Glen Innes Severn Council Meeting

23 SEPTEMBER 2022

Annexures

ANNEXURES UNDER SEPARATE COVER 1

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Annexure A

Contract for the sale and purchase of land 2019 edition

TERM	MEANING OF TERM	NSW DAN:
vendor's agent	**Country Wide Property** **210 Grey Street, Glen Innes, NSW 2370 Australia**	**Phone: (02) 6732 3635** **Ref: Matthew Velcich**
co-agent		
vendor	**Essential Energy ABN 37 428 185 226** **8 Buller Street, Port Macquarie, NSW 2444**	
vendor's solicitor	**Mark Stocks Lawyers** **Level 1, 94 William Street, Port Macquarie NSW 2444** **PO Box 2440, Port Macquarie NSW 2444**	**Phone: (02) 6586 2646** **Email: mark@stockslawyers.com.au** **Fax: (02) 6586 2600** **Ref: MWS:JD:210289**
date for completion	**28th day after the contract date**	(clause 15)
land (address, plan details and title reference)	**148 Church Street, Glen Innes, New South Wales 2370** **Registered Plan: Lot 2 Plan DP 512765** **Folio Identifier 2/512765**	
	☒ VACANT POSSESSION ☐ subject to existing tenancies	
improvements	☐ HOUSE ☐ garage ☐ carport ☐ home unit ☐ carspace ☐ storage space ☐ none ☒ other: Depot including offices, workshops, hardstand, strongroom, amenities and power house	
attached copies	☒ documents in the List of Documents as marked or as numbered: ☐ other documents:	

A real estate agent is permitted by *legislation* to fill up the items in this box in a sale of residential property.

inclusions				
	☒ blinds	☐ dishwasher	☒ light fittings	☐ stove
	☐ built-in wardrobes	☒ fixed floor coverings	☐ range hood	☐ pool equipment
	☐ clothes line	☒ insect screens	☐ solar panels	☐ TV antenna
	☐ curtains	☐ other:		

exclusions		
purchaser	**Glen Innes Severn Council ABN 81 365 002 718** **265 Grey Street, Glen Innes, NSW 2370 Australia**	
purchaser's solicitor	**Northern Tablelands Conveyancing** **106 Byron Street, Inverell, NSW 2360** **DX 6154 INVERELL NSW**	**Phone: (02) 6721 0600** **Email: Alister@ntconveyancing.com.au** **Ref: Alister Salvador**
price	**$275,000.00**	
deposit	**$27,500.00**	(10% of the price, unless otherwise stated)
balance	**$247,500.00**	
contract date		(if not stated, the date this contract was made)

buyer's agent

SEE ANNEXURE AA

vendor | **witness**

GST AMOUNT (optional)
The price includes
GST of: $25,000.00

SEE ANNEXURE AA

purchaser ☐ JOINT TENANTS ☐ tenants in common ☐ in unequal shares | **witness**

Choices

Vendor agrees to accept a ***deposit-bond*** (clause 3)	☐ NO	☐ yes
Nominated *Electronic Lodgment Network (ELN)* (clause 30)	PEXA	
Electronic transaction (clause 30)	☐ no	☒ YES

(if no, vendor must provide further details, such as the proposed applicable waiver, in the space below, or *serve within* 14 days of the contract date):

Tax information (the parties promise this is correct as far as each party is aware)

Land tax is adjustable	☒ NO	☐ yes	
GST: Taxable supply	☐ NO	☒ yes in full	☐ yes to an extent
Margin scheme will be used in making the taxable supply	☒ NO	☐ yes	

This sale is not a taxable supply because (one or more of the following may apply) the sale is:

- ☐ not made in the course or furtherance of an enterprise that the vendor carries on (section 9-5(b))
- ☐ by a vendor who is neither registered nor required to be registered for GST (section 9-5(d))
- ☐ GST-free because the sale is the supply of a going concern under section 38-325
- ☐ GST-free because the sale is subdivided farm land or farm land supplied for farming under Subdivision 38-O
- ☐ input taxed because the sale is of eligible residential premises (sections 40-65, 40-75(2) and 195-1)

Purchaser must make an *GSTRW payment* (GST residential withholding payment) ☐ NO ☐ yes (if yes, vendor must provide further details)

If the further details below are not fully completed at the contract date, the vendor must provide all these details in a separate notice *within* 14 days of the contract date.

***GSTRW payment* (GST residential withholding payment) – further details**

Frequently the supplier will be the vendor. However, sometimes further information will be required as to which entity is liable for GST, for example, if the supplier is a partnership, a trust, part of a GST group or a participant in a GST joint venture.

Supplier's name:

Supplier's ABN:

Supplier's GST branch number (if applicable):

Supplier's business address:

Supplier's email address:

Supplier's phone number:

Supplier's proportion of *GSTRW payment*:

If more than one supplier, provide the above details for each supplier.

Amount purchaser must pay – price multiplied by the *GSTRW rate* (residential withholding rate):

Amount must be paid: ☐ AT COMPLETION ☐ at another time (specify):

Is any of the consideration not expressed as an amount in money? ☐ NO ☐ yes

If "yes", the GST inclusive market value of the non-monetary consideration: **$**

Other details (including those required by regulation or the ATO forms):

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Annexure A

List of Documents

General

- ☒ 1 property certificate for the land
- ☒ 2 plan of the land
- ☐ 3 unregistered plan of the land
- ☐ 4 plan of land to be subdivided
- ☐ 5 document that is to be lodged with a relevant plan
- ☒ 6 section 10.7(2) planning certificate under Environmental Planning and Assessment Act 1979
- ☒ 7 additional information included in that certificate under section 10.7(5)
- ☒ 8 sewerage infrastructure location diagram (service location diagram)
- ☒ 9 sewer lines location diagram (sewerage service diagram)
- ☐ 10 document that created or may have created an easement, profit à prendre, restriction on use or positive covenant disclosed in this contract
- ☐ 11 *planning agreement*
- ☐ 12 section 88G certificate (positive covenant)
- ☐ 13 survey report
- ☐ 14 building information certificate or building certificate given under *legislation*
- ☐ 15 lease (with every relevant memorandum or variation)
- ☐ 16 other document relevant to tenancies
- ☐ 17 licence benefiting the land
- ☐ 18 old system document
- ☐ 19 Crown purchase statement of account
- ☐ 20 building management statement
- ☒ 21 form of requisitions
- ☐ 22 *clearance certificate*
- ☐ 23 land tax certificate

Home Building Act 1989

- ☐ 24 insurance certificate
- ☐ 25 brochure or warning
- ☐ 26 evidence of alternative indemnity cover

Swimming Pools Act 1992

- ☐ 27 certificate of compliance
- ☐ 28 evidence of registration
- ☐ 29 relevant occupation certificate
- ☐ 30 certificate of non-compliance
- ☐ 31 detailed reasons of non-compliance

Strata or community title (clause 23 of the contract)

- ☐ 32 property certificate for strata common property
- ☐ 33 plan creating strata common property
- ☐ 34 strata by-laws
- ☐ 35 strata development contract or statement
- ☐ 36 strata management statement
- ☐ 37 strata renewal proposal
- ☐ 38 strata renewal plan
- ☐ 39 leasehold strata - lease of lot and common property
- ☐ 40 property certificate for neighbourhood property
- ☐ 41 plan creating neighbourhood property
- ☐ 42 neighbourhood development contract
- ☐ 43 neighbourhood management statement
- ☐ 44 property certificate for precinct property
- ☐ 45 plan creating precinct property
- ☐ 46 precinct development contract
- ☐ 47 precinct management statement
- ☐ 48 property certificate for community property
- ☐ 49 plan creating community property
- ☐ 50 community development contract
- ☐ 51 community management statement
- ☐ 52 document disclosing a change of by-laws
- ☐ 53 document disclosing a change in a development or management contract or statement
- ☐ 54 document disclosing a change in boundaries
- ☐ 55 information certificate under Strata Schemes Management Act 2015
- ☐ 56 information certificate under Community Land Management Act 1989
- ☐ 57 disclosure statement - off the plan contract
- ☐ 58 other document relevant to the off the plan contract

Other

- ☐ 59

HOLDER OF STRATA OR COMMUNITY TITLE RECORDS – Name, address, email address and telephone number

Annexure AA to Contract for the sale and purchase of land

Vendor: Essential Energy ABN 37 428 185 226

Purchaser: Glen Innes Severn Council ABN 81 365 002 718

Signed for and on behalf of **Essential Energy**)
by its attorney, pursuant to Power of Attorney)
Registered Book No. and the)
attorney declares that the attorney has not)
received notice of the revocation of such Power)
of Attorney in the presence of:)

Signature of witness

Signature of attorney

Name of witness

Name and title of attorney

Address of witness

The Common Seal of **Glen Innes Severn Council**
was hereunto affixed to this day of 2022
in pursuance of Resolution Number /
of Council passed on the day of 2022
and attested to by:

.....
Robert Bruce Banham
Mayor

.....
Dennis Hugh McIntyre
Interim General Manager

210289

Item 7.3

Annexure A

IMPORTANT NOTICE TO VENDORS AND PURCHASERS
Before signing this contract you should ensure that you understand your rights and obligations, some of which are not written in this contract but are implied by law.

WARNING—SMOKE ALARMS
The owners of certain types of buildings and strata lots must have smoke alarms (or in certain cases heat alarms) installed in the building or lot in accordance with regulations under the *Environmental Planning and Assessment Act 1979*. It is an offence not to comply. It is also an offence to remove or interfere with a smoke alarm or heat alarm. Penalties apply.

WARNING—LOOSE-FILL ASBESTOS INSULATION
Before purchasing land that includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) built before 1985, a purchaser is strongly advised to consider the possibility that the premises may contain loose-fill asbestos insulation (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*). In particular, a purchaser should:

(a) search the Register required to be maintained under Division 1A of Part 8 of the *Home Building Act 1989*, and

(b) ask the relevant local council whether it holds any records showing that the residential premises contain loose-fill asbestos insulation.

For further information about loose-fill asbestos insulation (including areas in which residential premises have been identified as containing loose-fill asbestos insulation), contact NSW Fair Trading.

COOLING OFF PERIOD (PURCHASER'S RIGHTS)

1. This is the statement required by section 66X of the *Conveyancing Act 1919* and applies to a contract for the sale of residential property.

2. EXCEPT in the circumstances listed in paragraph 3, the purchaser may rescind the contract at any time before 5 pm on—
   (a) the tenth business day after the day on which the contract was made—in the case of an off the plan contract, or
   (b) the fifth business day after the day on which the contract was made—in any other case.

3. There is NO COOLING OFF PERIOD:
   (a) if, at or before the time the contract is made, the purchaser gives to the vendor (or the vendor's solicitor or agent) a certificate that complies with section 66W of the Act, or
   (b) if the property is sold by public auction, or
   (c) if the contract is made on the same day as the property was offered for sale by public auction but passed in, or
   (d) if the contract is made in consequence of the exercise of an option to purchase the property, other than an option that is void under section 66ZG of the Act.

4. A purchaser exercising the right to cool off by rescinding the contract will forfeit to the vendor 0.25% of the purchase price of the property. The vendor is entitled to recover the amount forfeited from any amount paid by the purchaser as a deposit under the contract and the purchaser is entitled to a refund of any balance.

DISPUTES

If you get into a dispute with the other party, the Law Society and Real Estate Institute encourage you to use informal procedures such as negotiation, independent expert appraisal, the Law Society Conveyancing Dispute Resolution Scheme or mediation (for example mediation under the Law Society Mediation Program).

AUCTIONS

Regulations made under the Property, Stock and Business Agents Act 2002 prescribe a number of conditions applying to sales by auction.

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WARNINGS

1. Various Acts of Parliament and other matters can affect the rights of the parties to this contract. Some important matters are actions, claims, decisions, licences, notices, orders, proposals or rights of way involving:

APA Group	NSW Department of Education
Australian Taxation Office	NSW Fair Trading
Council	Owner of adjoining land
County Council	Privacy
Department of Planning, Industry and Environment	Public Works Advisory
Department of Primary Industries	Subsidence Advisory NSW
Electricity and gas	Telecommunications
Land & Housing Corporation	Transport for NSW
Local Land Services	Water, sewerage or drainage authority

If you think that any of these matters affects the property, tell your solicitor.

2. A lease may be affected by the Agricultural Tenancies Act 1990, the Residential Tenancies Act 2010 or the Retail Leases Act 1994.

3. If any purchase money is owing to the Crown, it will become payable before obtaining consent, or if no consent is needed, when the transfer is registered.

4. If a consent to transfer is required under legislation, see clause 27 as to the obligations of the parties.

5. The vendor should continue the vendor's insurance until completion. If the vendor wants to give the purchaser possession before completion, the vendor should first ask the insurer to confirm this will not affect the insurance.

6. The purchaser will usually have to pay transfer duty (and sometimes surcharge purchaser duty) on this contract. If duty is not paid on time, a purchaser may incur penalties.

7. If the purchaser agrees to the release of deposit, the purchaser's right to recover the deposit may stand behind the rights of others (for example the vendor's mortgagee).

8. The purchaser should arrange insurance as appropriate.

9. Some transactions involving personal property may be affected by the Personal Property Securities Act 2009.

10. A purchaser should be satisfied that finance will be available at the time of completing the purchase.

11. Where the market value of the property is at or above a legislated amount, the purchaser may have to comply with a foreign resident capital gains withholding payment obligation (even if the vendor is not a foreign resident). If so, this will affect the amount available to the vendor on completion.

12. Purchasers of some residential properties may have to withhold part of the purchase price to be credited towards the GST liability of the vendor. If so, this will also affect the amount available to the vendor. More information is available from the ATO.

The vendor sells and the purchaser buys the *property* for the price under these provisions instead of Schedule 3 Conveyancing Act 1919, subject to any *legislation* that cannot be excluded.

1 Definitions (a term in italics is a defined term)

In this contract, these terms (in any form) mean –

adjustment date	the earlier of the giving of possession to the purchaser or completion;
bank	the Reserve Bank of Australia or an authorised deposit-taking institution which is a bank, a building society or a credit union;
business day	any day except a bank or public holiday throughout NSW or a Saturday or Sunday;
cheque	a cheque that is not postdated or stale;
clearance certificate	a certificate within the meaning of s14-220 of Schedule 1 to the *TA Act,* that covers one or more days falling within the period from and including the contract date to completion;
deposit-bond	a deposit bond or guarantee from an issuer, with an expiry date and for an amount each approved by the vendor;
depositholder	vendor's agent (or if no vendor's agent is named in this contract, the vendor's *solicitor,* or if no vendor's *solicitor* is named in this contract, the buyer's agent);
document of title	document relevant to the title or the passing of title;
FRCGW percentage	the percentage mentioned in s14-200(3)(a) of Schedule 1 to the *TA Act* (12.5% as at 1 July 2017);
FRCGW remittance	a remittance which the purchaser must make under s14-200 of Schedule 1 to the *TA Act*, being the lesser of the *FRCGW percentage* of the price (inclusive of GST, if any) and the amount specified in a *variation served* by a *party*;
GST Act	A New Tax System (Goods and Services Tax) Act 1999;
GST rate	the rate mentioned in s4 of A New Tax System (Goods and Services Tax Imposition - General) Act 1999 (10% as at 1 July 2000);
GSTRW payment	a payment which the purchaser must make under s14-250 of Schedule 1 to the *TA Act* (the price multiplied by the *GSTRW rate*);
GSTRW rate	the rate determined under ss14-250(6), (8) or (9) of Schedule 1 to the *TA Act* (as at 1 July 2018, usually 7% of the price if the margin scheme applies, 1/11th if not);
legislation	an Act or a by-law, ordinance, regulation or rule made under an Act;
normally	subject to any other provision of this contract;
party	each of the vendor and the purchaser;
property	the land, the improvements, all fixtures and the inclusions, but not the exclusions;
planning agreement	a valid voluntary agreement within the meaning of s7.4 of the Environmental Planning and Assessment Act 1979 entered into in relation to the *property;*
requisition	an objection, question or requisition (but the term does not include a claim);
rescind	rescind this contract from the beginning;
serve	serve in writing on the other *party*;
settlement cheque	an unendorsed *cheque* made payable to the person to be paid and – • issued by a *bank* and drawn on itself; or • if authorised in writing by the vendor or the vendor's *solicitor*, some other *cheque*;
solicitor	in relation to a *party*, the *party's* solicitor or licensed conveyancer named in this contract or in a notice *served* by the *party*;
TA Act	Taxation Administration Act 1953;
terminate	terminate this contract for breach;
variation	a variation made under s14-235 of Schedule 1 to the *TA Act*;
within	in relation to a period, at any time before or during the period; and
work order	a valid direction, notice or order that requires work to be done or money to be spent on or in relation to the *property* or any adjoining footpath or road (but the term does not include a notice under s22E of the Swimming Pools Act 1992 or clause 22 of the Swimming Pools Regulation 2018).

2 Deposit and other payments before completion

2.1 The purchaser must pay the deposit to the *depositholder* as stakeholder.

2.2 *Normally*, the purchaser must pay the deposit on the making of this contract, and this time is essential.

2.3 If this contract requires the purchaser to pay any of the deposit by a later time, that time is also essential.

2.4 The purchaser can pay any of the deposit by giving cash (up to $2,000) or by unconditionally giving a *cheque* to the *depositholder* or to the vendor, vendor's agent or vendor's *solicitor* for sending to the *depositholder* or by payment by electronic funds transfer to the *depositholder*.

2.5 If any of the deposit is not paid on time or a *cheque* for any of the deposit is not honoured on presentation, the vendor can *terminate*. This right to *terminate* is lost as soon as the deposit is paid in full.

2.6 If the vendor accepts a bond or guarantee for the deposit, clauses 2.1 to 2.5 do not apply.

2.7 If the vendor accepts a bond or guarantee for part of the deposit, clauses 2.1 to 2.5 apply only to the balance.
2.8 If any of the deposit or of the balance of the price is paid before completion to the vendor or as the vendor directs, it is a charge on the land in favour of the purchaser until *termination* by the vendor or completion, subject to any existing right.
2.9 If each *party* tells the *depositholder* that the deposit is to be invested, the *depositholder* is to invest the deposit (at the risk of the *party* who becomes entitled to it) with a *bank*, in an interest-bearing account in NSW, payable at call, with interest to be reinvested, and pay the interest to the *parties* equally, after deduction of all proper government taxes and financial institution charges and other charges.

3 Deposit-bond

3.1 This clause applies only if this contract says the vendor has agreed to accept a *deposit-bond* for the deposit (or part of it).
3.2 The purchaser must provide the original *deposit-bond* to the vendor's *solicitor* (or if no solicitor the *depositholder*) at or before the making of this contract and this time is essential.
3.3 If the *deposit-bond* has an expiry date and completion does not occur by the date which is 14 days before the expiry date, the purchaser must *serve* a replacement *deposit-bond* at least 7 days before the expiry date. The time for service is essential.
3.4 The vendor must approve a replacement *deposit-bond* if –
3.4.1 it is from the same issuer and for the same amount as the earlier *deposit-bond*; and
3.4.2 it has an expiry date at least three months after its date of issue.
3.5 A breach of clauses 3.2 or 3.3 entitles the vendor to *terminate*. The right to *terminate* is lost as soon as –
3.5.1 the purchaser *serves* a replacement *deposit-bond*; or
3.5.2 the deposit is paid in full under clause 2.
3.6 Clauses 3.3 and 3.4 can operate more than once.
3.7 If the purchaser *serves* a replacement *deposit-bond*, the vendor must *serve* the earlier *deposit-bond*.
3.8 The amount of any *deposit-bond* does not form part of the price for the purposes of clause 16.7.
3.9 The vendor must give the purchaser the *deposit-bond* –
3.9.1 on completion; or
3.9.2 if this contract is *rescinded*.
3.10 If this contract is *terminated* by the vendor –
3.10.1 *normally*, the vendor can immediately demand payment from the issuer of the *deposit-bond*; or
3.10.2 if the purchaser *serves* prior to *termination* a notice disputing the vendor's right to *terminate*, the vendor must forward the *deposit-bond* (or its proceeds if called up) to the *depositholder* as stakeholder.
3.11 If this contract is *terminated* by the purchaser –
3.11.1 *normally*, the vendor must give the purchaser the *deposit-bond*; or
3.11.2 if the vendor *serves* prior to *termination* a notice disputing the purchaser's right to *terminate*, the vendor must forward the *deposit-bond* (or its proceeds if called up) to the *depositholder* as stakeholder.

4 Transfer

4.1 *Normally*, the purchaser must *serve* at least 14 days before the date for completion –
4.1.1 the form of transfer; and
4.1.2 particulars required to register any mortgage or other dealing to be lodged with the transfer by the purchaser or the purchaser's mortgagee.
4.2 If any information needed for the form of transfer is not disclosed in this contract, the vendor must *serve* it.
4.3 If the purchaser *serves* a form of transfer and the transferee is not the purchaser, the purchaser must give the vendor a direction signed by the purchaser personally for this form of transfer.
4.4 The vendor can require the purchaser to include a form of covenant or easement in the transfer only if this contract contains the wording of the proposed covenant or easement, and a description of the land benefited.

5 Requisitions

5.1 If a form of *requisitions* is attached to this contract, the purchaser is taken to have made those *requisitions*.
5.2 If the purchaser is or becomes entitled to make any other *requisition*, the purchaser can make it only by *serving* it –
5.2.1 if it arises out of this contract or it is a general question about the *property* or title - *within* 21 days after the contract date;
5.2.2 if it arises out of anything *served* by the vendor - *within* 21 days after the later of the contract date and that *service*; and
5.2.3 in any other case - *within* a reasonable time.

6 Error or misdescription

6.1 *Normally*, the purchaser can (but only before completion) claim compensation for an error or misdescription in this contract (as to the *property*, the title or anything else and whether substantial or not).
6.2 This clause applies even if the purchaser did not take notice of or rely on anything in this contract containing or giving rise to the error or misdescription.
6.3 However, this clause does not apply to the extent the purchaser knows the true position.

7 Claims by purchaser

Normally, the purchaser can make a claim (including a claim under clause 6) before completion only by *serving* it with a statement of the amount claimed, and if the purchaser makes one or more claims before completion –

7.1 the vendor can *rescind* if in the case of claims that are not claims for delay –

7.1.1 the total amount claimed exceeds 5% of the price;

7.1.2 the vendor *serves* notice of intention to *rescind*; and

7.1.3 the purchaser does not *serve* notice waiving the claims *within* 14 days after that *service*; and

7.2 if the vendor does not *rescind*, the *parties* must complete and if this contract is completed –

7.2.1 the lesser of the total amount claimed and 10% of the price must be paid out of the price to and held by the *depositholder* until the claims are finalised or lapse;

7.2.2 the amount held is to be invested in accordance with clause 2.9;

7.2.3 the claims must be finalised by an arbitrator appointed by the *parties* or, if an appointment is not made *within* 1 month of completion, by an arbitrator appointed by the President of the Law Society at the request of a *party* (in the latter case the *parties* are bound by the terms of the Conveyancing Arbitration Rules approved by the Law Society as at the date of the appointment);

7.2.4 the purchaser is not entitled, in respect of the claims, to more than the total amount claimed and the costs of the purchaser;

7.2.5 net interest on the amount held must be paid to the *parties* in the same proportion as the amount held is paid; and

7.2.6 if the *parties* do not appoint an arbitrator and neither *party* requests the President to appoint an arbitrator *within* 3 months after completion, the claims lapse and the amount belongs to the vendor.

8 Vendor's rights and obligations

8.1 The vendor can *rescind* if –

8.1.1 the vendor is, on reasonable grounds, unable or unwilling to comply with a *requisition*;

8.1.2 the vendor *serves* a notice of intention to *rescind* that specifies the *requisition* and those grounds; and

8.1.3 the purchaser does not *serve* a notice waiving the *requisition within* 14 days after that *service*.

8.2 If the vendor does not comply with this contract (or a notice under or relating to it) in an essential respect, the purchaser can *terminate* by *serving* a notice. After the *termination* –

8.2.1 the purchaser can recover the deposit and any other money paid by the purchaser under this contract;

8.2.2 the purchaser can sue the vendor to recover damages for breach of contract; and

8.2.3 if the purchaser has been in possession a *party* can claim for a reasonable adjustment.

9 Purchaser's default

If the purchaser does not comply with this contract (or a notice under or relating to it) in an essential respect, the vendor can *terminate* by *serving* a notice. After the *termination* the vendor can –

9.1 keep or recover the deposit (to a maximum of 10% of the price);

9.2 hold any other money paid by the purchaser under this contract as security for anything recoverable under this clause –

9.2.1 for 12 months after the *termination*; or

9.2.2 if the vendor commences proceedings under this clause *within* 12 months, until those proceedings are concluded; and

9.3 sue the purchaser either –

9.3.1 where the vendor has resold the *property* under a contract made *within* 12 months after the *termination*, to recover –

- the deficiency on resale (with credit for any of the deposit kept or recovered and after allowance for any capital gains tax or goods and services tax payable on anything recovered under this clause); and
- the reasonable costs and expenses arising out of the purchaser's non-compliance with this contract or the notice and of resale and any attempted resale; or

9.3.2 to recover damages for breach of contract.

10 Restrictions on rights of purchaser

10.1 The purchaser cannot make a claim or *requisition* or *rescind* or *terminate* in respect of –

10.1.1 the ownership or location of any fence as defined in the Dividing Fences Act 1991;

10.1.2 a service for the *property* being a joint service or passing through another property, or any service for another property passing through the *property* ('service' includes air, communication, drainage, electricity, garbage, gas, oil, radio, sewerage, telephone, television or water service);

10.1.3 a wall being or not being a party wall in any sense of that term or the *property* being affected by an easement for support or not having the benefit of an easement for support;

10.1.4 any change in the *property* due to fair wear and tear before completion;

10.1.5 a promise, representation or statement about this contract, the *property* or the title, not set out or referred to in this contract;

10.1.6 a condition, exception, reservation or restriction in a Crown grant;

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10.1.7 the existence of any authority or licence to explore or prospect for gas, minerals or petroleum;
10.1.8 any easement or restriction on use the substance of either of which is disclosed in this contract or any non-compliance with the easement or restriction on use; or
10.1.9 anything the substance of which is disclosed in this contract (except a caveat, charge, mortgage, priority notice or writ).

10.2 The purchaser cannot *rescind* or *terminate* only because of a defect in title to or quality of the inclusions.
10.3 *Normally*, the purchaser cannot make a claim or *requisition* or *rescind* or *terminate* or require the vendor to change the nature of the title disclosed in this contract (for example, to remove a caution evidencing qualified title, or to lodge a plan of survey as regards limited title).

11 Compliance with work orders

11.1 *Normally*, the vendor must by completion comply with a *work order* made on or before the contract date and if this contract is completed the purchaser must comply with any other *work order*.
11.2 If the purchaser complies with a *work order*, and this contract is *rescinded* or *terminated*, the vendor must pay the expense of compliance to the purchaser.

12 Certificates and inspections

The vendor must do everything reasonable to enable the purchaser, subject to the rights of any tenant –
12.1 to have the *property* inspected to obtain any certificate or report reasonably required;
12.2 to apply (if necessary in the name of the vendor) for –
12.2.1 any certificate that can be given in respect of the *property* under *legislation*; or
12.2.2 a copy of any approval, certificate, consent, direction, notice or order in respect of the *property* given under *legislation*, even if given after the contract date; and
12.3 to make 1 inspection of the *property* in the 3 days before a time appointed for completion.

13 Goods and services tax (GST)

13.1 Terms used in this clause which are not defined elsewhere in this contract and have a defined meaning in the *GST Act* have the same meaning in this clause.
13.2 *Normally*, if a *party* must pay the price or any other amount to the other *party* under this contract, GST is not to be added to the price or amount.
13.3 If under this contract a *party* must make an adjustment or payment for an expense of another party or pay an expense payable by or to a third party (for example, under clauses 14 or 20.7) –
13.3.1 the *party* must adjust or pay on completion any GST added to or included in the expense; but
13.3.2 the amount of the expense must be reduced to the extent the party receiving the adjustment or payment (or the representative member of a GST group of which that party is a member) is entitled to an input tax credit for the expense; and
13.3.3 if the adjustment or payment under this contract is consideration for a taxable supply, an amount for GST must be added at the *GST rate*.
13.4 If this contract says this sale is the supply of a going concern –
13.4.1 the *parties* agree the supply of the *property* is a supply of a going concern;
13.4.2 the vendor must, between the contract date and completion, carry on the enterprise conducted on the land in a proper and business-like way;
13.4.3 if the purchaser is not registered by the date for completion, the *parties* must complete and the purchaser must pay on completion, in addition to the price, an amount being the price multiplied by the *GST rate* ("the retention sum"). The retention sum is to be held by the *depositholder* and dealt with as follows –
- if *within* 3 months of completion the purchaser *serves* a letter from the Australian Taxation Office stating the purchaser is registered with a date of effect of registration on or before completion, the *depositholder* is to pay the retention sum to the purchaser; but
- if the purchaser does not *serve* that letter *within* 3 months of completion, the *depositholder* is to pay the retention sum to the vendor; and

13.4.4 if the vendor, despite clause 13.4.1, *serves* a letter from the Australian Taxation Office stating the vendor has to pay GST on the supply, the purchaser must pay to the vendor on demand the amount of GST assessed.

13.5 *Normally*, the vendor promises the margin scheme will not apply to the supply of the *property*.
13.6 If this contract says the margin scheme is to apply in making the taxable supply, the *parties* agree that the margin scheme is to apply to the sale of the *property*.
13.7 If this contract says the sale is not a taxable supply –
13.7.1 the purchaser promises that the *property* will not be used and represents that the purchaser does not intend the *property* (or any part of the *property*) to be used in a way that could make the sale a taxable supply to any extent; and
13.7.2 the purchaser must pay the vendor on completion in addition to the price an amount calculated by multiplying the price by the *GST rate* if this sale is a taxable supply to any extent because of –
- a breach of clause 13.7.1; or
- something else known to the purchaser but not the vendor.

13.8 If this contract says this sale is a taxable supply in full and does not say the margin scheme applies to the *property*, the vendor must pay the purchaser on completion an amount of one-eleventh of the price if –

13.8.1 this sale is not a taxable supply in full; or
13.8.2 the margin scheme applies to the *property* (or any part of the *property*).
13.9 If this contract says this sale is a taxable supply to an extent –
13.9.1 clause 13.7.1 does not apply to any part of the *property* which is identified as being a taxable supply; and
13.9.2 the payments mentioned in clauses 13.7 and 13.8 are to be recalculated by multiplying the relevant payment by the proportion of the price which represents the value of that part of the *property* to which the clause applies (the proportion to be expressed as a number between 0 and 1). Any evidence of value must be obtained at the expense of the vendor.
13.10 *Normally*, on completion the vendor must give the recipient of the supply a tax invoice for any taxable supply by the vendor by or under this contract.
13.11 The vendor does not have to give the purchaser a tax invoice if the margin scheme applies to a taxable supply.
13.12 If the vendor is liable for GST on rents or profits due to issuing an invoice or receiving consideration before completion, any adjustment of those amounts must exclude an amount equal to the vendor's GST liability.
13.13 If the purchaser must make a *GSTRW payment* the purchaser must –
13.13.1 at least 5 days before the date for completion, *serve* evidence of submission of a *GSTRW payment* notification form to the Australian Taxation Office by the purchaser or, if a direction under clause 4.3 has been *served*, by the transferee named in the transfer *served* with that direction;
13.13.2 produce on completion a *settlement cheque* for the *GSTRW payment* payable to the Deputy Commissioner of Taxation;
13.13.3 forward the *settlement cheque* to the payee immediately after completion; and
13.13.4 *serve* evidence of receipt of payment of the *GSTRW payment* and a copy of the settlement date confirmation form submitted to the Australian Taxation Office.

14 Adjustments

14.1 *Normally*, the vendor is entitled to the rents and profits and will be liable for all rates, water, sewerage and drainage service and usage charges, land tax, levies and all other periodic outgoings up to and including the *adjustment date* after which the purchaser will be entitled and liable.
14.2 The *parties* must make any necessary adjustment on completion.
14.3 If an amount that is adjustable under this contract has been reduced under *legislation*, the *parties* must on completion adjust the reduced amount.
14.4 The *parties* must not adjust surcharge land tax (as defined in the Land Tax Act 1956) but must adjust any other land tax for the year current at the *adjustment date* –
14.4.1 only if land tax has been paid or is payable for the year (whether by the vendor or by a predecessor in title) and this contract says that land tax is adjustable;
14.4.2 by adjusting the amount that would have been payable if at the start of the year –
- the person who owned the land owned no other land;
- the land was not subject to a special trust or owned by a non-concessional company; and
- if the land (or part of it) had no separate taxable value, by calculating its separate taxable value on a proportional area basis.

14.5 If any other amount that is adjustable under this contract relates partly to the land and partly to other land, the *parties* must adjust it on a proportional area basis.
14.6 *Normally*, the vendor can direct the purchaser to produce a *settlement cheque* on completion to pay an amount adjustable under this contract and if so –
14.6.1 the amount is to be treated as if it were paid; and
14.6.2 the *cheque* must be forwarded to the payee immediately after completion (by the purchaser if the *cheque* relates only to the *property* or by the vendor in any other case).
14.7 If on completion the last bill for a water, sewerage or drainage usage charge is for a period ending before the *adjustment date*, the vendor is liable for an amount calculated by dividing the bill by the number of days in the period then multiplying by the number of unbilled days up to and including the *adjustment date*.
14.8 The vendor is liable for any amount recoverable for work started on or before the contract date on the *property* or any adjoining footpath or road.

15 Date for completion

The *parties* must complete by the date for completion and, if they do not, a *party* can *serve* a notice to complete if that *party* is otherwise entitled to do so.

16 Completion

• Vendor

16.1 On completion the vendor must give the purchaser any *document of title* that relates only to the *property*.
16.2 If on completion the vendor has possession or control of a *document of title* that relates also to other property, the vendor must produce it as and where necessary.
16.3 *Normally*, on completion the vendor must cause the legal title to the *property* (being an estate in fee simple) to pass to the purchaser free of any mortgage or other interest, subject to any necessary registration.
16.4 The legal title to the *property* does not pass before completion.

16.5 If the vendor gives the purchaser a document (other than the transfer) that needs to be lodged for registration, the vendor must pay the lodgment fee to the purchaser.

16.6 If a *party serves* a land tax certificate showing a charge on any of the land, by completion the vendor must do all things and pay all money required so that the charge is no longer effective against the land.

• Purchaser

16.7 On completion the purchaser must pay to the vendor, by cash (up to $2,000) or *settlement cheque* –

16.7.1 the price less any:
- deposit paid;
- *FRCGW remittance* payable;
- *GSTRW payment*; and
- amount payable by the vendor to the purchaser under this contract; and

16.7.2 any other amount payable by the purchaser under this contract.

16.8 If the vendor requires more than 5 *settlement cheques*, the vendor must pay $10 for each extra *cheque*.

16.9 If any of the deposit is not covered by a bond or guarantee, on completion the purchaser must give the vendor an order signed by the purchaser authorising the *depositholder* to account to the vendor for the deposit.

16.10 On completion the deposit belongs to the vendor.

• Place for completion

16.11 *Normally*, the *parties* must complete at the completion address, which is –

16.11.1 if a special completion address is stated in this contract - that address; or

16.11.2 if none is stated, but a first mortgagee is disclosed in this contract and the mortgagee would usually discharge the mortgage at a particular place - that place; or

16.11.3 in any other case - the vendor's *solicitor's* address stated in this contract.

16.12 The vendor by reasonable notice can require completion at another place, if it is in NSW, but the vendor must pay the purchaser's additional expenses, including any agency or mortgagee fee.

16.13 If the purchaser requests completion at a place that is not the completion address, and the vendor agrees, the purchaser must pay the vendor's additional expenses, including any agency or mortgagee fee.

17 Possession

17.1 *Normally*, the vendor must give the purchaser vacant possession of the *property* on completion.

17.2 The vendor does not have to give vacant possession if –

17.2.1 this contract says that the sale is subject to existing tenancies; and

17.2.2 the contract discloses the provisions of the tenancy (for example, by attaching a copy of the lease and any relevant memorandum or variation).

17.3 *Normally*, the purchaser can claim compensation (before or after completion) or *rescind* if any of the land is affected by a protected tenancy (a tenancy affected by Schedule 2, Part 7 of the Residential Tenancies Act 2010).

18 Possession before completion

18.1 This clause applies only if the vendor gives the purchaser possession of the *property* before completion.

18.2 The purchaser must not before completion –

18.2.1 let or part with possession of any of the *property*;

18.2.2 make any change or structural alteration or addition to the *property;* or

18.2.3 contravene any agreement between the *parties* or any direction, document, *legislation*, notice or order affecting the *property*.

18.3 The purchaser must until completion –

18.3.1 keep the *property* in good condition and repair having regard to its condition at the giving of possession; and

18.3.2 allow the vendor or the vendor's authorised representative to enter and inspect it at all reasonable times.

18.4 The risk as to damage to the *property* passes to the purchaser immediately after the purchaser enters into possession.

18.5 If the purchaser does not comply with this clause, then without affecting any other right of the vendor –

18.5.1 the vendor can before completion, without notice, remedy the non-compliance; and

18.5.2 if the vendor pays the expense of doing this, the purchaser must pay it to the vendor with interest at the rate prescribed under s101 Civil Procedure Act 2005.

18.6 If this contract is *rescinded* or *terminated* the purchaser must immediately vacate the *property*.

18.7 If the *parties* or their *solicitors* on their behalf do not agree in writing to a fee or rent, none is payable.

19 Rescission of contract

19.1 If this contract expressly gives a *party* a right to *rescind*, the *party* can exercise the right –

19.1.1 only by *serving* a notice before completion; and

19.1.2 in spite of any making of a claim or *requisition*, any attempt to satisfy a claim or *requisition*, any arbitration, litigation, mediation or negotiation or any giving or taking of possession.

19.2 *Normally*, if a *party* exercises a right to *rescind* expressly given by this contract or any *legislation* –

19.2.1 the deposit and any other money paid by the purchaser under this contract must be refunded;

19.2.2 a *party* can claim for a reasonable adjustment if the purchaser has been in possession;

19.2.3 a *party* can claim for damages, costs or expenses arising out of a breach of this contract; and

19.2.4 a *party* will not otherwise be liable to pay the other *party* any damages, costs or expenses.

20 Miscellaneous

20.1 The *parties* acknowledge that anything stated in this contract to be attached was attached to this contract by the vendor before the purchaser signed it and is part of this contract.

20.2 Anything attached to this contract is part of this contract.

20.3 An area, bearing or dimension in this contract is only approximate.

20.4 If a *party* consists of 2 or more persons, this contract benefits and binds them separately and together.

20.5 A *party's solicitor* can receive any amount payable to the *party* under this contract or direct in writing that it is to be paid to another person.

20.6 A document under or relating to this contract is –

20.6.1 signed by a *party* if it is signed by the *party* or the *party's solicitor* (apart from a direction under clause 4.3);

20.6.2 *served* if it is *served* by the *party* or the *party's solicitor*;

20.6.3 *served* if it is *served* on the *party's solicitor*, even if the *party* has died or any of them has died;

20.6.4 *served* if it is *served* in any manner provided in s170 of the Conveyancing Act 1919;

20.6.5 *served* if it is sent by email or fax to the *party's solicitor*, unless in either case it is not received;

20.6.6 *served* on a person if it (or a copy of it) comes into the possession of the person; and

20.6.7 *served* at the earliest time it is *served*, if it is *served* more than once.

20.7 An obligation to pay an expense of another *party* of doing something is an obligation to pay –

20.7.1 if the *party* does the thing personally - the reasonable cost of getting someone else to do it; or

20.7.2 if the *party* pays someone else to do the thing - the amount paid, to the extent it is reasonable.

20.8 Rights under clauses 11, 13, 14, 17, 24, 30 and 31 continue after completion, whether or not other rights continue.

20.9 The vendor does not promise, represent or state that the purchaser has any cooling off rights.

20.10 The vendor does not promise, represent or state that any attached survey report is accurate or current.

20.11 A reference to any *legislation* (including any percentage or rate specified in *legislation)* is also a reference to any corresponding later *legislation*.

20.12 Each *party* must do whatever is necessary after completion to carry out the *party's* obligations under this contract.

20.13 Neither taking possession nor *serving* a transfer of itself implies acceptance of the *property* or the title.

20.14 The details and information provided in this contract (for example, on pages 1 - 3) are, to the extent of each *party's* knowledge, true, and are part of this contract.

20.15 Where this contract provides for choices, a choice in BLOCK CAPITALS applies unless a different choice is marked.

21 Time limits in these provisions

21.1 If the time for something to be done or to happen is not stated in these provisions, it is a reasonable time.

21.2 If there are conflicting times for something to be done or to happen, the latest of those times applies.

21.3 The time for one thing to be done or to happen does not extend the time for another thing to be done or to happen.

21.4 If the time for something to be done or to happen is the 29th, 30th or 31st day of a month, and the day does not exist, the time is instead the last day of the month.

21.5 If the time for something to be done or to happen is a day that is not a *business day*, the time is extended to the next *business day*, except in the case of clauses 2 and 3.2.

21.6 *Normally*, the time by which something must be done is fixed but not essential.

22 Foreign Acquisitions and Takeovers Act 1975

22.1 The purchaser promises that the Commonwealth Treasurer cannot prohibit and has not prohibited the transfer under the Foreign Acquisitions and Takeovers Act 1975.

22.2 This promise is essential and a breach of it entitles the vendor to *terminate*.

23 Strata or community title

• Definitions and modifications

23.1 This clause applies only if the land (or part of it) is a lot in a strata, neighbourhood, precinct or community scheme (or on completion is to be a lot in a scheme of that kind).

