Locked Bag 2069, North Ryde NSW 1670
DX 8403 Ryde
Facsimile 9952 8070
Telephone 9952 8222

City of Ryde

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Cert No: PLN2009/2894
Date: 19 November 2009
Your Ref:

DOUGLAS PARTNERS
25 NOV 2009

Applicant: Douglas Partners
Att: Galia Nikolaeva
96 Hermitage Road
WEST RYDE NSW 2114

Property: **120-126 Herring Rd MACQUARIE PARK NSW 2113**
Description: **Lot B DP 368446**

Ppty Ref: 514293

INFORMATION PROVIDED PURSUANT TO SECTION 149(2) OF THE ACT.

1. NAMES OF RELEVANT ENVIRONMENTAL PLANNING INSTRUMENTS THAT APPLIES TO THE CARRYING OUT OF DEVELOPMENT ON THE LAND

a) LOCAL ENVIRONMENTAL PLAN AND DEEMED ENVIRONMENTAL PLANNING INSTRUMENTS
Ryde Planning Scheme - 1 June 1979 as amended.

b) DRAFT LOCAL ENVIRONMENTAL PLANS as exhibited under Section 66(1) (b) of the Act

Draft Ryde Local Environmental Plan 2008

Zone B4 Mixed Use

Objectives of zone
- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To create vibrant, active and safe communities and economically sound employment centres.
- To create safe and attractive environments for pedestrians.
- To recognise and reinforce topography, landscape setting and unique location in design and land-use.

1. Permitted without consent
Home based child care; Home occupations;

2. Permitted with consent
Boarding houses; Building identification signs; Business identification signs; Business premises; Child care centres; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Office premises; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Retail premises; Roads; Seniors housing; Shop top housing; Any other development not specified in 1 or 3.

3. Prohibited
Advertisements (except Building identification signs and Business identification signs); Agriculture; Biosolid waste applications; Biosolids treatment facilities; Brothels; Depots; Hazardous industries; Hazardous storage establishments; Heavy industries; Home occupation (sex services);Liquid fuel depots; Offensive industries; Offensive storage establishments; Sex service premises; Stock and sale yards; vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Waste or resource management facilities; Water recycling facilities; Water treatment facilities.

c) DEVELOPMENT CONTROL PLANS

City of Ryde Development Control Plan 2006.

Attention is drawn to Part 4.5 Macquarie Park Corridor of DCP 2006.

Development Control Plan No.34 – Exempt and Complying Development.

d) STATE ENVIRONMENTAL PLANNING POLICIES AND INSTRUMENTS (includes Draft Policies)

The Minister for Planning has notified Council that the following State Environmental Planning Policies and Regional Environmental Plans apply to the land and should be specified in this certificate:

State Environmental Planning Policies

State Environmental Planning Policy No. 1 - Development Standards.
State Environmental Planning Policy No. 4 - Development without Consent and Miscellaneous Exempt and Complying Development.
State Environmental Planning Policy No. 6 - Number of Storeys in a Building.
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 21 - Caravan Parks.
State Environmental Planning Policy No. 32 - Urban Consolidation.
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development.
State Environmental Planning Policy No. 70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 (as amended).
State Environmental Planning Policy (Temporary Structures and Places of Public Entertainment) 2007.
State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2004.
State Environmental Planning Policy (Major Projects) 2005 (as amended).
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
Draft State Environmental Planning Policy No. 66 - Integration of Land Use and Transport 2001.
Draft State Environmental Planning Policy (Application of Development Standards) 2004.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2008.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Repeal of REP Provisions) 2009
State Environmental Planning Policy (Affordable Rental Housing) 2009

State Environmental Planning Policy (Housing for Seniors of People with a Disability) 2004

Deemed State Environmental Planning Policies

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

For each environmental planning instrument referred to in Clause 1 (other than a SEPP or proposed SEPP):-

(a) ZONING

Business Special - Mixed Activity

(b) ZONING TABLE

The purposes for which development may or may not be carried out in accordance with the above Zone are as follows:-

Business Special - Mixed Activity

PURPOSES PERMISSIBLE WITHOUT CONSENT
Nil

PURPOSES PERMISSIBLE WITH CONSENT
Any purpose other than those referred to as prohibited

PURPOSES PROHIBITED
Brothels; caravan parks; car repair stations; gas holders; offensive or hazardous industries; industries referred to in Schedule 3 of the Ordinance; junk yards; liquid fuel depots; motor showrooms.

Environmentally Sensitive Land
The land has been identified by Council as being ' environmentally sensitive land'. The use of exempt and complying development provisions within Local Environmental Plan No.116 gazetted on the 25 November 2005 may be restricted. A map identifying all such land and known as 'Environmentally Sensitive Areas For Exempt and Complying Development 'is available for viewing at Council's Customer Service Centre.

(c) DEVELOPMENT STANDARDS FOR THE ERECTION OF A DWELLING HOUSE

The Ryde Planning Scheme Ordinance provides that a dwelling house shall not be erected on an allotment of land within any residential zone unless the allotment has a minimum area of 740sq.m (exclusive of access corridor) and a minimum 3m wide road frontage and access corridor width for hatchet-shaped allotments. A minimum area of 580sq.m, a minimum road frontage of 10m and a minimum width of 15m at a distance of 7.5m from the road alignment is required for other allotments.
Under the Draft Plan no development standards apply to the land that fix minimum land dimensions for the erection of a dwelling – house on the land.

(d) CRITICAL HABITAT

NO. The land does not include or comprise critical habitat under the Ryde Planning Scheme.
NO. The land does not include or comprise critical habitat under Draft Ryde Local Environmental Plan 2008.

(e) CONSERVATION AREA (however described)

NO. The land has not been identified as being within a heritage conservation area under the Ryde Planning Scheme.
No. The land has not been identified as being within a heritage conservation area under the Draft Plan

(f) ITEMS OF ENVIRONMENTAL HERITAGE (however described)

No. An item of environmental heritage under the Ryde Planning Scheme is not situated on the land.
No. An item of environmental heritage under the Draft Plan is not situated on the land.

OTHER PRESCRIBED INFORMATION

3. COMPLYING DEVELOPMENT
Whether or not the land is land on which no complying development may be carried out under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 and, if no complying development may be carried out on that land under that Policy, the reason why complying development may not be carried out on that land.

General Housing Code.

Complying development under the General Housing Code may not be carried out on this land. The land is excluded land being that the land as being:
* the land is not zoned R1, R2, R3, R4 or an equivalent residential zoning under an environmental planning instrument.

Housing Internal Alterations Code
Complying development under the Housing Internal Alterations Code may be carried out on the land.

General Commercial and Industrial Code
Complying development under the General Commercial and Industrial Code may be carried out on the land.

Note: It is necessary for the zoning, size of land and other criteria to be in accordance with that specified in *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 for certain types of development to occur .under the Policy.*

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

The land is not affected by the operation of section 38 or 39 of the Coastal Protection Act 1979.

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.

The land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act, 1961.

6. ROAD WIDENING AND ROAD REALIGNMENT
Whether or not the land is affected by any road widening

The land is not affected by any road widening or road realignment under:
(a)Division 2 of Part 3 of the Roads Act 1993,

(b) any environmental planning instrument
(c) any resolution of Council.

7. COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS
Whether or not the land is affected by a policy adopted by the council, or 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 council, that restricts the development because of the likelihood of:

(i) landslip NO.
(ii) bush fire NO.
(iii) tidal inundation NO.
(iv) subsidence NO.
(v) acid sulphate soil NO.
(vi) any other risk (other than flooding) NO.

Note: The fact that land has not been identified as being affected by a policy to restrict development because of the risks referred to does not mean that the risk is non-existent.

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. YES
2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls. YES
3) Words and expressions in this clause have the same meanings as in the instrument set out in the schedule to the standard instrument (Local Environmental Plans) Order 2006.

8. LAND RESERVED FOR ACQUISITION
Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act

No environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land provides for the acquisition of the land by a public authority as referred to in Section 27 of the Act.

9. CONTRIBUTIONS PLAN
The name of each contributions plan applying to the land:

City of Ryde Section 94 Development Contributions Plan 2007

10. BUSH FIRE PRONE LAND

The land described in this certificate is not bush fire prone land as defined under the Environmental Planning and Assessment Act 1979.

11. PROPERTY VEGETATION PLANS

The land is not subject to a property vegetation plan under the Native Vegetation Act 2003.

12. ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

There has not been an order made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

13. DIRECTIONS UNDER PART 3A

There is no direction in force under section 75P (2)(c1) of the Environmental Planning and Assessment Act 1979.

14. SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

Part A: There has been no Site Compatibility Certificate issued (of which Council is aware) under Clause 25 of State Environment Planning Policy (Housing for seniors or People with a Disability) 2004.
Part B: There has not been any development consent granted since 12 October 2007 for development to which State Environment Planning Policy (Housing for seniors or People with a Disability) 2004 applies.

15. SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

There is no valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land.

16. SITE COMPATIBILITY CERTIFICATES FOR AFFORDABLE RENTAL HOUSING

There is no current site compatibility certificate (affordable rental housing) that Council is aware, in respect of proposed development on the land.

There are no terms of a kind referred to in clause 17(1) or 37(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.

Note. 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) The land to which this certificate relates IS NOT significantly contaminated land.
(b) The land to which this certificate relates IS NOT subject to a managment order.
(c) The land to which this certificate relates IS NOT the subject of an approved voluntary management proposal.
(d) The land to which this certificate relates IS NOT subject to an ongoing maintenance order.
(e) The land to which this certificate relates IS NOT subject of a site audit statement.

ADDITIONAL INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT

Environmental planning instruments or development control plans may place restrictions on matters such as:

i) the purpose for which buildings, works or land may be erected, carried out or used;
ii) the extent of development permitted;
iii) minimum site requirements; and/or
iv) the means of vehicular access to the land.

The instruments and the plans should be examined in relation to the specific restrictions which may apply to any development which may be proposed.

The land is subject to a Tree Preservation Order and Tree Management Policy, details of which are available at Council's Customer Service Centre.

There are exemptions from Council's Tree Preservation Order and Tree Management Policy relating to various species of trees; noxious trees; dying, dead or dangerous trees; and trees within three (3) metres of certain buildings.

Council has established a Significant Tree Register. Inclusion of a tree in the Register means that exemptions from the Tree Preservation Order will not apply to that tree.

Registers of Consents may be examined at Council's Customer Service Centre for particulars relating to development consents which may have been issued for the use or development of the land.

Enquiries regarding areas Reserved for County Road and County Open Space should be directed to the Roads and Traffic Authority and Department of Urban Affairs and Planning respectively.

