Appendix A

Geotechnical Investigation Logs

aurecon (New Zealand) Unified

Aurecon (New Zeals Unit 1, 150 Cavendi PO BOX 1061

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston
Project Reference: 224926

BH01

Sheet 1 of 2

BOREHOLE INF	ORMATION
Drilling Method:	CAT 312 - Track
Diameter Core:	
Contractor:	McMillans

Ground Level: N/A

CO-ORDINATES OD New Zealand TM Easting: 51548460 m Northing: 512210 m

Date Started: Date Completed: Inclination: 5/10/2011 6/10/2011 Logged by: RJH Input by: RJH Checked by: RS Verified by:

	Driller notes: "TOPSOIL." Sandy GRAVEL. Brown grey, very dense, dry, well graded. Gravel is fine to medium grained, rounded subrounded. Sand is fine to coarse grained. Becomes brownish grey, gravel is subrounded to subangular. GRAVEL with some sand. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained. Becomes brownish grey wih no silt.	GI	N	D	America -	SPT at 1m N = 50+ 50 30mm (SC) SPT at 2.5m N = 45 10, 11/11, 11, 11, 11, 11, 11, 11, 11, 11,	NO LABORATORY TESTING	RENETE CHECKER STATES SECTION	THO KON CONTROLL OF CONTROLL OF CONTROLL OF CONTROL OF
	GRAVEL with some sand. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	G\	W	15 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	**************************************	N = 50+ 50 30mm (SC) SPT at 2.5m N = 46 10, 11/1, 11, 12, 11 450mm (SC) SPT at 4m N = 35 4, 6/8, 9, 9, 9	ORATORY TESTING		KAKAKAKAKAKAKAKAKAKAKAKAKAKAKAKA
	dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	G\	V	15 7 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	VANDAGE L	N = 45 10, 14/1, 11, 12, 11 450mm (SC) SPT at 4m N = 35 4, 6/8, 9, 9, 9	ORATORY TESTING		HAYONAKAKAKAKAKAKAKAKA
	Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	G\	V	T Plitabilitation	Telepani.	SPT at 4m N = 35 4, 6/8, 9, 9, 9	ORATORY TESTING		KOKOKOKOKOKOKOKO
	dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.				7747	SPT at 4m N = 35 4, 6/8, 9, 9, 9 450mm (SC)	ORATORY TESTING		
5 5 5 5 6 6	Becomes brownish grey wih no silt.		VD				ORATOR		ACA CON
600		- 1		м		SPT at 5,5m N = 50+ 11, 13/17, 26, 7	NOLAB		
		G√	v			325mm (SC)			SACONONICA:
78.00	GRAVEL with some sand. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained.	İ				SPT at 7m N = 50+ 14, 21/22, 28 250mm (SC)		MONCHE	NOVONOW
0000	Sandy GRAVEL with trace silt. Brown grey very	GV	V	D		SPT at 8,5m		XCX CXCX	YONGHON
	dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.		ν.	M		N = 50+ 11, 17/27, 23 241mm (SC)		KOKOKOKOK	MONOWONE
Be USC Clase By Ct. Inorga Ct. Inorga Ct. Inorga GC Clayer GM Silty GP GP Poorty GW Well GW Well GW ML Inorga Tube OH ORGA	sification Inic CLAYS high plasticity Inic CLAYS by plasticity Inic SULT inic SULT inic plasticity Inic SULT inic SUL	P pen p S vane PT std. p S split: C solid B hame	shear shear sen, tes spoon cone ner boo	st uncing		Graphic Log Topsoil Sandy GRAVEL GRAVEL			<u>ko</u>
		dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained. SPT at 8.5m N = 504 11, 1727, 23 241mm (SC)	dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained. Solution of the coarse grained. USC Classification coarse grained. USC Classification coarse grained. Solution of the coarse grained. Solution	coarse grained. Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained. GW SPT at 8.5m N = 50 11, 1777, 23 244mm (SC) 60 60 60 60 60 60 60 60 60 60 60 60 60

