

### Soil Description Explanation Sheet (1 of 2)

#### **DEFINITION:**

In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

#### **CLASSIFICATION SYMBOL & SOIL NAME**

Soils are described in accordance with the Unified Soil Classification (UCS) as shown in the table on Sheet 2.

#### PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE			
Boulders		>200 mm			
Cobbles		63 mm to 200 mm			
Gravel	coarse	20 mm to 63 mm			
	medium	6 mm to 20 mm			
	fine	2.36 mm to 6 mm			
Sand	coarse	600 μm to 2.36 mm			
	medium	200 μm to 600 μm			
	fine	75 μm to 200 μm			

#### MOISTURE CONDITION

Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

Soil feels cool and darkened in colour. Cohesive Moist soils can be moulded. Granular soils tend to cohere.

As for moist but with free water forming on hands Wet when handled.

#### **CONSISTENCY OF COHESIVE SOILS**

TERM	UNDRAINED STRENGTH S <sub>U</sub> (kPa)	FIELD GUIDE				
Very Soft	<12	A finger can be pushed well into the soil with little effort.				
Soft	12 - 25	A finger can be pushed into the soil to about 25mm depth.				
Firm	25 - 50	The soil can be indented about 5mm with the thumb, but not penetrated.				
Stiff	50 - 100	The surface of the soil can be indented with the thumb, but not penetrated.				
Very Stiff	100 - 200	The surface of the soil can be marked, but not indented with thumb pressure.				
Hard	>200	The surface of the soil can be marked only with the thumbnail.				
Friable	_	Crumbles or powders when scraped by thumbnail.				

#### **DENSITY OF GRANULAR SOILS**

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 - 35
Medium Dense	35 - 65
Dense	65 - 85
Very Dense	Greater than 85

#### **MINOR COMPONENTS**

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:			
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%			
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%			

#### **SOIL STRUCTURE**

	ZONING	CE	MENTING
Layers	Continuous across exposure or sample.	Weakly cemented	Easily broken up by hand in air or water.
Lenses	Discontinuous layers of lenticular shape.	Moderately cemented	Effort is required to break up the soil by hand in air or water.
Pockets	Irregular inclusions of different material.		

### **GEOLOGICAL ORIGIN WEATHERED IN PLACE SOILS**

Extremely Structure and fabric of parent rock visible. weathered material

Residual soil Structure and fabric of parent rock not visible.

### TRANSPORTED SOILS

Aeolian soil Deposited by wind.

Alluvial soil Deposited by streams and rivers.

Colluvial soil Deposited on slopes (transported downslope

by gravity).

Fill Man made deposit. Fill may be significantly

more variable between tested locations than naturally occurring soils.

Lacustrine soil Deposited by lakes.

Marine soil Deposited in ocean basins, bays, beaches

and estuaries.



### Soil Description Explanation Sheet (2 of 2)

### SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

Standing Sta	(Exclu	ıding				ON PROCEDURE and basing fractions		usc	PRIMARY NAME
Wide range in grain sizes and substantial amounts of all intermediate sizes    Sand			arse 36 mm	SAN VELS ttle no es)				GW	GRAVEL
Wide range in grain sizes and substantial grown by the coordinate street of the coordinate stree	3 mm i		/ELS Ilf of co than 2.	GRA GRA Gri				GP	GRAVEL
Wide range in grain sizes and substantial growth and the process of the process o	SOILS than 6	eye)	GRAV than ha s larger	/ELS FINES ciable ount nes)				GM	SILTY GRAVEL
HONG than 100 None that 100 No	AllNED rials less 0.075 m	e naked	More fraction	GRAN WITH   (Appre amc of fii			tion procedures	GC	CLAYEY GRAVEL
Plastic fines (for identification procedures see CL below).  Plastic fines (for identification procedure) see CL below).  Plastic fines (for identification	ARSE GF of mater ger than	ble to th	arse 36 mm	AN IDS IDS tle or or ss)				SW	SAND
Word Hand Solution as more than 50% of material less than 50% of mater	CO/ In 50% Iar	icle visi	NDS alf of cos r than 2.3	SAN SAN (Lit				SP	SAND
Word Hand Solution and Solution	More tha	llest part	SAN than ha s smaller	VDS FINES sciable bunt nes)				SM	SILTY SAND
More than 80 mm is a multiple with the second of the secon		the smal	More fraction i	SA WITH (Appr am of f			tion procedures	SC	CLAYEY SAND
Wore than so many signatures and signature with the		out		IDENTIFICAT	ION PF	ROCEDURES ON FR.	ACTIONS <0.2 mm.		
Wedium to High None High CH CLAY  High None Low to medium OH ORGANIC CLAY	ugu u	s ab		DRY STREN	GTH	DILATANCY	TOUGHNESS		
Wore than SILS SILS SILS SILS SILS SILS SILS SIL	ILS less th	rticle is	CLAYS limit ın 50	None to Low	′	Quick to slow	None	ML	SILT
Wore than SILS SILS SILS SILS SILS SILS SILS SIL	ED SC aterial Ian 0.0	nm pa	TS & ( iquid ss tha	Medium to H	ligh	None	Medium	CL	CLAY
Wedium to High None High CH CLAY  High None Low to medium OH ORGANIC CLAY	SPAIN of m	.075 n	NS IIS	Low to medi	um	Slow to very slow	Low	OL	ORGANIC SILT
o 5 Wedidin to high Notice Low to medidin	FINE G n 50% is sma	(A 0	LAYS mit an 50	Low to medi	um	Slow to very slow	Low to medium	MH	SILT
o 5 Wedidin to high Notice Low to medidin	Fore thai		S & Cl quid lii	High		None	High	CH	CLAY
	M		SILT Li <sub>r</sub> grea	Medium to H	ligh	None	Low to medium	ОН	ORGANIC CLAY
HIGHLY ORGANIC SOILS Readily identified by colour, odour, spongy feel and frequently by fibrous texture.		Y OF	RGANIC				gy feel and	Pt	PEAT