The information provided concerning the Coastal Protection Act, 1979 is only to the extent that the Council has been notified by the Department of Public Works and Services.

Council has adopted by resolution a policy concerning the management of contaminated land. This policy applies to all land in the City of Ryde and will restrict development of the land if the circumstances set out in the policy prevail. Copies of the policy are available on Council's Website at www.ryde.nsw.gov.au.

FURTHER ADDITIONAL INFORMATION UNDER SECTION 149(5) OF THE ACT

The following Draft Development Control Plans apply to the land:-

City of Ryde Draft Development Control Plan 2008

Heritage
The property is within 100 metres of a heritage item as listed in Schedule 15 of the Ryde Planning Scheme Ordinance. Your attention is drawn to Clause 88 of the Ordinance which addresses the need to assess the impact of proposed development on properties in the vicinity of a heritage item on the heritage significance, visual curtilage and setting of the heritage item itself.

Master Plan - Macquarie Park Corridor adopted 17 February 2004 applies to the land.

Subject to Sydney Water Requirements
The land is subject to a requirement that arrangements satisfactory to Sydney Water are to be made for the provision of water and sewerage services to the land.

Note: The information in this certificate is current as of the date of the certificate.

Dominic Johnson
Group Manager – Environment and Planning

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DX 8403 Ryde
Facsimile 9952 8070
Telephone 9952 8222

City of Ryde

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Cert No: PLN2009/2895
Date: 19 November 2009
Your Ref:

DOUGLAS PARTNERS
25 NOV 2009

Applicant: Douglas Partners
Att: Galia Nikolaeva
96 Hermitage Road
WEST RYDE NSW 2114

Property: **120-126 Herring Rd MACQUARIE PARK NSW 2113**
Description: **Lot 1 DP 876482**

Ppty Ref: 514293

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Ryde Planning Scheme - 1 June 1979 as amended.

b) DRAFT LOCAL ENVIRONMENTAL PLANS as exhibited under Section 66(1) (b) of the Act

Draft Ryde Local Environmental Plan 2008

Zone B4 Mixed Use

Objectives of zone
- To provide a mixture of compatible land uses.
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
- To create vibrant, active and safe communities and economically sound employment centres.
- To create safe and attractive environments for pedestrians.
- To recognise and reinforce topography, landscape setting and unique location in design and land-use.

1. Permitted without consent
Home based child care; Home occupations;

2. Permitted with consent
Boarding houses; Building identification signs; Business identification signs; Business premises; Child care centres; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Office premises; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Retail premises; Roads; Seniors housing; Shop top housing; Any other development not specified in 1 or 3.

3. Prohibited
Advertisements (except Building identification signs and Business identification signs); Agriculture; Biosolid waste applications; Biosolids treatment facilities; Brothels; Depots; Hazardous industries; Hazardous storage establishments; Heavy industries; Home occupation (sex services);Liquid fuel depots; Offensive industries; Offensive storage establishments; Sex service premises; Stock and sale yards; vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Waste or resource management facilities; Water recycling facilities; Water treatment facilities.

c) DEVELOPMENT CONTROL PLANS

City of Ryde Development Control Plan 2006.

Attention is drawn to Part 4.5 Macquarie Park Corridor of DCP 2006.

Development Control Plan No.34 – Exempt and Complying Development.

d) STATE ENVIRONMENTAL PLANNING POLICIES AND INSTRUMENTS (includes Draft Policies)

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State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 21 - Caravan Parks.
State Environmental Planning Policy No. 32 - Urban Consolidation.
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development.
State Environmental Planning Policy No. 70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 (as amended).
State Environmental Planning Policy (Temporary Structures and Places of Public Entertainment) 2007.
State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2004.
State Environmental Planning Policy (Major Projects) 2005 (as amended).
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
Draft State Environmental Planning Policy No. 66 - Integration of Land Use and Transport 2001.
Draft State Environmental Planning Policy (Application of Development Standards) 2004.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2008.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Repeal of REP Provisions) 2009
State Environmental Planning Policy (Affordable Rental Housing) 2009

State Environmental Planning Policy (Housing for Seniors of People with a Disability) 2004

Deemed State Environmental Planning Policies

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

For each environmental planning instrument referred to in Clause 1 (other than a SEPP or proposed SEPP):-

(a) ZONING

Business Special - Mixed Activity

(b) ZONING TABLE

The purposes for which development may or may not be carried out in accordance with the above Zone are as follows:-

Business Special - Mixed Activity

PURPOSES PERMISSIBLE WITHOUT CONSENT
Nil

PURPOSES PERMISSIBLE WITH CONSENT
Any purpose other than those referred to as prohibited

PURPOSES PROHIBITED
Brothels; caravan parks; car repair stations; gas holders; offensive or hazardous industries; industries referred to in Schedule 3 of the Ordinance; junk yards; liquid fuel depots; motor showrooms.

Environmentally Sensitive Land
The land has been identified by Council as being ' environmentally sensitive land'. The use of exempt and complying development provisions within Local Environmental Plan No.116 gazetted on the 25 November 2005 may be restricted. A map identifying all such land and known as 'Environmentally Sensitive Areas For Exempt and Complying Development 'is available for viewing at Council's Customer Service Centre.

(c) DEVELOPMENT STANDARDS FOR THE ERECTION OF A DWELLING HOUSE

The Ryde Planning Scheme Ordinance provides that a dwelling house shall not be erected on an allotment of land within any residential zone unless the allotment has a minimum area of 740sq.m (exclusive of access corridor) and a minimum 3m wide road frontage and access corridor width for hatchet-shaped allotments. A minimum area of 580sq.m, a minimum road frontage of 10m and a minimum width of 15m at a distance of 7.5m from the road alignment is required for other allotments.
Under the Draft Plan no development standards apply to the land that fix minimum land dimensions for the erection of a dwelling – house on the land.

(d) CRITICAL HABITAT

NO. The land does not include or comprise critical habitat under the Ryde Planning Scheme.
NO. The land does not include or comprise critical habitat under Draft Ryde Local Environmental Plan 2008.

(e) CONSERVATION AREA (however described)

NO. The land has not been identified as being within a heritage conservation area under the Ryde Planning Scheme.
No. The land has not been identified as being within a heritage conservation area under the Draft Plan

(f) ITEMS OF ENVIRONMENTAL HERITAGE (however described)

No. An item of environmental heritage under the Ryde Planning Scheme is not situated on the land.
No. An item of environmental heritage under the Draft Plan is not situated on the land.

OTHER PRESCRIBED INFORMATION

3. COMPLYING DEVELOPMENT
Whether or not the land is land on which no complying development may be carried out under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 and, if no complying development may be carried out on that land under that Policy, the reason why complying development may not be carried out on that land.

General Housing Code.

Complying development under the General Housing Code may not be carried out on this land. The land is excluded land being that the land as being:
* the land is not zoned R1, R2, R3, R4 or an equivalent residential zoning under an environmental planning instrument.

Housing Internal Alterations Code
Complying development under the Housing Internal Alterations Code may be carried out on the land.

General Commercial and Industrial Code
Complying development under the General Commercial and Industrial Code may be carried out on the land.

Note: It is necessary for the zoning, size of land and other criteria to be in accordance with that specified in *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 for certain types of development to occur .under the Policy.*

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

The land is not affected by the operation of section 38 or 39 of the Coastal Protection Act 1979.

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.

The land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act, 1961.

6. ROAD WIDENING AND ROAD REALIGNMENT
Whether or not the land is affected by any road widening

The land is not affected by any road widening or road realignment under:
(a)Division 2 of Part 3 of the Roads Act 1993,

(b) any environmental planning instrument
(c) any resolution of Council.

7. COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS
Whether or not the land is affected by a policy adopted by the council, or 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 council, that restricts the development because of the likelihood of:

(i) landslip NO.
(ii) bush fire NO.
(iii) tidal inundation NO.
(iv) subsidence NO.
(v) acid sulphate soil NO.
(vi) any other risk (other than flooding) NO.

Note: The fact that land has not been identified as being affected by a policy to restrict development because of the risks referred to does not mean that the risk is non-existent.

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. YES
2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls. YES
3) Words and expressions in this clause have the same meanings as in the instrument set out in the schedule to the standard instrument (Local Environmental Plans) Order 2006.

8. LAND RESERVED FOR ACQUISITION
Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act

No environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land provides for the acquisition of the land by a public authority as referred to in Section 27 of the Act.

9. CONTRIBUTIONS PLAN
The name of each contributions plan applying to the land:

City of Ryde Section 94 Development Contributions Plan 2007

10. BUSH FIRE PRONE LAND

The land described in this certificate is not bush fire prone land as defined under the Environmental Planning and Assessment Act 1979.

11. PROPERTY VEGETATION PLANS

The land is not subject to a property vegetation plan under the Native Vegetation Act 2003.

12. ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

There has not been an order made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

13. DIRECTIONS UNDER PART 3A

There is no direction in force under section 75P (2)(c1) of the Environmental Planning and Assessment Act 1979.

14. SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR SENIORS HOUSING

Part A: There has been no Site Compatibility Certificate issued (of which Council is aware) under Clause 25 of State Environment Planning Policy (Housing for seniors or People with a Disability) 2004.
Part B: There has not been any development consent granted since 12 October 2007 for development to which State Environment Planning Policy (Housing for seniors or People with a Disability) 2004 applies.

15. SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

There is no valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land.

16. SITE COMPATIBILITY CERTIFICATES FOR AFFORDABLE RENTAL HOUSING

There is no current site compatibility certificate (affordable rental housing) that Council is aware, in respect of proposed development on the land.

There are no terms of a kind referred to in clause 17(1) or 37(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.

Note. 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) The land to which this certificate relates IS NOT significantly contaminated land.
(b) The land to which this certificate relates IS NOT subject to a managment order.
(c) The land to which this certificate relates IS NOT the subject of an approved voluntary management proposal.
(d) The land to which this certificate relates IS NOT subject to an ongoing maintenance order.
(e) The land to which this certificate relates IS NOT subject of a site audit statement.

ADDITIONAL INFORMATION PROVIDED UNDER SECTION 149(5) OF THE ACT

Environmental planning instruments or development control plans may place restrictions on matters such as:

i) the purpose for which buildings, works or land may be erected, carried out or used;
ii) the extent of development permitted;
iii) minimum site requirements; and/or
iv) the means of vehicular access to the land.

The instruments and the plans should be examined in relation to the specific restrictions which may apply to any development which may be proposed.

