.1 Implementation of Regional Strategies

While it is noted that Council has given 'in principle support' to the proposal, it has not previously considered a section 54 report for this rezoning proposal. The information requested is required to prepare the report for Council's consideration.

Please contact Sarah McMillam on 4993 4183 should you require any additional information on this matter.

Yours faithfully

S MCMILLAM
For CESSNOCK CITY COUNCIL

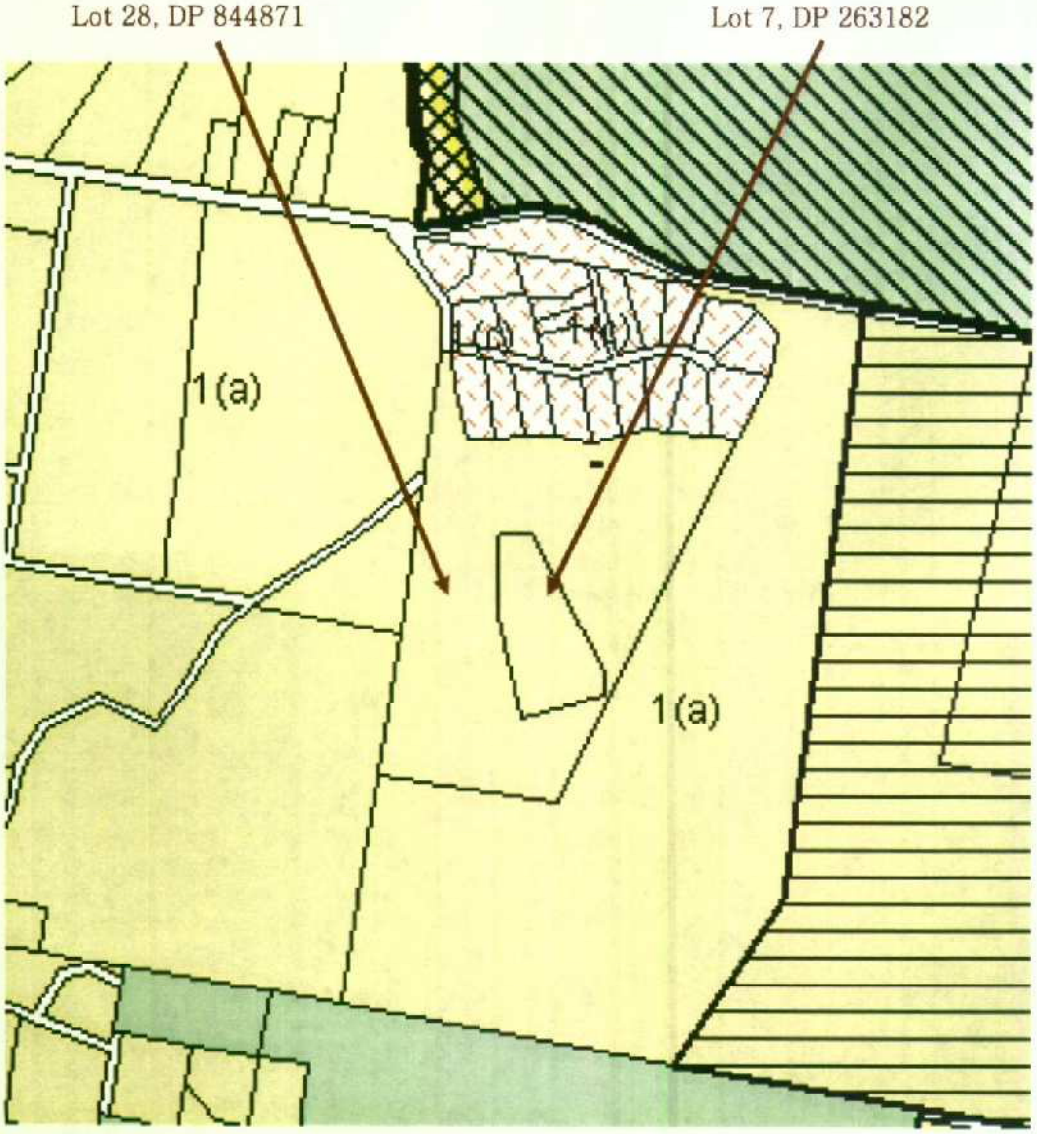
21 September 2009

Appendix C

CURRENT ZONING

CURRENT ZONING

acm LANDMARK



Site Zoning
Extract from Cessnock City Council

- 1(a) Rural "A" Zone
- 1(f) Rural (Forestry) Zone
- 1(c2) Rural (Small Holdings) Zone

ZONING MAP

LOT 7, DP 263182 & LOT 28, DP 844871
LAKE ROAD, ELRINGTON

Suite 3, 5 Edward Street, PO Box 627 CESSNOCK NSW 2325
Ph: (02) 4991 7171 Fax: (02) 4991 7272 Email: admin@acmlandmark.com.au

Our Ref: 034.ML/Zoning Map

Appendix D

CONCEPT SUBDIVISION PLAN

AERIAL PHOTO

LEGEND:

Ω PROPOSED EASEMENT FOR WATERMAIN 3.0m WIDE

= EXISTING EASEMENT FOR WATERMAIN 3.0m WIDE

Φ EXISTING EASEMENT FOR RIGHT OF CARRIAGEWAY 20.115m WIDE

LAND CAPABILITY CLASS VIIIs1 & VIIIs2
SLOPE & VEGETATION CONSTRAINTS

EXISTING LOTS 7 & 8, DP 263182

P L A N
SCALE 1:2000 (A3)

AutoCAD FILE
P:\ACM DOCUMENTS\PROJECTS\LANDMARK\0034-100-3.dwg
OWNCAD FILE

No.	Date	Amendment Details	Initial
A	27.11.07	ORIGINAL ISSUE	ML

No.	Date	Amendment Details	Initial

acm LANDMARK
LAND DEVELOPMENT CONSULTANTS
Client: PHIL LOVETT

Surveyed by:	HUNTER SURVEY SERVICES
Earthworks By:	-
Datum: AHD	Cont: ASSUMED
Designed: ML	Checked: ML
Drawn: JM	Approved: ML

Job Name: PROPOSED SUBDIVISION
LOT 7, DP 263182 & LOT 28, DP 844871
LAKE ROAD, ELRINGTON

Scale: AS SHOWN | Drawing No. 0034-100

Title: CONCEPT SUBDIVISION LAYOUT PLAN

Sheet No. 1 of 1 | Issue A

Appendix E

BUSHFIRE REPORT

BUSHFIRE HAZARD & THREAT ASSESSMENT
LOT-7 DP:263182 & LOT-28 DP:844871
ELRINGTON

R.A. FREE BSc.,(For).,Dip.For.,F.I.F.A.
Bushfire Management Consultant.

DATE: 7th December, 2009

C O N T E N T S

BUSHFIRE HAZARD AND THREAT ASSESSMENT
LOT-7 DP:263182 AND LOT-28 DP:844871
ELRINGTON

SECTION - 1 INTRODUCTION

1 - 1. Mr. Phil Lovett is planning the rezoning of Lot-7 DP:263182 and Lot-28 DP:844871 at Lake Road/Elrington Road, Elrington from Rural-1(a) to Rural Residential Uses within Cessnock Council's current Settlement Strategy. The Council have advised in a letter dated 21st September-2009 that there are a number of outstanding issues to be addressed. One issue to be adressed is the requirements of *Planning for Bushfire Protection-2006* for developments on bushfire prone land. To facilitate this matter ACM Landmark P/L have requested the preparation of a bushfire hazard and threat assessment addressing the proposed subdivision.

1 - 2. The assignment is to report on the potential hazard and accompanying threat to the proposed development and to recommend measures to mitigate such threat. The modus operandi of the report will be to -

- describe the site and surrounds
- review hazard, risk and danger and the threat of bushfire to the site
- review legislation with regard to hazard management
- recommend mitigation measures with regard to asset protection zones, water supply siting and building standards
- assess any likely environmental impact of any proposed bushfire protection measures
- review adequacy of access and egress
- summarize and draw conclusions.

1 - 3. In satisfying the terms of this assignment the following references will be drawn upon and criteria used as appropriate -

- *Rural Fires Act-1997*
- *Planning for Bushfire Protection-2006*
- Topographic & Orthographic Maps-1:25000 Cessnock 9030-2N, Quorrobolong-9132-2S - Co-ordinates[52·2E, 61·0N].

1 - 4. Other matters taken into account are -

- Locality Plan - APPENDIX-1
- Aerial Image - APPENDIX-2

- Subdivision Plan - APPENDIX-3
- Summary of Hazard Management Legislation - APPENDIX-4.

SECTION - 2 DESCRIPTION OF THE SITE

2 - 1. The site and surrounds was inspected on 25th September-2009.

2 - 2. The development land is currently zoned Rural (1a) and identified as Lot-7 DP:263182 and Lot-28 DP:844871 Lake Road/Elrington Road, Elrington in -

- Locality - Kearsley
- Parish - Stanford
- County - Northumberland
- L.G.A. - City of Greater Cessnock

The development site is an irregular area of land with an area in excess of 60-hectares in a generally rural landscape. It is proposed to subdivide the land which will be sold for rural residential purposes with Torrens Title attached.

2 - 3. The hazard within the property is composed of grassland generally with scattered trees derived from the original Lower Hunter Spotted Gum - Ironbark Forest which is listed on the TSC-Act as an Endangered Ecological Community in February-2005.
The proponent is aware of this fact and have commissioned Wildthing Environmental Consultants to provide a formal environmental assessment.

2 - 4. The property is adjoined generally for several hundred metres depth by a similar landscape and vegetative cover on the W,N&E aspects. The site is adjoined on the S.W,S&SE aspects by forested lands on rising terrain which culminates in Broken Back Range of more than 200m. AHD approximately 2KM southerly. Additionally a forested spur adjoins centrally on the E aspect (refer APPENDIX-2).

2 - 5. The land has an AHD generally of 90m. The highest ground is located at the SE corner of 118m. falling to 80m. at the NW corner. The land is drained centrally in a N.W. direction with a lowest point of approximately 74m. A patch of high ground rising to 108m. is located toward the N.E. corner of the land and which lies specifically within Created Lots-21&23 (refer APPENDIX-4).

2 - 6. The property is accessed and egressed from Lake Road via Elrington Road and approximately 1330m. of sealed roads and 210m. of access handles which will easily meet. PBP-2006 minimum standards are planned for construction.

2 - 7. The property will be serviced by reticulated water provided by Huntr Water Corporation . However notwithstanding this it is

recommended that each individual property at time of provision of each dwelling be fitted with on-site tank water at least part of which is dedicated to firefighting.

2 - 8. The property is the site of Elrington colliery and will retain some or part of the original buildings which are generally of steel and brick construction and be adapted into the current development without significant adverse affect on the heritage values. The retension structures will be incorporated into dwellings on Created Lots-15,16&18.

2 - 9. It is noted that steep land located in parts of Created Lots-22,14,15,21&23 is unsuitable for development and existing vegetation cover will be retained.

SECTION-3 HAZARD ASSESSMENT

3 - 1. *Planning for Bushfire Protection-2006 (PFP)* determines that a bushfire prone area is land that can support bushfire or is likely to be subject to bushfire attack.

3 - 2. Cessnock City Council has determined that the site is bushfire prone land on the map certified by the Commissioner of the Rural Fire Service for the purpose of S.146(2) *Environmental Planning and Assessment Act-1979.*

3 - 3. As the site is bushfire prone land under Section-79BA of the E.P&A-Act the Consent /authority must be satisfied that the proposal meets the requirements of PBP-2006. However as this proposal is a subdivision of residential land it is integrated development under Section-100B of the Rural Fires Act-1997 and will require the issue of a Bushfire Safety Authority (BSA) from the New South Wales Rural Fire Service.

SECTION - 4 THREAT OF BUSHFIRE TO THE SITE

4 - 1. Bushfire threat is defined as the scale of potential to cause damage to person/s or structures. In planning for bushfire protection threat is a measure of the scale of impact or significance in terms of hazard, risk, danger and asset value.

- HAZARD - the amount and type of combustible fuel together with the slope and aspect.
- RISK - the chance of a fire starting and it's ability to spread and cause damage to assets.
- DANGER - exposure to harm.
- ASSET VALUE - is of concern if something of value is affected. That value may be human life or welfare, monetary [eg.destruction of buildings and contents],

aesthetic [eg.loss of scenery], opportunity [eg.loss of tourism] and environmental [eg.loss of resources].

4 - 2. The whole of the 40-hectare plus property is generally cleared to grassland containing scattered trees within a predominantly rural landscape. However the SW,S&SE aspects contain forested lands adjoining property boundaries. The hazard from this source is assessed as high.

4 - 3. In it's current state the risk of a fire starting and spreading across the site has to be assessed as high. However with required bushfire protection measures in place the risk of bushfire will reduce to low and even then primarily from embers and not from direct attack.

4 - 4. Public Road access and egress is provided from Lake Road via Elrington Drive which will connect to 1330m. of similar standard sealed road in the subdivision supported by 210m. of access handles as indicated in APPENDIX-3.
Danger from bushfire to residents with this access and other protection measures in place is assessed as moderate.

4 - 5. The asset value of developments which will flow on from the rezoning will be substantial and provide significnt incentive for owners and occupiers to maintain both bushfire protection measures and a state of preparedness.

4 - 6. With the presence of adjacent substantial bushland hazard on SW,S&SE aspects, threat of bushfire will be ever present however with proposed protection measures in place the threat has been assessed as ranging from low to moderate.

4 - 7. The proponent is aware of the presence of significnt environmental features and has commissioned Wildthing Environmental Consultants to address the issues of concern.

4 - 8. The fire fighting capability to carry out bushfire prevention and suppression in the locality is strong due to the resources of the New South Wales Rural Fire Service and the National Parks and Wildlife Service.

SECTION - 5 HAZARD MANAGEMENT

5 - 1. Bushfire threat to the proposed development can only exist if fuel hazard either on the property or adjacent land exists.
Any threat will increase if the amount of fuel in the fine fuel zone increases due to build up over time.
Statutory provisions exist which are designed to limit such hazard increases. The Rural Fires Act provides ample opportunity for excessive levels of hazard to be removed or modified.
Given the heightened public interest in such matters a summary of legislation dealing with hazard management is included in this report in APPENDIX-4.

5 - 2. Notwithstanding all of the above matters it is still incumbent on the proponent to make adequate provision for the protection of the development from bushfire.

SECTION – 6 PROTECTION OF THE SITE FROM BUSHFIRE

6 - 1. The site is bushfire prone land and Section-79BA of the EPA Act-1979 requires that the Consent Authority must be satisfied that the proposal meets the requirements of *Planning for Bushfire Protection-2006*.
The document outlines the provisions that should be taken into account when relevant application is to be determined for residential and rural residential development. Provisions to be applied are -

- Development and maintenance of the Asset Protection Zones on the hazard side/s of the development.
- Provision of adequate access.
- Provision of appropriate water supply; and
- design, staging and siting.

6 - 2. Provision of Asset Protection Zones (APZ) – APZ's provide a buffer on the hazard side of any development commencing at the building line.

- The relevant Fire Danger Index (FDI) is 100 within Cessnock LGA as a part of the Greater Hunter Region.
- Forest land within 140m. of any proposed dwelling site is located adjacent to the SW,S&S.E. boundaries of the site and the Predominant Vegetation is determined as FOREST and can influence the protection of Created Lots-7,8,9,10,11,12,14,15,28,29,30&31.
- The strip of bushland along the N.E. boundary adjacent to Created Lots-25,26&27 is less than 50m. wide and the predominent vegetation is determined as Rainforest.
- The whole of the remainder of the development is exposed to Grassy Woodland as the Predominant Vegetation ie. Created Lots-13,16,17,18,19,20,21,22,23,24,32,1,2,3,4,5&6.
- The effective slopes range from upslope to a maximum of 5º-10º with the majority to be exposed to 0º-5º.
- Except for the lots containing structures to be retained it is not feasible now to precisely determine the required APZ's for each of the remainder. However the significnt point is that each Created Lot can provide numerous dwelling footprints on which structures can meet *Planning for Bushfire Protection-2006* requirements.

For the worst case scenario the minimum APZ profiles are listed -

- Lots-1-8,13,16-18&31&32 - 15m. on all aspects
- Lots-20-30 - 20m. on all aspects
- Lots-9&10 - 20m. S&W & 15m.N&E
- Lots-11&12 - 20m. S & 15m. N.W&E
- Lots-14&15 - 20m. S&E & 15m.N&W
- Lot-19 - 20m. N & 15m S,W&E

All of the listed A.P.Z's can readily be achieved.

Summary - The development complies with the acceptable solutions performance criteria for APZ's.

6 - 3. Provision of Adequate Water Supply - Reticulated water provided by Hunter Water Corporation is available to the subdivision. It is understood that water supply for all Created Lots will be supplemented by roof capture of rainwater and it seems prudent that part of this capture should be dedicated to firefighting. It is therefore recommended that a minimum of -

- 10,000Litres of static water supply dedicated to firefighting be provided within the IPA and away from the stsructure for each Created Lot.
- Subject to Rural Fire Service local requirements a suitable connection for firefighting purposes is to be provided.
- Pipes are to be capable of adequate water flow and composed of metal and not plastic.
- Underground tanks to have an access hole of 200mm. to allow tankers to refill direct from tank.
- A hardened ground surfacc for truck access to be supplied within 4m. of the access hole.
- Above ground tanks to be of concrete or metal and raised tanks suitably protected. Plastic tanks are not acceptable.
- The dwelling to be provided with a minimum 5HP petrol or diesel powered pump and hose reels.

Summary - The proposed development complies with the acceptable solutions criteria for water supply.

6 - 4. Provision of Adequate Access - The subdivision proposal incorporates 1330m. of sealed road of similar standard to the public road of Elrington Drive which provides a link to Lake Road, the arterial road with the intersection approximately 2Kms. E. of Kearsley. 210m. of sealed access handles as indicated in APPENDIX-3. Each property will have all weather access to a minimum 6m.(1-4-1) standard to each dwelling to connect to defendable space incorporated into the IPA.

Summary - Each of the Created Lots can meet the acceptable solutions performance criteria for property access.

6 - 5. Provision of Adequate Building Standard - Until the building envelopes are determined it is not possible to accurately determine the Category of Bushfire Attack for each Created Lot. However after inspection of the property and taking into account the respective predominant vegetation and terrain it is evident the any future dwellings will be able to easily meet the standard required by AS:3959-1999.

SECTION - 7 SUMMARY AND CONCLUSION

7 - 1. The development site is designated as bushfire prone land and is exposed to high hazard and high risk. However with required fire protection measures in place the risk and threat of bushfire for the individual component lots will reduce to low and moderate.

7 - 2. The proposed development complies with the performance criteria and acceptable solutions as outlined in *Planning for Bushfire Protection-2006*.
For specifics refer to -

- Clause 6-2 - Asset Protection Zones
- Clause 6-3 - Water Supply
- Clause 6-4 - Adequate Access & Egress
- Clause 6-5 - Building Construction

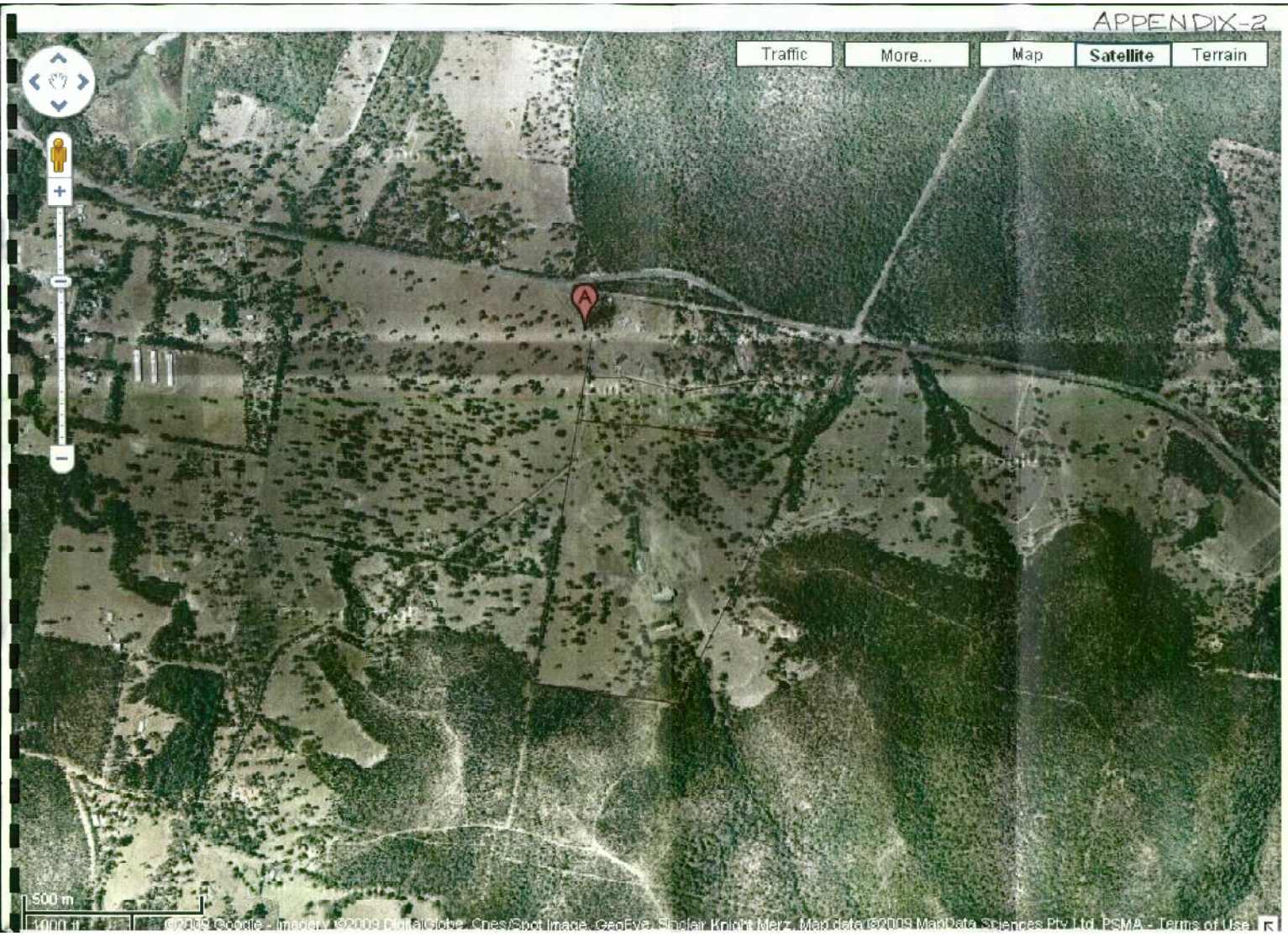
7 - 3. Threatened species population, endangered ecological communities and critical habitat threat have been addressed by the proponent by commissioning Wildthing Environmental Consultants to prepare a report which will be included with the DA submission.