Aurecon (New Zesland) Limit Unit 1, 150 Cavendish Road PO BOX 1061 Christchurch 8140 New Zesland www.aurecongroup.com Email: christchurch@ep.aure

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

BH01

Sheet 2 of 2

BOREHOLE INFORMATION Drilling Method: CAT 312 - Track Diameter Core:

CO-ORDINATES OD New Zealand TM Easting: 1548460 m Northing: 5172210 m

Date Started: Date Completed: Inclination: 5/10/2011 6/10/2011 Logged by: RJH Input by: RJH Checked by: RS

Diamel Contra				Milla	ıns		Northing: 5172210 m Ground Level: N/A	Inclin Orien	ation: tation	1:					Checked by: Verified by:	RS		
Method/Casing	Core recovery (%)	Water Loss (%)	Groundwater Level (m)	R.L. (m)	Depth (m)	Graphic Log	Material Description		USC Description	Consistency/Density	Moisture	Sample	In-Situ Testing	Laboratory Testing	Notes	Backfill	Geological Unit	
					1:				GW	VD	М		SPT at 10m N = 50+ 13, 2850 205mm (SC) SPT at 11,5m N = 0+ 50 72mm (SC)			ACADADADADADADA	ACATA CATA CATA CATA CATA CATA CATA CAT	
			Ā		1:		Sandy GRAVEL with minor silt. Brown grey, very dense, saturated, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.		GW		s		SPT at 13m N = 60 7, 15/17, 14, 14, 18 450mm (SC) SPT at 14.5m N = 50+ 500mm (SC)	NO LABORATORY TESTING				
The second secon	Termination to Annual Control of				16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	7	Borehole Terminated at 15m (TARGET)							NO LABORAT				
B SA SA IASH Q3 Q3 MLC P	con- ope solid holid was PQ HQ NMI Dire	n ba d ste ow s sh dri Tripl Tripl LC Tect Pe	m au lem a le Tut e Tut le Tu le Tu nple ush	ger uger pe pe be Tube	USCHOOL OF SCHOOL OF SCHOO		rganic CLAYS high plasticity rganic CLAYS medium plasticity rganic CLAYS medium plasticity rganic CLAYS medium plasticity rganic CLAYS low plasticity rganic CLAYS medium to high plasticity rganic CLAYS medium to high plasticity rganic CLAYS high plasticity rganic CLAYS low plastic	SPT s SS s SC s	en pe ane s td. pe plit sp olid o amme inks u	netro hear in. tes loon one er bou inder	ıt	veigh	Graphic Log Topsoil Santy GRAVEL GRAVEL Coment Seal: 1 Spegroup: 1 ppe	Stough &	ekifik 1			

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

BH02

Sheet 1 of 2

BOREHOLE INFORMATION
Drilling Method: CAT 312 - Track
Diameter Core:
Contractor: McMillans

CO-ORDINATES OD New Zealand TM Easting: 1548360 m Northing: 5171670 m Ground Level: N/A

Date Started: 5/10/2011 Date Completed: 6/10/2011 Inclination: Orientation:

Logged by; RJH Input by; RJH Checked by; RS Verified by;