The land is subject to a Tree Preservation Order and Tree Management Policy, details of which are available at Council's Customer Service Centre.

There are exemptions from Council's Tree Preservation Order and Tree Management Policy relating to various species of trees; noxious trees; dying, dead or dangerous trees; and trees within three (3) metres of certain buildings.

Council has established a Significant Tree Register. Inclusion of a tree in the Register means that exemptions from the Tree Preservation Order will not apply to that tree.

Registers of Consents may be examined at Council's Customer Service Centre for particulars relating to development consents which may have been issued for the use or development of the land.

Enquiries regarding areas Reserved for County Road and County Open Space should be directed to the Roads and Traffic Authority and Department of Urban Affairs and Planning respectively.

The information provided concerning the Coastal Protection Act, 1979 is only to the extent that the Council has been notified by the Department of Public Works and Services.

Council has adopted by resolution a policy concerning the management of contaminated land. This policy applies to all land in the City of Ryde and will restrict development of the land if the circumstances set out in the policy prevail. Copies of the policy are available on Council's Website at www.ryde.nsw.gov.au.

FURTHER ADDITIONAL INFORMATION UNDER SECTION 149(5) OF THE ACT

The following Draft Development Control Plans apply to the land:-

City of Ryde Draft Development Control Plan 2008

Heritage
The property is within 100 metres of a heritage item as listed in Schedule 15 of the Ryde Planning Scheme Ordinance. Your attention is drawn to Clause 88 of the Ordinance which addresses the need to assess the impact of proposed development on properties in the vicinity of a heritage item on the heritage significance, visual curtilage and setting of the heritage item itself.

Master Plan - Macquarie Park Corridor adopted 17 February 2004 applies to the land.

Subject to Sydney Water Requirements
The land is subject to a requirement that arrangements satisfactory to Sydney Water are to be made for the provision of water and sewerage services to the land.

Note: The information in this certificate is current as of the date of the certificate.

Dominic Johnson
Group Manager – Environment and Planning

WorkCover NEW SOUTH WALES

Our Ref: D09/159418
Your Ref: Galia Nikolaeva

DOUGLAS PARTNERS
1- 1 DEC 2009

27 November 2009

Attention: Galia Nikolaeva
Douglas Partners Pty Ltd
96 Hermitage Road
West Ryde NSW

Dear Galia

Re Site: 120-128 Herring Road, Macquarie Park NSW

I refer to your site search request received on 23rd November 2009 requesting information on a Licence to Keep Dangerous Goods on the above site.

Enclosed are copies of the documents that WorkCover NSW holds on Dangerous Goods Licence, 35/037094 relating to the storage of dangerous goods at the above-mentioned premises, as listed on the Stored Chemical Information Database (SCID).

If you have any further queries, please contact WorkCover's Dangerous Goods Licensing staff on (02) 4321 5500.

Yours sincerely

Sue Waugh
Senior Licensing Officer
Dangerous Goods Team

Application for Licence to Keep Dangerous Goods

WorkCover NEW SOUTH WALES

Application for ✓ new licence ✓ amendment ☐ transfer ☐ renewal of expired licence

RECEIVED 04 FEB 2005 NEA

PART A – Applicant and site information See page 2 of Guidance Notes.

1 Name of applicant | ACN

MORLING THEOLOGICAL COLLEGE |

2 Postal address of applicant | Suburb/Town | Postcode

120 HERRING ROAD | EASTWOOD | 2122

3 Trading name or site occupier's name

AS ABOVE

4 Contact for licence inquiries

Phone | Fax | Name

8800 6742 | 9878 2175 | STEVE SHERRIFF

5 Previous licence number (if known) 35/ ? 037094

6 Previous occupier (if known) N/A

7 Site to be licensed

No | Street

120 | HERRING ROAD

Suburb / Town | Postcode

EASTWOOD | 2122

8 Main business of site BIBLE COLLEGE

9 Site staffing: Hours per day 24 Days per week 7

10 Site emergency contact

Phone | Name

8800 6742 | STEVE SHERRIFF

11 Major supplier of dangerous goods ELGAS

12 If a new site or for amendments to depots – see page 4 of Guidance Notes.

Plan stamped by | Name of Accredited Consultant | Date stamped

[signature] | 29-1-05

I certify that the details in this application (including any accompanying computer disk) are correct and cover all licensable quantities of dangerous goods kept on the premises.

13 Signature of applicant | Printed name | Date

x [signature] | x STEVE SHERRIFF | x 10/1/05

04-031

What is a depot? See page 5 of the Guidance Notes.

PART C – Dangerous Goods Storage *Complete one section per depot.*

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot Number	Type of depot (see page 5)	Depot Class	Maximum storage capacity
1	VAPOUR TANK	2.1	200 kg

UN Number	Proper Shipping Name	Class (I, II, III)	PG	Product or common name	Typical quantity	Unit, e.g. L, kg, m³
1075	LIQUEFIED PETROLEUM GAS	2.1	-	L.P. GAS	200	kg

Depot Number	Type of depot (see page 5)	Depot Class	Maximum storage capacity
2	VAPOUR TANK	2.1	200 kg

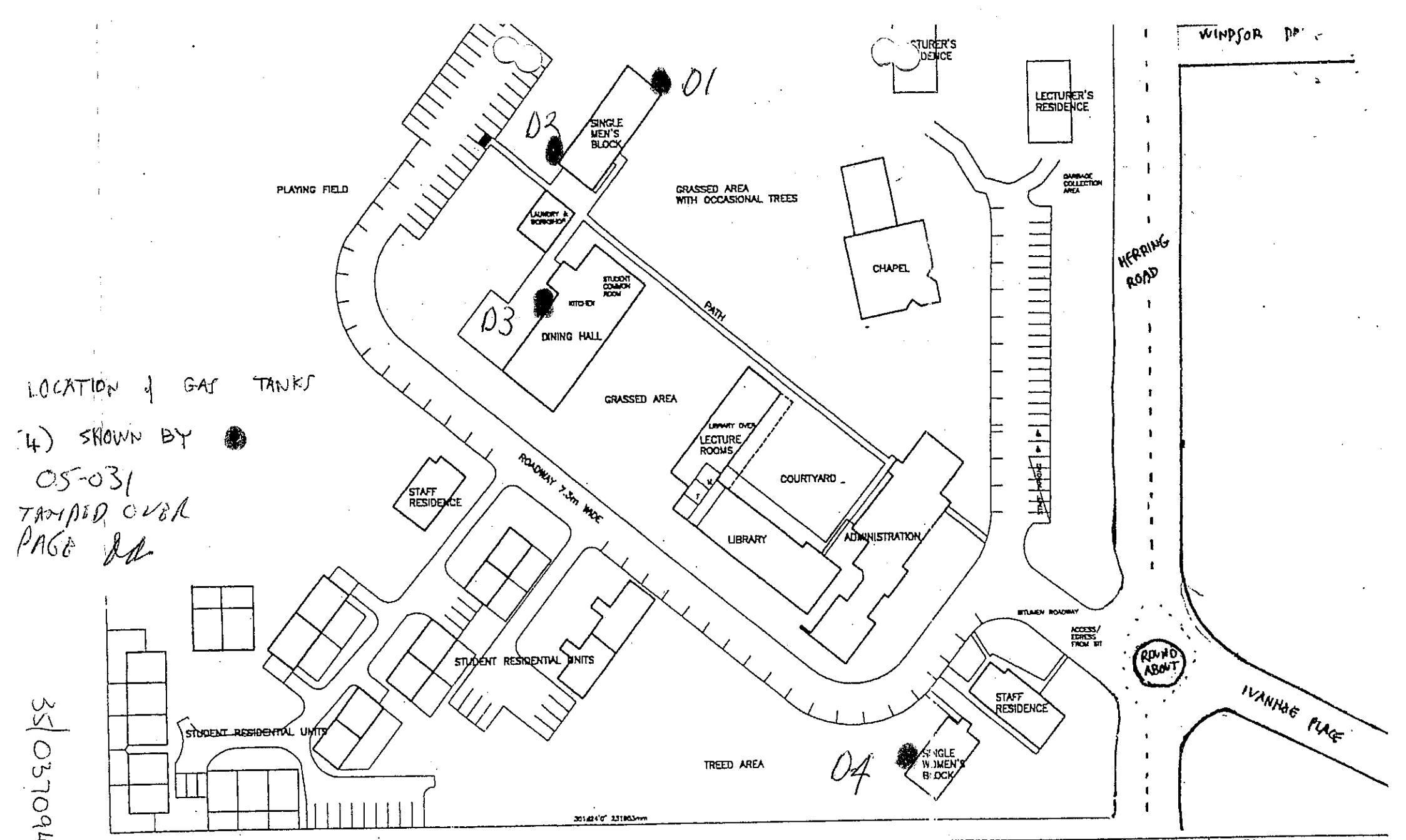
UN Number	Proper Shipping Name	Class (I, II, III)	PG	Product or common name	Typical quantity	Unit, e.g. L, kg, m³
1075	LIQUEFIED PETROLEUM GAS	2.1	-	L.P. GAS	200	kg

Depot Number	Type of depot (see page 5)	Depot Class	Maximum storage capacity
3	VAPOUR TANK	2.1	200 kg

UN Number	Proper Shipping Name	Class (I, II, III)	PG	Product or common name	Typical quantity	Unit, e.g. L, kg, m³
1075	LIQUEFIED PETROLEUM GAS	2.1	-	L.P. GAS	200	kg

Depot Number	Type of depot (see page 5)	Depot Class	Maximum storage capacity
4	VAPOUR TANK	2.1	200 kg

UN Number	Proper Shipping Name	Class (I, II, III)	PG	Product or common name	Typical quantity	Unit, e.g. L, kg, m³
1075	LIQUEFIED PETROLEUM GAS	2.1	-	L.P. GAS	200	kg



LOCATION of GAS TANKS

4) SHOWN BY ●

05-031

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PAGE 4a

35/037094

120 - 128 HERRING ROAD

SITE PLAN

REVISIONS		
REV.	DATE	REVISION DESCRIPTION

GENERAL NOTES

CONTRACTOR TO CHECK DIMENSIONS AND LEVELS ON SITE BEFORE COMMENCING CONSTRUCTION. WORK TO FIGURED DIMENSIONS AND NOT SCALE FROM DRAWING. REPORT ANY DISCREPANCIES IN THIS DRAWING OR LIKELY TO THE ARCHITECT.

THIS DRAWING IS COPYRIGHT AND MAY NOT BE REPRODUCED OR TRANSMITTED WITHOUT PERMISSION OF ANDREW BLAMEY ARCHITECTS P.L. PARTS REMOVED.