7 - 4. It is concluded that threat of bushfire should not be a barrier to consent for the proposed development

R.A. FREE B.Sc.,(For).,Dip.For.,F.I.F.A.
Bushfire Management Consultant. DATE: 7th December, 2009

APPENDIX • 1
SITE
KEARSLEY
Eddenville
Swamp
ELRINGTON
Glenrowan
LAKE ROAD
HEBBURN ROAD
ABERDARE STATE FOREST
ABERNETHY SELECTIONS
ABERNETHY PINNACLE
BROKEN BACK RANGE
Swamp Creek
Cony Creek
"Coney Creek"
Abandoned Colliery
KEARSLEY U3657-4
KEARSLEY U3657-7
263182
227135
595102
10134
580731
950221
HOWELLS ROAD
PINNACLE ROAD
MICHIGAN ROAD
MIDDLE ROAD
LOOP ROAD
PINNACLE LINK ROAD
DRY POINT
training track
Locked
Yards

APPENDIX-2


Traffic
More...
Map
Satellite
Terrain
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500 m
©2009 Google - Imagery ©2009 DigitalGlobe, Cnes/Spot Image, GeoEye, Sinclair Knight Merz, Map data ©2009 MapData Sciences Pty Ltd, PSMA - Terms of Use

APPENDIX 3

AERIAL PHOTO

LEGEND:

- Ω PROPOSED EASEMENT FOR WATERMAIN 3.0m WIDE
- ≈ EXISTING EASEMENT FOR WATERMAIN 3.0m WIDE
- Φ EXISTING EASEMENT FOR RIGHT OF CARRIAGEWAY 20.115m WIDE
- LAND CAPABILITY CLASS VIIa & VIIc SLOPE & VEGETATION CONSTRAINTS
- EXISTING LOTS 7 & 8 DP 263962

P L A N
SCALE 1:4000 (A3)

Surveyed by: HUNTER SURVEY SERVICES	Job Name: PROPOSED SUBDIVISION LOT 7, DP 263962 & LOT 26, DP 844871 LAKE ROAD, ELRINGTON	Title: CONCEPT SUBDIVISION LAYOUT PLAN	
Datum: AHD	Coord: ASSUMED		
Designed: ML	Checked: ML		
Drawn: JPS	Approved: ML		
Scale: AS SHOWN	Drawing No: 0034-100	Sheet No: 1 of 1	Amdt: A

Client: PHIL LOVETT

LANDMARK LAND DEVELOPMENT CONSULTANTS

No.	Date	Amendment Details	Initial
A	09.12.09	DRAWING ISSUE	ML

APPENDIX-4

SECTION - 5 HAZARD MANAGEMENT

5 - 1. Bushfire threat to the proposed development can only exist if fuel hazard, both on the property and adjacent land exists. Any threat will increase if the amount of fuel in the fine fuel zone increases due to build up over time. Statutory provisions exist which are designed to limit such hazard increase. The Rural Fires Act of 1997 as amended provides opportunity for excessive levels of hazard to be removed or modified.

5 - 2. Section 52 Division 4 Part 3 of The Act requires that Bushfire Management Committees established under the Act must prepare and submit to the Co-ordinating Committee of the Bushfire Council a draft plan of operations and a draft bushfire risk management plan.

5 - 3. Section 54 Division 4 Part 3 requires that a draft risk management plan for rural district or any other part of the State is to set out schemes for the reduction of bushfire hazards in a particular area of responsibility.
Owners and occupiers of land at the urban bushland interface can expect bushfire hazard to be modified.

5 - 4. Section 63 Division 1 Part 4 of the same Act sets out the duties of public authorities and owners or occupiers of land to prevent bushfire -

1. It is the duty of a public authority to take notified steps (if any) and any other particular steps to prevent the occurrence of bushfires on and to minimise the danger of the spread of a bushfire on or from:-

   a) any land vested under it's control or management,

   or

   b) any highway, road, street, land or throughfare, the maintenance of which is charged on the authority.

2. It is the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of bushfires on and to minimise the danger of the spread of bushfires on or from that land.

3. A public authority or owner or occupier is liable for the costs incurred by it in performing the duty imposed by this section.

4. The Bushfire Co-ordinating Committee may advise a person on whom the duty is imposed by this section of any steps (whether or not included in a bushfire risk management plan) that are necessary for the proper performance of the duty.

5 - 5. The Rural Fires Act 1997 No.65 provides opportunity for excessive fuels to be removed under Section 66 Division 2 Part 4. The local authority of an area may by notice in writing require the owner or occupier (not being a public authority) of any land within the area to carry out bushfire hazard reduction work specified in the notice on the land. The excessive fuels can either be removed or significantly modified on the proponents land or any neighbouring freehold land as necessary.

5 - 6. Mechanisms laid down in Section 70 ensure that any work specified is carried out including costs recovery.

5 - 7. Unlike previous guidelines the 2001 revision of *"Planning for Bushfire Protection"* makes specific reference to Section 63,66,68 and 70 of the Rural Fires Act which could focus more attention on these requirements.

5 - 8. In July 2002 the New South Wales Government enacted legislation as outlined in the *Rural Fires and Environmental Assessment Legislation Amended Bill-2002* which came into effect on 1st August, 2002 and will be of great significance in ensuring fire protection in the community.
The amendments of the Rural Fires Act 1997 are outlined -

a) to provide for Commissioner of NSW Rural Fires Service to conduct performance audits with respect to the implementation of bushfire risk management plans and for detail of the audits to be included in the annual report for the service, and

b) to require local and public authorities to report to the Commissioner on their activities with rspect to bushfire hazard reduction work, and

c) to establish a complaints procedure with respect to bushfire hazard reduction work that an owner or occupier of land or authorities responsible for the land has failed to carry out in accordance with the Act and to require the work to be carried out, and

d) to enhance the power of the Commissioner to carry out bushfire hazard reduction work, and

e) to require the authority of the Commissioner to be obtained with respect to the fire safety of development for purposes (such as buildings in retirement villages, housing for older persons and that require special protection), and

f) to streamline the existing approval processes for the carrying out of managed bushfire hazard reduction work by providing for the work to be authorised by one certificate in place of other approvals, consents or authorities currently required by law for the carrying out of such work, but only if it is

carried out in accordance with a bushfire environmental assessment code; and

g) to provide for the Commissioner to make bushfire danger period declarations and to issue fire permits; and

h) to make various other minor charges.

The Bill also amends the *Rural Fires Act 1997* and various environmental assessment laws to make it clear that emergency fire fighting activities carried out by the Service or any other fire fighting authority are not subject to various planning and licensing requirements.

Appendix F

GEOTECHNICAL REPORT

Geotech Solutions

Geotech Solutions Pty Ltd
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[F] 0249 660485
[E] info@geotechsolutions.com.au

URBAN CAPABILITY ASSESSMENT

PROPOSED RESIDENTIAL SUBDIVISION LOT 7 DP263182 & LOT 28 DP844871 ELRINGTON DRIVE & LAKE ROAD ELRINGTON

Prepared for:

ACM Landmark

Prepared by:

Geotech Solutions Pty Ltd

GS ref: 544-001/0
CLIENT ref:

9 December 2009

Contents

Geotech Solutions

Geotech Solutions Pty Ltd
ABN: 18 125 808 620
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GS544-001/0
9 December 2009

ACM Landmark Pty Limited
P.O Box 627
Cessnock 2325
Attention: Mr Mark Leek

URBAN CAPABILITY ASSESSMENT
PROPOSED RURAL RESIDENTIAL SUBDIVISION
LOT 7, DP263182 & LOT 28 844871 LAKE ROAD, ELRINGTON

1 INTRODUCTION

This report details an urban capability assessment undertaken for the above site. A rezoning application No 8/2002/2/1 has been lodged with Cessnock City Council (CCC) and the assessment was undertaken in response to outstanding issues outlined in CCC correspondence reference 0034.CP/CCC-L06-CP.doc dated 21 September 2009.

The work was undertaken at the request of Mr Mark Leek of ACM Landmark Pty Limited (ACM) on behalf of the proponent Mr Phil Lovett.

Based on discussions and project details provided, it is understood that it is proposed to develop a rural residential subdivision on the site of the former Elrington Colliery off Lake Road at Elrington subject to rezoning. It is understood that the development will comprise a new 32 lot subdivision, with lot sizes ranging from 10000m2 to 25,100m2. The subdivision concept plan, ACM drawing 0034-100, is attached in Appendix A.

The assessment of the site for suitability for urban development was requested in addition to the issue raised by CCC previously.

Further detailed investigation will be required to establish geotechnical parameters for design of suitable foundations and pavements for development following rezoning.

2 PROJECT UNDERSTANDING

A Rezoning Application No 8/2002/2/1 Lot 7 DP263182 and Lot 28, DP844871 has been submitted. An additional desktop geotechnical review is required to investigate the risk of mine subsidence on the site to support the rezoning submission to CCC along with comment on the suitability of the land for urban development

It is understood that the review is required to provide information on the potential for subsidence on the site and allow for any potential subsidence to be accounted for in the design of the structures on site.

Desktop review would include:

1. Review of mining records applicable for the site;
2. Discussion with MSB personnel;
3. Review of available reports relating to the site;
4. Depth to workings and assessment of risk; and
5. Geotechnical considerations for design.

3 SITE DESCRIPTION

The proposed development site is situated on the former Elrington Colliery Site on the southern side of Lake Road at the end of Elrington Drive Elrington. The site is identified as Lot 7, DP263182 and Lot 28, DP844871 at Elrington and is a subdivision of former Portion 73. ACM drawing 0034-B01 and an aerial photo shows the proposed development site and are attached in Appendix A.

Existing development on the site include:

- Brick Bathhouse Building;
- Brick Administration Building;
- Brick and Iron workshop office building;
- Bicycle shed
- Sealed and unsealed access roads; and
- Inground services

At the time of inspection the site had been largely untouched since the cessation of mining activities. The buildings were largely intact but in a dilapidated state and had been subject to extensive vandalism.

Topographically the site is located between two low ridgelines which form the southern and northern boundaries of the site. Site elevations range between 118m A.H.D in the south eastern corner and 70m A.H.D in the central western portion of the site. Slope gradients across the site are very gentle to moderate ranging from less than 1° to 17° with steeper gradients located along the top of the ridgelines which are concave in shape (reducing in gradient towards the base). Site drainage follows site contours primarily directed to the west.

The site has been pasture improved and is used for grazing. There is sporadic and clustered mature eucalypts across the site; however the site can generally be described as open pasture with scattered shade trees. There are several dams located on the site used for stock watering.

3.1 REGIONAL GEOLOGY

Reference to the Newcastle Coalfield Regional Geological Series Sheet 9231 and parts of 9131, 9132 and 9232 Edition 1 1995; indicates that the site of the proposed development is situated within the Permian Age Maitland Group within the Branxton Formation, which is noted to generally comprise conglomerate, sandstone and siltstone. The Branxton formation sits stratigraphically above the Greta Coal Measures, which comprise similar rock types with the addition of coal.

Sandstone and conglomerate rock outcrops were observed along the ridgelines and are consistent with the regional geology expectations.

4 PREVIOUS STUDIES

Previous studies undertaken on the site include:

- HLA Envirosciences (1999) *Preliminary Contamination Assessment Report, Elrington Industries Site, Lake Road, Kearsley.* March 1999 (Ref 1)

The above report details the finding of Preliminary Contamination Assessment undertaken for the purpose of an earlier DA submission. The assessment identified several areas of environmental concern (AEC) and recommended additional investigation.

5 SITE ASSESSMENT

A walk over of the site was conducted on 22 November 2009 by a senior engineering geologist with the following comments:

- Several small stockpiles of building debris were located around the former workshop building;
- Coal reject had been placed to the south of the former administration building;

- A drain had been excavated at the north western portion of the site in the area of proposed lot 11;
- Several dams were present on the site;
- No sign of slope instability;
- No salt scald or areas of significant erosion was observed; and
- No sign of subsidence was observed on site.

Discussion with the site owner Mr Phil Lovett indicated that there was coal reject on the site left from previous mining operations. The reject is primarily lower grade carbonaceous material with a significant rock component. Approximately 80,000 tonne of coal reject was taken from the site by Hunter Environmental Mining (HEM).

As part of the assessment of mine subsidence issues, Mr Kevin Price of Brunskill Pty Limited was commissioned to undertake a review of mining records applicable to the development site. The report from Brunskill is attached as Appendix B and the findings of the report are summarised below in Section 6.1.

6 SUITABILITY FOR DEVELOPMENT

From a geotechnical perspective there are no constraints that are considered prohibitive to the proposed development when undertaken in accordance with appropriate development guidelines.

6.1 MINE SUBSIDENCE ISSUES

The site is not within a proclaimed Mine Subsidence District and as such approval for development on the site will not be required from the Mine Subsidence Board (MSB). Discussion with MSB representatives indicate that although the site is undermined, the workings are deep and associated with extraction in the Greta Seam. Referral to the MSB is recommended prior to development.

The majority of the subject area has been undermined by bord and pillar first workings in the Greta "Top" seam by Elrington Colliery prior to December 1962. Additionally Pillar extraction has taken place under a small area underlying the access road at the northern end of the subject area.

Cover to the Greta seam is considered to be in excess of 330 metres.

These workings were completed at least 47 years ago and considering the size of the solid pillars, depth of cover and the fact that only limited pillar extraction is recorded on the Record Tracing it is considered unlikely that any significant subsidence has occurred over the subject area. Any subsidence that has occurred in the small pillar extraction area is likely to be complete.

Based on the assessment and depth of workings mine subsidence is not considered a risk to development.

6.2 COAL REJECT AREAS

Survey and subsurface investigation will be required prior to development to confirm the extent of the coal reject placed on site. The material will need to be assessed for use as suitable fill in accordance with AS3798-2007 [Ref 2] and other regulatory guidelines [Ref 4].

Uncontrolled filling where encountered will need to be removed and replaced under Level 1 Inspection and testing as per AS3798-2007 [2].

6.3 SITE CLASSIFICATION AND FOUNDATIONS

Site Classification in accordance with AS2870 -1996 [Ref 3] will be required following rezoning as part of the development. Detailed investigation will be required to provide specific design parameters for foundations. For areas of engineered filling and residual soils allowable bearing capacity of 100kPa can be used for the design of high level footings. Anticipated site classification for the site based on visual classification would be expected to range from Class A, Stable to Class H, Highly Reactive.

6.4 CONTAMINATION ISSUES

Contamination issues raised in the HLA report (Ref 1) have been addressed under separate title following additional site investigation in GS report reference GS544-002/0 "Additional Environmental Site Assessment Report – Former Elrington Colliery" dated 8 December 2009 [Ref 5].

Reference to acid sulphate maps indicates that acid sulphate soils are not expected to be an issue in the area.

6.5 FURTHER INVESTIGATION

It is noted that further geotechnical investigation is required to provide foundation advice and design parameters for the proposed development.

Yours faithfully,
Geotech Solutions Pty Ltd

James Young
Principal Engineering Geologist

REFERENCES

[1] HLA Envirosciences (1999) *Preliminary Contamination Assessment Report, Elrington Industries Site, Lake Road, Kearsley.* March 1999.

[2] AS 3798 - 2007 "*Guidelines on Earthworks for Commercial and Residential Developments*", Standards Australia

[3] AS2870-1996 "*Residential Slabs and Footing – Construction*"

[4] Department of Environmental & Climate Change Waste Classification Guidelines Part 1: Classifying Waste.

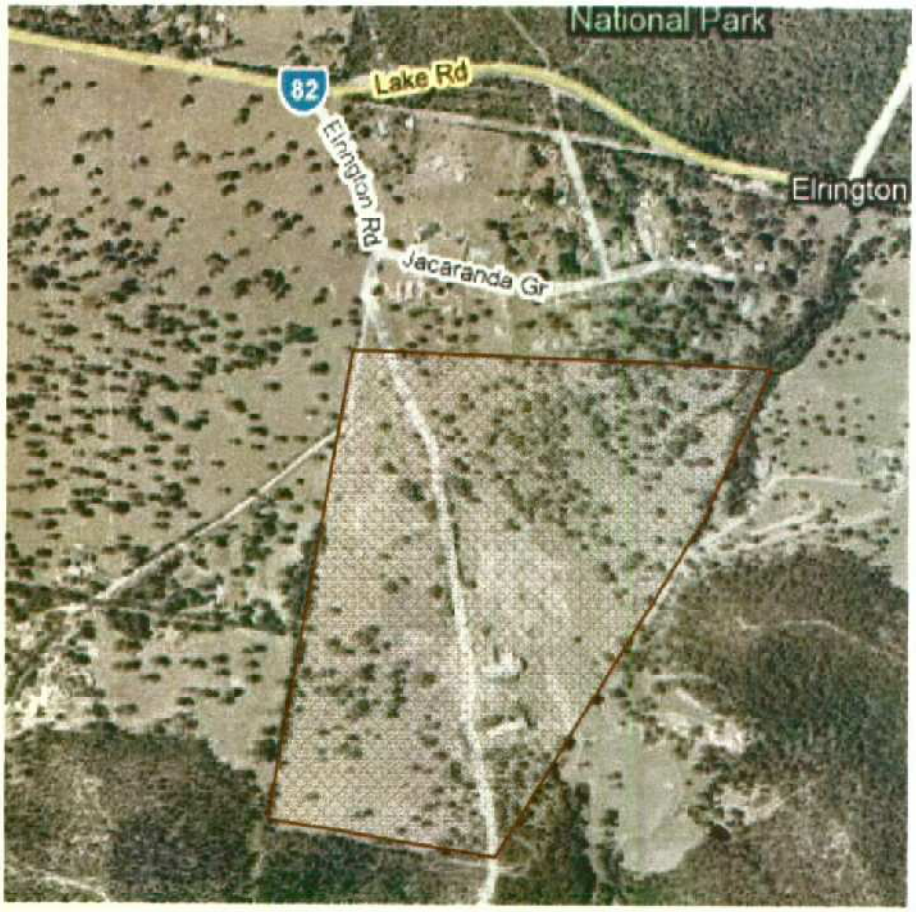
[5] Geotech Solutions Report GS544-002/0 "*Additional Environmental Site Assessment Report – "Former Elrington Colliery*" dated 8 December 2009

Appendix A

Drawings


LEGEND:
PROPOSED EASEMENT FOR WATERMAIN
EXISTING EASEMENT FOR WATERMAIN
EXISTING EASEMENT FOR RIGHT OF CARRIAGEWAY
SLOPE & VEGETATION CONSTRAINTS
AERIAL PHOTO
ELRINGTON DRIVE
LAKE ROAD
JACARANDA
CAMELIA CLOSE
GROVE
LOT 1 1.0ha
LOT 2 1.03ha
LOT 3 1.0ha
LOT 4 1.0ha
LOT 7 1.0ha
LOT 9 1.15ha
LOT 10 1.13ha
LOT 18
LOT 19 1.0ha
LOT 20 1.0ha
LOT 21
LOT 22
LOT 23
LOT 24 1.11ha
LOT 25
LOT 26 1.12ha
LOT 27
LOT 28 1.0ha
LOT 29 1.0ha
LOT 30
LOT 31
ROAD 20m WIDE
PLAN
Surveyed by HUNTER SURVEY SERVICES
Datum AHD
Coord. ASSUMED
Designed ML
Checked ML
Drawn JH
Approved ML
Client PHIL LOVETT
LAND DEVELOPMENT CONSULTANTS
PROPOSED SUBDIVISION
LAKE ROAD, ELRINGTON
Scale AS SHOWN
Drawing No. 0034-100
CONCEPT SUBDIVISION LAYOUT PLAN
Sheet No. 1 of 1
A

AERIAL LOCATION



AERIAL LOCATION MAP

LOT 7, DP 263182 & LOT 28, DP 844871
LAKE ROAD, ELRINGTON

Suite 3, 5 Edward Street, PO Box 627 CESSNOCK NSW 2325
ph (02) 4991 7171 fax (02) 4991 7272 Email: admin@acmlandmark.com.au

Our Ref: 03/LML/AERIAL MAP

Appendix B

Brunskill Report on Mine Workings

BRUNSKILL PTY LIMITED
ACN 092 418 650
ABN 70 092 418 650

49 Ulick Street
Merewether NSW 2291
Phone : 0249 637207
Mobile : 0418 119864
e-mail : pricek@bigpond.net au

REPORT

BMPR 941_061109

SUBJECT : Mine Workings Underlying and Adjacent to Proposed Subdivision of Lot 7 DP 263182 and Lot 28 DP 844871 - Elrington

TO : James Young – Geotech Solutions

DATE : 13 November 2009

Background

A rezoning application No 8/2002/21 has been lodged with Cessnock City Council for Lot 7 DP 263182 and Lot 28 DP 844871 at Elrington to allow rural subdivision of these properties.

Included in the issues remaining to be addressed as part of this application is:

"Mine Subsidence

Given the past use of the land for underground mining, a geotechnical report needs to be undertaken to determine if the site is suitable for rural residential development."

As requested, research has been conducted to determine the location of mine workings underlying and adjacent to the subject land.

Research has been conducted at Industry & Investment NSW – Minerals and Energy, Maitland consisting of a review of Parish Plans showing outline of mine workings and Record Tracing of Elrington Colliery. Additional information relating to history and mining methods has been researched from various sources including records held at this office.

Location

A review of the Parish Maps confirms that the subject land is a subdivision of the former Portion 73.

Mine History

Elrington Colliery was originally owned by BHP Collieries Ltd (principal shareholders being BHP Proprietary Coy Ltd and Hebburn Limited) and then changed owners several times to Boral Limited and then Coal and Allied Limited after closure (1967).

The mine holding consisted of about 1521 ha. Of this about 616 ha was freehold land owned by the mine surrounding Portion 73 Parish of Stanford, with the remainder a combination of Crown and private land.

The mine was originally referred to as Hebburn No 3 Colliery but shortly after operations commenced the name was changed to Elrington.

Two shafts (5.4 metres diameter) about 90 metres apart were sunk to a depth of about 363 metres exposing a seam of 7.9 metres thickness. These are the only entries to the mine.

Production commenced in 1928 and the mine closed in December 1962. The site was then used as an engineering works for some years.

Seam Information

Both the Greta "Top" seam and the Greta "Lower" (Homeville) seam have been proven on the Elrington lease. Mining operations were only conducted in the Greta "Top" seam.