Cont	racto	Г:	M	Milla	ns		Ground Level: N/A	Orien	tatior	1:				Ver	ified by:			-
Method/Casing	Care Recovery (%)	Water Loss (%)	Groundwater Level (m)	R.L. (m)	Depth (m)	Graphic Log	Material Description		USC Description	Consistency/Density	Moisture	Sample	in-Situ Testing	Laboratory Testing	Notes	Backfill	Geological Unit	7
						31 10 000	Sandy GRAVEL. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coars.		OL GW	-								
						000000	GRAVEL with some sand. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine coarse grained.	ı to			D		SPT at 1m N = 50+ 12, 14/15, 15, 20 325mm (SC)					
					- 3	000000000000000000000000000000000000000			GW				SPT at 2.5m N = 50+ 10, 22/22, 28 250mm (SC)			NONCONONCONONCONONCONONCONONCONCONCONCON		
					- 4	000000	Recomes moist gravel is subrounded to rounder	i.		The state of the s			SPT at 4m N = 49 4, 6/7, 9, 15, 18 450mm (SC)	TING		NONCHORON H		
			NOT RECORDED		5	000000000000000000000000000000000000000	Sandy GRAVEL. Brownish grey, very dense, mo	st,	GW	VD	м		SPT at 5,5m	NO LABORATORY TESTING				
					6	00000000	well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coars.				***************************************		N = 50+ 24, 26/50 105mm (SC)	z				
					7	0000000			GW		D		SPT at 7m N = 50+ 11, 13/13, 15, 22 370mm (SC)					
					8	0000							SPT at 6.5m N = 50+ 50 130mm (SC)				a papapapa	
Meth	nod.				115		lassification Consistency Soil Samples	In Situ	Tori	ting	M		Graphic Log					
CC OB SSA HSAS PQ3 HQ3 NML DP DT		en ba did ste dilow s ash di Q Trip Q Trip VILC rect F	em au elem a ele Tul ele Tu ole Tu friple	iger auger be be Tube	CH CH CH CH CH CH CH CH CH CH CH CH CH C	Indianosis Power in Col	reganic CLAYS high plasticity reganic CLAYS medium plasticity reganic CLAYS medium plasticity reganic CLAYS low plasticity reganic CLAYS medium to right plasticity reganic CLAYS medium to right plasticity reganic CLAYS low plasticity reganic CLAYS	PP F VS VS V SPT S SS S SC S HB S SH S	en pe rane s std. pe split sp solid c samm sinks u	enetro shear en. tes	sl uncing	.	Topsoil Sandy GRAVEL GRAVEL					
DT		ual Tu asing	ibe (7	Omm)	ST ST SP SV	FE SI	AT and highly organic soils yey SAND by SAND cy SAND cy SAND define by Gense by Gense by Gense by Gense cy Gense by Gense by Gense cy	D dr M mo W we S sa	et .	- 1	ackfili		Cement Sezi; 1 pipe group, 1 pipe Bentonite Sezi; 1 pipe group, 1 pipe	Skough Backfik pipe group, 1 p Filter Pack: 1 group, 1 pipe	: 1 pipe pipe			_

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

BH02

Sheet 2 of 2

BOREHOLE INFORMATION
Drilling Method: CAT 312 - Track
Diameter Core:
Contractor: McMillans

CO-ORDINATES OD New Zealand TM Easting: 1548360 m Northing: 5171670 m

Date Started: 5/10/2011 Date Completed: 6/10/2011 Inclination:

Logged by; RJH Input by; RJH Checked by; RS

Dameter Co Contractor:		Mc	Mila	18		Ground Level	: N/A		Orien	tation	h:				V	necked by:	NO.		
Core Recovery (%)	water Loss (%)	Groundwater Level (m)	R.L. (m)	Depth (m)	Graphic Log	Mat	erial Description	ı		USC Description	Consistency/Density	Moisture	Sample	In-Situ Testing	Laboratory Testing	Notes	Backfill		Geological Unit
	· PARAMONIA discrimina and a second s	CORDED		11 12 12		Becomes brown grey	, with minor silt,	, saturated.		GW	VD	M O		SPT at 10m N = 50+ 17, 17/27, 23 300mm (SC) SPT at 11.5m N = 50+ 7, 20/50 205mm (SC) SPT at 14.5m N = 51+ 4, 11/12, 11, 14, 14 450mm (SC)	DRY TESTING		THONGRANGHAN		
	**************************************	NOT RECORDED		- 15 - 16 - 17 - 18		Borehole Terminated		ET)							NO LABORATORY TESTING			- Patricia de la companya de la comp	
lethod C concr B open solid: SA holloo IASH wash Q3 PQ Ti Q3 NQ T MLC NMLC T Dual	barn stem w stem drill riple riple Triple C Tri t Pus Tube	el I aug m au	er iger e e ube mm)	U H CCCGGGGGMMCOPTCMPW	C Cla Inorg Inorg Inorg Cally Poor Well Inorg ORG Pool Pool	ssification anic CLAYS high plasticity anic CLAYS medium plasticity anic CLAYS tow plasticity anic CLAYS tow plasticity and CLAYS tow plasticity ANAVEL GRAVEL GRAVEL GRAVEL GRAVEL ANIC GLAY medium to high plasticity SAND BY SAND BY SAND BY GRAVEL GRAVEL BY GRAVE	Consistency VS very soft S soft F firm S stiff VS very stiff H hard Density VL very loose L loose MD medium dense D dense D dense VD very dense	Soif Samples B bulk U undisturbed D disturbed Water Valend of excavation at time of excavation at time of closure	VS VI SPT SI SS SI SC SI HB h	en pe ane si Id, pe plit sp olid co amme inks u ure ist	netror hear n, test con one er bou nder d	meter t incing own w	eigh	Graphic Log Topsoil Sandy GRAVEL GRAVEL Cement Seal: 1 pice group, 1 pice Bentonite Seal: 1 pipe sroup, 1 pipe		all: \$ pipe f pipe			