### **COMMON DEFECTS IN SOIL**

TERM	DEFINITION	DIAGRAM					
PARTING							
JOINT	JOINT  A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length.						
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.						
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.						

	TERM	DEFINITION	DIAGRAM
	SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	A STATE OF THE STA
2	TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter	N.S.
4	TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
	INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	



### Rock Description Explanation Sheet (1 of 2)

The descriptive terms used by Coffey are given below. They are broadly consistent with Australian Standard AS1726-1993.

**DEFINITIONS:** Rock substance, defect and mass are defined as follows:

Rock Substance In engineering terms rock substance is any naturally occurring aggregate of minerals and organic material which cannot be

disintegrated or remoulded by hand in air or water. Other material is described using soil descriptive terms. Effectively

homogenous material, may be isotropic or anisotropic.

Defect Discontinuity or break in the continuity of a substance or substances.

Any body of material which is not effectively homogeneous. It can consist of two or more substances without defects, or one or Mass

more substances with one or more defects.

#### SUBSTANCE DESCRIPTIVE TERMS:

**ROCK NAME** Simple rock names are used rather than precise

geological classification.

PARTICLE SIZE Grain size terms for sandstone are:

Mainly 0.6mm to 2mm Coarse grained Medium grained Mainly 0.2mm to 0.6mm

Mainly 0.06mm (just visible) to 0.2mm Fine grained

**FABRIC** Terms for layering of penetrative fabric (eg. bedding,

cleavage etc.) are:

Massive No layering or penetrative fabric.

Indistinct Layering or fabric just visible. Little effect on properties.

Distinct Layering or fabric is easily visible. Rock breaks more

easily parallel to layering of fabric.

#### **CLASSIFICATION OF WEATHERING PRODUCTS**

Abbreviation Definition Term

Residual Soil derived from the weathering of rock; the

mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly

transported.

Extremely Weathered Material

Soil

Material is weathered to such an extent that it has soil properties, ie, it either disintegrates or can be remoulded in water. Original rock fabric

still visible.

Highly Weathered Rock

Rock strength is changed by weathering. The whole of the rock substance is discoloured, usually by iron staining or bleaching to the

extent that the colour of the original rock is not recognisable. Some minerals are decomposed to clay minerals. Porosity may be increased by leaching or may be decreased due to the

deposition of minerals in pores.

Moderately MW Weathered Rock

The whole of the rock substance is discoloured, usually by iron staining or bleaching , to the extent that the colour of the fresh rock is no

longer recognisable.

Slightly SW Weathered Rock

Rock substance affected by weathering to the extent that partial staining or partial discolouration of the rock substance (usually by

limonite) has taken place. The colour and texture of the fresh rock is recognisable; strength properties are essentially those of the

fresh rock substance.

Fresh Rock FR Rock substance unaffected by weathering.

#### Notes on Weathering:

- 1. AS1726 suggests the term "Distinctly Weathered" (DW) to cover the range of substance weathering conditions between XW and SW. For projects where it is not practical to delineate between HW and MW or it is judged that there is no advantage in making such a distinction. DW may be used with the definition aiven in AS1726.
- 2. Where physical and chemical changes were caused by hot gasses and liquids associated with igneous rocks, the term "altered" may be substituted for "weathering" to give the abbreviations XA, HA, MA, SA and DA.