The Greta "Top" seam is generally about 7.6 metres thick (7.1 metres at the shaft) and has a mudstone band (averaging 0.66 metres thick), in some places replaced by a shaley sandstone band, approximately 4.2 metres from the floor. Only the bottom 3.7 metres of the lower split was mined in the majority of the area with 2.1 metres in the initial drive and "tops" mined to the higher level.

Cover at the shafts is 363 metres.

Mine Workings

The original system of workings was by bord and pillar. Main headings were driven from the shafts in all four directions, east, north-east, west and south-west. Districts were then formed from these main headings.

Bords and cut-throughs were 5.5 metres wide and the solid pillars remaining varied in size, the smaller being 24.6 metres square and the larger being 36.6 by 24.6 metres. In the area underlying the subject area solid remnant pillars were generally in the range from 31.7m by 24.6m to 37.2m by 26.9m

The mine was worked initially by hand mining and later mechanised methods.

Some pillar extraction took place commencing initially with hand mining in 1944.

Information contained on Minerals and Energy (Maitland) Parish Map, titled Cessnock Greta Coalfields Map, indicates that the only mine located in the immediate vicinity with the potential to contain workings underlying the subject area is restricted to:

Map Ref	RT	Mine	Seam	State
8	345	Elrington	Greta	Discontinued

A review of the available information including the Record Tracing indicates:

The subject area has been undermined in the Greta "Top" seam. The workings generally consisted of first workings leaving solid pillars in dimensions noted above. Pillar extraction is limited to a small area, shaded orange on the attached plan, underlying the proposed access road into the subject area.

The location and the extent of the workings as shown on the attached plan BMPR 941 is in the order of 10 metres accuracy and is reliant on the accuracy of the Record Tracings as workings cannot be surveyed or inspected.

Reduced Levels and Cover

Various reduced levels (assumed to be seam floor levels, are shown on the Record Tracing. These levels range from about –289m to –267m AHD. Cover based on the shaft depths is in the order of 360 metres

Summary

The majority of the subject area has been undermined by bord and pillar first workings in the Greta "Top" seam by Elrington Colliery prior to December 1962. Additionally Pillar extraction has taken place under small area underlying the access road at the northern end of the subject area.

Cover to the Greta seam is considered to be in excess of 330 metres.

These workings were completed at least 47 years ago and considering the size of the solid pillars, depth of cover and the fact that only limited pillar extraction is recorded on the Record Tracing it is considered unlikely that any significant subsidence has occurred over the subject area. Any subsidence that has occurred in the small pillar extraction area is likely to be complete.

Kevin Price
Registered Mining Surveyor

ATTACHMENT A

RECORD TRACING CHECK SHEET

CHECK PROCEDURE FOR MINE PLAN RESEARCH

MINE NAME : **ELRINGTON**

SEAM : Greta

COLLIERY NAMES INDEX : Portion 73 Phs Stanford & Mulbring, Co. Northumberland. Greta seam RT 345.
Later notations : Now included in Hebburn No 2 CH. Now Pelaw Main.

REGISTER FOR COLLIERIES AND PROJECTS (digital) :

LOCATION : Portion 73, Stanford / Mulbring / Northumberland

HISTORY: BHP Collieries Pty Ltd, now included in Hebburn No 2 CH, now Pelaw Main

COMMENTS FROM CARDS : Colliery ceased production on 31-12-62. Notice of discontinuance received 9-5-63.

ASSOCIATED FILES :

DISTRICT / PARISH WORKINGS MAP : Shown reference number 65

MINE RECORD TRACING : **RT 345**

NO OF SHEETS : 2 chain : 1 inch – 5

FIELD NOTES / BOOKS :

SURVEY PLANS (M.P etc)

RECORD TRACING CHECK LIST
MINE WORKING PLAN CHECK LIST

PLAN OF ABANDONMENT : No

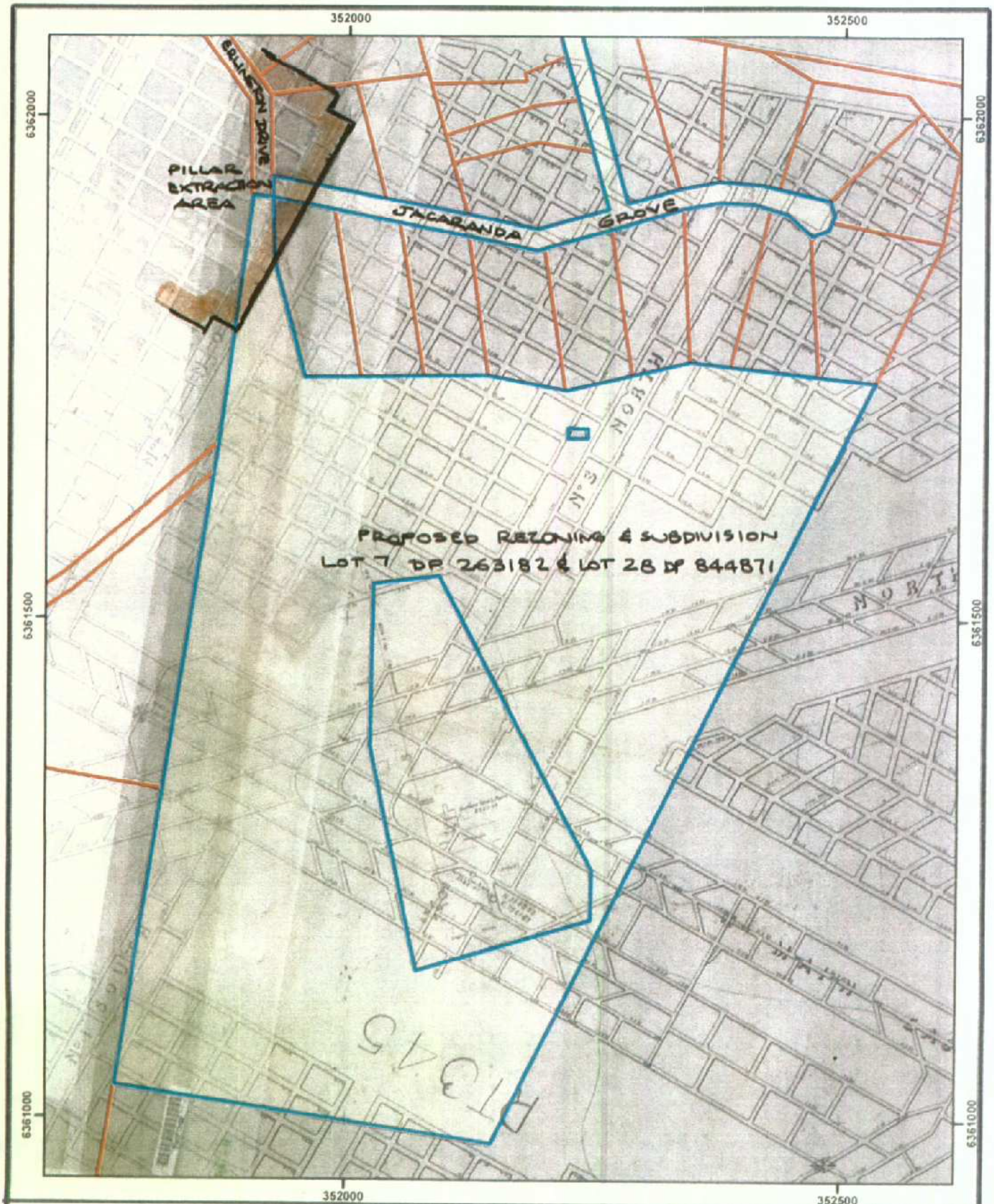
DATE OF ABANDONMENT : Noted as "Mine ceased production 20-12-62 T Bruce"

NOTATION :

DATE LINES : Yes

SURVEYOR'S SIGNATURE : Yes T Bruce 20-12-62 (last signature on Certification Schedule)

SURVEY INFORMATION :	Yes. Levels at various points and co-ordinates on local grid at various workings extremities.
DRIFT / SHAFT :	Shafts
CONNECTION TO BOUNDARY :	Yes. Connection to shafts from SE corner of MP7 from Chief Surveyor F N White's traverse book. Mines Department resurvey November 1927 M18849.
NAME OF LAST SURVEYOR :	T Bruce
NOTES :	Level datum HDWB +2000 feet Floor level range in order of 1052 (-289m AHD) to 1123 feet (-267m AHD). Seam section 7.1 metres.



NSW DEPARTMENT OF INDUSTRY AND INVESTMENT
MINERAL RESOURCES

516 High Street,
Maitland NSW 2320
Phone 0249316467 Fax: 0249316776
Website www.dpi.nsw.gov.au

Prepared by: Karen Inglis
Date: 12th November 2009
Scale: 1:5000
Projection: GDA 1994 MGA Zone 56

BMPR 941

Appendix G

MINERALS & ENERGY
CORRESPONDENCE

Mr. Colin Phillips
Enviro Science
PO Box 73
HRMC 2310

NSW DEPARTMENT OF MINERAL RESOURCES
35 Aruma Place (P.O. Box 410),
Cardiff, NSW 2285, Australia
Phone (049) 54 7899 · Fax (049) 54 8019
DX 12618 Charlestown

Dear Sir

Re: Elrington Coal Mine Shafts

On Monday 14 December 1998, Mr. Senior Inspector Flett and myself made an inspection of the two (2) shafts associated with the Elrington Coal Mine.

Both shafts are capped but in various states of disrepair.

Upcast Shaft

The current capping is adequate except that a hole in the capping surface requires filling.

A plaque should be placed on the capping indicating details of the shaft and the fact that the shaft is most probably not filled.

The associated concrete drift from the shaft is in a dangerous state and it is recommended that it be demolished.

Downcast Shaft

The current capping appears adequate but the surrounding walls and access ramp should be demolished because of the state of disrepair.

The area should be filled to the current ground level and a plaque placed on the centre of the shaft indicating details of the shaft and the fact that the shaft is most probably not filled.

Yours faithfully

G. W. Cowan
District Inspector of Coal Mines

Appendix H

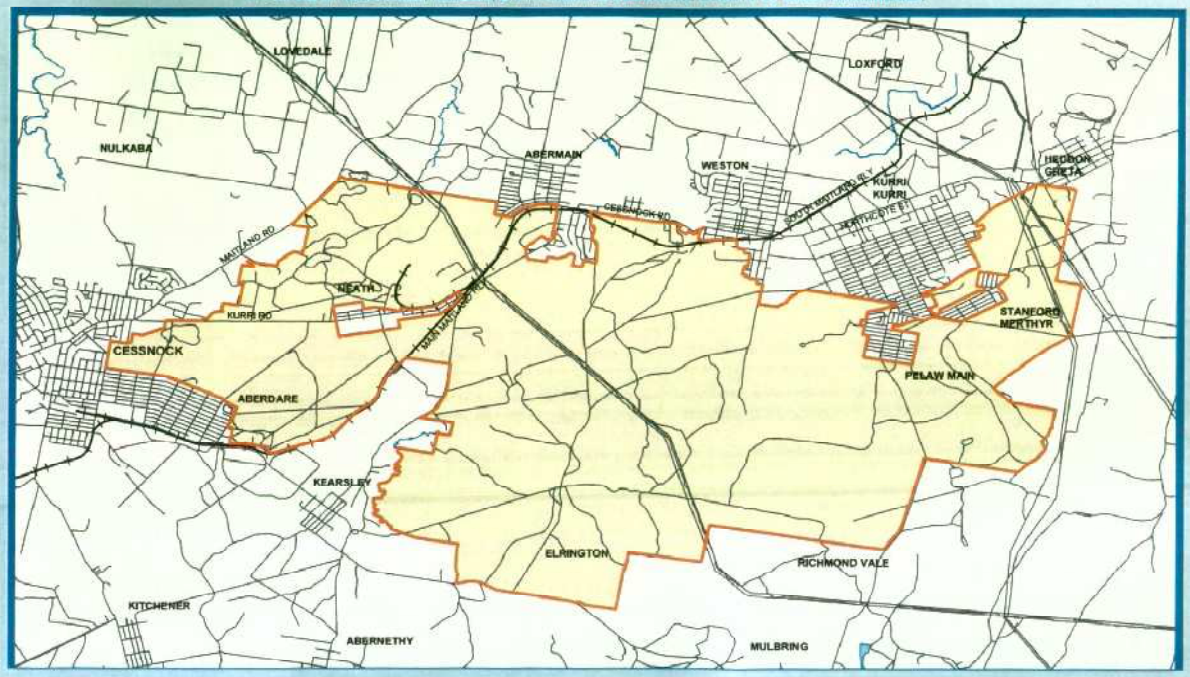
TOMALPINE MINE
SUBSIDENCE DISTRICT

TOMALPIN

MINE SUBSIDENCE DISTRICT

PLAN No.MSB15b

PROCLAIMED 16th JULY, 2003. NOTIFIED 1st AUGUST, 2003. UNDER SECTION 15(1) MINE SUBSIDENCE COMPENSATION ACT, 1961.
PARISHES OF ALLANDALE, HEDDON, STANFORD AND CESSNOCK, COUNTY OF NORTHUMBERLAND.



TOMALPIN MINE SUBSIDENCE DISTRICT

NOT TO SCALE

THE MINE SUBSIDENCE BOARD ADVISES YOU TO CONTACT THE BOARDS SINGLETON OFFICE TO OBTAIN ACCURATE PROPERTY IDENTIFICATION AND ANY FURTHER INFORMATION REGARDING THE MINE SUBSIDENCE DISTRICT OR RELATED MATTERS.

SINGLETON MINE SUBSIDENCE BOARD
P.O. BOX 524 SINGLETON, 2330

TEL: (02) 6572 4344
FAX: (02) 6572 4504
EMAIL: mail@minesub.nsw.gov.au

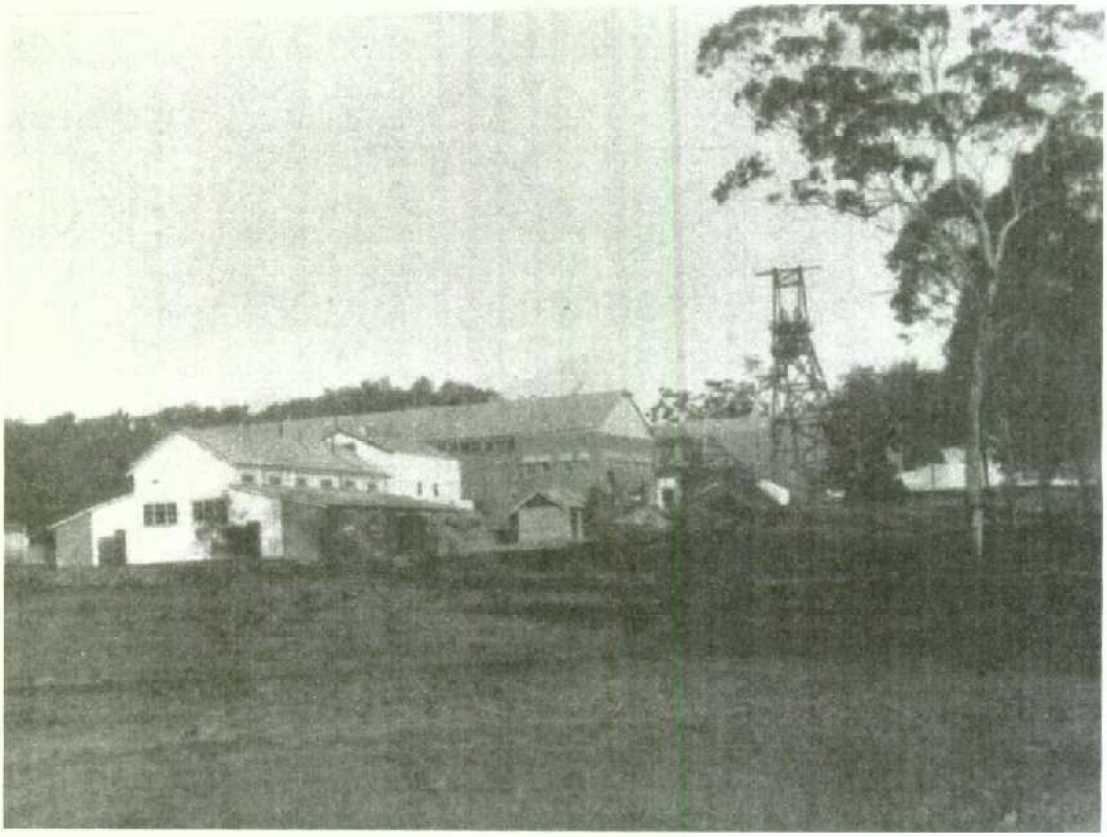
Disclaimer

This map has been compiled by the Mine Subsidence Board from official records held by the Department of Primary Industries - Mineral Resources, surface data supplied by the Department of Lands and by information supplied by the mine owners. Therefore no warranty is expressed or can be implied to any other person as to the accuracy of the map or that it is free from error or omission. Accordingly the State of New South Wales, the Mine Subsidence Board, their servants and agents expressly disclaim any liability whatsoever for the consequences arising from any act done or omissions made in reliance by others on the information contained in the map. Further information is available from the Mine Subsidence Board. The original Record Tracings are held by the Department of Primary Industries - Mineral Resources.

Appendix I

HERITAGE REPORT

Elrington Colliery Conservation Management Plan



Prepared by Insite Heritage Pty Ltd
February 2009
Prepared for ACM Landmark

Table of Contents

Cover photograph courtesy of Newcastle Regional Library - date unknown.

1.0 Preliminaries

ACM Landmark on behalf of Lovett's Earthmoving commissioned Insite Heritage Pty Ltd to prepare a Conservation Management Plan (CMP) for the site of Elrington Colliery at Elrington, near Cessnock NSW. The CMP is required by Cessnock Council to assess the proposed rezoning of the site to rural residential and a proposed subdivision plan.

The Colliery has been the subject of a heritage study by HLA Envirosciences in 1998. The study contains the detailed history of the site, therefore this study concentrates on the fabric of the structures as they stand in 2009 and provides principles to be included in the future management of the site. Adaptive reuse of buildings that remain on the site is discussed with recommendations to retain the heritage values of the colliery.

1.1 Executive Summary

Elrington Colliery is listed on the Regional Environment Plan as an item of local significance. The colliery has been empty for some years and is has been subject to vandalism and use by squatters.

The property owners seek to subdivide the property and adapt the remaining buildings on the site to residential use.

This report identifies the current situation and makes recommendations to allow for the adaptive reuse to proceed.

1.2 Introduction

Elrington Colliery is located off Lake Road near Kearsley east of Cessnock, NSW. The colliery operated by BHP from 1928 to 1974 when the buildings were used by Elrington Industries engineering business.

A Heritage Assessment was prepared by HLA Envirosciences in 1998. Subsequent to that assessment a Development Application allowing the demolition of some of the less important elements of the complex was approved by Cessnock Council. The demolition has commenced and a photographic record prepared.

This Cultural Heritage Management Plan develops recommendations to be implemented during the process of developing the site by means of adaptive re-use of the buildings into residences on rural residential lots. This is considered consistent with the surrounding land use.

1.3 Current Situation

Elrington Colliery is owned by Lovett's Earthmoving Pty Ltd. The earthmoving business sought in 2006-7 to use the site as a depot for their machinery however this was rejected by Council. Lovetts Earthmoving now seek to rezone the property to allow for rural residential landuse, with low key industrial activities for which the buildings are suited.

A Consent for the demolition of items of heritage significance has been issued on the 23rd of January 2002 which allows the demolition of a small portion of the fabric of the site (DA 8/2000/263/1). The approval pertains to the shed associated with latter engineering works (building 1), the workshop attached to the office (building 2) and the store (building 5). The shed has been dismantled and removed and buildings 2 & 5 remain subject to a photographic record in accordance with condition 6(g). The photographic record will be undertaken prior to the demolition of these structures.

Condition 7 of the DA above requires a permit to be sought from the NSW Heritage Council prior to the commencement of any excavation during the demolition of the buildings. There is no intention to excavate at this time.

1.3 Aims of the Study

A Conservation Plan has been requested by Cessnock Council to accompany a subdivision plan of the Elrington Colliery site.
The conservation Plan aims to be a guiding document for use when considering the subdivision application and a general framework for the consideration of future Development Applications related to the reuse of the buildings.

The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter) states that:

The aim of conservation is to retain or recover the cultural significance of a place and must include provision for its security, its maintenance and its future. (Article 2)

This study aims to support the conservation of the buildings of Elrington Colliery by adaptive reuse.

The Burra Charter states three principles for adaptive reuse.

Article 20 *Adaptation* is acceptable where the *conservation* of the *place* cannot otherwise be achieved, and where the *adaptation* does not substantially detract from its *cultural significance.*

Article 21 *Adaptation* must be limited to that which is essential to a use for the *place* determined in accordance with Articles 6 and 7.

Article 22 refers to the safe storage of infrastructure for its reinstatement should the occasion arise. As there is limited fabric of cultural significance within the Elrington buildings this article is not relevant.

Articles 6 & 7 refer to the cultural significance of the place determining the conservation policy and the conservation policy will determine uses that are compatible.

2.0 Analysis

2.1 Historic Documentary Evidence

The history of Elrington Colliery has been documented in the HLA 1998 report and the following information is drawn from this report. The Colliery was established by Broken Hill Pty Ltd and Hebburn Ltd as an extension to Hebburn, and Hebburn no. 2 Collieries, on 3,900 acres of which 1,500 acres was free hold. The mine worked the Main Greta Seam about 1,190 ft below the surface. The lower portion of the seam was extracted as the upper level had high sulphur content and low ash fusion (Elford and McKeown 1947 in HLA 1998).

The mine commenced in 1928 after industrial action ceased sinking operations in 1924. Industrial action (the 1929 lockout) impacted on the mines production. The 1935 paper by McKensey and Hindmarsh describes the mine in the course of development rather than full production.

A full description of the workings of the Colliery can be seen in the HLA 1998 report.

2.2 Physical Evidence

The Setting

The approach to the site is marked by an avenue of trees. The remnants of a planned driveway can be seen on the north of the bath house marked by a small plaque and a concrete garden edge.

Photo 1 View north from the bath house

Photo 2 One way sign in centre of concrete edging north side bath house

First Aid Room

The first aid room is a small brick structure located between the offices and the bathhouse.

Bath House

The bathhouse is constructed of brick with concrete floor. The central area was the dressing and drying room while the lean too on either side were the shower compartments.
Whilst some of the overhead infrastructure, such as the drying hooks, remain the building has been essentially stripped.

A bicycle shed constructed of brick remains at the rear of the bath house. It is not shown on the 1935 plan and must post date this period. It is in sound condition and should be incorporated into any adaptive re-use of the bath house.