23.2 In this contract –

23.2.1 'change', in relation to a scheme, means –

- a registered or registrable change from by-laws set out in this contract;
- a change from a development or management contract or statement set out in this contract; or
- a change in the boundaries of common property;

23.2.2 'common property' includes association property for the scheme or any higher scheme;

23.2.3 'contribution' includes an amount payable under a by-law;

23.2.4 'information certificate' includes a certificate under s184 Strata Schemes Management Act 2015 and s26 Community Land Management Act 1989;

23.2.5 'information notice' includes a strata information notice under s22 Strata Schemes Management Act 2015 and a notice under s47 Community Land Management Act 1989;

23.2.6 'normal expenses', in relation to an owners corporation for a scheme, means normal operating expenses usually payable from the administrative fund of an owners corporation for a scheme of the same kind;

23.2.7 'owners corporation' means the owners corporation or the association for the scheme or any higher scheme;

23.2.8 'the *property*' includes any interest in common property for the scheme associated with the lot; and

23.2.9 'special expenses', in relation to an owners corporation, means its actual, contingent or expected expenses, except to the extent they are –

- normal expenses;
- due to fair wear and tear;
- disclosed in this contract; or
- covered by moneys held in the capital works fund.

23.3 Clauses 11, 14.8 and 18.4 do not apply to an obligation of the owners corporation, or to property insurable by it.

23.4 Clauses 14.4.2 and 14.5 apply but on a unit entitlement basis instead of an area basis.

• Adjustments and liability for expenses

23.5 The *parties* must adjust under clause 14.1 –

23.5.1 a regular periodic contribution;

23.5.2 a contribution which is not a regular periodic contribution but is disclosed in this contract; and

23.5.3 on a unit entitlement basis, any amount paid by the vendor for a normal expense of the owners corporation to the extent the owners corporation has not paid the amount to the vendor.

23.6 If a contribution is not a regular periodic contribution and is not disclosed in this contract –

23.6.1 the vendor is liable for it if it was determined on or before the contract date, even if it is payable by instalments; and

23.6.2 the purchaser is liable for all contributions determined after the contract date.

23.7 The vendor must pay or allow to the purchaser on completion the amount of any unpaid contributions for which the vendor is liable under clause 23.6.1.

23.8 *Normally*, the purchaser cannot make a claim or *requisition* or *rescind* or *terminate* in respect of –

23.8.1 an existing or future actual, contingent or expected expense of the owners corporation;

23.8.2 a proportional unit entitlement of the lot or a relevant lot or former lot, apart from a claim under clause 6; or

23.8.3 a past or future change in the scheme or a higher scheme.

23.9 However, the purchaser can *rescind* if –

23.9.1 the special expenses of the owners corporation at the later of the contract date and the creation of the owners corporation when calculated on a unit entitlement basis (and, if more than one lot or a higher scheme is involved, added together), less any contribution paid by the vendor, are more than 1% of the price;

23.9.2 in the case of the lot or a relevant lot or former lot in a higher scheme, a proportional unit entitlement for the lot is disclosed in this contract but the lot has a different proportional unit entitlement at the contract date or at any time before completion;

23.9.3 a change before the contract date or before completion in the scheme or a higher scheme materially prejudices the purchaser and is not disclosed in this contract; or

23.9.4 a resolution is passed by the owners corporation before the contract date or before completion to give to the owners in the scheme for their consideration a strata renewal plan that has not lapsed at the contract date and there is not attached to this contract a strata renewal proposal or the strata renewal plan.

• Notices, certificates and inspections

23.10 The purchaser must give the vendor 2 copies of an information notice addressed to the owners corporation and signed by the purchaser.

23.11 The vendor must complete and sign 1 copy of the notice and give it to the purchaser on completion.

23.12 Each *party* can sign and give the notice as agent for the other.

23.13 The vendor must *serve* an information certificate issued after the contract date in relation to the lot, the scheme or any higher scheme at least 7 days before the date for completion.

23.14 The purchaser does not have to complete earlier than 7 days after *service* of the certificate and clause 21.3 does not apply to this provision. On completion the purchaser must pay the vendor the prescribed fee for the certificate.

23.15 The vendor authorises the purchaser to apply for the purchaser's own certificate.

23.16 The vendor authorises the purchaser to apply for and make an inspection of any record or other document in the custody or control of the owners corporation or relating to the scheme or any higher scheme.

• Meetings of the owners corporation

23.17 If a general meeting of the owners corporation is convened before completion –

23.17.1 if the vendor receives notice of it, the vendor must immediately notify the purchaser of it; and

23.17.2 after the expiry of any cooling off period, the purchaser can require the vendor to appoint the purchaser (or the purchaser's nominee) to exercise any voting rights of the vendor in respect of the lot at the meeting.

24 Tenancies

24.1 If a tenant has not made a payment for a period preceding or current at the *adjustment date* –
- 24.1.1 for the purposes of clause 14.2, the amount is to be treated as if it were paid; and
- 24.1.2 the purchaser assigns the debt to the vendor on completion and will if required give a further assignment at the vendor's expense.

24.2 If a tenant has paid in advance of the *adjustment date* any periodic payment in addition to rent, it must be adjusted as if it were rent for the period to which it relates.

24.3 If the *property* is to be subject to a tenancy on completion or is subject to a tenancy on completion –
- 24.3.1 the vendor authorises the purchaser to have any accounting records relating to the tenancy inspected and audited and to have any other document relating to the tenancy inspected;
- 24.3.2 the vendor must *serve* any information about the tenancy reasonably requested by the purchaser before or after completion; and
- 24.3.3 *normally*, the purchaser can claim compensation (before or after completion) if –
  - a disclosure statement required by the Retail Leases Act 1994 was not given when required;
  - such a statement contained information that was materially false or misleading;
  - a provision of the lease is not enforceable because of a non-disclosure in such a statement; or
  - the lease was entered into in contravention of the Retail Leases Act 1994.

24.4 If the *property* is subject to a tenancy on completion –
- 24.4.1 the vendor must allow or transfer –
  - any remaining bond money or any other security against the tenant's default (to the extent the security is transferable);
  - any money in a fund established under the lease for a purpose and compensation for any money in the fund or interest earnt by the fund that has been applied for any other purpose; and
  - any money paid by the tenant for a purpose that has not been applied for that purpose and compensation for any of the money that has been applied for any other purpose;
- 24.4.2 if the security is not transferable, each *party* must do everything reasonable to cause a replacement security to issue for the benefit of the purchaser and the vendor must hold the original security on trust for the benefit of the purchaser until the replacement security issues;
- 24.4.3 the vendor must give to the purchaser –
  - a proper notice of the transfer (an attornment notice) addressed to the tenant;
  - any certificate given under the Retail Leases Act 1994 in relation to the tenancy;
  - a copy of any disclosure statement given under the Retail Leases Act 1994;
  - a copy of any document served on the tenant under the lease and written details of its service, if the document concerns the rights of the landlord or the tenant after completion; and
  - any document served by the tenant under the lease and written details of its service, if the document concerns the rights of the landlord or the tenant after completion;
- 24.4.4 the vendor must comply with any obligation to the tenant under the lease, to the extent it is to be complied with by completion; and
- 24.4.5 the purchaser must comply with any obligation to the tenant under the lease, to the extent that the obligation is disclosed in this contract and is to be complied with after completion.

25 Qualified title, limited title and old system title

25.1 This clause applies only if the land (or part of it) –
- 25.1.1 is under qualified, limited or old system title; or
- 25.1.2 on completion is to be under one of those titles.

25.2 The vendor must *serve* a proper abstract of title *within* 7 days after the contract date.

25.3 If an abstract of title or part of an abstract of title is attached to this contract or has been lent by the vendor to the purchaser before the contract date, the abstract or part is *served* on the contract date.

25.4 An abstract of title can be or include a list of documents, events and facts arranged (apart from a will or codicil) in date order, if the list in respect of each document –
- 25.4.1 shows its date, general nature, names of parties and any registration number; and
- 25.4.2 has attached a legible photocopy of it or of an official or registration copy of it.

25.5 An abstract of title –
- 25.5.1 must start with a good root of title (if the good root of title must be at least 30 years old, this means 30 years old at the contract date);
- 25.5.2 in the case of a leasehold interest, must include an abstract of the lease and any higher lease;
- 25.5.3 *normally*, need not include a Crown grant; and
- 25.5.4 need not include anything evidenced by the Register kept under the Real Property Act 1900.

25.6 In the case of land under old system title –
- 25.6.1 in this contract 'transfer' means conveyance;
- 25.6.2 the purchaser does not have to *serve* the form of transfer until after the vendor has *served* a proper abstract of title; and
- 25.6.3 each vendor must give proper covenants for title as regards that vendor's interest.

25.7 In the case of land under limited title but not under qualified title –

25.7.1 *normally*, the abstract of title need not include any document which does not show the location, area or dimensions of the land (for example, by including a metes and bounds description or a plan of the land);
25.7.2 clause 25.7.1 does not apply to a document which is the good root of title; and
25.7.3 the vendor does not have to provide an abstract if this contract contains a delimitation plan (whether in registrable form or not).

25.8 The vendor must give a proper covenant to produce where relevant.
25.9 The vendor does not have to produce or covenant to produce a document that is not in the possession of the vendor or a mortgagee.
25.10 If the vendor is unable to produce an original document in the chain of title, the purchaser will accept a photocopy from the Registrar-General of the registration copy of that document.

26 Crown purchase money

26.1 This clause applies only if purchase money is payable to the Crown, whether or not due for payment.
26.2 The vendor is liable for the money, except to the extent this contract says the purchaser is liable for it.
26.3 To the extent the vendor is liable for it, the vendor is liable for any interest until completion.
26.4 To the extent the purchaser is liable for it, the *parties* must adjust any interest under clause 14.1.

27 Consent to transfer

27.1 This clause applies only if the land (or part of it) cannot be transferred without consent under *legislation* or a *planning agreement*.
27.2 The purchaser must properly complete and then *serve* the purchaser's part of an application for consent to transfer of the land (or part of it) *within* 7 days after the contract date.
27.3 The vendor must apply for consent *within* 7 days after *service* of the purchaser's part.
27.4 If consent is refused, either *party* can *rescind*.
27.5 If consent is given subject to one or more conditions that will substantially disadvantage a *party*, then that *party* can *rescind within* 7 days after receipt by or *service* upon the *party* of written notice of the conditions.
27.6 If consent is not given or refused –
27.6.1 *within* 42 days after the purchaser *serves* the purchaser's part of the application, the purchaser can *rescind*; or
27.6.2 *within* 30 days after the application is made, either *party* can *rescind*.
27.7 Each period in clause 27.6 becomes 90 days if the land (or part of it) is –
27.7.1 under a *planning agreement*; or
27.7.2 in the Western Division.
27.8 If the land (or part of it) is described as a lot in an unregistered plan, each time in clause 27.6 becomes the later of the time and 35 days after creation of a separate folio for the lot.
27.9 The date for completion becomes the later of the date for completion and 14 days after *service* of the notice granting consent to transfer.

28 Unregistered plan

28.1 This clause applies only if some of the land is described as a lot in an unregistered plan.
28.2 The vendor must do everything reasonable to have the plan registered *within* 6 months after the contract date, with or without any minor alteration to the plan or any document to be lodged with the plan validly required or made under *legislation*.
28.3 If the plan is not registered *within* that time and in that manner –
28.3.1 the purchaser can *rescind*; and
28.3.2 the vendor can *rescind*, but only if the vendor has complied with clause 28.2 and with any *legislation* governing the rescission.
28.4 Either *party* can *serve* notice of the registration of the plan and every relevant lot and plan number.
28.5 The date for completion becomes the later of the date for completion and 21 days after *service* of the notice.
28.6 Clauses 28.2 and 28.3 apply to another plan that is to be registered before the plan is registered.

29 Conditional contract

29.1 This clause applies only if a provision says this contract or completion is conditional on an event.
29.2 If the time for the event to happen is not stated, the time is 42 days after the contract date.
29.3 If this contract says the provision is for the benefit of a *party*, then it benefits only that *party*.
29.4 If anything is necessary to make the event happen, each *party* must do whatever is reasonably necessary to cause the event to happen.
29.5 A *party* can *rescind* under this clause only if the *party* has substantially complied with clause 29.4.
29.6 If the event involves an approval and the approval is given subject to a condition that will substantially disadvantage a *party* who has the benefit of the provision, the *party* can *rescind within* 7 days after either *party serves* notice of the condition.
29.7 If the *parties* can lawfully complete without the event happening –
29.7.1 if the event does not happen *within* the time for it to happen, a *party* who has the benefit of the provision can *rescind within* 7 days after the end of that time;
29.7.2 if the event involves an approval and an application for the approval is refused, a *party* who has the benefit of the provision can *rescind within* 7 days after either *party serves* notice of the refusal; and

29.7.3 the date for completion becomes the later of the date for completion and 21 days after the earliest of –
- either *party serving* notice of the event happening;
- every *party* who has the benefit of the provision *serving* notice waiving the provision; or
- the end of the time for the event to happen.

29.8 If the *parties* cannot lawfully complete without the event happening –
29.8.1 if the event does not happen *within* the time for it to happen, either *party* can *rescind*;
29.8.2 if the event involves an approval and an application for the approval is refused, either *party* can *rescind*;
29.8.3 the date for completion becomes the later of the date for completion and 21 days after either *party serves* notice of the event happening.

29.9 A *party* cannot *rescind* under clauses 29.7 or 29.8 after the event happens.

30 Electronic transaction

30.1 This *Conveyancing Transaction* is to be conducted as an *electronic transaction* if –
30.1.1 this contract says that it is an *electronic transaction*;
30.1.2 the *parties* otherwise agree that it is to be conducted as an *electronic transaction*; or
30.1.3 the *conveyancing rules* require it to be conducted as an *electronic transaction*.

30.2 However, this *Conveyancing Transaction* is not to be conducted as an *electronic transaction* –
30.2.1 if the land is not *electronically tradeable* or the transfer is not eligible to be lodged electronically; or
30.2.2 if, at any time after the *effective date,* but at least 14 days before the date for completion, a *party serves* a notice stating a valid reason why it cannot be conducted as an *electronic transaction*.

30.3 If, because of clause 30.2.2, this *Conveyancing Transaction* is not to be conducted as an *electronic transaction* –
30.3.1 each *party* must –
- bear equally any disbursements or fees; and
- otherwise bear that *party's* own costs;

incurred because this *Conveyancing Transaction* was to be conducted as an *electronic transaction*; and
30.3.2 if a *party* has paid all of a disbursement or fee which, by reason of this clause, is to be borne equally by the *parties*, that amount must be adjusted under clause 14.2.

30.4 If this *Conveyancing Transaction* is to be conducted as an *electronic transaction* –
30.4.1 to the extent that any other provision of this contract is inconsistent with this clause, the provisions of this clause prevail;
30.4.2 *normally*, words and phrases used in this clause 30 (italicised and in Title Case, such as *Electronic Workspace* and *Lodgment Case*) have the same meaning which they have in the *participation rules*;
30.4.3 the *parties* must conduct the *electronic transaction* –
- in accordance with the *participation rules* and the *ECNL*; and
- using the nominated *ELN*, unless the *parties* otherwise agree;

30.4.4 a *party* must pay the fees and charges payable by that *party* to the *ELNO* and the *Land Registry* as a result of this transaction being an *electronic transaction*;
30.4.5 any communication from one *party* to another *party* in the *Electronic Workspace* made –
- after the *effective date*; and
- before the receipt of a notice given under clause 30.2.2;

is taken to have been received by that *party* at the time determined by s13A of the Electronic Transactions Act 2000; and
30.4.6 a document which is an *electronic document* is *served* as soon as it is first *Digitally Signed* in the *Electronic Workspace* on behalf of the *party* required to *serve* it.

30.5 *Normally,* the vendor must *within* 7 days of the *effective date* –
30.5.1 create an *Electronic Workspace*;
30.5.2 *populate* the *Electronic Workspace* with *title data*, the date for completion and, if applicable, *mortgagee details*; and
30.5.3 invite the purchaser and any *discharging mortgagee* to the *Electronic Workspace*.

30.6 If the vendor has not created an *Electronic Workspace* in accordance with clause 30.5, the purchaser may create an *Electronic Workspace*. If the purchaser creates the *Electronic Workspace* the purchaser must –
30.6.1 *populate* the *Electronic Workspace* with *title data*;
30.6.2 create and *populate* an *electronic transfer*;
30.6.3 *populate* the *Electronic Workspace* with the date for completion and a nominated *completion time*; and
30.6.4 invite the vendor and any *incoming mortgagee* to join the *Electronic Workspace*.

30.7 *Normally, within* 7 days of receiving an invitation from the vendor to join the *Electronic Workspace*, the purchaser must –
30.7.1 join the *Electronic Workspace*;
30.7.2 create and *populate* an *electronic transfer*;
30.7.3 invite any *incoming mortgagee* to join the *Electronic Workspace*; and
30.7.4 *populate* the *Electronic Workspace* with a nominated *completion time*.

30.8 If the purchaser has created the *Electronic Workspace* the vendor must *within* 7 days of being invited to the *Electronic Workspace* –
- 30.8.1 join the *Electronic Workspace*;
- 30.8.2 *populate* the *Electronic Workspace* with *mortgagee details*, if applicable; and
- 30.8.3 invite any *discharging mortgagee* to join the *Electronic Workspace*.

30.9 To complete the financial settlement schedule in the *Electronic Workspace* –
- 30.9.1 the purchaser must provide the vendor with *adjustment figures* at least 2 *business days* before the date for completion;
- 30.9.2 the vendor must confirm the *adjustment figures* at least 1 *business day* before the date for completion; and
- 30.9.3 if the purchaser must make a *GSTRW payment* or an *FRCGW remittance*, the purchaser must *populate* the *Electronic Workspace* with the payment details for the *GSTRW payment* or *FRCGW remittance* payable to the Deputy Commissioner of Taxation at least 2 *business days* before the date for completion.

30.10 Before completion, the *parties* must ensure that –
- 30.10.1 all *electronic documents* which a *party* must *Digitally Sign* to complete the *electronic transaction* are *populated* and *Digitally Signed*;
- 30.10.2 all certifications required by the *ECNL* are properly given; and
- 30.10.3 they do everything else in the *Electronic Workspace* which that *party* must do to enable the *electronic transaction* to proceed to completion.

30.11 If completion takes place in the *Electronic Workspace* –
- 30.11.1 payment electronically on completion of the price in accordance with clause 16.7 is taken to be payment by a single *settlement cheque*;
- 30.11.2 the completion address in clause 16.11 is the *Electronic Workspace*; and
- 30.11.3 clauses 13.13.2 to 13.13.4, 16.8, 16.12, 16.13 and 31.2.2 to 31.2.4 do not apply.

30.12 If the computer systems of any of the *Land Registry*, the *ELNO* or the Reserve Bank of Australia are inoperative for any reason at the *completion time* agreed by the *parties*, a failure to complete this contract for that reason is not a default under this contract on the part of either *party*.

30.13 If the computer systems of the *Land Registry* are inoperative for any reason at the *completion time* agreed by the *parties,* and the *parties* choose that financial settlement is to occur despite this, then on financial settlement occurring –
- 30.13.1 all *electronic documents Digitally Signed* by the vendor, the *certificate of title* and any discharge of mortgage, withdrawal of caveat or other *electronic document* forming part of the *Lodgment Case* for the *electronic transaction* shall be taken to have been unconditionally and irrevocably delivered to the purchaser or the purchaser's mortgagee at the time of financial settlement together with the right to deal with the land comprised in the *certificate of title*; and
- 30.13.2 the vendor shall be taken to have no legal or equitable interest in the *property*.

30.14 A *party* who holds a *certificate of title* must act in accordance with any *Prescribed Requirement* in relation to the *certificate of title* but if there is no *Prescribed Requirement*, the vendor must *serve* the *certificate of title* after completion.

30.15 If the *parties* do not agree about the delivery before completion of one or more documents or things that cannot be delivered through the *Electronic Workspace*, the *party* required to deliver the documents or things –
- 30.15.1 holds them on completion in escrow for the benefit of; and
- 30.15.2 must immediately after completion deliver the documents or things to, or as directed by;

the *party* entitled to them.

30.16 In this clause 30, these terms (in any form) mean –

adjustment figures	details of the adjustments to be made to the price under clause 14;
certificate of title	the paper duplicate of the folio of the register for the land which exists immediately prior to completion and, if more than one, refers to each such paper duplicate;
completion time	the time of day on the date for completion when the *electronic transaction* is to be settled;
conveyancing rules	the rules made under s12E of the Real Property Act 1900;
discharging mortgagee	any discharging mortgagee, chargee, covenant chargee or caveator whose provision of a *Digitally Signed* discharge of mortgage, discharge of charge or withdrawal of caveat is required in order for unencumbered title to the *property* to be transferred to the purchaser;
ECNL	the Electronic Conveyancing National Law (NSW);
effective date	the date on which the *Conveyancing Transaction* is agreed to be an *electronic transaction* under clause 30.1.2 or, if clauses 30.1.1 or 30.1.3 apply, the contract date;
electronic document	a dealing as defined in the Real Property Act 1900 which may be created and *Digitally Signed* in an *Electronic Workspace*;
electronic transfer	a transfer of land under the Real Property Act 1900 for the *property* to be prepared and *Digitally Signed* in the *Electronic Workspace* established for the purposes of the *parties' Conveyancing Transaction*;

electronic transaction	a *Conveyancing Transaction* to be conducted for the *parties* by their legal representatives as *Subscribers* using an *ELN* and in accordance with the *ECNL* and the *participation rules;*
electronically tradeable	a land title that is Electronically Tradeable as that term is defined in the *conveyancing rules;*
incoming mortgagee	any mortgagee who is to provide finance to the purchaser on the security of the *property* and to enable the purchaser to pay the whole or part of the price;
mortgagee details	the details which a *party* to the *electronic transaction* must provide about any *discharging mortgagee* of the *property* as at completion;
participation rules	the participation rules as determined by the *ECNL;*
populate	to complete data fields in the *Electronic Workspace*; and
title data	the details of the title to the *property* made available to the *Electronic Workspace* by the *Land Registry.*

31 Foreign Resident Capital Gains Withholding

31.1 This clause applies only if –
- 31.1.1 the sale is not an excluded transaction within the meaning of s14-215 of Schedule 1 to the *TA Act*; and
- 31.1.2 a *clearance certificate* in respect of every vendor is not attached to this contract.

31.2 The purchaser must –
- 31.2.1 at least 5 days before the date for completion, *serve* evidence of submission of a purchaser payment notification to the Australian Taxation Office by the purchaser or, if a direction under clause 4.3 has been *served*, by the transferee named in the transfer *served* with that direction;
- 31.2.2 produce on completion a *settlement cheque* for the *FRCGW remittance* payable to the Deputy Commissioner of Taxation;
- 31.2.3 forward the *settlement cheque* to the payee immediately after completion; and
- 31.2.4 *serve* evidence of receipt of payment of the *FRCGW remittance.*

31.3 The vendor cannot refuse to complete if the purchaser complies with clauses 31.2.1 and 31.2.2.

31.4 If the vendor *serves* any *clearance certificate* or *variation*, the purchaser does not have to complete earlier than 7 days after that *service* and clause 21.3 does not apply to this provision.

31.5 If the vendor *serves* in respect of every vendor either a *clearance certificate* or a *variation* to 0.00 percent, clauses 31.2 and 31.3 do not apply.

32 Residential off the plan contract

32.1 This clause applies if this contract is an off the plan contract within the meaning of Division 10 of Part 4 of the Conveyancing Act 1919 (the Division).

32.2 No provision of this contract has the effect of excluding, modifying or restricting the operation of the Division.

32.3 If the purchaser makes a claim for compensation under the terms prescribed by clause 6A of the Conveyancing (Sale of Land) Regulation 2017 –
- 32.3.1 the purchaser cannot make a claim under this contract about the same subject matter, including a claim under clauses 6 or 7; and
- 32.3.2 the claim for compensation is not a claim under this contract.

32.4 This clause does not apply to a contract made before the commencement of the amendments to the Division under the Conveyancing Legislation Amendment Act 2018.

Special conditions

Death or incapacity

1. Without in any manner negating, limiting or restricting any rights or remedies which would have been available to the Vendor at law or in equity had this clause not been included herein:

   (a) should either party (or if a party consists of more than one person or entity, should any one or more of them) prior to completion die or become mentally ill then either party may rescind the within Contract by notice in writing forwarded to the other party's solicitor and thereupon the within Contract shall be at an end and the provisions of clause 19 hereof shall apply; or

   (b) should the Purchaser (or any one of them if there be more than one Purchaser) prior to completion be declared bankrupt or enter into any scheme of arrangement or make any assignment for the benefit of creditors or should any official manager be appointed then the Vendor may terminate this Contract by serving a notice and the provisions of clause 9 hereof shall apply.

Present state of repair

2. The Purchaser acknowledges that they are purchasing the property:

   (a) in its present condition and state of repair;

   (b) subject to all defects latent and patent;

   (c) subject to any infestations and dilapidation;

   (d) subject to all existing or non-existing water, sewerage, drainage and plumbing services and connections in respect of the property;

   (e) subject to any non-compliance that is disclosed herein with the *Local Government Act* or any Ordinance under that Act in respect of any building on the land

   and cannot make any objection, requisition, claim for compensation, withhold any money or exercise any right to rescind or terminate this Contract or seek to delay completion in respect of any matter referred to in this condition.

Agent

3. The Purchaser warrants to the Vendor that the Purchaser has not been introduced to the property by any estate agent or agency (other than the agent or agency (if any) nominated as the "vendor's agent" in this Contract) and hereby agrees to indemnify the Vendor against any claim by any estate agent or agency due to the Purchaser's breach of this warranty to the intent that all damages costs and expenses on a solicitor and client basis which may be incurred by the Vendor in respect of any such claim or alleged claim shall be paid by the Purchaser to the Vendor. The provisions of this special condition shall not merge on completion.

No reliance

4. The Purchaser acknowledges that he has in entering into this Contract, not relied upon any statement, representation, warranty or condition made or given by the Vendor or anyone on his behalf in respect of the subject matter of this Contract other than those that are expressly herein contained.

Water and sewerage adjustment

5. The Vendor must on completion allow amounts for water and sewerage usage charges for which the relevant authority has not issued accounts. The amounts must be calculated by multiplying the number of unbilled days up to and including the adjustment date by the average charge per day for usage for the last period for which an account issued.

Authority to amend

6. Each party authorises its solicitor, conveyancer or any employee of that solicitor or conveyancer, up until the date of this Contract, to make alterations to this Contract including the addition of annexures. Any such alterations shall be binding upon the party deemed to have authorised such alterations or additions and any annexures shall form part of this Contract as if it was annexed prior to the Contract being executed.

Attached documents

7. The Purchaser acknowledges that attached to the Contract is the Glen Innes Field Service Centre Supplementary Detailed Site Investigation report dated May 2015 prepared by GHD in relation to the property (**Site Report**). The Purchaser confirms that, prior to entering into this Contract, it received and reviewed the Site Report and is satisfied in relation to all matters raised in that document.

   The Vendor does not warrant the completeness, accuracy or content of any matter disclosed in the Site Report and the Purchaser cannot raise any requisition, objection, claim for compensation or seek to rescind, terminate or delay completion of the Contract in regard to any matter disclosed in the Site Report.

Electronic exchange

8. The parties agree to accept, for the purposes of exchange of Contracts, signatures by either the Vendor or Purchaser which are facsimile, photocopy or any other form of electronic signature. The parties agree that they shall not make any requisition, objection, claim for compensation or delay completion due to the manner of execution of this Contract as at the exchange date.

Notice to complete

9. For the purposes of clause 15 the parties agree that a period of 14 days from the date of the Notice to Complete shall be a reasonable period of notice to complete and the time fixed for completion in the Notice to Complete shall be of the essence.

   Further, where the Purchaser defaults under the Contract and a Notice to Complete is issued, the Purchaser will be required to pay to the Vendor on settlement the sum of $330.00 (including GST) to cover the legal costs of the Vendor incurred by the Vendor due to the delay by the Purchaser. The Purchaser agrees to make an adjustment to the Vendor on completion.

Delay interest

10. Should completion not be effected by the completion date referred to herein, other than due to default on the part of the Vendor, then without prejudice to any other rights accruing to the Vendor hereunder, the Purchaser shall pay interest on the purchase price at the rate of 10% per annum and calculated from the date set for completion hereof until and including the actual date of completion.

Error in adjustments

11. Each party agrees that if, on completion, any adjustment made (or allowed to be made) under this Contract is overlooked or incorrectly calculated, then either party upon being requested by the other party must immediately make the correct calculation and pay any such amount outstanding. This clause shall not merge on completion.

Requisitions on Title

12. The Purchaser acknowledge and agree that the only form of general requisitions on title to be made pursuant to clause 5 by the Purchaser in respect to the land hereby sold shall be in the form of the Requisitions on Title as annexed and marked **'A'.**

No warranty as to use

13. The Purchaser acknowledges that the Vendor does not in any way warrant:

(a) the use to which the property may be put;

(b) compliance with any statutory requirement; and

(c) fitness for any purpose of any improvement on the land,

and the Purchaser is satisfied as to the requirements of all responsible authorities in relation to the property and the improvements upon it for any and all purposes and the Purchaser may not raise any requisition, objection or claim for compensation nor seek to delay completion on account of the matters set out in this special condition. Clauses 11, 12.1 and 12.2 in the Contract are also hereby deleted.

Contamination

14. (a) Subject to s54A of the *Conveyancing Act 1919* (NSW) and the *Conveyancing (Sale of Land) Regulation 2010* (NSW), the property and the services to the property, if any, are sold in their present condition and state of repair, subject to reasonable wear and tear and to all faults and defects, both latent and patent and the Vendor is not required to make any alteration or repair to them.

(b) The Vendor makes no warranty to the Purchaser about the existence or otherwise of any Contamination on the property or on any adjoining property and the Purchaser has relied on its own enquiries as to the existence or the presence of any Contamination.

(c) To the maximum extent permitted by law, the Purchaser releases the Vendor from all claims, demands, suits, judgments, costs and agrees not to make any claim or take any Action in respect of any Contamination affecting the property or any

breach or non-compliance by the Vendor of any Environmental Law affecting the property.

(d) The Purchaser agrees that from completion it will comply with any work order, notice or order issued by any authority requiring the Vendor or the Purchaser to remove, remediate or clean up any Contamination affecting or emanating from the property.

(e) In this clause:

(i) **Action** means make any objection, requisition, claim for compensation or exercise any right to rescind or terminate this contract or seek to delay Completion.

(ii) **Contaminant** means a solid, liquid, gas, odour, temperature, sound, vibration or radiation of substance that makes or may make the land:

(A) unfit or unsafe for habitation or occupation by humans or animals;

(B) degraded in its capacity to support plant life;

(C) otherwise environmentally degraded; or

(D) not comply with any Environmental Law.

(iii) **Contamination** means the presence of any Contaminant which any authority has or may require the removal of or in respect of which any restoration, rehabilitation or remediation has or may be required.

(iv) **Environment** has the same meaning under the Protection of the *Environment Administration Act 1991*.

(v) **Environmental Law** means any law, regulation, ordinance or directive in connection with the Environment.

Limited title

15. Printed clause 25 is deleted from the Contract.

A

COMMERCIAL REQUISITIONS ON TITLE

Vendor: Essential Energy
Purchaser:
Property: 148 Church Street, Glen Innes
Dated:

Possession and tenancies

1. Vacant possession of the property must be given on completion unless the Contract provides otherwise.
2. Is anyone in adverse possession of the property or any part of it?
3.
   (a) What is the nature of any tenancy or occupancy?
   (b) If it is in writing, all relevant documentation should be produced, found in order and handed over on completion with notices of attornment.
   (c) Please specify any existing breaches.
   (d) What is the current rent payable?
   (e) All rent should be paid up to or beyond the date of completion.
   (f) Please provide details of any bond money held, which money is to be paid to or allowed to the purchaser on completion.
   (g) If the bond money is held by the Rental Bond Board, the appropriate transfer documentation duly signed should be handed over on completion.
   (h) Please provide details of any security deposits and copies of any bank guarantees which are held by the vendor.
   (i) Appropriate transfer documentation duly signed should be handed over on completion assigning the vendor's interest in the security deposits, bank guarantees and any personal guarantees.
   (j) Are there any sub-leases? If so, copies should be provided.
   (k) Please provide details of current insurances held by the tenant over the improvements and/or for public liability and plate glass, in particular the type of the cover, the name of the insurer, the period of the cover and the amount of the cover.
4. Is any tenancy subject to the *Retail Leases Act 1994*?
   If so:
   (a) complete copies of the disclosure statements as required by the *Retail Leases Act 1994* should be provided;
   (b) a copy of a certificate given under Section 16(3) of the *Retail Leases Act 1994* should be provided or other evidence to confirm that Section 16 would not apply to the lease;
   (c) is the vendor aware of any provision of the lease which is not enforceable because of a non disclosure in the disclosure statement or any lease which has been entered into in contravention of the *Retail Leases Act 1994*?
5. Is the property affected by a protected tenancy (a tenancy affected by Parts 2, 3, 4 or 5 of the *Landlord and Tenant (Amendment) Act 1948*)?
6. If any tenancy is subject to the *Residential Tenancies Act 1987*:
   (a) has either the vendor or any predecessor or the tenant applied to the Residential Tenancies Tribunal for an order?
   (b) have any orders been made by the Residential Tenancies Tribunal? If so, please provide details.

Title

7. On completion the vendor should be registered as proprietor in fee simple of the property free from all caveats and encumbrances whether statutory or otherwise, except those to which the sale is expressly made subject.
8. On or before completion, any mortgage or caveat or writ must be discharged, withdrawn or cancelled (as the case may be) or, in the case of a mortgage or caveat, an executed discharge or withdrawal handed over on completion.
9. Are there any proceedings pending or concluded that could result in the recording of any writ on the title to the property or in the General Register of Deeds? If so, full details should be provided at least 14 days prior to completion.
10. When and where may the title documents be inspected?
11. Are any fixtures, fittings or chattels included in the sale subject to any hire purchase agreement, bill of sale, chattel mortgage or other charge? If so, details must be given and any indebtedness discharged prior to completion or Title transferred unencumbered to the vendor prior to completion.
12. A depreciation schedule or all details of the written down values of all fixtures, fittings and chattels included in the property must be provided.

Rates and taxes

13. All rates, taxes, levies, other charges and assessments, including land tax, affecting the property must be paid up to the date of completion and receipts produced.

14. Is the vendor liable to pay land tax or is the property otherwise charged or liable to be charged with land tax? If so:
    (a) to what year has a return been made?
    (b) what is the taxable value of the property for land tax purposes for the current year?

Building, fencing, etc

15. Subject to the Contract, survey should be satisfactory and show that the whole of the property is available and that there are no encroachments by or upon the property and that all improvements comply with local government/planning legislation.
16. Is the vendor in possession of a survey report? If so, please produce a copy for inspection prior to completion. The original should be handed over on completion.
17.
    (a) Have the provisions of the *Local Government Act 1993*, the *Environmental Planning and Assessment Act 1979* and their regulations and schemes been complied with?
    (b) Have there been any alterations to improvements since 1959 requiring the consent of the Local Council or other authority? If so, please provide details and evidence of consents.
    (c) Has the vendor a Building Certificate? If so, it should be handed over on completion. Please provide a copy prior to completion.
    (d) Has the vendor a Final Occupation Certificate issued under the *Environmental Planning and Assessment Act 1979* for all current buildings or structures? If so, it should be handed over on completion. Please provide a copy in advance.
    (e) Has there been any building work on the property to which provisions of the *Home Building Act 1989* apply? If so, please provide details and state whether the work was done pursuant to an owner/builder permit or by a licensed builder and provide details as to the permit, names of the parties and licence number(s).
18. Has any notice been given or received or has an application been made under the *Encroachment of Buildings Act 1922* or are there circumstances which would give rise to a notice or application under that Act in respect of the property. If the answer is *yes*, please provide full details.
19. Are the improvements affected or have they been previously affected by:
    (a) termite infestation, treatment or repair?
    (b) flooding or dampness of areas below ground levels?
    (c) functional problems with equipment such as air conditioning, roofs or inclinators, pool equipment, building management and security systems?
20. Are there any pipes or structures below the surface of the land which are not disclosed in the Contract?
21. Is there any development approval consent to use the property which is not disclosed in the Contract?
22. Has all the structural work including any retaining walls been designed by a qualified structural engineer?
23. If the answer to any of Requisitions 19 to 22 is *yes*, please provide full details.
24. Has the vendor (or any predecessor) entered into any agreement with or granted any indemnity to the Local Council, the Sydney Water Corporation or any other authority concerning any development on the property?
25.
    (a) To whom do the boundary fences belong?
    (b) Are there any party walls?
    (c) If the answer to Requisition 25(b) is *yes*, specify what rights exist in relation to each party wall and produce any agreement. The benefit of any such agreement should be assigned to the purchaser on completion.
    (d) Is the vendor aware of any dispute regarding boundary or dividing fences or party walls?
    (e) Has the vendor received any notice, claim or proceedings under the *Dividing Fences Act 1991*?
26. Are any rainwater downpipes connected to the sewer? If so, they must be disconnected prior to completion.

Use and enjoyment of the property

27.
    (a) Is the vendor aware of any rights, licences, easements, covenants or restrictions as to user other than those disclosed in the Contract?
    (b) Have the covenants and restrictions disclosed in the Contract been complied with?
28. Is the vendor aware of:
    (a) any road, drain, sewer or storm water channel which intersects or runs through the land?
    (b) any dedication to or use by the public of any right of way or other easement over any part of the land?
    (c) any building line fixed by the Local Council affecting the land?
    (d) any judgment, order, decree or execution against the vendor or the property?
    (e) any suit current, pending or proposed in respect of the property?
    (f) any latent defects in the property?
29. Has the vendor any notice or knowledge that the property is affected by any of the following:
    (a) any resumption or acquisition or proposed resumption or acquisition?
    (b) any notice, order or proposed order requiring work to be done or money to be spent on the property or any footpath or road adjoining? Full details of any notice, order or proposed order must be provided. Any notice or order must be complied with prior to completion.

(c) any work done or intended to be done on the property or the adjacent street which may create a charge on the property or the cost of which might be or become recoverable from the purchaser?
(d) any sum due to any local or public authority? If so, the same must be paid prior to completion.
(e) any realignment or proposed realignment of any road adjoining the property?
(f) any contamination?
(g) any charge or liability including liability for restoration of the property, or proceedings under the *Contaminated Land Management Act 1997* or any environment protection legislation (as defined in that Act) or any circumstances which could lead to any such liability, charge or proceedings being commenced?

30. If the answer to any of Requisitions 29(a) to (g) is *yes*, please:
(a) provide full details;
(b) advise whether any applicable notice, order, direction, resolution or liability has been fully complied with; and
(c) provide full details regarding the extent of any non-compliance.

31.
(a) Does the property have the benefit of water, sewerage, drainage, electricity, gas and telephone services?
(b) If so, do any of the connections for such services pass through any adjoining land? If so, it must be shown that the vendor has a right thereto which will vest in the purchaser on completion.
(c) Do any service connections for any other property pass through the property?

32. Has asbestos, fibreglass or other material injurious to health been used in the construction of the property? If the answer is *yes*, please provide full details.
33. Is the property required for the purpose of paying a fine or satisfying an order for compensation?
34. Has any claim been made by any person to close, obstruct or limit access to or from the property or to an easement over any part of the property?

Warranties and service contracts

35. Please provide copies of any warranty or maintenance or service contract for the property which is assignable on completion.
36. Please provide details, or copies if available, of any warranty or maintenance or service contract which is not assignable.

Zoning

37. Is the vendor aware of the property being subject to any existing or proposed planning scheme or other restriction on user not disclosed in the Contract? If the answer is *yes*, please provide full details.

Capacity

38. If the Contract discloses that the vendor is a trustee, evidence should be produced to establish the trustee's power of sale.

Requisitions and transfer

39. If the transfer or any other document to be handed over on completion is executed pursuant to a power of attorney, then at least 7 days prior to completion a copy of the power of attorney should be produced and found in order.
40. If the vendor has or is entitled to have possession of the title deeds the Certificate Authentication Code must be provided 7 days prior to settlement.
41. Searches, surveys, enquiries and inspection of title documents must prove satisfactory.
42. The purchaser reserves the right to make further requisitions prior to completion.
43. Unless we are advised by you to the contrary prior to completion, it will be assumed that your replies to these requisitions remain unchanged as at completion date.

Completion

44. Please confirm that on completion you will hand to us:
(a) a discharge of any mortgage and withdrawal of any caveat;
(b) the Certificate of Title Folio Identifier;
(c) Transfer executed by the vendor;
(d) the vendor's copies of all leases;
(e) all keys in the possession of the vendor;
(f) original of any Building Certificate;
(g) original of any Survey Report;
(h) instruction manuals and warranties for any plant belonging to the vendor;
(i) information or devices necessary for the operation of the security system, air conditioning systems, building management systems, etc;
(j) notices of attornment;
(k) any security deposits or bank guarantees pursuant to any of the leases; and
(l) tax invoice.

LAND REGISTRY SERVICES **Title Search** InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 2/512765

SEARCH DATE	TIME	EDITION NO	DATE
24/11/2021	12:57 PM	1	12/1/2006

LAND

LOT 2 IN DEPOSITED PLAN 512765
AT GLEN INNES
LOCAL GOVERNMENT AREA GLEN INNES SEVERN
PARISH OF GLEN INNES COUNTY OF GOUGH
TITLE DIAGRAM DP512765

FIRST SCHEDULE

ESSENTIAL ENERGY (R AG951853)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 LIMITED TITLE. LIMITATION PURSUANT TO SECTION 28T(4) OF THE REAL PROPERTY ACT, 1900. THE BOUNDARIES OF THE LAND COMPRISED HEREIN HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL.