#### **ROCK SUBSTANCE STRENGTH TERMS**

Term Abbrev- Point Load iation

Index, I<sub>s(50)</sub> (MPa)

Field Guide

Very Low VL Less than 0.1 Material crumbles under firm

blows with sharp end of pick; can be peeled with a knife: pieces up to 30mm thick can

be broken by finger pressure.

0.1 to 0.3 Low

Easily scored with a knife; indentations 1mm to 3mm show with firm bows of a pick point; has a dull sound under hammer. Pieces of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.

Medium 0.3 to 1.0

Readily scored with a knife: a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.

High 1 to 3 A piece of core 150mm long by 50mm can not be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.

3 to 10

Hand specimen breaks after more than one blow of a

pick; rock rings under hammer.

Extremely EH High

Very High VH

More than 10 Specimen requires many blows with geological pick to break; rock rings under

hammer.

### Notes on Rock Substance Strength:

- 1. In anisotropic rocks the field guide to strength applies to the strength perpendicular to the anisotropy. High strength anisotropic rocks may break readily parallel to the planar anisotropy.
- 2. The term "extremely low" is not used as a rock substance strength term. While the term is used in AS1726-1993, the field guide therein makes it clear that materials in that strength range are soils in engineering terms.
- 3. The unconfined compressive strength for isotropic rocks (and anisotropic rocks which fall across the planar anisotropy) is typically 10 to 25 times the point load index  $I_{8(50)}$ . The ratio may vary for different rock types. Lower strength rocks often have lower ratios than higher strength rocks.



### Rock Description Explanation Sheet (2 of 2)

COMMON ROCK MA Term	DEFECTS IN SSES Definition	Diagram	Map Symbol	Graphic Log (Note 1)	DEFECT SHAPE Planar	TERMS The defect does not vary in orientation
Parting	A surface or crack across which the rock has little or no tensile strength.		20	[84]	Curved	The defect has a gradual change in orientation
	Parallel or sub parallel to layering (eg bedding) or a planar anisotropy		Beddi 20		Undulating	The defect has a wavy surface
	in the rock substance (eg, cleavage). May be open or closed.		Cleava	age (Note 2)	Stepped	The defect has one or more well defined steps
Joint	A surface or crack across which the rock has little or no tensile strength.	\			Irregular	The defect has many sharp changes of orientation
	but which is not parallel or sub parallel to layering or planar anisotropy in the rock substance.		60	(Note 2)		ment of defect shape is partly by the scale of the observation.
	May be open or closed.			(1010 2)	ROUGHNESS Slickensided	FERMS Grooved or striated surface, usually polished
Sheared Zone (Note 3)	Zone of rock substance with roughly parallel near planar, curved or				Polished	Shiny smooth surface
(Note 3)	undulating boundaries cut by closely spaced joints, sheared surfaces or other defects. Some of		35		Smooth	Smooth to touch. Few or no surface irregularities
	the defects are usually curved and intersect to divide the mass into lenticular or wedge shaped blocks.	7000		*	Rough	Many small surface irregularities (amplitude generally less than 1mm). Feels like fine to coarse sand paper.
Sheared Surface (Note 3)	A near planar, curved or undulating surface which is usually smooth, polished or slickensided.		40	100 CO	Very Rough	Many large surface irregularities (amplitude generally more than 1mm). Feels like, or coarser than very coarse sand paper.
Crushed Seam	Seam with roughly parallel almost planar boundaries, composed of				COATING TER	MS No visible coating
(Note 3)	disoriented, usually angular fragments of the host rock substance which may be more	(A)	50		Stained	No visible coating but surfaces are discoloured
	weathered than the host rock. The seam has soil properties.			17 1	Veneer	A visible coating of soil or mineral, too thin to measure; may be patchy
Infilled Seam	Seam of soil substance usually with distinct roughly parallel boundaries formed by the migration of soil into an open cavity or joint, infilled seams less than 1mm thick may be described as veneer or coating on joint surface.			65	Coating	A visible coating up to 1mm thick. Thicker soil material is usually described using appropriate defect terms (eg, infilled seam). Thicker rock strength material is usually described as a vein.
Extremely	Seam of soil substance, often with		25		BLOCK SHAPE Blocky	E TERMS Approximately equidimensional
Weathered Seam	gradational boundaries. Formad by weathering of the rock substance in place.		32 <b>III</b>	Z PAR	Tabular	Thickness much less than length or width
		`` Seam		~	Columnar	Height much greate than cross section
ĺ						

### Notes on Defects:

- 1. Usually borehole logs show the true dip of defects and face sketches and sections the apparent dip.
- 2. Partings and joints are not usually shown on the graphic log unless considered significant.
- 3. Sheared zones, sheared surfaces and crushed seams are faults in geological terms.