Photo 3 View to bath house from the south.

Photo 4 The bicycle shed at the rear of the bath house.

Workshops / office

The building is constructed of steel frame with brick infill with two lean too structures containing the carpenters workshop and blacksmiths. The structure is open at the eastern end and the workshop area is 172 ft long (52.5m), 62ft (19m) wide and 34ft

(10.4m) high. The western end of the building contains two levels of offices. The buildings have been generally stripped.

The workshop contains infrastructure related to the period of use by the engineering firm. The brick floor adjacent to the offices shows the light rail and turntable (no longer extant) layout.

The workshop has been approved for demolition under DA 8/2000/263/1. It is recommended that the brick floor within the workshop and adjacent to the office should be retained and used as a feature attached to the office building as part of the adaptive reuse of that building. The floor referred to can be seen in photograph 11.

Storeroom

The building is constructed of a steel frame with galvanized iron cladding and roof. The structure is 53 ft long (16 .15m), 36 ft (11m) wide and 26 ft high (8m). The heavy doors to the north and south of the building remain in-situ and remnants of the light rail that connected the building to the workshop can be seen in places.

First Aid Room

The first aid room is a small brick structure located between the offices and the bathhouse.

Photo 5 The Workshops with store at front, offices on the right rear, workshop left rear.

The offices to the right are proposed for adaptive re-use as domestic residence. The first aid shed in photograph 7 has been recommended for inclusion on all plans and to be retained within the sub division layout. The bike shed at the rear of the bath house is also recommended for inclusion on all future plans and retention in the adaptive re-use plans.

Photo 6 The original doors on the north wall of the store

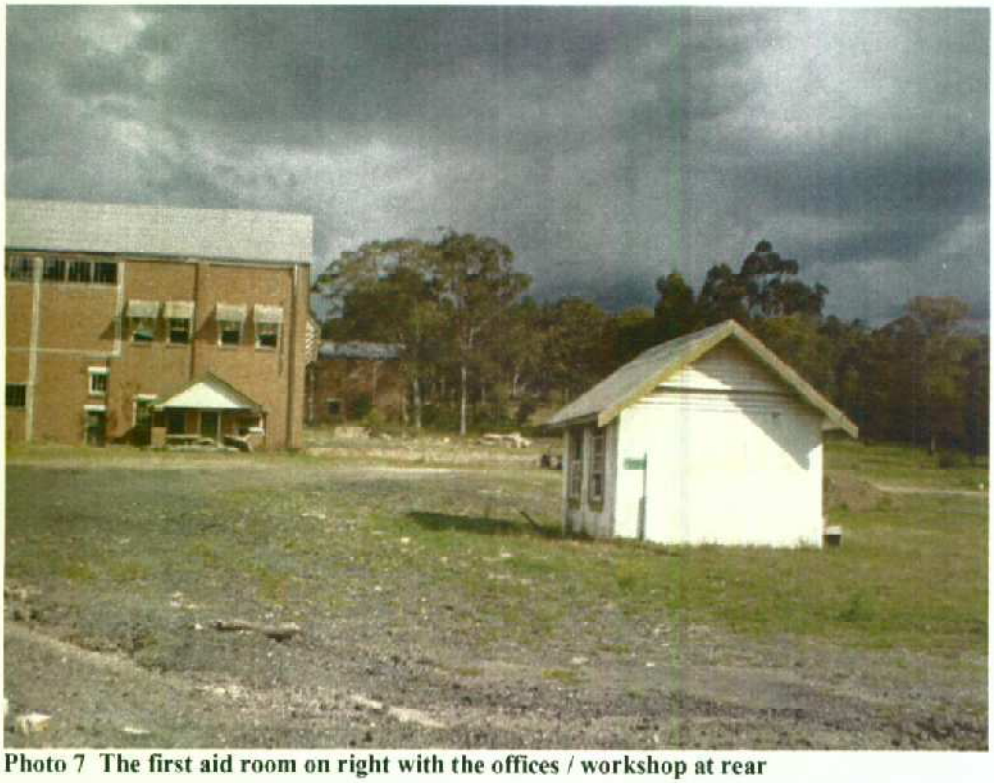


Photo 7 The first aid room on right with the offices / workshop at rear

Photo 8 The northern side of the workshop and blacksmiths shop

Photo 9 The southern side of the workshop and carpenters shop. Note open eastern end of building

Photo 10 View west inside the workshop.

Photo 11 The light rail and turntable inside the workshop connecting to the store on the right. This feature can be conserved in an outdoor area attached to the office.

Fan House

No longer extant

Shaft Equipment

No longer extant

Below Ground Workings

No longer accessible

Screens

No longer extant

Photo 12 Remains of the overhead light rail structures and No. 2 shaft

Main Engine House

The main engine house has been stripped machinery however the shell of the building remains intact. The building comprises a steel frame with brick infill paneling and a corrugated iron lantern roof. The building is 196 ft long (59.74 metres) long, 41 ft (12.5 metres) wide and 29ft 6in high (about 9 metres).

The details of the workings of the building can be seen in HLA 1998.

Photo 13 View of engine house from the east.

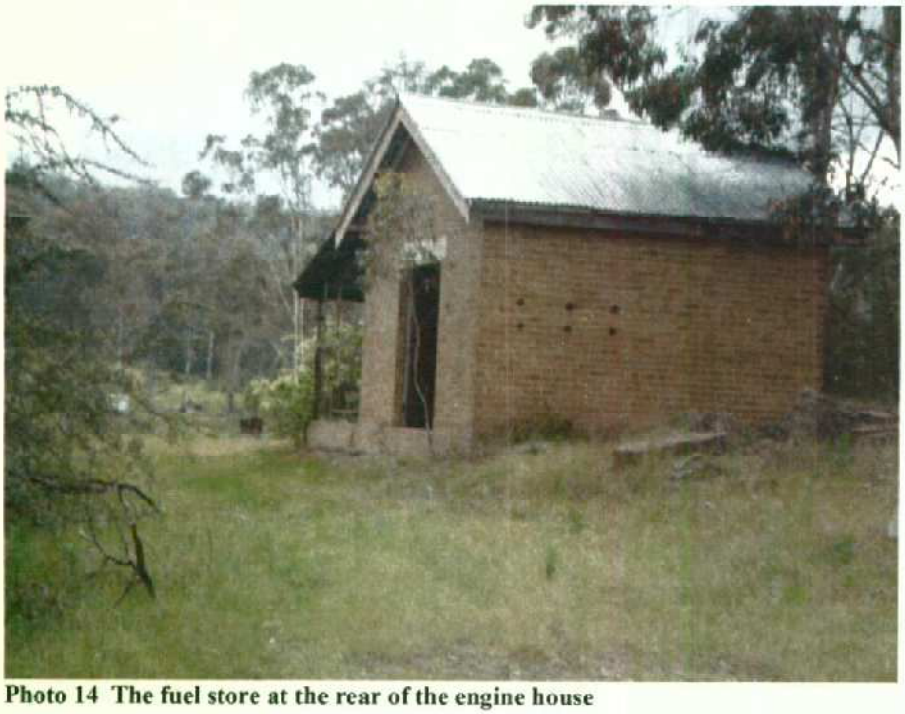


Photo 14 The fuel store at the rear of the engine house

Photo 15 View of the engine house from north east.

3.0 Cultural Significance

3.1 Assessment of Cultural Significance

The following cultural significance is made in comparison to other colliery sites in the area. There are several collieries from the period listed on Local Environment Plans including:
Richmond Main (1891 - 1967), Pelaw Main (1891 - 1961), Stanford Main at Paxton and Hebburn no. 2 (1918 – 1972). These mines all contain standing buildings with Richmond Main retaining most of its fabric, Stanford Main no. 2 and Elrington retaining much of the fabric and Pelaw Main, Hebburn No.2, Aberdare South, Kaingo, Pelton and Aberdare Central retaining less than half of their fabric.

The fabric of a coal mine of the period is well represented at Richmond Main, located about 10 kilometers from Elrington where mining and rail museum provide interpretation to the public.

Table 1 Significance assessment against criterion

Criteria	Statement of Assessment
Criterion (a): [Historical]	• The site is not important in the course or pattern of the cultural or natural history of NSW or the local area
Criterion (b): [Historical]	• this is the one of the first coal mines developed by BHP. Therefore the site has a special association with the life or works of a person or group of persons important in the local area
Criterion (c): [Aesthetic]	• the site demonstrates no importance in aesthetic characteristics and/or a high degree of creative or technical achievement in NSW or the local area. Whilst technical achievements were made in underground procurement methods these are not demonstrated at the pit top.
Criterion (d): [Social]	• the site has no strong or special association with the social, cultural or spiritual essence of a particular community or cultural group within NSW or the local community. It does have a social link in a collective sense to coal mining communities and families in the local area but the strength of the association has not yet been determined.
Criterion (e): [Scientific]	• the site has very limited (if any) potential to provide information that will contribute to an understanding of the cultural or natural history of NSW or the local area
Criterion (f): [Rarity]	• the site does not possess uncommon, rare or endangered aspects of the cultural or natural history of NSW or the local area
Criterion (g): [Representativeness]	• the site demonstrates the principal characteristics of a class of cultural or natural environment (coal mine of the period on the South Maitland Coal Field) within the local area

3.2 *Statement of Cultural Significance*

The following statement of cultural significance developed by HLA Envirosciences (1998) is still considered appropriate to the site as few changes have occurred to the fabric.

" Elrington Colliery is a good example of a medium sized colliery on the South Maitland field. Elrington was the first colliery owned by BHP and was renowned as an innovator in the area of mining technology pioneering mechanized coal handling and roof bolting the significance is of a regional level; Elrington being an important mine on the South Maitland field." (HLA 1998 p 8).

4.0 Constraints

The principle constraint on the Elrington Colliery site is the scale of the buildings and their setting in a rural residential area. The setting of the site precludes industrial development – a use which several of the buildings are well suited. Whilst the scale of the buildings renders them suitable for industrial purposes, industrial usage is inconsistent with the surrounding land use and is unlikely to be supported by existing residents. Council have indicated that rural residential would be an appropriate use given the broader setting of the property which includes exiting rural residential to the north and west.

The proponent seeks to subdivide the property, with each of the main buildings being contained on a block with potential plans for conversion into residences.

Individual DA's for the adaptive reuse of the buildings will then be assessed by Council in accordance with Councils plans, standards, and guidelines. The reuse of the buildings will secure their future maintenance whilst maintaining their context within the complex of the site.

5.0 Conservation Policy

The significance of the structures of Elrington Colliery is in their ability to demonstrate the above ground layout of the coal mines workings. The significance of the coal mine in comparison to others in the region lies in the underground processes that were innovated there. These processes cannot be demonstrated in the above ground structures which are consistent with other coal mines of the era. The value in the above ground structures is as a landscape feature that shows the location, setting and scale of operations at the height of the mines productive life.

The conservation policy is to retain the buildings as a landscape feature. This can be achieved with subdivision as, due to their scale, the buildings will retain their context as a complex.

Future adaptation of the buildings should retain the shell of the structures intact with external alterations kept to the minimum necessary to allow the adaptive reuse. The internal features should be retain as much as feasible and recorded prior to works commencing.

To reiterate the aim of the conservation of the Elrington Colliery site, that is the colliery as a landscape feature, it is important to retain the views to the site from the access road. This can be achieved by the inclusion of the formal colliery approach in lot 30, which will provide a view corridor through the bath house, office and engine house at the rear of the study area.

6.0 Discussion

The subdivision of Elrington Colliery will provide an opportunity for adaptive reuse of the buildings which in turn will ensure their survival into the long term. Council have indicated that rural residential use would be considered consistent with the buildings general setting and the zoning of the surrounding land.

To this end indicative plans have been developed to allow the adaption of the offices and bathhouse to residential dwellings. These indicative plans can be seen in Appendix A.

Recommendation 1 relates to the subdivision plan in Figure 1 (page 18) which locates the buildings in smaller lots. The principle recommendation for the subdivision plan is the adjustment of the access to Lot 30 which incorporates the original entrance to the mine. The view along the formal approach will help retain a curtilage to the building complex in addition to landscape elements such as the plaque seen in Photos 1 & 2.

The remainder of the recommendations pertains to the recording of features prior to building works, the addition of two small structures to the plans, the protection of the brick floor from the workshop and the need for excavation permits prior to excavating on the site. An excavation permit should be sought from the NSW Heritage Office prior to the sealing of the shaft to the Mine Subsidence Boards specifications. An excavation exemption may be sufficient for the lifting of some of the workshop floors.

7.0 Recommendations

1. The subdivision plan should retain the entrance alignment to the block containing the bathhouse. The reason for this is that the curtilage to the buildings will be enhanced with the conservation of the original entrance to the colliery. The view corridor to the bath house and beyond to the taller structures of the office and engine house will also be maintained.

2. The first aid shed (lot 29) and the shed at the rear of the bath house (possible bicycle shed – lot 30) and the fuel store (lot 26) should also be shown on the plan. These buildings should be retained.

3. The brick floor in the workshop adjacent to the offices should be retained as an interpretive feature. To minimise damage during demolition the floor

should be covered with sand to a sufficient depth to protect the bricks from weathering after the structure has been removed. Vehicle movements over this area should be avoided. The subsequent residence design should consider a roof over this feature which could be incorporated into an outdoor area.

4. An Excavation Exception Permit under Section 139 of the *NSW Heritage Act 1977* should be sought prior to the removal of the remaining concrete floor.

5. An Excavation Exception or Section 140 permit may be required for the excavation required to cap the underground shaft and render the area safe.

6. A photographic record of the internal layout of the buildings should be taken prior to building works proceeding.

7. The rubbish in the bathhouse should be removed to reduce the risk of fire in that building. The building should be made secure to discourage its use by squatters.

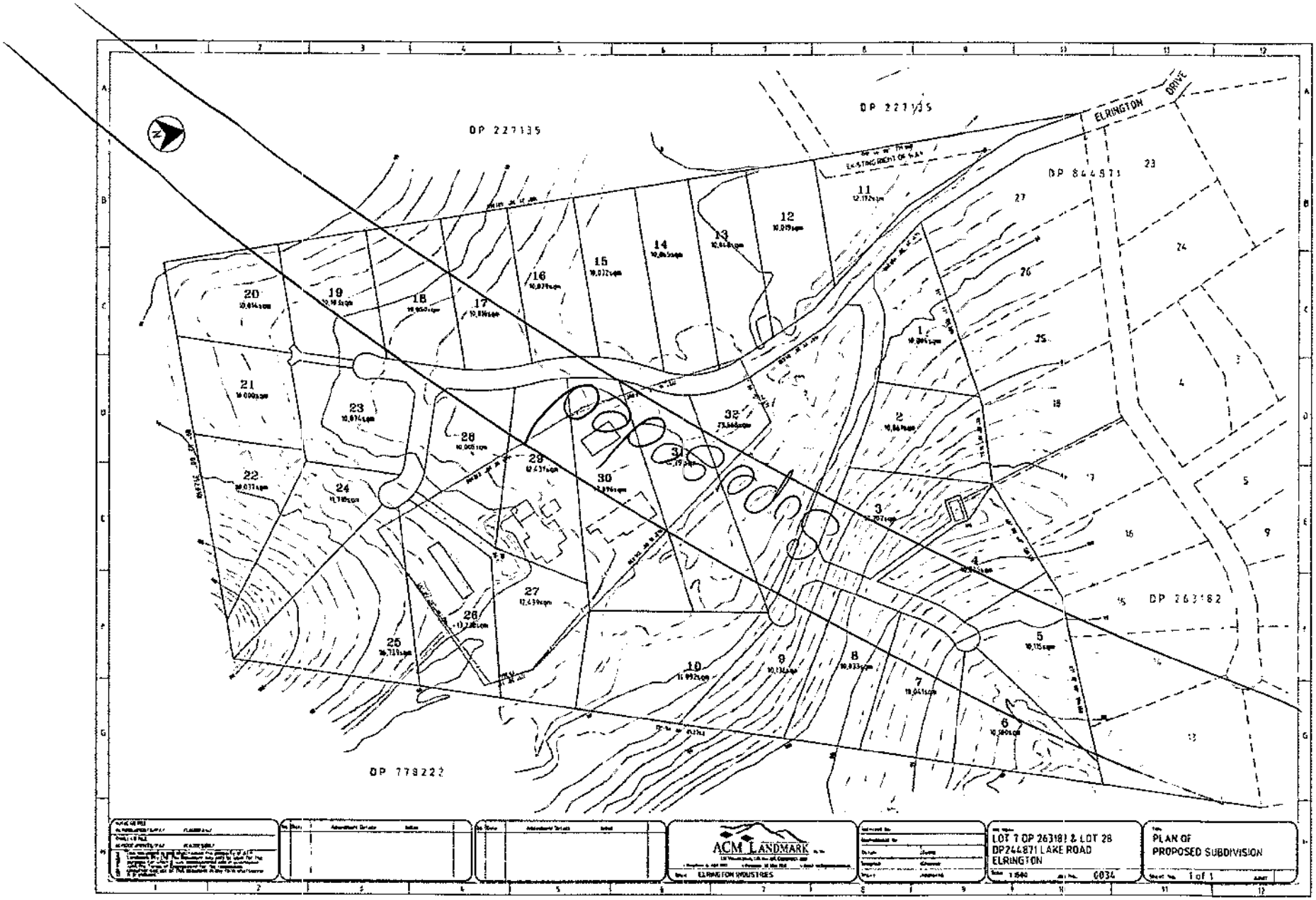


Figure 1. Proposed subdivision layout

Bibliography

Australia ICOMOS 1992 *The Illustrated Burra Charter* ed. By Peter Marquist-Kyle and Meredith Walker. Australia ICOMOS Sydney

HLA Envirosciences 1998 Heritage Study of the former Elrington Colliery. Unpublished report to Elrington Industries Pty Ltd.

Pearson M. & Sullivan S. 1995 Looking after Heritage Places *The Basics of Heritage Planning for Managers, Landowners and Administrators.* Melbourne University Press.

http://www.heritage.nsw.gov.au/07_subnav_01_2.cfm?itemid=1340459

AERIAL PHOTO

LEGEND:

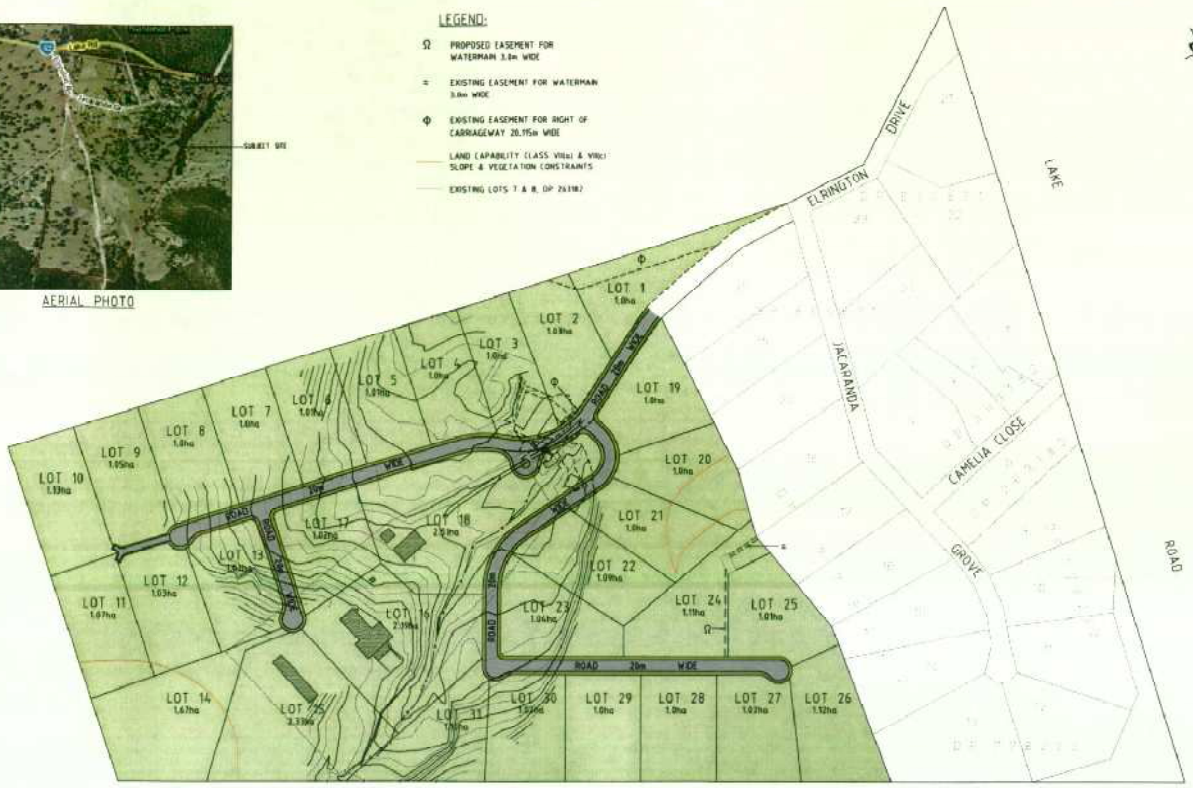
Ω PROPOSED EASEMENT FOR WATERMAIN 3.0m WIDE

= EXISTING EASEMENT FOR WATERMAIN 3.0m WIDE

Φ EXISTING EASEMENT FOR RIGHT OF CARRIAGEWAY 20.115m WIDE

LAND CAPABILITY (CLASS VIIIs) & VIIIc) SLOPE & VEGETATION CONSTRAINTS

EXISTING LOTS 7 & 8, DP 263182



PLAN

No.	Date	Amendment Details	Initial
A	01.12.21	ORIGINAL ISSUE	ML

acm LANDMARK
LAND DEVELOPMENT CONSULTANTS

Client: PHIL LOVETT

Surveyed by: HUNTER SURVEY SERVICES
Reference No:
Datum: AHD | Level: ASSUMED
Designed: ML | Checked: ML
Drawn: JM | Approved: ML

Job Name: PROPOSED SUBDIVISION
LOT 7, DP 263182 & LOT 28, DP 844671
LAKE ROAD, ELRINGTON

Scale: AS SHOWN | Drawing No.: 0034-100 | Issue:

Title: CONCEPT SUBDIVISION LAYOUT PLAN

Sheet No.: 1 of 1 | Issue: A

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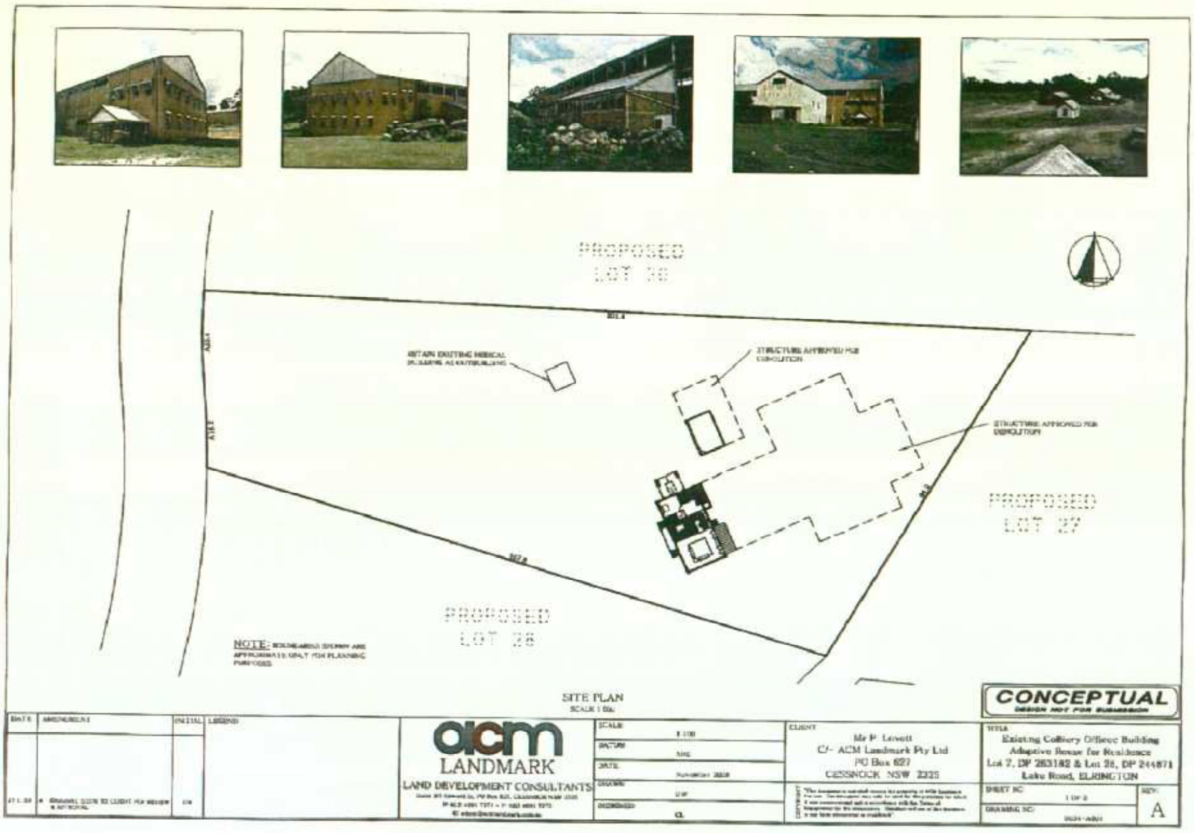
Appendix A

Indicative re-use plans for the

1. **Offices and**
2. **Bath house**


PROPOSED
LOT 26
RETAIN EXISTING MEDICAL BUILDING AS OUTBUILDING
STRUCTURE APPROVED FOR DEMOLITION
STRUCTURE APPROVED FOR DEMOLITION
PROPOSED
LOT 27
PROPOSED
LOT 28
NOTE:
SITE PLAN
CONCEPTUAL
DATE
AMENDMENT
INITIAL
LEGEND
acm
LANDMARK
LAND DEVELOPMENT CONSULTANTS
SCALE
DATUM
DATE
DRAWN
DESIGNED
CL
CLIENT
Mr P. Lovett
C/- ACM Landmark Pty Ltd
PO Box 627
CESSNOCK NSW 2325
TITLE
Existing Colliery Offices Building
Adaptive Reuse for Residence
Lot 7, DP 263182 & Lot 26, DP 244871
Lake Road, ELRINGTON
SHEET NO
DRAWING NO
REV
A


NORTHERN ELEVATION
WESTERN ELEVATION
SOUTHERN ELEVATION
EASTERN ELEVATION
CONCEPTUAL
DESIGN NOT FOR SUBMISSION
acm
LANDMARK
LAND DEVELOPMENT CONSULTANTS
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TITLE
Existing Colliery Offices Building
Adaptive Reuse for Residence
Lot 7, DP 263182 & Lot 28, DP 244871
Lake Road, ELRINGTON
SHEET NO.
3 OF 3
REV.
A

SITE PLAN

CONCEPTUAL
drawing not for submission

DATE	AMENDMENT	INITIAL	LEGEND
27.11.09	A		

LANDMARK
LAND DEVELOPMENT CONSULTANTS

SCALE 1:100
DATUM AHD
DATE
DESIGNED
DRAWN
CHECKED CL

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Mr P. Lovett
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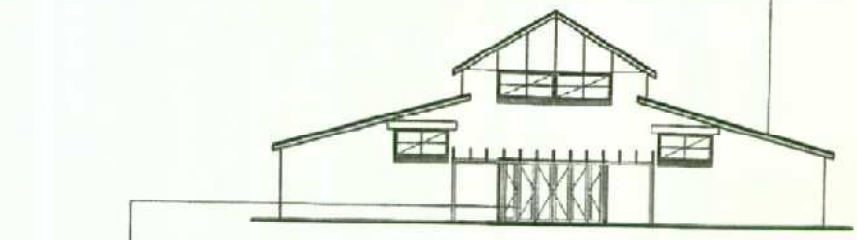
TITLE
Existing Colliery Bathhouse Building
Adaptive Reuse for Rca dance
Lot 7, DP 262182 & Lot 28, DP 244871
Lake Road, ELLANGLOW

SHEET NO 1 OF 3
DRAWING NO
REV A



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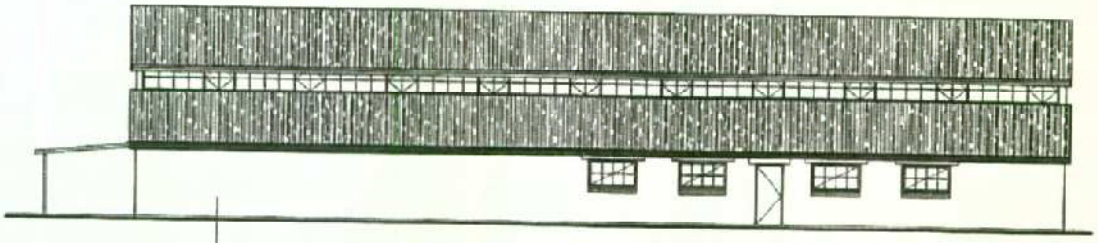
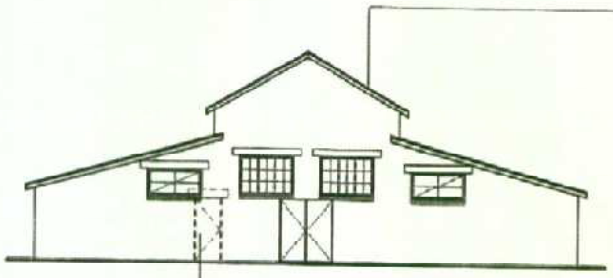
SCALE 1:100

REMOVE EXISTING ROLLER DOOR OPENING & PROVIDE NEW BI-FOLD GLASS DOORS



WESTERN ELEVATION
SCALE 1:100

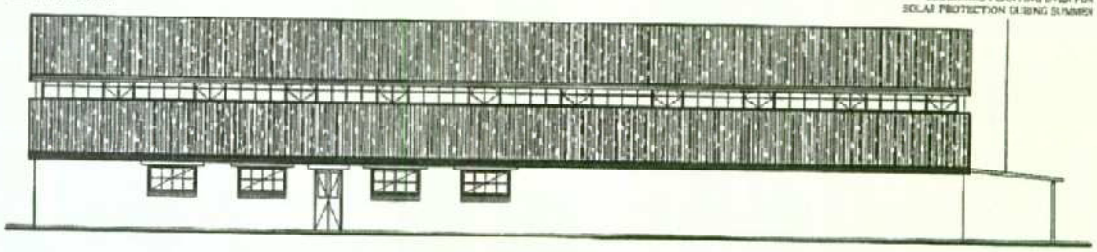
EXISTING BUILDING STRUCTURE TO REMAIN



SOUTHERN ELEVATION
SCALE 1:100

REMOVE EXISTING DOOR OPENING & PROVIDE WITH MATCHING WINDOWS SIMILAR TO EXISTING

PROVIDE TIMBER PERGOLA WITH DECIDUOUS PLANTING OVER FOR SOLAR PROTECTION DURING SUMMER



EASTERN ELEVATION
SCALE 1:100

CONCEPTUAL
DESIGN NOT FOR SUBMISSION

DATE	AMENDMENT	INITIAL
27.11.08	A - ORIGINAL ISSUE TO CLIENT FOR REVIEW & APPROVAL	DW

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LEGEND:

TITLE
Existing Colliery Bathhouse Building
Adaptive Reuse for Residence
Lot 7, Dp 263182 & Lot 28, DP 244871
Lake Road, ELRINGTON

SCALE	DATE
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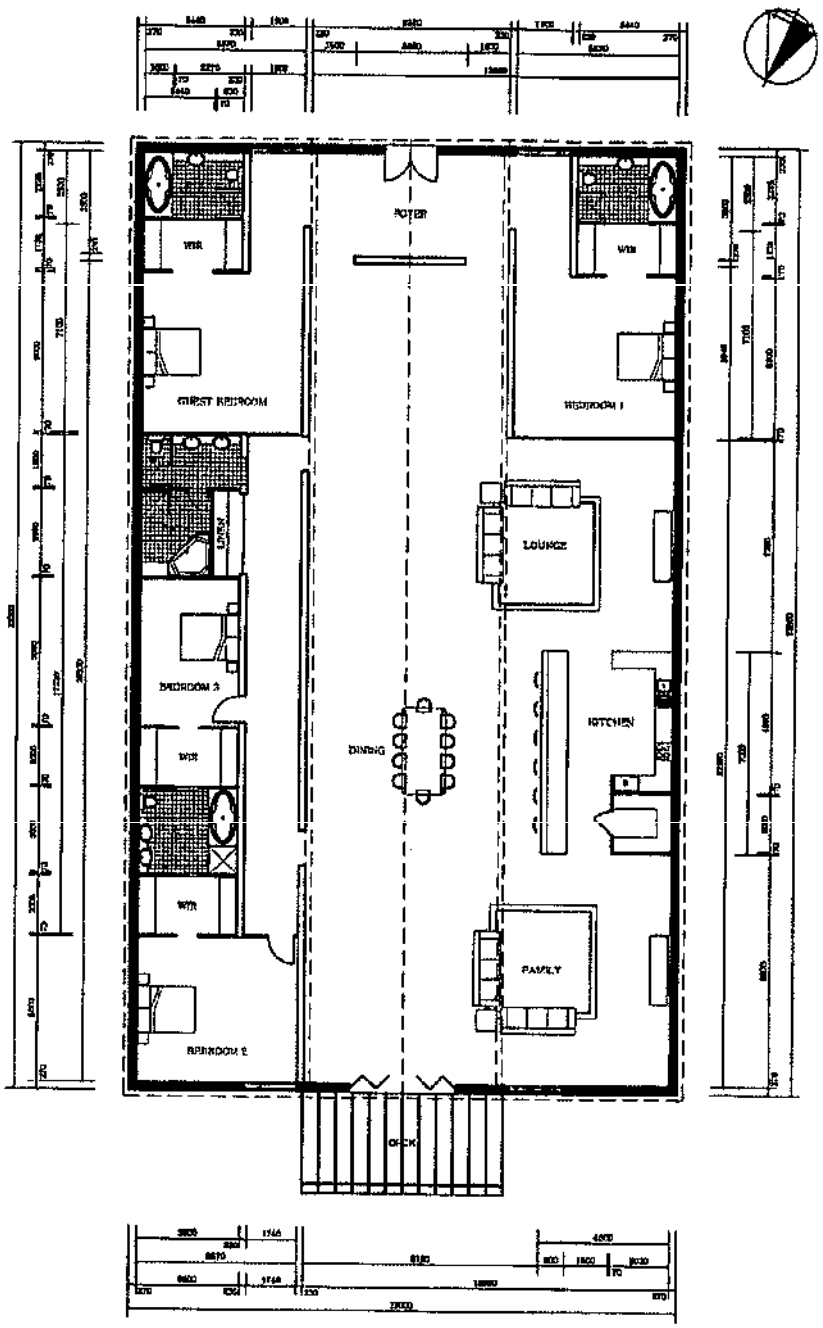
DATUM: AHD	DRAWN: DW
DESIGNED: CL	
SHEET NO: 3 OF 3	REV: A
DRAWING NO: 0634 - A003	



FLOOR PLAN
SCALE 1:100

CONCEPTUAL
DESIGN NOT FOR SUBMISSION

DATE	AMENDMENT	INITIAL
27.11.08	A - ORIGINAL ISSUE TO CLIENT FOR REVIEW & APPROVAL	DR

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Adaptive Reuse for Residence
Lot 7, Dp 263182 & Lot 28, DP 244871
Lake Road, ELRINGTON

SCALE: 1:100	DATE: November 2008
DATUM: AHD	DRAWN: DR / DESIGNED: CL
SHEET NO: 2 OF 3	REV: A
DRAWING NO: 0834-A002	

Appendix J

LAND CLASSIFICATION

Rural Land Capability Map Legend

1		8	
2		Water	
3		U	
4		M	
4c		N.R	
5		R.A.A.F BASE	
6		S.F.	
6c		N.P.	
7		Army Camp	

OverView

North

CESSNOCK CITY COUNCIL

0 230 470

Metres

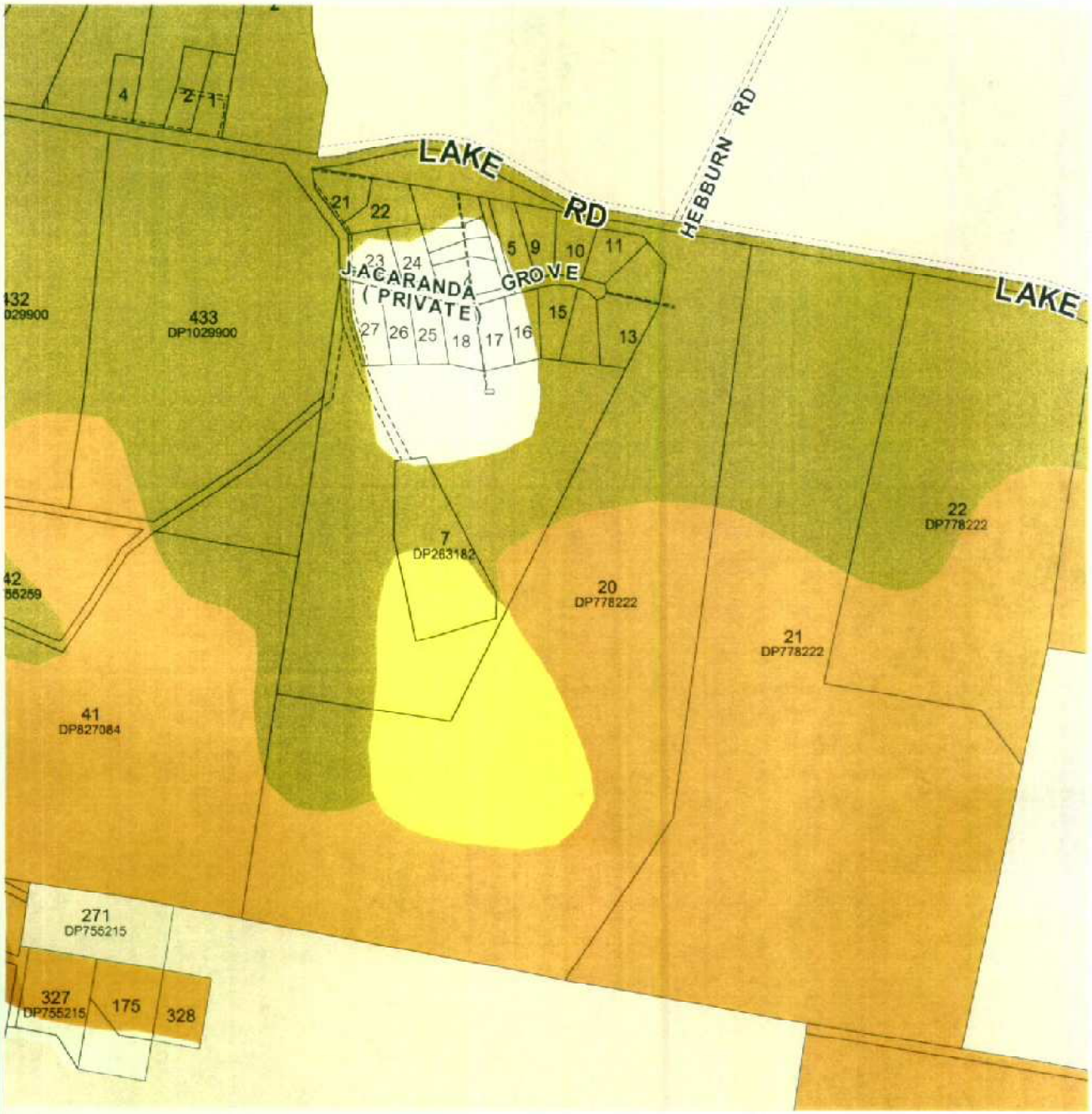
Scale 1 : 11870

WHILST EVERY EFFORT IS MADE TO PROVIDE ACCURATE MAPS, CESSNOCK CITY COUNCIL ACCEPTS NO RESPONSIBILITY FOR ANY ERROR OR OMISSION IN THIS MAP

A PERSON INTENDING TO RELY ON SURVEY ACCURATE DIMENSIONS SHOULD OBTAIN THE APPROPRIATE DEPOSITED PLAN

Date : 9 Dec 2009

A PRODUCT OF THE MAPPING / GIS SECTION



Agricultural Land Classification

By Agricultural Class

2
3
4
5
7
9
12
15

OverView

North

CESSNOCK CITY COUNCIL

0 274 548

Metres

Scale 1 : 13660

WHILST EVERY EFFORT IS MADE TO PROVIDE ACCURATE MAPS, CESSNOCK CITY COUNCIL ACCEPTS NO RESPONSIBILITY FOR ANY ERROR OR OMISSION IN THIS MAP.

A PERSON INTENDING TO RELY ON SURVEY ACCURATE DIMENSIONS SHOULD OBTAIN THE APPROPRIATE DEPOSITED PLAN.

Date : 9 Dec 2009

A PRODUCT OF THE MAPPING / GIS SECTION

Appendix K

STATEMENT OF THREATENED FLORA & FAUNA (CD)

Appendix L

TRAFFIC ASSESSMENT
REPORT

ACM Landmark utilise TPK & Associates Pty Ltd (TPK) for traffic consultancy services; Mr Keating has provided the following assessment for this project. Mr. Terry Keating, Director, TPK undertook the evaluation and preparation of the text. He has over 40 years experience in the road safety and traffic management profession, including the assessment of traffic generating developments.

The traffic generation and parking requirements for this project have been determined for this project through reference to:

- RTA Guide to Traffic Generating Developments
- Cessnock City Council DCP 2 – Off Street Vehicular Car Parking
- Austroads, Part 5, Intersections at Grade

Guidelines

Potential Road Network Traffic Generation

The RTA Guide to Traffic Generating Developments provides potential traffic generating rates for a range of land use activities. The document has been referenced for this assessment; Table 1 sets out the potential traffic generation for this project.

Land Use	Traffic Generations
Residential (31 Lots)	9 trips per dwelling per day 0.85 trips per dwelling in the typical peak hour Equates to: 279 trips per day 26 trips in the typical peak hour

TABLE 1 – POTENTIAL TRAFFIC GENERATIONS

Traffic Distribution of the Additional Peak Hour Traffic

Peak Direction Split

The potential distribution has been determined as the Peak Direction being 70% of total peak trips; a split of 18:8 for the 26 trips.

Catchment Split

The catchment for all traffic is predicted to be predominately to/from Cessnock to the west; a split of 80% to/from the west has been adopted; the splits being 14:4 & 6:2 expanding the peak split above to potential distribution.

Parking Requirements

TABLE 2 – PARKING REQUIREMENTS as per DCP 2007

USE	RATE & REQUIRED
RESIDENTIAL	The DCP does not contain a requirement for the Residential House

TPK Assessment

Parking Overview

The provisions for parking have not been assessed as a potential issue for this subdivision; the generous lot sizes will ensure that off street capacity will be available.

Traffic Volumes

Existing

The intersection of Lake and Elrington Roads is the estates link to the broad road network and the intersection has been surveyed in the pm peak; the typical pm peak, existing traffic flow is shown in Figure 1.