NOTATIONS

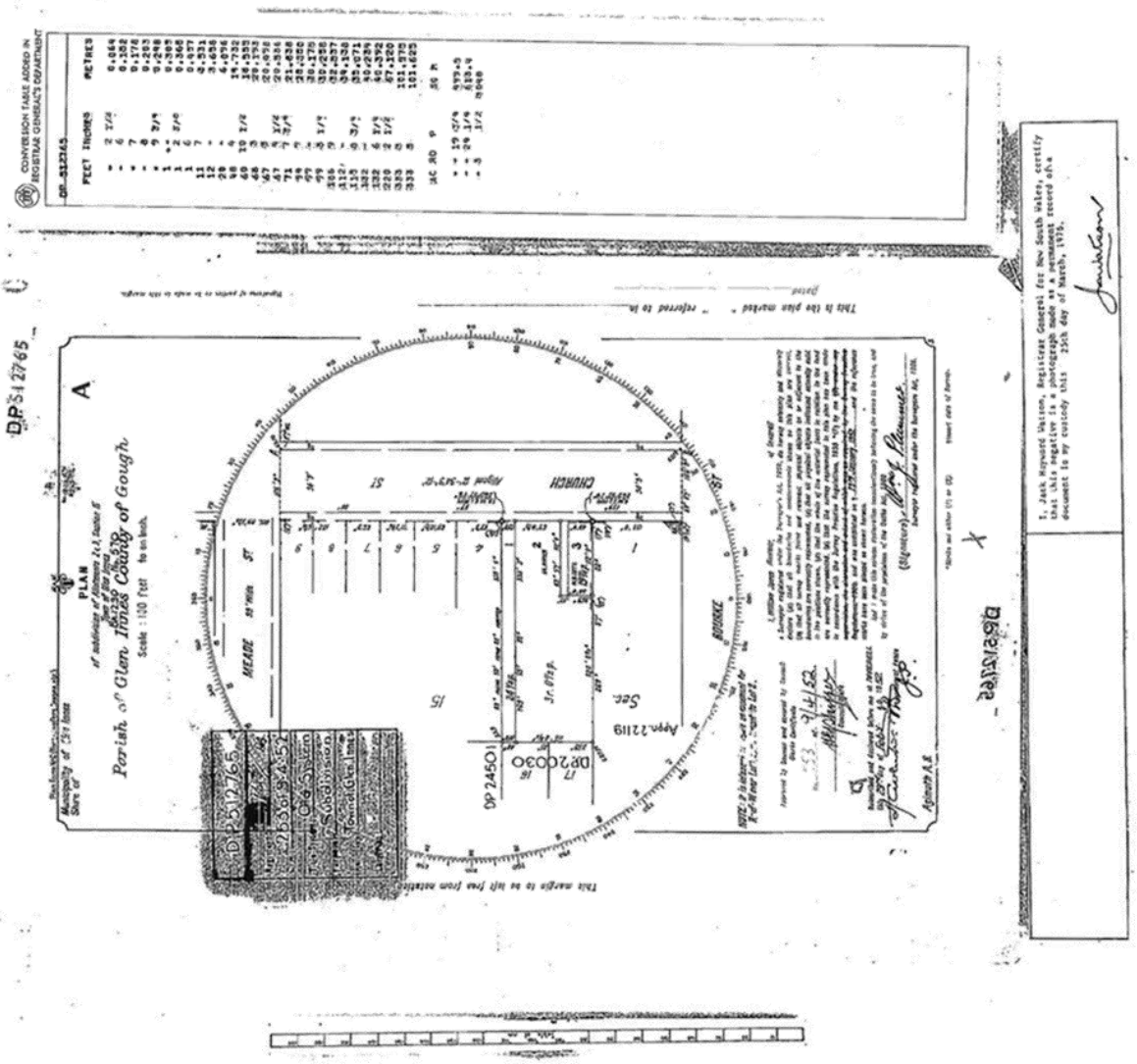
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

210289 PRINTED ON 24/11/2021

Item 7.3

Annexure A



GLEN INNES SEVERN COUNCIL
PO Box 61, Glen Innes, 2370
Ph: 02 6730 2350

PLANNING CERTIFICATE

Issued under Section 10.7(2) of the
Environmental Planning and Assessment Act 1979, as amended

APPLICANT DETAILS		CERTIFICATE DETAILS	
Info Track Email: ecertificates@infotrack.com.au		*Certificate Number:*	201/21-22
		Certificate Date:	29 November 2021
PROPERTY DETAILS		*Your Reference:*	210289
Property Details:	148 Church Street, Glen Innes, NSW.	*Fee:*	$53.00
Legal Description:	Lot 2 DP512765. Parish Glen Innes.	*Receipt Number:*	137048

1 Names of relevant planning instruments and DCPs

(1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Glen Innes Severn Local Environmental Plan 2012 – Gazetted 14 September 2012.

For a list of all State Environmental Planning Policies applicable to this land refer to Annexure 1.

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

There are no current draft planning proposals for the Glen Innes Severn local government area.

(3) The name of each development control plan that applies to the carrying out of development on the land.

Glen Innes Severn Development Control Plan 2014.

***Please Note**: A full copy of the Glen Innes Severn Development Control Plan 2014 is available from Council, or alternatively is available from Council's website – www.gisc.nsw.gov.au.*

(4) In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

There are no current draft planning proposals for the Glen Innes Severn local government area.

Item 7.3

Annexure A

Glen Innes Severn Council Planning Certificate

2 Zoning and land use under relevant LEPs

For each local environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP).

(a) the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No 2 (a)"),

Current Zone under Glen Innes Severn Local Environmental Plan 2012:

Zone B2 Local Centre

Objectives of zone

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.
- To encourage employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.

(b) the purposes for which the instrument provides that development may be carried out within the zone without the need for development consent,

Environmental protection works; Flood mitigation works; Home-based child care; Home occupations; Water reticulation systems.

(c) the purposes for which the instrument provides that development may not be carried out within the zone except with development consent,

Boarding houses; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Service stations; Shop top housing; Tourist and visitor accommodation; Any other development not specified in item 2 or 4.

(d) the purposes for which the instrument provides that development is prohibited within the zone,

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Dwelling houses; Eco-tourist facilities; Electricity generating works; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Group homes; Heavy industrial storage establishments; Helipads; Highway service centres; Hostels; Industrial retail outlets; Industrial training facilities; Industries; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Recreation areas; Recreation facilities (outdoor); Resource recovery facilities; Rural industries; Rural workers' dwellings; Sewage treatment plants; Sex services premises; Storage premises; Transport depots; Truck depots; Warehouse or distribution centres; Waste disposal facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities.

(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,

The development standards applying to minimum lot size are listed in the *Glen Innes Severn Local Environmental Plan 2012. Clause 4.1 – Minimum subdivision lot size* applies to any land shown on the Lot Size Map.
The land to which this certificate applies is not shown on the Lot Size Map, therefore there is no fixed minimum lot size.

(f) whether the land includes or comprises critical habitat,

No, however the property may be affected by other threatened species matters. Separate enquiries should be made to Heritage NSW.

(g) whether the land is in a conservation area (however described),

No

Glen Innes Severn Council Planning Certificate

(h) whether an item of environmental heritage (however described) is situated on the land.

Yes – This land has been shown on the Heritage Map and is listed in Schedule 5 under the *Glen Innes Severn Local Environmental Plan 2012* as being in an item of environmental heritage. **Item No: I053**

Please Note: *A full copy of the Glen Innes Severn Local Environmental Plan 2012 (as amended) is available from Council, or alternatively is available from the NSW Government's legislation website – http://www.legislation.nsw.gov.au/ or Council's web site – www.gisc.nsw.gov.au*
Applicants should refer to the Glen Innes Severn Local Environmental Plan 2012 and the Glen Innes Severn Development Control Plan 2008 for further details of local development controls applicable to the property.

2A Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

To the extent that the land is within any zone (however described) under:

(a) Part 3 of the State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (the SEPP), or
(b) A Precinct Plan (within the meaning of the 2006 SEPP), or
(c) A proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act,

The particulars referred to in clause 2(a)-(h) in relation to that land (with a reference to "the instrument" in any of those paragraphs being read as a reference to part 3 of the 2006 SEPP, or the Precinct Plan or proposed Precinct Plan, as the case requires).

Not applicable to this property.

3 Complying development

(1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 of that Policy of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
(2) If complying development may not be carried out on that land because of the provisions of clauses 1.17A (c) and (d) and 1.19 of that Policy, the reasons why it may not be carried out under that clause.

The State Environmental Planning Policy (Exempt and Complying Development Codes) Clause 1.17A and Clause 1.19 Considerations

Complying development under the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, **may not** be carried out on the land as the land is subject to one or more of the following categories as identified in either clause 1.17A or 1.19 of that Policy:

Clause 1.17A

1. Development that requires concurrence, or
2. Land that is critical habitat, or
   Land that is or is part of a wilderness area (identified under the Wilderness Act 1987, or.
3. Land that comprises, or on which there is, an item of environmental heritage that:
   (i) is listed on the State Heritage Register under the *Heritage Act 1977*,or that is subject to an interim heritage order under the *Heritage Act 1977*, or
   (ii) is an item of environmental heritage in an environmental planning instrument, or
4. Land within an Environmentally Sensitive Area, being one or more of the following:
   a) the coastal waters of the State,
   b) a coastal lake,
   c) land to which *State Environmental Planning Policy No 14—Coastal Wetlands* or *State Environmental Planning Policy No 26—Littoral Rainforests* applies,
   d) land reserved as an aquatic reserve under the *Fisheries Management Act 1994* or as a marine park under the *Marine Parks Act 1997*,
   e) land within a wetland of international significance declared under the Ramsar Convention on Wetlands or within a World Heritage Area declared under the World Heritage Convention,
   f) land within 100m of land to which paragraph (c), (d) or (e) applies,

Glen Innes Severn Council Planning Certificate

g) land identified in this or any other environmental planning instrument as being of high Aboriginal cultural significance or high biodiversity significance,
h) land reserved under the *National Parks and Wildlife Act 1974* or land to which Part 11 of that Act applies,
i) land reserved or dedicated under the *Crown Lands Act 1989* for the preservation of flora, fauna, geological formations or for other environmental protection purposes,
j) land identified as being critical habitat under the *Threatened Species Conservation Act 1995* or Part 7A of the *Fisheries Management Act 1994*.

Clause 1.19

9. Land that comprises, or on which there is, a draft heritage item.
10. If only a part of a lot is land to which this clause applies, complying development must not be carried out on any part of the lot, except for development under the Rural Housing Code which allows complying development to be carried out on the part of the lot to which this clause does not apply.

General Housing Code

Complying development under the General Housing Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and clause 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Rural Housing Code

Complying development under the Rural Housing Code **may not** be carried out on the land as the land is not in a specified zone RU1, RU3 and R5.

Housing Alterations Code

Complying development under the Housing Alterations Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

General Commercial and Industrial Code

Complying development under the General Commercial and Industrial Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Commercial and Industrial (New building and Additions) Code

Complying development under the Commercial and Industrial (New building and additions) Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Subdivisions Code

Complying development under the Subdivisions Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Glen Innes Severn Council Planning Certificate

Demolition Code

Complying development under the Demolition Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Fire Safety Code

Complying development under the Fire Safety Code **may not** be carried out on the land as the land is affected by specific land exemptions as identified in clause 1.17A and Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

4 Coastal protection

Whether or not the land is affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that the council has been so notified by the Department of Public Works.

Not Applicable to this property.

4A Certain information relating to beaches and coasts

(1) ***Whether an order has been made under Part 4D of the Coastal Protection Act 1979 in relation to emergency coastal protection works (within the meaning of the Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.***

(2) **(a)** **whether the council has been notified under section 55X of the Coastal Protection Act 1979 that emergency coastal protection works (within the meaning of the Act) have been placed on the land (or on public land adjacent to that land), and**

(b) **if works have been so placed – whether council is satisfied that the works have been removed and the land restored in accordance with that Act.**

(3) **Such information (if any) as is required by the regulations under section 56B of the Coastal Protection Act 1979 to be included in the planning certificate and of which council has been notified pursuant to those regulations.**

Not Applicable to this property.

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 196B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note: *"Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.*

Not Applicable to this property.

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

No

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993, or

For information please consult with the Roads and Maritime Services and / or your title deeds.

(b) any environmental planning instrument, or

No.

(c) any resolution of the council.

No.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(a) adopted by the council, or

No.

(b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council.

No.

7A Flood related development controls information

(1) Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

No.

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

No.

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 make provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No.

Glen Innes Severn Council Planning Certificate

9 Contributions plans

The name of each contributions plan applying to the land.

Glen Innes Severn Section 94A Contributions Plan.

Please Note: *For further details please see Council's website – www.gisc.nsw.gov.au.*

9A Biodiversity certified land

If the land biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995 relates.

No.

10 Biobanking agreements

If the land is land to which a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates, a statement to that effect (but only if the council has been notified of the existence of an agreement by the Director-General of Heritage NSW).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

The land is not identified in the certified Bush Fire Prone Land map for the Glen Innes Severn area.

12 Property vegetation plans

If the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

Council has not been notified that this land is affected by a property vegetation plan under the *Native Vegetation Act 2003*.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No such direction applies to the land.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies:

(a) a statement of whether there is a current site compatibility certificate (of which the council is aware), issued under clause 25 of that Policy in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(i) the period for which the certificate is current, and

(ii) that a copy may be obtained from the head office of the Department of Planning & Infrastructure, and

(b) a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

Not applicable to this property.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (of which the council is aware), issued under clause 19 of State Environmental Planning Policy (Infrastructure) 2007 in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is valid, and

(b) that a copy may be obtained from the head office of the Department of Planning & Infrastructure.

Not applicable to this property.

17 Site compatibility certificates for conditions for affordable rental housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is valid, and

(b) that a copy may be obtained from the head office of the Department of Planning & Infrastructure.

Council is not aware of a site compatibility certificate for affordable rental housing being applicable to this property.

(2) A statement setting out any terms of a kind referred to in clause 17(1) or 38(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

Not applicable to this property.

18 Paper Subdivision Information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

Not applicable to this property.

(2) The date of any subdivision order that applies to the land.

Not applicable to this property.

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation

Not applicable to this property.

19 Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

Note. A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land – see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

(b) the date on which the certificate ceases to be current (if any), and

(c) That a copy may be obtained from the head office of the Department.

Council is not aware of a site verification certificate being applicable to this property.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989_ that are listed on the register that is required to be maintained under that Division, a statement to that effect.

Council is not aware of any residential premises applicable to this property being listed on the register.

21 Affected building notices and building product rectification orders

(1) A statement of whether there is any affected building notice of which the council is aware that is in force in respect of the land

Council is not aware of any affected building notice applicable to this property being listed on the register.

Glen Innes Severn Council Planning Certificate

(2)	***A statement of:*** ***(a) Whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with, and*** ***(b) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding***
(3)	**In this clause:** **Affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017** **Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017**

(a) Council is not aware of any building product rectification order that is in force in respect of the land and that has not been fully complied with.

(b) Council is not aware of any notice of intention to make a building rectification order in respect of the land and that is outstanding.

ADDITIONAL MATTERS TO BE SPECIFIED IN PLANNING CERTIFICATE

Additional matters are pursuant to Schedule 4 of the

Environmental Planning And Assessment Regulation 2000, as amended

Contaminated Land Management Act 1997

The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

(a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

Not Applicable

(b) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

Not Applicable

(c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

Not Applicable

(d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

Not Applicable

(e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

Not Applicable

Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009

Section 26 of this Act provides that advice about any exemption under section 23 or authorisation under section 24 of that Act is to be included in this certificate, if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.

Not Applicable to this Property

Kathleen Taminiau
Town Planner
Date: 29 November 2021

ANNEXURE 1

STATE ENVIRONMENTAL PLANNING POLICIES APPLICABLE AT DATE OF ISSUE OF THIS CERTIFICATE

(INFORMATION IS PROVIDED TO EXTENT THAT COUNCIL HAS BEEN NOTIFIED BY THE NSW DEPARTMENT OF PLANNING & INFRASTRUCTURE)

SEPP (Affordable Rental Housing) 2009
The aims of this Policy are as follows—
(a) to provide a consistent planning regime for the provision of affordable rental housing,
(b) to facilitate the effective delivery of new affordable rental housing by providing incentives by way of expanded zoning permissibility, floor space ratio bonuses and non-discretionary development standards,
(c) to facilitate the retention and mitigate the loss of existing affordable rental housing,
(d) to employ a balanced approach between obligations for retaining and mitigating the loss of existing affordable rental housing, and incentives for the development of new affordable rental housing,
(e) to facilitate an expanded role for not-for-profit-providers of affordable rental housing,
(f) to support local business centres by providing affordable rental housing for workers close to places of work,
(g) to facilitate the development of housing for the homeless and other disadvantaged people who may require support services, including group homes and supportive accommodation.

SEPP Building Sustainability Index: BASIX 2004
This SEPP operates in conjunction with *Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004* to ensure the effective introduction of BASIX in NSW. The SEPP ensures consistency in the implementation of BASIX throughout the State by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX. The draft SEPP was exhibited together with draft *Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004*.

SEPP (Exempt and Complying Development Codes) 2008
This policy commences from 27 February 2009. It aims to provide streamlined assessment processes for development that complies with specified development standards by:
(a) providing exempt and complying development codes that have State-wide application, and
(b) identifying, in the General Exempt Development Code, types of development that are of minimal environmental impact that may be carried out without the need for development consent, and
(c) identifying, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the *Environmental Planning and Assessment Act 1979*, and
(d) enabling the progressive extension of the types of development in this Policy, and
(e) providing transitional arrangements for the introduction of the State-wide codes, including the amendment of other environmental planning instruments.

SEPP (Housing for Seniors or People with a Disability) 2004
Aims to increase the supply and choice of housing for older people or people with a disability. Such housing is permitted, with council consent, wherever houses, flats, hospitals or certain 'special uses' are permitted in or adjoining urban areas, except for some environmentally sensitive lands. The policy contains development standards and matters a council and the Department of Planning & Infrastructure must consider when determining development applications. For example, future residents must have reasonable access to services they require, taking into account convenience, affordability and the type and scale of housing. Relevant Government Circulars should be read in conjunction with this Policy.

SEPP (Infrastructure) 2007
Provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

SEPP Koala Habitat Protection 2020
Encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range. The policy applies to 107 local government areas. Local councils cannot approve development in an area affected by the policy without an investigation of core koala habitat. The policy provides the state-wide approach needed to enable appropriate development to continue, while ensuring there is ongoing protection of koalas and their habitat.

SEPP (Mining, Petroleum Production and Extractive Industries) 2007
This Policy aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State. The Policy establish appropriate planning controls to encourage ecologically sustainable development.

SEPP No. 21 – Caravan Parks
The aim of this Policy is to encourage—
(a) the orderly and economic use and development of land used or intended to be used as a caravan park catering exclusively or predominantly for short-term residents (such as tourists) or for long-term residents, or catering for both, and
(b) the proper management and development of land so used, for the purpose of promoting the social and economic welfare of the community, and
(c) the provision of community facilities for land so used, and
(d) the protection of the environment of, and in the vicinity of, land so used.

SEPP No. 33 - Hazardous and Offensive Development
Provides new definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future. The new definitions enable decisions to approve or refuse a development to be based on the merit of proposal. The consent authority must careful consider the specifics the case, the location and the way in which the proposed activity is to be carried out. The policy also requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the policy. For example, any application to carry out a potentially hazardous or potentially offensive development is to be advertised for public comment, and applications to carry out potentially hazardous development must be supported by a preliminary hazard analysis (PHA). The policy does not change the role of councils as consent authorities, land zoning, or the designated development provisions of the Environmental Planning and Assessment Act 1979.

SEPP No. 36 - Manufactured Home Estates
Helps establish well-designed and properly serviced manufactured home estates (MHEs) in suitable locations. Affordability and security of tenure for residents are important aspects. The policy applies to Gosford, Wyong and all local government areas outside the Sydney Region. To enable the immediate development of estates, the policy allows MHEs to be located on certain land where caravan parks are permitted. There are however, criteria that a proposal must satisfy before the local council can approved development. The policy also permits, with consent, the subdivision of estates either by community title or by leases of up to 20 years. A section 117 direction issued in conjunction with the policy guides councils in preparing local environmental plans for MHEs, enabling them to be excluded from the policy.

SEPP No. 55 - Remediation of Land
Introduces state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals. To assist councils and developers, the Department, in conjunction with the Environment Protection Authority, has prepared Managing Land Contamination: Planning Guidelines.

SEPP No. 64 - Advertising and Signage
Aims to improve the amenity of urban and natural settings by managing the impact of outdoor advertising. The policy responds to growing concerns from the community, the advertising industry and local government that existing controls and guidelines were not effective. SEPP No. 64 offers the comprehensive provisions and consistent approach needed. SEPP 64 – Advertising and Signage: Explanatory Information should be read in conjunction with the policy.

SEPP No. 65 – Design Quality of Residential Flat Development
This SEPP highlights 10 design quality principles to guide architects designing residential flats and to assist councils in assessing these developments. The principles relate to key design issues such as:

- the context for design – the locality and streetscape
- scale, form and density of the building
- measures to achieve resource, energy and water efficiency
- landscape design to create useful outdoor spaces for residents
- safety and security, including ensuring public areas are safe, visible and well lit at night.

Aims to improve the design quality of flats of three or more storeys with four or more dwellings. The policy sets out a series of design principles for local councils or other consent authorities to consider when assessing development proposals for flats. It also creates a role for special design review panels and registered architects in the design and approval.

SEPP No. 70 Affordable Housing (Revised Schemes)
This Policy:
(a) identifies that there is a need for affordable housing across the whole of the State, and
(b) describes the kinds of households for which affordable housing may be provided, and
(c) makes a requirement with respect to the imposition of conditions relating to the provision of affordable housing.

SEPP (Primary Production and Rural Development) 2019
The aims of this Policy are as follows—
(a) to facilitate the orderly economic use and development of lands for primary production,
(b) to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources,
(c) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,
(d) to simplify the regulatory process for smaller-scale low risk artificial waterbodies, and routine maintenance of artificial water supply or drainage, in irrigation areas and districts, and for routine and emergency work in irrigation areas and districts,
(e) to encourage sustainable agriculture, including sustainable aquaculture,
(f) to require consideration of the effects of all proposed development in the State on oyster aquaculture,
(g) to identify aquaculture that is to be treated as designated development using a well-defined and concise development assessment regime based on environment risks associated with site and operational factors.

SEPP (State and Regional Development) 2011
The aims of this Policy are as follows—
(a) to identify development that is State significant development,
(b) to identify development that is State significant infrastructure and critical State significant infrastructure,
(c) to identify development that is regionally significant development.

SCHEDULE OF DRAFT STATE ENVIRONMENTAL PLANNING POLICIES OF WHICH COUNCIL HAS BEEN MADE AWARE AT DATE OF ISSUE OF CERTIFICATE

***Please Note**: The NSW Department of Planning & Infrastructure has issued Circular PS 08-013 to Councils on 13 November 2008. From 1 March 2009, Councils are directed not to consider draft environmental planning instruments that were exhibited prior to 1 March 2006 and not yet gazetted for the purpose of assessing development applications under Section 79C(a)(ii) of the Environmental Planning and Assessment Act 1979.*
Nil Current

GLEN INNES SEVERN COUNCIL
PO Box 61, Glen Innes, 2370
Ph: 02 6730 2350

SECTION 10.7(5) CERTIFICATE

Information supplied pursuant to s149(5) of the Environmental Planning And Assessment Act 1979 ,as amended

APPLICANT DETAILS		***CERTIFICATE DETAILS***	
Info Track Email: ecertificates@infotrack.com.au		***Certificate Number:***	201/21-22
		Certificate Date:	29 November 2021
PROPERTY DETAILS		***Your Reference:***	210289
Property Details:	148 Church Street, Glen Innes, NSW.	***Fee:***	$80
Legal Description:	Lot 2 DP512765. Parish Glen Innes.	***Receipt Number:***	137048

(a) Has development consent under the Environmental Planning and Assessment Act 1979, as amended been issued for a use of the land within the past five years? If so, what conditions of consent apply?

No

(b) Is the land affected by a Tree Preservation Order?

No

The above information has been taken from Council's records but Council cannot accept responsibility for any omission or inaccuracy.

Please Note:

- *Prospective purchasers should consult their legal advisers concerning any easements or restrictions on the title of the property.*
- *Council does not incur any liability in respect of advice provided in good faith pursuant to s149(5) in accordance with s149(6) of the Environmental Planning and Assessment Act 1979, as amended.*
- *Information on any outstanding notices or orders pertaining to this property can be obtained through a Certificate available from Council pursuant to s121ZP of the Environmental Planning as Assessment Act 1979 and s735A of the Local Government Act 1993.*

Kathleen Taminiau
Town Planner
Date: 29 November 2021

Item 7.3

Annexure A

Form D.

MUNICIPALITY OF GLEN INNES

PLAN OF HOUSE DRAINAGE

For M North West County Council — Drainage Plan No. 1079

Situation of Property Church St — Detail Plan No. 23

Scale : 40 ft. to 1 inch. — FEES 10/.

REFERENCE :

D.T. ..	Disconnector Trap	I.J. ..	Inspection Junction	S.V.P. ..	Soil Vent Pipe
G.D.T. ..	Gully Disconnector Trap	I.V.P.	Induct Vent Pipe	C.I.P. ..	Cast Iron Pipe
I.B. ..	Inspection Bend	L.V.P.	Educt Vent Pipe	G.T. ..	Grease Trap
I.P. ..	Inspection Pipe	V.P.	Vent Pipe	W.C. ..	Water Closet
B.T. ..	Boundary Trap	K.S.	Kitchen Sink	B.W. ..	Bath Waste

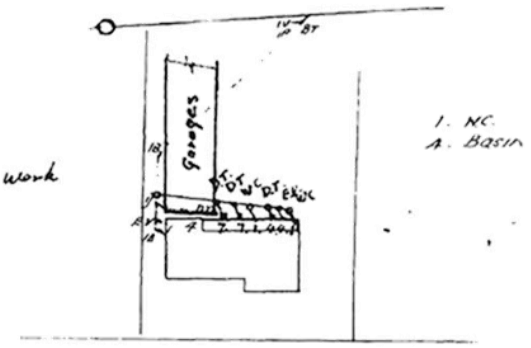
THIS PLAN IS THE PROPERTY OF THE OWNER AND MUST BE RETURNED TO HIM ON COMPLETION OF THE WORK.

Rain or Surface Water must not be discharged into the Sewers.
All Drainage and Plumbing Work must be carried out strictly in accordance with the provisions of the Local Government Act and Ordinances and Requirements of the Council.
No alteration to Drainage to be made unless previous consent is given.
All Drainage Work to be tested before covering in.

Junction 95'. 6" feet from D.S.M.H. approx. depth 3 feet.

On the satisfactory completion of the work a Certificate will be issued by the Council.

New owner Mr Black
worked March 1967.
Drain extended + work
tested 22-3-67.
[signature]



CHURCH ST.

Inspections

[signature]
Sewerage Inspector.

24. 5. 1952

Form D.

MUNICIPALITY OF GLEN INNES

PLAN OF HOUSE DRAINAGE

See Plan 117

For M. Municipality of Glen Innes. Drainage Plan No. 118

Situation of Property. Power House. Detail Plan No. 23

Scale : 40 ft. to 1 inch. FEES

REFERENCE :

D.T. ..	Disconnector Trap	I.J. ..	Inspection Junction	S.V.P. ..	Soil Vent Pipe
G.D.T. ..	Gully Disconnector Trap	I.V.P. ..	Induct Vent Pipe	C.I.P. ..	Cast Iron Pipe
I.B. ..	Inspection Bend	E.V.P. ..	Educt Vent Pipe	G.T. ..	Grease Trap
I.P. ..	Inspection Pipe	V.P. ..	Vent Pipe	W.C. ..	Water Closet
B.T. ..	Boundary Trap	K.S. ..	Kitchen Sink	B.W. ..	Bath Waste

THIS PLAN IS THE PROPERTY OF THE OWNER AND MUST BE RETURNED TO HIM ON COMPLETION OF THE WORK.

Rain or Surface Water must not be discharged into the Sewers.

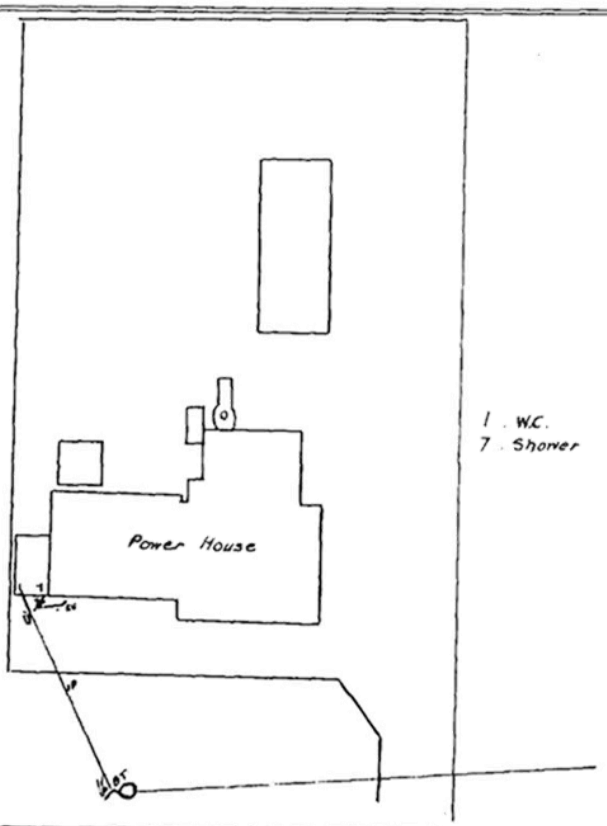
All Drainage and Plumbing Work must be carried our strictly in accordance with the provisions of the Local Government Act and Ordinances and Requirements of the Council.

No alteration to Drainage to be made unless previous consent is given.

All Drainage Work to be tested before covering in.

Junction 4 feet from D. S. M. 11 approx. depth 3 feet 0

On the satisfactory completion of the work a Certificate will be issued by the Council.



Inspections

B. H. Mahoney
Sewerage Inspector.

4. 10. 1937

Item 7.3

Annexure A

Form D.

MUNICIPALITY OF GLEN INNES

PLAN OF HOUSE DRAINAGE

For GLEN INNES COUNCIL Drainage Plan No. 116, 117, 118

Situation of Property CHURCH ST Detail Plan No. 23

Scale : 40 ft. to 1 inch. FEES 15/-

REFERENCE :

D.T. ..	Disconnector Trap	I.J. ..	Inspection Junction	S.V.P. ..	Soil Vent Pipe
G.D.T. ..	Gully Disconnector Trap	I.V.P. ..	Induet Vent Pipe	C.I.P. ..	Cast Iron Pipe
I.B. ..	Inspection Bend	E.V.P. ..	Eduet Vent Pipe	G.T. ..	Grease Trap
I.P. ..	Inspection Pipe	V.P. ..	Vent Pipe	W.C. ..	Water Closet
B.T. ..	Boundary Trap	K.S. ..	Kitchen Sink	B.W. ..	Bath Waste

THIS PLAN IS THE PROPERTY OF THE OWNER AND MUST BE RETURNED TO HIM ON COMPLETION OF THE WORK.

Rain or Surface Water must not be discharged into the Sewers.

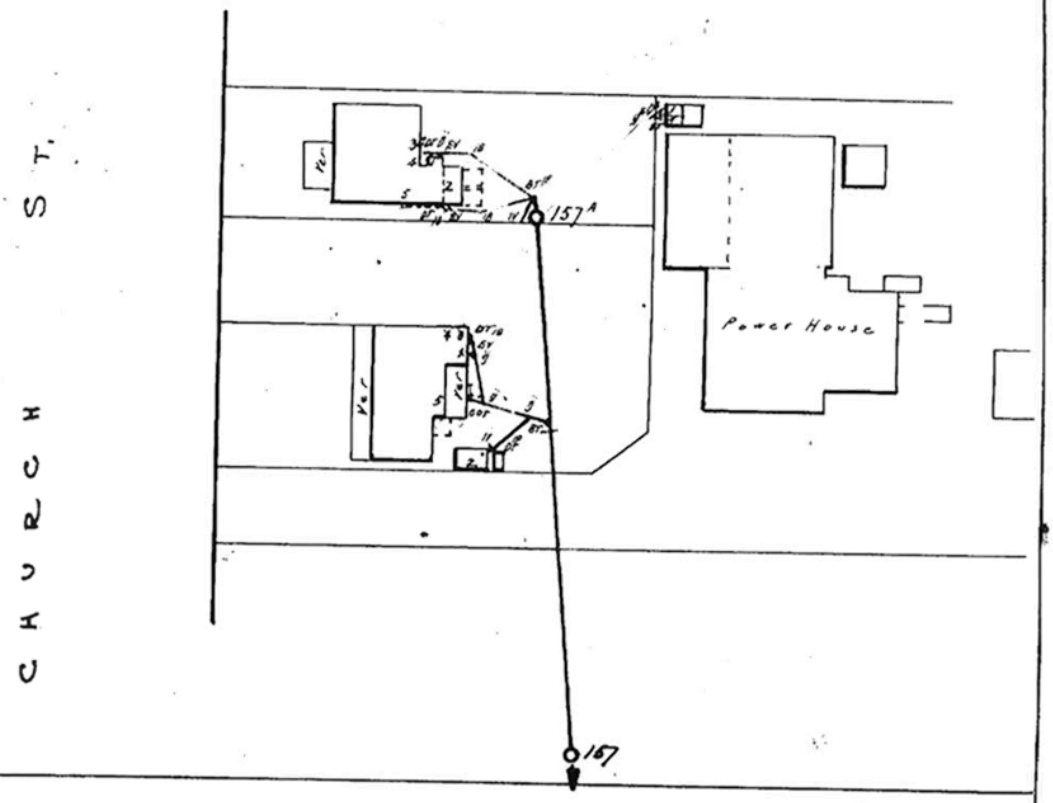
All Drainage and Plumbing Work must be carried our strictly in accordance with the provisions of the Local Government Act and Ordinances and Requirements of the Council.

No alteration to Drainage to be made unless previous consent is given.

All Drainage Work to be tested before covering in.

Junction 95' 6" ; 4' feet from downstream M.H's approx. depth 3 feet

On the satisfactory completion of the work a Certificate will be issued by the Council.



Inspections

Sewerage Inspector.

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Essential Energy

Glen Innes Field Service Centre

Supplementary Detailed Site Investigation

May 2015

Executive summary

GHD Pty Ltd (GHD) was engaged by Essential Energy to carry out supplementary investigation works (the project) relating to the Glen Innes Field Service Centre (the Site). The request for additional works related to the findings and recommendations of the 'initial' detailed site investigations (DSI) completed for the site by GHD in February 2015.

The objectives of the project were to:

- Assess whether the water identified under the powerhouse slab during the initial DSI is due to surface water ingress and provide appropriate recommendations regarding stormwater management.
- Assess the status of the former fuel tanks and associated fuel lines reportedly located near the shipping containers.
- Further assess any potential soil and/or groundwater impacts in the vicinity of the former USTs located near the shipping containers.
- Assess the concentrations trends of chemicals of potential concern (CoPC) identified in the initial DSI, in the groundwater.
- Assess potential vapour risk from the generator sumps in relation to health impacts for workers and visitors to the site.

Four soil bores (one of which included installation of a monitoring well) were completed across the Site with soil and groundwater sampling and analysis carried out at select locations. Ambient air sampling was also undertaken at three locations.

With reference to the objectives in Section 1.1 and in accordance with the limitations set out in Section 10, the findings of this targeted DSI are summarised as follows:

Surface water ingress/egress

A large percentage of the onsite stormwater system was malfunctioning causing a concentration of surface water (and subsequent infiltration) upgradient of the generator sumps. This is likely the cause of the fluctuations of water within the sumps and source of the water in the perched groundwater bearing zone noted beneath the powerhouse slab.

Former fuel tank status

The former fuel tanks located adjacent to the shipping containers in the north west portion of the Site were confirmed to be above ground storage tanks (ASTs) formerly located in an uncovered concrete bund. The ASTs had been removed but the bund remains insitu.

Potential soil impact adjacent to former AST

Additional investigation of soil in the vicinity of the former ASTs located near the shipping containers indicated:

- The nominated commercial/industrial assessment criteria were not exceeded for any CoPC in any of the samples analysed from the additional boreholes (BH11, BH12, BH13 and BH14).
- Elevated (i.e. above ambient but below assessment criteria) total recoverable hydrocarbon (TRH) concentrations at various depths in BH12, BH13 and BH14 are likely due to former site activities. TRH concentrations in the F3 and F4 fraction ranges corresponded with odour and staining noted during drilling and were consistent with the

impact expected from diesel or oil. The elevated (but below assessment criteria) concentrations in the soil were delineated to the west and do not appear to be impacting the groundwater.

- Elevated (but below assessment criteria) polycyclic aromatic hydrocarbon (PAH), chromium, nickel and zinc concentrations noted in several samples may be due to former site activities. The concentrations noted in these samples were consistent with concentrations noted during the initial DSI.
- The waste classification of soil from drill cuttings generated from the investigations found that the soil material is classified for off-site disposal as restricted solid waste, on the basis of benzo(a)pyrene concentrations in soil from BH13. The material should be disposed of at a waste facility licensed to accept restricted solid waste, in accordance with the NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classifying Waste*.

Groundwater analysis and trends

The groundwater surface water levels (SWL) in MW1D, MW2 and MW3 were approximately 1.3 m higher than recorded in November 2014, likely reflecting the increase in seasonal rainfall during this period. The SWL in the shallow, perched aquifer (MW1S) was the same as recorded during previous sampling in December 2014. The inferred groundwater flow direction was confirmed to be to the west, towards Rocky Ponds Creek.
The nominated commercial/industrial assessment criteria or groundwater investigation level (GIL) assessment criteria were not exceeded for any CoPC in any of the groundwater samples analysed. An assessment of the concentrations trends (both spatial and temporal) of CoPC identified in the DSI, in the groundwater indicated:

- TRH F3 (320/660 µg/L) and F4 (<100/190 µg/L) concentrations noted in MW1S/QW3 were consistent with the impact expected from diesel and oil, however this impact did not appear to be migrating to the deeper aquifer in MW1D. It is likely that this impact was from the egress of water from the generator sumps (based on similar analytes and anecdotal evidence of water level fluctuations in the sumps with rainfall).
- Decreases in all TRH concentrations (above the limit of reporting (LOR)) were noted between the December 2014 and March 2015 sampling rounds. The decreases may be due to attenuation, decrease in impact from soil disturbance during the drilling process or seasonal fluctuations.
- Copper and zinc concentrations were relatively consistent across the site indicating they may be representative of background concentrations.
- Nickel concentrations across the site, particularly in MW1S (0.006 mg/L) and MW4 (0.008 mg/L) and arsenic concentrations in MW1S (0.003 mg/L) are possibly due to former site activities.

Ambient air sampling

Ambient air sampling results did not suggest any evidence of acute risk to site workers for the substances measured. All concentrations of the identified contaminants of potential concern were significantly (generally orders of magnitude) below workplace exposure standards (time weighted average) for airborne contaminants provided by Safe Work Australia.

Duty to report contamination

Following the supplementary DSI, no additional data was obtained that identifies a duty to notify contamination under Section 60 of the CLM Act.

Suitability for use

Potential pathways for exposure to contamination were identified in the conceptual site model, however no soil or groundwater concentrations exceeding the commercial/industrial assessment criteria were noted.

Surface water in the sumps could potentially present a risk from direct contact due to elevated concentrations of TRH and metals, however this is considered more of an operational concern than a site contamination issue, and any direct contact with liquids in the sumps should be managed by appropriate WHS procedures.

Accordingly, based on the data obtained to date, the site is considered suitable, from a contamination perspective, for on-going commercial/industrial land use.

Recommendations

In order to reduce potential risk to soil and groundwater from ingress/egress of the fluid contained in the generator sumps, the following recommendations are made:

- Removal of the sump liquid via one or more of the following options:
  - Removal of the two ASTs located within the powerhouse (due to previous history of leakage as reported by site personnel).
  - Removal of generators and impacted surface water within the sumps and filling of sumps with concrete.
  - Removal of all remaining fluid in the generators and sumps and applying a sealant to the sumps to prevent water ingress and egress.
- Minimising surface water ingress under the slab via the following work:
  - Clean out and maintain the channel drain along the eastern wall of the power house, continuing around the bend along part of the southern wall of the power house.
  - Remove the bricks blocking discharge of the channel drain along the eastern wall of the power house, flowing to the north.
  - Repair the carport gutter drain (broken and misaligned at/above ground level).
  - Redirect discharge of the power house southern gutter drain into the western end of the channel drain along the southern wall of the power house.
  - Investigate discharge into the former stormwater pipe broken where concrete residential driveway had been constructed (north of the residence) and redirect any significant flows into operational stormwater system.
  - Ensure residential gutter drains acceptably discharging into the stormwater system i.e confirm acceptable flow (without blockage) during rainfall events.
  - Remove the two infiltration beds located to the east of the site and redirect the gutters into the stormwater system.

In the event that decommissioning of the site and infrastructure is proposed, further investigation of the soil and groundwater beneath the powerhouse may also be required as part of site decommissioning to assess the suitability of the site for redevelopment for an alternative land use.

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Table index

Figure index

Appendices

List of abbreviations

General terms	
AST	Aboveground Storage Tank
BTEXN	Benzene, Toluene, Ethylbenzene, Xylene and Napthalene
CLM Act	Contaminated Land Management Act 1997
CLS	Contaminated Land Strategy
COC	Chain of Custody
CoPC	Chemicals of Potential Concern
CSM	Conceptual Site Model
DO	Dissolved Oxygen
DQI	Data Quality Indicator
DQO	Data Quality Objective
DSI	Detailed Site Investigation
EC	Electrical Conductivity
EIL	Ecological Investigation Level
EPA	NSW Environment Protection Authority
FSC	Field Service Centre
GIL	Groundwater Investigation Level
GPR	Ground Penetrating Radar
HIL	Health Investigation Level
HSL	Health Screening Level
LCS	Laboratory Control Sample
LOR	Limit of Reading
LNAPL	Light Non-Aqueous Phase Liquid
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
ORP	Oxygen Reduction Potential
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PID	Photo-ionisation Device
PSH	Phase Separated Hydrocarbons
Pty Ltd	Proprietary Limited
QA	Quality Assurance
QC	Quality Control
RL	Relative Level
RPD	Relative Percentage Difference
SAQP	Sampling Analysis and Quality Plan
SOP	Standard Operating Procedure
SPR	Source Pathway Receptor
STEL	Short Term Exposure Limit
SWL	Standing Water Level

General terms	
TOC	Top of Casing
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
TWA	Time Weighted Average

Units	
L	Litres
m	Metre
m2	Square metres
m bgl	Metres below ground level
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
mV	Millivolts
ppm	Parts per million
µg/L	Micrograms per litre
µS/cm	Micro-Siemens per centimetre

1. Introduction

1.1 Background

GHD Pty Ltd (GHD) was engaged by Essential Energy to carry out supplementary investigation works (the project) relating to the Glen Innes Field Service Centre (the Site). The request for additional works related to the findings and recommendations of the 'initial' detailed site investigations (DSI) completed for the site by GHD in February 2015[1].