THIS DRAWING IS FOR DISCUSSION PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION UNLESS AUTHORISED BY ANDREW BLAMEY ARCHITECTS.

AUTHORISED FOR CONSTRUCTION ON .....

AUTHORISED BY .....

Andrew Blamey Architects
28 Azalea Grove, Pennant Hills NSW 2120
Tel 484 0363 Fax 875 4002 Mob 015 204 801

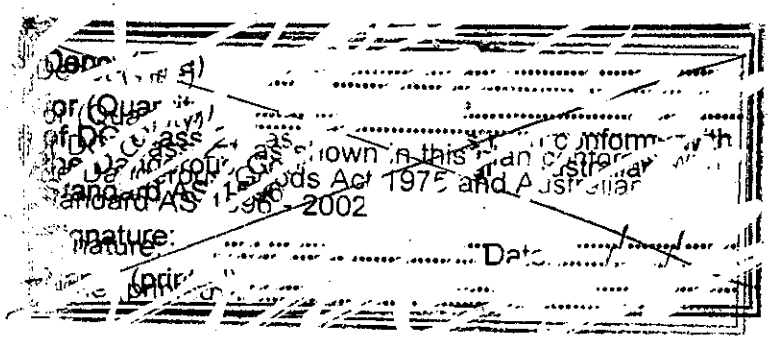
PROJECT & ADDRESS

MORLING COLLEGE
SITE PLAN
120 HERRING ROAD, EASTWOOD

DRAWING TITLE: SITE PLAN

SCALE: 1:1000 DATE: APRIL 1996

JOB NUMBER: xxx DRAWING NUMBER: A01



05-031

Depot (Title) MORLING THEOLOGICAL COLLEGE

or (Quantity) DI 1 MENS ABLUTIONS BLOCK 1X190 HG VAPOUR CY

of DG Class 2.1 as shown in this plan conforms with the Dangerous Goods Act 1975 and Australian Standard AS 1596 - 2002

Signature: Date: 27/1/05

Name (printed) DARREN J ALLEN

DEPOT 2 MENS ABLUTIONS BLOCK 1X190 HG VAPOUR CYL

DEPOT 3 DINING HALL 1X190 HG VAPOUR CYL

DEPOT 4 WOMENS ABLUTION BLOCK 1X190 HG VAPOUR CYL

APPENDIX D
Site Photographs

Photo 1: view of earth mound and residence in eastern corner

Photo 2: view south east from north western corner

120-128 Herring Road, Macquarie Park Site Photographs	**Project 71476.01**	**Date Dec 2009**	**Plate 1**

Douglas Partners
Geotechnics • Environment • Groundwater

Photo 3: view of playing field at the rear of the site

Photo 4: view of creek at the rear of the site

120-128 Herring Road, Macquarie Park Site Photographs	**Project 71476.01**	**Date Dec 2009**	**Plate 2**

Photo 5: view of mens block to be demolished

Photo 6: view of chapel and adjacent childcare centre to be demolished

120-128 Herring Road, Macquarie Park Site Photographs	**Project 71476.01**	**Date Dec 2009**	**Plate 3**

Photo 7: view of shed under which UST is suspected

Photo 8: view of mens block and parking area

120-128 Herring Road, Macquarie Park **Site Photographs**	**Project** **71476.01**	**Date** **Dec 2009**	**Plate 4**

APPENDIX E
Laboratory Test Results Certificates
Chain of Custody Records

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 35379

Client:
Douglas Partners
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Alistair Hyde-Page

Sample log in details:

Your Reference:	**71476.01, Morling College Subdivision**
No. of samples:	14 Soils
Date samples received:	17/11/09
Date completed instructions received:	17/11/09

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	23/11/09
Date of Preliminary Report:	Not Issued
Issue Date:	23/11/09

NATA accreditation number 2901. This document shall not be reproduced except in full.
This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

Matt Mansfield
Chemist

Envirolab Reference: 35379
Revision No: R 00

ACCREDITED FOR TECHNICAL COMPETENCE

vTPH & BTEX in Soil						
Our Reference:	UNITS	35379-6	35379-7	35379-8	35379-9	35379-10
Your Reference	----------	BH 8A/0.2-0.3	BH 8A/0.9-1.0	BH 9/0.2-0.3	BH 9/0.9-1.0	BH 10/0.2-0.3
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009	19/11/2009
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	95	92	93	102	98

vTPH & BTEX in Soil			
Our Reference:	UNITS	35379-11	35379-12
Your Reference	----------	BH 11/0.4-0.5	BH 12/0.4-0.5
Date Sampled	----------	17/11/2009	17/11/2009
Type of sample		Soil	Soil
Date extracted	-	18/11/2009	18/11/2009
Date analysed	-	19/11/2009	19/11/2009
vTPH C_6 - C_9	mg/kg	<25	<25
Benzene	mg/kg	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	96	95

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	35379-6	35379-7	35379-8	35379-9	35379-10
Your Reference	----------	BH 8A/0.2-0.3	BH 8A/0.9-1.0	BH 9/0.2-0.3	BH 9/0.9-1.0	BH 10/0.2-0.3
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	102	96	98	99	101

sTPH in Soil (C10-C36)			
Our Reference:	UNITS	35379-11	35379-12
Your Reference	----------	BH 11/0.4-0.5	BH 12/0.4-0.5
Date Sampled	----------	17/11/2009	17/11/2009
Type of sample		Soil	Soil
Date extracted	-	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009
TPH C_{10} - C_{14}	mg/kg	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100
Surrogate o-Terphenyl	%	96	100

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35379-6 BH 8A/0.2-0.3 17/11/2009 Soil	35379-7 BH 8A/0.9-1.0 17/11/2009 Soil	35379-8 BH 9/0.2-0.3 17/11/2009 Soil	35379-9 BH 9/0.9-1.0 17/11/2009 Soil	35379-10 BH 10/0.2-0.3 17/11/2009 Soil
Date extracted	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009	19/11/2009
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	1.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	1.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.6	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	1	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.7	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	118	114	117	116	119

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35379-11 BH 11/0.4-0.5 17/11/2009 Soil	35379-12 BH 12/0.4-0.5 17/11/2009 Soil
Date extracted	-	18/11/2009	18/11/2009
Date analysed	-	19/11/2009	19/11/2009
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	112	115

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35379-2 BH 4A/0.2-0.3 17/11/2009 Soil	35379-4 BH 5A/0.2-0.3 17/11/2009 Soil	35379-6 BH 8A/0.2-0.3 17/11/2009 Soil	35379-9 BH 9/0.9-1.0 17/11/2009 Soil	35379-10 BH 10/0.2-0.3 17/11/2009 Soil
Date extracted	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	110	111	116	114	112

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ---------- 	35379-11 BH 11/0.4-0.5 17/11/2009 Soil	35379-12 BH 12/0.4-0.5 17/11/2009 Soil	35379-14 BH 7A/0.1 17/11/2009 Soil
Date extracted	-	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009	18/11/2009
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	114	116	110

PCBs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35379-6 BH 8A/0.2-0.3 17/11/2009 Soil	35379-9 BH 9/0.9-1.0 17/11/2009 Soil	35379-10 BH 10/0.2-0.3 17/11/2009 Soil	35379-11 BH 11/0.4-0.5 17/11/2009 Soil	35379-12 BH 12/0.4-0.5 17/11/2009 Soil
Date extracted	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221*	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	116	114	112	114	116

Total Phenolics in Soil						
Our Reference:	UNITS	35379-6	35379-9	35379-10	35379-11	35379-12
Your Reference	----------	BH 8A/0.2-0.3	BH 9/0.9-1.0	BH 10/0.2-0.3	BH 11/0.4-0.5	BH 12/0.4-0.5
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/11/2009	20/11/2009	20/11/2009	20/11/2009	20/11/2009
Date analysed	-	20/11/2009	20/11/2009	20/11/2009	20/11/2009	20/11/2009
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0

Acid Extractable metals in soil						
Our Reference:	UNITS	35379-1	35379-2	35379-3	35379-4	35379-5
Your Reference	----------	BH 2A/0.6-0.7	BH 4A/0.2-0.3	BH 4A/0.9-1.0	BH 5A/0.2-0.3	BH 6A/0.2-0.3
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009	19/11/2009
Arsenic	mg/kg	10	8	8	5	6
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	39	20	21	26	19
Copper	mg/kg	<1	5	<1	3	1
Lead	mg/kg	15	27	27	33	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	2	<1	3	1
Zinc	mg/kg	2	43	2	30	13

Acid Extractable metals in soil						
Our Reference:	UNITS	35379-6	35379-7	35379-8	35379-9	35379-10
Your Reference	----------	BH 8A/0.2-0.3	BH 8A/0.9-1.0	BH 9/0.2-0.3	BH 9/0.9-1.0	BH 10/0.2-0.3
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009	19/11/2009
Arsenic	mg/kg	7	10	7	12	7
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	43	33	43	16	15
Copper	mg/kg	16	2	4	9	5
Lead	mg/kg	86	25	26	19	44
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	2	3	2	4
Zinc	mg/kg	150	12	24	14	15

Acid Extractable metals in soil				
Our Reference:	UNITS	35379-11	35379-12	35379-14
Your Reference	----------	BH 11/0.4-0.5	BH 12/0.4-0.5	BH 7A/0.1
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil
Date digested	-	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	19/11/2009	19/11/2009	19/11/2009
Arsenic	mg/kg	10	8	6
Cadmium	mg/kg	<0.5	<0.5	<0.5
Chromium	mg/kg	18	21	25
Copper	mg/kg	30	18	8
Lead	mg/kg	14	19	45
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	19	13	3
Zinc	mg/kg	14	17	69

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35379-1 BH 2A/0.6-0.7 17/11/2009 Soil	35379-2 BH 4A/0.2-0.3 17/11/2009 Soil	35379-3 BH 4A/0.9-1.0 17/11/2009 Soil	35379-4 BH 5A/0.2-0.3 17/11/2009 Soil	35379-5 BH 6A/0.2-0.3 17/11/2009 Soil
Date prepared	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Moisture	%	13	9.8	18	9.6	8.9

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35379-6 BH 8A/0.2-0.3 17/11/2009 Soil	35379-7 BH 8A/0.9-1.0 17/11/2009 Soil	35379-8 BH 9/0.2-0.3 17/11/2009 Soil	35379-9 BH 9/0.9-1.0 17/11/2009 Soil	35379-10 BH 10/0.2-0.3 17/11/2009 Soil
Date prepared	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Moisture	%	20	16	14	11	6.5