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

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TP01

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pil Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548557 m Northing: 5171658 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Depth (m)	Sample Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.	T PARTITION OF THE PART
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1.5				TOTAL CONTRACT		774WA 5661444
2.0 —						
2.5	***************************************			7 JPOWNShip to the second		7 77 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
3.0						
3.5				1000000		T-FANNIST-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-
1.0					4.20	
1					End of Test Pit at 4.2m (Required Depth Reached)	
4.5	**************************************					
Remarks;					Logged by: MHD	
Water Table	Not Encou	ntered			Input by: MHD Checked by: RJH Verified by: RJH	

Aurecon (New Zealand) Limited
Unit 1.50 Casendish Rd
Project Name: Brookside
Location: Cnr Burnham Sc
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Project Reference: 224926

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP02

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548400 m Northing: 5171613 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
2.0 —		M			G.	SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) Sandy GRAVEL with minor cobbles and trace of boulders; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.	
4.0						End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
4.5 -							
Remarks: Water Tal		I Encount	tered		<u> </u>	Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	<u> </u>
						Sheel	d of d

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP03

Sheet 1 of 1

Database File: 224926_TESTPITS.GPJ, Library: COPY CIF CHCH LIBRARY МАКСИТЗОТГ.ССБГ. USIA I Ample LOT I ALIA I E NOV ZUTUGOT,

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548310 m Northing: 5171750 m Ground Level: N/A

Date Started: Date Completed: 9/27/2011 9/27/2011

Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -		が で で で で で で で で で で で で で			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Light yellow brown. Moist. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded.	
2.0 —					Sandy GRAVEL with minor cobbles; Light brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.	The second secon
4.0 —					End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	2004 1
Remarks:	Not Encour	alered			Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

Last Generated:

Water Table Not Encountered

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP04

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548311 m Northing: 5171653 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011 Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH

Water Level (m) Elevation (m) Tests Shear Vane Tests Graphic Log Depth (m) Pocket Penetrometer 7 Soil Description SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) Sandy GRAVEL with minor cobbles; Brown grey. Dry. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded. 0.5 1.0 1.5 2.0 2.5 3.0 3.5 becomes moist 4.0 End of Test Pit at 4.4m (TARGET DEPTH ACHIEVED) 4.5 11/1/2011 9:34:02 AM Logged by: Input by: MHD

Database File: 224926_TESTPITS.GPJ, Library: 430FY-43

Checked by:

Verified by:

RJH

RJH

Sheet 1 of 1

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP05

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548230 m Northing: 5171796 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Light yellow brown. Moist. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded.	
0		44.7				Sandy GRAVEL with minor cobbles and slightly bouldery; Brown grey. Moist, Medium dense, Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
5 -		NAMA AND AND AND AND AND AND AND AND AND AN					
5 -							
.0							
.5 -							
.5 -		Personalitions		×		End of Test Pit at 4.4m (TARGET DEPTH ACHIEVED)	
-						Logged by: MHD	
Remarks Water Ta	s: able Not I	Encounte	ered			Input by: MHD Checked by: RJH Verified by: RJH Sheet 1	l afd