The former Glen Innes Power Station became operational in 1922 and once formed part of the Northern region electricity supply system. Although the Power Station was decommissioned in 1956, the Site continued to be used by Essential Energy as a field service centre and museum. The Site is located at 148 Church Street, Glen Innes, NSW on Lot 2 in Deposit Plan 512765. The site location is shown on Figure 1 (Appendix A).

Based on the findings of the initial DSI (GHD 2015), further assessments were recommended to confirm the site's suitability, from a contamination perspective, for on-going commercial /industrial land use. The recommendations relevant to this supplementary investigation were summarised as:

- Minimisation of the potential for further impact to the perched groundwater beneath the powerhouse slab through minimising surface water ingress under the powerhouse slab. This would require an assessment of surface water run off drains and plumbing around the Site.
- Further investigation of soil and groundwater in the vicinity of the former fuel tanks reported to be historically located near the shipping containers in the north western portion of the Site. Further investigation was required to delineate and assess impact soil and groundwater impact identified in during the initial DSI and to assess the decommissioned status (removed versus in-situ) of the tanks and associated fuel lines.
- Periodic monitoring of the groundwater wells including trend analysis for chemicals of potential concern (CoPC).
- Ambient air sampling to assess potential vapour risk from the generator sumps in relation to health impacts for workers and visitors.

This report is an addendum to the DSI *Essential Energy Glen Innes Field Service Centre Detailed Site Investigation, d*ocument 17578.16225 (GHD 2015) and should be read in conjunction with that document.

1.2 Objectives

The objectives of the project were to:

- Assess whether the water identified under the powerhouse slab is due to surface water ingress and provide appropriate recommendations regarding stormwater management.
- Assess the status of the former fuel tanks and associated fuel lines reportedly located near the shipping containers.
- Further assess any potential soil and/or groundwater impacts in the vicinity of the former USTs located near the shipping containers.

[1] GHD (2015) *Essential Energy Glen Innes Field Service Centre Detailed Site Investigation, d*ocument 17578.16225. February 2015.

- Assess the concentrations trends of CoPC identified in the DSI, in the groundwater.
- Assess potential vapour risk from the generator sumps in relation to health impacts for workers and visitors to the site.

1.3 Scope of works

The scope of works included the following:

- Task 1: Project preliminaries including site specific safety documentation and underground service clearance for proposed intrusive works.
- Task 2: Surface water ingress/egress assessment for water observed in sumps within the powerhouse.
- Task 3: Confirmation of the status of former fuel tank infrastructure in the vicinity of shipping containers located in the northern portion of the vehicle and equipment storage area.
- Task 4: Additional soil investigations including drilling of four boreholes in the vicinity of potential former underground fuel infrastructure and conversion of one borehole to a groundwater monitoring well.
- Task 5: One round of groundwater monitoring from one newly installed and four existing wells at the site.
- Task 6: Ambient air sampling from three locations using canisters.

2. Previous investigation

The initial DSI (GHD 2015) was conducted following the results of a Contaminated Land Strategy (CLS) for Essential Energy which involved a desk based review of available information and site inspection to identify areas of potential concern for a number of Essential Energy sites and subsequent risk rankings based on a perceived risk of the potential for contamination. The CLS ranked the Glen Innes field service centre as high risk based on historical activities at the Site, including power generation, in addition to the presence of potential point sources of contamination including underground storage tanks (UST) and transformer and creosote storage areas.

Eleven soil bores (four of which included monitoring well installations) were completed across the Site with soil and groundwater sampling and analysis carried out at select locations. Sampling and analysis was also completed for surface water contained within the generator sumps.

The soil profile across the Site was found to generally consist of fill material to approximately 0.75 metres below ground level (m bgl) underlain by sandy clays and clayey sands to an average of 6.5 m bgl, followed by rock. Hydrocarbon sheening and moderate hydrocarbon odours were noted in fill material recovered from beneath the powerhouse slab. Staining and hydrocarbon odours were noted in several boreholes located around the powerhouse and equipment storage areas with the majority of staining and odours noted between 0.8 and 2.0 m bgl.

Standing groundwater levels (SWLs) were approximately 6 m bgl with the exception of a perched groundwater bearing zone identified in the fill material at a depth of approximately 1.6 m bgl beneath the powerhouse slab. Slight odours and sheens were noted in groundwater collected from MW1S, MW1D and MW3 during purging, however no obvious odours or sheens were noted during sampling. No light non-aqueous phase liquid (LNAPL) was observed in the monitoring wells however evidence of oil droplets were noted in MW1S during well development. Groundwater was inferred to flow in a westerly direction, towards Rocky Ponds Creek, which is located approximately 350 metres to the inferred down-gradient direction from the site.

No soil or groundwater analytical concentrations were reported for CoPC above the health screening level (HSL) or health investigation level (HIL) D assessment criteria for commercial/industrial land use.

Elevated (i.e. above ambient but below assessment criteria) total recoverable hydrocarbon (TRH), metal and or polycyclic aromatic hydrocarbons (PAH) concentrations in soil indicated:

- Impact in the vehicle and equipment storage areas from diesel or oil (possibly from storage of transformers) and minor spills. The impact did not appear to be migrating to the groundwater.
- Impact adjacent to the powerhouse consistent with the impact expected from diesel.
- Impact from the former fuel tanks reportedly present in the vicinity of the shipping containers.

The low (less than the limit of reporting (LOR)) concentrations of phenols, volatile and semi-volatile organic compounds, pesticides, herbicides, polychlorinated biphenyls, chlorinated hydrocarbons and other CoPC indicated that the soil and groundwater in the areas sampled were not impacted by those analytes. No evidence of asbestos was noted during sampling or reported in the samples selected for analysis.

TRH concentrations in the perched groundwater table beneath the powerhouse slab were consistent with the impact expected from diesel and oil, however this impact did not appear to be migrating to the deeper aquifer. It is likely that this impact was from the egress of water from the generator sumps.

Detections of TRH, at concentrations below the nominated investigation levels, in the monitoring well to the north west of the site (MW3) may have been a result of impact from the former fuel tanks located near the shipping containers.

The surface water in the generator sumps was elevated in petroleum hydrocarbons and several metals. These results are consistent with the impact expected from diesel and oil.

3. Sampling analysis and quality plan

3.1 Objective of the SAQP

The objectives of the Sampling Analysis and Quality Plan (SAQP) were to incorporate Data Quality Objectives (DQO) and Quality Assurance/Quality Control (QA/QC) procedures in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended by the *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)*, (NEPM) and to outline:

- The areas of the Site to be investigated to and evaluate the potential contaminant source-pathway-receptor relationships.
- The number and locations of sampling points and media to be sampled (i.e. soils and groundwater).
- Laboratory analytical suites for chemicals of concern to be tested in each media. Technical, health risk and costing factors will be considered in the development of the testing regime.
- Details of sampling methodology.
- Field screening methodology.
- QA and QC procedures.
- Reporting requirements.

3.2 DQO

3.2.1 Overview

As applied in the initial DSI, the DQO process was used to ensure that data collection activities are appropriate and achieve the project objectives. The DQO process involved the following steps:

- **Step 1**: State the problem.
- **Step 2**: Identify the decision/goal of the study.
- **Step 3:** Identify the information inputs.
- **Step 4:** Define the boundaries of the study.
- **Step 5:** Develop the analytical approach.
- **Step 6:** Specify performance or acceptance criteria.
- **Step 7:** Develop the plan for obtaining data.

The seven DQO steps for this project were defined as follows:

3.2.2 Step 1: State the problem

The Site has been potentially impacted by previous use as a power generation facility and previous and current use as a field service centre. Sources of contamination associated with historical activities at the Site include the use of diesel and crude oil generators during power generation in addition to diesel USTs. Additional sources of contamination associated with current Site activities include the use of transformer and creosote storage areas. The DSI (GHD 2015) identified several data gaps in regard to assessment of potential impact from contamination.

The 'problem' as it stands is that residual contamination associated with the aforementioned activities has the potential to adversely impact upon human and environmental receptors. Identified data gaps make an assessment of the impact difficult and as such, the nature and extent of existing contamination requires further assessment.

3.2.3 Step 2: Identify the decision/goal of the study

Sufficient data is required to address the data gaps identified during the initial DSI and hence assess identified contamination impacts that have the potential to result in unacceptable risks to human health or the environment. Specific study questions to be addressed by the Supplementary DSI are as follows:

- Is the water identified under the powerhouse slab due to surface water ingress and can it be managed with stormwater management?
- What is the status of the former fuel tanks and associated fuel lines near the shipping containers?
- What is the extent of any soil and/or groundwater impacts in the vicinity of the former fuel tanks located near the shipping containers?
- What are the concentrations trends of CoPC in the groundwater?
- What are the potential vapour risks from the generator sumps in relation to health impacts for workers and visitors to the site?

3.2.4 Step 3: Identify the information inputs

The sampling program has been designed to provide sufficient information to allow a sound scientific and statistical evaluation of the questions set out in Section 3.2.3. This was to be achieved by:

- Collection of soil, groundwater and ambient air samples to provide sufficient and statistically valid data sets upon which to base subsequent decisions.
- Comparing the analytical data to applicable guidelines to evaluate the potential for contamination to adversely impact upon human health and/or environmental receptors.

3.2.5 Step 4: Define the boundaries of the study

With respect to physical boundaries, the lateral boundaries of the investigation area are defined as follows:

- The northern Side boundary adjoining Fitzhardinge Lane.
- The western Site boundary.
- The eastern Site boundary adjoining Church Street.
- The southern Site boundary adjoining neighbouring commercial and residential properties.

The vertical boundary will be the underlying natural soils, bedrock or groundwater.

3.2.6 Step 5: Develop the analytical approach

In order to decide whether the data obtained was sufficiently precise, accurate, reliable and reproducible, field and laboratory QA/QC procedures were utilised throughout the sampling programmes and all sampling work was carried out in accordance with GHD's Standard Field Operating Procedures (SOP), which are based on relevant guidelines and current industry

practices. QA/QC results were compared to nominal acceptance limits (as outlined in Section 3.2.7).

The nominated assessment criteria are presented in Section 4.

3.2.7 Step 6: Specify performance or acceptance criteria

With regard to the Supplementary DSI, two primary decision error-types may occur due to uncertainties or limitations in the project data set:

- A sample/area may be deemed to pass the nominated criteria, when in fact it does not. This may occur if contamination is 'missed' due to limitations in the sampling plan, or if the project analytical data set is unreliable.
- A sample/area may be deemed to fail the nominated criteria, when in fact it does not. This may occur if the project analytical data set is unreliable, due to inappropriate sampling, sample handling, or analytical procedures.

To minimise the potential for decision errors, data quality indicators (DQIs) have been established, for completeness, comparability, representativeness, precision and accuracy.

The DQIs for sampling techniques and laboratory analysis of collected samples identified the acceptable level of error for this DSI. The data quality objectives were assessed by reference to data quality indicators as follows:

- **Data Representativeness** - expresses the degree by which sample data accurately and precisely represents a characteristic of a population or an environmental condition. Representativeness was achieved by collecting samples in an appropriate in the areas of concern, and by using consistent and repeatable sampling techniques and methods.
- **Completeness** - defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal was set at there being sufficient valid data generated during the study. If there was insufficient valid data, then additional data would be required. The objective was to achieve at least 95% completeness.
- **Comparability** - is a qualitative parameter expressing the confidence with which one data set can be compared with another. This was achieved through maintaining a level of consistency in techniques used to collect samples and ensuring analytical laboratories used consistent analysis techniques and reporting methods.
- **Precision** - measures the reproducibility of measurements under a given set of conditions. The precision of the data was assessed by calculating the Relative Percent Difference (RPD) between duplicate sample pairs.

$$RPD(\%) = \frac{|C_o - C_d|}{C_o + C_d} \times 200$$

Where Co = Analyte concentration of the original sample

Cd = Analyte concentration of the duplicate sample

GHD adopts a nominal acceptance criterion of ± 30% RPD for field duplicates and splits for inorganics and a nominal acceptance criterion of ± 50% RPD for field duplicates and splits for organics. However, it is noted that this will not always be achieved, particularly in heterogeneous soil or fill materials, or at low analyte concentrations.

- **Accuracy** - measures the bias in a measurement system. Accuracy can be undermined by such factors as field contamination of samples, poor preservation of samples, poor sample preparation techniques and poor selection of analytical techniques by the analysing laboratory. Accuracy was assessed by reference to the analytical results of

laboratory control samples (LCS), laboratory spikes, laboratory blanks and analyses against reference standards. The nominal "acceptance limits" on LCS are defined as follows:

- Laboratory spikes – 70-130% recovery for metals/inorganics and 60-140% for organics.
- Laboratory duplicates – If contaminant concentration is less than 10 times the limit of reading (LOR): no RPD limit. If concentration 10 to 20 times the LOR: 0% to 50% RPD. If greater than 20 times the LOR: 0% to 20% RPD.
- Laboratory Surrogates (Organics only) – 60% - 140% recovery.
- Laboratory blanks - <LOR.

Accuracy of field works was assessed by examining the level of contamination detected in field and equipment blanks. Blanks should return concentrations of all organic analytes as being less than the LOR of the testing laboratory.

The individual testing laboratories conducted an assessment of the laboratory QC programme, internally; however the results were also independently reviewed and assessed by GHD. Further information on QA/QC procedures and criteria are presented in Section 3.3.

3.2.8 Step 7: Develop the plan for obtaining data

Works were completed in accordance with relevant NSW Environment Protection Authority (EPA) guidelines and accepted industry standards.

3.3 Fieldwork methodology

All fieldwork was conducted in general accordance with GHD's Standard Field Operating Procedures, which are aimed at collecting environmental samples using uniform and systematic methods, as required by GHD's QA system.

3.3.1 Task 1- Preliminaries

Health, Safety and Environment Plan

A site specific Occupational Health, Safety and Environment Plan was prepared, incorporating relevant safety provisions and environmental management measures required to minimise the potential impact from GHD's activities on the environment and surrounding community.

All Site visits and investigations were conducted in accordance with a site specific Job Safety and Environmental Analysis (JSEA) prepared by GHD which complied with relevant Occupational Health and Safety regulation and acts. The JSEA comprised a project outline, a summary of relevant Site activities and specific job-related tasks, a hazard register which identified all foreseeable hazards, a risk ranking system for the management of identified hazards and procedures for monitoring and/or implementing mitigation measures to manage all project based risks. The JSEAs also outline appropriate Personal Protective Equipment, minimising contact with materials and cleaning down of equipment before leaving Site.

All staff involved in the investigations, including subcontractors under GHD's control, were briefed on Occupational Health, Safety and Environment requirements as well as other job specific information, such as Site plans, sampling methodology, GHD proposal details and relevant standard operating procedures.

Underground service locating

A Telstra accredited independent contractor was used to clear underground services prior to any sub-surface works being undertaken using radio-detection with reference to utility plans obtained through the Dial Before You Dig service.

3.3.2 Task 2: Surface water ingress/egress assessment

A plumber and underground service locator were engaged to assess surface water runoff, drains and plumbing around the site to identify likely sources of surface water ingress/egress under the powerhouse slab. The investigation was limited to evidence obtained via visual and underground service locating equipment and did not involve any intrusive investigation.

3.3.3 Task 3: Former fuel tank status assessment

The findings of the initial DSI (GHD, 2015) concluded that former fuel tanks may have been located in the vicinity of the shipping containers in the north western portion of the vehicle and equipment storage area.

GHD staff conducted further interviews with former Site staff and assessed historic photographs to ascertain the status of the former fuel tanks. A ground penetrating radar (GPR) was also used to confirm the anecdotal evidence.

3.3.4 Task 4: Additional soil assessment

GHD conducted an additional investigation of soil and groundwater in the vicinity of the former fuel tanks reportedly located near the shipping containers to further investigate and delineate the impact identified by GHD (2015) as part of the DSI in sampling locations BH10 and MW3. In summary, the following tasks were completed:

- Drilling four boreholes (BH11 to BH14) to a depth of approximately four mbgl using a hand auger to 1 m bgl and push tubes from 1 to 4 m bgl.
- Field screening of soil samples using a Photoionisation detector (PID).
- Collection of soil samples at regular intervals throughout the soil profile at each location.
- Installation of one groundwater monitoring well (BH14/MW4) to a depth of approximately 8 m bgl. This required the use of an air hammer, due to the presence of rock at approximately 6 m bgl.
- Analyses of nine selected soil samples and one duplicate for contaminants of potential concern including:
  - Total recoverable hydrocarbons (TRH)
  - Benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN)
  - Polycyclic aromatic hydrocarbons (PAH)
  - Heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn)

Additionally, two samples were analysed for toxicity characteristic leaching procedure (TCLP) analysis (one each for nickel and benzo(a)pyrene, respectively).

The soil sampling methodology is summarised in Table 3-1. Borehole locations are shown in Figure 2, Appendix A.

Table 3-1 Soil sampling methodology

Activity	Details
SAQP	4 borehole locations were identified to target potentially contaminated areas.
Asphalt removal	Asphalt removal was undertaken prior to drilling works at locations BH11, BH12, BH13 and BH14.
Drilling	A hand auger was used at locations BH11, BH12, BH13 and BH14 to a depth of 1 m bgl. Push tubes were then used to collect soil samples until the limit of investigation or refusal was encountered. Push tube refusal ranged between 3 and 6 m bgl. Dedicated disposal push tube liners were used during drilling to limit cross contamination between locations.
Soil logging	Soils encountered during drilling were described and logged by an experienced environmental scientist. Borehole logs are presented in Appendix C.
Soil sampling	Soil samples were collected from each borehole generally at near surface (0.0 to 0.2 m), 0.5 m, 1 m depths and every subsequent metre (and/or generally where changes in lithology or potential contamination was observed). Care was taken during the sampling to obtain representative samples from each target level. Additional samples were collected when visual or olfactory evidence of contamination was identified. Soil samples were stored in laboratory provided glass jars with Teflon lined lids. All samples were labelled with an indelible marker pen on water resistant labels attached to the sample jars. Each label contained the project number, sample location and depth (i.e. BH11_0.2-0.3 was collected from borehole BH11 at a depth range of 0.2-0.3 m), sampler initials and sample collection date. A hand held PID was used to screen the soil samples for volatile gas emissions to aid sample selection for analysis. The PID was calibrated in accordance with manufacturer instructions prior to the commencement of works. The calibration certificate is provided in Appendix E. All samples collected (including depths and related observations) are presented in the borehole logs (Appendix C).
Decontamination	Decontamination of the hand auger was undertaken by cleaning with a pH neutral phosphate free detergent in water and rinsing with potable water.
QA/QC	Four field duplicate samples were collected and one intra-laboratory field duplicate sample analysed. Intra laboratory duplicates comprise a single sample that is divided into two separate sampling containers. Both samples are sent anonymously to the primary laboratory. Intra-laboratory duplicates provide an indication of the analytical precision of the laboratory, but are inherently influenced by other factors such as sampling techniques and sample media heterogeneity. The soil sample analysed (QS02) was collected and analysed as a laboratory duplicate of BH12_1.0-1.1. No rinsate blanks or field blanks were collected during soil sampling due to the sampling techniques (i.e. dedicated push tube liners) limiting the potential for cross contamination.
Sample preservation and transport	Samples were chilled upon collection, stored on ice in an insulated cooler box while on- site and in transit to the laboratory. Samples were transferred to the laboratory under Chain of Custody (COC) documentation. All laboratory documentation (including signed COC forms) is presented in Appendix G.
Site reinstatement	Locations BH11, BH12 and BH13 were backfilled with excess materials generated from the soil boreholes (that which was not sampled) in the order excavated. BH14 was converted to a monitoring well and finished with a flush mounted gatic cover and cold mix asphalt collar to be consistent with the surrounding surface.

3.3.5 Task 5: Additional groundwater assessment

GHD conducted one round of groundwater monitoring including the collection and analysis of samples from the newly installed well (MW4) and four existing wells (MW1S, MW1D, MW2 and MW3).

Five primary groundwater samples and one split duplicate were analysed for TRH, BTEXN and dissolved metals (As, Cd, Cr, Cu, Ni, Pb, Zn).

Details of the monitoring well installation are provided in Table 3-2. The bore log and well construction details are provided in Appendix C.

Table 3-2 Groundwater well installation

Activity	Details
Well construction	The monitoring well was constructed using 50 mm outside diameter machine threaded Class 18 uPVC casing, with slotted (0.5 mm) PVC screen. Prior to installation, the total depth of the borehole was measured with a weighted tape. The well screen and casing was then lowered into the open borehole. Graded sand was installed as a filter pack surrounding the PVC screen with between 0.5 m placed above the screened interval. 0.5 m of bentonite pellets were added above the filter pack. The remainder of the bore annulus was filled to surface with a quick dry cement grout slurry. The well was finished with a flush mounted gatic cover with cold mix asphalt to be consistent with surroundings. The monitoring well was installed in accordance with the Minimum Construction Requirements for Water Bores in Australia (ACNWC 2012).
Well survey	The relative height of the top of casings (TOC) were surveyed using a dumpy level and measuring staff to the nearest 0.01 m.
Well development	The well was developed immediately after installation via removal of a minimum of 10 well volumes of groundwater.

Groundwater sampling methodology is summarised in Table 3-3.

Table 3-3 Groundwater sampling methodology

Activity	Details
Volatile gas measurement	Volatile gas measurements were recorded using a PID from the top of the well casing immediately after opening each well.
Well gauging	Prior to purging, groundwater surface water levels (SWL) were recorded for all wells using an interface probe, with all measurements taken from the TOC. In addition, the presence or absence of phase-separated hydrocarbon (PSH) (also known as light non-aqueous phase liquid (LNAPL)) was recorded.
Groundwater sampling	Groundwater wells were purged with a peristaltic pump using a low flow purging technique with low density polyethylene tubing which was decontaminated between locations. Groundwater field parameters (temperature, dissolved oxygen (DO), pH, oxidation-reduction potential (ORP) and electrical conductivity (EC)) were collected during purging. Groundwater samples were collected following purging since low flow purging results in minimal disturbance to the water column and aquifer. Field parameters were collected during sampling. Samples were collected in laboratory-provided sampling containers (pre-preserved where appropriate) and filled to minimise headspace. Samples collected for metals analysis were field filtered through a dedicated 0.45 µm pore size high volume filter with syringe attachment. The syringe attachment was decontaminated between samples to minimise cross contamination.

Activity	Details
	All samples were labelled with an indelible marker pen on water resistant labels attached to the sample bottles. Each label contained the project number, sample location, sampler initials and sample collection date. Groundwater gauging and sampling records are provided in Appendix E. Equipment calibration certificates are provided in Appendix F.
Decontamination	All non-dedicated gauging and sampling equipment (i.e. interface probe peristaltic pump, tubing and syringe attachment) was decontaminated between sampling locations to limit cross contamination. Decontamination involved cleaning with a solution of pH neutral phosphate free detergent and water followed by a rinse with potable water.
QA/QC	An intra-laboratory field duplicate sample (QW1 – duplicate of MW4) was collected for analysis. Intra laboratory duplicates comprise a single sample that is divided into two separate sampling containers. Both samples are sent anonymously to the primary laboratory. Intra-laboratory duplicates provide an indication of the analytical precision of the laboratory, but are inherently influenced by other factors such as sampling techniques and sample media heterogeneity.

3.3.6 Task 6: Ambient air sampling

GHD conducted ambient air sampling using three 6 litre silonite canisters with flow control devices in three different locations to assess the potential for vapour intrusion from volatilisation of contaminants in the generator sump, and possible impacts to human health (site workers and visitors). Locations (as shown on Figure 2, Appendix A) and duration of sampling are summarised as follows:

- One canister labelled 'one hour pit' located on the ground adjacent to the sump for a duration of one hour.
- One canister labelled 'eight hour pit' located on the ground adjacent to the sump for a duration of eight hours.
- One canister labelled 'eight hour bench' located on a bench at chest height, in the workshop adjacent to the office at the rear of the powerhouse for a duration of 8 hours.

It was reported by site staff that the odour from the sumps was more intense on Monday mornings, following the closure of the powerhouse building over the weekend (and assumed reduced ambient air exchange). Accordingly, the air sampling was targeted to a Monday morning. It was noted during this investigation that the doors to the powerhouse had been opened for approximately 10 minutes at 7:00 am (on the Monday) and then reclosed. Air sampling commenced at 10:15 am. The doors to the powerhouse were re-opened at 11:15 and remained open for the duration of the sampling (until 6:15 pm). This is considered to simulate worst case conditions (closed doors for the one hour sample after the weekend) and a normal 8 hour working day with some ventilation. Samples at ground level near the potential vapour sources should also be considered worst case, with the sample at breathing height (eight hour bench) more representative of inhalable concentrations of the CoPC.

3.3.7 Fieldwork program

A summary of the fieldwork program completed by GHD is provided in Table 3-4.

Table 3-4 Summary of fieldwork program

Date	Activity
9 March 2015	Air sampling Surface water/plumbing assessment Underground service assessment Interviews with former site staff 'Drilling' (using hand auger and push-tube techniques) and soil sampling at BH11, BH12, BH13 and BH14.
10 March 2015	Monitoring well installed in BH14 (MW4) Development of MW4.
11 March 2015	Purging and sampling of previously installed monitoring wells MW1S, MW1D, MW2 and MW3. Purging and sampling of newly installed monitoring well MW4. Survey of newly installed monitoring well MW4.

3.4 Analytical schedule

GHD sent all primary samples to ALS. This laboratory is NATA registered for the testing program proposed. Certified laboratory documentation including signed COC forms, sample receipt notifications, certificates of analysis and QC and quality control interpretation reports are provided in Appendix G.

The analytical program is presented below in Table 3-5.

Table 3-5 Sampling analytical program

Borehole location	Analysis (number of primary samples)			
	TRH	BTEXN	PAH	Metals
Soil Analysis				
BH11	2	2	2	2
BH12	3	3	3	3
BH13	2	2	2	2
BH14	2	2	2	2
Total	**9**	**9**	**9**	**9**
Groundwater Analysis				
MW1S	1	1	-	1
MW1D	1	1	-	1
MW2	1	1	-	1
MW3	1	1	-	1
MW4	1	1	-	1
Total	**5**	**5**	**0**	**5**
Ambient Air Analysis				
Bench_8	TO15R (VOCs) and volatile TRH			
Pit_8	TO15R (VOCs) and volatile TRH			
Pit_1	TO15R (VOCs) and volatile TRH			
Total	**3**			

Notes

Metal analysis for groundwater samples was for dissolved metals

Metals included arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn).

3.5 Laboratory QC procedures

Laboratory QC procedures used during the project are summarised in Table 3-6. Nominal acceptance limits are outlined in Section 3.2.7.

Table 3-6 Laboratory QC procedures

Procedure	Details
Laboratory duplicate samples	Duplicate sub-samples are collected from one sample submitted for analytical testing at a rate equivalent to one in twenty samples per analytical batch, or one sample per batch if less than twenty samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the test result.
Spiked samples	An authentic field sample is 'spiked' by adding an aliquot of known concentration of the target analyte(s) prior to sample extraction and analysis. A spike documents the effect of the sample matrix on the extraction and analytical techniques. Spiked samples are analysed for each batch where samples are analysed for organic chemicals of concern.
Laboratory control sample (LCS)	A reference standard of known concentration is analysed along with a batch of samples. The LCS provides an indication of the analytical accuracy and the precision of the test method and is used for inorganic analyses.
Surrogate standard/spikes	These are organic compounds which are similar to the analyte of interest in terms of chemical composition, extractability, and chromatographic conditions (retention time), but which are not normally found in environmental samples. These surrogate compounds are 'spiked' into blanks, standards and samples submitted for organic analyses by gas-chromatographic techniques prior to sample extraction. Surrogate Standard/Spikes provide a means of checking that no gross errors have occurred during any stage of the test method leading to significant analyte loss.
Method blank	Usually an organic or aqueous solution that is as free as possible of analytes of interest to which is added all the reagents, in the same volume, as used in the preparation and subsequent analysis of the samples. The reagent blank is carried through the complete sample preparation procedure and contains the same reagent concentrations in the final solution as in the sample solution used for analysis. The reagent blank is used to correct for possible contamination resulting from the preparation or processing of the sample.

4. Basis for assessment

As with the initial DSI, the overarching reference used in this assessment was the NEPM (2013).

For the purpose of this assessment, soil and groundwater analytical results have been compared against investigation levels appropriate for a commercial/industrial land use setting. Ecological screening levels (ESLs), ecological investigation levels (EILs) and groundwater investigation levels (GILs) for freshwater were not deemed applicable to the site due to the lack of amenity for terrestrial ecology and the nearest receiving water ecosystem being approximately 350 metres west of the Site.

Air sampling analytical results were compared to workplace exposure standards for airborne contaminants provided by Safe Work Australia (2011). An exposure standard is defined by Safe Work Australia as "*an airborne concentration of a particular substance in the worker's breathing zone, exposure to which, according to current knowledge, should not cause adverse health effects nor cause undue discomfort to nearly all workers. The exposure standard can be of three forms; time-weighted average (TWA), peak limitation, or short term exposure limit (STEL)*'.

It should be noted that the Safe Work Australia exposure standards are not part of the *Contaminated Land Management Act 1997* framework, and are not endorsed by the NSW EPA. Nevertheless, in this context, where the primary contamination vapour emissions are associated with site operations (eg sump and other sources which have not resulted from releases of contamination into the soil or groundwater), occupational exposure standards are considered appropriate to assess the potential for adverse health effects to workers on the site.

The 8-hour time-weighted average (TWA) means the average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week. As such, the TWA is lower than the STEL, and has been adopted as the screening criterion for the identified contaminants of potential concern.

The nominated assessment criteria are presented in Table 4-1.

Table 4-1 Human health screening and investigation levels reference

Title	Level	Abbr.	Reference	Use
Soil HSLs Health screening levels for vapour intrusion	Commercial / industrial Intrusive Maintenance Worker (Shallow Trench)	HSL D Intrusive Maintenance Worker (Shallow Trench)	Schedule B1 Table 1A(3) CRC Care Technical Report No. 10 Table A4	Assessment of petroleum hydrocarbon concentrations in on-site soils. Sand criteria used as conservative approach and due to presence of fill and/or sand at various layers across site
Soil HILs (Health investigation levels)	Commercial / industrial	HIL D	Schedule B1 Table 1A(1)	Assessment of metals and PAHs in soil
Soil Management limits	Commercial and industrial	Commercial management limit	Schedule B1 Table 1B(7)	Assessment of petroleum hydrocarbon concentrations in on-site soils (subsequent to assessment against HSLs)
Groundwater HSLs for vapour intrusion	Commercial / industrial	HSL D	Schedule B1 Table 1A(4)	Assessment of petroleum hydrocarbon concentrations in on-site groundwater. Sand criteria used as conservative approach and due to presence

Title	Level	Abbr.	Reference	Use
				of fill and/or sand at various layers across site
Groundwater GILs (Groundwater investigation levels)	Drinking water	Drinking water GIL	Schedule B1 Table 1C	For comparison purpose only, in the case of groundwater extraction for potential potable use. Assessment of petroleum hydrocarbons, metals and PAHs in groundwater.
Occupational Exposure Standards (Air)	8 hour time weighted average (TWA)	TWA	Safe Work Australia Workplace Exposure Standards For Airborne Contaminants	TWA values for chronic exposure of workers to chemicals used inside the powerhouse building.

5. Results and discussion

5.1 Surface water ingress/egress

As reported in the initial DSI, the water levels within the sumps have been noted to fluctuate with periods of dry weather (water levels within the sumps decrease) and periods of rainfall (water levels within the sumps increase). In 2014, during an attempt to remove the fluid in the sump, approximately 18,000 litres (L) was pumped out and disposed of, however the fluid reportedly recovered within several months. A perched groundwater bearing zone was identified in the fill material beneath the powerhouse slab at a depth of approximately 1.6 m bgl. This appeared to be localised to the former powerhouse structure.

To assess the potential causes of the fluctuations of water within the sumps and source of the water in the perched groundwater bearing zone, a plumber and underground service locator were engaged to assess surface water runoff, drains and plumbing around the site to identify likely sources of surface water ingress/egress under the powerhouse slab.

Site drainage observations (relevant to the potential ingress of water into the generator sumps) are presented in Figure 4, Appendix A. Photographs are presented in Appendix B. The investigation found a large percentage of the stormwater system was malfunctioning causing a concentration of surface water (and subsequent infiltration) upgradient of the generator sumps. Compounding factors include:

- Sedimentation of a channel drain along the eastern wall and southern wall of the power house (Photographs 1 to 3).
- Partially blocked discharge of the channel drain along the eastern wall of the power house, flowing to the north (Photograph 2).This blockage is possibly to prevent the escape of a dog in the residential property.
- Carport gutter drain broken and misaligned at/above ground level, discharging onto the grass south-east of the power house (Photograph 4).
- Discharge of the power house gutter drain into the channel drain along the eastern wall of the power house (Photograph 2).
- Former stormwater pipe (unknown flow) broken (ended but not capped) where concrete residential driveway had been constructed (north of the residence). Potentially discharging near-surface and contributing to saturated ground conditions (Photograph 5).
- Potential seepage of sewer main present east of the power house – considered unlikely as no putrid odours noted within the residential yard or generator sumps.
- Possible overflow of residential gutter drains.
- Likely high infiltration of rainfall in the residential yard (grassed).
- Infiltration of rainfall into the gravel beds from front office building, upgradient of the residential yard and power house – contributing to saturated ground conditions.

5.2 Former fuel tank status

Anecdotal evidence was provided from site staff indicating that the former fuel tanks had been above ground storage tanks (ASTs) located in an uncovered concrete bund, which was confirmed with a photograph taken in 1984 (Photograph 7, Appendix B). Site staff indicated that the ASTs had been removed. The removal of the ASTs and associated fuel lines and the presence of an underground concrete bund was confirmed using GPR.

5.3 Subsurface conditions

5.3.1 Soil

Borehole logs are presented in Appendix C. Sampling locations are shown on Figure 2, Appendix A.

The soil profile across the Site generally consisted of gravel, sand and clay fill material from surface to depths of approximately 0.8 m bgl underlain by sandy clays and clays to approximately 4 m blg (ranging from 3.6 to 5.1 mbgl) and weathered rock. Rock was encountered in borehole BH14 at a depth of 6.5 m bgl.

Volatile organic compounds detected with the PID were generally low, with recorded values in BH11, BH13 and BH14 below 3 parts per million (ppm). BH12 had recorded PID values ranging from 0-10.6 ppm, with the highest recorded value occurring at approximately 3 m bgl.

Slight hydrocarbon odour was noted from a depth of 0 to 0.3 m bgl in BH13. Moderate hydrocarbon odours and staining were noted in boreholes BH12 and BH14 at varying depths between 0.8 and 3.2 m bgl.

5.3.2 Groundwater field parameters and observations

Well Development

Water purged from MW4 during development was described as being clear and no evidence of hydrocarbon odour or sheen was noted.

Well Sampling

Water from groundwater wells during purging and sampling was generally described as being clear and no obvious hydrocarbon odours, sheens or LNAPL were noted. Groundwater PID readings, field parameters and observations obtained during sampling are summarised in Table 5-1.

PID readings were taken from the head space of each monitoring well immediately upon opening the sealed cap for sampling. A maximum PID reading of 1.6 ppm was noted in MW4 (1.6 ppm).

Recorded groundwater field parameters were summarised as follows:

- pH of the deeper groundwater bearing zone (MW1D, MW2, MW3 and MW4) appeared relatively neutral, ranging from 7.1 to 7.3. Shallow perched groundwater located within the footprint of the powerhouse reported an alkaline pH of 9.0.
- Temperature of the groundwater in the monitoring wells beneath the powerhouse slab (MW1S and MW1D) and down-gradient of the site (MW2, MW3 and MW4) averaged 17.9 °C and 20.9 °C, respectively.
- EC of the deeper groundwater ranged from 477 to 567 µS/cm. Shallow perched groundwater located within the footprint of the powerhouse reported an EC of 328 µS/cm. All values are considered to be consistent with 'fresh' water.
- DO of the deeper groundwater ranged from 0.29 to 2.83 mg/L. Shallow perched groundwater located within the footprint of the powerhouse reported a DO reading of 0.30 mg/L.
- Redox potential at MW 1D, MW3 and MW4 ranged from 139 to 265 mV, whereas at MW2 redox potential was -230 mV. Shallow perched groundwater located within the footprint of the powerhouse reported a redox potential reading of -202 mV.

These results were relatively consistent with those recorded in November 2014.

5.3.3 Groundwater levels and flow direction

Following installation of the new monitoring well (MW4), the TOC elevation was surveyed relative to MW2 and MW3 to enable assessment of the groundwater flow direction. The survey results were used to calculate relative groundwater elevations at each monitoring well, as summarised in Table 5-1. The standing water level (SWL) in MW1D, MW2 and MW3 was approximately 1.3 m higher than recorded in November 2014, likely reflecting the increase in seasonal rainfall during this period. The SWL in the shallow, perched aquifer (MW1S) was the same as recorded in November 2014.

The updated groundwater contour flow diagram is presented in Figure 3, Appendix A. The inferred groundwater contour plan was interpolated using 'Surfer' software. As inferred from the November 2014 data, the groundwater is inferred to flow in a westerly direction, towards Rocky Ponds Creek. Perched groundwater encountered at monitoring location MWS1, within the footprint of the former powerhouse, was not used in the assessment of groundwater flow direction.

No LNAPL was observed during groundwater gauging (or sampling) and therefore no groundwater levels required adjustment.

Table 5-1 Groundwater field parameters and observations

Well	Gauging Date	Relative TOC (m)	SWL (mbTOC)	Relative SWL (m)	PID (ppm)	Temperature (°C)	pH (pH units)	Electrical Conductivity (µS/cm)	Dissol. Oxygen (mg/L)	Redox Potential (mV)
MW1S	11/3/2015	100.00	1.63	98.37	0.2	18.5	9.0	328	0.30	-202
MW1D	11/3/2015	99.98	5.20	94.78	0.0	17.3	7.3	477	1.48	139
MW2	11/3/2015	99.21	4.77	94.44	0.1	20.6	7.2	497	0.29	-230
MW3	11/3/2015	99.13	4.68	94.45	0.6	20.7	7.1	557	2.83	213
MW4	11/3/2015	99.16	4.57	94.59	1.6	21.4	7.1	567	1.82	265

5.4 Analytical results

5.4.1 Soil results

The soil analytical results are provided in Appendix G and summarised in Table 1, Appendix D.

Hydrocarbons

BTEX concentrations were all below the LOR hence below the nominated HSL D (commercial/industrial) assessment criteria.

Concentrations of all TRH fractions were below the nominated HSL D (commercial/industrial) and management limit assessment criteria in all samples and below the LOR in all samples except:

- BH12_3.7-3.9, which recorded TRH concentrations of 720 and 960 mg/kg for F2 and F3, respectively.

- BH13_0.05-0.15, which recorded TRH concentrations of 160 mg/kg for F3.
- BH14_0.8-1.0, which recorded TRH concentrations of 100 and 260 mg/kg for F2 and F3, respectively.

Heavy metals

Concentrations of all metals were below the nominated HIL D (commercial/industrial) assessment criteria. Analytical results for individual metals are summarised as follows:

- Arsenic was reported above the LOR in one sample (BH13_0.05-0.15) at a concentration of 9 mg/kg.
- Cadmium was reported below the LOR in all samples.
- Chromium (III+VI) was reported above the LOR in all samples at concentrations ranging from 7 to 286 mg/kg.
- Copper was reported above the LOR in all samples at concentrations ranging from 12 to 113 mg/kg.
- Lead was reported above the LOR in seven samples at concentrations ranging from 5 to 74 mg/kg.
- Mercury was reported above the LOR in three samples at concentrations ranging from 0.1 to 0.4 mg/kg.
- Nickel was reported above the LOR in all samples at concentrations ranging from 5 to 481 mg/kg.
- Zinc was reported above the LOR in all samples at concentrations ranging from 28 to 548 mg/kg.

PAHs

Total PAH concentrations were above the LOR in three samples (but below the adopted assessment criteria of 4,000 mg/kg):

- BH13_0.05-0.15 (123 mg/kg)
- BH13_0.3-0.4 (13.8 mg/kg)
- BH14_0.8-1.0 (1.1 mg/kg)

Benzo(a)pyrene (TEQ) concentrations were above the LOR in two samples (but below the adopted assessment criteria of 40 mg/kg):

- BH13_0.05-0.15 (25.7mg/kg)
- BH13_0.3-0.4 (1.5 mg/kg)

Naphthalene was below the LOR in all samples analysed.

5.4.2 Soil discussion

The analytical results for CoPC in the soil indicated:

- The nominated commercial/industrial assessment criteria were not exceeded for any CoPC in any of the samples analysed from the additional boreholes in the vicinity of the former ASTs.
- Elevated (i.e. above ambient but below assessment criteria) TRH concentrations in BH12_3.7-3.9, BH13_0.05-0.15 and BH14_0.8-1.0 are likely due to former site activities. TRH concentrations in the F3 and F4 range corresponded with odour and staining noted

during drilling and are consistent with the impact expected from diesel or oil. The TRH C_{10}-C_{16} concentration noted during the initial DSI in BH10_2.45-2.5 (2,710 mg/kg) was higher than any TRH concentration noted during the supplementary DSI. The elevated (but below assessment criteria) concentrations in the soil were delineated to the west (with concentrations less than the LOR noted in BH3 during the initial DSI) and do not appear to be impacting the groundwater, as discussed in Section 5.4.3.

