North Byron Parklands

Technical Paper

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Building Site Geotechnical

Australian Soil And Concrete Testing P/L
A.S.C.T

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Geotechnical Site Investigation

At
North Byron Parklands
Site 1
Gatehouse & Office Development
Yelgun NSW 2483

Prepared For
Billinudgel Properties
Bangalow NSW 2479

Reference Number: 1758-001
31st May 2010

NATA
TECHNICAL COMPETENCE

Engineering, Geotechnical & Environmental Consultant & Technical Service
Laboratory and Field Testing Services for Soil, Rock and Aggregate
Concrete Instrumentation for Civil Engineering Project

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31st May 2010
Ref No: 1758-001

Billinudgel Properties P/L
P.O. Box 517
BANGALOW NSW 2479

GEOTECHNICAL REPORT
For: Site 1- Proposed Gatehouse & Office Development
At: North Byron Parklands, Yelgun NSW

Australian Soil & Concrete Testing Pty Ltd, at your request, has undertaken a site inspection and investigation for a proposed gatehouse and office development at North Byron Parklands, Yelgun, the proposed building envelope and the test locations are displayed in figure 1 of this report. From the results of testing the site has been classified as follows:

Silty Clay- Natural: CL-CH
Class M: Moderately reactive in accordance with the guidelines of AS 2870

The dynamic cone penetrometer tests in the sub-grade at the site indicate the bearing capacity to be:
100kPa allowable bearing capacity from 300mm below the ground surface.

The Potential Hazard Classification of the site is:
Class C: Minor Hazard in accordance with Appendix E, Table 1 of AS 1726.

From initial investigations, site observations and onsite testing, the proposed building site is located in the North Byron Parklands off the Tweed Valley Way and Jones Road at the southern end of the property on a small south facing hill in open pasture. The proposed gatehouse site is to be located to the east of the Tweed Valley Way and there is currently a strip of native trees and bush between the site and the road. The site has good access via a gate on the northern boundary from Jones Road and there are two (2) mature pine trees approximately 10 meters southeast of the building area. The proposed building envelope has a moderate slope 10% south toward the flat open paddocks and the ground is grassed and cleared. There were no services observed in the proposed building envelope or excavation problems with the soil profile generally consistent and the bearing capacity uniform for building construction purposes.

The site has fair to good drainage and some form of drainage should be maintained at all times, including the building construction period and directed to the council approved stormwater drainage system.

In conclusion, the sub-grade consists of moderately reactive silty clay natural soil that has adequate bearing capacity from 300mm below the ground surface for the proposed gatehouse and office development. There were no signs of slip or settlement at the time of the investigation and the site has been assessed as stable and will not be affected by landslide or subsidence when the building is constructed using good engineering practice. The results of all testing performed are attached for your information and should you require any further assistance, please do not hesitate to contact our office.

Yours Faithfully,
Australian Soil & Concrete Testing P/L

Brian Dick
Managing Director

AUSTRALIAN SOIL AND CONCRETE TESTING P/L A.B.N. 49 050 539 930
7/17 Southern Cross Drive, Ballina, NSW 2478. Telephone: (02) 66868 567, Fax: (02) 66868 396

Report on Soil Penetration Resistance

Client: Billinudgel Properties P/L	**Project No**:1758-001	**Project**: North Byron Parklands
Test Methods: AS 1289.6.3.2	**Report No**: 1758-001-001	**Date Tested**: 27/05/10
Lab No:12270	**Layer**: Sub-grade	**Test Location**: Proposed Gatehouse & office site 1

Test 1

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	6	Silty Clay: dark brown	Moist
300	0.6	12	Silty Clay: orange yellow	"
300	0.9	9	"	"
300	1.2	11	"	"
300	1.5	31	"	"
300	1.8	30/150	"	"

Test 2

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	6	Silty Clay: dark brown	Moist
300	0.6	3	Silty Clay: orange yellow	"
300	0.9	7	"	"
300	1.2	17	"	"
300	1.5	12	"	"
300	1.8	14	"	"