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP06

Sheet 1 of 1

TEST PIT INFORMATION Excavator Type: 22 Tonne Excavator Test Pit Dimensions: Contractor: TEXCO CO-ORDINATES OD New Zealand TM Easting: 1548250 m Northing: 5171862 m Ground Level: N/A

Date Started: Date Completed:

Logged by: Input by: Checked by: MHD MHD RJH RJH Verified by:

Water Level (m) Pocket Penetrometer Tests Elevation (m) Graphic Log Shear Vane Tests Depth (m) Sample Soil Description SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) Sandy GRAVEL with minor cobbles; Brown grey. Dry. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded. 0.5 becomes moist 1.0 1.5 2.0 2.5 3.0 Database File: 224926_TESTPITS.GPJ, Library. COPY OF CHCHLIBRARY MARCH 2007/GLB 3.5 4.0 End of Test Pit at 4m (TARGET DEPTH ACHIEVED) 4.5 11/1/2011 9:34:03 AM Logged by: MHD Input by: MHD RJH Generated:

Last

Water Table Not Encountered

Checked by: Verified by:

RJH Sheet 1 of 1

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP07

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548150 m Northing: 5171903 m Ground Level: N/A

Date Started: Date Completed: 9/27/2011 9/27/2011

0.5 - 1.0 - 2.0 - 3.5 -				SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Light yellow brown. Dry. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles and slightly bouldery; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. becomes moist	
2.0 —				Sandy GRAVEL with minor cobbles and slightly bouldery; Brown grey. Moist, Medium dense, Gravel fine to coarse grained. Sand medium to coarse grained, Rounded to sub rounded.	
2.0 —				becomes moist	
3.0 —				becomes moist	
		10° S			
3.5					
4.0					
4.5				End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	
Remarks: Water Table Not E	Encount	ered		Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP08

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions: Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548185 m Northing: 5171995 m

Date Started: Date Completed: 9/27/2011 9/27/2011 Logged by: Input by: Checked by: RJH RJH Verified by:

Water Level (m) Elevation (m) Shear Vane Tests Graphic Log Depth (m) Pocket Penetrometer 7 Soil Description SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Dark brown. Moist. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded. 0.5 1.0 1.5 Sandy GRAVEL with minor cobbles; Dark brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. 2.0 Rounded to sub rounded. 2.5 3.0 3.5 4.0 Database File: 224926_TESTPITS.GPJ, Library: COPY CHECK End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED) 4.5 Last Generated: 11/1/2011 9:34:03 AM Logged by: MHD Input by: MHD Checked by: RJHWater Table Not Encountered Verified by: RJH

Sheet 1 of 1

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Project Name: Brookside
Location: Cnr Burnham Sci
Project Reference: 224926

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP09

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548065 m Northing: 5172050 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 - 1.0 — 2.0 — 3.0 —					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) Gravelly SILT; Light yellow brown. Dry. Gravel coarse grained. Low plasticity. Friable. Gravel sub rounded. GRAVEL with some silty sand and minor cobbles; Light yellow brown. Dry. Sand coarse to medium grained. Gravel rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.	
4.5					End of Test Pit at 4.4m (TARGET DEPTH ACHIEVED)	
Remarks: Water Table N	ot Encoun	tered			Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

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Authorited State S

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP10

Sheet 1 of 1

TEST PIT INFORMATION Excavator Type: 22 Tonne Excavator Test Pit Dimensions: Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548152 m Northing: 5172076 m Ground Level: N/A

Date Started: Date Completed: 9/27/2011 9/27/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5		- Constitution of the cons				SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Light brown. Moist. Medium dense. Sand coarse to medium grained. Gravel rounded to sub rounded	
i.0 —						Sandy GRAVEL with minor cobbles; Brown grey. Moist, Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.	
.5 -		T-Asserbisions and the second				becomes maist	- CARRACTICAL CALLACTER AND
.5 -					- A Paragraphic Annual Control of the Control of th		
.5							
.0						4.30 End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	
.5					The second secon	End of Test Fit at 4.0III (TARGET DEFTI AGRIEVED)	
Remarks Water Ta	:: able Not E	Encount	ered			Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP11