- Elevated (but below assessment criteria) chromium, nickel and zinc concentrations noted in several samples may be due to former site activities. The metal concentrations noted in these samples were consistent with concentrations noted in BH10, during the initial DSI. Other metal concentrations are likely indicative of background levels.
- Elevated (but below assessment criteria) concentrations of PAHs noted in BH13 and in BH14 indicate a potential, minor impact from former site use. The PAH concentrations noted in these samples were consistent with concentrations noted in BH10, during the initial DSI.

5.4.3 Groundwater results

Groundwater analytical results for the CoPC are provided in Appendix G and summarised in Table 2, Appendix D.

Hydrocarbons

Concentrations of all TRH fractions during the supplementary DSI were below the LOR and nominated HSL assessment criteria with the exception in the fraction F3, which was reported above the LOR in MW1S at 320 µg/L. The duplicate of MW1S reported an F3 concentration of 660 µg/L and a F4 concentration of 190 µg/L.

Decreases in all TRH concentrations (above the LOR) were noted between the December 2014 and March 2015 sampling rounds. Notably:

- F3 (1,830 µg/L) and F4 (530 µg/L) in MW1S decreased to 660 µg/L and 190 µg/L respectively (as noted in duplicate sample QW3)
- F2 (320 µg/L) in MW3 decreased to <100 µg/L.

Heavy metals

- Arsenic was reported above the LOR in MW1S only (0.003 mg/L). This concentration was consistent with the concentration recorded in November 2014 (0.004 mg/L).
- Copper was reported above the LOR in all monitoring wells except MW1D, with a maximum concentration of 0.006 mg/L. These concentrations were consistent with the concentrations recorded in November 2014.
- Nickel was reported above the LOR in all monitoring wells except MW1D, with a maximum concentration of 0.008 mg/L.
- Zinc was reported above the LOR in all monitoring wells with a maximum concentration of 0.011 mg/L.
- Cadmium, Chromium (III+VI), lead and mercury were reported below the LOR in all monitoring wells.

Other analytes

As the concentrations of PAHs, phenols, volatile and semi-volatile organic compounds, organochlorine/organophosphate pesticides, herbicides, polychlorinated biphenyls, chlorinated

hydrocarbons and other potential CoPCs noted during the initial DSI were low (generally <LOR) they were not analysed during the supplementary DSI.

5.4.4 Groundwater discussion

The analytical results for CoPC in the groundwater indicated:

- TRH F3 (320/660 µg/L) and F4 (<100/190 µg/L) concentrations noted in MW1S/QW3 were consistent with the impact expected from diesel and oil, however this impact did not appear to be migrating to the deeper aquifer in MW1D. It is likely that this impact is from the egress of water from the generator sumps (based on similar analytes and anecdotal evidence of water level fluctuations in the sumps with rainfall).
- Decreases in TRH concentrations may be due to attenuation, decrease in impact from soil disturbance during the drilling process or seasonal fluctuations (corresponding with a 1.3 m increase in groundwater elevation noted between the sampling events).
- Copper and zinc concentrations were relatively consistent across the site indicating they may be representative of background concentrations.
- Nickel concentrations across the site, particularly in MW1S (0.006 mg/L) and MW4 (0.008 mg/L) and arsenic concentrations in MW1S (0.003 mg/L) are possibly due to former site activities.

5.4.5 Air sampling results

Air sampling analytical results for the CoPC are provided in Appendix G and summarised in Table 3, Appendix D.

All results for the air samples indicated concentrations significantly below Safe Work Australia TWA occupational exposure standards, and the vast majority of chemicals were below the laboratory detection limit.

The only detections were as follows:

- Toluene (all three samples up to 16.2 ug/m^3 compared to a TWA of 191,000 ug/m^3)
- Methyl ethyl ketone (MEK, in Pit_1 at 2.6 ug/m^3 compared to the TWA of 445,000 ug/m^3)
- Acetone (all three samples up to 8.5 ug/m^3 compared to the TWA of 1,185,000 ug/m^3)
- Carbon disulphide (Pit_8 at 5.9 ug/m^3 compared to the TWA of 31,000 ug/m^3)
- Chloromethane (Bench_8 and Pit_1 up to 1.4 ug/m^3 compared to the TWA of 103,000 ug/m^3)
- Cyclohexane (Pit_8 and Pit_1 up to 9.3 ug/m^3 compared to the TWA of 350,000 ug/m^3)
- Heptane (Pit_8 and Pit_1 up to 9 ug/m^3 compared to the TWA of 1,640,000 ug/m^3)
- Hexane (Pit_8 and Pit_1 up to 14.1 ug/m^3 compared to the TWA of 72,000 ug/m^3)
- Iso-propanol (all three samples up to 3.9 ug/m^3 compared to TWA of 983,000 ug/m^3)
- Trichloroethene (Pit_8 at 5.4 ug/m^3) compared to the TWA of 54,000 ug/m^3)
- Tetrachloroethene (Pit_8 at 7.4 ug/m^3 compared to the TWA of 340,000 ug/m^3)

5.4.6 Air sampling discussion

The trace concentrations of the above chemicals are not unexpected for an industrial facility, and possible sources would include current and/or historical use of fuels, solvents and other chemical agents.

5.5 Waste classification

As part of the supplementary DSI a waste classification of soil from drill cuttings generated from the soil investigation was carried out. The soil was stored in two drums. Details are presented in Appendix H. Waste classification is required for the disposal of waste in accordance with the *Protection of the Environment Operations (POEO) Act* and its associated regulations.

Exceedances of general solid waste thresholds (CT1) were noted for nickel (9 samples) and benzo(a)pyrence (2 samples). Exceedances of restricted solid waste thresholds (CT2) were noted for nickel (2 samples) and benzo(a)pyrene (1 sample).

Accordingly toxicity characteristics leaching procedure (TCLP) was carried out for the three samples exceeding CT2 thresholds. TCLP results indicated all analyte concentrations met general solid waste assessment (SCC1 and TCLP1) thresholds with the exception of benzo(a)pyrene for BH13_0.05-0.15 (17.5 mg/kg) which fell within restricted waste classification (between SCC1 of 10 mg/kg and SCC2 of 23 mg/kg). Applying a 95% upper confidence limit analysis of all benzo(a)pyrene concentrations resulted in a concentration of 16.5 mg/kg which still fell within restricted waste classification.

The waste classification (based on comparison of investigation sample results with the waste classification thresholds) found that the soil material is classified for off-site disposal as restricted solid waste. The material should be disposed of at a waste facility licensed to accept restricted solid waste, in accordance with the NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classifying Waste*.

5.6 QA / QC Results

5.6.1 Field duplicates

Soil and groundwater duplicate RPD results are presented in Table 4 and Table 5, Appendix D.

In summary, the RPD results for both soil and groundwater intra-laboratory duplicate pairs were within the acceptance criteria with the exception of one exceedance for copper in soil for BH12_1.0-1.1 where one concentration was greater than 10 times the laboratory LOR, resulting in an elevated RPD. This exceedance was not considered to affect the assessment of results and is likely to be associated with variation in relatively low concentrations or soil heterogeneity.

Hence the soil and groundwater sampling programs and analytical data were considered to meet the appropriate QA/QC standards, with consideration given to potential variance due to soil heterogeneity.

5.6.2 Laboratory program

The NATA certified laboratory utilised for this project (ALS) undertook their own QA and QC procedures however, GHD has reviewed the internal laboratory control data provided within the laboratory reports, which are attached as Appendix G.

All laboratory QA and QC data was within acceptable limits.

5.6.3 QA/QC summary

Overall, it is considered that the QA/QC results indicate that the data collected as part of this project was valid and of sufficient quality to meet the DQOs specified in Section 3.2.

6. Refined CSM

Following the results of the supplementary DSI, minor refinements to the conceptual site model (CSM) developed during the initial DSI are possible. The CoPC in soil and groundwater beneath the Site remain consistent and are considered to comprise:

- TRH
- Metals (predominantly nickel)

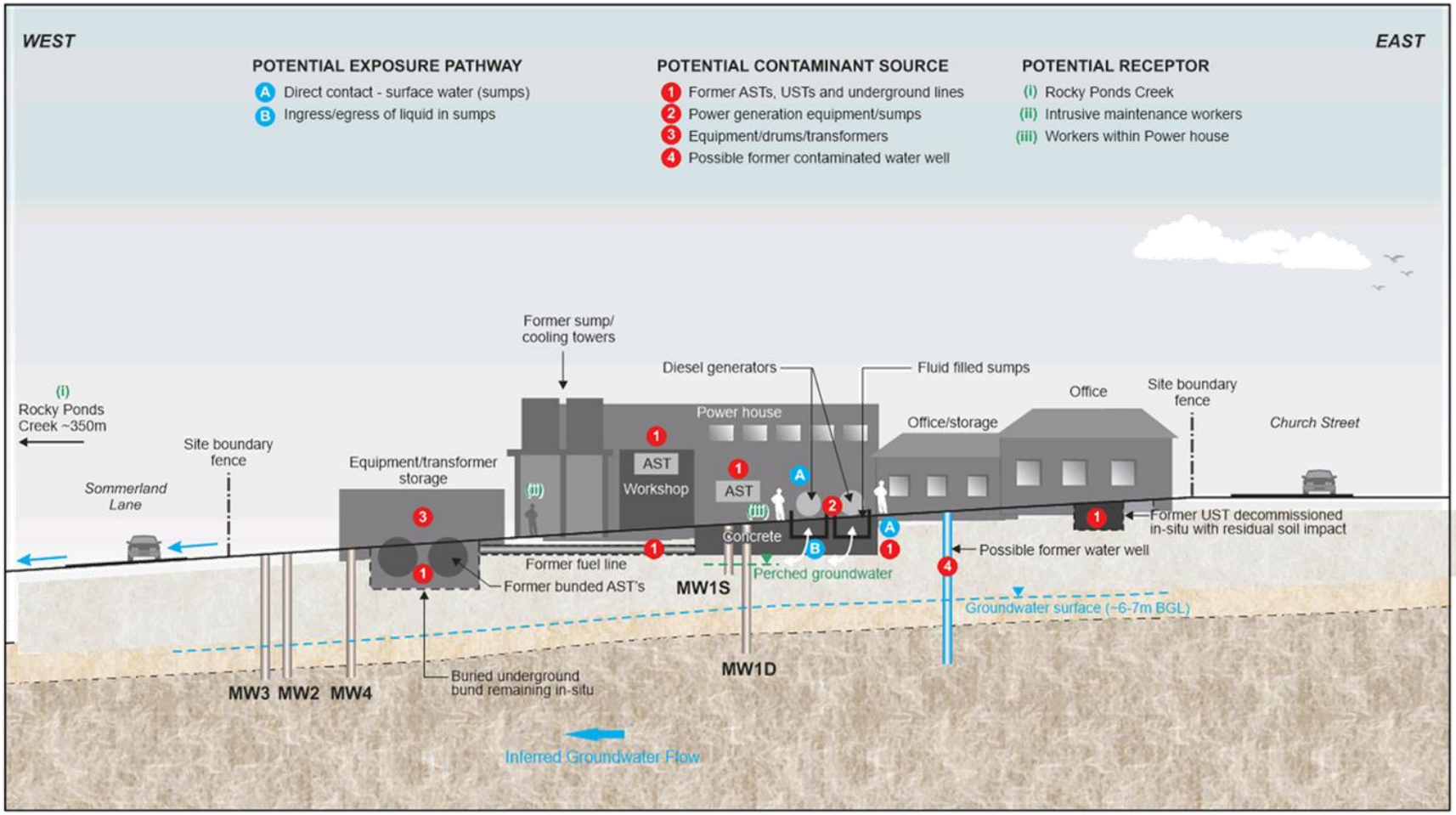
The primary source of the elevated concentrations of CoPC noted in this assessment is likely to be attributed to the historical operation of the former power station and associated infrastructure. As discussed in Section 5, concentrations of all CoPC in soil and groundwater are below the relevant investigation levels for commercial/industrial land use.

The updated CSM is presented in Table 6-1 and Figure 6-1.

Table 6-1 Refined CSM

Potential Source	Pathway	Receptor	Potential for completeness
Contaminated soils on Site potentially impacted by: Leaks from USTs / ASTs and associated underground infrastructure Historic leaks or spills from power generation equipment including generators and associated sumps Leaks or spills from current or historically stored equipment or drums	Volatilisation to indoor air and subsequent inhalation	On-site commercial workers and visitors	Unlikely due to lack of identified impact and presence of sealed surfaces
	Volatilisation to outdoor air and subsequent inhalation	Intrusive maintenance workers in the vicinity of the potentially impacted soil	Unlikely due to lack of identified impact exceeding assessment criteria
	Direct contact	On-site commercial workers and visitors	Unlikely due to lack of identified impact exceeding assessment criteria
		Intrusive maintenance workers in the vicinity of the potentially impacted soil	Unlikely due to lack of identified impact exceeding assessment criteria
Contaminated surface water (within sumps) on Site potentially impacted by: Leaks from USTs and associated underground infrastructure Historic leaks or spills from power generation equipment including generators Leaks or spills from current or historically stored equipment, ASTs or drums	Volatilisation to indoor and outdoor air and subsequent inhalation	On-site commercial workers and visitors	Unlikely given very low detections of CoPC in ambient air, which were orders of magnitude below chronic exposure limits for an 8 hour working day.
	Direct contact	On-site commercial workers and visitors	Possible, given elevated TRH and metal concentrations in surface water in the generator sumps, however access to the surface water is limited. Appropriate WHS practices should be implemented to manage direct contact to liquids in the sumps.
	Ingress/egress of liquid in sumps	On-site Soil	Likely impact on soil beneath the powerhouse slab due to surface water ingress/egress. Further assessment would be required following decommissioning of infrastructure. Unlikely elsewhere onsite.
		Offsite commercial and residential users around Sommerlad lane. Ecological and recreational receptors of Rocky Ponds Creek, approximately 350 metres west of the Site	Unlikely

Potential Source	Pathway	Receptor	Potential for completeness
Separated or dissolved phase petroleum hydrocarbons in groundwater beneath the Site and possible lateral migration off site	Volatilisation to indoor air and subsequent inhalation	On-site commercial workers and visitors Offsite commercial users including visitors to the carwash to the north of the Site Staff and visitors to the Information Centre to the north of the Site Staff and visitors to the commercial properties located to the west of Sommerlad Lane Staff and visitors to the commercial properties located to the south of the Site Residents of and visitors to residential properties to the south of the Site	Unlikely for workers within buildings due to sealed surfaces and relatively low concentrations of CoPC in groundwater and lack of LNAPL noted. Unlikely for offsite users and visitors due to depth of groundwater, presence of overlying rock and relatively low concentrations noted.
	Volatilisation to outdoor air and subsequent inhalation	Intrusive maintenance workers Site visitors Site workers Offsite users around Sommerlad and Fitzhardinge Lanes	Unlikely due to depth of groundwater, presence of overlying rock and relatively low concentrations noted.
	Direct Contact (accidental ingestion)	Intrusive maintenance workers in the vicinity of the potentially impacted groundwater e.g. utility trenches	Unlikely due to depth of groundwater, presence of overlying rock and relatively low concentrations noted.
	Lateral migration in groundwater	Ecological and recreational receptors of Rocky Ponds Creek, approximately 350 metres west of the Site	Unlikely due to relatively low concentrations noted and distance to the creek.
		Potable groundwater extraction	Unlikely due to lack of registered bores and concentrations less than the GIL drinking water guidelines.



Paper Size A4

Conceptual diagram only - not to scale

LEGEND

Sandy clay
Weathered rock
Rock
Surface water runoff

N

Essential Energy
Glen Innes Field Service Centre (GLEN 1251)

Refined Conceptual Site Model

Job Number 22-17578
Revision A
Date 22 Dec 2014

Figure 6-1

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Created by: bwatt

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7. Conclusions

With reference to the objectives in Section 1.1 and in accordance with the limitations set out in Section 10 the findings of this targeted DSI are summarised as follows:

Surface water ingress/egress

A large percentage of the onsite stormwater system was malfunctioning causing a concentration of surface water (and subsequent infiltration) upgradient of the generator sumps. This is likely the cause of the fluctuations of water within the sumps and source of the water in the perched groundwater bearing zone noted beneath the powerhouse slab.

Former fuel tank status

The former fuel tanks located adjacent to the shipping containers in the north west portion of the Site were confirmed to be ASTs located in an uncovered concrete bund. The ASTs had been removed but the bund remains insitu.

Potential soil impact adjacent to former AST

Additional investigation of soil in the vicinity of the former ASTs formerly located near the shipping containers indicated:

- The nominated commercial/industrial assessment criteria were not exceeded for any CoPC in any of the samples analysed from the additional boreholes (BH11, BH12, BH13 and BH14).
- Elevated (i.e. above background but below adopted assessment criteria) TRH concentrations at various depths in BH12, BH13 and BH14 are likely due to former site activities. TRH concentrations in the F3 and F4 range corresponded with odour and staining noted during drilling and are consistent with the impact expected from diesel or oil. The elevated (but below assessment criteria) concentrations in the soil were delineated to the west and do not appear to be impacting the groundwater.
- Elevated (but below adopted assessment criteria) PAH, chromium, nickel and zinc concentrations noted in several samples may be due to former site activities. The concentrations noted in these samples were consistent with concentrations noted during the initial DSI.
- The waste classification of soil from drill cuttings generated from the investigations found that the soil material is classified for off-site disposal as restricted solid waste, on the basis of benzo(a)pyrene concentrations in soil from BH13. The material should be disposed of at a waste facility licensed to accept restricted solid waste, in accordance with the NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classifying Waste*.

Groundwater analysis and trends

The SWLs in MW1D, MW2 and MW3 were approximately 1.3 m higher than recorded in November 2014, likely reflecting the increase in seasonal rainfall during this period. The SWL in the shallow, perched aquifer (MW1S) was the same as recorded during previous sampling in December 2014. The inferred groundwater flow direction was confirmed to be to the west, towards Rocky Ponds Creek.

The nominated commercial/industrial assessment criteria or groundwater investigation level (GIL) assessment criteria were not exceeded for any CoPC in any of the groundwater samples analysed. An assessment of the concentrations (both spatial and temporal) trends of CoPC identified in the DSI, in the groundwater indicated:

- TRH F3 (320/660 µg/L) and F4 (<100/190 µg/L) concentrations noted in MW1S/QW3 were consistent with the impact expected from diesel and oil, however this impact did not appear to be migrating to the deeper aquifer in MW1D. It is likely that this impact is from the egress of water from the generator sumps (based on similar analytes and anecdotal evidence of water level fluctuations in the sumps with rainfall).
- Decreases in all TRH concentrations (above the LOR) were noted between the December 2014 and March 2015 sampling rounds. The decreases may be due to attenuation, decrease in impact from soil disturbance during the drilling process or seasonal fluctuations.
- Copper and zinc concentrations were relatively consistent across the site indicating they may be representative of background concentrations.
- Nickel concentrations across the site, particularly in MW1S (0.006 mg/L) and MW4 (0.008 mg/L) and arsenic concentrations in MW1S (0.003 mg/L) are possibly due to former site activities.

Ambient air sampling

Ambient air sampling results did not suggest any evidence of acute risk to site workers for the substances measured. All concentrations of the identified contaminants of potential concern were significantly (generally orders of magnitude) below workplace exposure standards (time weighted average) for airborne contaminants provided by Safe Work Australia.

Duty to report contamination

Following the supplementary DSI, no additional data was obtained that identifies a duty to notify contamination under Section 60 of the CLM Act.

Suitability for use

Potential pathways for exposure to contamination were identified in the conceptual site model, however no soil or groundwater concentrations exceeding the commercial/industrial assessment criteria were noted.

Surface water in the sumps could potentially present a risk from direct contact due to elevated concentrations of TRH and metals, however this is considered more of an operational concern than a site contamination issue, and any direct contact with liquids in the sumps should be managed by appropriate WHS procedures.

Accordingly, based on the data obtained to date, the site is considered suitable, from a contamination perspective, for on-going commercial/industrial land use.

8. Recommendations

In order to reduce potential risk to soil and groundwater from ingress/egress of the fluid contained in the generator sumps, the following recommendations are made:

- Removal of the sump liquid via one or more of the following options:
  - Removal of the two ASTs located within the powerhouse (due to previous history of leakage as reported by site personnel).
  - Removal of generators and impacted surface water within the sumps and filling of sumps with concrete.
  - Removal of all remaining fluid in the generators and sumps and applying a sealant to the sumps to prevent water ingress and egress.
- Minimising surface water ingress under the slab via the following work:
  - Clean out and maintain the channel drain along the eastern wall of the power house, continuing around the bend along part of the southern wall of the power house.
  - Remove the bricks blocking discharge of the channel drain along the eastern wall of the power house, flowing to the north.
  - Repair the carport gutter drain (broken and misaligned at/above ground level).
  - Redirect discharge of the power house southern gutter drain into the western end of the channel drain along the southern wall of the power house.
  - Investigate discharge into the former stormwater pipe broken where concrete residential driveway had been constructed (north of the residence) and redirect any significant flows into operational stormwater system.
  - Ensure residential gutter drains acceptably discharging into the stormwater system i.e confirm acceptable flow (without blockage) during rainfall events.
  - Remove the two infiltration beds located to the east of the site and redirect the gutters into the stormwater system.

In the event that decommissioning of the site and infrastructure is proposed, further investigation of the soil and groundwater beneath the powerhouse may also be required as part of site decommissioning to assess the suitability of the site for redevelopment for an alternative land use.

9. References

ACNWC 2012. *Minimum Construction Requirements for Water Bores in Australia Third Edition*. Austrailan Government National Water Commission.

EPA 2014. *Waste Classification Guidelines Part 1: Classifying Waste*. NSW Environmental Protection Authority, November 2014.

Friebel, E and Nadebaum, P 2011. *Health screening levels for petroleum hydrocarbons in soil and Groundwater. Summary*, CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

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NEPC 2013. *National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended by the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)*, National Environment Protection Council, May 2013.

Safe Work Australia. *Workplace Exposure Standards for Airborne Contaminants*. Available at: http://hsis.safeworkaustralia.gov.au/ExposureStandards, accessed April 2015

10. Limitations

This Environmental (Contamination) Site Assessment ("Report") has been prepared by GHD Pty Ltd ("GHD") for use by Essential Energy for the purpose as stated in Section 1 of the report.

GHD otherwise disclaims responsibility to any person other than Essential Energy arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by GHD and the Report are excluded unless they are expressly stated to apply in this Report.

The services undertaken by GHD in connection with preparing this Report:

- Were limited to those specifically detailed in Section 1 of this Report.
- Were undertaken in accordance with current profession practice and by reference to relevant environmental regulatory authority and industry standards, guidelines and assessment criteria in existence as at the date of this Report.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by GHD when undertaking the services mentioned above and preparing the Report ("Assumptions"), as specified throughout this Report. GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with any of the Assumptions being incorrect except where GHD has been negligent in the adoption of those Assumptions.

GHD has prepared this Report on the basis of information provided by Essential Energy, which GHD has not independently verified or checked ("Unverified Information") beyond the agreed scope of work. GHD expressly disclaims responsibility in connection with the Unverified Information, including (but not limited to) errors in, or omissions from, the Report, which were caused or contributed to by errors in, or omissions from, the Unverified Information.

Subject to the paragraphs in this section of the Report, the opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the time of preparation of this Report and are relevant until such times as the site conditions or relevant legislations changes, at which time, GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with those opinions, conclusions and any recommendations.

No investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site.

The opinions, conclusions and any recommendations in this Report are based on information obtained from, and testing undertaken at or in connection with, specific sampling points and may not fully represent the conditions that may be encountered across the site at other than these locations. Site conditions at other parts of the site may be different from the site conditions found at the specific sampling points.

Investigations undertaken in respect of this Report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this Report.

GHD has considered and/or tested for only those chemicals specifically referred to in this Report, and makes no statement or representation as to the existence (or otherwise) of any other chemicals.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD expressly disclaims responsibility:

- Arising from, or in connection with, any change to the site conditions
- To update this Report if the site conditions change

Except as otherwise expressly stated in this Report GHD makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill material has been imported on to the site at any time, or if any buildings constructed prior to 1970 have been demolished on the site or material from such buildings disposed of on the site, the site may contain asbestos or ACM.

Except as otherwise expressly stated in this Report, GHD makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.

These Disclaimers should be read in conjunction with the entire Report and no excerpts are taken to be representative of the findings of this Report.

To the extent of any inconsistency between this Disclaimer and the terms of any service agreement between Essential Energy and GHD pursuant to which this Report was prepared, the terms of the service agreement will prevail.

Item 7.3

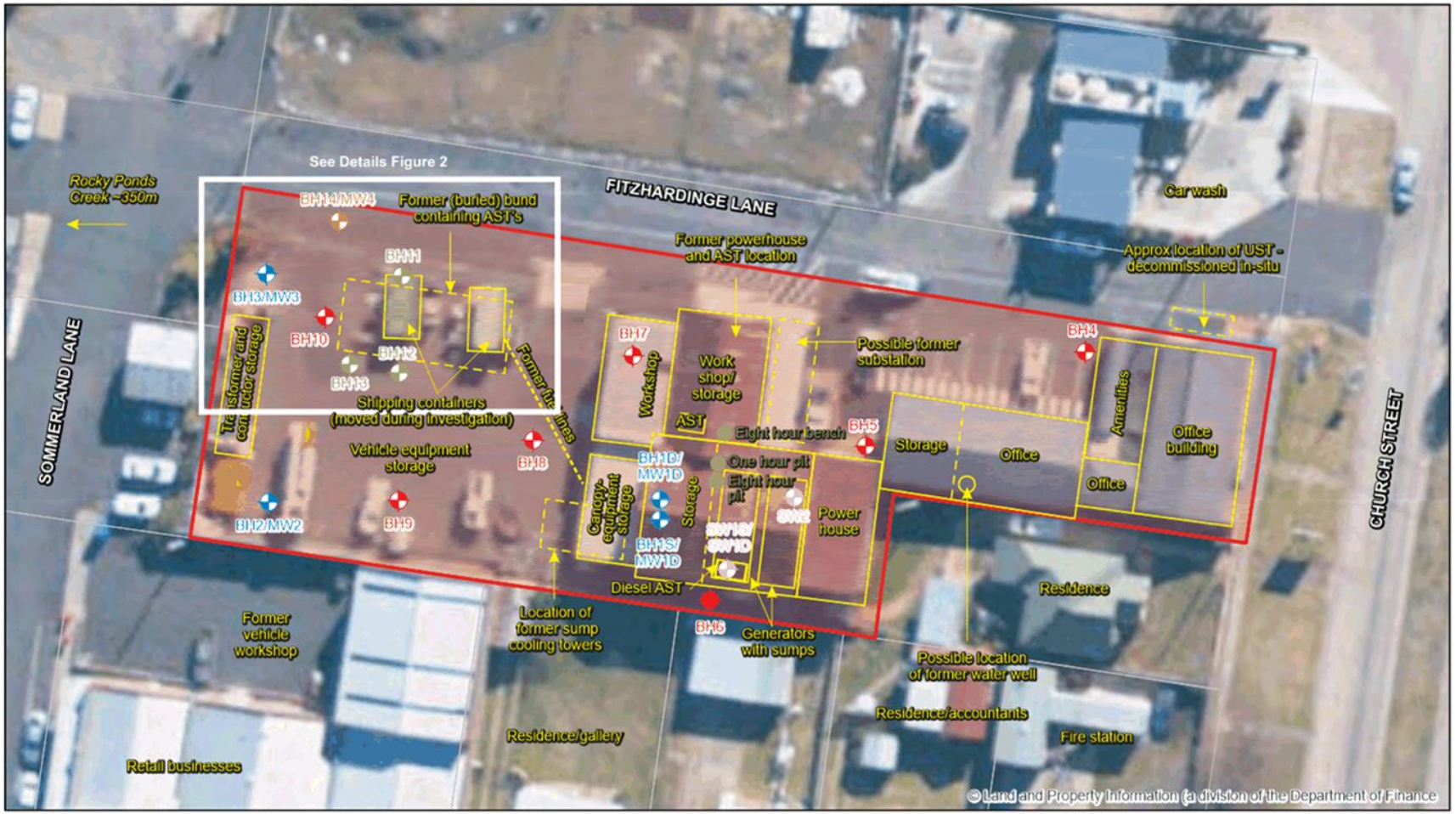
Annexure B

Appendices

Appendix A – Figures

Item 7.3

Annexure B



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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

LEGEND
Site boundary
Cadastre
Borehole/monitoring well location (GHD Nov 2014)
Borehole location (GHD Nov 2014)
Monitoring well location (GHD Mar 2015)
Borehole location (GHD Mar 2015)
Surface water sampling location - generator sumps
Air sampling location
Hand auger location

N

Essential Energy
Glen Innes Field Service Centre (GLEN 1251)

Job Number 22-17578
Revision A
Date 23 Mar 2015

Sampling Locations

Figure 1

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Data source: LPI - DCDB/DTDB/Aerial Imagery, 2012. Created by: bwatt

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Meters
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

LEGEND
Site boundary
Cadastre
Borehole/monitoring well location (GHD Nov 2014)
Borehole location (GHD Nov 2014)
Monitoring well location (GHD Mar 2015)
Borehole location (GHD Mar 2015)
Surface water sampling location - generator sumps
Air sampling location

N

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Sampling Locations - Detail

Job Number 22-17578
Revision A
Date 23 Mar 2015

Figure 2

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Data source: LPI - DCDB/DTDB/Aerial Imagery, 2012. Created by: bwatt

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Item 7.3

Annexure B

Paper Size A4
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Meters
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

LEGEND
Site boundary
Cadastre
Borehole/monitoring well location(GHD Nov 2014)
Borehole location (GHD Nov 2014)
Monitoring well location (GHD Mar 2015)
Borehole location (GHD Mar 2015)
Surface water sampling location - generator sumps
Hand auger location
Groundwater Contour
Groundwater Flow Direction

N

Essential Energy
Glen Innes Field Service Centre (GLEN 1251)

Inferred Groundwater Contours

Job Number 22-17578
Revision A
Date 23 Mar 2015

Figure 3

N:\AU\Launceston\Projects\22\17578\Glen Innes\2117578_LTN_04c_Glen Innes.cdr

Data source: LPI - DCDB/DTDB/Aerial Imagery, 2012. Created by: bwatt

230 Harbour Drive Coffs Harbour NSW 2450 T 61 2 6650 5600 F 61 2 6652 6021 E cfsmail@ghd.com W www.ghd.com

Paper Size A4
0 0.25 5 10
Meters
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

LEGEND
Site boundary
Cadastre
Open channel drain
Roof gutter drain
Water flow
Sediment-filled

N

Essential Energy
Glen Innes Field Service Centre (GLEN 1251)

Job Number 22-17578
Revision A
Date 23 Mar 2015

Site Drainage

Figure 4

N:\AU\Launceston\Projects\22\17578\Glen Innes\2117578_LTN_04d_Glen Innes.cdr

Data source: LPI - DCDB/DTDB/Aerial Imagery, 2012. Created by: bwatt

230 Harbour Drive Coffs Harbour NSW 2450 T 61 2 6650 5600 F 61 2 6652 6021 E cfsmail@ghd.com W www.ghd.com

Appendix B – Photographs

Photographic Log

Site Inspection Photographs

Photograph 1: Sedimentation of channel drain along the eastern wall of the power house, looking south.

Photograph 2: Sedimentation and blockage (possibly for pet restraint) of channel drain along the eastern wall of the power house, looking north. Gutter drain from the power house is seen discharging into the channel drain.

Photograph 3: Sedimentation of channel drain along the southern wall of the power house, looking east.

Photograph 4: Carport gutter drain broken and misaligned at/above ground level, discharging onto the grass south-east of the power house

Photograph 5: Former stormwater pipe (unknown flow) broken (ended but not capped) where concrete residential driveway had been constructed (north of the residence). Potentially discharging near-surface and contributing to saturated ground conditions.

Photograph 6: Infiltration gravel bed to north east of office building, looking west.

1

Photographic Log

	
Photograph 7: Photograph western portion of the site, looking east in 1984. Shows bunded ASTs to left of photograph, transformer storage (in foreground) and power house and sump cooling towers in background.	**Photograph 8:** Western portion of site, looking south. Shows monitoring well MW4 in right foreground and location of buried bund (pink line marking).

Appendix C – Borehole logs

Item 7.3

Annexure B

BOREHOLE LOG BH11

ENVIRONMENTAL - SOIL BORE

Bore ID.: BH11

Page: 1 of 1

Client: Essential Energy
Project: NNSW DSI Additional Works
Project No.: 2217578
Location: 148 Church Street, Glen Innes, NSW.
Date Drilled: 09/03/2015 **to:** 09/03/2015

Drill Co: Numac
Driller: Richard Halliday
Rig Type: Track-mounted Geoprobe
Total Depth (m): 3.6
Diameter (mm): 50

Easting: 0
Northing: 0
Grid Ref:
Elevation: 0
Logged by: J. Simkus **Checked by:** S. Martin

DRILLING										
Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials, separate phase liquids, imported fill, ash.	Elevation / Depth (m)
						Ground Surface				0.00
0.0	HA					Fill - sandy gravel.	D	D		0.00
	PT									
1.0		0.1	BH11_1.0-1.2			Sandy clay, mottled dark brown and grey.	W			1.00
										-1.00
						Sandy clay, brown grading paler with increasing depth, decreased sand with increasing depth.	M			1.50
2.0		0.2	BH11_2.0-2.2							-1.50
						Sandy clay, mottled orange, brown, and grey.				2.50
3.0		0.2	BH11_3.0-3.2							-2.50
		0.2	BH11_3.4-3.6							-3.60
						End of Log				3.60
4.0										
5.0										
6.0										
7.0										

NOTES: Refusal at 3.6 mbgl

GHD Soil Classifications: The GHD Soil Classification is based on Australian Standards AS 1726-1993. This log is not intended for geotechnical purposes.

Drilling Abbreviations:	Moisture Abbreviations:	Consistency:	
AH - Air Hammer, **AR** - Air Rotary, **BE** - Bucket Excavation, **DC** - Diamond Core, **FH** - Foam Hammer, **HA** - Hand Auger, **HE** - Hand Excavation (shovel), **HFA** - Hollow Flight Auger, **NDD** - Non Destructive Drilling, **PT** - Pushtube, **SD** - Sonic Drilling, **SFA** - Solid Flight Auger, **SS** - Split Spoon, **WB** - Wash Bore, **WS** - Window Sampler	**D** - Dry, **SM** - Slightly Moist, **M** - Moist, **VM** - Very Moist, **W** - Wet, **S** - Saturated	**Granular Soils** **VL** - Very Loose, **L** - Loose, **MD** - Medium Dense, **D** - Dense, **VD** - Very Dense	**Cohesive Soils** **VS** - Very Soft, **S** - Soft, **F** - Firm, **ST** - Stiff, **VST** - Very Stiff, **H** - Hard

BOREHOLE LOG BH12

ENVIRONMENTAL - SOIL BORE

Bore ID.: BH12
Page: 1 of 1

Client: Essential Energy
Project: NNSW DSI Additional Works
Project No.: 2217578
Location: 148 Church Street, Glen Innes, NSW.
Date Drilled: 09/03/2015 **to:** 09/03/2015

Drill Co: Numac
Driller: Richard Halliday
Rig Type: Track-mounted Geoprobe
Total Depth (m): 3.9
Diameter (mm): 50

Easting: 0
Northing: 0
Grid Ref:
Elevation: 0
Logged by: J. Simkus **Checked by:** S. Martin

DRILLING										
Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials, separate phase liquids, imported fill, ash.	Elevation / Depth (m)
0.0						Ground Surface				0.00
						Asphalt				0.00
	HA	0	BH12_0.05-0.15 + QS01			Fill- sandy gravel, pale grey brown, crushed aggregate.	D	MD		-0.30
		1.1	BH12_0.3-0.4			Fill - sandy gravel, predominantly dark grey/brown with 'bluestone'.	M	MD		0.30
1.0		3.5	BH12_1.0-1.1 + QS02			Clay, dark brown, some silt.			Slight hydrocarbon odour	-1.00 1.00
						Clay, pale brown with dark grey/black staining.			Hydrocarbon odour and staining	-1.20 1.20
						Claystone fragments mottled dark brown and grey.			Hydrocarbon odour and staining	-1.50 1.50
2.0		2.7	BH12_2.0-2.2							-2.30
						Sandy clay mottled orange/brown and grey, paler with increasing depth.			Hydrocarbon odour	2.30
3.0		10.6	BH12_3.0-3.2							-3.40 3.40
		3.2	BH12_3.7-3.9 + QS04							-3.90
4.0						End of Log				3.90
5.0										

NOTES:

GHD Soil Classifications: The GHD Soil Classification is based on Australian Standards AS 1726-1993. This log is not intended for geotechnical purposes.

Drilling Abbreviations:	Moisture Abbreviations:	Consistency:	
AH - Air Hammer, **AR** - Air Rotary, **BE** - Bucket Excavation, **DC** - Diamond Core, **FH** - Foam Hammer, **HA** - Hand Auger, **HE** - Hand Excavation (shovel), **HFA** - Hollow Flight Auger, **NDD** - Non Destructive Drilling, **PT** - Pushtube, **SD** - Sonic Drilling, **SFA** - Solid Flight Auger, **SS** - Split Spoon, **WB** - Wash Bore, **WS** - Window Sampler	**D** - Dry, **SM** - Slightly Moist, **M** - Moist, **VM** - Very Moist, **W** - Wet, **S** - Saturated	**Granular Soils** **VL** - Very Loose, **L** - Loose, **MD** - Medium Dense, **D** - Dense, **VD** - Very Dense	**Cohesive Soils** **VS** - Very Soft, **S** - Soft, **F** - Firm, **ST** - Stiff, **VST** - Very Stiff, **H** - Hard

Item 7.3

Annexure B

BOREHOLE LOG BH13

ENVIRONMENTAL - SOIL BORE

Bore ID.: BH13

Page: 1 of 1

Client: Essential Energy
Project: NNSW DSI Additional Works
Project No.: 2217578
Location: 148 Church Street, Glen Innes, NSW.
Date Drilled: 09/03/2015 **to:** 09/03/2015

Drill Co: Numac
Driller: Richard Halliday
Rig Type: Track-mounted Geoprobe
Total Depth (m): 5.1
Diameter (mm): 50

Easting: 0
Northing: 0
Grid Ref:
Elevation: 0
Logged by: J. Simkus **Checked by:** S. Martin

DRILLING										
Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials, separate phase liquids, imported fill, ash.	Elevation / Depth (m)
0.0						Ground Surface				0.00
						Asphalt				0.00
	HA	2.7	BH13_0.05-0.15			Fill - sandy gravel, trace clay; angular gravel (bluestone).	D	D	Slight hydrocarbon odour	-0.30
		0.8	BH13_0.3-0.4			Silty clay; dark brown, trace sand and gravel.	M	S		0.30
		0.7	BH13_0.5-0.6							
1.0		0.9	BH13_1.0-1.1							-1.30
	PT					Clay - brown, high plasticity	M	F		1.30
2.0		0.6	BH13_2.0-2.2							-2.20
						Clay - brown with high plasticity, sand (iron stain), orange and black in colour.	D			2.20
										-2.50
						Sandy clay - mottled orange/brown and grey, fine grained sand.	D			2.50
3.0		0.8	BH13_3.0-3.2							
4.0		0.2	BH13_4.0-4.2							
5.0										-5.10
						End of Log				5.10

NOTES:

GHD Soil Classifications: The GHD Soil Classification is based on Australian Standards AS 1726-1993. This log is not intended for geotechnical purposes.

Drilling Abbreviations:	Moisture Abbreviations:	Consistency:	
AH - Air Hammer, **AR** - Air Rotary, **BE** - Bucket Excavation, **DC** - Diamond Core, **FH** - Foam Hammer, **HA** - Hand Auger, **HE** - Hand Excavation (shovel), **HFA** - Hollow Flight Auger, **NDD** - Non Destructive Drilling, **PT** - Pushtube, **SD** - Sonic Drilling, **SFA** - Solid Flight Auger, **SS** - Split Spoon, **WB** - Wash Bore, **WS** - Window Sampler	**D** - Dry, **SM** - Slightly Moist, **M** - Moist, **VM** - Very Moist, **W** - Wet, **S** - Saturated	**Granular Soils** **VL** - Very Loose, **L** - Loose, **MD** - Medium Dense, **D** - Dense, **VD** - Very Dense	**Cohesive Soils** **VS** - Very Soft, **S** - Soft, **F** - Firm, **ST** - Stiff, **VST** - Very Stiff, **H** - Hard

BOREHOLE LOG BH14 / MW4

ENVIRONMENTAL - GROUNDWATER

Bore ID.: BH14 / MW4

Page: 1 of 1

Client: Essential Energy
Project: NNSW DSI Additional Works
Project No.: 2217578
Location: 148 Church Street, Glen Innes, NSW.
Date Drilled: 09/03/2015 **to:** 10/03/2015

Drill Co: Numac
Driller: Richard Halliday
Rig Type: Track-mounted Geoprobe
Total Depth (m): 7
Diameter (mm): 50 / 150

Easting: 0
Northing: 0
Grid Ref:
Collar RL: **Elevation:** 0
Logged by: J. Simkus **Checked by:** S. Martin

B.C.L. No.: **Casing:** Class 18 uPVC **Screen:** Class 18 uPVC (0.5 mm) **Surface Completion:** Gatic/asphalt

DRILLING												
Depth (m)	Drilling Method	PID (ppm)	Sample ID	Water	Well Details	Graphic Log	LITHOLOGICAL DESCRIPTION Soil Type (Classification Group Symbol); Particle Size; Colour; Secondary / Minor Components.	Moisture	Consistency	COMMENTS/ CONTAMINANT INDICATORS Odours, staining, waste materials, separate phase liquids, imported fill, ash.	Elevation / Depth (m)
							Ground Surface				0.00
0.0	HA	0	BH14_0.05-0.15				Asphalt				0.00
							Fill- sandy gravel (grey/brown), angular gravel, fine-medium grained sand.				-0.70
		0.2	BH14_0.4-0.6								0.70
	PT						Sandy clay (dark brown with grey staining), some silt.				-1.00
1.0		1.6	BH14_0.8-1.0 + QS03				Sandy clay (grey/brown), medium-coarse grained, high plasticity, decreasing sand content and grain size with increasing depth, with brown colour becoming more dominant, and stiffness and plasticity increasing.				1.00
		0.5	BH14_1.3-1.5								-2.00
2.0		0	BH14_2.0-2.2				Sandy clay, mottled.				2.00
		0	BH14_2.8-3.0								
3.0											
		0.2	BH14_3.7-3.9								
4.0	AH										-4.20
							Weathered/fractured rock.				4.20
5.0											
6.0											-6.50
							Hard rock- basalt.				6.50
7.0											-7.00
							End of Log				7.00

NOTES: Hand dug to ~0.5 mbgl, refusal on concrete on side of hole. Relocated ~0.5 m north. Refused again, relocated ~1 m west.