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP01

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equ	uipment	type	and	model:	5T EX	CAVAT	OR		Pit Orientation:	Easting:	m				R.L	Surface:
_	cavation				2m lo	ng 0.4	45m wi			Northing:	m				dat	um:
ex		on	nfo	rmation			mat	erial s	ubstance							
method	t penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle colour, secondary and mino	r components.		moisture condition	consistency/ density index	100 pocket	a	structure and additional observations
Ш						_	$\bowtie$		FILL;CLAY: High plasticity, brown and some fine grained sand.	, with some roots	S	<wp< td=""><td>F</td><td></td><td></td><td>TOPSOIL/FILL _</td></wp<>	F			TOPSOIL/FILL _
						0.5			FILL;CLAY: High plasticity, orang fine to medium grained sand and grained gravel, with a trace of roo boulders up to 350mm in diamete	fine to coarse			F/H		×	FILL (POSSIBLY COMPACTED IN SOME LAYERS?)
			NONE OBSERVED			1.0										- - - -
						1. <u>5</u>		СН	CLAVI lists steadising beauty with						;	- - * - RESIDUAL?
						2. <u>0</u>		СН	CLAY: High plasticity, brown, with medium grained sand and a trace	of roots.			H		×	
	6020303					2. <u>5</u>	× ` `x		LATITE: Low strength, mottled red Test pit CTP01 terminated at 2.3n							WEATHERED ROCK?/RESIDUAL End on very slow progress
	Cleateb					3.0										_

Sketch

	method		support	notes, s	amples, tests	clas	sification symbols and	consisten	cy/density index
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft
	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
Ÿ	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm
Ó	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff
5	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff
B	E	excavator	refusal  ■	Е	environmental sample	D	dry	Н	hard
2			water	R	refusal	M	moist	Fb	friable
4			water level			W	wet	VL	very loose
Ó			on date shown			Wp	plastic limit	L	loose
5			_	l		$W_L$	liquid limit	MD	medium dense
Ē			water inflow	l				D	dense
5			water outflow	l				VD	yory donoo



Sheet 1 of 1

Excavation No.

Logged by:

GEOTWOLL03229AB Project No:

CA

CTP02

TCG PLANNING 25.9.2012 Date started:

Principal: 25.9.2012 Date completed:

WARWICK ST, BERKELEY NSW SM Test pit location: Checked by:

PRELIMINARY GEOTECH ASSESSMENT

equipment type and model: 5T EXCAVA excavation dimensions: 2.5m long									Pit Orientation: Easting: m				Surface:
excavation information								45m wide Northing: m datum: material substance					um:
method	12 S Denetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	100 pocket 200 pocket 300 pocket 400 meter	structure and additional observations
Ш			NONE OBSERVED			0.5			FILL;CLAY: Medium to high plasticity, orange/brown with a trace of grey pockets, with some fine to medium grained sand, some fine to medium grained latite and sandstone rock.	<wp< td=""><td>F/H</td><td>×</td><td>FILL Gyprock,cement,cobbles,plastic,ste car parts.</td></wp<>	F/H	×	FILL Gyprock,cement,cobbles,plastic,ste car parts.
						2.0			Sandy CLAY: Medium plasticity, orange/brown, with a trace of fine to medium grained sandstone gravel.  SANDSTONE: Fine to medium grained, orange/brown, low to medium strength.  Test pit CTP02 terminated at 2.4m		H	550	RESIDUAL  HW/MW SANDSTONE ROCK  End on near refusal
						3.0							

Sketch

ı									
I	method		support	notes, s	samples, tests	clas	sification symbols and	consisten	cy/density index
ı	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft
ı	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
ŀ	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm
	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff
5	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff
3	E	excavator	■ refusal	E	environmental sample	D	dry	Н	hard
í			water	R	refusal	M	moist	Fb	friable
!			water level			W	wet	VL	very loose
١			on date shown			Wp	plastic limit	L	loose
1						WL	liquid limit	MD	medium dense
١			water inflow					D	dense
5			water outflow	l				VD	yory donco



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP03

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equ	ipment	type	and	model:	5T EX	CAVAT	OR		Pit Orientation:	Easting:	m				R.L	. Surface:
_	avation				2.5m lo	ong (			-	Northing:	m				dat	um:
ex		on	info	rmation			mat	erial s	ıbstance							
method	ر ک S penetration	support	water	notes samples, tests, etc	RL ı	depth metres	graphic log	classification symbol	material soil type: plasticity or particle ch colour, secondary and minor c	omponents.		moisture condition	consistency/ density index	100 pocket	a	structure and additional observations
3			NONE OBSERVED			0. <u>5</u> - 1. <u>0</u> - 2. <u>0</u>			FILL;CLAY: Medium to high plasticit with grey and pale yellow pockets, si medium grained, sand and fine to co gravel, some sandstone/latite cobble Some roots in upper 1m of soil process some brown organic pockets around the process of th	ome fine to arse grained is. Ifile nd 1m	wn,	Wp <wp< td=""><td>VSt/H</td><td>×</td><td>×</td><td>FILL (UNCONTROLLED) </td></wp<>	VSt/H	×	×	FILL (UNCONTROLLED)
						2.5			orange/brown, woth some fine to me sand, fine to coarse grained, angular sandstone and latite rock.	edium grained r gravel,						-
						3.0			Test pit CTP03 terminated at 2.5m							End on slow progress