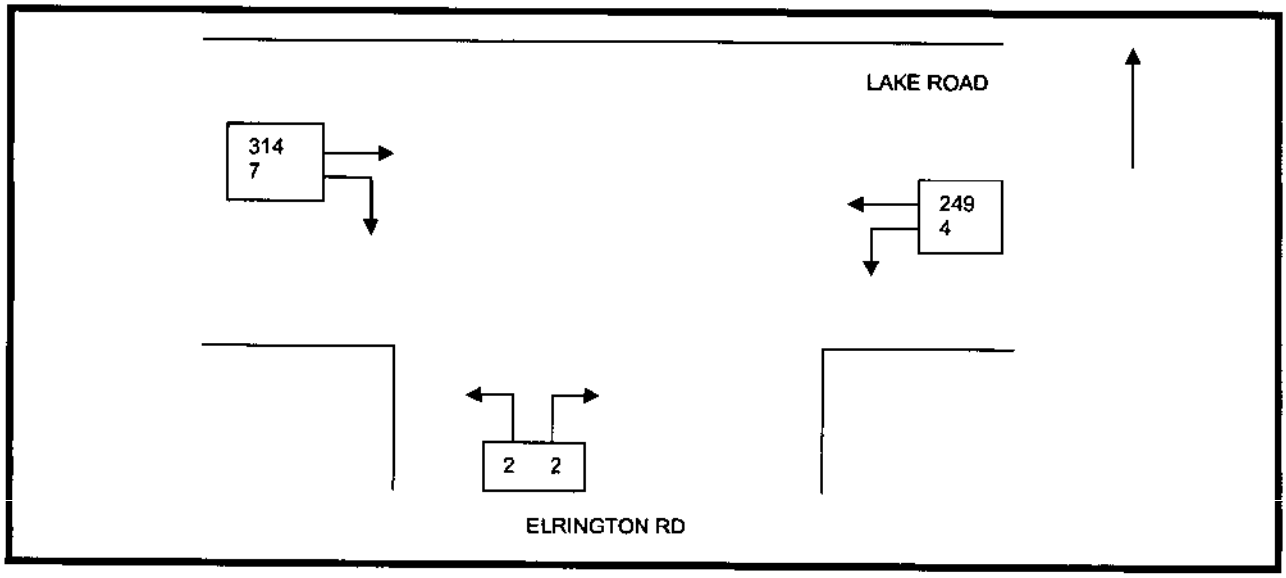


FIGURE 1 – TYPICAL PM PEAK, EXISTING TRAFFIC 2009

The potential traffic generations from the subject project as determined in Table 1 have been added to the existing pm peak traffic flows; those volumes are presented in Figure 2

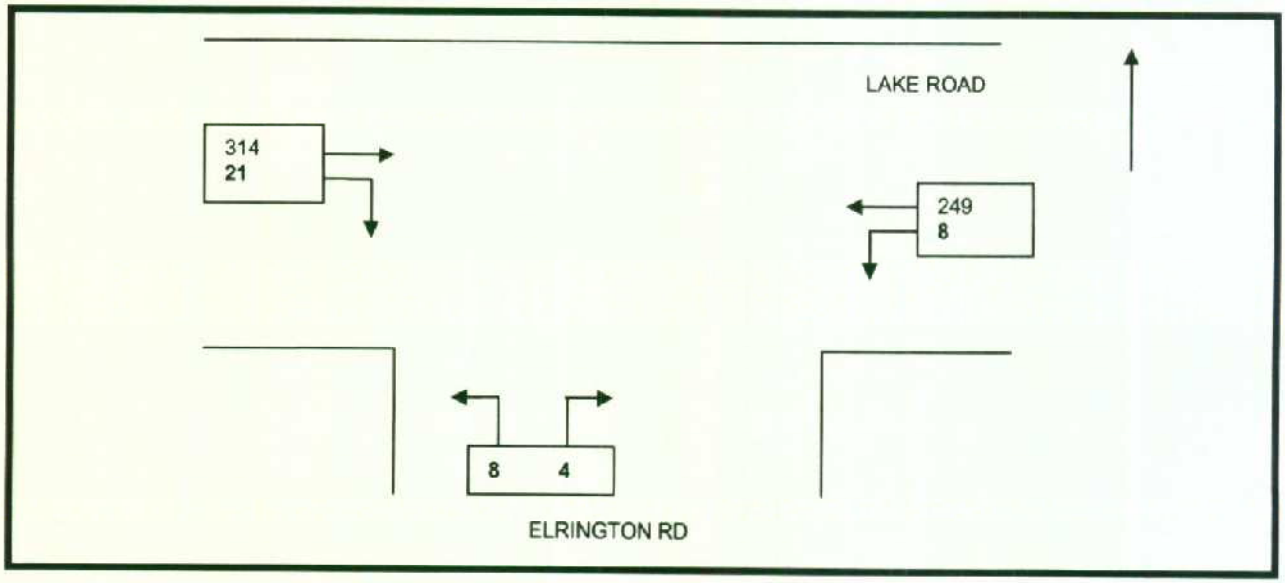


FIGURE 2 – POTENTIAL TYPICAL PM PEAK

Austroads Intersections at Grade, Part 5 provides guidance to geometric layout based on the Main Road right turn volume and the opposing traffic flow; the graph chart tabulation from Austroads is provided below as Figure 3.

Adopting the volumes from Figure 2 the red dot inserted on the chart below indicates the determination of those relevant volumes. The position indicates an AUR geometric layout is appropriate for this intersection; the existing geometric layout satisfies that requirement.

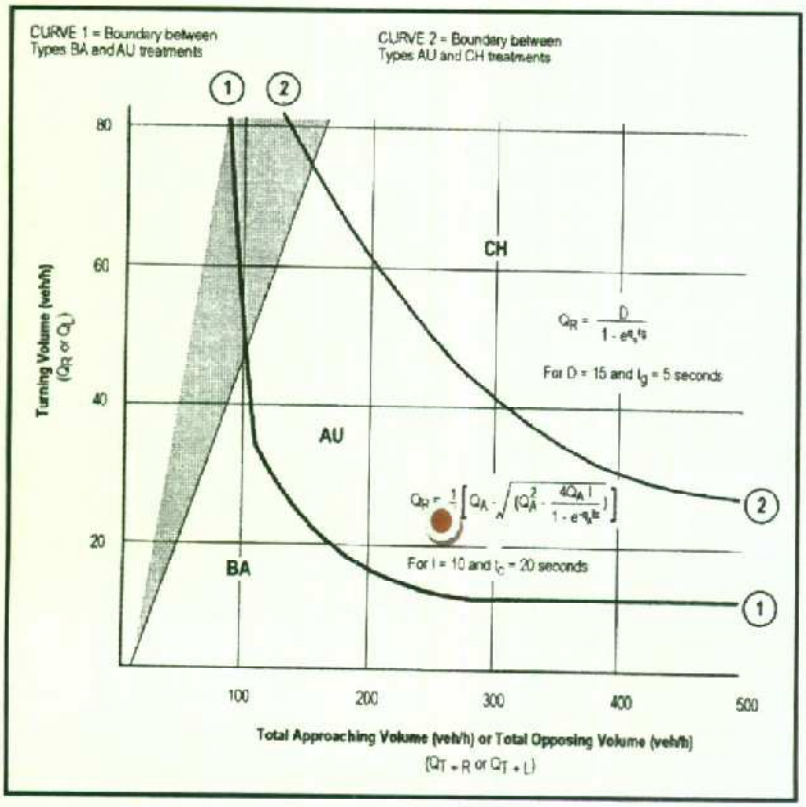


FIGURE 3 – AUSTROADS AUXILARY LANES WARRANTS

Austroads Intersections at Grade, Part 5 also provides guidance on intersection capacity based on the Major and Minor Roads volumes; the relevant Table from that document is provided below as Figure 4 and indicates the range of volumes within which acceptable intersection performance can be expected.
For the Lake & Elrington Roads intersection the intersection is placed (by Figure 2 volumes) within the Tables volume combinations for a Two-lane Major and Minor Roads Type and therefore TPK submit that modelling of the intersection was not required to confirm acceptable capacity conditions for the site.

Table 4.1 — Intersection Capacity - Uninterrupted Flow Conditions

Major Road Type[1]	Major Road Flow (vph)[2]	Minor Road Flow (vph)[3]
Two-lane	400	250
	500	200
	650	100
Four-lane	1000	100
	1500	50
	2000	25

Notes:
1. Major road is through road (i.e. has priority).
2. Major road design volumes include through and turning movements.
3. Minor road design volumes include through and turning volumes.

FIGURE 4 – AUSTROADS CAPACITY

The RTA Guide to Traffic Generating Developments provides guidance for a route's Environmental Capacity; the relevant Table is provided below (Figure 5) and whilst more relevant to Urban conditions TPK has made reference for this assessment as it is an increase in the density of rural residential.
Elrington Road is a local road classification and the potential peak hour flows for this route will not exceed the environmental goals contained in the referenced Table (Figure 5).

Table 4.6
Environmental capacity performance standards on residential streets

Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	300 environmental goal
			500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

FIGURE 5 – RTA GUIDE TO ENVIRONMENTAL CAPACITY

Public Transport

Rover Coaches currently provide School Services into Elrington Road; Rover Coaches management will no doubt adjust their trips to service the new estate should demand eventuate.

Summation

TPK submit that the subject development will not have an adverse impact on the public road network.

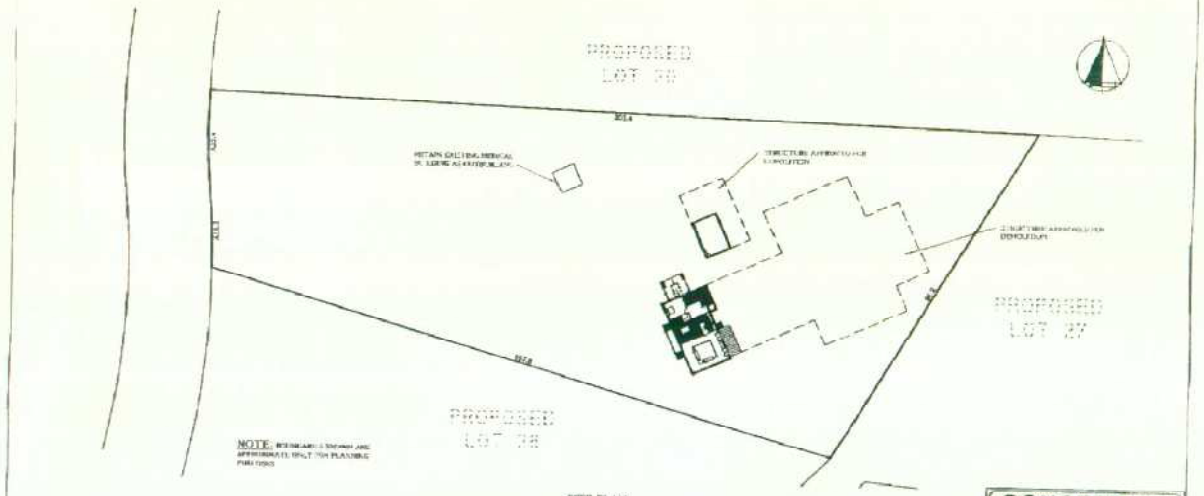
Appendix M

CONSERVATION MANAGEMENT PLAN

SITE PLAN
CONCEPTUAL
acm
LANDMARK
LAND DEVELOPMENT CONSULTANTS
SCALE
1:100
DATUM
DATE
CLIENT
Mr P. Lovett
C/- ACM Landmark Pty Ltd
PO Box 827
CESSNOCK NSW 2325
TITLE
Existing Colliery Bathhouse Building
Adaptive Reuse for Residence
Lot 7 DP 263182 & Lot 28, DP 244871
Lake Road, ELRINGTON
A







SITE PLAN

CONCEPTUAL
Design NOT FOR SUBMISSION

DATE	AMENDMENTS	INITIAL	LEGEND

acm LANDMARK
LAND DEVELOPMENT CONSULTANTS

SCALE:	
DATUM:	
DATE:	
DRAWN:	
CHECKED:	

CLIENT
Mr F Lovett
C/- ACM Landmark Pty Ltd
PO Box 627
GOSFORD NSW 2025

SITE
Existing Colliery Officer Building
Adaptive Reuse for Residence
Lot 7, DP 265182 & Lot 29, DP 244871
Lake Road, ELDINGTON

SHEET NO:	
DRAWING NO:	REV: A

NORTHERN ELEVATION

WESTERN ELEVATION

SOUTHERN ELEVATION

EASTERN ELEVATION

CONCEPTUAL
DESIGN NOT FOR SUBMISSION

DATE	AMENDMENT	INITIAL

acm LANDMARK
LAND DEVELOPMENT CONSULTANTS

SCALE	
DATUM	
DATE	
DRAWN	
ORIGINAL	

CLIENT
Mr P. Lovett
C/- ACM Landmark Pty Ltd
PO Box 627
DESNOCK NSW 2325

TITLE
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Adaptive Reuse for Residence
Lot 7, DP 262142 & Lot 28, DP 244811
Lake Road, ELLERSTON

SHEET NO.
DRAWING No.
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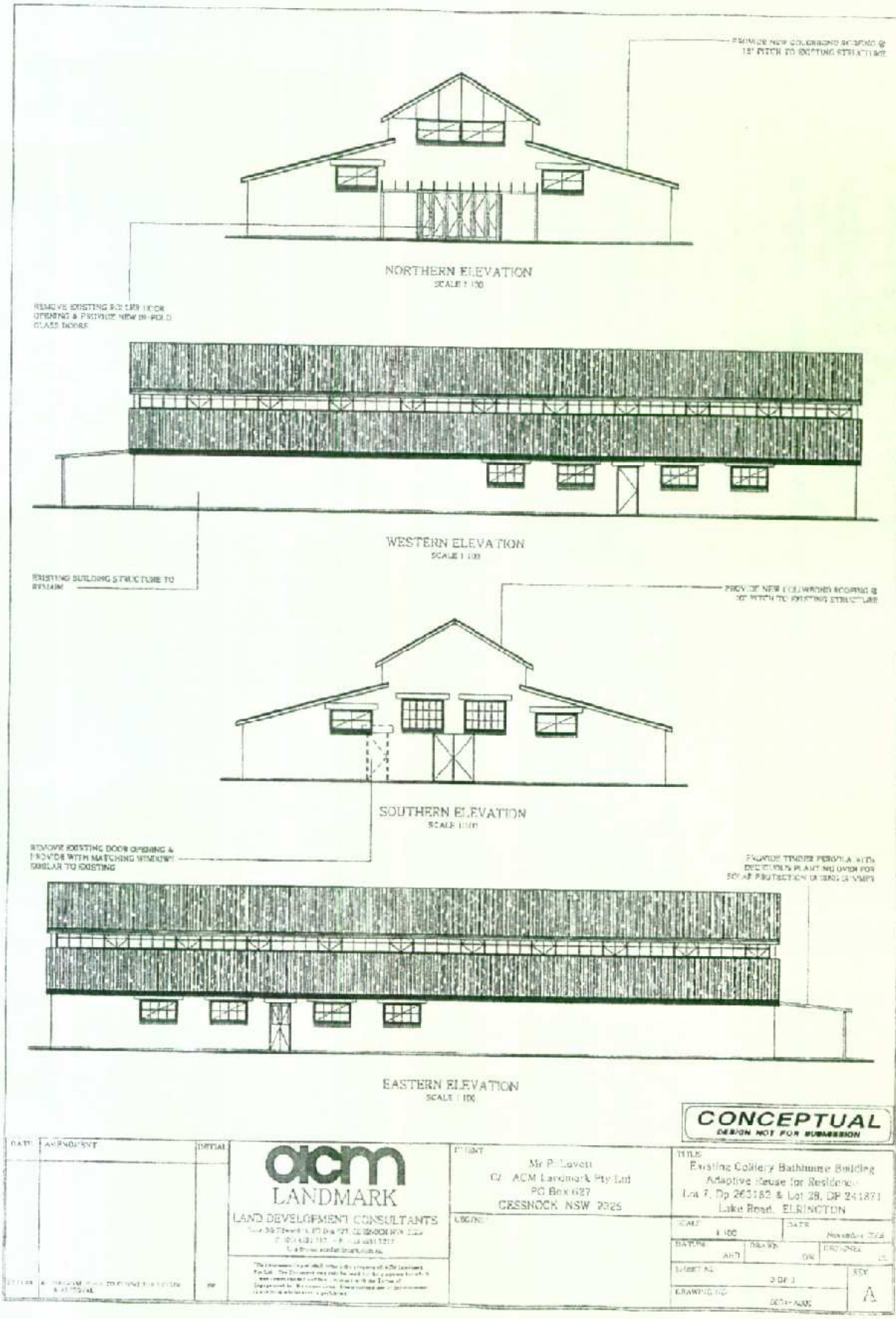
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SOUTHERN ELEVATION
EASTERN ELEVATION
CONCEPTUAL
DESIGN NOT FOR SUBMISSION
DATE
AMENDMENT
INITIAL
acm
LANDMARK
LAND DEVELOPMENT CONSULTANTS
CLIENT
Mr P. Lovett
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PO Box 627
CESSNOCK NSW 2325
TITLE
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Adaptive Reuse for Residence
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Lake Road, ELRINGTON
SCALE
DATE
DATUM
AHD
DRAWN
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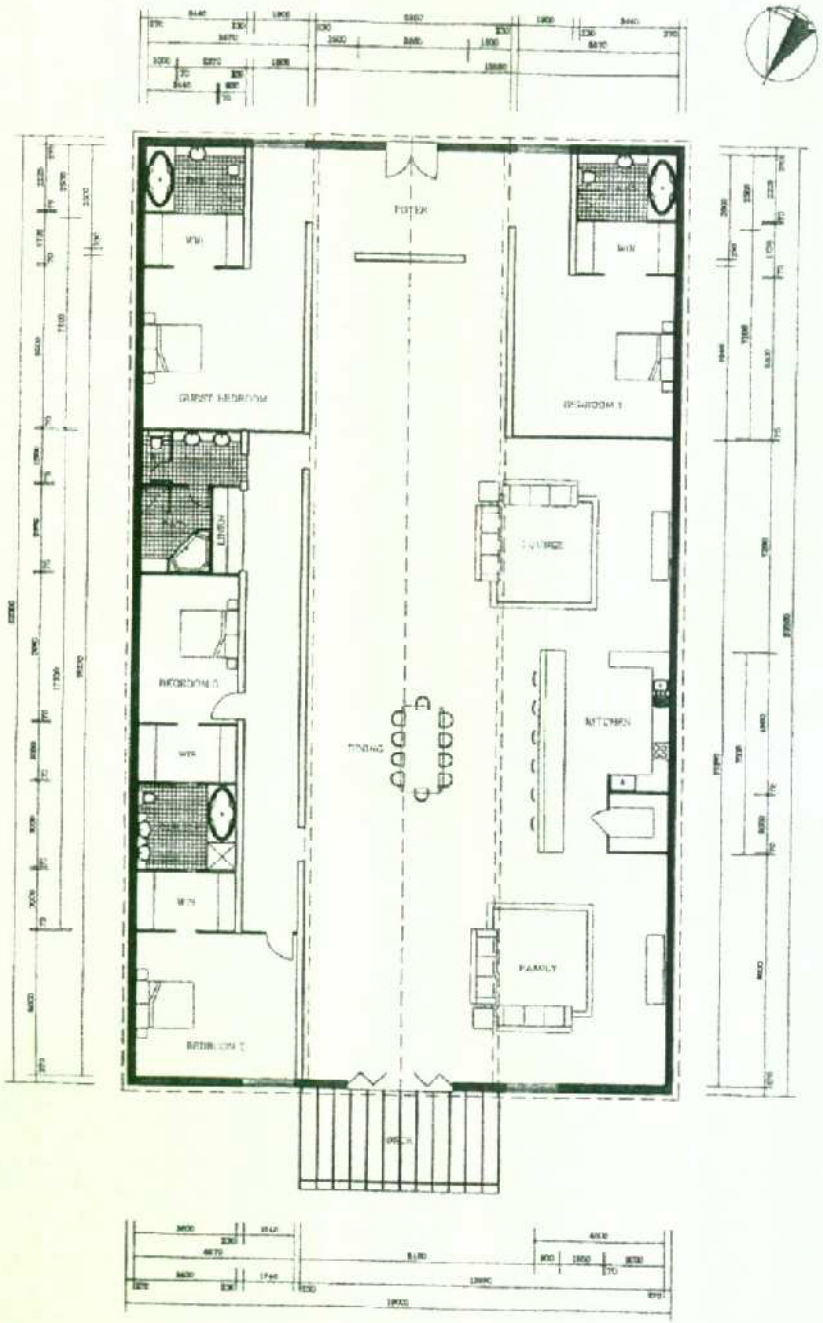

FLOOR PLAN
SCALE 1:100

CONCEPTUAL
DESIGN NOT FOR SUBMISSION

DATE	AMENDMENT	INITIAL
27.11.09	P PRELIMINARY REVIEW TO CLIENTS FOR REVIEW & APPROVAL	DW

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LAGEND

TITLE
Existing Colliery Bathhouse Building
Adaptive Reuse for Residence
Lot 7, Dp 263182 & Lot 28, DP 244871
Lake Road, ELRINGTON

SCALE	DATE
1:100	November 2009
DRAWN: LMD	DRAWN: DW
DESIGNED: CL	
SHEET NO: 3 OF 3	REV: A
DRAWING NO: 0934-A03	

Appendix N

CONTAMINATION ASSESSMENT

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Geotech Solutions

ADDITIONAL ENVIRONMENTAL SITE ASSESSMENT REPORT

FORMER ELRINGTON COLLIERY LOT 7 DP263182 & LOT 28 DP844871 ELRINGTON DRIVE & LAKE ROAD ELRINGTON

Prepared for:

ACM Landmark

Prepared by:

Geotech Solutions Pty Ltd

GS ref: 544-002/0
CLIENT ref:

9 December 2009

Contents

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GS544-002/0
8 December 2009

ACM Landmark
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Cessnock NSW 2325

Attention: Mr Mark Leek

ADDITIONAL ENVIRONMENTAL SITE ASSESSMENT REPORT
FORMER ELRINGTON COLLIERY, LOT 7, DP263182 & LOT 28 844871
LAKE ROAD & ELRINGTON DRIVE - ELRINGTON

1 INTRODUCTION

Geotech Solutions was engaged by ACM Landmark to prepare an Additional Environmental Site Assessment (ESA) Report as part of the planned re-zoning assessment of the former Elrington Colliery site (the Site), located to the north of Raymond Terrace Road, Thornton, NSW.

Geotech Solutions understands that the site is currently undergoing a rezoning assessment and Cessnock City Council (CCC) has requested the following in relation to previous contamination issues identified at the site:

- *A Preliminary Contamination Assessment Report prepared by HLA - Envirosciences Pty Ltd dated March 1999 was submitted with the proposal. The report recommends that additional investigations are required to determine if the contaminated areas of the site are suitable for residential uses. These additional investigations need to be undertaken. The report must also address State Environmental Planning Policy No. 55 - Remediation of Land.*

This report presents a summary of the additional assessment works completed by Geotech Solutions and the conclusions and recommendations made based on the works undertaken.

2 BACKGROUND AND SITE DETAILS

2.1 BACKGROUND

HLA Envirosciences previously assessed the site in 1999. Details of the HLA investigation report are outlined below:

- HLA Envirosciences (1999) *Preliminary Contamination Assessment Report, Elrington Industries Site, Lake Road, Kearsley.* March 1999

It is understood that the HLA Envirosciences investigation identified elevated concentrations of hydrocarbons, metals and possible fragments of bonded asbestos sheeting within shallow soils in the vicinity of the machinery workshop area at the site (HLA sample sites 3, 4, 5, 6 and 11). The remaining areas of the site investigated by HLA detected low concentrations of contaminants and based on the findings of their investigation HLA considered that the areas in the vicinity of the former colliery engine house, bathhouse and bicycle shed buildings and the open grassed grazing areas of the site were suitable for a sensitive land use (i.e. residential).

In relation to the identified contamination at the site, HLA recommended the following:

- A more detailed contaminated site investigation is required adjacent to those areas identified with elevated levels of petroleum products, arsenic, lead and chromium prior to consideration of sensitive land uses such as residential uses.
- It is recommended that further samples be taken in the vicinity of sites 3, 4, 5, 6 and II to determine the extent of contaminated soil at those locations.

2.2 SITE DETAILS

The Elrington Colliery site is located approximately 7km south east of Cessnock, NSW. It is understood that the proposed development at the Site involves the creation of a low density housing estate.