GHD Soil Classifications: The GHD Soil Classification is based on Australian Standards AS 1726-1993. This log is not intended for geotechnical purposes.

Drilling Abbreviations:	Moisture Abbreviations:	Consistency Abbreviations:	
AH - Air Hammer, **AR** - Air Rotary, **BE** - Bucket Excavation, **DC** - Diamond Core, **FH** - Foam Hammer, **HA** - Hand Auger, **HE** - Hand Excavation (shovel), **HFA** - Hollow Flight Auger, **NDD** - Non Destructive Drilling, **PT** - Pushtube, **SD** - Sonic Drilling, **SFA** - Solid Flight Auger, **SS** - Split Spoon, **WB** - Wash Bore, **WS** - Window Sampler	**D** - Dry, **SM** - Slightly Moist, **M** - Moist, **VM** - Very Moist, **W** - Wet, **S** - Saturated	**Granular Soils** **VL** - Very Loose, **L** - Loose, **MD** - Medium Dense, **D** - Dense, **VD** - Very Dense	**Cohesive Soils** **VS** - Very Soft, **S** - Soft, **F** - Firm, **ST** - Stiff, **VST** - Very Stiff, **H** - Hard

Appendix D – Analytical results tables

Appendix D
Table 1
Soil Analytical Results - Human Health Criteria

Essential Energy
Glen Innes
Essential Energy

									Site_ID	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes
									Field_ID	BH11_2.0-2.2	BH11_3.4-3.6	BH12_1.0-1.1	QS02	BH12_3.0-3.2	BH12_3.7-3.9	BH13_0.05-0.15	BH13_0.3-0.4	BH14_0.8-1.0	BH14_1.3-1.5
									Location_Code	BH11	BH11	BH12	BH12	BH12	BH12	BH13	BH13	BH14	BH14
									Sample_Depth_Range	2-2.2	3.4-3.6	1-1.1	1-1.1	3-3.2	3.7-3.9	0.05-0.15	0.3-0.4	0.8-1	1.3-1.5
									Sampled_Date_Time	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015
									Sample_Type	Normal	Normal	Normal	Field_D	Normal	Normal	Normal	Normal	Normal	Normal
				NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Sand				NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Coarse Soil	CRCCare Soil HSL Vap Int Intrusive Works,0 to <2m,Sand										
Chem	ChemName	unit	EQL		0-1m	1-2m	2-4m	>4m													
Inorganics	Moisture	%	1								26	24.7	20.8	25.1	26.8	21.1	7.4	26.3	26	26.5
Metals	Arsenic	mg/kg	5	3000							<5	<5	<5	<5	<5	<5	9	<5	<5	<5
	Cadmium	mg/kg	1	900							<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Chromium (III+VI)	mg/kg	2	3600							70	208	156	190	47	173	7	204	286	224
	Copper	mg/kg	5	240,000							44	113	37	63	89	96	12	46	57	59
	Lead	mg/kg	5	1500							5	<5	13	16	<5	<5	18	29	74	11
	Mercury	mg/kg	0.1	730							<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.4	0.1
	Nickel	mg/kg	2	6000							126	481	71	82	151	250	5	73	76	74
	Zinc	mg/kg	5	400,000							28	130	46	43	68	101	78	548	114	37
TRH NL	C6NLC10 minus BTEX (F1)	mg/kg	10		260	370	630	NL			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
NEPM	C6 NL C10 Fraction	mg/kg	10						700	NL	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2013	>C10NLC16 minus Naphthalene (F2)	mg/kg	50		NL	NL	NL	NL			<50	<50	<50	<50	<50	720	<50	<50	100	<50
	>C10 NL C16 Fraction	mg/kg	50						1000	NL	<50	<50	<50	<50	<50	720	<50	<50	100	<50
	>C16 NL C34 Fraction (F3)	mg/kg	100						3500		<100	<100	<100	<100	<100	960	160	<100	260	<100
	>C34 NL C40 Fraction (F4)	mg/kg	100						10,000		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	>C10 NL C40 (Sum of Total)	mg/kg	50								<50	<50	<50	<50	<50	1680	160	<50	360	<50
TRH NL	C6 NL C 9 Fraction	mg/kg	10								<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
NEPM	C10 NL C14 Fraction	mg/kg	50								<50	<50	<50	<50	<50	350	<50	<50	<50	<50
1999	C15 NL C28 Fraction	mg/kg	100								<100	<100	<100	<100	<100	1220	<100	<100	330	<100
	C29 NL C36 Fraction	mg/kg	100								<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	C10 NL C36 (Sum of Total)	mg/kg	50								<50	<50	<50	<50	<50	1570	<50	<50	330	<50
BTEX	Benzene	mg/kg	0.2		3	3	3	3		77	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Toluene	mg/kg	0.5		NL	NL	NL	NL		NL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	mg/kg	0.5		NL	NL	NL	NL		NL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Xylene (o)	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Xylene (m & p)	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Xylene Total	mg/kg	0.5		230	NL	NL	NL		NL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BTEX (Sum of Total) NL Lab Calc	mg/kg	0.2								<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
PAH	Polycylic aromatic hydrocarbons	mg/kg	0.5	4000							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	123	13.8	1.1	<0.5
	Pyrene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	9.1	2.6	0.5	<0.5
	Acenaphthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10.7	0.7	<0.5	<0.5
	Benz(a)anthracene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.3	1.4	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	17.5	1.1	<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	34.6	1.7	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10.1	0.7	<0.5	<0.5
	Benzo(g,h,i)perylene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.9	0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.2	1.4	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.4	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.7	2.4	0.6	<0.5
	Fluorene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3NLc,d)pyrene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.7	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	0.5		NL	NL	NL	NL		NL	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5								<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	1.3	<0.5	<0.5
	Benzo(a)pyrene TEQ (zero) NL Lab Calc	mg/kg	0.5	40							<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	25.7	1.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (half LOR) NL Lab Calc	mg/kg	0.5	40							0.6	0.6	0.6	0.6	0.6	0.6	25.7	1.8	0.6	0.6
	Benzo(a)pyrene TEQ (LOR) NL Lab Calc	mg/kg	0.5	40|40							1.2	1.2	1.2	1.2	1.2	1.2	25.7	2	1.2	1.2

Appendix D
Table 2
Ground Water, Rinsate and Trip Blank Analytical Results

Essential Energy
Glen Innes
Essential Energy

							Site_ID	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes
							Field_ID	MW1D	MW1D	MW1S	MW1S	QW3	MW2	MW2	MW3	MW3	MW4	QW1
							Location_Code	MW1D	MW1D	MW1S	MW1S	MW1S	MW2	MW2	MW3	MW3	MW4	MW4
							Sampled_Date_Time	2/12/14	11/03/15	2/12/14	11/03/15	2/12/14	2/12/14	11/03/15	1/12/14	11/03/15	11/03/15	11/03/15
							Sample_Type	Normal	Normal	Normal	Normal	Field_D	Normal	Normal	Normal	Normal	Normal	Field_D
				NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand			NEPM 2013 Table 1C GILs, Drinking Water																
Chem	ChemName	Unit	EQL	2-4m	4-8m	>8m																	
Surfactants	Anionic Surfactants as MBAS	µg/L	100					100	-	200	-	100	1200	-	100	-	-	-
Unassigned	N-Nitrosodiphenyl & Diphenylamine	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
Inorganics	Bicarbonate as CaCO3	mg/L	1					222	-	146	-	148	277	-	249	-	-	-
	Total Dissolved Solids	mg/L	10					335	-	256	-	242	383	-	377	-	-	-
Metals	Arsenic (Filtered)	mg/L	0.001				0.01	<0.001	<0.001	0.004	0.003	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	-
	Cadmium (Filtered)	mg/L	1E-04				0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	-
	Chromium (III+VI) (Filtered)	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
	Copper (Filtered)	mg/L	0.001				2	0.004	<0.001	0.003	<0.001	0.006	0.005	0.002	0.002	0.001	0.002	-
	Lead (Filtered)	mg/L	0.001				0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
	Mercury (Filtered)	mg/L	1E-04				0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
	Nickel (Filtered)	mg/L	0.001				0.02	0.002	<0.001	0.012	0.006	0.012	0.005	0.001	0.004	0.001	0.008	-
	Zinc (Filtered)	mg/L	0.005					0.017	0.008	0.007	<0.005	0.007	0.039	0.007	0.026	0.008	0.011	-
TRH - NEPM 2013	C6-C10 minus BTEX (F1)	µg/L	20	6000	6000	7000		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C6 - C10 Fraction	µg/L	20					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	>C10-C16 minus Naphthalene (F2)	µg/L	100	-	-	-		<100	<100	<100	<100	<100	<100	<100	320	<100	<100	<100
	>C10 - C16 Fraction	µg/L	100					<100	<100	<100	<100	<100	<100	<100	320	<100	<100	<100
	>C16 - C34 Fraction (F3)	µg/L	100					<100	<100	1830	320	660	<100	<100	<100	<100	<100	<100
	>C34 - C40 Fraction (F4)	µg/L	100					<100	<100	530	<100	190	<100	<100	<100	<100	<100	<100
	>C10 - C40 (Sum of Total)	µg/L	100					<100	<100	2360	320	850	<100	<100	320	<100	<100	<100
TRH - NEPM 1999	C6 - C 9 Fraction	µg/L	20					<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	C10 - C14 Fraction	µg/L	50					<50	<50	<50	<50	<50	<50	<50	440	<50	<50	<50
	C15 - C28 Fraction	µg/L	100					<100	<100	1200	360	390	<100	<100	<100	<100	<100	<100
	C29 - C36 Fraction	µg/L	50					<50	<50	1020	<50	390	<50	<50	<50	<50	<50	<50
	C10 - C36 (Sum of Total)	µg/L	50					<50	<50	2220	360	780	<50	<50	440	<50	<50	<50
BTEX	Benzene	µg/L	1	5000	5000	5000	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Toluene	µg/L	2	-	-	-	800	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Ethylbenzene	µg/L	2	-	-	-	300	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene (o)	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene (m & p)	µg/L	2					<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	Xylene Total	µg/L	2	-	-	-	600	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	BTEX (Sum of Total) - Lab Calc	µg/L	1					<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
PAH	Pyrene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Acenaphthene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Acenaphthylene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Anthracene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Benz(a)anthracene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Benzo(a)pyrene	µg/L	0.5				0.01	<0.5	-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	-
	Benzo[b+j]fluoranthene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Benzo(k)fluoranthene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Benzo(g,h,i)perylene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Chrysene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Dibenz(a,h)anthracene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Fluoranthene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Fluorene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Indeno(1,2,3-c,d)pyrene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Naphthalene	µg/L	1	-	-	-		<1	<5	<1	<5	<1	<1	<5	<5 - 24.1	<5	<5	<5
	Phenanthrene	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	PAHs (Sum of total) - Lab calc	µg/L	0.5					<0.5	-	<0.5	-	<0.5	<0.5	-	24.1	-	-	-
	Benzo(a)pyrene TEQ(zero)-Lab Calc	µg/L	0.5					<0.5	-	<0.5	-	<0.5	<0.5	-	<0.5	-	-	-
Phenols	2,4,5-T	µg/L	10				100	<10	-	<10	-	<10	<10	-	<10	-	-	-
	2,4,5-TP (Silvex)	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	2,4,5-trichlorophenol	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	2,4,6-trichlorophenol	µg/L	1				20	<1	-	<1	-	<1	<1	-	<1	-	-	-
	2,4-DB	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	2,4-dichlorophenol	µg/L	1				200	<1	-	<1	-	<1	<1	-	<1	-	-	-
	2,4-dimethylphenol	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	2,4-DP	µg/L	10				100	<10	-	<10	-	<10	<10	-	<10	-	-	-
	2,6-D	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	2,6-dichlorophenol	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	2-chlorophenol	µg/L	1				300	<1	-	<1	-	<1	<1	-	<1	-	-	-
	2-methylnaphthalene	µg/L	2					<2	-	<2	-	<2	<2	-	3	-	-	-
	2-methylphenol	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	2-nitrophenol	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	3-&4-methylphenol	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	3-methylcholanthrene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4-chloro-3-methylphenol	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Acetophenone	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	MCPA	µg/L	10				40	<10	-	<10	-	<10	<10	-	<10	-	-	-
	MCPB	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	Pentachlorophenol	µg/L	2				10[10	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Phenol	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
VOCs	1,1,1,2-tetrachloroethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,1,1-trichloroethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,1,2,2-tetrachloroethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,1,2-trichloroethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,1-dichloroethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,1-dichloroethene	µg/L	5				30	<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,2,3-trichlorobenzene	µg/L	5				30	<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,2,3-trichloropropane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,2,4-trichlorobenzene	µg/L	2				30	<2	-	<2	-	<2	<2	-	<2	-	-	-
	1,2-dibromoethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,2-dichlorobenzene	µg/L	2				1500	<2	-	<2	-	<2	<2	-	<2	-	-	-
	1,2-dichloroethane	µg/L	5				3	<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,3-dichlorobenzene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	1,4-dichlorobenzene	µg/L	2				40	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Bromodichloromethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Bromoform	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Carbon tetrachloride	µg/L	5				3	<5	-	<5	-	<5	<5	-	<5	-	-	-
	Chlorobenzene	µg/L	5				300	<5	-	<5	-	<5	<5	-	<5	-	-	-
	Chlorodibromomethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Chloroethane	µg/L	50					<50	-	<50	-	<50	<50	-	<50	-	-	-
	Chloroform	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	cis-1,2-dichloroethene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	cis-1,3-dichloropropene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	cis-1,4-Dichloro-2-butene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Dibromomethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Hexachlorobutadiene	µg/L	2				0.7	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Iodomethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Pentachloroethane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	TCE	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Tetrachloroethene	µg/L	5				50	<5	-	<5	-	<5	<5	-	<5	-	-	-
	trans-1,2-dichloroethene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	trans-1,3-dichloropropene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	trans-1,4-Dichloro-2-butene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Trichlorofluoromethane	µg/L	50					<50	-	<50	-	<50	<50	-	<50	-	-	-
	Vinyl chloride	µg/L	50				0.3	<50	-	<50	-	<50	<50	-	<50	-	-	-
SVOCs	1-naphthylamine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	2-(acetylamino) fluorene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	2-nitroaniline	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
	3,3-Dichlorobenzidine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	3-nitroaniline	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
	4-(dimethylamino) azobenzene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4-bromophenyl phenyl ether	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4-chloroaniline	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4-chlorophenyl phenyl ether	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4-nitroaniline	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4-Nitroquinoline-N-oxide	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	5-nitro-o-toluidine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	7,12-dimethylbenz(a)anthracene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Aniline	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Azobenzene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Bis(2-chloroethoxy) methane	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Bis(2-chloroethyl)ether	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Carbazole	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Chlorobenzilate	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Dibenzofuran	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Hexachlorocyclopentadiene	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	Hexachloroethane	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Hexachloropropene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Isophorone	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Methapyrilene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	N-nitrosodiethylamine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	N-nitrosodi-n-butylamine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	N-nitrosodi-n-propylamine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	N-Nitrosomethylethylamine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-

Appendix D
Table 2
Ground Water, Rinsate and Trip Blank Analytical Results

Essential Energy
Glen Innes
Essential Energy

							Site_ID	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes
							Field_ID	MW1D	MW1D	MW1S	MW1S	QW3	MW2	MW2	MW3	MW3	MW4	QW1
							Location_Code	MW1D	MW1D	MW1S	MW1S	MW1S	MW2	MW2	MW3	MW3	MW4	MW4
							Sampled_Date_Time	2/12/14	11/03/15	2/12/14	11/03/15	2/12/14	2/12/14	11/03/15	1/12/14	11/03/15	11/03/15	11/03/15
							Sample_Type	Normal	Normal	Normal	Normal	Field_D	Normal	Normal	Normal	Normal	Normal	Field_D
				NEPM 2013 Table 1A(4) Comm/Ind HSL D GW for Vapour Intrusion, Sand			NEPM 2013 Table 1C GILs, Drinking Water												
Chem	ChemName	Unit	EQL	2-4m	4-8m	>8m													
	N-nitrosomorpholine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	N-nitrosopiperidine	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	N-nitrosopyrrolidine	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
	Pentachlorobenzene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Phenacetin	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
OC Pesticides	4,4-DDE	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	a-BHC	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Aldrin	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Aldrin + Dieldrin	µg/L	4				0.3|0.3	<4	-	<4	-	<4	<4	-	<4	-	-	-
	b-BHC	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	d-BHC	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4,4 DDD	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4,4 DDT	µg/L	4				9	<4	-	<4	-	<4	<4	-	<4	-	-	-
	DDT+DDE+DDD - Lab Calc	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
	Dieldrin	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Endosulfan I	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Endosulfan II	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Endosulfan sulphate	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Endrin	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	g-BHC (Lindane)	µg/L	2				10	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Heptachlor	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Heptachlor epoxide	µg/L	2				0.3	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Hexachlorobenzene	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
OP Pesticides	Chlorfenvinphos	µg/L	2				2	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Chlorpyrifos	µg/L	2				10	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Chlorpyrifos-methyl	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Diazinon	µg/L	2				4	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Dichlorvos	µg/L	2				5	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Dimethoate	µg/L	2				7	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Ethion	µg/L	2				4	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Fenthion	µg/L	2				7	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Malathion	µg/L	2				70	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Pirimphos-ethyl	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Prothiofos	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
PCBs	PCBs (Total)	µg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
Pesticides	4-Chlorophenoxy acetic acid	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
Halogenated Hydrocarbons	Bromomethane	µg/L	50				1	<50	-	<50	-	<50	<50	-	<50	-	-	-
	Dichlorodifluoromethane	µg/L	50					<50	-	<50	-	<50	<50	-	<50	-	-	-
Herbicides	2,4-D	µg/L	10				30	<10	-	<10	-	<10	<10	-	<10	-	-	-
	2,4,6-Trichlorophenoxy-acetic acid	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	Clopyralid	µg/L	10				2000	<10	-	<10	-	<10	<10	-	<10	-	-	-
	Dicamba	µg/L	10				100	<10	-	<10	-	<10	<10	-	<10	-	-	-
	Fluroxypyr	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	Mecoprop	µg/L	10					<10	-	<10	-	<10	<10	-	<10	-	-	-
	Picloram	µg/L	10				300	<10	-	<10	-	<10	<10	-	<10	-	-	-
	Pronamide	µg/L	2				70	<2	-	<2	-	<2	<2	-	<2	-	-	-
	Triclopyr	µg/L	10				20	<10	-	<10	-	<10	<10	-	<10	-	-	-
Alkalinity	Alkalinity (Carbonate as CaCO3)	mg/L	1					<1	-	30	-	30	<1	-	<1	-	-	-
	Alkalinity (Hydroxide as CaCO3)	mg/L	1					<1	-	<1	-	<1	<1	-	<1	-	-	-
	Alkalinity (total as CaCO3)	mg/L	1					222	-	176	-	178	277	-	249	-	-	-
Chlorinated Hydrocarbons	1,1-dichloropropene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,2-dibromo-3-chloropropane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,2-dichloropropane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	1,3-dichloropropane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	2,2-dichloropropane	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	2-chloronaphthalene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	2-chlorotoluene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	4-chlorotoluene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Bromobenzene	µg/L	5					<5	-	<5	-	<5	<5	-	<5	-	-	-
	Chloromethane	µg/L	50					<50	-	<50	-	<50	<50	-	<50	-	-	-
Explosives	1,3,5-Trinitrobenzene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	2,4-Dinitrotoluene	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
	2,6-dinitrotoluene	µg/L	4					<4	-	<4	-	<4	<4	-	<4	-	-	-
	Nitrobenzene	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
Major Ions	Calcium (Filtered)	mg/L	1					30	-	22	-	22	33	-	38	-	-	-
	Chloride	mg/L	1					17	-	11	-	11	11	-	32	-	-	-
	Magnesium (Filtered)	mg/L	1					33	-	7	-	7	36	-	40	-	-	-
	Anions Total	meq/L	0.01					5.48	-	4.18	-	4.22	6.39	-	6.59	-	-	-
	Potassium (Filtered)	mg/L	1					2	-	4	-	3	2	-	2	-	-	-
	Sodium (Filtered)	mg/L	1					26	-	54	-	52	39	-	41	-	-	-
	Cations Total	meq/L	0.01					5.35	-	4.13	-	4.01	6.36	-	6.92	-	-	-
	Sulphate (Filtered)	mg/L	1				500	27	-	17	-	17	26	-	34	-	-	-
	Ionic Balance	%	0.01					1.2	-	0.7	-	2.56	0.25	-	2.48	-	-	-
Nitroaromatics	2-Picoline	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	4-aminobiphenyl	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Pentachloronitrobenzene	µg/L	2				30	<2	-	<2	-	<2	<2	-	<2	-	-	-
Phthalates	Bis(2-ethylhexyl) phthalate	µg/L	10				10	<10	-	<10	-	<10	<10	-	<10	-	-	-
	Butyl benzyl phthalate	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Diethylphthalate	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Dimethyl phthalate	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Di-n-butyl phthalate	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-
	Di-n-octyl phthalate	µg/L	2					<2	-	<2	-	<2	<2	-	<2	-	-	-

Item 7.3

Annexure B

Essential Energy
Glen Innes

Appendix D
Table 3
Air Sampling Analytical Results

			Site_ID	Essential Energy Glen Innes	Essential Energy Glen Innes	Essential Energy Glen Innes
			Field_ID	Eight Hour Bench	Eight Hour Pit	One Hour Pit
			Location_Code	Bench_8	Pit_8	Pit_1
			Sampled_Date_Time	9/03/2015	9/03/2015	9/03/2015
			Safework Australia - TWA Workplace Exposure Standards for Airborne Contaminants			
ChemName	output unit	EQL				
Pressure - As received	kPa	0.1		92.3	91.9	91.9
1-methyl-4 ethyl benzene	µg/m3	2.4		<2.4	<2.4	<2.4
1,1,1,2-tetrachloroethane	µg/m3	3.4		<3.4	<3.4	<3.4
1,1,1-trichloroethane	µg/m3	2.7	555,000	<2.7	<2.7	<2.7
1,1,2,2-tetrachloroethane	µg/m3	3.4	6900	<3.4	<3.4	<3.4
1,1,2-trichloroethane	µg/m3	2.7	55,000	<2.7	<2.7	<2.7
1,1-dichloroethane	µg/m3	2	412,000	<2	<2	<2
1,1-dichloroethene	µg/m3	2	20,000	<2	<2	<2
Benzene	µg/m3	1.6	3200	<1.6	<1.6	<1.6
Toluene	µg/m3	1.9	191,000	3	7.2	16.2
Ethylbenzene	µg/m3	2.2	434,000	<2.2	<2.2	<2.2
Xylene (o)	µg/m3	2.2		<2.2	<2.2	<2.2
Xylene (m & p)	µg/m3	4.3		<4.3	<4.3	<4.3
Xylene Total	µg/m3	6.5		<6.5	<6.5	<6.5
1,2,4-trimethylbenzene	µg/m3	2.4		<2.4	<2.4	<2.4
Isopropylbenzene	µg/m3	2.4	125,000	<2.4	<2.4	<2.4
Styrene	µg/m3	2.1	213,000	<2.1	<2.1	<2.1
1,2,4-trichlorobenzene	µg/m3	3.7	37,000	<3.7	<3.7	<3.7
1,2-dibromoethane	µg/m3	3.8		<3.8	<3.8	<3.8
1,2-dichlorobenzene	µg/m3	3	150,000	<3	<3	<3
1,2-dichloroethane	µg/m3	2	40,000	<2	<2	<2
1,2-dichloropropane	µg/m3	2.3	347,000	<2.3	<2.3	<2.3
1,3,5-trimethylbenzene	µg/m3	2.4		<2.4	<2.4	<2.4
1,3-Butadiene	µg/m3	1.1	22,000	<1.1	<1.1	<1.1
1,3-dichlorobenzene	µg/m3	3		<3	<3	<3
1,4-dichlorobenzene	µg/m3	3	150,000	<3	<3	<3
1,4-Dioxane	µg/m3	1.8	36,000	<1.8	<1.8	<1.8
2-butanone (MEK)	µg/m3	1.5	445,000	<1.5	<1.5	2.6
2-Chloro-1,3-butadiene	µg/m3	1.8	36,000	<1.8	<1.8	<1.8
2-chlorotoluene	µg/m3	2.6	259,000	<2.6	<2.6	<2.6
2-hexanone (MBK)	µg/m3	2	20,000	<2	<2	<2
2-isopropyltoluene	µg/m³	2.7		<2.7	<2.7	<2.7
4-methyl-2-pentanone (MIBK)	µg/m3	2	205,000	<2	<2	<2
Acetone	µg/m3	1.2	1,185,000	5.4	2.4	8.5
Acetonitrile	µg/m3	0.8	67,000	<0.8	<0.8	<0.8
Acrolein	µg/m3	1.1	230	<1.1	<1.1	<1.1
Acrylonitrile	µg/m3	1.1	4300	<1.1	<1.1	<1.1
Allyl chloride	µg/m3	1.6	3000	<1.6	<1.6	<1.6
Benzyl chloride	µg/m3	2.6	5200	<2.6	<2.6	<2.6
Bromodichloromethane	µg/m3	3.4		<3.4	<3.4	<3.4
Bromoform	µg/m3	5.2	5200	<5.2	<5.2	<5.2
Bromomethane	µg/m3	1.9	19,000	<1.9	<1.9	<1.9
Carbon disulfide	µg/m3	1.6	31,000	<1.6	5.9	<1.6
Carbon tetrachloride	µg/m3	3.1	630	<3.1	<3.1	<3.1
Chlorobenzene	µg/m3	2.3	46,000	<2.3	<2.3	<2.3
Chlorodibromomethane	µg/m3	4.3		<4.3	<4.3	<4.3
Chloroethane	µg/m3	1.3	2,640,000	<1.3	<1.3	<1.3
Chloroform	µg/m3	2.4	10,000	<2.4	<2.4	<2.4
Chloromethane	µg/m3	1	103,000	1.4	<1	1.4
cis-1,2-dichloroethene	µg/m3	2		<2	<2	<2
cis-1,3-dichloropropene	µg/m3	2.3		<2.3	<2.3	<2.3
Cyclohexane	µg/m3	1.7	350,000	<1.7	5.5	9.3
Dichlorodifluoromethane	µg/m3	2.5	4,950,000	<2.5	<2.5	<2.5
Dichloromethane	µg/m3	1.7	174,000	<1.7	<1.7	<1.7
Diisopropyl ether	µg/m3	2.1	1,040,000	<2.1	<2.1	<2.1
Ethanol	µg/m3	0.9	1,880,000	4.9	<0.9	7.2
Ethyl acetate	µg/m3	1.8	720,000	<1.8	<1.8	<1.8
Ethyl-tert Butyl Ether*	µg/m3	2.1		<2.1	<2.1	<2.1
Freon 113	µg/m3	3.8	7,670,000	<3.8	<3.8	<3.8
Freon 114	µg/m³	3.5		<3.5	<3.5	<3.5
Heptane	µg/m3	2	1,640,000	<2	9	<2
Hexachlorobutadiene	µg/m3	5.3	210	<5.3	<5.3	<5.3
Hexane	µg/m3	1.8	72,000	<1.8	14.1	6
Iso-propanol	µg/m3	1.2	983,000	2	3.4	3.9
Methyl Methacrylate	µg/m3	2.1	208,000	<2.1	<2.1	<2.1
MTBE	µg/m3	1.8	92,000	<1.8	<1.8	<1.8
n-butylbenzene	µg/m3	2.7		<2.7	<2.7	<2.7
Isooctane	µg/m3	2.3		<2.3	<2.3	<2.3
n-propylbenzene	µg/m3	2.4		<2.4	<2.4	<2.4
Propene	µg/m3	0.9		<0.9	<0.9	<0.9
sec-butylbenzene	µg/m3	2.7		<2.7	<2.7	<2.7
TCE	µg/m3	2.7	54,000	<2.7	5.4	<2.7
tert-butylbenzene	µg/m3	2.7		<2.7	<2.7	<2.7
Tertiary Amyl Methyl Ether*	µg/m3	2.1		<2.1	<2.1	<2.1
Tertiary Butyl Alcohol*	µg/m3	1.5		<1.5	<1.5	<1.5
Tetrachloroethene	µg/m3	3.4	340,000	<3.4	7.4	<3.4
Tetrahydrofuran	µg/m3	1.5	295,000	<1.5	<1.5	<1.5
trans-1,2-dichloroethene	µg/m3	2		<2	<2	<2
trans-1,3-dichloropropene	µg/m3	2.3		<2.3	<2.3	<2.3
Trichlorofluoromethane	µg/m3	2.8	5,620,000	<2.8	<2.8	<2.8
Vinyl acetate	µg/m3	1.8	35,000	<1.8	<1.8	<1.8
Vinyl bromide (bromoethene)	µg/m3	2.2	22,000	<2.2	<2.2	<2.2
Vinyl chloride	µg/m3	1.3	13,000	<1.3	<1.3	<1.3
Naphthalene	µg/m3	2.6	52,000	<2.6	<2.6	<2.6
C6-C10 minus BTEX (F1)	µg/m3	200		<200	<200	<200
C6 - C10 Fraction	µg/m3	200		<200	<200	<200
>C10-C16 minus Naphthalene (F2)	µg/m3	400		<400	<400	<400
>C10 - C16 Fraction	µg/m3	400		<400	<400	<400
C6 - C 9 Fraction	µg/m3	200		<200	<200	<200
C10 - C14 Fraction	µg/m3	350		<350	<350	<350

Appendix D
Table 4 Soil
QA/QC

Essential Energy
Glen Innes
Essential Energy

Field Duplicates (SOIL)
Filter: SDG in('ES1505924')

			SDG	ES1505924	ES1505924	
			Field_ID	BH12_1.0-1.1	QS02	RPD
			Sampled_Date-Time	9/03/2015 0:00	9/03/2015 0:00	
Chem	ChemName	Units	EQL			
BTEX & MAH	Benzene	mg/kg	0.2	<0.2	<0.2	0
	Toluene	mg/kg	0.5	<0.5	<0.5	0
	Ethylbenzene	mg/kg	0.5	<0.5	<0.5	0
	Xylene (o)	mg/kg	0.5	<0.5	<0.5	0
	Xylene (m & p)	mg/kg	0.5	<0.5	<0.5	0
	Xylene Total	mg/kg	0.5	<0.5	<0.5	0
	BTEX (Sum of Total) - Lab Calc	mg/kg	0.2	<0.2	<0.2	0
Inorganics	Moisture	%	1	20.8	25.1	19
Metals	Arsenic	mg/kg	5	<5	<5	0
	Cadmium	mg/kg	1	<1	<1	0
	Chromium (III+VI)	mg/kg	2	156	190	20
	Copper	mg/kg	5	**37**	**63**	**52**
	Lead	mg/kg	5	13	16	21
	Mercury	mg/kg	0.1	<0.1	<0.1	0
	Nickel	mg/kg	2	71	82	14
	Zinc	mg/kg	5	46	43	7
PAH	Polycylic aromatic hydrocarbons	mg/kg	0.5	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0
	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(a)pyrene	mg/kg	0.5	<0.5	<0.5	0
	Benzo[b+j]fluoranthene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	<0.5	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	<0.5	<0.5	0
	Naphthalene	mg/kg	1	<1	<1	0
	Naphthalene	mg/kg	0.5	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (zero) - Lab Calc	mg/kg	0.5	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (half LOR) - Lab Calc	mg/kg	0.5	0.6	0.6	0
	Benzo(a)pyrene TEQ (LOR) - Lab Calc	mg/kg	0.5	1.2	1.2	0
TRH - NEPM 1999	C6 - C 9 Fraction	mg/kg	10	<10	<10	0
	C10 - C14 Fraction	mg/kg	50	<50	<50	0
	C15 - C28 Fraction	mg/kg	100	<100	<100	0
	C29 - C36 Fraction	mg/kg	100	<100	<100	0
	C10 - C36 (Sum of Total)	mg/kg	50	<50	<50	0
TRH - NEPM 2013	C6-C10 minus BTEX (F1)	mg/kg	10	<10	<10	0
	C6 - C10 Fraction	mg/kg	10	<10	<10	0
	>C10-C16 minus Naphthalene (F2)	mg/kg	50	<50	<50	0
	>C10 - C16 Fraction	mg/kg	50	<50	<50	0
	>C16 - C34 Fraction (F3)	mg/kg	100	<100	<100	0
	>C34 - C40 Fraction (F4)	mg/kg	100	<100	<100	0
	>C10 - C40 (Sum of Total)	mg/kg	50	<50	<50	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (1-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Item 7.3

Annexure B

Appendix D
Table 5
Ground Water QA/QC

Essential Energy
Glen Innes
Essential Energy

Field Duplicates (WATER)
Filter: SDG in('ES1505925')

		SDG	ES1505925	ES1505925		
		Field_ID	MW4	QW1	RPD	
		Sampled_Date-Time	11/03/2015 15:00	11/03/2015 15:00		
Chem_Gr	ChemName	Units	EQL			
BTEX	Benzene	µg/L	1	<1	<1	0
	Toluene	µg/L	2	<2	<2	0
	Ethylbenzene	µg/L	2	<2	<2	0
	Xylene (o)	µg/L	2	<2	<2	0
	Xylene (m & p)	µg/L	2	<2	<2	0
	Xylene Total	µg/L	2	<2	<2	0
	BTEX (Sum of Total) - Lab Calc	µg/L	1	<1	<1	0
PAH	Naphthalene	µg/L	5	<5	<5	0
TRH - NEPM 1999	C6 - C 9 Fraction	µg/L	20	<20	<20	0
	C10 - C14 Fraction	µg/L	50	<50	<50	0
	C15 - C28 Fraction	µg/L	100	<100	<100	0
	C29 - C36 Fraction	µg/L	50	<50	<50	0
	C10 - C36 (Sum of Total)	µg/L	50	<50	<50	0
TRH - NEPM 2013	C6-C10 minus BTEX (F1)	µg/L	20	<20	<20	0
	C6 - C10 Fraction	µg/L	20	<20	<20	0
	>C10-C16 minus Naphthalene (F2)	µg/L	100	<100	<100	0
	>C10 - C16 Fraction	µg/L	100	<100	<100	0
	>C16 - C34 Fraction (F3)	µg/L	100	<100	<100	0
	>C34 - C40 Fraction (F4)	µg/L	100	<100	<100	0
	>C10 - C40 (Sum of Total)	µg/L	100	<100	<100	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 200 (1-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Appendix E – Groundwater gauging data sheets

GHD

GROUNDWATER PURGING AND SAMPLING RECORD

PROJECT NO.	22175780O	MONITORING WELL ID	~~BH~~MW18D
PROJECT NAME	NNSW PSI Additional	GPS CO-ORDINATES	
CLIENT	Essential Energy	(if Applicable)	
SITE	Glen Innes	LOGGED BY	JS|SM

FIELD MEASUREMENTS FOR PURGING

DEPTH TO WATER BEFORE PURGING (FROM TOC)	~~[illegible]~~ 5.20	DATE	11/3/15
DEPTH OF BORE (FROM TOC)	~~[illegible]~~ 9.54	PURGE METHOD	peristaltic
THICKNESS OF WATER COLUMN	~~[illegible]~~ 4.34	CASING TYPE	
DEPTH TO WATER DURING PURGING (FROM TOC)		GROUNDWATER ELEVATION	
DEPTH TO WATER DURING PURGING (FROM TOC)			
DEPTH TO WATER AFTER PURGING (FROM TOC)		PID = 0.0 ppm	

BORE PURGING

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (COLOUR, SHEEN, ODOUR, TURBIDITY, SEDIMENT)
11:40	1	17.5	7.4	479	1.40	243.6		clear
11:45	2	17.2	7.3	478.1	1.10	233.1		"
11:50	3	17.3	7.3	477.1	1.48	138.7		"

WELL SAMPLING

SAMPLING DATE	11/3/15	SAMPLING BY	JS|SM
SAMPLING TIME	11:50	WATER METER CALIBRATED (Y)N (DATE)	6/3/15
SAMPLING METHOD/EQUIPMENT	Peristaltic		

SAMPLE COLLECTION RECORD

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (SHEEN, COLOUR, TURBID, SED, ODOUR)
11:50	3	17.3	7.3	477.1	1.48	138.7		

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
MW1D	4		—	

FIELD SUPERVISOR CHECKED (SIGN & DATE)

GHD

GROUNDWATER PURGING AND SAMPLING RECORD

PROJECT NO.	2217578OO	MONITORING WELL ID	MW1 BS
PROJECT NAME	NNSW OSI Additional	GPS CO-ORDINATES	
CLIENT	Essential Energy	(if Applicable)	
SITE	Glen Innes	LOGGED BY	JS/SM

FIELD MEASUREMENTS FOR PURGING

DEPTH TO WATER BEFORE PURGING (FROM TOC)	~~5.20~~ 1.63	DATE	11/3/15
DEPTH OF BORE (FROM TOC)	~~9.54~~ 2.64	PURGE METHOD	Peristaltic
THICKNESS OF WATER COLUMN	~~4.34~~ 1.01	CASING TYPE	
DEPTH TO WATER DURING PURGING (FROM TOC)		GROUNDWATER ELEVATION	
DEPTH TO WATER DURING PURGING (FROM TOC)			
DEPTH TO WATER AFTER PURGING (FROM TOC)		PID = 0.2ppm	

BORE PURGING

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (COLOUR, SHEEN, ODOUR, TURBIDITY, SEDIMENT)
12:00	1	18.7	8.6	341.8	0.56	-170.3		Clear
12:05	2	18.8	8.8	334.3	0.48	-183.6		"
12:10	3	18.5	9.0	327.7	0.30	-202.2		"

WELL SAMPLING

SAMPLING DATE	11/3/15	SAMPLING BY	JS/SM
SAMPLING TIME	12:10	WATER METER CALIBRATED (Y) N (DATE)	6/3/15
SAMPLING METHOD/EQUIPMENT	Peristaltic		

SAMPLE COLLECTION RECORD

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (SHEEN, COLOUR, TURBID, SED, ODOUR)
12:10	3	18.5	9.0	327.7	0.30	-202.2		Clear

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
MW1S	4		—	

FIELD SUPERVISOR CHECKED (SIGN & DATE)

GHD

GROUNDWATER PURGING AND SAMPLING RECORD

PROJECT NO.	22175780	MONITORING WELL ID	MW2
PROJECT NAME	NNSW DSI Additional	GPS CO-ORDINATES	
CLIENT	Essential Energy	(if Applicable)	
SITE	Glen Innes	LOGGED BY	JS / SM

FIELD MEASUREMENTS FOR PURGING

DEPTH TO WATER BEFORE PURGING (FROM TOC)	4.77	DATE	11/3/15
DEPTH OF BORE (FROM TOC)	7.88	PURGE METHOD	Peristaltic
THICKNESS OF WATER COLUMN	3.11	CASING TYPE	
DEPTH TO WATER DURING PURGING (FROM TOC)		GROUNDWATER ELEVATION	
DEPTH TO WATER DURING PURGING (FROM TOC)			
DEPTH TO WATER AFTER PURGING (FROM TOC)		PID = 0.1 ppm	

BORE PURGING

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (COLOUR, SHEEN, ODOUR, TURBIDITY, SEDIMENT)
9:59	1	20.9	6.7	503	0.36	-192	5-10 min/L	clear.
10:05	2	20.8	7.1	497	0.29	-212		"
10:10	3	20.6	7.2	497	0.29	-230		"

WELL SAMPLING

SAMPLING DATE	11/3/15	SAMPLING BY	JS / SM
SAMPLING TIME	10:10	WATER METER CALIBRATED Y/N (DATE)	6/3/15
SAMPLING METHOD/EQUIPMENT	Peristaltic		

SAMPLE COLLECTION RECORD

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (SHEEN, COLOUR, TURBID, SED, ODOUR)
10:10	3	20.6	7.2	497	0.29	-230		Clear.