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35379-11 BH 11/0.4-0.5 17/11/2009 Soil	35379-12 BH 12/0.4-0.5 17/11/2009 Soil	35379-14 BH 7A/0.1 17/11/2009 Soil
Date prepared	-	18/11/2009	18/11/2009	18/11/2009
Date analysed	-	18/11/2009	18/11/2009	18/11/2009
Moisture	%	6.7	7.9	18

Asbestos ID - soils						
Our Reference:	UNITS	35379-2	35379-4	35379-6	35379-9	35379-10
Your Reference	----------	BH 4A/0.2-0.3	BH 5A/0.2-0.3	BH 8A/0.2-0.3	BH 9/0.9-1.0	BH 10/0.2-0.3
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	23/11/2009	23/11/2009	23/11/2009	23/11/2009	23/11/2009
Sample Description	-	Approx 40g Soil	Approx 40g Soil	Approx 40g Soil	Approx 40g Soil	Approx 40g Soil
Asbestos ID in soil	-	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Asbestos ID - soils					
Our Reference:	UNITS	35379-11	35379-12	35379-13	35379-14
Your Reference	----------	BH 11/0.4-0.5	BH 12/0.4-0.5	BH 12/0.7	BH 7A/0.1
Date Sampled	----------	17/11/2009	17/11/2009	17/11/2009	17/11/2009
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	23/11/2009	23/11/2009	23/11/2009	23/11/2009
Sample Description	-	Approx 40g Soil	Approx 40g Soil	Approx 40g Soil	Approx 40g Soil
Asbestos ID in soil	-	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Method ID	Methodology Summary
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/11/09	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/09
Date analysed	-			19/11/09	35379-6	19/11/2009 || 19/11/2009	LCS-3	19/11/09
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	35379-6	<25 || <25	LCS-3	104%
Benzene	mg/kg	0.5	GC.16	<0.5	35379-6	<0.5 || <0.5	LCS-3	89%
Toluene	mg/kg	0.5	GC.16	<0.5	35379-6	<0.5 || <0.5	LCS-3	112%
Ethylbenzene	mg/kg	1	GC.16	<1.0	35379-6	<1.0 || <1.0	LCS-3	103%
m+p-xylene	mg/kg	2	GC.16	<2.0	35379-6	<2.0 || <2.0	LCS-3	108%
o-Xylene	mg/kg	1	GC.16	<1.0	35379-6	<1.0 || <1.0	LCS-3	138%
Surrogate aaa-Trifluorotoluene	%		GC.16	94	35379-6	95 || 90 || RPD: 5	LCS-3	105%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/11/2009	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/2009
Date analysed	-			18/11/2009	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/2009
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	35379-6	<50 || <50	LCS-3	90%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	35379-6	<100 || <100	LCS-3	102%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	35379-6	<100 || <100	LCS-3	100%
Surrogate o-Terphenyl	%		GC.3	98	35379-6	102 || 101 || RPD: 1	LCS-3	95%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/11/09	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/09
Date analysed	-			19/11/09	35379-6	19/11/2009 || 19/11/2009	LCS-3	19/11/09
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	<0.1 || <0.1	LCS-3	111%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	<0.1 || <0.1	LCS-3	109%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	0.4 || 0.3 || RPD: 29	LCS-3	117%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	1.1 || 0.8 || RPD: 32	LCS-3	115%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	1.1 || 0.9 || RPD: 20	LCS-3	120%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	0.6 || 0.4 || RPD: 40	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	0.6 || 0.5 || RPD: 18	LCS-3	121%
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	35379-6	1 || 0.9 || RPD: 11	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	35379-6	0.7 || 0.6 || RPD: 15	LCS-3	117%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	0.4 || 0.3 || RPD: 29	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	35379-6	0.3 || 0.3 || RPD: 0	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	111	35379-6	118 || 114 || RPD: 3	LCS-3	114%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/11/2009	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/2009
Date analysed	-			18/11/2009	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/2009
HCB	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	105%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	114%
Heptachlor	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	80%
delta-BHC	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	103%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	96%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	115%
Dieldrin	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	107%
Endrin	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	107%
pp-DDD	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	109%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	LCS-3	111%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	112	35379-6	116 || 114 || RPD: 2	LCS-3	108%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/11/2009	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/2009
Date analysed	-			18/11/2009	35379-6	18/11/2009 || 18/11/2009	LCS-3	18/11/2009
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221*	mg/kg	0.1	GC-6	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	35379-6	<0.1 || <0.1	LCS-3	94%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	35379-6	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	112	35379-6	116 || 114 || RPD: 2	LCS-3	95%

QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/11/09	[NT]	[NT]	LCS-3	20/11/09
Date analysed	-			20/11/09	[NT]	[NT]	LCS-3	20/11/09
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	[NT]	[NT]	LCS-3	106%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			18/11/09	35379-6	18/11/2009 || 18/11/2009	LCS-4	18/11/09
Date analysed	-			19/11/09	35379-6	19/11/2009 || 19/11/2009	LCS-4	19/11/09
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4	35379-6	7 || 7 || RPD: 0	LCS-4	108%
Cadmium	mg/kg	0.5	Metals.20 ICP-AES	<0.5	35379-6	<0.5 || <0.5	LCS-4	109%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1	35379-6	43 || 43 || RPD: 0	LCS-4	112%
Copper	mg/kg	1	Metals.20 ICP-AES	<1	35379-6	16 || 15 || RPD: 6	LCS-4	115%
Lead	mg/kg	1	Metals.20 ICP-AES	<1	35379-6	86 || 83 || RPD: 4	LCS-4	108%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.1	35379-6	0.2 || <0.1	LCS-4	109%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1	35379-6	6 || 6 || RPD: 0	LCS-4	108%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1	35379-6	150 || 99 || RPD: 41	LCS-4	109%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			18/11/2009
Date analysed	-			18/11/2009
Moisture	%	0.1	LAB.8	<0.10

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	35379-9	18/11/09
Date analysed	-	[NT]	[NT]	35379-9	19/11/09
vTPH C_6 - C_9	mg/kg	[NT]	[NT]	35379-9	90%
Benzene	mg/kg	[NT]	[NT]	35379-9	93%
Toluene	mg/kg	[NT]	[NT]	35379-9	92%
Ethylbenzene	mg/kg	[NT]	[NT]	35379-9	88%
m+p-xylene	mg/kg	[NT]	[NT]	35379-9	88%
o-Xylene	mg/kg	[NT]	[NT]	35379-9	95%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	35379-9	99%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	35379-9	18/11/2009
Date analysed	-	[NT]	[NT]	35379-9	18/11/2009
TPH C_{10} - C_{14}	mg/kg	[NT]	[NT]	35379-9	89%
TPH C_{15} - C_{28}	mg/kg	[NT]	[NT]	35379-9	104%
TPH C_{29} - C_{36}	mg/kg	[NT]	[NT]	35379-9	100%
Surrogate o-Terphenyl	%	[NT]	[NT]	35379-9	96%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	35379-9	18/11/09
Date analysed	-	[NT]	[NT]	35379-9	19/11/09
Naphthalene	mg/kg	[NT]	[NT]	35379-9	105%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	35379-9	108%
Phenanthrene	mg/kg	[NT]	[NT]	35379-9	116%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	35379-9	111%
Pyrene	mg/kg	[NT]	[NT]	35379-9	116%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	35379-9	116%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	35379-9	108%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	[NT]	[NT]	35379-9	110%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	35379-9	18/11/2009
Date analysed	-	[NT]	[NT]	35379-9	18/11/2009
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	35379-9	109%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	35379-9	121%
Heptachlor	mg/kg	[NT]	[NT]	35379-9	96%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	35379-9	107%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	35379-9	101%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	35379-9	122%
Dieldrin	mg/kg	[NT]	[NT]	35379-9	106%
Endrin	mg/kg	[NT]	[NT]	35379-9	123%
pp-DDD	mg/kg	[NT]	[NT]	35379-9	116%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	35379-9	114%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	35379-9	116%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	35379-9	18/11/2009
Date analysed	-	[NT]	[NT]	35379-9	18/11/2009
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1221*	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	35379-9	97%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	35379-9	89%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	35379-9	18/11/09
Date analysed	-	[NT]	[NT]	35379-9	19/11/09
Arsenic	mg/kg	[NT]	[NT]	35379-9	102%
Cadmium	mg/kg	[NT]	[NT]	35379-9	106%
Chromium	mg/kg	[NT]	[NT]	35379-9	110%
Copper	mg/kg	[NT]	[NT]	35379-9	111%
Lead	mg/kg	[NT]	[NT]	35379-9	102%
Mercury	mg/kg	[NT]	[NT]	35379-9	111%
Nickel	mg/kg	[NT]	[NT]	35379-9	105%
Zinc	mg/kg	[NT]	[NT]	35379-9	102%

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample.
Envirolab recommends supplying 30-40g of sample in it's own container.
Asbestos was analysed by Approved Identifier: Matt Mansfield
INS: Insufficient sample for this test NT: Not tested PQL: Practical Quantitation Limit <: Less than >: Greater than
RPD: Relative Percent Difference NA: Test not required LCS: Laboratory Control Sample NR: Not requested

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the sample batch were within laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

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*Note, Job Number is incorrect on Jars
Job Number should be 71476.01

CHAIN OF CUSTODY

Project Name: Morling College subdivision
Project No: 71476.01 Sampler: AHP
Project Mgr: LR Mob. Phone:9809 0666
Email: alistair.hydepage@douglaspartners.com.au
Date Required: 23/11/09... Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W – water	Container type	Analytes: Heavy Metals	OCP	Asbestos	TPH/ BTEX	PAH	PCB	Phenol						Other	Notes
BH 2A	0.6-0.7	1	17/11/09	s	jar	*													Envirolab Services 12 Ashley St Chatswood NSW 2067 Ph: 9910 6200
BH 4A	0.2-0.3	2	17/11/09	s	jar	*	*	*											Job No: 35379
BH 4A	0.9-1.0	3	17/11/09	s	jar	*													Date received: 17/11/09
BH 5A	0.2-0.3	4	17/11/09	s	jar	*	*	*											Time received: 4:30
BH 6A	0.2-0.3	5	17/11/09	s	jar	*													Received by: JHie
BH 8A	0.2-0.3	6	17/11/09	s	jar	*	*	*	*	*	*	*							Temp: Cool/Ambient
BH 8A	0.9-1.0	7	17/11/09	s	jar	*			*	*									Cooling: Ice/Icepack
BH 9	0.2-0.3	8	17/11/09	s	jar	*			*	*									Security: Intact/Broken/None
BH 9	0.9-1.0	9	17/11/09	s	jar	*	*	*	*	*	*	*							
BH 10	0.2-0.3	10	17/11/09	s	jar	*	*	*	*	*	*	*							
BH 11	0.4-0.5	11	17/11/09	s	jar	*	*	*	*	*	*	*							
BH 12	0.4-0.5	12	17/11/09	s	jar	*	*	*	*	*	*	*							
BH 12	0.7	13	17/11/09	s	bag			*											
BH 7A	topsoil 0.1m	14	17/11/09	s	jar	*	*	*											