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548046 m Northing: 5172185 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Depth (m) Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 - 1.0 - 2.0 - 3.0 -					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Dark brown. Dry. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Dark brown. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
4.0 —				or second	4.30 End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	
Remarks:	ncounte	ered			Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP12

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1547999 m Northing: 5172255 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) 3.30 Sandy GRAVEL with minor cobbles; Dark brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
4.5					T T T T T T T T T T T T T T T T T T T	End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
Remarks: Water Tal		Encount	tered			Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP13

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1547959 m Northing: 5172333 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Depth (π)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.0.5 -						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) Sandy GRAVEL with minor cobbles; Dark brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
.5 -							
5.5							
.0 —						4-10 End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	**************************************
J.5 -							***************************************
Remarks: Water Tab	ile Not Ei	ncounte	ered			Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP14

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548142 m Northing: 5172237 m Ground Level: N/A

Date Started: Date Completed: 9/27/2011 9/27/2011 Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVELwith some silty sand and minor cobbles; Light brown. Dry. Medium dense. Sand coarse grained. Gravel fine to coarse grained. Gravel rounded to sub rounded.	
1.0 —							
1.5						190 Sandy CDAVEL with minor cabbles: Light brown gray Moist Medium	
2.0 —						Sandy GRAVEL with minor cobbles; Light brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
2.5 -							
3.5 –							
4.0 —							
4.5				AV		End of Test Pit at 4.5m (TARGET DEPTH ACHIEVED)	
Remark	s:					Logged by: MHD Input by: MHD Checked by: RJH	

Last Generated: Water Table Not Encountered Checked by: RJH Verified by:

Sheet 1 of 1

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP15

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548067 m Northing: 5172384 m Ground Level: N/A

Date Started: Date Completed: 9/27/2011 9/27/2011 Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH

Depth (m)	vvater Level (m)	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
1.0 — 1.5 — 2.0 — 3.0 — 4.0 —				SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Brown. Dry. Medium dense. Sand coarse grained. Gravel fine to coarse grained. Gravel rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
]	0 70 00	0.000		End of Test Pit at 4.8m (TARGET DEPTH ACHIEVED)	
Remarks:			<u> </u>	Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	
Water Table Not Enc	ou neied			Verified by: RJH	

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP16

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548110 m Northing: 5172419 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 - 1.0 - 1.5 - 2.0 - 3.5 -					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Brown. Dry. Medium dense. Sand coarse grained. Gravel fine to coarse grained. Gravel rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
4.5		6. B.			End of Test Pit at 4.5m (TARGET DEPTH ACHIEVED)	
Remarks: Water Table Not E	Encount	ered			Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH	

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP17

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548160 m Northing: 5172450 m Ground Level: N/A

Date Started: 9/27/2011 Date Completed: 9/27/2011

SILT minor allly sand; Light brown. Dry. Sand is medium grained. Low pleasitory. Friable, rootlets present. (**CPSOIL) GRANEL with some sity sand and minor cobbles; Brown. Dry. Medium dense. Sand coarse grained. Or avel fine to coarse grained. Gravel rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist, Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist, Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist, Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist, Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey. Moist, Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soll Description	Elevation (m)
sub rounded. Sandy GRAVEL with minor cobbles, Brown grey, Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles, Brown grey, Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.			77 77 77 77 77 77 77 77 77 77 77 77 77			SILT, minor silty sand; Light brown. Dry. Sand is medium grained. Low plasticity. Friable, rootlets present. (TOPSOIL)	
Sandy GRAVEL with minor cobbles; Brown grey, Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey, Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey, Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey, Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded. Sandy GRAVEL with minor cobbles; Brown grey, Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	5 -					dense. Sand coarse grained. Gravel fine to coarse grained. Gravel rounded to sub rounded.	
becomes moist) —					Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to	
becomes moist	; - 						
becomes moist becomes moist becomes moist becomes moist becomes moist becomes moist comparison of the comparison o) —						
End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)						becomes moist	
End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)							
End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)							
) —					420 End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
Logged by: MHD	; - - -		111111111111111111111111111111111111111				
			no processor and the second			Logged by: MHD	
emarks: Input by: MHD Checked by: RJH Verified by: RJH		Not Encour	ntered			Input by: MHD Checked by: RJH	