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
MW2	4		–	

FIELD SUPERVISOR J. Simkus CHECKED (SIGN & DATE) 11/3/15

GHD

GROUNDWATER
PURGING AND SAMPLING RECORD

PROJECT NO.	2217578OO	MONITORING WELL ID	MW3
PROJECT NAME	NNSW OSI Additional	GPS CO-ORDINATES	
CLIENT	Essential Energy	(if Applicable)	
SITE	Glen Innes	LOGGED BY	JS/SM

FIELD MEASUREMENTS FOR PURGING

DEPTH TO WATER BEFORE PURGING (FROM TOC)	4.68	DATE	11/3/15
DEPTH OF BORE (FROM TOC)	8.47	PURGE METHOD	Peristaltic
THICKNESS OF WATER COLUMN	3.79	CASING TYPE	
DEPTH TO WATER DURING PURGING (FROM TOC)		GROUNDWATER ELEVATION	
DEPTH TO WATER DURING PURGING (FROM TOC)		PID = 0.6ppm	
DEPTH TO WATER AFTER PURGING (FROM TOC)			

BORE PURGING

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (COLOUR, SHEEN, ODOUR, TURBIDITY, SEDIMENT)
10:33	1	20.8	7.2	559	2.76	180.0	5-10 ml/min	Clear
10:38	2	20.8	7.1	558	2.79	180.7		"
10:43	3	20.7	7.1	557	2.83	213.2		"

WELL SAMPLING

SAMPLING DATE	11/3/15	SAMPLING BY	JS/SM
SAMPLING TIME	10:43	WATER METER CALIBRATED Y/N (DATE)	6/3/15
SAMPLING METHOD/EQUIPMENT	Peristaltic		

SAMPLE COLLECTION RECORD

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (SHEEN, COLOUR, TURBID, SED, ODOUR)
10:43	3	20.7	7.1	557	2.83	213.2		Clear

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
MW3	4		—	

FIELD SUPERVISOR

CHECKED (SIGN & DATE)

GHD

GROUNDWATER PURGING AND SAMPLING RECORD

PROJECT NO.	2217577600	MONITORING WELL ID	~~MW4~~
PROJECT NAME	NNSW OSI Additional	GPS CO-ORDINATES	
CLIENT	Essential Energy	(if Applicable)	
SITE	Glen Innes	LOGGED BY	JS/SM

FIELD MEASUREMENTS FOR PURGING

DEPTH TO WATER BEFORE PURGING (FROM TOC)	4.57	DATE	11/3/15
DEPTH OF BORE (FROM TOC)	6.64	PURGE METHOD	Peristaltic
THICKNESS OF WATER COLUMN	2.07	CASING TYPE	
DEPTH TO WATER DURING PURGING (FROM TOC)		GROUNDWATER ELEVATION	
DEPTH TO WATER DURING PURGING (FROM TOC)		PID = 1.6ppm	
DEPTH TO WATER AFTER PURGING (FROM TOC)			

BORE PURGING

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (COLOUR, SHEEN, ODOUR, TURBIDITY, SEDIMENT)
11:05	1	21.5	7.1	574	2.07	290.4	5-10ml/min	clear
11:10	2	21.5	7.1	571	1.93	257.6		"
11:15	3	21.4	7.1	567	1.82	265.0		"

WELL SAMPLING

SAMPLING DATE	11/3/15	SAMPLING BY	JS/SM
SAMPLING TIME	11:15	WATER METER CALIBRATED (Y)/N (DATE)	6/3/15
SAMPLING METHOD/EQUIPMENT	Peristaltic		

SAMPLE COLLECTION RECORD

TIME	CUM. VOL (L)	TEMP (°C)	pH	E.COND (µs/cm)	DO (mg/L)	EH (mV)	PUMP RATE	COMMENTS (SHEEN, COLOUR, TURBID, SED, ODOUR)
11:15	3	21.4	7.1	567	1.82	265.0		clear

SAMPLE NO.	NO. OF CONTAINERS	PRESERVATIVE	DUPLICATE	COMMENTS
MW4	4		QW01	
QW01	4		MW4	

FIELD SUPERVISOR CHECKED (SIGN & DATE)

Appendix F – Equipment calibration records

Item 7.3

Annexure B

Enviro Paul
12 Cargelligo Court
North Boambee Valley
PO Box 52 Coffs Harbour NSW 2450
Tel 0266963251
Mob 0434846494
Email: paul@enviropaul.com.au
Web: www.enviropaul.com.au
ABN 20953095697

Enviro Paul

Calibration Certificate

Customer: GHD Coffs Harbour **Date: 03/03/15**

Instrument: YSI Professional Plus

Model: ProPlus Quatro -1m

Serial Numbers: Meter 11K100515 Quatro Head

Item	Test	Pass	Comments
Battery	Voltage	Yes	100%
Backlight	Operation	Yes	Working
	Auto Off	Yes	Auto off after 10 mins
Sensors	Temperature	Yes	Deg C Within Spec +/- 0.5C
	pH	Yes	pH
	Conductivity	Yes	us/cm Specific @25C
	Redox	Yes	mV
	Dissolved Oxygen	Yes	mg/l %
Software	Version 4	Yes	
Cable	Condition	Good	
O Rings	Condition	Good	

The following manufactures recommended Standards were used

Parameter	Standards Used	Reference Number	Readings after Calibration	Instruments Reading
Temperature	25.0 (H2O)	Hg Therm	25.4 C	25.4 C
pH	7.00	Sitest 17399	pH 7.00	7.11
pH	4.01	Sitest 17439	pH 4.01	
Conductivity	1413 us/cm	14/2401	1413us/cm	1434 us/cm
Conductivity	12880 us/cm		12880 us/cm	
ORP	Zobell A and B	MB14391438	225mv @ 25C	230.0
Zero Dissolved O2	Sodium Sulphite	CS MB1538	0.0mg/l	-0.03mg/l
100% Dissolved O2	Saturated Air		100 %	99.7%
Turbidity	100 NTU			
Nitrate ISE	10 mg/l			
Nitrate ISE	100 mg/l			
Nitrate ISE	10000 mg/l			
Ammonium ISE	10 mg/l			
Ammonium ISE	100 mg/l			
Ammonium ISE	1000 mg/l			
Chloride ISE	100 mg/l			
Chloride ISE	1000 mg/l			
Chloride ISE	50 000 mg/l			

Calibrated by P Lloyd - **Calibration Date 03/03/15**

Enviro Paul
12 Cargelligo Court
North Boambee Valley
PO Box 52 Coffs Harbour NSW 2450
Tel 0266963251
Mob 0434846494
Email: paul@enviropaul.com.au
Web: www.enviropaul.com.au
ABN 20953095697

Enviro Paul

Calibration Certificate

Customer: GHD Coffs Harbour **Date:03/03/15**

Instrument: Interface Probe

Model: Geotech -30m cable

Serial Numbers: Meter SN 4510

Item	Test	Pass	Comments
Battery	Voltage	Yes	9.4V
On	Operation	Yes	
Off	Auto Off	Yes	Auto off after 5 minutes
Sensors	Optical	Yes	New
Water	Detection	Yes	
Oil/water interface	Detection	Yes	Cleaned
Real	Condition	Yes	New
Cable	Condition	Yes	New
Bag	Condition	Yes	New
Cable Guard	Condition	Yes	New
Earth Cable	Good	Yes	Included

The following manufactures recommended Standards were used

Parameter	Standards	Reference Number	Calibration points	Instruments Reading
Water	Distilled water			Oscillating Alarm
Oil Interface	Citronella Oil			Continuous Alarm

Calibrated by P Lloyd **Calibration Date 03/03/15**

Item 7.3

Annexure B

Enviro Paul
12 Cargelligo Court
North Boambee Valley
PO Box 52 Coffs Harbour NSW 2450
Tel 0266963251
Mob 0434846494
Email: paul@enviropaul.com.au
Web: www.enviropaul.com.au
ABN 20953095697

Enviro Paul

Calibration Certificate

Customer: GHD Coffs Harbour **Date: 03/03/15**

Instrument: BW Tech Gas Monitor

Model: Gas Alert Max XT

Serial Number: MA214-018655

Item	Test	Pass	Comments
H2S	Zero Air	Yes	0 ppm
CO	Zero Air	Yes	0 ppm
LEL	Zero Air	Yes	0 ppm
O2	AIR	Yes	20.9%
PUMP	Block/Unblock	Yes	Pass
Battery	Charges	Yes	100%

The following manufactures recommended Standards were used

Parameter	Standards	Reference Number	Calibration points	Instruments Reading
See attached DOC				

Calibrated by P Lloyd **Calibration Date 03/03/15**

encore automation

ENVIRO PAUL
PO BOX 52
COFFS HARBOUR NSW 2450
PH 02 6696 3251 MOB 0434 846 494

4/199 Balcatta Road
Balcatta WA 6021
PO Box 1040
Balcatta WA 6914

Calibration Certificate

2014-10-28 13:16:16

CUSTOMER

Company Name:	Enviro Paul	Site:	

DEVICE

Last Cal:	---	Next Cal Due:	2015-04-26	Service Notes:	
Manufacturer:	BW Technologies	Device Type:	GasAlertMax XT	Serial Number:	MA214-018655

SENSOR REPORT

Type:	H2S	CO	LEL	O2
Low Alarm:	10.0	30.0	5.0	19.5
High Alarm:	15.0	200.0	10.0	23.5
TWA Alarm:	10.0	30.0		
STEL Alarm:	15.0	200.0		

TEST STATION

Dock Serial Number:	Z207-003806	Dock Location:	B		
	Inlet 1:	Inlet 2:	Inlet 3:	Inlet 4:	Inlet 5:
Used:	No	Yes	No	No	No
Concentration:	20.9 %	25.0	10.0 ppm	20.0 ppm	25.0 ppm
Type:	Purge	4 Gas Mixture 2.5% vol CH4	HCN	SO2	NO2
Notes:		LOT S14658	LOT S74544 3	LOT S67931 1	LOT S67923 1

SERVICE

Notes:

SIGNED

Item 7.3

Annexure B

AES ACTIVE ENVIRONMENTAL SOLUTIONS

Calibration and Service Report – PID

Company:	Active Environmental Solutions Hire	**Manufacturer:**	RAE Systems	**Serial #:**	**592-901205**
Contact:	Aleks Todorovic	**Instrument:**	MiniRAE 3000	**Asset #:**	--
Address:	2 Merchant Ave	**Model:**	MiniRAE 3000 PGM7320	**Part #:**	-
	Thomastown, VIC 3074	**Configuration:**	VOC	**Sold:**	9/12/2008
Phone:	03 9464 2300	**Wireless:**	No	**Last Cal:**	-
Fax:	03 9464 3421	**Network ID:**	-	**Job #:**	-
Email:		**Unit ID:**	--	**Cal Spec:**	Std
		Details:	-	**Order #:**	-

Item	Test	Pass/Fail	Comments	Part Code	S/W
Battery	NiCd, NiMH, Dry cell, Li Ion	✓	SN: 159J9W0514		
Charger	Power supply	✓			
	Cradle, Travel Charger	✓			
Pump	Flow	✓	> 400 ml/min		
Filter	Filter, fitting, etc	✓			
Alarms	Audible, visual, vibration	✓			
Display	Operation	✓			
Switches	Operation	✓			
PCB	Operation	✓			
Connectors	Condition	✓			
Firmware	Version	✓			
Datalogger	Operation	✓	Cleared		
Monitor Housing	Condition	✓			
Case	Condition/Type	✓			
Sensors					
PID	Lamp	✓			
PID	Sensor	✓			
THP	Sensor	✓	SN: GHTN1W0125		
				Calibration	1

Engineer's Report

Setup for hire

Calibration Certificate

Sensor	Type	Serial No	Span Gas	Concentration	Traceability Lot #	CF	Reading	
							Zero	Span
PID	10.6ev	1062N325046	Isobutylene	100ppm	S60492-1		0.0	100.0

Calibrated/Repaired by: **Amend Kumar** Date: **02.03.2015** Next Due: **02.09.2015**

Melbourne- Head Office: Unit 3 266 Bolton Street ELTHAM VIC 3095 T: +(613) 9431 3500 F: + (613) 9431 3577
Sydney - Office : S14 Lvl 2 6-8 Holden Street ASHFIELD NSW 2131 T: +(612) 9716 5966 F: + (612) 9716 5988
Perth - Office : Unit 6 41 Holder Way MALAGA WA 6090 T: +(618) 9249 5663 F: + (618) 9249 5362
Brisbane - Office Unit 17 23 Ashtan Place BANYO QLD 4014 T: +(617) 3267 1433 F: + (617) 3267 3559

sales@aesolutions.com.au www.aesolutions.com.au

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Appendix G – Laboratory documents

Item 7.3

Annexure B

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1505924**	Page	: 1 of 9
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 221757800		
C-O-C number	: ----	Date Samples Received	: 12-MAR-2015
Sampler	: JS	Issue Date	: 20-MAR-2015
Site	: ----		
		No. of samples received	: 28
Quote number	: EN/005/14	No. of samples analysed	: 10

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics

Page	: 2 of 9
Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

General Comments

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

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

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

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

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

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

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

- **Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.**

Item 7.3

Annexure B

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11_2.0-2.2	BH11_3.4-3.6	BH12_1.0-1.1	BH12_3.0-3.2	BH12_3.7-3.9
				Client sampling date / time	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00
Compound	CAS Number	LOR	Unit		ES1505924-002	ES1505924-004	ES1505924-007	ES1505924-009	ES1505924-010
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		26.0	24.7	20.8	26.8	21.1
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		70	208	156	47	173
Copper	7440-50-8	5	mg/kg		44	113	37	89	96
Lead	7439-92-1	5	mg/kg		5	<5	13	<5	<5
Nickel	7440-02-0	2	mg/kg		126	481	71	151	250
Zinc	7440-66-6	5	mg/kg		28	130	46	68	101
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									

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Work Order : ES1505924
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)

Compound	CAS Number	LOR	Unit	Client sample ID	BH11_2.0-2.2	BH11_3.4-3.6	BH12_1.0-1.1	BH12_3.0-3.2	BH12_3.7-3.9
				Client sampling date / time	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00
					ES1505924-002	ES1505924-004	ES1505924-007	ES1505924-009	ES1505924-010
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	350
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	1220
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	1570
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	<50	<50	<50	720
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	960
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	1680
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	720
EP080: BTEXN									
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
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		97.2	87.8	87.2	85.8	85.0
2-Chlorophenol-D4	93951-73-6	0.1	%		87.1	79.7	89.5	92.5	81.4
2.4.6-Tribromophenol	118-79-6	0.1	%		83.2	78.8	80.4	79.8	82.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		82.3	81.9	85.5	85.7	84.3
Anthracene-d10	1719-06-8	0.1	%		86.0	86.3	82.0	88.3	84.8
4-Terphenyl-d14	1718-51-0	0.1	%		83.4	80.9	83.8	83.7	78.8
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		91.9	91.2	91.4	94.2	94.7

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Annexure B

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Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11_2.0-2.2	BH11_3.4-3.6	BH12_1.0-1.1	BH12_3.0-3.2	BH12_3.7-3.9
				Client sampling date / time	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00
Compound	CAS Number	LOR	Unit		ES1505924-002	ES1505924-004	ES1505924-007	ES1505924-009	ES1505924-010
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		101	106	104	104	101
4-Bromofluorobenzene	460-00-4	0.1	%		96.6	103	100	98.6	103

Page : 6 of 9
Work Order : ES1505924
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH13_0.05-0.15	BH13_0.3-0.4	BH14_0.8-1.0	BH14_1.3-1.5	QS02
				Client sampling date / time	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00
Compound	CAS Number	LOR	Unit		ES1505924-011	ES1505924-012	ES1505924-020	ES1505924-021	ES1505924-026
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1.0	%		7.4	26.3	26.0	26.5	25.1
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		9	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		7	204	286	224	190
Copper	7440-50-8	5	mg/kg		12	46	57	59	63
Lead	7439-92-1	5	mg/kg		18	29	74	11	16
Nickel	7440-02-0	2	mg/kg		5	73	76	74	82
Zinc	7440-66-6	5	mg/kg		78	548	114	37	43
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	0.2	0.4	0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		4.0	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		0.9	1.3	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		10.7	0.7	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		5.7	2.4	0.6	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		9.1	2.6	0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		3.3	1.4	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		7.2	1.4	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		34.6	1.7	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		10.1	0.7	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		17.5	1.1	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		8.7	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		2.4	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		8.9	0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		123	13.8	1.1	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		25.7	1.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		25.7	1.8	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		25.7	2.0	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									

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Annexure B

Page	: 7 of 9
Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH13_0.05-0.15	BH13_0.3-0.4	BH14_0.8-1.0	BH14_1.3-1.5	QS02
				Client sampling date / time	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00
Compound	CAS Number	LOR	Unit		ES1505924-011	ES1505924-012	ES1505924-020	ES1505924-021	ES1505924-026
EP080/071: Total Petroleum Hydrocarbons - Continued									
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	330	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	330	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	<50	100	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		160	<100	260	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		160	<50	360	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	100	<50	<50
EP080: BTEXN									
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
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		87.6	85.9	85.6	86.3	81.0
2-Chlorophenol-D4	93951-73-6	0.1	%		82.2	86.2	87.4	88.2	82.0
2.4.6-Tribromophenol	118-79-6	0.1	%		82.8	82.8	89.4	80.0	80.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		79.6	84.5	80.8	84.9	82.1
Anthracene-d10	1719-06-8	0.1	%		79.8	84.4	81.4	89.7	80.2
4-Terphenyl-d14	1718-51-0	0.1	%		80.2	79.1	82.6	82.0	79.4
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		96.4	97.5	95.6	91.9	92.1

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Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH13_0.05-0.15	BH13_0.3-0.4	BH14_0.8-1.0	BH14_1.3-1.5	QS02
				Client sampling date / time	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00	09-MAR-2015 15:00
Compound	CAS Number	LOR	Unit		ES1505924-011	ES1505924-012	ES1505924-020	ES1505924-021	ES1505924-026
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.1	%		105	110	113	103	109
4-Bromofluorobenzene	460-00-4	0.1	%		101	107	105	101	101

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Work Order	: ES1505924
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Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	72.8	133.2
Toluene-D8	2037-26-5	73.9	132.1
4-Bromofluorobenzene	460-00-4	71.6	130.0

ALS Group

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order	: **ES1505924**		
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	Page	: 1 of 3
Order number	: 221757800		
C-O-C number	: ----	Quote number	: ES2014GHDSER0765 (EN/005/14)
Site	: ----		
Sampler	: JS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 12-MAR-2015	Issue Date	: 13-MAR-2015 07:40
Client Requested Due Date	: 20-MAR-2015	Scheduled Reporting Date	: **20-MAR-2015**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 6.0°C - Ice present
No. of coolers/boxes	: 3 HARD	No. of samples received	: 28
Security Seal	: Intact.	No. of samples analysed	: 10

General Comments

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

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Annexure B

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	[On Hold] SOIL No analysis requested	SOIL - S-26 8 metals,TRH-BTEX-NPAH
ES1505924-001	09-MAR-2015 15:00	BH11_1.0-1.2	✓	
ES1505924-002	09-MAR-2015 15:00	BH11_2.0-2.2		✓
ES1505924-003	09-MAR-2015 15:00	BH11_3.0-3.2	✓	
ES1505924-004	09-MAR-2015 15:00	BH11_3.4-3.6		✓
ES1505924-005	09-MAR-2015 15:00	BH12_0.05-0.15	✓	
ES1505924-006	09-MAR-2015 15:00	BH12_0.3-0.4	✓	
ES1505924-007	09-MAR-2015 15:00	BH12_1.0-1.1		✓
ES1505924-008	09-MAR-2015 15:00	BH12_2.0-2.2	✓	
ES1505924-009	09-MAR-2015 15:00	BH12_3.0-3.2		✓
ES1505924-010	09-MAR-2015 15:00	BH12_3.7-3.9		✓
ES1505924-011	09-MAR-2015 15:00	BH13_0.05-0.15		✓
ES1505924-012	09-MAR-2015 15:00	BH13_0.3-0.4		✓
ES1505924-013	09-MAR-2015 15:00	BH13_0.5-0.6	✓	
ES1505924-014	09-MAR-2015 15:00	BH13_1.0-1.1	✓	
ES1505924-015	09-MAR-2015 15:00	BH13_2.0-2.2	✓	
ES1505924-016	09-MAR-2015 15:00	BH13_3.0-3.2	✓	
ES1505924-017	09-MAR-2015 15:00	BH13_4.0-4.2	✓	
ES1505924-018	09-MAR-2015 15:00	BH14_0.05-0.15	✓	
ES1505924-019	09-MAR-2015 15:00	BH14_0.4-0.6	✓	
ES1505924-020	09-MAR-2015 15:00	BH14_0.8-1.0		✓
ES1505924-021	09-MAR-2015 15:00	BH14_1.3-1.5		✓
ES1505924-022	09-MAR-2015 15:00	BH14_2.0-2.2	✓	
ES1505924-023	09-MAR-2015 15:00	BH14_2.8-3.0	✓	
ES1505924-024	09-MAR-2015 15:00	BH14_3.7-3.9	✓	
ES1505924-025	09-MAR-2015 15:00	QS01	✓	
ES1505924-026	09-MAR-2015 15:00	QS02		✓
ES1505924-027	09-MAR-2015 15:00	QS03	✓	
ES1505924-028	09-MAR-2015 15:00	QS04	✓	

Proactive Holding Time Report

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

Issue Date	13-MAR-2015 07:40
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Work Order	ES1505924
Client	GHD PTY LTD

Requested Deliverables

MR BRIAN CORK

- *AU Certificate of Analysis - NATA (COA)	Email	brian.cork@ghd.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	brian.cork@ghd.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	brian.cork@ghd.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	brian.cork@ghd.com
- A4 - AU Tax Invoice (INV)	Email	brian.cork@ghd.com
- Chain of Custody (CoC) (COC)	Email	brian.cork@ghd.com
- EDI Format - ENMRG (ENMRG)	Email	brian.cork@ghd.com
- EDI Format - ESDAT GHD (ESDAT_GHD)	Email	brian.cork@ghd.com
- EDI Format - XTab (XTAB)	Email	brian.cork@ghd.com

NTLEAP -

- A4 - AU Tax Invoice (INV)	Email	ntleap@ghd.com

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Annexure B

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1505924**	Page	: 1 of 9
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 12-MAR-2015
Sampler	: JS	Issue Date	: 20-MAR-2015
Order number	: 221757800		
		No. of samples received	: 28
Quote number	: EN/005/14	No. of samples analysed	: 10

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

WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics
Edwandy Fadjar	Organic Coordinator	Sydney Organics
Pabi Subba	Senior Organic Chemist	Sydney Organics

General Comments

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

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

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

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

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

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Annexure B

Page	: 3 of 9
Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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: 3863464)									
ES1505769-023	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	4.4	2.9	41.5	No Limit
ES1505924-010	BH12_3.7-3.9	EA055-103: Moisture Content (dried @ 103°C)	----	1.0	%	21.1	20.4	3.5	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 3862312)									
ES1505864-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	34	33	0.0	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	28	29	5.4	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	9	24.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	26	24	8.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	7	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	49	47	4.7	No Limit
ES1505924-021	BH14_1.3-1.5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	224	184	19.2	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	74	69	6.2	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	59	56	6.0	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	11	9	20.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	37	39	6.0	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3862313)									
ES1505864-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES1505924-021	BH14_1.3-1.5	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3859461)									
ES1505924-002	BH11_2.0-2.2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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Work Order : ES1505924
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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 (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3859461) - continued									
ES1505924-002	BH11_2.0-2.2	EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES1506073-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	1.0	0.9	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.4	1.3	11.1	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.1	1.0	14.3	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.7	<0.5	30.2	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.6	0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.7	<0.5	29.6	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	5.5	3.7	39.1	0% - 50%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3857900)									
ES1505816-021	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES1505924-021	BH14_1.3-1.5	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3859460)									
ES1505924-002	BH11_2.0-2.2	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
ES1506073-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	300	290	5.6	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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3857900)									
ES1505816-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES1505924-021	BH14_1.3-1.5	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3859460)									
ES1505924-002	BH11_2.0-2.2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit

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Work Order : ES1505924
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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 (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3859460) - continued									
ES1505924-002	BH11_2.0-2.2	EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
ES1506073-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	360	340	7.6	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3857900)									
ES1505816-021	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
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES1505924-021	BH14_1.3-1.5	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: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

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Work Order : ES1505924
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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

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

Sub-Matrix: **SOIL**

				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: 3862312)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	92	130
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.3	87	121
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	98.2	80	136
EG005T: Copper	7440-50-8	5	mg/kg	<5	32.0 mg/kg	102	93	127
EG005T: Lead	7439-92-1	5	mg/kg	<5	40.0 mg/kg	99.9	86	124
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55.0 mg/kg	102	93	131
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	98.1	81	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3862313)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	84.7	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3859461)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	112	80	124
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	106	77	123
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	111	79	123
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	109	77	123
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	116	79	123
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	112	79	123
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	79	123
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	113	79	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	113	73	121
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	103	81	123
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	114	70	118
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	111	77	123
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	110	76	122
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	106	71	113
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	107	71.7	113
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	100	72.4	114

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Annexure B

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Work Order : ES1505924
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3857900)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	115	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3859460)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	110	71	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	111	74	138
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	110	64	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3857900)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	113	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3859460)								
EP071: >C10 - C16 Fraction	>C10_C16	50	mg/kg	<50	250 mg/kg	105	70	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	117	74	138
EP071: >C34 - C40 Fraction	----	50	mg/kg	<100	150 mg/kg	105	63	131
EP080: BTEXN (QCLot: 3857900)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	99.4	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.9	62	128
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.2	58	118
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	97.0	60	120
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	95.2	60	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.5	62	138

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

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 3862312)							
ES1505864-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.9	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.0	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	109	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	108	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	96.9	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	104	70	130

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Work Order : ES1505924
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 3862312) - continued							
ES1505864-001	Anonymous	EG005T: Zinc	7440-66-6	250 mg/kg	94.3	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3862313)							
ES1505864-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	98.8	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3859461)							
ES1505924-002	BH11_2.0-2.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	105	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	107	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3857900)							
ES1505816-021	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	116	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3859460)							
ES1505924-002	BH11_2.0-2.2	EP071: C10 - C14 Fraction	----	560 mg/kg	87.3	73	137
		EP071: C15 - C28 Fraction	----	2370 mg/kg	87.8	53	131
		EP071: C29 - C36 Fraction	----	1695 mg/kg	116	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3857900)							
ES1505816-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3859460)							
ES1505924-002	BH11_2.0-2.2	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	87.4	73	137
		EP071: >C16 - C34 Fraction	----	3190 mg/kg	108	53	131
		EP071: >C34 - C40 Fraction	----	1087 mg/kg	110	52	132
EP080: BTEXN (QCLot: 3857900)							
ES1505816-021	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.4	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	89.4	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.5	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	91.5	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	90.5	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.1	70	130

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

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

Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3857900)										

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Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Sub-Matrix: SOIL

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3857900) - continued										
ES1505816-021	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	116	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3857900)										
ES1505816-021	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	110	----	70	130	----	----
EP080: BTEXN (QCLot: 3857900)										
ES1505816-021	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	84.4	----	70	130	----	----
		EP080: Toluene	108-88-3	2.5 mg/kg	89.4	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	89.5	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	91.5	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	90.5	----	70	130	----	----
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.1	----	70	130	----	----
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3859460)										
ES1505924-002	BH11_2.0-2.2	EP071: C10 - C14 Fraction	----	560 mg/kg	87.3	----	73	137	----	----
		EP071: C15 - C28 Fraction	----	2370 mg/kg	87.8	----	53	131	----	----
		EP071: C29 - C36 Fraction	----	1695 mg/kg	116	----	52	132	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3859460)										
ES1505924-002	BH11_2.0-2.2	EP071: >C10 - C16 Fraction	>C10_C16	902 mg/kg	87.4	----	73	137	----	----
		EP071: >C16 - C34 Fraction	----	3190 mg/kg	108	----	53	131	----	----
		EP071: >C34 - C40 Fraction	----	1087 mg/kg	110	----	52	132	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3859461)										
ES1505924-002	BH11_2.0-2.2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	105	----	70	130	----	----
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	107	----	70	130	----	----
EG005T: Total Metals by ICP-AES (QCLot: 3862312)										
ES1505864-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	99.9	----	70	130	----	----
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.0	----	70	130	----	----
		EG005T: Chromium	7440-47-3	50 mg/kg	109	----	70	130	----	----
		EG005T: Copper	7440-50-8	250 mg/kg	108	----	70	130	----	----
		EG005T: Lead	7439-92-1	250 mg/kg	96.9	----	70	130	----	----
		EG005T: Nickel	7440-02-0	50 mg/kg	104	----	70	130	----	----
		EG005T: Zinc	7440-66-6	250 mg/kg	94.3	----	70	130	----	----
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3862313)										
ES1505864-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	98.8	----	70	130	----	----

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1505924**	Page	: 1 of 6
Client	: GHD PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 12-MAR-2015
Sampler	: JS	Issue Date	: 20-MAR-2015
Order number	: 221757800		
		No. of samples received	: 28
Quote number	: EN/005/14	No. of samples analysed	: 10

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

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Annexure B

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Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analysis Holding Time Compliance

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

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

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

Matrix: **SOIL**

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

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content								
Soil Glass Jar - Unpreserved (EA055-103)								
BH11_2.0-2.2,	BH11_3.4-3.6,	09-MAR-2015	----	----	----	18-MAR-2015	23-MAR-2015	✓
BH12_1.0-1.1,	BH12_3.0-3.2,							
BH12_3.7-3.9,	BH13_0.05-0.15,							
BH13_0.3-0.4,	BH14_0.8-1.0,							
BH14_1.3-1.5,	QS02							
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH11_2.0-2.2,	BH11_3.4-3.6,	09-MAR-2015	17-MAR-2015	05-SEP-2015	✓	18-MAR-2015	05-SEP-2015	✓
BH12_1.0-1.1,	BH12_3.0-3.2,							
BH12_3.7-3.9,	BH13_0.05-0.15,							
BH13_0.3-0.4,	BH14_0.8-1.0,							
BH14_1.3-1.5,	QS02							
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
BH11_2.0-2.2,	BH11_3.4-3.6,	09-MAR-2015	17-MAR-2015	06-APR-2015	✓	18-MAR-2015	06-APR-2015	✓
BH12_1.0-1.1,	BH12_3.0-3.2,							
BH12_3.7-3.9,	BH13_0.05-0.15,							
BH13_0.3-0.4,	BH14_0.8-1.0,							
BH14_1.3-1.5,	QS02							
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071)								
BH11_2.0-2.2,	BH11_3.4-3.6,	09-MAR-2015	17-MAR-2015	23-MAR-2015	✓	19-MAR-2015	26-APR-2015	✓
BH12_1.0-1.1,	BH12_3.0-3.2,							
BH12_3.7-3.9,	BH13_0.05-0.15,							
BH13_0.3-0.4,	BH14_0.8-1.0,							
BH14_1.3-1.5,	QS02							

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Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
BH11_2.0-2.2,	BH11_3.4-3.6,	09-MAR-2015	17-MAR-2015	23-MAR-2015	✓	19-MAR-2015	26-APR-2015	✓
BH12_1.0-1.1,	BH12_3.0-3.2,							
BH12_3.7-3.9,	BH13_0.05-0.15,							
BH13_0.3-0.4,	BH14_0.8-1.0,							
BH14_1.3-1.5,	QS02							
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BH11_2.0-2.2,	BH11_3.4-3.6,	09-MAR-2015	16-MAR-2015	23-MAR-2015	✓	17-MAR-2015	23-MAR-2015	✓
BH12_1.0-1.1,	BH12_3.0-3.2,							
BH12_3.7-3.9,	BH13_0.05-0.15,							
BH13_0.3-0.4,	BH14_0.8-1.0,							
BH14_1.3-1.5,	QS02							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080)								
BH11_2.0-2.2,	BH11_3.4-3.6,	09-MAR-2015	16-MAR-2015	23-MAR-2015	✓	17-MAR-2015	23-MAR-2015	✓
BH12_1.0-1.1,	BH12_3.0-3.2,							
BH12_3.7-3.9,	BH13_0.05-0.15,							
BH13_0.3-0.4,	BH14_0.8-1.0,							
BH14_1.3-1.5,	QS02							

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Work Order	: ES1505924
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Quality Control Parameter Frequency Compliance

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

Matrix: SOIL

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (SIM)	EP075(SIM)	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	2	17	11.8	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	2	19	10.5	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	20	10.0	10.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Mercury by FIMS	EG035T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-AES	EG005T	1	17	5.9	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	19	5.3	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	5.0	5.0	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In-house. A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 21st ed., 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to 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 (2013) Schedule B(3)
TRH - 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 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	(USEPA SW 846 - 8270B) Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH 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.

Preparation Methods	Method	Matrix	Method Descriptions
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	ORG17	SOIL	In-house, Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW 846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

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

Regular Sample Surrogates

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

Outliers : Analysis Holding Time Compliance

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

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

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

- **No Quality Control Sample Frequency Outliers exist.**

ALS

CLIENT: GHD	TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Coffs Harbour	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non-Standard or urgent TAT (List due date):	Custody seal intact?	Yes / No / N/A
PROJECT: Essential Energy OSI Glen Innes Additional works	ALS QUOTE NO.: EN/005/14	Free ice / frozen ice bricks present upon receipt?	Yes / No / N/A
ORDER NUMBER: 221757800	COC SEQUENCE NUMBER (Circle): COC: (1) 2 3 4 5 6 7; Ex: 1 2 (3) 4 5 6 7	Random Sample Temperature on Receipt:	
PROJECT MANAGER: Brian Cook	CONTACT PH: 0438 037 488	Other comments:	
SAMPLER: Jesse Slinkus	SAMPLER MOBILE: 0404 542 354	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES) / NO) 12/3/15	EDD FORMAT (or default):	DATE/TIME: 11/3/15	DATE/TIME: 12/3 1200
Email Reports to (will default to PM if no other addresses are listed): brian.cook@ghd.com		RELINQUISHED BY:	RECEIVED BY:
Email Invoice to (will default to PM if no other addresses are listed): ~~brian.cook@ghd.com~~ ntlemp		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: *Hold all samples.*

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH, BTEXN, PAH, 8 metals (8-20)								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
1	BH11_1.0-1.2	9/3/15	S	G, [redacted]	1									
2	BH11_2.0-2.2					X								
3	BH11_3.0-3.2													
4	BH11_3.4-3.6					X								
	[redacted]													
	[redacted]													
5	BH12_0.05-0.15													
6	BH12_0.3-0.4													
7	BH12_1.0-1.1					X								
8	BH12_2.0-2.2													
9	BH12_3.0-3.2					X								
10	BH12_3.7-3.9					X								
11	BH13_0.05-0.15					X								
12	BH13_0.3-0.4					X								
					TOTAL									

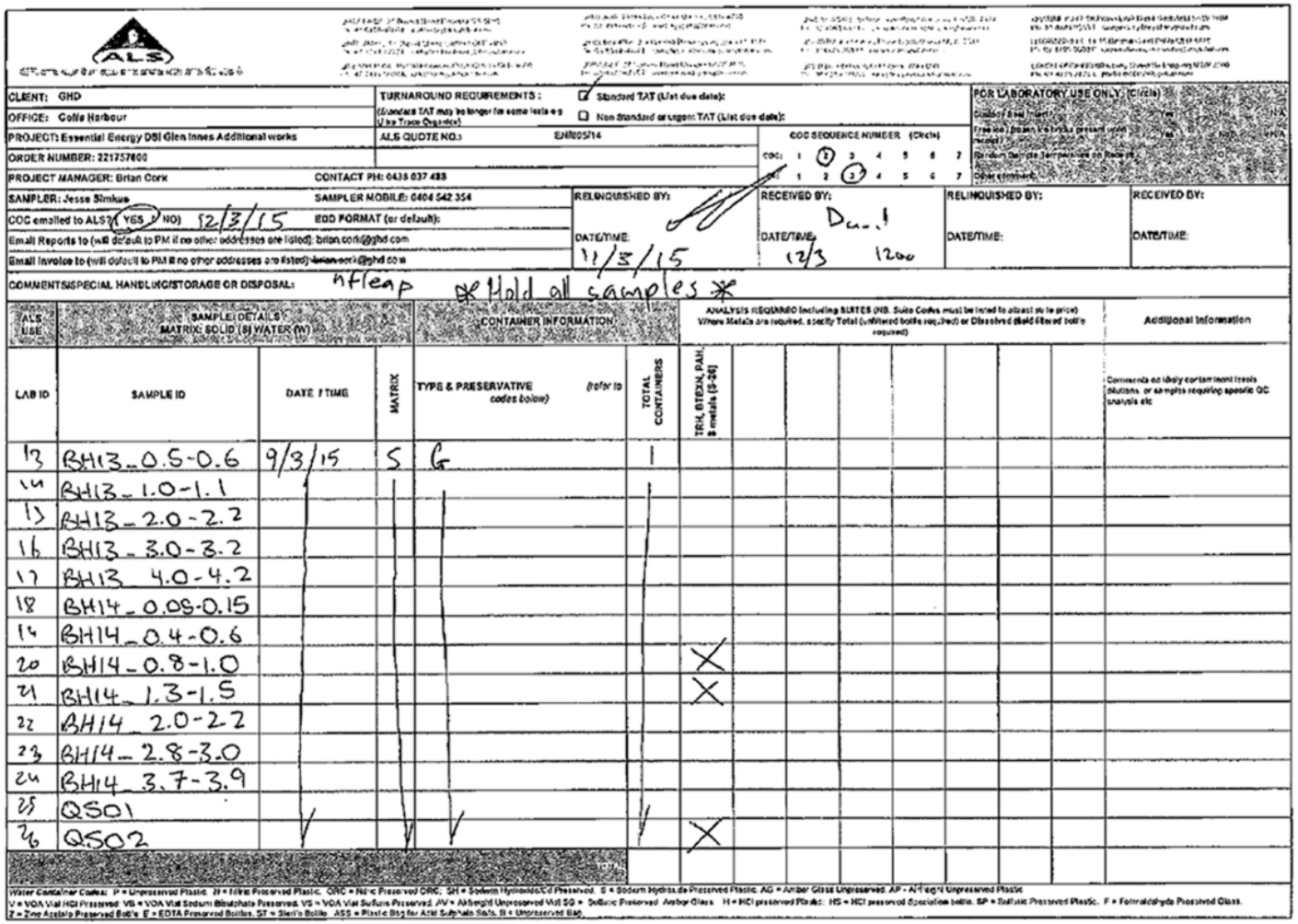
Water (Dissolved) Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Environmental Division
Sydney
Work Order
ES1505924

Telephone : +61-2-8784 8555

Item 7.3

Annexure B



CLIENT: GHD	TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Coffs Harbour	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody seal intact	Yes / No / N/A
PROJECT: Essential Energy DSI Glen Innes Additional works	ALS QUOTE NO.: EN/005/14	Free ice / frozen ice blocks present upon receipt	Yes / No / N/A
ORDER NUMBER: 221757600	COC SEQUENCE NUMBER (Circle): COC: 1 2 3 4 5 6 7; COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt	°C
PROJECT MANAGER: Brian Cork	CONTACT PH: 0438 037 488	Other comments:	
SAMPLER: Jesse Simkus	SAMPLER MOBILE: 0404 542 354	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO) 12/3/15	EDD FORMAT (or default):	DATE/TIME: 11/3/15	DATE/TIME: 12/3 1200
Email Reports to (will default to PM if no other addresses are listed): brian.cork@ghd.com		RELINQUISHED BY:	RECEIVED BY:
Email Invoice to (will default to PM if no other addresses are listed): ~~brian.cork@ghd.com~~		DATE/TIME:	DATE/TIME:
COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: ntleap *Hold all samples*			

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH, BTEXN, PAH, 8 metals (S-26)								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
13	BH13_0.5-0.6	9/3/15	S	G	1									
14	BH13_1.0-1.1													
15	BH13_2.0-2.2													
16	BH13_3.0-3.2													
17	BH13_4.0-4.2													
18	BH14_0.05-0.15													
19	BH14_0.4-0.6													
20	BH14_0.8-1.0					X								
21	BH14_1.3-1.5					X								
22	BH14_2.0-2.2													
23	BH14_2.8-3.0													
24	BH14_3.7-3.9													
25	QS01													
26	QS02					X								
					TOTAL									

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

ALS

CLIENT: GHD	TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Coffs Harbour	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes / No / N/A
PROJECT: Essential Energy DSI Glen Innes Additional works	ALS QUOTE NO.: EN/005/14	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7	
ORDER NUMBER: 22757809		SOF: 1 2 3 4 5 6 7	
PROJECT MANAGER: Brian Cork	CONTACT PH: 0438 037 488		
SAMPLER: Jesse Simkus	SAMPLER MOBILE: 0404 542 354	RELINQUISHED BY:	RECEIVED BY: Dan
COC emailed to ALS? YES / NO 12/3/15	EDD FORMAT (or default):	DATE/TIME: 11/3/15	DATE/TIME: 12/3 12m
Email Reports to (will default to PM if no other addresses are listed): brian.cork@ghd.com			
Email Invoice to (will default to PM if no other addresses are listed): brian.cork@ghd.com			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: ntleap@ghd.com *Hold all samples*

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required)								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH, BTEXN, PAH, 8 metals (8-26)								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc
27	QS03	9/3/15	S	G	1									
28	QS04	↓	↓	↓	↓									
				TOTAL										

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HG = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass.
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Fadi Soro

From: Jesse Simkus <Jesse.Simkus@ghd.com>
Sent: Thursday, 12 March 2015 10:36 AM
To: ALSEnviro Sydney
Cc: Barbara Hanna; Fadi Soro
Subject: COC for Soil Samples (10/03/2015) sent 11/03/2015
Attachments: 12032015093001-0001.pdf

Hi again!

Final COC for the eskies (hopefully) received today.
This one is for soil samples collected 10/03/2015 and sent from Coffs yesterday 11/03/2015.
They are in a green eski (sent with a small blue eski and another green eski).