Test

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3			
300	0.6			
300	0.9			
300	1.2			
300	1.5			
300	1.8			

Test

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3			
300	0.6			
300	0.9			
300	1.2			
300	1.5			
300	1.8			

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ACCREDITED FOR TECHNICAL COMPETENCE

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Signed: _____ Date 31/05/2010
Brian Dick
(Approved Signatory)

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BORHOLE LOG

Client: Billinudgel Properties P/L	**Project No**: 1758-001	**Project**: North Byron Parklands, Yelgun	
Lab No: 12270	**Borehole No**: 1 & 2	**Page**: 1	**of**: 1

Borehole Inclination: 90°	**Borehole Direction**: Vertical	**Date Drilled**: 27/05/10
Surface Elevation: Existing Ground Level	**Drilling Method**: Power Auger	**Drill Type**: 100mm Auger
Borehole Location: Proposed Gatehouse & Office Area		

TEST DATA

Soil Description	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SILTY CLAY: dark brown, medium plastic, medium dry strength, some fine gravel, some organic matter, soft to firm, dry to moist.	0.0		CL	S-F	
SILTY CLAY: orange yellow, medium to high plastic, medium dry strength, some fine gravel, firm to hard, moist.	0.4		CL-CH	F-H	
Stopped no change	1.0 1.5				

Figure 1: Plan of the proposed gatehouse and office development site 1 at North Byron Parklands, Yelgun showing the borehole and dynamic cone penetrometer test locations.

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Geotechnical Site Investigation

At
North Byron Parklands
Site 2
Cultural Centre & Administration Development
Yelgun NSW 2483

Prepared For
Billinudgel Properties
Bangalow NSW 2479

Reference Number: 1758-002
31st May 2010

Australian Soil And Concrete Testing P/L
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31st May 2010.
Ref No: 1758-002

Billinudgel Properties P/L
P.O. Box 517
BANGALOW NSW 2479

GEOTECHNICAL REPORT
For: Site 2- Proposed Cultural Centre & Administration Development
At: North Byron Parklands, Yelgun NSW

Australian Soil & Concrete Testing Pty Ltd, at your request, has undertaken a site inspection and investigation for a proposed cultural centre and administration development at North Byron Parklands, Yelgun, the proposed building envelope and the test locations are displayed in figure 1 of this report. From the results of testing the site has been classified as follows:

Silty Clay- Natural: CL
Class M: Moderately reactive in accordance with the guidelines of AS 2870

The dynamic cone penetrometer tests in the sub-grade at the site indicate the bearing capacity to be:
100kPa allowable bearing capacity from 300mm below the ground surface.

The Potential Hazard Classification of the site is:
Class C: Minor Hazard in accordance with Appendix E, Table 1 of AS 1726.

From initial investigations, site observations and onsite testing, the proposed building site is located in the North Byron Parklands off the Tweed Valley Way and on the northern side of Jones Road. The proposed area is at the bottom of a northeast to southwest aligned hill which is currently covered with native trees and bush overlooking the open pasture to the northwest. The cultural centre and administration site has good access via a gate off Jones Road and a grass track, there is a small surface "v" drain that runs through the building area which will require filling or relocating. The proposed building envelope has a moderate slope 14% west northwest toward the open ground and is grassed and cleared. There were no services observed in the proposed building envelope or excavation problems with the soil profile generally consistent and the bearing capacity uniform for building construction purposes.

The site has fair to good drainage and some form of drainage should be maintained at all times, including the building construction period and directed to the council approved stormwater drainage system.

In conclusion, the sub-grade consists of moderately reactive silty clay natural soil that has adequate bearing capacity from 300mm below the ground surface for the proposed cultural centre and administration development. There were no signs of slip or settlement at the time of the investigation and the site has been assessed as stable and will not be affected by landslide or subsidence when the building is constructed using good engineering practice. The results of all testing performed are attached for your information and should you require any further assistance, please do not hesitate to contact our office.