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP18

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548205 m Northing: 5172468 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 –						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
.0 —						becomes with cobbles present in the soil matrix to the base of the test pit. becomes brownish grey.	
.0						SAND, sand is fine to coarse grained and well graded, brownish grey. Tightly packed, moist, sub-horizontal bedding.	
.5 -		West Programmes of the Control of th				sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
.0							
.0				·		End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
.5 -							
Remarks Water Ta	s: able Not	Encoun	tered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
						Observ	et 1 of 1

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP19

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548254 m Northing: 5172495 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

SILT, minor fine to medium grained poorty grained subrounded gravels, dark brown, more grained subrounded gravels, dark brown, more grained gravels, sand is fine to coarse grained packed, moist, sub-horizontal bedding. 1.0 -	rounded and uniformly and well graded, brown. Tightly coarse grained and well unded to rounded and well , sub-horizontal bedding,
sandy GRAVEL with minor silt, sand is fine to graded, gravel is fine to coarse grained, subtraction of the graded grey and brown. Tightly packed, moi greywacke gravels. becomes brownish grey. becomes with cobbles present in the soil materials and the graded grey and brown. Tightly packed, moi greywacke gravels. becomes brownish grey. becomes with cobbles present in the soil materials and greywacke gravels. becomes with cobbles present in the soil materials and greywacke gravels. a.o —	unded to rounded and well , sub-horizontal bedding,
becomes with cobbles present in the soil ma becomes with cobbles present in the soil ma column and t	x to the base of the test pit.
1	EVED)
4.5	,
Remarks: Water Table Not Encountered	

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP20

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548304 m Northing: 5172416 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5			当 う う う う う う う う う う う う う う う う う う う			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to [0.5m. (TOPSOIL)] sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
1.0						becomes brownish grey.	
1.5 -						becomes with cobbles present in the soil matrix.	
						becomes with some sand and no cobbles.	
2.0 —						becomes sandy with cobbles present in the soil matrix to the base of the test pit.	
3.0		Andrie de de la Companya de la Compa					
3.5							
1.0			9~(.).0			End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5							
1							
Remarks	:	I			1	Logged by: RS	-1
Water Ta		Encount	ered			Input by: RS Checked by: RJH Verified by: RJH	

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Project Reference: 224926

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548248 m Northing: 5172382 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soll Description	Elevation (m)
2.0 — 3.0 — 4.0 —					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.50. (TOPSOIL) 0.50. SILT, some fine to medium grained uniformly graded sand, brown. "Stiff", moist, low plasticity. sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. and of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
Remarks: Water Table Not	 Encount	ered		<u> </u>	Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP22

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548150 m Northing: 5172336 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Auseco (Hew Zealand) Limited
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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP23

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548238 m Northing: 5172291 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit.	
2.5							
3.5					The state of the s		
4.5						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
Remarks Water Ta		Encoun	tered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
						Ch.	t 1 of 1

Depth (m)

www.aurecongroup.com Facsimile: Email: christchurch@ap,aurecongroup.com

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

Tests

Pocket Penetrometer T

Sheet 1 of 1

TEST PIT INFORMATION Excavator Type: 22 Tonne Excavator Test Pit Dimensions: Contractor: TEXCO

Water Level (m)

Graphic Log

Shear Vane Tests

CO-ORDINATES OD New Zealand TM Easting: 1548336 m Northing: 5172348 m Ground Level: N/A

Date Started:

Soil Description

Logged by: RS Input by: RS Checked by: RJH Elevation (m)

SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, 0.5 greywacke gravels. becomes minor silt. becomes brownish grey. 1.0 becomes with cobbles present in the soil matrix to the base of the test pit. 1.5 2.0 2.5 3.0 3.5 Database File: 224926_TESTPITS.GPJ, Library: COPY OF CHC耳口 4.0 End of Test Pit at 4m (TARGET DEPTH ACHIEVED) 4.5 11/1/2011 9:34:08 AM Logged by: Input by: RS Remarks: RS Checked by: **RJH** Last Generated; Water Table Not Encountered RJH