Cheers

Jesse Simkus
Environmental Engineer

GHD
T: +61 2 6650 5600 | D: +61 2 6650 5673 | M: 0404 54 23 54 | V: 225673 | F: +61 2 6650 5601 | E: jesse.simkus@ghd.com
230 Harbour Drive Coffs Harbour NSW 2450 Australia | www.ghd.com WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

-----Original Message-----
From: ApeosPort-V C3375 T2 [mailto:cfsmail@ghd.com]
Sent: Thursday, 12 March 2015 10:30 AM
To: Jesse Simkus
Subject: Scan Data from FX-D5F3E6

Number of Images: 3

1

Attachment File Type: PDF

Device Name: ApeosPort-V C3375 T2
Device Location:

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Annexure B

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1507686**	Page	: 1 of 5
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 221757800		
C-O-C number	: ----	Date Samples Received	: 02-APR-2015
Sampler	: JS	Issue Date	: 09-APR-2015
Site	: ----		
		No. of samples received	: 2
Quote number	: EN/005/14	No. of samples analysed	: 2

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

Signatories

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

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

General Comments

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

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

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

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

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

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

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

- **Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.**

Page	: 3 of 5
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH11_3.4-3.6	BH13_0.05-0.15	----	----	----
				Client sampling date / time	09-MAR-2015 15:00	09-MAR-2015 15:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1507686-001	ES1507686-002	----	----	----
EN33: TCLP Leach									
Initial pH	----	0.1	pH Unit		8.8	8.5	----	----	----
After HCl pH	----	0.1	pH Unit		1.8	1.5	----	----	----
Extraction Fluid Number	----	1	-		1	1	----	----	----
Final pH	----	0.1	pH Unit		5.0	5.0	----	----	----

Page	: 4 of 5
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: TCLP LEACHATE (Matrix: WATER)				Client sample ID	BH11_3.4-3.6	BH13_0.05-0.15	----	----	----
				Client sampling date / time	08-APR-2015 12:00	08-APR-2015 12:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1507686-001	ES1507686-002	----	----	----
EG005C: Leachable Metals by ICPAES									
Nickel	7440-02-0	0.1	mg/L		<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(a)pyrene	50-32-8	0.5	µg/L		----	0.7	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		----	32.2	----	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%		----	71.3	----	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%		----	78.4	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		----	70.5	----	----	----
Anthracene-d10	1719-06-8	0.1	%		----	66.6	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%		----	69.5	----	----	----

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Annexure B

Page	: 5 of 5
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Surrogate Control Limits

Sub-Matrix: **TCLP LEACHATE**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10.0	44
2-Chlorophenol-D4	93951-73-6	14	94
2.4.6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27.4	113
4-Terphenyl-d14	1718-51-0	32	112

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: ES1507686	Page	: 1 of 4
Client	: GHD PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 02-APR-2015
Sampler	: JS	Issue Date	: 09-APR-2015
Order number	: 221757800		
		No. of samples received	: 2
Quote number	: EN/005/14	No. of samples analysed	: 2

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

This Quality Control Report contains the following information:

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

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

Signatories

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

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

Page	:	2 of 4
Work Order	:	ES1507686
Client	:	GHD PTY LTD
Project	:	ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

General Comments

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

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

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

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

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

Page	: 3 of 4
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005C: Leachable Metals by ICPAES (QC Lot: 3889843)									
ES1507331-001	Anonymous	EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.0	No Limit
ES1507638-007	Anonymous	EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	<0.1	0.0	No Limit

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Annexure B

Page	: 4 of 4
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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

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

Sub-Matrix: **WATER**

				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
EG005C: Leachable Metals by ICPAES (QCLot: 3889843)								
EG005C: Nickel	7440-02-0	0.1	mg/L	<0.1	0.1 mg/L	101	81	119
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3890065)								
EP075(SIM): Benzo(a)pyrene	50-32-8	0.2	µg/L	<0.5	5 µg/L	68.4	63.3	117

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: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005C: Leachable Metals by ICPAES (QCLot: 3889843)							
ES1507331-002	Anonymous	EG005C: Nickel	7440-02-0	1 mg/L	102	70	130

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

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EG005C: Leachable Metals by ICPAES (QCLot: 3889843)										
ES1507331-002	Anonymous	EG005C: Nickel	7440-02-0	1 mg/L	102	----	70	130	----	----

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1507686**	Page	: 1 of 5
Client	: GHD PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 02-APR-2015
Sampler	: JS	Issue Date	: 09-APR-2015
Order number	: 221757800		
		No. of samples received	: 2
Quote number	: EN/005/14	No. of samples analysed	: 2

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

Item 7.3

Annexure B

Page	: 2 of 5
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analysis Holding Time Compliance

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

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

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

Matrix: **SOIL**

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

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EG005C: Leachable Metals by ICPAES							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG005C)							
BH11_3.4-3.6	08-APR-2015	08-APR-2015	05-OCT-2015	✓	08-APR-2015	05-OCT-2015	✓
EN33: TCLP Leach							
Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN33a)							
BH13_0.05-0.15	09-MAR-2015	---	23-MAR-2015	----	08-APR-2015	23-MAR-2015	×
Non-Volatile Leach: 180 day HT (e.g. metals ex.Hg) (EN33a)							
BH11_3.4-3.6	09-MAR-2015	---	05-SEP-2015	----	08-APR-2015	05-SEP-2015	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
BH13_0.05-0.15	08-APR-2015	08-APR-2015	15-APR-2015	✓	08-APR-2015	18-MAY-2015	✓

Page	: 3 of 5
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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)							
Leachable Metals by ICPAES	EG005C	2	13	**15.4**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Leachable Metals by ICPAES	EG005C	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Leachable Metals by ICPAES	EG005C	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	2	**50.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Leachable Metals by ICPAES	EG005C	1	13	**7.7**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Page	: 4 of 5
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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
Leachable Metals by ICPAES	EG005C	SOIL	In house: referenced to APHA 21st ed., 3120; USEPA SW 846 - 6010. The ICPAES technique ionises leachate sample atoms emitting a characteristic spectrum. This spectrum is then compared against matrix matched standards for quantification. This method is compliant with NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	SOIL	USEPA SW 846 - 8270D. Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Digestion for Total Recoverable Metals in TCLP Leachate	EN25C	SOIL	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
TCLP for Non & Semivolatile Analytes	EN33a	SOIL	In house QWI-EN/33 referenced to USEPA SW846-1311. The TCLP procedure is designed to determine the mobility of both organic and inorganic analytes present in wastes. The standard TCLP leach is for non-volatile and Semivolatile test parameters.
Separatory Funnel Extraction of Liquids	ORG14	SOIL	USEPA SW 846 - 3510B. 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

Page	: 5 of 5
Work Order	: ES1507686
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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 SW 846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

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

Regular Sample Surrogates

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

Outliers : Analysis Holding Time Compliance

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

Matrix: SOIL

Method	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EN33: TCLP Leach						
Non-Volatile Leach: 14 day HT(e.g. SV organics)						
BH13_0.05-0.15	----	----	----	08-APR-2015	23-MAR-2015	**16**

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.**

S681-682 #4, #11

Fadi Soro

Fadi 2/4/15 10:30

From: Barbara Hanna
Sent: Thursday, 2 April 2015 9:05 AM
To: Fadi Soro
Subject: FW: TCLP request for ES1505924

Hi Fadi,

Could you please arrange this rebatch.

Thanks!

Kind Regards

Barbara Hanna

Client Services Manager
ALS | Environmental Division

277-289 Woodpark Road
Smithfield NSW 2164 Australia

T +61 2 8784 8555
F +61 2 8784 8500

www.alsglobal.com

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Environmental Division
Sydney
Work Order
ES1507686

Telephone : +61-2-8784 8555

From: Stephanie Martin [mailto:Stephanie.Martin@ghd.com]
Sent: Thursday, 2 April 2015 9:03 AM

1

To: Barbara Hanna
Cc: Brian Cork
Subject: TCLP request for ES1505924

Hi Barbara,

Please analyse the following samples from ES1505924 for TCLP:

1. BH11_3.4-3.6 for Nickel
2. BH13_0.05-0.15 for Benzo(a)pyrene

We require these results by next Thursday (9th April). Thanks.

Regards

Stephanie Martin
Graduate Environmental Scientist

GHD
T: +61 2 6650 5669 | V: 225669 | E: stephanie.martin@ghd.com
230 Harbour Drive, Coffs Harbour, NSW, 2450, Australia | http://www.ghd.com/
Water | Energy & Resources | Environment | Property & Buildings | Transportation

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Annexure B

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1505925**	Page	: 1 of 6
Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: 221757800		
C-O-C number	: ----	Date Samples Received	: 12-MAR-2015
Sampler	: JS	Issue Date	: 19-MAR-2015
Site	: ----		
		No. of samples received	: 6
Quote number	: EN/005/14	No. of samples analysed	: 6

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

WORLD RECOGNISED ACCREDITATION

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*
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

Page	:	2 of 6
Work Order	:	ES1505925
Client	:	GHD PTY LTD
Project	:	ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

General Comments

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

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

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

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

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

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

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

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Annexure B

Page : 3 of 6
Work Order : ES1505925
Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Client sample ID	MW1D	MW1S	MW2	MW3	MW4
				Client sampling date / time	11-MAR-2015 15:00	11-MAR-2015 15:00	11-MAR-2015 15:00	11-MAR-2015 15:00	11-MAR-2015 15:00
					ES1505925-001	ES1505925-002	ES1505925-003	ES1505925-004	ES1505925-005
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L		<0.001	**0.003**	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L		<0.001	<0.001	**0.002**	**0.001**	**0.002**
Nickel	7440-02-0	0.001	mg/L		<0.001	**0.006**	**0.001**	**0.001**	**0.008**
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		**0.008**	<0.005	**0.007**	**0.008**	**0.011**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	**360**	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	**360**	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	>C10_C16	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	**320**	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	**320**	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	1330-20-7	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5

Page	: 4 of 6
Work Order	: ES1505925
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)

Compound	CAS Number	LOR	Unit	Client sample ID	MW1D	MW1S	MW2	MW3	MW4
				Client sampling date / time	11-MAR-2015 15:00	11-MAR-2015 15:00	11-MAR-2015 15:00	11-MAR-2015 15:00	11-MAR-2015 15:00
					ES1505925-001	ES1505925-002	ES1505925-003	ES1505925-004	ES1505925-005
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		97.6	106	108	110	109
Toluene-D8	2037-26-5	0.1	%		102	96.3	109	108	104
4-Bromofluorobenzene	460-00-4	0.1	%		88.0	94.3	98.0	93.4	98.5

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Annexure B

Page	: 5 of 6
Work Order	: ES1505925
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	QW1	----	----	----	----
				Client sampling date / time	11-MAR-2015 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1505925-006	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----	
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----	
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----	
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----	
>C10 - C16 Fraction	>C10_C16	100	µg/L	<100	----	----	----	----	
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----	
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	
Toluene	108-88-3	2	µg/L	<2	----	----	----	----	
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----	
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----	
^ Total Xylenes	1330-20-7	2	µg/L	<2	----	----	----	----	
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----	
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%	111	----	----	----	----	
Toluene-D8	2037-26-5	0.1	%	99.2	----	----	----	----	
4-Bromofluorobenzene	460-00-4	0.1	%	96.2	----	----	----	----	

Page	: 6 of 6
Work Order	: ES1505925
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Surrogate Control Limits

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

Item 7.3

Annexure B

Environmental Division

SAMPLE RECEIPT NOTIFICATION (SRN)

Comprehensive Report

Work Order : **ES1505925**

Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	Page	: 1 of 2
Order number	: 221757800		
C-O-C number	: ----	Quote number	: ES2014GHDSER0765 (EN/005/14)
Site	: ----		
Sampler	: JS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Dates

Date Samples Received	: 12-MAR-2015	Issue Date	: 12-MAR-2015 21:32
Client Requested Due Date	: 19-MAR-2015	Scheduled Reporting Date	: **19-MAR-2015**

Delivery Details

Mode of Delivery	: Carrier	Temperature	: 6.0°C - Ice present
No. of coolers/boxes	: 3 HARD	No. of samples received	: 6
Security Seal	: Intact.	No. of samples analysed	: 6

General Comments

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

Issue Date	: 12-MAR-2015 21:32
Page	: 2 of 2
Work Order	: ES1505925
Client	: GHD PTY LTD

Sample Container(s)/Preservation Non-Compliances

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

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

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - W-04 TRHBTEXN	WATER - W-05 TRHBTEXN& Metals
ES1505925-001	11-MAR-2015 15:00	MW1D		✓
ES1505925-002	11-MAR-2015 15:00	MW1S		✓
ES1505925-003	11-MAR-2015 15:00	MW2		✓
ES1505925-004	11-MAR-2015 15:00	MW3		✓
ES1505925-005	11-MAR-2015 15:00	MW4		✓
ES1505925-006	11-MAR-2015 15:00	QW1	✓	

Proactive Holding Time Report

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

Requested Deliverables

ALL ACCOUNTS		
- A4 - AU Tax Invoice (INV)	Email	ap-fss@ghd.com
MR BRIAN CORK		
- *AU Certificate of Analysis - NATA (COA)	Email	brian.cork@ghd.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	brian.cork@ghd.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	brian.cork@ghd.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	brian.cork@ghd.com
- A4 - AU Tax Invoice (INV)	Email	brian.cork@ghd.com
- Chain of Custody (CoC) (COC)	Email	brian.cork@ghd.com
- EDI Format - ENMRG (ENMRG)	Email	brian.cork@ghd.com
- EDI Format - ESDAT GHD (ESDAT_GHD)	Email	brian.cork@ghd.com
- EDI Format - XTab (XTAB)	Email	brian.cork@ghd.com
NEWCASTLE ACCOUNTS PAYABLE		
- A4 - AU Tax Invoice (INV)	Email	ntleap@ghd.com

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: ES1505925	Page	: 1 of 7
Client	: GHD PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 12-MAR-2015
Sampler	: JS	Issue Date	: 19-MAR-2015
Order number	: 221757800		
		No. of samples received	: 6
Quote number	: EN/005/14	No. of samples analysed	: 6

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

WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

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

Signatories	*Position*	*Accreditation Category*
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics

Page	:	2 of 7
Work Order	:	ES1505925
Client	:	GHD PTY LTD
Project	:	ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

General Comments

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

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

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

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

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

Item 7.3

Annexure B

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: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG020F: Dissolved Metals by ICP-MS (QC Lot: 3859754)									
ES1505797-017	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES1505797-027	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.007	0.009	30.8	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 3859755)									
ES1505797-022	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES1505925-003	MW2	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3859629)									
ES1505852-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES1505852-011	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3859629)									
ES1505852-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES1505852-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 3859629)									
ES1505852-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES1505852-011	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

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Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 3859629) - continued									
ES1505852-011	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				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
EG020F: Dissolved Metals by ICP-MS (QCLot: 3859754)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.0	85	115
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.8	85	115
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.3	85	115
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.8	85	115
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	98.1	85	115
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.4	85	115
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.7	85	115
EG035F: Dissolved Mercury by FIMS (QCLot: 3859755)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.010 mg/L	97.7	78	114
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3859442)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	104	59	129
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	102	71	131
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	100	62	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3859629)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	97.5	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3859442)								
EP071: >C10 - C16 Fraction	>C10_C16	100	µg/L	<100	2500 µg/L	101	58.9	131
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	102	73.9	138
EP071: >C34 - C40 Fraction	----	50	µg/L	<100	1500 µg/L	100	67	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3859629)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	98.2	75	127
EP080: BTEXN (QCLot: 3859629)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.0	70	124
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	94.3	65	129
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	92.7	70	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	90.9	69	121

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Client : GHD PTY LTD
Project : ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080: BTEXN (QCLot: 3859629) - continued								
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.2	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	88.8	70	124

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: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 3859754)							
ES1505797-018	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	70	130
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	104	70	130
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.2	70	130
		EG020A-F: Copper	7440-50-8	0.2 mg/L	103	70	130
		EG020A-F: Lead	7439-92-1	0.2 mg/L	101	70	130
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	95.4	70	130
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	111	70	130
EG035F: Dissolved Mercury by FIMS (QCLot: 3859755)							
ES1505797-021	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	90.3	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3859629)							
ES1505852-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	92.3	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3859629)							
ES1505852-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	90.7	70	130
EP080: BTEXN (QCLot: 3859629)							
ES1505852-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.0	70	130
		EP080: Toluene	108-88-3	25 µg/L	78.7	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.8	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	84.4	70	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	88.6	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	94.5	70	130

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

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Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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

Sub-Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	MSD	Low	High	Value	Control Limit
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3859629)										
ES1505852-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	92.3	----	70	130	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3859629)										
ES1505852-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	90.7	----	70	130	----	----
EP080: BTEXN (QCLot: 3859629)										
ES1505852-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	81.0	----	70	130	----	----
		EP080: Toluene	108-88-3	25 µg/L	78.7	----	70	130	----	----
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.8	----	70	130	----	----
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	84.4	----	70	130	----	----
		EP080: ortho-Xylene	95-47-6	25 µg/L	88.6	----	70	130	----	----
		EP080: Naphthalene	91-20-3	25 µg/L	94.5	----	70	130	----	----
EG020F: Dissolved Metals by ICP-MS (QCLot: 3859754)										
ES1505797-018	Anonymous	EG020A-F: Arsenic	7440-38-2	0.2 mg/L	102	----	70	130	----	----
		EG020A-F: Cadmium	7440-43-9	0.05 mg/L	104	----	70	130	----	----
		EG020A-F: Chromium	7440-47-3	0.2 mg/L	97.2	----	70	130	----	----
		EG020A-F: Copper	7440-50-8	0.2 mg/L	103	----	70	130	----	----
		EG020A-F: Lead	7439-92-1	0.2 mg/L	101	----	70	130	----	----
		EG020A-F: Nickel	7440-02-0	0.2 mg/L	95.4	----	70	130	----	----
		EG020A-F: Zinc	7440-66-6	0.2 mg/L	111	----	70	130	----	----
EG035F: Dissolved Mercury by FIMS (QCLot: 3859755)										
ES1505797-021	Anonymous	EG035F: Mercury	7439-97-6	0.0100 mg/L	90.3	----	70	130	----	----

ALS Environmental

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **ES1505925**	Page	: 1 of 5
Client	: GHD PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR BRIAN CORK	Contact	: Barbara Hanna
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: brian.cork@ghd.com	E-mail	: Barbara.Hanna@alsglobal.com
Telephone	: 02 6650 5666	Telephone	: +61 2 8784 8555
Facsimile	: ----	Facsimile	: +61 2 8784 8555
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
C-O-C number	: ----	Date Samples Received	: 12-MAR-2015
Sampler	: JS	Issue Date	: 19-MAR-2015
Order number	: 221757800		
		No. of samples received	: 6
Quote number	: EN/005/14	No. of samples analysed	: 6

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

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Work Order	: ES1505925
Client	: GHD PTY LTD
Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

Analysis Holding Time Compliance

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

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

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

Matrix: **WATER**

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
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
MW1D,	MW1S,	11-MAR-2015	---	07-SEP-2015	----	18-MAR-2015	07-SEP-2015	✓
MW2,	MW3,							
MW4								
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)								
MW1D,	MW1S,	11-MAR-2015	---	08-APR-2015	----	18-MAR-2015	08-APR-2015	✓
MW2,	MW3,							
MW4								
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071)								
MW1D,	MW1S,	11-MAR-2015	14-MAR-2015	18-MAR-2015	✓	17-MAR-2015	23-APR-2015	✓
MW2,	MW3,							
MW4,	QW1							
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
MW1D,	MW1S,	11-MAR-2015	17-MAR-2015	25-MAR-2015	✓	17-MAR-2015	25-MAR-2015	✓
MW2,	MW3,							
MW4,	QW1							
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber VOC Vial - Sulfuric Acid (EP080)								
MW1D,	MW1S,	11-MAR-2015	17-MAR-2015	25-MAR-2015	✓	17-MAR-2015	25-MAR-2015	✓
MW2,	MW3,							
MW4,	QW1							

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Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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)							
Dissolved Mercury by FIMS	EG035F	2	12	**16.7**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	**10.5**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	2	20	**10.0**	**10.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Dissolved Mercury by FIMS	EG035F	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Dissolved Mercury by FIMS	EG035F	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH - Semivolatile Fraction	EP071	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Dissolved Mercury by FIMS	EG035F	1	12	**8.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	**5.3**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
TRH Volatiles/BTEX	EP080	1	20	**5.0**	**5.0**	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

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Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Dissolved Mercury by FIMS	EG035F	WATER	In house: Referenced to AS 3550, APHA 21st ed. 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) Samples are 0.45 um filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The 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 (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Separatory Funnel Extraction of Liquids	ORG14	WATER	USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.

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Project	: ESSENTIAL ENERGY DSI GLEN INNES ADDITIONAL WORKS

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 SW 846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

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

Regular Sample Surrogates

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

Outliers : Analysis Holding Time Compliance

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

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

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

- **No Quality Control Sample Frequency Outliers exist.**

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Annexure B

ALS Environmental

CHAIN OF CUSTODY

ALS Laboratory: please tick →

CLIENT: GHD	TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):	FOR LABORATORY USE ONLY (Circle)	
OFFICE: Coffs Harbour	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact?	Yes / No / N/A
PROJECT: Essential Energy DSI Glen Innes Additional works	ALS QUOTE NO.: EN/005/14	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes / No / N/A
ORDER NUMBER: 221757800		COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt:
PROJECT MANAGER: Brian Cork	CONTACT PH: 0438 837 488	CR: 1 2 3 4 5 6 7	Other comments:
SAMPLER: Jesse Simkus	SAMPLER MOBILE: 0404 542 354	RELINQUISHED BY:	RECEIVED BY:
COC emailed to ALS? (YES / NO) 12/3/15	EDD FORMAT (or default):	DATE/TIME: 12/3/15	DATE/TIME: 12/3 1200
Email Reports to (will default to PM if no other addresses are listed): brian.cork@ghd.com		RELINQUISHED BY:	RECEIVED BY:
Email Invoice to (will default to PM if no other addresses are listed): [illegible]@ghd.com		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).							Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	TRH, BTEXN, 8 metals (W-5)	TRH, BTEXN (W-4)						
1	MW1D	11/3/15	W	N, AG, VS	4	x							
2	MW1S	"	W	"	4	x							
3	MW2	"	W	"	4	x							
4	MW3	"	W	"	4	x							
5	MW4	"	W	"	4	x							
6	QW1	"	W	"	3		x						
				TOTAL									

Environmental Division
Sydney
Work Order
ES1505925

Telephone : +61-2-8784 8555

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag

Fadi Soro

From: Jesse Simkus <Jesse.Simkus@ghd.com>
Sent: Thursday, 12 March 2015 10:36 AM
To: ALSEnviro Sydney
Cc: Barbara Hanna; Fadi Soro
Subject: COC for Soil Samples (10/03/2015) sent 11/03/2015
Attachments: 12032015093001-0001.pdf

Hi again!

Final COC for the eskies (hopefully) received today.
This one is for soil samples collected 10/03/2015 and sent from Coffs yesterday 11/03/2015.
They are in a green eski (sent with a small blue eski and another green eski).

Cheers

Jesse Simkus
Environmental Engineer

GHD
T: +61 2 6650 5600 | D: +61 2 6650 5673 | M: 0404 54 23 54 | V: 225673 | F: +61 2 6650 5601 | E: jesse.simkus@ghd.com
230 Harbour Drive Coffs Harbour NSW 2450 Australia | www.ghd.com WATER | ENERGY & RESOURCES | ENVIRONMENT | PROPERTY & BUILDINGS | TRANSPORTATION

-----Original Message-----
From: ApeosPort-V C3375 T2 [mailto:cfsmail@ghd.com]
Sent: Thursday, 12 March 2015 10:30 AM
To: Jesse Simkus
Subject: Scan Data from FX-D5F3E6

Number of Images: 3

1

Attachment File Type: PDF

Device Name: ApeosPort-V C3375 T2
Device Location:

ALS Environmental

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EN1510985**

Client	: **GHD PTY LTD**	Laboratory	: Environmental Division Newcastle
Contact	: MR BRIAN CORK	Contact	: Peter Keyte
Address	: 230 Harbour Drive Coffs Harbour, NSW Australia 2450	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
E-mail	: brian.cork@ghd.com	E-mail	: peter.keyte@alsglobal.com
Telephone	: +61 02 6650 5600	Telephone	: +61 2 4014 2500
Facsimile	: +61 02 6652 6021	Facsimile	: +61 2 4967 7382
Project	: 221757800 - NNSW DSI Glen Innes	Page	: 1 of 2
Order number	: ----	Quote number	: ----
C-O-C number	: ----	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: ----		
Sampler	: JESSE SIMKUS		

Dates

Date Samples Received	: 25-Mar-2015	Issue Date	: 25-Mar-2015
Client Requested Due Date	: 01-Apr-2015	Scheduled Reporting Date	: **01-Apr-2015**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: ----
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables

Item 7.3

Annexure B

Issue Date	: 25-Mar-2015
Page	: 2 of 2
Work Order	: EN1510985 Amendment 0
Client	: GHD PTY LTD

Sample Container(s)/Preservation Non-Compliances

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

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

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

EN1510985-001	[09-Mar-2015]	One Hour Pit - C04777_S2827
EN1510985-002	[09-Mar-2015]	Eight Hour Pit - C04982_S2853
EN1510985-003	[09-Mar-2015]	Eight Hour Bench - C04992_S2831

Summary of Sample(s) and Requested Analysis

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

Matrix: **AIR**

Laboratory sample ID	Client sampling date / time	Client sample ID	AIR - VHPH3 (TO15X + TPH (NEPM/TRH))
EN1510985-001	[09-Mar-2015]	One Hour Pit C04777...	✓
EN1510985-002	[09-Mar-2015]	Eight Hour Pit C049...	✓
EN1510985-003	[09-Mar-2015]	Eight Hour Bench C0...	✓

Proactive Holding Time Report

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

Requested Deliverables

BRIAN CORK

- *AU Certificate of Analysis - NATA (COA)	Email	brian.cork@ghd.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	brian.cork@ghd.com
- *AU QC Report - DEFAULT (Anon QC Rep) - USEPA (QC-USEPA)	Email	brian.cork@ghd.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	brian.cork@ghd.com
- Chain of Custody (CoC) (COC)	Email	brian.cork@ghd.com
- EDI Format - ENMRG (ENMRG)	Email	brian.cork@ghd.com
- EDI Format - ESDAT (ESDAT)	Email	brian.cork@ghd.com
- EDI Format - ESDAT GHD (ESDAT_GHD)	Email	brian.cork@ghd.com
- EDI Format - XTab (XTAB)	Email	brian.cork@ghd.com

NTLEAP -

- A4 - AU Tax Invoice (INV)	Email	ntleap@ghd.com

AIR CANISTER CHAIN OF CUSTODY

ALS

If sourced from an ALS Laboratory: please tick →

Client Supplied Canister(s)? Y / N

CLIENT: GHD	TURNAROUND REQUIREMENTS: ☑ Standard TAT (List due date):	LABORATORY USE ONLY: (Circle)	
OFFICE: Coffs Harbour	(Standard TAT may be extended for multiple sequential analysis suites) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Rec Lab Y / N, NE Y / N, N/A	
PROJECT: NNSW DSI Glen Innes PROJECT NO: 22757800	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)	Valves Closed on Receipt? Rec Lab Y / N, NE Y / N, N/A
CANISTER REQUEST NO: PURCHASE ORDER NO.:	COUNTRY OF ORIGIN:	COC: 1 2 3 4 5 6 7	Canister/Sampler Complete and Not Damaged Yes / No
PROJECT MANAGER: Brian Cork	CONTACT PH: 0439 037 488	OF: 1 2 3 4 5 6 7	Other comment: Temperature °C
SAMPLER: Jesse Simkus	SAMPLER MOBILE: 0404542354	RELINQUISHED BY:	RELINQUISHED BY: / RELINQUISHED BY: / RELINQUISHED BY:
COC Emailed to ALS? (YES / NO)	EDD FORMAT (or default):	RECEIVED BY: 25/03/15 Mark.S 11:26am	RECEIVED BY: / RECEIVED BY: / RECEIVED BY:
Email Reports to (will default to PM if no other addresses are listed):			
Email Invoice to (will default to PM if no other addresses are listed): ntleap@ghd.com		Toll: TWAG347581002	
COMMENTS/SPECIAL HANDLING/REPLACEMENT OR RETURN INSTRUCTIONS:			

GAS SAMPLE CONTAINER INFORMATION

ALS USE ONLY	CANISTER / SAMPLE DETAILS					Canister Gauge Pressures (PSI)		Refer to Canister Verification Reports and COAs for pressures measured by the Lab					ANALYSES REQUESTED						Additional Information
								Reporting Requirements					Suite Codes must be listed to attract suite price						
LAB ID	CANISTER SERIAL NO.	FLOW CONTROLLER SERIAL NO.	CLIENT SAMPLE ID	DATE / TIME SAMPLED	MATRIX (eg Air, Soil Gas)	Pre-Sampling	Post Sampling	LORs: Ambient Air	LORs: Soil Gas (NEPM)	LORs: Other / Indoor	Units: ppbv, µg/m³	Units: ppmv, mg/m³	V1	PH3					Comments on LORs required, potential hazards, likely contaminant levels, or samples requiring specific QC analysis etc. (LOR defaults to routine method LOR after division)
1	4777	2827	ONE HOUR PIT	9/3/15	Air					X			X						
2	4982	2853	EIGHT HOUR PIT	↓	↓					↓			↓						
3	4992	2831	EIGHT HOUR BENCH	↓	↓					↓			↓						

Environmental Division
Newcastle
Work Order Reference
EN1510985

Telephone : +61 2 4014 2500

Job Specific Instructions:

ALS

GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

Inquiries: Client Services - Newcastle Phone : +61 (02) 4014 2500 E-mail: samples.newcastle@alsenviro.com

Dispatch to:		ALS Use ONLY	
Client / Office:	GHD		
Contact:	Brian Cork	Request Received By:	HW
Telephone:	(02) 6650 5666	Deliver By:	ASAP
ALS Quotation:		Date/Time Dispatched:	
Delivery Address:	230 Harbour Dr	Workorder:	
	Coffs Harbour NSW 2450	Agreed Rent Free Period:	14 days

SPECIAL INSTRUCTIONS:

Equipment Request

CANISTERS

No.	Canister Type	Size	Gauges	Valve	Cap	Rental	Leak Checked	Certified OK
3	Entech Silonite Canister (Summa™)	6L	Yes	S	Yes	$200 ea	✓ DAS	27.2.15
	Entech Silonite Canister (Summa™)	3.2L	Yes	S	Yes	$200 ea		

1 x 1hr sampler

CONNECTORS AND FLOW CONTROL DEVICES

No.	Equipment Type	Duration	Flow	T-Piece	Gauge	Certified	Sealed / Vacuum	Connection	No. Returned	Rental
~~1~~ 2	Passive Sampler – TWA	8hr		No	Yes	Yes	Yes/No	S		Incl Above
	¼" Swagelok connectors and ferrules (spares)	-	-	-	-	-	-			$5 ea. Replacement

☐ Other (specify)

¹ *Refer to Acceptance of Terms*

ALS use only			
Gauge Pressures on Included COC (Y/N): N	Recorded by: DAS	Leak Check OK (Y/N): Y	By: DAS 27.2.15
Canister Sampling Guide Included (Y/N): N	Packed by: DRS	Dispatch Time / Date:	27/2 PM
Number of Boxes: 2		Consignment Note Number:	ECN007213858
Courier / Dispatcher: TNT		Consignment Dispatched by:	NW

ENFMCOR1.1 11-05-11

RIGHT SOLUTIONS

www.alsglobal.com

ALS

GAS CANISTER SAMPLING EQUIPMENT — DISPATCH RECORD

ALS SUPPLIED EQUIPMENT

Item	Quantity	Item Description	Replacement Value	Serial Nos
	3	6L Silonite Summa™ canister		4977 ✓ 4982 ✓ 4992 ✓
		3.2L Silonite Summa™ canister		
	3	Passivated Sampler – 8hr × 2 1hr × 1	2831 2853 2827	#3 ✓ #3 ✓ #1 ✓

RIGHT SOLUTIONS

www.alsglobal.com

Appendix H – Waste classification

Introduction and Scope

As part of the Supplementary detailed site investigation (DSI) at the Essential Energy Glen Innes Field Service Centre, GHD has completed waste classification of soil from drill cuttings that were generated as a part of the soil investigation. Waste classification is required for the disposal of waste in accordance with the *Protection of the Environment Operations (POEO) Act* and its associated regulations.

Address

The Site is located at 148 Church Street, Glen Innes, NSW on Lot 2 in Deposit Plan 512765.

Consultant details

This waste classification has been prepared by:

GHD Pty Ltd
230 Harbour Drive
Coffs Harbour NSW 2450
ABN: 39 008 488 373
ACN: 008 488 373

Contaminant sources

The soil is impacted from historic site activities including power generation, storage of fuels and equipment including transformers and creosote storage.

Waste Description

The soil from investigations was left stored in two drums and is estimated to total 100 kg in weight. The soil consists of drill cuttings that were generated during the drilling of four boreholes. Odour and staining was noted at several depths during drilling.

Methodology

Sampling

Nine primary soil samples plus one duplicate were collected as a part of the supplementary DSI on 9 and 10 March 2015. Samples were collected up to depths of 7.0 metres below ground level (mbgl) and borehole logs were recorded at each location. Samples were taken where visual or olfactory evidence of contamination was noted. All fieldwork was undertaken in accordance with GHD's Standard Operating Field Procedures and all sampling was conducted using carefully documented and supervised quality assurance procedures.

Soil samples were transferred to appropriately preserved, laboratory-supplied sample containers. All samples were labelled with sample location, sample depth and sample date. The samples were then transferred to a chilled cooler for preservation prior to shipment to the laboratory under chain-of-custody documentation.

Laboratory Analysis

The samples were submitted to a NATA accredited laboratory (ALS) and assessed for the contaminants of concern identified during the initial DSI. In order to satisfy the solid waste guidelines, the analysis included heavy metals (arsenic, cadmium, chromium, lead, mercury and nickel), Polycyclic Aromatic Hydrocarbons (PAHs), Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethylbenzene and Xylene (BTEX). Concentrations of phenols, volatile and semi-volatile organic compounds, organochlorine/organophosphate pesticides, herbicides, polychlorinated biphenyls, chlorinated hydrocarbons and other potential CoPCs noted during the initial DSI were low (generally <LOR) they were not analysed during the supplementary DSI.

Results

Laboratory Results

Laboratory results are presented in Table A. Laboratory Certificates are presented in Appendix G.

Waste Classification

The waste material was compared to the criteria outlined in NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste*.

The waste did not meet the criteria for special waste, liquid waste or pre-classified waste hence waste classification was carried out using chemical assessment in accordance with the *Waste Classification Guidelines for General Solid Waste* (EPA 2014).

Exceedances of general solid waste thresholds (CT1) were noted for nickel (9 samples) and benzo(a)pyrence (2 samples). Exceedances of restricted solid waste thresholds (CT2) were noted for nickel (2 samples) and benzo(a)pyrene (1 sample).

Accordingly toxicity characteristics leaching procedure (TCLP) was carried out for the three samples exceeding CT2 thresholds. TCLP results indicated all analyte concentrations met general solid waste assessment (SCC1 and TCLP1) thresholds with the exception of benzo(a)pyrene for BH13_0.05-0.15 (17.5 mg/kg) which fell within restricted waste classification (between SCC1 of 10 mg/kg and SCC2 of 23 mg/kg). Applying a 95% upper confidence limit analysis of all benzo(a)pyrene concentrations resulted in a concentration of 16.5 mg/kg which still fell within restricted waste classification.

Therefore, the waste classification of the soil material is **RESTRICTED SOLID WASTE.** The material should be disposed of at a waste facility licensed to accept **RESTRICTED SOLID WASTE**, in accordance with the NSW EPA (2014) *Waste Classification Guidelines – Part 1: Classifying Waste*.

Appendix H
Table A - Soil Waste Classification

Essential Energy
Glen Innes
Essential Energy

									Site_ID	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes	Glen Innes
									Field_ID	BH11_2.0-2.2	BH11_3.4-3.6	BH11_3.4-3.6	BH12_1.0-1.1	QS02	BH12_3.0-3.2	BH12_3.7-3.9	BH13_0.05-0.15	BH13_0.05-0.15	BH13_0.3-0.4	BH14_0.8-1.0	BH14_1.3-1.5
									Location_Code	BH11	BH11	BH11	BH12	BH12	BH12	BH12	BH13	BH13	BH13	BH14	BH14
									Sample_Depth_Range	2-2.2	3.4-3.6	3.4-3.6	1-1.1	1-1.1	3-3.2	3.7-3.9	0.05-0.15	0.05-0.15	0.3-0.4	0.8-1	1.3-1.5
									Sampled_Date_Time	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015	9/03/2015
									Sample_Type	Normal	Normal	TCLP	Normal	Field_D	Normal	Normal	Normal	TCLP	Normal	Normal	Normal
Chem	ChemName	Unit	EQL	NSW EPA 2014 General Solid Waste (No leachate)	NSW EPA 2014 Restricted Solid Waste (No leachate)	NSW EPA 2014 General Solid Waste (with leachate)	NSW EPA 2014 General Solid Waste (leachate)	NSW EPA 2014 Restricted Solid Waste (with leachate)	NSW EPA 2014 Restricted Solid Waste (leachate)												
Inorganics	Moisture	%	1							26	24.7	-	20.8	25.1	26.8	21.1	7.4	-	26.3	26	26.5
	pH (Final)	pH units	0.1							-	-	5	-	-	-	-	-	5	-	-	-
	pH (Initial)	pH units	0.1							-	-	8.8	-	-	-	-	-	8.5	-	-	-
	pH (after HCL)	pH units	0.1							-	-	1.8	-	-	-	-	-	1.5	-	-	-
Metals	Arsenic	mg/kg	5	100	400	500		2000		<5	<5	-	<5	<5	<5	<5	9	-	<5	<5	<5
	Cadmium	mg/kg	1	20	80	100		400		<1	<1	-	<1	<1	<1	<1	<1	-	<1	<1	<1
	Chromium (III+VI)	mg/kg	2	100	400	1900		7600		70	208	-	156	190	47	173	7	-	204	286	224
	Copper	mg/kg	5							44	113	-	37	63	89	96	12	-	46	57	59
	Lead	mg/kg	5	100	400	1500		6000		5	<5	-	13	16	<5	<5	18	-	29	74	11
	Mercury	mg/kg	0.1	4	16	50		200		<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	0.2	0.4	0.1
	Nickel	mg/kg	2	40	160	1050	2	4200	8	126	481	<0.1	71	82	151	250	5	-	73	76	74
	Zinc	mg/kg	5							28	130	-	46	43	68	101	78	-	548	114	37
TRH - NEPM 2013	C6-C10 minus BTEX (F1)	mg/kg	10							<10	<10	-	<10	<10	<10	<10	<10	-	<10	<10	<10
	C6 - C10 Fraction	mg/kg	10							<10	<10	-	<10	<10	<10	<10	<10	-	<10	<10	<10
	>C10-C16 minus Naphthalene (F2)	mg/kg	50							<50	<50	-	<50	<50	<50	720	<50	-	<50	100	<50
	>C10 - C16 Fraction	mg/kg	50							<50	<50	-	<50	<50	<50	720	<50	-	<50	100	<50
	>C16 - C34 Fraction (F3)	mg/kg	100							<100	<100	-	<100	<100	<100	960	160	-	<100	260	<100
	>C34 - C40 Fraction (F4)	mg/kg	100							<100	<100	-	<100	<100	<100	<100	<100	-	<100	<100	<100
	>C10 - C40 (Sum of Total)	mg/kg	50							<50	<50	-	<50	<50	<50	1680	160	-	<50	360	<50
TRH - NEPM 1999	C6 - C 9 Fraction	mg/kg	10	650	2600	650		2600		<10	<10	-	<10	<10	<10	<10	<10	-	<10	<10	<10
	C10 - C14 Fraction	mg/kg	50							<50	<50	-	<50	<50	<50	350	<50	-	<50	<50	<50
	C15 - C28 Fraction	mg/kg	100							<100	<100	-	<100	<100	<100	1220	<100	-	<100	330	<100
	C29 - C36 Fraction	mg/kg	100							<100	<100	-	<100	<100	<100	<100	<100	-	<100	<100	<100
	C10 - C36 (Sum of Total)	mg/kg	50	10,000	40,000	10,000		40,000		<50	<50	-	<50	<50	<50	1570	<50	-	<50	330	<50
BTEX	Benzene	mg/kg	0.2	10	40	18		72		<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2
	Toluene	mg/kg	0.5	288	1152	518		2073		<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	Ethylbenzene	mg/kg	0.5	600	2400	1080		4320		<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	Xylene (o)	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	Xylene (m & p)	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	Xylene Total	mg/kg	0.5	1000	4000	1800		7200		<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	BTEX (Sum of Total) - Lab Calc	mg/kg	0.2							<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2
PAH	Polycylic aromatic hydrocarbons	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	123	-	13.8	1.1	<0.5
	Pyrene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	9.1	-	2.6	0.5	<0.5
	Acenaphthene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	Acenaphthylene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	4	-	<0.5	<0.5	<0.5
	Anthracene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	10.7	-	0.7	<0.5	<0.5
	Benz(a)anthracene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	3.3	-	1.4	<0.5	<0.5
	Benzo(a)pyrene	mg/kg	0.5	0.8	3.2	10	0.04	23	0.16	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	17.5	0.0007	1.1	<0.5	<0.5
	Benzo[b+j]fluoranthene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	34.6	-	1.7	<0.5	<0.5
	Benzo(k)fluoranthene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	10.1	-	0.7	<0.5	<0.5
	Benzo(g,h,i)perylene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	8.9	-	0.5	<0.5	<0.5
	Chrysene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	7.2	-	1.4	<0.5	<0.5
	Dibenz(a,h)anthracene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	2.4	-	<0.5	<0.5	<0.5
	Fluoranthene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	5.7	-	2.4	0.6	<0.5
	Fluorene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	8.7	-	<0.5	<0.5	<0.5
	Naphthalene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
	Phenanthrene	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	0.9	-	1.3	<0.5	<0.5
	Benzo(a)pyrene TEQ (zero) - Lab Calc	mg/kg	0.5							<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	25.7	-	1.5	<0.5	<0.5
	Benzo(a)pyrene TEQ (half LOR) - Lab Calc	mg/kg	0.5							0.6	0.6	-	0.6	0.6	0.6	0.6	25.7	-	1.8	0.6	0.6
	Benzo(a)pyrene TEQ (LOR) - Lab Calc	mg/kg	0.5							1.2	1.2	-	1.2	1.2	1.2	1.2	25.7	-	2	1.2	1.2

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Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	B.Cork	I.Gregson		I Gregson		12/05/15

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NSW GOVERNMENT | Revenue

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Calculation

Transfer of Land

Details entered:	
Execution date:	07/09/2022
Is this transfer related to land or business?:	Land
Purchase price or value:	$275,000.00
Claiming HCAP for new home:	No
Result:	
Purchase duty:	$7,985.00
Premium property duty:	$0.00
Total duty:	$7,985.00

Add $10.00 for each duplicate and $10.00 for each transfer.

Duty must be paid within three months of the date of exchange of contracts to avoid interest. The date of exchange is the date shown on the contract.

Use the interest calculator to determine if interest is payable on the transaction.

Use the mortgage calculator to calculate mortgage duty.

TOTAL DUTY PAYABLE @ SETTLEMENT $8,005.00

Note: All amounts are in Australian dollars.

If you need help using this calculator, contact us.