The proposed development area (the Site) is approximately 35Ha. The location of the Site is shown on Drawing 2 attached as Appendix A. Site details are summarised below in Table 1.

Table 1: Site details

Site Address	Elrington Colliery, Elrington Road, Off Lake Road, Kearsley, NSW
Identifier	Lot 20 DP 778222, Lot 21 DP 778222, Lot 22 DP 778222, Lot 21 DP 788962 and Lot 41 DP 827084
Site Area	Approximately 35Ha
LGA	Cessnock Shire Council
Site Zoning	The site is zoned 1a Rural by the Cessnock City Council's Local Environmental Plan.
Current Use	Vacant former underground mine
Proposed Use	It is understood that the proposed land use is low density residential

2.3 SUMMARY OF SITE HISTORY

A detailed summary of site history and background information is outlined within previous investigation report prepared for the Site by HLA Envirosciences (Ref 1). Please refer to these documents for this information.

In general the Site has been predominantly used for agricultural, mining and steel fabrication purposes. The site has remained non-operational for approximately 10 years. The majority of the Site consists of open grassed areas and several large building areas previously associated with the mining operations at the site.

3 OBJECTIVE AND SCOPE OF WORK

The main objective of the Geotech Solutions works was to satisfy the recommendations outlined by HLA (HLA 1999) during the previous investigation undertaken at the site. Based on our review of the HLA report and the requirements of the rezoning application conditions outlined by CCC, the following scope of work was adopted:

- Inspection of the site areas where shallow soil contamination was previously detected by HLA (including a visual inspection for Asbestos Containing Material (ACM));
- Excavation of additional shallow test pits at grid based locations selected to allow lateral and vertical delineation of the soil contamination previously identified HLA (within the vicinity of the main workshop building area).
- Collection of soil samples from various depths within the excavated test pits to be submitted for BTEX, TPH and metals analysis.
- Preparation of this report detailing the findings of the additional works and provision of any recommendations for future works (if required).

It is noted that as part of the HLA (HLA 1999) recommendations, it was suggested that site soils be further assessed for waste classification purposes. Given that the extent of soil contamination had not yet been defined it was considered that waste classification assessment would be premature. It was further considered that waste classification of any soils leaving the site should be undertaken during any future remediation works (if required), as per the requirements of the DECC (2008) Waste Classification Guidelines.

4 ADDITIONAL SOIL ASSESSMENT

Soil assessment works were undertaken by Geotech Solutions in November 2009 and consisted of the collection of 31 (including 3 QA) samples from various depths within 13 soil test pit locations in the vicinity of the areas of concern previously outlined by HLA. Soil samples were collected from grid based locations within the investigation area. The details of the number, location and analysis conducted on the soil samples collected are presented in the table below. Soil test pit locations are shown in Drawing 2 attached.

Table 2: Investigation Rationale	
Site Area	**Sampling/Analysis Undertaken**
Soil	
HLA Sites 3 and 4 to the east of the main colliery workshop	Test pits TP3, TP4, TP5, TP11 and TP12 were excavated in the vicinity of these areas in order to delineate the elevated hydrocarbon and metals levels detected in shallow soils. Samples were collected from both the shallow fill material and underlying natural clays and analysed for combination of TPH, BTEX and metals. It should be noted that bonded ACM was noted on the site surface in this area during field works. No ACM was noted within the underlying fill material matrix during test pit excavation and it is considered that the ACM is present on the site surface only.
HLA Site 5,6 and 11 to the north of the main colliery workshop	TP1, TP2 TP7, TP6, TP8, TP9, TP10 were excavated in the vicinity of these areas in order to delineate the elevated hydrocarbon and metals levels detected in shallow soils. Samples were collected from both the shallow fill material and underlying natural clays and analysed for combination of TPH, BTEX and metals.

The subsurface conditions noted during the test pitting works at the site consisted of the following:

- Fill consisting of dark grey coal reject, sand, gravel and clay (0.0 to 0.7m); underlain by
- Orange grey mottled silty clay becoming increasingly weathered with depth (0.2m to 2m the maximum depth of investigation).

Bore logs were completed during field works and can be provided on request.

5 ENVIRONMENTAL ASSESSMENT CRITERIA

5.1 SOIL

The current assessment criteria used in NSW to evaluate soil analytical results are based on the NSW EPA, *Guidelines for the NSW Site Auditor Scheme, 2nd Ed.*(2006), NSW EPA, *Guidelines for Assessing Service Station Sites* (1994) and the *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM 1999). These combined guidelines present a range of Health-Based Soil Investigation Levels (SILs), sensitive land use thresholds and expected background concentration ranges for urban redevelopment sites in NSW. Application of these guidelines is briefly described below.

Human Health

For the protection of human health, the health-based investigation levels (HILs) for the proposed land use have been adopted as follows:

- NEPC (1999) Health-based Investigation Levels recommended for exposure setting 'A', which includes standard residential sites with accessible soils;
- With respect to hydrocarbons, NSW EPA (1994) Sensitive land use guidelines; and
- With respect to asbestos, there are no published DECC endorsed guidelines for safe levels of asbestos and DECC's position is that there should be no visible asbestos on the surface.

Environment

For the protection of the environment, ecologically based RAC have been adopted as follows:

- NEPC (1999) Ecological Investigation Levels (EILs), which includes standard residential sites with accessible soils; and
- With respect to hydrocarbons, NSW EPA (1994) Sensitive land use guidelines.

Aesthetics

Geotech Solutions has considered the need for remediation based on the 'aesthetic' contamination as outlined in Schedule B(1) of the NEPM (1999) that states that *'there are no numeric Aesthetic Guidelines but the fundamental principle is that the soils should not be discoloured, malodorous (including when dug over or wet) nor of abnormal consistency. The natural state of the soil should be considered'.* Soil odour and discolouration will need to be assessed during remediation.

The RAC for aesthetics are: that the soil is not discoloured as a result of contamination and that the soil is not malodorous as a result of contamination.

Overall

The criteria adopted are presented in Table 3 for the contaminants of concern. Levels of potential contaminants in soil/ filling material are considered to meet the adopted criteria if:

i) The 95% UCL of the average concentrations for a data set of samples of like material complies with the adopted criteria. (Note that where all results comply with the HIL concentration, the 95% UCL is not calculated);

ii) Any individual analyte concentration in the soil is not considered to present a potential risk. For some analytes (non-volatile), 250% of the HIL value is adopted for the absolute maximum upper limit concentration for individual samples however, the 95% UCL of the average concentrations must also comply;

iii) The standard deviation of the data set is less than 50% of the HIL.

If the UCL values are numerically less than the values shown in Table 3 then, the Site is considered to be suitable for the proposed land use provided that the data does not contain isolated but elevated contaminant concentrations as in (i-iii) above.

Table 3: Adopted Assessment Criteria		
Analyte	**RAC (ecological)**	**RAC (human health)**
Asbestos	--	Not detected
Arsenic	20	100
Cadmium	3	20
Chromium (VI)	1	100
Copper	100	1000
Lead	600	300
Mercury	1	15
Nickel	60	600
TPH C6-C9		65
TPH C10-C36		1000
Benzene	1	1
Toluene	130	1.4
Ethyl Benzene	50	3.1
Xylenes	25	14
-- no criteria available/applied		

Quality Assurance and Quality Control

A detailed outline of the QA/QC program, including the Data Quality Objectives (DQOs), Data Quality Indicators (DQIs) and additional details of the sampling and analysis methodology used during the remediation works can be provided on request.

However, for the purposes of this report, a brief review of the field and laboratory quality assurance and quality control measures and results during the investigation works is presented below in Table 4.

Table 4: Field and laboratory QA/QC assessment	
Aspect	**Comments**
Sample collection methods	Soil samples were collected directly from the centre of the excavator bucket using a gloved hand. This sampling methodology is considered to have been adequate.
Decontamination procedures	No decontamination procedures were employed during soil sampling. All soil samples for were collected directly from the excavator bucket or site surface using a gloved hand. New gloves were used for each new sample.
Sample handling and containers	Soil samples were collected using laboratory prepared and supplied sampling containers. Samples were placed into an insulated container which contained ice in order to keep the samples at a low temperature.

Table 4: Field and laboratory QA/QC assessment	
Aspect	**Comments**
Field quality control program	Two intra-laboratory and one inter-laboratory duplicate samples were analysed at rates in accordance with the DQI (1 duplicate sample per 10 primary samples).
Field quality control results	RPD results for the intralaboratory duplicates and interlaboratory duplicates were within acceptable limits, with the exception of some minor RPD% exceedances. Additional details of the RPD% exceedances can be provided on request. It is noted that the variation in RPD% is primarily due to concentrations being close to the limit of reporting which exaggerates the RPD%. The minor exceedances are not considered significant. Based on laboratory quality control data, the potential for significant data accuracy and precision issues is low.
Comparison of field screening and laboratory results	No samples displayed visual / olfactory evidence of contamination (i.e. hydrocarbon odours / staining) and low concentrations of contaminants were detected, as would be expected.
NATA registered laboratory and NATA endorsed methods	Primary and blind duplicate samples were submitted to ALS Environmental and Labmark. ALS and Labmark are NATA registered laboratories and used NATA approved methods for the analysis undertaken.
Chain of Custody (CoC) documentation	Completed CoC documentation is presented in Appendix B.
Holding times	Samples were extracted and analysed with recommended holding times.
Practical Quantitation Limits (PQLs)	PQLs used by the laboratory were below the adopted guideline concentrations.
Laboratory quality control program	The laboratory quality control programs included the preparation and analysis of laboratory duplicates, matrix spikes, surrogate spikes and method blanks at appropriate rates.
Laboratory quality control results	Laboratory quality control results were generally within the DQI's, with the exception of a number of minor and isolated non-conformances which are not considered to be indicative of significant data quality flaws. Greater than 95% of laboratory quality control results were within control limits indicating an acceptable level of precision and accuracy.

Based on the above, it is considered that the DQO's for the project have been met and the data is directly usable for the purposes of this assessment.

6 RESULTS OF ADDITIONAL SOIL ASSESSMENT

The laboratory analysis reports from the primary and secondary laboratories (including laboratory QA reports) are presented in Attachment 2.

A summary of the soil assessment results is presented in Table 5 below.

Table 5: Soil analytical results summary

Analyte	Number of Samples	Range of Concentrations	Number > Protection of Human Health Guidelines	Number > Protection of the Environment Guidelines
Asbestos	NA (Visual Inspection)	Several (>5) fragments of bonded asbestos detected on ground surface	>5	NA
Arsenic	23	<PQL-215mg/kg	1 (TP8-0.3)	0
Cadmium	23	<PQL-2mg/kg	0	0
Chromium	23	4-37mg/kg	0	0
Copper	23	<PQL-106mg/kg	0	1 (TP10-0.2)
Lead	23	6-243mg/kg	0	0
Mercury	23	<PQL-0.6mg/kg	0	0
Nickel	23	<PQL-53mg/kg	0	0
Zinc	23	8-525mg/kg	0	5 (TP7-0.2, TP8-0.3, TP10-0.2, TP11-0.2, TP12-0.3)
TPH C_6-C_9	13	<PQL	0	NA
TPH C_{10}-C_{36}	13	<PQL-1940mg/kg	5 (TP3-0.3, TP7-0.2, TP8-0.3, TP10-0.2, TP12-0.5)	NA
Benzene	2	<PQL	0	0
Toluene	2	<PQL	0	0
Ethyl Benzene	2	<PQL	0	0
Xylenes	2	<PQL	0	0

NA – guideline not applicable, #1 – assuming that Chromium is not in the hexavalent form

The soil investigation results indicate that the shallow fill material present within the investigated areas of the site contains elevated concentrations of TPH and arsenic in exceedance of the adopted protection of human health guidelines and concentrations of copper and zinc in exceedance of the adopted protection of the environment guideline.

The soil investigation results indicated low concentrations of the identified contaminants of concern in the underlying natural clay soils, with no sample concentrations identified above the adopted protection of human health or the environment guidelines.

Bonded ACM fragments were also noted across portions of the surface of the area investigated. However it should be noted that ACM was not noted within the underlying fill material during field works and is considered surficial.

7 DISCUSSION OF RESULTS AND RECOMMENDATIONS

The results from this additional investigation indicate that, TPH and arsenic are present, above the applicable protection of human health and environment criteria within the shallow fill material at the site. It is considered that the presence of coal reject material in the fill and historical workshop activities within the areas investigated may be attributable to the elevated contaminant levels. Bonded asbestos fragments were also noted in and around the existing buildings, which is not unexpected considering the age and state of dilapidation of the buildings.

Based on the findings of this investigation, Geotech Solutions considers that minor soil contamination is present in shallow fill in the vicinity of the former colliery workshop area. However, it is not considered that the minor soil contamination identified should preclude the subdivision. It is recommended that the following is undertaken in relation to the identified soil contamination:

- Preparation of a Remedial Action Plan (RAP) outlining the procedures and measures for the remediation of the isolated TPH, metals and asbestos contamination identified.

Therefore, Geotech Solutions considers that the recommendations outlined by HLA have been satisfied and the previously identified soil contamination has been adequately defined. and the site is suitable for the proposed rezoning.

We would recommend removal of asbestos from the existing buildings and surround by a licensed contractor at the earliest opportunity to avoid migration of the material.

Yours faithfully,
Geotech Solutions Pty Ltd

James Young
Principal Engineering Geologist

REFERENCES

[1] HLA Envirosciences (1999) *Preliminary Contamination Assessment Report, Elrington Industries Site, Lake Road, Kearsley.* March 1999.

Appendix A

Drawings

Elrington Colliery Drawing 1 – Site Location


TP8
TP6
TP5
TP4
TP7
TP9
TP13
TP2
TP3
TP11
TP10
TP1
TP12
Testpit Location
HLA Location

Appendix B

Laboratory Analysis Reports

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

CERTIFICATE OF ANALYSIS

Work Order	: ES0918042	Page	: 1 of 9
Amendment	: 1		
Client	: GEOTECH SOLUTIONS	Laboratory	: Environmental Division Sydney
Contact	: MR JAMES YOUNG	Contact	: Charlie Pierce
Address	: PO BOX 4224 BERESFORD NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: james@geotechsolutions.com.au	E-mail	: charlie.pierce@alsenviro.com
Telephone	: 4949 4300	Telephone	: +61-2-8784 8555
Facsimile	: 4966 0485	Facsimile	: +61-2-8784 8500
Project	: ---	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Order number	: ---		
C-O-C number	: ---	Date Samples Received	: 26-NOV-2009
Sampler	: ---	Issue Date	: 10-DEC-2009
Site	: ---		
		No. of samples received	: 31
Quote number	: SYN/020/07	No. of samples analysed	: 25

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825.

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Spectroscopist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Hoa Nguyen	Inorganic Chemist	Inorganics

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General Comments

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

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

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

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

When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

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

- **EG005T: Poor precision was obtained for Lead and Zinc on sample ES0918042#13 due to sample heterogeneity.**
- **EG-006T:LCS recovery for Zinc falls outside ALS Dynamic Control Limit. However, it is within the acceptance criteria based on ALS DQO. No further action is required.**
- **This report has been amended to change client name to Geotech Solution as per Oliver Hoschke. All analysis results are as per the previous report.**

Analytical Results

Sub-Matrix: SOIL				Client sample ID	TP2-0.3	TP2-1.9	TP3-0.3	TP3-0.7	TP4-0.3
				Client sampling date / time	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00
Compound	CAS Number	LOR	Unit		ES0918042-003	ES0918042-004	ES0918042-005	ES0918042-006	ES0918042-007
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1.0	%		12.9	13.7	12.5	21.6	8.6
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		5	10	<5	5	6
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		19	30	4	13	14
Copper	7440-50-8	5	mg/kg		14	<5	61	6	5
Lead	7439-92-1	5	mg/kg		12	9	32	10	9
Nickel	7440-02-0	2	mg/kg		16	4	13	9	4
Zinc	7440-66-6	5	mg/kg		24	15	19	27	22
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	0.2	0.5	<0.1
EP071/080: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	---	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	---	50	mg/kg		<50	<50	50	<50	<50
C15 - C28 Fraction	---	100	mg/kg		<100	<100	920	<100	<100
C29 - C36 Fraction	---	100	mg/kg		<100	<100	570	<100	<100
EP080/071: Total Petroleum Hydrocarbons									
^ C10 - C36 Fraction (sum)	---	50	mg/kg		<50	<50	1540	<50	<50
EP080: BTEX									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		114	115	118	113	113
Toluene-D8	2037-26-5	0.1	%		93.0	94.9	90.3	85.8	107
4-Bromofluorobenzene	460-00-4	0.1	%		105	101	106	103	108

Analytical Results

Sub-Matrix: SOIL			Client sample ID	TP5-0.2	TP51.3	TP6-0.2	TP6-1.3	TP7-0.2
			Client sampling date / time	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00
Compound	CAS Number	LOR	Unit	ES0918042-009	ES0918042-010	ES0918042-011	ES0918042-012	ES0918042-013
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	---	1.0	%	8.9	23.3	11.5	17.2	24.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	9	<5	8	9
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	27	7	26	11
Copper	7440-50-8	5	mg/kg	13	<5	22	<5	93
Lead	7439-92-1	5	mg/kg	19	12	16	10	105
Nickel	7440-02-0	2	mg/kg	9	11	7	2	22
Zinc	7440-66-6	5	mg/kg	61	34	36	8	525
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.3	<0.1	0.1
EP071/080: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	---	10	mg/kg	<10	<10	12	<10	<10
C10 - C14 Fraction	---	50	mg/kg	<50	<50	60	<50	<50
C15 - C28 Fraction	---	100	mg/kg	140	<100	470	<100	1190
C29 - C36 Fraction	---	100	mg/kg	<100	<100	190	<100	750
EP080/071: Total Petroleum Hydrocarbons								
^ C10 - C36 Fraction (sum)	---	50	mg/kg	140	<50	720	<50	1940
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	119	104	102	110	100
Toluene-D8	2037-26-5	0.1	%	120	108	101	115	89.0
4-Bromofluorobenzene	460-00-4	0.1	%	110	102	95.6	108	92.3

Analytical Results

Sub-Matrix: SOIL				Client sample ID	TP7-1.1	TP8-0.3	TP8-1.3	TP90.2	TP91.0
				Client sampling date / time	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00
Compound	CAS Number	LOR	Unit		ES0918042-014	ES0918042-015	ES0918042-016	ES0918042-017	ES0918042-018
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	---	1.0	%		23.1	11.6	20.0	9.7	23.2
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		8	215	11	7	10
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		24	7	37	9	37
Copper	7440-50-8	5	mg/kg		<5	43	<5	22	<5
Lead	7439-92-1	5	mg/kg		14	48	13	18	14
Nickel	7440-02-0	2	mg/kg		2	16	4	3	<2
Zinc	7440-66-6	5	mg/kg		<5	144	18	8	<5
EG035T: Total Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	0.6	<0.1	0.2	<0.1
EP071/080: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	---	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	---	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	---	100	mg/kg		<100	800	<100	440	<100
C29 - C36 Fraction	---	100	mg/kg		<100	440	<100	210	<100
EP080/071: Total Petroleum Hydrocarbons									
^ C10 - C36 Fraction (sum)	---	50	mg/kg		<50	1240	<50	650	<50
EP080: BTEX									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.1	%		102	113	112	111	110
Toluene-D8	2037-26-5	0.1	%		103	108	112	108	107
4-Bromofluorobenzene	460-00-4	0.1	%		101	98.7	108	99.9	109

Analytical Results

Sub-Matrix: SOIL			Client sample ID	TP10-0.2	TP10-1.0	TP11-0.2	TP11-1.1	TP12-0.3
			Client sampling date / time	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00
Compound	CAS Number	LOR	Unit	ES0918042-019	ES0918042-020	ES0918042-021	ES0918042-022	ES0918042-023
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	—	1.0	%	7.2	11.8	8.1	17.9	5.6
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	11	<5	6	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	2
Chromium	7440-47-3	2	mg/kg	14	4	15	12	47
Copper	7440-50-8	5	mg/kg	106	<5	58	<5	49
Lead	7439-92-1	5	mg/kg	243	<5	61	10	166
Nickel	7440-02-0	2	mg/kg	25	4	53	6	23
Zinc	7440-66-6	5	mg/kg	196	34	265	45	365
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.2	<0.1	0.1	<0.1	<0.1
EP071/080: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	50
C15 - C28 Fraction	—	100	mg/kg	860	<100	590	<100	760
C29 - C36 Fraction	—	100	mg/kg	710	<100	370	<100	840
EP080/071: Total Petroleum Hydrocarbons								
^ C10 - C36 Fraction (sum)	—	50	mg/kg	1690	<50	970	<50	1650
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	123	119	112	111	119
Toluene-D8	2037-26-5	0.1	%	121	116	98.3	105	118
4-Bromofluorobenzene	460-00-4	0.1	%	110	111	94.2	103	111

Analytical Results

Sub-Matrix: SOIL			Client sample ID	TP12-1.9	TP13-0.5	TP13-1.8	QA1	QA3
			Client sampling date / time	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00	25-NOV-2009 15:00
Compound	CAS Number	LOR	Unit	ES0918042-024	ES0918042-025	ES0918042-026	ES0918042-027	ES0918042-028
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	—	1.0	%	12.2	36.2	21.6	11.6	5.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	8	5	—
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	—
Chromium	7440-47-3	2	mg/kg	13	4	19	5	—
Copper	7440-50-8	5	mg/kg	8	6	<5	39	—
Lead	7439-92-1	5	mg/kg	8	9	10	18	—
Nickel	7440-02-0	2	mg/kg	2	9	4	18	—
Zinc	7440-66-6	5	mg/kg	9	41	6	25	—
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	<0.1	0.2	—
EP071/080: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	—	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	—	50	mg/kg	<50	<50	<50	<50	50
C15 - C28 Fraction	—	100	mg/kg	<100	<100	<100	950	790
C29 - C36 Fraction	—	100	mg/kg	<100	<100	<100	710	930
EP080/071: Total Petroleum Hydrocarbons								
^ C10 - C36 Fraction (sum)	—	50	mg/kg	<50	<50	<50	1660	1720
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.1	%	114	94.3	108	115	118
Toluene-D8	2037-26-5	0.1	%	110	88.4	103	106	104
4-Bromofluorobenzene	460-00-4	0.1	%	107	87.5	102	94.2	115

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	80	120
Toluene-D8	2037-26-5	81	117
4-Bromofluorobenzene	460-00-4	74	121

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	:**ES0918042**	Page	: 1 of 7
Amendment	:1		
CSent	: GEOTECH SOLUTIONS	Laboratory	: Environmental Division Sydney
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Telephone	: 4949 4300	Telephone	: +61-2-8784 8555
Facsimile	: 4966 0485	Facsimile	: +61-2-8784 8500
Project	: —	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: —		
C-O-C number	: —	Date Samples Received	: 26-NOV-2009
Sampler	: —	Issue Date	: 10-DEC-2009
Order number	: —		
		No. of samples received	: 31
Quote number	: SYN/020/07	No. of samples analysed	: 25

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

This Interpretive Quality Control Report contains the following information:

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

Analysis Holding Time Compliance

The following report summarises extraction / preparation and analysis times and compares with recommended holding times. Dates reported represent first date of extraction or analysis and precludes subsequent dilutions and reruns. Information is also provided re the sample container (preservative) from which the analysis aliquot was taken. Elapsed period to analysis represents number of days from sampling where no extraction / digestion is involved or period from extraction / digestion where this is present. For composite samples, sampling date is assumed to be that of the oldest sample contributing to the composite. Sample date for laboratory produced leachates is assumed as the completion date of the leaching process. Outliers for holding time are based on USEPA SW 846, APHA, AS and NEPM (1999). A listing of breaches is provided in the Summary of Outliers.