Yours Faithfully,
Australian Soil & Concrete Testing P/L

Brian Dick
Managing Director

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ASCT Doc. No. R11 Rev. 03 – 1/5/08 BH

Report on Soil Penetration Resistance

Client: Billinudgel Properties P/L	**Project No**:1758-002	**Project**: North Byron Parklands
Test Methods: AS 1289.6.3.2	**Report No**: 1758-002-001	**Date Tested**: 27/05/10
Lab No:12270	**Layer**: Sub-grade	**Test Location**: Cultural centre & Admin site 2

Test 1

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	12	Silty Clay: dark brown	Moist
300	0.6	11	"	"
300	0.9	11	Silty Clay: pale brown	"
300	1.2	17	Silty Clay: orange brown grey	"
300	1.5	36	"	"
300	1.8	30/150	"	"

Test 2

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	9	Silty Clay: dark brown	Moist
300	0.6	8	"	"
300	0.9	8	Silty Clay: pale brown	"
300	1.2	17	Silty Clay: orange brown grey	"
300	1.5	38	"	"
300	1.8	Stopped	"	"

Test 3

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	5	Silty Clay: dark brown	Moist
300	0.6	8	"	"
300	0.9	15	Silty Clay: pale brown	"
300	1.2	18	Silty Clay: orange brown grey	"
300	1.5	43	"	"
300	1.8	Stopped	"	"

Test

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3			
300	0.6			
300	0.9			
300	1.2			
300	1.5			
300	1.8			

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BORHOLE LOG

Client: Billinudgel Properties P/L	**Project No**: 1758-002	**Project**: North Byron Parklands, Yelgun	
Lab No: 12270	**Borehole No**: 1 to 3	**Page**: 1	**of**: 1

Borehole Inclination: 90°	**Borehole Direction**: Vertical	**Date Drilled**: 27/05/10
Surface Elevation: Existing Ground Level	**Drilling Method**: Power Auger	**Drill Type**: 100mm Auger
Borehole Location: Proposed Cultural Centre & Administration Area		

TEST DATA

Soil Description	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
SILTY CLAY: dark brown, medium plastic, medium dry strength, trace of fine gravel, some organic matter, firm, moist.	0.0		CL	F	
SILTY CLAY: pale brown, medium plastic, medium dry strength, firm to stiff, moist.	0.5		CL	F-St	
SILTY CLAY: orange brown grey, medium plastic, medium dry strength, stiff to hard, moist.	0.8		CL	St-H	
Stopped no change	1.0 1.5				

Figure 1: Plan of the proposed cultural centre and administration development site 2 at North Byron Parklands, Yelgun showing the borehole and dynamic cone penetrometer test locations.

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Geotechnical Site Investigation

At
North Byron Parklands
Site 3
Conference Centre Development
Yelgun NSW 2483

Prepared For
Billinudgel Properties
Bangalow NSW 2479

Reference Number: 1758-003
31st May 2010

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Engineering, Geotechnical & Environmental Consultant & Technical Service
Laboratory and Field Testing Services for Soil, Rock and Aggregate
Concrete Instrumentation for Civil Engineering Project

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31st May 2010
Ref No: 1758-003

Billinudgel Properties P/L
P.O. Box 517
BANGALOW NSW 2479

GEOTECHNICAL REPORT
For: Site 3- Proposed Conference Centre Development
At: North Byron Parklands, Yelgun NSW

Australian Soil & Concrete Testing Pty Ltd, at your request, has undertaken a site inspection and investigation for a proposed conference centre development at North Byron Parklands, Yelgun, the proposed building envelope and the test locations are displayed in figure 1 of this report. From the results of testing the site has been classified as follows:

Silty Clay- Natural: CL
Class M: Moderately reactive in accordance with the guidelines of AS 2870

The dynamic cone penetrometer tests in the sub-grade at the site indicate the bearing capacity to be:
100kPa allowable bearing capacity from 300mm below the ground surface.