Sketch

	method		support	notes, s	amples, tests	clas	sification symbols and	consisten	cy/density index
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft
	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
!	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm
Ď	В	bulldozer blade	1 2 3 4	٧	vane shear (kPa)			St	stiff
5	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff
2	E	excavator	refusal ■	Е	environmental sample	D	dry	Н	hard
ž			water	R	refusal	M	moist	Fb	friable
4			water level			W	wet	VL	very loose
5			on date shown			Wp	plastic limit	L	loose
3				l		WL	liquid limit	MD	medium dense
Ξl			water inflow	l				D	dense
5 I			water outflow	I		I		VD	yory doneo



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP04

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: 25.9.2012

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equi	pment	type	and	model:	5T EX	CAVAT	OR		Pit Orientation:	Easting:	m				R.L	. Surface:
exca	avation	dim	ensic	ons: 2	2.5m	long (	).45m			Northing:	m				dat	um:
exe	cavati	on i	info	rmation			mat	erial s	ıbstance							
method	2 penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle ch colour, secondary and minor c	omponents.		moisture condition	consistency/ density index	100 pocket	a	structure and additional observations
3			NONE OBSERVED			0.5 1.0 1.5 2.0 2.5 3.0			TOPSOIL;Sandy CLAY: Brown, som fine to medium grained sandstone grained.  Sandy CLAY: Medium plasticity, ora some fine to coarse grained angular gravel.  SANDSTONE: Fine to medium grain orange/brown (mottled black in some medium strength.  Test pit CTP04 terminated at 1m	ravel, sand is  nge/brown, w sandstone	fine ith	<wp< td=""><td>St</td><td></td><td></td><td>RESIDUAL SOIL </td></wp<>	St			RESIDUAL SOIL

Sketch

ı									
I	method		support	notes, s	samples, tests	clas	sification symbols and	consister	ncy/density index
ı	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft
ı	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
ı	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm
	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff
5	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff
3	E	excavator	refusal ■	Е	environmental sample	D	dry	Н	hard
3			water	R	refusal	M	moist	Fb	friable
ŀ			water level			W	wet	VL	very loose
ı			on date shown			Wp	plastic limit	L	loose
1			1.			$W_L$	liquid limit	MD	medium dense
ı			water inflow					D	dense
5			water outflow					VD	yory donoo



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP05

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equipment	type	and	model:	5T EX	CAVAT	OR		Pit Orientation:	Easting:	301649 m		R.I	L. Surface:
excavation				2.5m lo	ong (	).45m v		-	Northing:	6183548 r	n	da	tum:
excavati	on i	nfo	rmation			mate		ubstance					
method 7 7 8 8 9 9 1 8 1 9 1 9 1 1 1 1 1 1 1 1 1 1	support	water	notes samples, tests, etc	RL ı	depth metres	graphic log	classification symbol	material soil type: plasticity or particl colour, secondary and min	or components.	moisture	consistency/ density index	100 pocket 200 d penetro- 300 w meter	
U 123		NONE OBSERVED			1.0 2.0 2.5			Sandy CLAY: Brown, some roots coarse grained sandstone grave grained.  Sandy CLAY: Medium plasticity, some fine to coarse grained ang gravel.  SANDSTONE: Fine grained, orallolack in some areas), low to medium to the company of the company of the company of the coarse grained at 1.2	s and some fine to l, sand ?? fine orange/brown, wit ular sandstone	wp wp	F	27	TOPSOIL  RESIDUAL   HW/MW SANDSTONE  End on near refusal

Sketch

	method		support	notes, s	samples, tests	clas	sification symbols and	consister	cy/density index
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft
	Χ	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
ζ.	BH	backhoe bucket	penetration	D	disturbed sample	syst	em	F	firm
Re	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff
3.	R	ripper	no resistance ranging to	Bs	bulk sample	moi	sture	VSt	very stiff
ne	Е	excavator	refusal	Е	environmental sample	D	dry	Н	hard
88			water	R	refusal	M	moist	Fb	friable
5.2			water level			W	wet	VL	very loose
			on date shown			Wp	plastic limit	L	loose
GEO						WL	liquid limit	MD	medium dense
Ē			water inflow					D	dense
For			→ water outflow					VD	very dense