Verified by:

Sheet 1 of 1

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP25

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548306 m Northing: 5172259 m Ground Level: N/A

9/28/2011 9/28/2011 Date Started: Date Completed:

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
).5 -		The state of the s	は			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt, grey and brown. becomes brownish grey.	
1.5		Presponinistates				becomes with cobbles present in the soil matrix to the base of the test pit.	
2.0 —							
.0							
.5		T T T T T T T T T T T T T T T T T T T				4.00	***************************************
.0			7 8.2.7			End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
Remarks	3: able Not I					Logged by: RS Input by: RS Checked by: RJH	

Aurecon (New Zealand) Limite III of Cinewidsh Rd Po SoX 1961 Chistichusch 8140 New Zealand Telephone; +64 3 366 6821 New Zealand Facilities (+84 3 379 6955 Email: christichusch@ap.aurecongroup.com

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP26

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO CO-ORDINATES OD New Zeatand TM Easting: 1548217 m Northing: 5172199 m Ground Level: N/A Date Started: Date Completed: 9/28/2011 9/28/2011

	Sample	Vvater Lever (m) Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt. becomes brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit.	
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.5 -	AA HAAAA AA A			The state of the s	4∞ End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
.5 -						
l Remarks: Vater Tabl	e Not Enco	ountered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

Aurecon (New Zealand) Limited
Unit 1, 150 Chennolish Rd
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Finalt: christchurch@ap.aurecongroup.com
Finalt: christchurch@ap.aurecongroup.com

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP27

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548295 m Northing: 5172172 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soll Description	Elevation (m)
.0		Account management and account account	当 学 : 0 : 0 : 0 : 0 : 0 : 0 : 0 : 0 : 0 :			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt.	<i>,</i>
.5						becomes with cobbles present in the soil matrix to the base of the test pit.	
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.0 —		N-AAAAR TERAARAN NOOMANNA HIIINNOONNA FAATAT HAARINA HIIIRARAN HAARINA HAARINA HAARINA HAARINA HAARINA HAARINA				End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	nikos•
.5 -		Assembly					
Remark: Vater Ta	s: able Not	Encount	tered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

PO 80X 1061
Christchutch 8140
New Zealand

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP28

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548197 m Northing: 5172119 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penefrometer Tests	Soil Description	Elevation (m)
).5			本			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt.	
.0		The state of the s			ANNONNONNON THE	becomes brownish grey.	
.5						becomes with cobbles present in the soil matrix to the base of the test pit.	
1.5							
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.5 -							
.0 —		***************************************				4∞0 End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	-
.5			T SALVENON MILLION CONTRACTOR		**************************************		
	·				***************************************	Logged by: RS Input by: RS	<u> </u>
Remarks Vater Ta	able Not I	Encount	ered			Checked by: RJH Verified by: RJH	

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Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston
Project Reference: 224926

TP29

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548277 m Northing: 5172069 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

sandy GRAVEL with minor sit, sand is fine to coarse grained and well graded, gray and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. 1.0 — Solve to the base of the test pit. 2.0 — Solve to the solve	Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
1.5 -	0.5	a a second real real real real real real real real				sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	Table and the second se
becomes with cobbles present in the soil matrix to the base of the test pit. 2.5 -					The property of the contract o	becomes brownish grey.	
3.0 — 3.0 — 3.5 —		144411104411111111111111111111111111111				becomes with cobbles present in the soil matrix to the base of the test pit.	
8.5 - Solve	2.5 -						
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						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
1	l.5 –	***************************************	A		To a second seco		
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Last Generated: 11/1/2011 9:34:09 AM

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Email: christchurch@ap.acrecongroup.com Client: **CDL NZ Land Development Ltd**

Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP30

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548385 m Northing: 5172134 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m) Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soll Description	Elevation (m)
0.5 -	AW .	は、	66	Pe	SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt. becomes brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit.	
4.0 — 4.5 — Remarks:	Encounte	red			End of Test Pit at 4m (TARGET DEPTH ACHIEVED) Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	of 1
					Sheet 1	of 1