The Potential Hazard Classification of the site is:
Class C: Minor Hazard in accordance with Appendix E, Table 1 of AS 1726.

From initial investigations, site observations and onsite testing, the proposed building site is located in the North Byron Parklands off the Tweed Valley Way in the northwestern corner of the property. The proposed area is above a large natural amphitheatre and overlooks a large dam. Above the site is currently covered with native trees and pines overlooking the open pasture and dam. The conference centre site has poor access via a gate off Wooyung Road and a grass track, through the cane paddocks up to the building area. The proposed building envelope has a moderate to steep slope 22% northeast toward the dam and 20% south toward the amphitheatre and the ground is grassed and cleared. There were no services observed in the proposed building envelope or excavation problems with the soil profile generally consistent and the bearing capacity uniform for building construction purposes.

The site has fair to good drainage and some form of drainage should be maintained at all times, including the building construction period and directed to the council approved stormwater drainage system.

In conclusion, the sub-grade consists of moderately reactive silty clay natural soil that has adequate bearing capacity from 300mm below the ground surface for the proposed conference centre development. There were no signs of slip or settlement at the time of the investigation and the site has been assessed as stable and will not be affected by landslide or subsidence when the building is constructed using good engineering practice. The results of all testing performed are attached for your information and should you require any further assistance, please do not hesitate to contact our office.

Yours Faithfully,
Australian Soil & Concrete Testing P/L

Brian Dick
Managing Director

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Report on Soil Penetration Resistance

Client: Billinudgel Properties P/L	**Project No**:1758-003	**Project**: North Byron Parklands
Test Methods: AS 1289.6.3.2	**Report No**: 1758-003-001	**Date Tested**: 27/05/10
Lab No:12270	**Layer**: Sub-grade	**Test Location**: Conference centre site 3

Test 1

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	12	Silty Clay: dark brown	Moist
300	0.6	15	"	"
300	0.9	15	Silty Clay: pale brown	"
300	1.2	17	Silty Clay: orange brown grey	"
300	1.5	25	"	"
300	1.8	20/100	"	"

Test 2

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	8	Silty Clay: dark brown	Moist
300	0.6	17	"	"
300	0.9	30	Silty Clay: pale brown	"
300	1.2	31	Silty Clay: orange brown grey	"
300	1.5	Stopped	"	"
300	1.8		"	"

Test 3

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3	14	Silty Clay: dark brown	Moist
300	0.6	21	"	"
300	0.9	25	Silty Clay: pale brown	"
300	1.2	11	Silty Clay: orange brown grey	"
300	1.5	12	"	"
300	1.8	27	"	"

Test

Graduation Interval (mm)	Cumulative Depth (m)	No. of Blows Required	Soil Description	Moisture Condition
300	0.3			
300	0.6			
300	0.9			
300	1.2			
300	1.5			
300	1.8			

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BORHOLE LOG

Client: Billinudgel Properties P/L	**Project No**: 1758-003	**Project**: North Byron Parklands, Yelgun	
Lab No: 12270	**Borehole No**: 1 to 3	**Page**: 1	**of**: 1

Borehole Inclination: 90°	**Borehole Direction**: Vertical	**Date Drilled**: 27/05/10
Surface Elevation: Existing Ground Level	**Drilling Method**: Power Auger	**Drill Type**: 100mm Auger
Borehole Location: Proposed Conference Centre Area		

TEST DATA

Soil Description	Depth (m)	Graphic Symbol	Group Symbol	Consistency/ Strength	Sample
GRAVELLY SILTY CLAY: dark brown, medium plastic, medium dry strength, medium to fine gravel, some organic matter, firm, moist.	0.0		CL	F	
SILTY CLAY: orange yellow, medium plastic, medium dry strength, some fine gravel, stiff to hard, moist.	0.4		CL	St-H	
Stopped no change	1.0				
	1.5				