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP06

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equipment type and model:	5T EXCAVATO	PR	Pit Orientation:	Easting:	m		R.L	. Surface:
excavation dimensions:	2m long 0.45	im wide		Northing:	m		datı	um:
excavation information		material su	bstance					
notes samples, tests, etc	depth RL metres	graphic log classification symbol	material soil type: plasticity or particle colour, secondary and mino	r components.	moisture		100 pocket 200 pocket 300 pocket 400 meter	structure and additional observations
NONE OBSERVED	0.5		TOPSOIL:CLAY: Medium plasticis some roots and some silt and fine a trace of fine grained gravel.  Sandy CLAY: Medium plasticity, some fine to coarse grained, angugravel, sand fraction is fine to medium plasticity.	grained sand, with	i1	P St	609	TOPSOIL - RESIDUAL
	1. <u>0</u>		SANDSTONE: Fine grained, oran medium strength. Test pit CTP06 terminated at 0.8r	-				HW/MW SANDSTONE  End on near refusal

Sketch

	method		support	notes, s	samples, tests	clas	sification symbols and	consister	ncy/density index
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter		description	VS	very soft
	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
7.7	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm
Şe	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff
3.	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff
ne	Е	excavator	■ refusal	Ε	environmental sample	D	dry	Н	hard
<u>ss</u>			water	R	refusal	M	moist	Fb	friable
5.2						W	wet	VL	very loose
			on date shown			Wp	plastic limit	L	loose
GEO						W	liquid limit	MD	medium dense
Ε			water inflow	l		-		D	dense
For			→ water outflow					VD	very dense



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP07

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equipment type and model	5T EXCAVA	TOR	Pit Orientation:	Easting:	301575 m		R.L	. Surface:
excavation dimensions:		0.45m wide		Northing:	6183452 m		dati	um:
excavation information	n	material s	ubstance					
pout ampton tests, 123 notes ampton tests, 123	es,	graphic log classification symbol	material soil type: plasticity or particle ch colour, secondary and minor c	omponents.	moisture condition	consistency/ density index	100 pocket 200 pocket 300 popenetro- 400 meter	structure and additional observations
NONE OBSERVED	1. <u>0</u> 2. <u>0</u> 3.0		TOPSOIL;CLAY: Medium plasticity, some roots and some fine grained stoff fine to coarse grained gravel.  Sandy CLAY: Medium plasticity, ora some fine to coarse grained angular gravel, sand fraction is fine to medium strength.  SANDSTONE: Fine grained, orange/medium strength.  Test pit CTP07 terminated at 1.1m	and, with a tracenge brown, wo sandstone n grained.		S H	56G	TOPSOIL  RESIDUAL SOIL  HW/MW SANDSTONE  End on near refusal

Sketch

ı	method		support	notes, s	samples, tests	clas	sification symbols and	consiste	ncy/density index
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter		description	VS	very soft
- 1	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter		ed on unified classification	S	soft
.2	BH	backhoe bucket	penetration	D	disturbed sample	syst	em	F	firm
Re	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff
က	R	ripper	ranging to	Bs	bulk sample	moi	sture	VSt	very stiff
e ne	E	excavator	refusal	Е	environmental sample	D	dry	Н	hard
<u>88</u>			water	R	refusal	M	moist	Fb	friable
5.2			water level			W	wet	VL	very loose
			on date shown			Wp	plastic limit	L	loose
GEO						WL	liquid limit	MD	medium dense
Ĕ			water inflow					D	dense
For			→ water outflow					VD	very dense



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP08

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equipment type and	l model:	5T EXCAVAT	FOR		Pit Orientation:	Easting:	m				R.L	. Surface:
excavation dimensi		m long 0.4	5m wide			Northing:	m				dat	um:
excavation info	rmation		mate	erial s	ubstance							
method  c b penetration  support  water	notes samples, tests, etc	depth RL metres		classification symbol	material soil type: plasticity or particle colour, secondary and minor	r components.		moisture condition	consistency/ density index	kF	300 periello- 400 meter	structure and additional observations
B NONE OBSERVED		1.5 			TOPSOIL; CLAY: Medium plasticity some tree roots and some fine gratrace of fine to coarse grained grav  Sandy CLAY: Medium plasticity, o some fine to coarse grained angulty gravel, sand fraction is fine to coarse grained angulty gravel. Sand fraction is fine to coarse grained angulty gravel. Sand fraction is fine to coarse grained. The sand fraction is fine to coarse grained. The sand fraction is fine to coarse grained. The sand fraction is fine to coarse grained and fraction is fine to coarse grained and fraction is fine to coarse grained angulty gravel. The sand fraction is fine to coarse grained angulty gravel. The sand fraction is fine to coarse grained angulty gravel. The sand fraction is fine to coarse grained angulty gravel. The sand fraction is fine to coarse grained angulty gravel.	range/brown, wi ar sandstone se grained.	ith	<wp< td=""><td>H</td><td></td><td>600</td><td>TOPSOIL  RESIDUAL SOIL  HW/MW SANDSTONE  End on near refusal</td></wp<>	H		600	TOPSOIL  RESIDUAL SOIL  HW/MW SANDSTONE  End on near refusal