Holding times for leachate methods (excluding elutriates) vary according to the analytes being determined on the resulting solution. For non-volatile analytes, the holding time compliance assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These soil holding times are: Organics (14 days); Mercury (28 days) & other metals (180 days). A recorded breach therefore does not guarantee a breach for all non-volatile parameters.

Matrix: SOIL

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved								
TP2-0.3,	TP2-1.9,	25-NOV-2009	—	—	—	27-NOV-2009	02-DEC-2009	✓
TP3-0.3,	TP3-0.7,							
TP4-0.3,	TP5-0.2,							
TP51.3,	TP6-0.2,							
TP6-1.3,	TP7-0.2,							
TP7-1.1,	TP8-0.3,							
TP8-1.3,	TP90.2,							
TP91.0,	TP10-0.2,							
TP10-1.0,	TP11-0.2,							
TP11-1.1,	TP12-0.3,							
TP12-1.9,	TP13-0.5,							
TP13-1.8,	QA1,							
QA3								
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved								
TP2-0.3,	TP2-1.9,	25-NOV-2009	28-NOV-2009	23-DEC-2009	✓	30-NOV-2009	24-MAY-2010	✓
TP3-0.3,	TP3-0.7,							
TP4-0.3,	TP5-0.2,							
TP51.3,	TP6-0.2,							
TP6-1.3,	TP7-0.2,							
TP7-1.1,	TP8-0.3,							
TP8-1.3,	TP90.2							
Soil Glass Jar - Unpreserved								
TP91.0,	TP10-0.2,	25-NOV-2009	29-NOV-2009	23-DEC-2009	✓	30-NOV-2009	24-MAY-2010	✓
TP10-1.0,	TP11-0.2,							
TP11-1.1,	TP12-0.3,							
TP12-1.9,	TP13-0.5,							
TP13-1.8,	QA1							

Matrix: SOIL

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Mercury by FIMS								
Soil Glass Jar - Unpreserved								
TP2-0.3,	TP2-1.9,	25-NOV-2009	28-NOV-2009	23-DEC-2009	✓	30-NOV-2009	23-DEC-2009	✓
TP3-0.3,	TP3-0.7,							
TP4-0.3,	TP5-0.2,							
TP51.3,	TP6-0.2,							
TP6-1.3,	TP7-0.2,							
TP7-1.1,	TP8-0.3,							
TP8-1.3,	TP90.2							
Soil Glass Jar - Unpreserved								
TP91.0,	TP10-0.2,	25-NOV-2009	28-NOV-2009	23-DEC-2009	✓	02-DEC-2009	23-DEC-2009	✓
TP10-1.0,	TP11-0.2,							
TP11-1.1,	TP12-0.3,							
TP12-1.9,	TP13-0.5,							
TP13-1.8,	QA1							
EP071SG: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved								
TP2-0.3,	TP2-1.9,	25-NOV-2009	27-NOV-2009	09-DEC-2009	✓	29-NOV-2009	09-DEC-2009	✓
TP3-0.3,	TP3-0.7							
Soil Glass Jar - Unpreserved								
TP2-0.3,	TP2-1.9,	25-NOV-2009	27-NOV-2009	09-DEC-2009	✓	30-NOV-2009	09-DEC-2009	✓
TP3-0.3,	TP3-0.7,							
TP4-0.3,	TP5-0.2,							
TP51.3,	TP6-0.2,							
TP6-1.3,	TP7-0.2,							
TP7-1.1,	TP8-0.3,							
TP8-1.3,	TP90.2,							
TP91.0,	TP10-0.2,							
TP10-1.0,	TP11-0.2,							
TP11-1.1,	TP12-0.3,							
TP12-1.9,	TP13-0.5,							
TP13-1.8,	QA1							
Soil Glass Jar - Unpreserved								
TP12-0.3,	TP12-1.9,	25-NOV-2009	30-NOV-2009	09-DEC-2009	✓	30-NOV-2009	09-DEC-2009	✓
TP13-0.5,	TP13-1.8,							
QA1,	QA3							

Matrix: SOIL

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved								
TP2-0.3,	TP2-1.9,	25-NOV-2009	27-NOV-2009	09-DEC-2009	✓	30-NOV-2009	06-JAN-2010	✓
TP3-0.3,	TP3-0.7,							
TP4-0.3,	TP5-0.2,							
TP51.3,	TP6-0.2,							
TP6-1.3,	TP7-0.2,							
TP7-1.1,	TP8-0.3,							
TP8-1.3,	TP90.2,							
TP91.0,	TP10-0.2,							
TP10-1.0,	TP11-0.2,							
TP11-1.1								
Soil Glass Jar - Unpreserved								
TP12-0.3,	TP12-1.9,	25-NOV-2009	30-NOV-2009	09-DEC-2009	✓	30-NOV-2009	09-JAN-2010	✓
TP13-0.5,	TP13-1.8,							
QA1,	QA3							
EP080: BTEX								
Soil Glass Jar - Unpreserved								
TP2-0.3,	TP2-1.9,	25-NOV-2009	27-NOV-2009	09-DEC-2009	✓	29-NOV-2009	09-DEC-2009	✓
TP3-0.3,	TP3-0.7							
Soil Glass Jar - Unpreserved								
TP4-0.3,	TP5-0.2,	25-NOV-2009	27-NOV-2009	09-DEC-2009	✓	30-NOV-2009	09-DEC-2009	✓
TP51.3,	TP6-0.2,							
TP6-1.3,	TP7-0.2,							
TP7-1.1,	TP8-0.3,							
TP8-1.3,	TP90.2,							
TP91.0,	TP10-0.2,							
TP10-1.0,	TP11-0.2,							
TP11-1.1,	TP12-0.3,							
TP12-1.9,	TP13-0.5,							
TP13-1.8,	QA1							
Soil Glass Jar - Unpreserved								
QA3		25-NOV-2009	30-NOV-2009	09-DEC-2009	✓	30-NOV-2009	09-DEC-2009	✓

Quality Control Parameter Frequency Compliance

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

Matrix: SOIL

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	4	34	11.8	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	5	47	10.6	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	4	40	10.0	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	3	26	11.5	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	6	56	10.7	10.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	3	47	6.4	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	26	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	56	5.4	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	3	47	6.4	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	26	7.7	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	56	5.4	5.0	✓	NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	3	47	6.4	5.0	✓	ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	40	5.0	5.0	✓	ALS QCS3 requirement
TPH - Semivolatile Fraction	EP071	2	26	7.7	5.0	✓	ALS QCS3 requirement
TPH Volatiles/BTEX	EP080	3	56	5.4	5.0	✓	ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (1999) Schedule B(3) (Method 102)
Total Metals by ICP-AES	EG005T	SOIL	(APHA 21st ed., 3120; USEPA SW 846 - 6010) (ICPAES) Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (1999) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	AS 3550, APHA 21st ed., 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (1999) Schedule B(3)
TPH - Semivolatile Fraction	EP071	SOIL	(USEPA SW 846 - 8015A) Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C36. This method is compliant with NEPM (1999) Schedule B(3) (Method 506.1)
TPH Volatiles/BTEX	EP080	SOIL	(USEPA SW 846 - 8260B) Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (1999) Schedule B(3) (Method 501)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	USEPA 200.2 Mod. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (1999) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	(USEPA SW 846 - 5030A) 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids (Option B - Non-concentrating)	ORG17B	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 20mL 1:1 DCM/Acetone by end over end tumble. The solvent is transferred directly to a GC vial for analysis.

Summary of Outliers

Outliers : Quality Control Samples

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

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES0918042-013	TP7-0.2	Lead	7439-92-1	26.5 %	0-20%	RPD exceeds LOR based limits
EG005T: Total Metals by ICP-AES	ES0918042-013	TP7-0.2	Zinc	7440-66-6	34.2 %	0-20%	RPD exceeds LOR based limits
Laboratory Control Spike (LCS) Recoveries							
EG005T: Total Metals by ICP-AES	1360075-002	---	Zinc	7440-66-6	87.2 %	88.9-112%	Recovery less than lower control limit

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

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP080S: TPH(V)/BTEX Surrogates	ES0918042-019	TP10-0.2	1,2-Dichloroethane-D4	17060-07-0	123 %	80-120 %	Recovery greater than upper data quality objective
EP080S: TPH(V)/BTEX Surrogates	ES0918042-009	TP5-0.2	Toluene-D8	2037-26-5	120 %	81-117 %	Recovery greater than upper data quality objective
EP080S: TPH(V)/BTEX Surrogates	ES0918042-019	TP10-0.2	Toluene-D8	2037-26-5	121 %	81-117 %	Recovery greater than upper data quality objective

Outliers : Analysis Holding Time Compliance

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

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

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

- No Quality Control Sample Frequency Outliers exist.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

QUALITY CONTROL REPORT

Work Order	: ES0918042	Page	: 1 of 9
Amendment	: 1		
Client	: GEOTECH SOLUTIONS	Laboratory	: Environmental Division Sydney
Contact	: MR JAMES YOUNG	Contact	: Charlie Pierce
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Telephone	: 4949 4300	Telephone	: +61-2-8784 8555
Facsimile	: 4966 0485	Facsimile	: +61-2-8784 8500
Project	: ---	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement
Site	: ---		
C-O-C number	: ---	Date Samples Received	: 26-NOV-2009
Sampler	: ---	Issue Date	: 10-DEC-2009
Order number	: ---		
		No. of samples received	: 31
Quote number	: SYN/020/07	No. of samples analysed	: 25

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

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

This document is issued in accordance with NATA accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	Position	Accreditation Category
Celine Conceicao	Spectroscopist	Inorganics
Edwandy Fadjar	Senior Organic Chemist	Organics
Hoa Nguyen	Inorganic Chemist	Inorganics

General Comments

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

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 1177417)									
ES0918042-003	TP2-0.3	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	12.9	12.9	0.0	0% - 50%
ES0918042-011	TP6-0.2	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	11.5	10.4	10.0	0% - 50%
EA055: Moisture Content (QC Lot: 1177418)									
ES0918042-022	TP11-1.1	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	17.9	15.8	12.5	0% - 50%
ES0918073-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	---	1.0	%	14.2	16.1	13.1	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1177826)									
ES0918010-007	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	12	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	75	72	4.2	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	244	224	8.8	0% - 20%
ES0918042-013	TP7-0.2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	8	24.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	22	19	12.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	7	26.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	93	94	1.3	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	105	80	# 26.5	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	525	372	# 34.2	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 1178110)									
ES0918042-018	TP91.0	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	37	40	7.3	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	10	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	14	14	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.0	No Limit
ES0918059-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	12	21.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	26	26	6.8	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	8	24.7	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	26	30	14.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	24	12.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	71	50	33.8	0% - 50%

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report: Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1177825)									
ES0917950-041	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES0917994-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1177827)									
ES0918010-007	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1178111)									
ES0918042-018	TP91.0	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES0918059-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1177084)									
ES0918042-003	TP2-0.3	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.0	No Limit
ES0918131-007	Anonymous	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1177167)									
ES0918042-003	TP2-0.3	EP071: C15 - C28 Fraction	—	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	—	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	—	50	mg/kg	<50	<50	0.0	No Limit
ES0918042-013	TP7-0.2	EP071: C15 - C28 Fraction	—	100	mg/kg	1190	1160	2.9	0% - 50%
		EP071: C29 - C36 Fraction	—	100	mg/kg	750	710	5.4	No Limit
		EP071: C10 - C14 Fraction	—	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1177208)									
ES0918042-007	TP4-0.3	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.0	No Limit
ES0918042-018	TP91.0	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1177502)									
ES0918042-023	TP12-0.3	EP071: C15 - C28 Fraction	—	100	mg/kg	760	790	3.5	No Limit
		EP071: C29 - C36 Fraction	—	100	mg/kg	840	810	3.9	No Limit
		EP071: C10 - C14 Fraction	—	50	mg/kg	50	60	21.4	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1178268)									
ES0918167-001	Anonymous	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.0	No Limit
ES0918170-001	Anonymous	EP080: C6 - C9 Fraction	—	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEX (QC Lot: 1177064)									
ES0918042-003	TP2-0.3	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES0918131-007	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEX (QC Lot: 1177054) - continued									
ES0918131-007	Anonymous	EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080: BTEX (QC Lot: 1177208)									
ES0918042-007	TP4-0.3	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES0918042-018	TP91.0	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080: BTEX (QC Lot: 1178262)									
ES0918187-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES0918170-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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

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

Sub-Matrix: SOIL

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method; Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1177826)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	122	70	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	108	83.3	111
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	110	89.2	117
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	107	90.1	114
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	109	85.2	111
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	110	88.3	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	110	88.9	112
EG005T: Total Metals by ICP-AES (QCLot: 1178110)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	13.11 mg/kg	102	70	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	2.76 mg/kg	88.0	83.3	111
EG005T: Chromium	7440-47-3	2	mg/kg	<2	60.93 mg/kg	91.4	89.2	117
EG005T: Copper	7440-50-8	5	mg/kg	<5	54.68 mg/kg	91.8	90.1	114
EG005T: Lead	7439-92-1	5	mg/kg	<5	54.76 mg/kg	91.4	85.2	111
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.23 mg/kg	91.2	88.3	116
EG005T: Zinc	7440-66-6	5	mg/kg	<5	103.88 mg/kg	# 87.2	88.9	112
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1177825)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	76.1	67	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1177827)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	81.2	67	118
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1178111)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	1.4 mg/kg	73.3	67	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177064)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	96.4	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177187)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	200 mg/kg	94.0	75.2	116
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	200 mg/kg	99.0	75.3	113
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	200 mg/kg	105	72.6	117
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177208)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	86.0	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177502)								
EP071: C10 - C14 Fraction	---	50	mg/kg	<50	200 mg/kg	86.0	75.2	116
EP071: C15 - C28 Fraction	---	100	mg/kg	<100	200 mg/kg	97.0	75.3	113
EP071: C29 - C36 Fraction	---	100	mg/kg	<100	200 mg/kg	104	72.6	117

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Laboratory Control Spike (LCS) Report: Spike Recovery (%): LCS	Laboratory Control Spike (LCS) Report: Recovery Limits (%): Low	Laboratory Control Spike (LCS) Report: Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1178268)								
EP080: C6 - C9 Fraction	---	10	mg/kg	<10	26 mg/kg	95.7	68.4	128
EP080: BTEX (QCLot: 1177064)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.1	67.5	125
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	97.8	69	122
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	83.3	65.3	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	91.7	66.5	124
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.3	66.7	123
EP080: BTEX (QCLot: 1177208)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	94.5	67.5	125
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.7	69	122
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.6	65.3	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	92.2	66.5	124
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.4	66.7	123
EP080: BTEX (QCLot: 1178268)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	89.7	67.5	125
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	83.0	69	122
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	83.6	65.3	126
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	89.4	66.5	124
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.2	66.7	123

Matrix Spike (MS) Report

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

Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1177826)							
ES0918010-007	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.0	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	98.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	101	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	98.1	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	108	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	86.7	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1178110)							
ES0918042-018	TP91.0	EG005T: Arsenic	7440-38-2	50 mg/kg	82.6	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.2	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	93.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	96.3	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	90.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	89.3	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	88.5	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1177825)							
ES0917950-041	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	85.9	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1177827)							
ES0918010-007	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	88.7	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1178111)							
ES0918042-018	TP91.0	EG035T: Mercury	7439-97-6	5 mg/kg	81.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177064)							
ES0918042-003	TP2-0.3	EP080: C6 - C9 Fraction	—	26 mg/kg	82.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177167)							
ES0918042-003	TP2-0.3	EP071: C10 - C14 Fraction	—	640 mg/kg	93.4	70	130
		EP071: C15 - C28 Fraction	—	3140 mg/kg	82.9	70	130
		EP071: C29 - C36 Fraction	—	2860 mg/kg	83.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177208)							
ES0918042-007	TP4-0.3	EP080: C6 - C9 Fraction	—	26 mg/kg	90.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1177592)							
ES0918042-023	TP12-0.3	EP071: C10 - C14 Fraction	—	640 mg/kg	85.0	70	130
		EP071: C15 - C28 Fraction	—	3140 mg/kg	95.6	70	130
		EP071: C29 - C36 Fraction	—	2860 mg/kg	93.9	70	130

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Spike Recovery (%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1178268)							
ES0918167-001	Anonymous	EP080: C6 - C9 Fraction	---	26 mg/kg	101	70	130
EP080: BTEX (QCLot: 1177064)							
ES0918042-003	TP2-0.3	EP080: Benzene	71-43-2	2.5 mg/kg	88.5	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	88.4	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	84.5	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.3	70	130
EP080: BTEX (QCLot: 1177208)							
ES0918042-007	TP4-0.3	EP080: Benzene	71-43-2	2.5 mg/kg	95.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	85.9	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	93.2	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	89.8	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	92.2	70	130
EP080: BTEX (QCLot: 1178268)							
ES0918167-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	96.7	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	91.6	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	90.9	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	91.3	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	90.7	70	130

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **ES0918042**		
Amendment	: 1		
Client	: **GEOTECH SOLUTIONS**	Laboratory	: Environmental Division Sydney
Contact	: MR JAMES YOUNG	Contact	: Charlie Pierce
Address	: PO BOX 4224 BERESFORD NSW, AUSTRALIA 2322	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: james@geotechsolutions.com.au	E-mail	: charlie.pierce@alsenviro.com
Telephone	: 4949 4300	Telephone	: +61-2-8784 8555
Facsimile	: 4966 0485	Facsimile	: +61-2-8784 8500
Project	: ---	Page	: 1 of 3
Order number	: ---		
C-O-C number	: ---	Quote number	: ES2008GEOTECSOL0002 (SYN/020/07)
Site	: ---		
Sampler	: ---	QC Level	: NEPM 1999 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 26-NOV-2009	Issue Date	: 10-DEC-2009
Client Requested Due Date	: 03-DEC-2009	Scheduled Reporting Date	: **03-DEC-2009**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 5.8'C - Ice present
No. of coolers/boxes	: 1 HARD	No. of samples received	: 31
Sercurity Seal	: Intact.	No. of samples analysed	: 25

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Requested Deliverables
- **Samples received in appropriately pretreated and preserved containers.**
- **Sample(s) have been received within recommended holding times.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **Sample Qa2 will be forwarded to Labmark as per COC.**
- **Sample TP1-0.5, TP1-1.5 and TP4-1.8 not received by ALS Sydney.**
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Please direct any queries related to sample condition / numbering / breakages to Jacob Waugh
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (90 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process neccessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for processing purposes. If the sampling time is displayed as 0:00 the information was not provided by client.

Matrix: **SOIL**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	(On Hold) SOIL No analysis requested	SOIL - S-04 TPH/BTEX	SOIL - S-05 TPH/BTEX/8 Metals
ES0918042-003	25-NOV-2009 15:00	TP2-0.3			✓
ES0918042-004	25-NOV-2009 15:00	TP2-1.9			✓
ES0918042-005	25-NOV-2009 15:00	TP3-0.3			✓
ES0918042-006	25-NOV-2009 15:00	TP3-0.7			✓
ES0918042-007	25-NOV-2009 15:00	TP4-0.3			✓
ES0918042-009	25-NOV-2009 15:00	TP5-0.2			✓
ES0918042-010	25-NOV-2009 15:00	TP51.3			✓
ES0918042-011	25-NOV-2009 15:00	TP6-0.2			✓
ES0918042-012	25-NOV-2009 15:00	TP6-1.3			✓
ES0918042-013	25-NOV-2009 15:00	TP7-0.2			✓
ES0918042-014	25-NOV-2009 15:00	TP7-1.1			✓
ES0918042-015	25-NOV-2009 15:00	TP8-0.3			✓
ES0918042-016	25-NOV-2009 15:00	TP8-1.3			✓
ES0918042-017	25-NOV-2009 15:00	TP90.2			✓
ES0918042-018	25-NOV-2009 15:00	TP91.0			✓
ES0918042-019	25-NOV-2009 15:00	TP10-0.2			✓
ES0918042-020	25-NOV-2009 15:00	TP10-1.0			✓
ES0918042-021	25-NOV-2009 15:00	TP11-0.2			✓
ES0918042-022	25-NOV-2009 15:00	TP11-1.1			✓
ES0918042-023	25-NOV-2009 15:00	TP12-0.3			✓
ES0918042-024	25-NOV-2009 15:00	TP12-1.9			✓
ES0918042-025	25-NOV-2009 15:00	TP13-0.5			✓
ES0918042-026	25-NOV-2009 15:00	TP13-1.8			✓
ES0918042-027	25-NOV-2009 15:00	QA1			✓
ES0918042-028	25-NOV-2009 15:00	QA3		✓	
ES0918042-029	25-NOV-2009 15:00	TP3-1.9	✓		
ES0918042-030	25-NOV-2009 15:00	TP72.0	✓		
ES0918042-031	25-NOV-2009 15:00	TP82.0	✓		
ES0918042-032	25-NOV-2009 15:00	TP9-1.5	✓		
ES0918042-033	25-NOV-2009 15:00	TP10-1.9	✓		
ES0918042-034	25-NOV-2009 15:00	TP11-1.9	✓		

Requested Deliverables

MR JAMES YOUNG

- *AU Certificate of Analysis - NATA (COA)	Email	james@geotechsolutions.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	james@geotechsolutions.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	james@geotechsolutions.com.au
- A4 - AU Sample Receipt Notification - Environmental (SRN)	Email	james@geotechsolutions.com.au
- A4 - AU Tax Invoice (INV)	Email	james@geotechsolutions.com.au
- Default - Chain of Custody (COC)	Email	james@geotechsolutions.com.au
- EDI Format - ENMRG (ENMRG)	Email	james@geotechsolutions.com.au