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Phone: (02) 9809 0666
Fax: (02) 9809 4095

Relinquished by: AHP Signed: Alistair Hyde Date & Time: 17/11/09 Received By: Date & Time: 17/11/09 4:30
Relinquished by: Signed: Date & Time: Received By: Date & Time:

Douglas Partners
Geotechnics - Environment - Groundwater

CHAIN OF CUSTODY

Project Name: Warringah Mall Dry Cleaner
Project No: 71015.04.. Sampler: AHP
Project Mgr: LR Mob. Phone:9809 0666
Email: alistair.hydepage@douglaspartners.com.au
Date Required: **23/11/09**... Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W – water	Container type	Analytes: Heavy Metals	TPH	PAH	VOC									Other	Notes
BH 101	4.9-5.0	15	15/11/09	s	jar	*			*										
BD1/151109		16.	15/11/09	s	jar	*			*										

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Phone: (02) 9809 0666
Fax: (02) 9809 4095

Relinquished by: AHP Signed: Date & Time: 17/11/09 Received By: Date & Time: 17/11/09 4:30.
Relinquished by: Signed: Date & Time: Received By: Date & Time:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 35412

Client:
Douglas Partners
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Alistair Hyde-Page

Sample log in details:

Your Reference:	**71476.01, Morling College Subdivision**
No. of samples:	4 Soils
Date samples received:	18/11/09
Date completed instructions received:	18/11/09

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	25/11/09
Date of Preliminary Report:	Not Issued
Issue Date:	24/11/09

NATA accreditation number 2901. This document shall not be reproduced except in full.
This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

Matt Mansfield
Chemist

Envirolab Reference: 35412
Revision No: R 00

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35412-1 BH 1A/0-0.1 18/11/2009 Soil	35412-2 BH 2A/0-0.1 18/11/2009 Soil	35412-3 BH 3A/0-0.1 18/11/2009 Soil	35412-4 BH 6A/0-0.1 18/11/2009 Soil
Date extracted	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009
Date analysed	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	110	112	104	99

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	35412-1 BH 1A/0-0.1 18/11/2009 Soil	35412-2 BH 2A/0-0.1 18/11/2009 Soil	35412-3 BH 3A/0-0.1 18/11/2009 Soil	35412-4 BH 6A/0-0.1 18/11/2009 Soil
Date digested	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009
Date analysed	-	20/11/2009	20/11/2009	20/11/2009	20/11/2009
Arsenic	mg/kg	<4	<4	5	8
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	11	6	13	23
Copper	mg/kg	19	7	17	4
Lead	mg/kg	16	25	34	32
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	6	3	2	2
Zinc	mg/kg	70	30	68	70

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ---------- 	35412-1 BH 1A/0-0.1 18/11/2009 Soil	35412-2 BH 2A/0-0.1 18/11/2009 Soil	35412-3 BH 3A/0-0.1 18/11/2009 Soil	35412-4 BH 6A/0-0.1 18/11/2009 Soil
Date prepared	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009
Date analysed	-	19/11/2009	19/11/2009	19/11/2009	19/11/2009
Moisture	%	4.3	2.0	7.5	10

Asbestos ID - soils					
Our Reference:	UNITS	35412-1	35412-2	35412-3	35412-4
Your Reference	----------	BH 1A/0-0.1	BH 2A/0-0.1	BH 3A/0-0.1	BH 6A/0-0.1
Date Sampled	----------	18/11/2009	18/11/2009	18/11/2009	18/11/2009
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	24/11/2009	24/11/2009	24/11/2009	24/11/2009
Sample Description	-	Approx 40g Soil	Approx 40g Soil	Approx 40g Soil	Approx 40g Soil
Asbestos ID in soil	-	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg	No asbestos found at reporting limit of 0.1g/kg
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Method ID	Methodology Summary
GC-5	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			19/11/2009	[NT]	[NT]	LCS-3	19/11/2009
Date analysed	-			19/11/2009	[NT]	[NT]	LCS-3	19/11/2009
HCB	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	105%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	97%
Heptachlor	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	60%
delta-BHC	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	98%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	82%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	89%
Dieldrin	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	88%
Endrin	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	64%
pp-DDD	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	81%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	LCS-3	97%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	104	[NT]	[NT]	LCS-3	108%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			19/11/09	[NT]	[NT]	LCS-8	19/11/09
Date analysed	-			20/11/09	[NT]	[NT]	LCS-8	20/11/09
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4	[NT]	[NT]	LCS-8	105%
Cadmium	mg/kg	0.5	Metals.20 ICP-AES	<0.5	[NT]	[NT]	LCS-8	110%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1	[NT]	[NT]	LCS-8	112%
Copper	mg/kg	1	Metals.20 ICP-AES	<1	[NT]	[NT]	LCS-8	114%
Lead	mg/kg	1	Metals.20 ICP-AES	<1	[NT]	[NT]	LCS-8	108%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.1	[NT]	[NT]	LCS-8	110%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1	[NT]	[NT]	LCS-8	111%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1	[NT]	[NT]	LCS-8	108%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			19/11/2009
Date analysed	-			19/11/2009
Moisture	%	0.1	LAB.8	<0.10

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample.
Envirolab recommends supplying 30-40g of sample in it's own container.
Asbestos was analysed by Approved Identifier: Joshua Lim
INS: Insufficient sample for this test NT: Not tested PQL: Practical Quantitation Limit <: Less than >: Greater than
RPD: Relative Percent Difference NA: Test not required LCS: Laboratory Control Sample NR: Not requested

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the sample batch were within laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

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CHAIN OF CUSTODY

Project Name: Morling College subdivision
Project No: 71476.01.. Sampler: AHP
Project Mgr: LR Mob. Phone:9809 0666
Email: alistair.hydepage@douglaspartners.com.au
Date Required: ... Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W – water	Container type	Analytes: Heavy Metals	OCP	Asbestos	TPH/ BTEX	PAH	PCB	Phenol						Other	Notes
BH 1A	0-0.1	1	18/11/09	s	jar	*	*	*											
BH 2A	0-0.1	2	18/11/09	s	jar	*	*	*											
BH 3A	0-0.1	3	18/11/09	s	jar	*	*	*											
BH 6A	0-0.1	4	18/11/09	s	jar	*	*	*											

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: 9910 6200

Job No: 35413
Date received: 18/11/09
Time received: 3:30pm
Received by: ICH
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Lab Report No. .....

Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114 Phone: (02) 9809 0666 Fax: (02) 9809 4095

Relinquished by: AHP Signed: Alyde Page Date & Time: 18/11/09 Received By: Ian Hutchinson Date & Time: 18/11/09 - 3:30pm

Relinquished by: Signed: Date & Time: Received By: Date & Time:

APPENDIX F
Quality Assurance / Quality Control Results

QA/QC PROCEDURES AND RESULTS

Q1 - FIELD QUALITY ASSURANCE AND QUALITY CONTROL

The field quality control (QC) procedures for sampling as prescribed in Douglas Partners *Field Procedures Manual* were followed at all times during the assessment.

Q1.1 Sampling Team

Field sampling was undertaken by DP Environmental Engineer Alistair Hyde-Page on 17 November 2009. Sampling was undertaken during fine weather conditions.

Q1.2 Sample Collection and Dispatch

Sample collection procedures and dispatch for soil are reported in Section 7.6, Soil Sampling Rationale and Regime.

Q1.3 Logs

Logs for each sampling location were recorded in the field. The location of individual samples were recorded on the field logs along with location, depth, initials of sampler, replicate locations, replicate type, site observations and weather conditions. Logs are presented in Appendix G.

Q1.4 Chain-of-Custody (COC)

Analysis to be performed on each sample was recorded on the COC which accompanied samples to the analytical laboratory. Signed copies of COCs are presented in Appendix E, following the laboratory reports.

Q1.5 Decontamination Procedures

Soil samples were recovered directly from the auger with rubber disposable gloves. New and/or clean augers were used at the commencement of each bore. No sample equipment decontamination was therefore required.

Q2 - LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL

Q2.1 Laboratory Accreditation

Only laboratories accredited by the National Association of Testing Authorities (NATA) for the chemical analyses undertaken were used for analysis of samples recovered as part of this assessment. Samples were submitted to Envirolab Services Pty Ltd (Chatswood) fopr analysis.

Envirolab are NATA accredited for the analyses undertaken. Envirolab's accreditation number is 2901 and they are accredited for compliance with ISO/IEC 17025. In-house procedures are employed by Envirolab in the absence of documented standards. This is performed yearly and is reviewed by NATA.

Envirolab participate in all common Proficiency Rounds including NARL (NMI) for organics and metals, PTA (NATA for organics, inorganics, asbestos and metals, QLD Govt for SPOCAS and National Residue Survey for metals). Envirolab also participate in non-accredited rounds conducted by the University of Wollongong.

Q2.2 Chain-of-Custody

Chain-of-custody information was recorded on the DP standard chain-of-custody (COC) sheets, which accompanied samples to the analytical laboratories. COCs contained sampling date, receipt date and time and the identity of samples. Copies of COCs, signed by the analytical laboratories, are presented in Appendix E, following the laboratory reports.

Q2.3 Batch Numbers and Holding Times

The following table lists the laboratory batch numbers applicable to this assessment, together with the corresponding sampling, sample receipt and COC receipt dates.

Table Q1 – Batch Details

Laboratory	Batch No.	Sampling Date	Sample Receipt	COC Receipt
Envirolab	35379	17/11/2009	17/11/2009	17/11/2009
Envirolab	35412	17/11/2009	18/11/2009	18/11/2009

Schedule B(3) of the *National Environment Protection (Assessment of Site Contamination) Measure* 1999 (NEPM) prepared by the National Environment Protection Council (NEPC), details recommended maximum holding times for samples for various analytes.

A review of the laboratory report sheets and chain-of-custody documentation indicated that holding times were met by both laboratories, as summarised in the table below.