Sketch

1	method		support	notes, s	amples, tests	class	sification symbols and	consistency/density index		
ı	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft	
ı	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	d on unified classification	S	soft	
4	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm	
Ď	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff	
5	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff	
3	E	excavator	■ refusal	E	environmental sample	D	dry	Н	hard	
ž			water	R	refusal	M	moist	Fb	friable	
4						W	wet	VL	very loose	
Ó			on date shown			Wp	plastic limit	L	loose	
3			1.			$W_L$	liquid limit	MD	medium dense	
			water inflow					D	dense	
5			→ water outflow	I				VD	very dense	



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP09

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equipment type and model:	5T EXCAVATO	DR .	Pit Orientation:	Easting:	m		R.L	. Surface:
excavation dimensions:	2.5m long 0.4	45m wide		Northing:	m		datı	um:
excavation information		material su	ıbstance					
notes samples, tests, etc	depth RL metres	graphic log classification symbol	material  soil type: plasticity or particle characteristics, colour, secondary and minor components.			moisture condition consistency/ density index	100 a pocket 200 a penetro- 300 a meter	structure and additional observations
NONE OBSERVED	1. <u>0</u>		TOPSOIL;Sandy CLAY: Medium with some roots.  Sandy CLAY: Medium plasticity, come fine to coarse grained angulgravel, sand fraction is fine to medium strength.  SANDSTONE: Fine grained, orang medium strength.  Test pit CTP09 terminated at 1.1m	range/brown, wit ar sandstone lium grained.		H St	540	TOPSOIL  RESIDUAL SOIL  HW/MW SANDSTONE  End on near refusal

Sketch

	method		support	notes, s	amples, tests	clas	sification symbols and	consistency/density index		
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft	
	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft	
!	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm	
Ď	В	bulldozer blade	1 2 3 4	٧	vane shear (kPa)			St	stiff	
5	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff	
2	E	excavator	■ refusal	Е	environmental sample	D	dry	Н	hard	
ž			water	R	refusal	M	moist	Fb	friable	
4			water level			W	wet	VL	very loose	
5			on date shown			Wp	plastic limit	L	loose	
3				l		WL	liquid limit	MD	medium dense	
٤			water inflow	l				D	dense	
5 I			water outflow	I		I		VD	yory doneo	



Sheet 1 of 1

Excavation No.

GEOTWOLL03229AB Project No:

CA

CTP10

TCG PLANNING 25.9.2012 Date started:

Principal: 25.9.2012 Date completed:

Logged by: WARWICK ST, BERKELEY NSW SM Test pit location: Checked by:

PRELIMINARY GEOTECH ASSESSMENT

equ	uipme	nt ty	oe a	nd n	model: 5	5T EX	CAVAT	OR		Pit Orientation:	Easting:	m				R.L	. Surface:
_	avatio					2.5m	long (	).45m			Northing:	m				dat	um:
ех	_	_	ı in	forr	nation			mat	naterial substance								
pour la					RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle colour, secondary and mino	r components.		moisture condition	consistency/ density index	100 pocket		structure and additional observations	
Е							-			TOPSOIL;CLAY: Medium plasticit some roots and some fine grained	y, brown, with I sand.		<wp< td=""><td>St</td><td></td><td></td><td>TOPSOIL</td></wp<>	St			TOPSOIL
		533	מהיימה היים א				0.5 - 1.0 - 1.5	* * *		Sandy CLAY: Medium plasticity, c some fine to coarse grained angul with a trace of high strength cobbl fraction is fine to medium grained.	lar latite gravels, e ?? stones, san	ad		Н			RESIDUAL
	Skato						2.0	<u> </u>		LATTE: Mottred orange/red/browl, strength.  Test pit CTP10 terminated at 1.6n							End on refusal

Sketch

Project:

1	method		support	notes, s	amples, tests	clas	sification symbols and	consistency/density index		
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft	
1	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft	
۷.	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm	
Ó	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff	
5	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff	
P	Е	excavator	refusal ■	Е	environmental sample	D	dry	Н	hard	
2			water	R	refusal	M	moist	Fb	friable	
7.7			water level			W	wet	VL	very loose	
Ś			on date shown			Wp	plastic limit	L	loose	
3						$W_L$	liquid limit	MD	medium dense	
Ξ			water inflow					D	dense	
٦I	I		water outflow			I		VD		

Form GEO 5.2 Issue 3 Rev.2



Sheet 1 of 1

Excavation No.