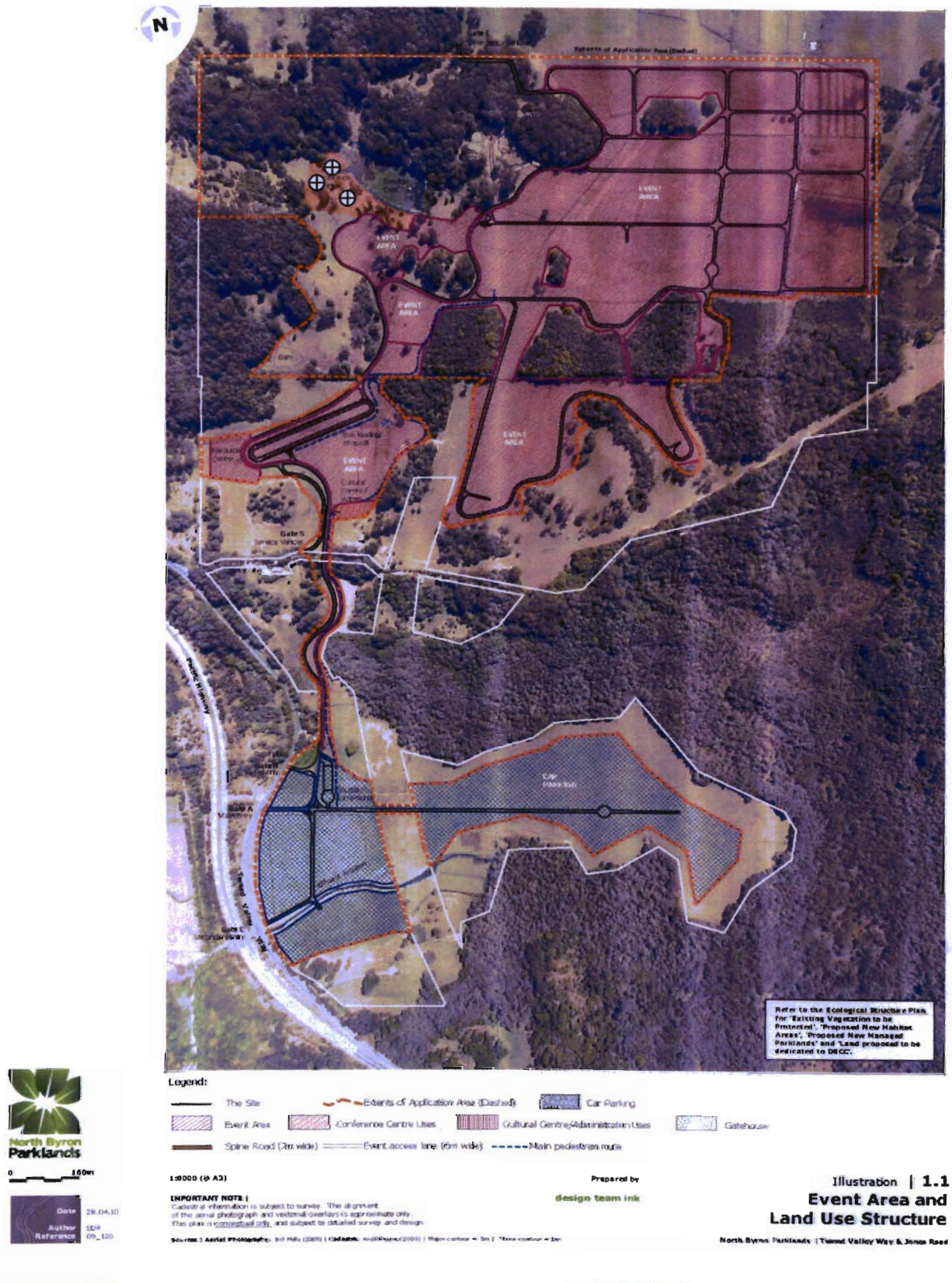

Figure 1: Plan of the proposed conference centre development site 3 at North Byron Parklands, Yelgun showing the borehole and dynamic cone penetrometer test locations.