Table Q2 - Holding Times

Matrix	Analyte	Recommended maximum holding time	Holding time met
Soil	Heavy Metals: As, Cd, Cr, Cu, Pb, Hg, Ni, Zn	6 months	yes
	TPH C_6-C_9	14 days	yes
	TPH C_{10}-C_{36}	14 days	yes
	BTEX	14 days	yes
	PAH	14 days	yes
	OCP	14 days	yes
	PCB	14 days	yes
	Phenols	14 days	yes
	Asbestos	Nil	yes

Q2.4 Analytical Methods

The laboratory analytical methods are provided on the laboratory certificates in Appendix E and summarised below in Table Q3.

The test methods used by the laboratories generally comply with those listed in the NEPM and the Australian and New Zealand Environment and Conservation Council (ANZECC)-1996 "*Guidelines for the Laboratory Analysis of Contaminated Soils*". Alternate methods used by the laboratories (i.e. not identified in the NEPM and ANZECC guidelines) have

been validated by the laboratories, as recommended in the NEPM and ANZECC guidelines, and endorsed by NATA.

Table Q3 - Soil Analysis

Analyte	PQL / LOR [1] (mg/kg) Envirolab / Labmark	Envirolab Reference Method	Labmark Reference Method
Heavy Metals Cd, Cr, Cu, Pb, Ni, Zn	1.0 / 0.1-5.0	ICP-AES (Metals.20)	E022.2 digested in nitric/hydrochloric acid, analysis by ICP-MS
Arsenic (As)	4.0 / 1.0	ICP-AES (Metals.20)	E022.2 digested in nitric/hydrochloric acid, analysis by ICP-MS
Mercury (Hg)	0.10 / 0.05	CV-AAS (Metals.21)	E026.2 digested in nitric/hydrochloric acid, analysis by CV-ICP-MS or FIMS
TPH C_6-C_9	25 / 10	P&T/GC/MS (GC.16)	E029.2/E016.2 methanol extraction, analysis by P&T/GC/FID/MSD
TPH C_{10}-C_{36}	250 / 250	GC/FID (GC.3)	E006.2 DCM/Acetone/Hexane (10:45:45) extraction, analysis by GC/FID
BTEX	0.5-2 / 0.2-1.0	P&T/GC/MS (GC.14)	E002.2 methanol extraction, analysis by P&T/GC/PID/MSD
OCP	0.1 / 0.05	GC/ECD (GC.5)	E013.2 DCM/Acetone/Hexane (10:45:45) extraction, analysis by GC/dual ECD
PCB	0.1 / 0.5	GC/ECD (GC.6)	E013.2 DCM/Acetone/Hexane (10:45:45) extraction, analysis by GC/dual ECD
PAH	0.05-0.1 / 0.5-1.0	GC/MS (GC.12 subset)	E007.2 DCM/Acetone/Hexane (10:45:45) extraction, analysis by GC/MS
Phenols	1-10 / 0.5-1.0	GC/MS (GC.12)	E008.2 DCM/Acetone/Hexane (10:45:45) extraction, analysis by GC/MS
Asbestos	qualitative identification	AS4964-2004, qualitative identification using Polarised Light Microscopy and Dispersion Staining Techniques.	Not analysed

1: Practical Quantitation Limit / Limit of Reporting

Q2.5 Practical Quantitation Limits - PQLs

The PQL (also referred to by some laboratories as the limit of reporting) is the lowest quantity of an analyte which can be detected by the adopted analysis.

A review of the laboratory results indicated that all PQLs were below the site assessment criteria.

Q2.6 Surrogate Spike

This sample is prepared by adding a known amount of surrogate, which behaves similarly to the analyte, prior to analysis of each sample. The recovery result indicates the proportion of the known concentration of the surrogate that is detected during analysis. The following Table Q4 summarises the reported recoveries and the acceptance criteria adopted by Envirolab.

Table Q4 – Surrogate Spike Recoveries

Laboratory	Reported Recoveries	Acceptance Limits
Envirolab	92-119% -	60-140% organics 10-140% SVOC and speciated phenols

The reported recoveries are within acceptance limits, indicating that the extraction technique was effective.

Q2.7 Laboratory Control Sample (LCS)

This sample comprises spiking either a standard reference material or a control matrix (such as a blank of sand or water) with a known concentration of specific analytes. The control sample is analysed with the sample batch and the recorded concentrations reported as a percentage recovery of the known or expected concentration, in order to determine how the laboratory has performed with regard to sample preparation and analytical procedure. LCS are analysed at a frequency of 1 in 20, with a minimum of one analysed per batch.

The following Table Q5 summarises the reported recoveries and the acceptance criteria adopted by Envirolab.

Table Q5 – Laboratory Control Samples

Laboratory	Reported Recoveries	Acceptance Limits
Envirolab	108 – 115% 80-138% -	70-130% inorganics / metals 60-140% organics 10-140% SVOC and speciated phenols

The results are within acceptance limits as specified by Envirolab, indicating that the extraction and analytical techniques were effective.

Q2.8 Laboratory Duplicate Results

The laboratory prepares duplicate samples from the supplied samples (original samples) and/or laboratory spiked samples, and carries out preparation and testing in the same manner as the original sample. The duplicate sample provides an indication of laboratory precision and reproducibility. The comparisons between the laboratory duplicates and original samples are reported on the laboratory test results certificates as Relative Percentage Difference (RPD).

The following Table Q6 summarises the reported RPD and the acceptance criteria adopted by Envirolab.

Table Q6 – Laboratory Duplicate Samples

Laboratory	Reported Recoveries	Acceptance Limits
Envirolab	0-41%	>5xPQL : 0-50% RPD <5xPQL : any RPD

The reported RPD for Envirolab were within the acceptance criteria adopted.

Q2.9 Laboratory Blank Results

The laboratory blank, sometimes referred to as the method blank or reagent blank is the sample prepared and analysed at the beginning of every analytical run, following calibration of the analytical apparatus. This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, it can be determined by

processing solvents and reagents in exactly the same manner as for samples. Laboratory blanks are analysed at a frequency of 1 in 20, with a minimum of one per batch.

The laboratory results for blanks indicated concentrations of all analytes to be below PQL therefore the results were considered to be acceptable.

Q2.10 Matrix Spike

The purpose of matrix spikes is to monitor the performance of the analytical methods used and to determine whether matrix interferences exist. Samples and replicates are spiked with identical concentrations of the target analyte before extraction or digestion. The results are reported as percentage recoveries of the known spike concentration.

The following Table Q7 summarises the reported RPD and the acceptance criteria adopted by each of the laboratories.

Table Q7 – Matrix Spike Samples

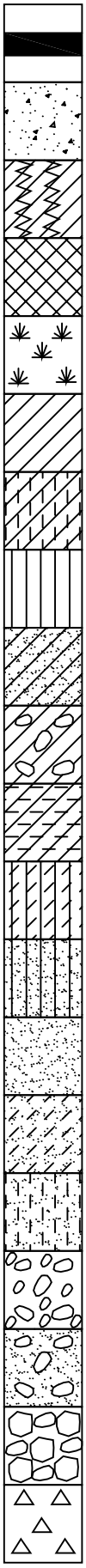
Laboratory	Reported Recoveries	Acceptance Limits
Envirolab	102-111% 88-123% -	70-130% inorganics / metals 60-140% organics 10-140% SVOC and speciated phenols

The matrix spike data presented fall within the acceptance limits of the laboratory.

APPENDIX G
Bore Logs and Notes Relating to this Report

GRAPHIC SYMBOLS FOR SOIL & ROCK

SOIL



BITUMINOUS CONCRETE

CONCRETE

TOPSOIL

FILLING

PEAT

CLAY

SILTY CLAY

SILT

SANDY CLAY

GRAVELLY CLAY

SHALY CLAY

CLAYEY SILT

SANDY SILT

SAND

CLAYEY SAND

SILTY SAND

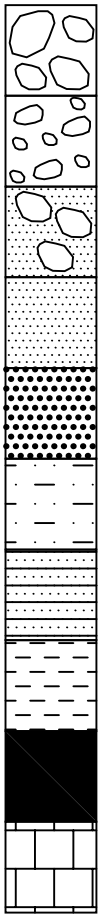
GRAVEL

SANDY GRAVEL

COBBLES/BOULDER

TALUS

SEDIMENTARY ROCK



BOULDER CONGLOMERATE

CONGLOMERATE

CONGLOMERATIC SANDSTONE

SANDSTONE FINE GRAINED

SANDSTONE COARSE GRAINED

SILTSTONE

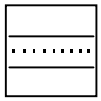
LAMINITE

MUDSTONE, CLAYSTONE, SHALE

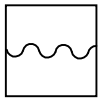
COAL

LIMESTONE

SEAMS

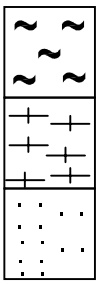


SEAM >10mm



SEAM <10mm

METAMORPHIC ROCK

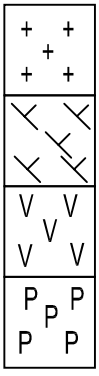


SLATE, PHYLLITE, SCHIST

GNEISS

QUARTZITE

IGNEOUS ROCK



GRANITE

DOLERITE, BASALT

TUFF

PORPHYRY

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 65.6 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 1A
PROJECT No: 71476.01
DATE: 18 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
65	0.0	TOPSOIL - dark brown, topsoil		E	0.0–0.1				
	0.3	SILTY CLAY - brown to dark brown, silty clay		E	0.3–0.4				
				E	0.6–0.7				
	0.8	Bore discontinued at 0.8m - target depth							
64	1								1
	2								2
63	3								3
62	4								4
61									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 0.8m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: AP
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 64.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 2A
PROJECT No: 71476.01
DATE: 18 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.02	TOPSOIL - grey brown, silty clay topsoil, trace rootlets		E	0.0				
		SILTY CLAY - pale brown, silty clay, trace fine to medium gravel			0.1				
				E	0.2				
					0.3				
	0.4	CLAY - red brown clay							
				E	0.6				
	0.7	Bore discontinued at 0.7m - target depth			0.7				
64	1								1
63	2								2
62	3								3
61	4								4
60									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 0.7m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: PB
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 64.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 3A
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
64	0.05	TOPSOIL - brown, clay topsoil, trace rootlets		E	0.0				
		SILTY CLAY - light red brown, silty clay			0.1				
				E	0.2				
					0.3				
	0.45				0.4				
	0.5	IRONSTONE BANDING		E	0.5				
		Bore discontinued at 0.5m - refusal on ironstone banding							
	1								1
63									
	2								2
62									
	3								3
61									
	4								4
60									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 0.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 65.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH 90°/--