Logged by:

Project No: **GEOTWOLL03229AB** 

CA

CTP11

Client: TCG PLANNING Date started: 25.9.2012

Principal: Date completed: **25.9.2012** 

Test pit location: WARWICK ST, BERKELEY NSW Checked by: SM

PRELIMINARY GEOTECH ASSESSMENT

equipment t	quipment type and model: 5T EXCAVATOR Pit Orientation: Easting: m R.L. Surface:														
excavation of				2.5m l	long (	).45m		5	m				datı	um:	
excavation	n in	for	mation			mat	naterial substance								
E 123 0 ≥ RL metre					depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.		moisture condition	consistency/ density index	200 A pocket	a	structure and additional observations	
		NONE OBSERVED			0.5 1.0 1.5 2.0			TOPSOIL; CLAY: Medium plasticity, dark brown/black, some silt, some roots, with a trace of fir grained sand.  CLAY: Medium to high plasticity, orange/brown, with some pockets mottled black and grey, fine to coarse grained sand.  Test pit CTP11 terminated at 2.65m	ne	<wp /p/<wp< td=""><td>St VSt</td><td>×</td><td>×</td><td>TOPSOIL  COLLUVIAL </td></wp<></wp 	St VSt	×	×	TOPSOIL  COLLUVIAL	
								100 pit 0 11 tominated at 2.00m							
					3.0										

Sketch

	method		support	notes, s	samples, tests	clas	sification symbols and	consiste	ncy/density index
ev.2	N X BH B	natural exposure existing excavation backhoe bucket bulldozer blade	S shoring N nil U <sub>50</sub>		U <sub>50</sub> undisturbed sample 50mm diameter U <sub>63</sub> undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa)		description ed on unified classification em	VS S F St	very soft soft firm stiff
sue 3 R	R E	ripper excavator	no resistance ranging to	Bs E	bulk sample environmental sample	<b>mois</b> D	dry	VSt H	very stiff hard
Form GEO 5.2 ls			water water level on date shown water inflow water outflow	R	refusal	M W Wp W <sub>L</sub>	moist wet plastic limit liquid limit	Fb VL L MD D VD	friable very loose loose medium dense dense very dense



Sheet 1 of 1

Excavation No.

Logged by:

GEOTWOLL03229AB Project No:

CA

CTP12

TCG PLANNING 25.9.2012 Date started:

Principal: 25.9.2012 Date completed:

WARWICK ST, BERKELEY NSW SM Test pit location: Checked by:

PRELIMINARY GEOTECH ASSESSMENT

equipment type and model: 5T EXCAVATOR Pit Orientation: Easting: m R.L. Surface:  excavation dimensions: 3m long 0.45m wide Northing: m datum:																
				3m long	0.4	5m wi			Northing:	m			da	tum:		
	_	info	rmation			mate	naterial substance									
pod the motes samples, tests, etc depth RL metres						graphic log	classification symbol	material soil type: plasticity or particle colour, secondary and mino	or components.		moisture condition	consistency/ density index	100 pocket 200 d penetro- 300 w meter			
		NONE OBSERVED			0.5 			TOPSOIL;CLAY: Medium plastici, silt, trace of roots, trace of fone grands. Trace of fone grands and sandstone fine to coarse grained sandstone fine to medium grained sand.  SANDSTONE: Fine grained, oran medium strength.  Test pit CTP12 terminated at 1.20	rained sand.  brown, with some gravel and some		<wp< td=""><td>St VSt/H</td><td></td><td>TOPSOIL RESIDUAL SOIL  HW/MW SANDSTONE End on near refusal</td></wp<>	St VSt/H		TOPSOIL RESIDUAL SOIL  HW/MW SANDSTONE End on near refusal		

Sketch

	method		support	notes, s	samples, tests	clas	sification symbols and	consist	ency/density index
	N	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter		description	VS	very soft
	X	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
7.7	BH	backhoe bucket	penetration	D	disturbed sample	syste	em	F	firm
Re	В	bulldozer blade	1 2 3 4	V	vane shear (kPa)			St	stiff
3	R	ripper	no resistance ranging to	Bs	bulk sample	mois	sture	VSt	very stiff
ene	E	excavator	refusal	E	environmental sample	D	dry	Н	hard
88			water	R	refusal	M	moist	Fb	friable
5.2			water level			W	wet	VL	very loose
			on date shown			Wp	plastic limit	L	loose
GEO				l		WL	liquid limit	MD	medium dense
E			water inflow	l				D	dense
For			→ water outflow					VD	very dense