BORE No: 4A
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
65	0.3	TOPSOIL - grey brown, silty clayey topsoil, trace rootlets, medium gravel		E	0.2				
		CLAY - stiff to very stiff, red brown to light red brown clay, trace of fine grained sand and ironstone gravel			0.3				
				E	0.4				
					0.5				
				E	0.9				
64	1.0	Bore discontinued at 1.0m - target depth			1.0				
63									
62									
61									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: PB
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 66.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 5A
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
66	0.2	TOPSOIL - light grey brown, silty clay topsoil, trace rootlets							
		SILTY CLAY - red brown, silty clay, trace fine grained sand and ironstone gravel		E	0.2 0.3				
				E	0.4 0.5				
	0.7	Bore discontinued at 0.7m - target depth							
	1								1
65									
	2								2
64									
	3								3
63									
	4								4
62									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 0.7m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 62.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 6A
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
62	0.02	TOPSOIL - light grey brown, silty clay topsoil, trace rootlets		E	0.0				
					0.1				
		SILTY CLAY - firm, light brown, silty clay		E	0.2				
					0.3				
	0.4	CLAY - firm to stiff, red brown clay							
				E	0.6				
	0.7	Bore discontinued at 0.7m - target depth			0.7				
61	1								1
60	2								2
59	3								3
58	4								4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 0.7m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 61.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 7A
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
61	0.02	TOPSOIL - brown, silty clay topsoil, trace rootlets, humid		E	0.0				
		FILLING - brown, silty clay filling			0.1				
				E	0.4				
					0.5				
					0.9				
60	1.0	CLAY - light grey and red brown, silty clay with some ironstone gravel and trace fine grained sand		E	1.0				
59	2.4	Bore discontinued at 2.4m - target depth							
58									
57									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 2.4m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 58.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 8A
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.02	TOPSOIL - brown, clayey topsoil, trace rootlets, humid							
		FILLING - brown, silty clay filling, trace fine gravel, humid		E	0.2				
					0.3				
				E	0.4				
					0.5				
58	0.8	FILLING - light brown, silty clay filling, humid		E	0.9				
	1				1.0				1
	1.4	CLAY - red brown clay		E	1.4				
					1.5				
57	1.9	CLAY - light red brown clay		E	1.9				
	2				2.0				2
	2.5	Bore discontinued at 2.5m - target depth							
56	3								3
55	4								4
54									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 17/11/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 59.2 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 9
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
59	0.02	TOPSOIL - brown, silty clay topsoil, trace rootlets, humid							
		FILLING - brown, silty clay filling, humid		E	0.2				
	0.3	FILLING - red brown, sandy clay filling, fine to medium gravel, humid			0.3				
				E	0.4				
					0.5				
	0.9	FILLING - red brown, clay filling, trace sand, fine to medium gravel, damp		E	0.9				
58	1				1.0				1
				E	1.3				
	1.4	SILTY CLAY - dark brown, silty clay, moist			1.4				
				E	1.5				
					1.6				
	1.8	CLAY - red brown clay, moist		E	1.9				
57	2				2.0				2
		- becoming wet at 2.3m							
	2.3	Bore discontinued at 2.3m - target depth		E	2.4				
					2.5				
	3								3
56									
	4								4
55									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 2.3m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: PB
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 66.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 10
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
66	0.05	TOPSOIL - brown, topsoil filling, trace rootlets							
		FILLING - pale brown, clay filling, trace fine to medium gravel		E	0.2				
					0.3				
				E	0.4				
	0.5	CLAY - pale red brown clay			0.5				
	0.65			E	0.6				
	0.7	IRONSTONE BANDING			0.7				
		Bore discontinued at 0.7m - refusal on ironstone							
65	1								1
64	2								2
63	3								3
62	4								4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 0.7m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo Ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: AB
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 67.2 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 11
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
67	0.05	TOPSOIL - brown, topsoil filling, trace rootlets							
		FILLING - light brown, silty clay filling, fine to medium gravel		E	0.2				
					0.3				
				E	0.4				
					0.5				
	0.8	FILLING - light brown, silty clay filling							
				E	0.9				
66	1.0	SILTY CLAY - light brown, silty clay			1.0				
	1.3	CLAY - stiff, light red brown clay							
				E	1.4				
	1.5	Bore discontinued at 1.5m - target depth			1.5				
65									
64									
63									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 1.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 17/12/09

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BOREHOLE LOG

CLIENT: Lipman Properties Pty Ltd
PROJECT: Proposed Residential Development
LOCATION: 128 Herring Road, Macquarie Park

SURFACE LEVEL: 66.8 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 12
PROJECT No: 71476.01
DATE: 17 Nov 09
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		FILLING - brown to light brown, silty clay filling, some small to medium gravel, asbestos fragment							
				E	0.2				
					0.3				
				E	0.4				
					0.5				
					0.6				
				E	0.7				
	0.7						Asbestos noted at 0.7m		
66		Bore discontinued at 0.7m - refusal in filling							
	1								1
65									
	2								2
64									
	3								3
63									
	4								4
62									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** AHP **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit) to 0.7m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: E = Environmental sample

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 17/12/09

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DESCRIPTION AND CLASSIFICATION OF ROCKS FOR ENGINEERING PURPOSES

DEGREE OF WEATHERING

Term	Symbol	Definition
Extremely Weathered	EW	Rock substance affected by weathering to the extent that the rock exhibits soil properties - i.e. it can be remoulded and can be classified according to the Unified Classification System, but the texture of the original rock is still evident.
Highly Weathered	HW	Rock substance affected by weathering to the extent that limonite staining or bleaching affects the whole of the rock substance and other signs of chemical or physical decomposition are evident. Porosity and strength may be increased or decreased compared to the fresh rock usually as a result of iron leaching or deposition. The colour and strength of the original fresh rock substance is no longer recognisable.
Moderately Weathered	MW	Rock substance affected by weathering to the extent that staining or discolouration of the rock substance usually by limonite has taken place. The colour of the fresh rock is no longer recognisable.
Slightly Weathered	SW	Rock substance affected by weathering to the extent that partial staining or discolouration of the rock substance usually by limonite has taken place. The colour and texture of the fresh rock is recognisable.
Fresh Stained	Fs	Rock substance unaffected by weathering, but showing limonite staining along joints.
Fresh	Fr	Rock substance unaffected by weathering.

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index ($I_{S(50)}$) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by Australian Standard 4133.4.1 - 1993.

Term	Symbol	Field Guide*	Point Load Index $I_{S(50)}$ MPa	Approx Unconfined Compressive Strength q_u ** MPa
Extremely low	EL	Easily remoulded by hand to a material with soil properties	<0.03	< 0.6
Very low	VL	Material crumbles under firm blows with sharp end of pick; can be peeled with a knife; too hard to cut a triaxial sample by hand. SPT will refuse. Pieces up to 3 cm thick can be broken by finger pressure.	0.03-0.1	0.6-2
Low	L	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150 mm long 40 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.	0.1-0.3	2-6
Medium	M	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.	0.3-1.0	6-20
High	H	Can be slightly scratched with a knife. A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken with pick with a single firm blow, rock rings under hammer.	1 - 3	20-60
Very high	VH	Cannot be scratched with a knife. Hand specimen breaks with pick after more than one blow, rock rings under hammer.	3 - 10	60-200
Extremely high	EH	Specimen requires many blows with geological pick to break through intact material, rock rings under hammer.	>10	> 200

Note that these terms refer to strength of rock material and not to the strength of the rock mass, which may be considerably weaker due to rock defects.

* The field guide assessment of rock strength may be used for preliminary assessment or when point load testing is not able to be done.

** The approximate unconfined compressive strength (q_u) shown in the table is based on an assumed ratio to the point load index of 20:1. This ratio may vary widely.

STRATIFICATION SPACING

Term	Separation of Stratification Planes
Thinly laminated	<6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	>2 m

DEGREE OF FRACTURING

This classification applies to diamond drill cores and refers to the spacing of all types of natural fractures along which the core is discontinuous. These include bedding plane partings, joints and other rock defects, but exclude known artificial fractures such as drilling breaks. The orientation of rock defects is measured as an angle relative to a plane perpendicular to the core axis. Note that where possible, recordings of the actual defect spacing or range of spacings is preferred to the general terms given below.

Term	Description
Fragmented	The core consists mainly of fragments with dimensions less than 20 mm.
Highly Fractured	Core lengths are generally less than 20 mm - 40 mm with occasional fragments.
Fractured	Core lengths are mainly 40 mm - 200 mm with occasional shorter and longer sections.
Slightly Fractured	Core lengths are generally 200 mm - 1000 mm with occasional shorter and longer sections.
Unbroken	The core does not contain any fracture.

ROCK QUALITY DESIGNATION (RQD)

This is defined as the ratio of sound (i.e. low strength or better) core in lengths of greater than 100 mm to the total length of the core, expressed in percent. If the core is broken by handling or by the drilling process (i.e. the fracture surfaces are fresh, irregular breaks rather than joint surfaces) the fresh broken pieces are fitted together and counted as one piece.

SEDIMENTARY ROCK TYPES

This classification system provides a standardised terminology for the engineering description of sandstone and shales, particularly in the Sydney area, but the terms and definitions may be used elsewhere when applicable.

Rock Type	Definition
Conglomerate	More than 50% of the rock consists of gravel-sized (greater than 2 mm) fragments
Sandstone:	More than 50% of the rock consists of sand-sized (0.06 to 2 mm) grains
Siltstone:	More than 50% of the rock consists of silt-sized (less than 0.06 mm) granular particles and the rock is not laminated.
Claystone:	More than 50% of the rock consists of clay or sericitic material and the rock is not laminated.
Shale:	More than 50% of the rock consists of silt or clay-sized particles and the rock is laminated.

Rocks possessing characteristics of two groups are described by their predominant particle size with reference also to the minor constituents, eg. clayey sandstone, sandy shale.

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NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, Geotechnical Site Investigations Code. In general, descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions.

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing with a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow

sampling or in-situ testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" — Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of say 4, 6 and 7

  as 4, 6, 7
  N = 13

- In the case where the test is discontinued short of full penetration, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm

  as 15, 30/40 mm.

The results of the tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

q_c (MPa) = (0.4 to 0.6) N (blows per 300 mm)

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

q_c = (12 to 18) c_u

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on

soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. Normally, there is a depth limitation of 1.2 m but this may be extended in certain conditions by the use of extension rods.

Two relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable, or possible to justify on economic grounds. In any case, the boreholes represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

If these occur, the Company will be pleased to assist with investigation or advice to resolve the matter.

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers,

Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.