



Photgraph 7: PAEC 46 Stripped surface (no fill)



Photgraph 8: Farm dams are constructed of locally won material

APPENDIX
Electromagnetic Survey – Field and Processing Method



APPENDIX C ELECTROMAGNETIC SURVEY – FIELD AND PROCESSING METHODS

1. GROUND CONDUCTIVITY PROFILING

Ground conductivity profiling is an electromagnetic (EM) survey method which employs a transmitter coil above the ground surface to generate an electromagnetic field and induce subsurface current flow in electrically conductive materials. A receiver coil measures the secondary EM field generated by the ground current and the strength of this secondary field, measured in the frequency domain, is converted to an apparent ground conductivity (ECa). This apparent conductivity is a response to all electrically conductive materials within the depth of investigation and footprint of the EM system, and does not discriminate between sources such as saline soil, groundwater, clays and other conductive minerals, and buried metallic objects.

1.1 EM System Employed

For this investigation, the following equipment was employed:-

Geonics EM31 Ground Conductivity Meter with Polycorder digital data logger;

Trimble AgGPS114 Differential Global Positioning System (DGPS), iPAQ hand-held computer (digital data logger); and

4WD all terrain vehicle (ATV).

The EM31 was mounted 1 m above ground surface in a non-conductive frame cantilevered 0.5 m from the side of the quad bike and was operated in the vertical dipole (horizontal coil) mode with a coil separation of 4 m, for a maximum depth of investigation of approximately 6 m. The photograph below shows a system similar to that used on this project.

EM31 measurements of apparent conductivity were logged at 1 second intervals, as were WGS84 geographic coordinates of the measurement locations, as the bike proceeded along the survey lines. On completion of sections of profiling, data were uploaded from the data loggers to a laptop, for subsequent conversion of coordinates to the GDA94/MGA94 system and merging of navigation and apparent conductivity data using common time tags.





1.2 ATV Effects

The radiation pattern of the EM31 transmitter coil is not completely unidirectional, and secondary fields will be generated in close adjacent conductors as well as subsurface conductors. The metallic mass of the quad bike therefore has an effect on the apparent ground conductivity reading. To determine the magnitude of this effect, data were acquired on a trial profile obtained in the absence of the bike and with the bike present.

A steep gradient in apparent conductivity was produced within a distance of 1 m from the side of the bike. The non-conductive mounting system for the EM31 was constructed with an adjustable cantilever distance and was fixed for the investigation at a distance of 0.5 m, leading to an apparent conductivity contribution (bike effect) of 17 milliSiemens/m (mS/m) or 0.17 deciSiemens/m (dS/m). Reduced effects could have been obtained at greater cantilever distances, however 0.5 m was maintained for optimum physical stability and minimum total vehicle width for passing through gates throughout the investigation area. At this cantilever distance, a correction of -17 mS/m was applicable to all apparent conductivities obtained from the ATV.



2. DATA PROCESSING

2.1 Quality Control and Filtering

Raw field data were regularly uploaded to a laptop in ASCII file format. Files were then opened as spreadsheets in Excel, for application of the quad bike correction, initial graphical display of DGPS coordinates (plan of data point locations) and ECa profiles and for quality control checks. Macros were also run to enable line detection and calculation of average station spacings and line lengths. During the investigation, over 54 500 data points were obtained on profiles with a total length of 132 line km and an average station spacing of approximately 2.4 m.

Figure 1 below shows a typical ECa profile obtained from the ATV. Raw data shows apparent conductivity anomalies with a superimposed noise envelope of ±5 mS/m (±0.05 dS/m) due to bumping and vertical movement of the quad bike and EM31 coils. Although this noise envelope is of small amplitude, all data were filtered with a 5-point running average prior to further processing.

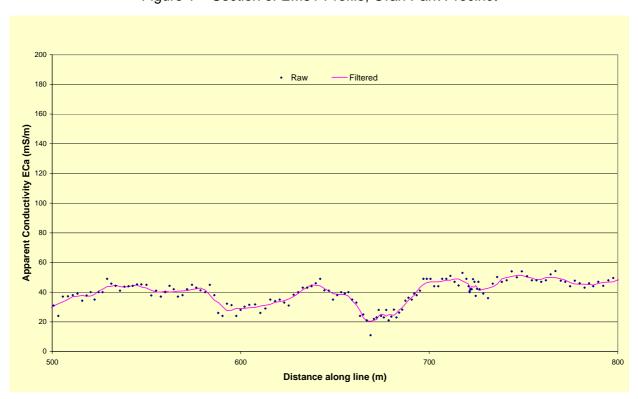


Figure 1 – Section of EM31 Profile, Oran Park Precinct



2.2 Apparent Conductivity (ECa) Mapping

Filtered ECa data from the investigation by Douglas Partners (DP), predominantly from west of The Northern Road, together with data from a previous investigation by Environmental & Earth Sciences (EES) east of the Northern Road, were combined after comparison of values along a "check line" in the centre of the area (Drawing S1) and application of a bulk shift of 35 mS/m to all DP data. This difference can easily be attributed to different vehicle corrections, different moisture contents at the two survey times and differences in instrument height. Figure 2 shows the similarity of the DP and EES data along the check line.

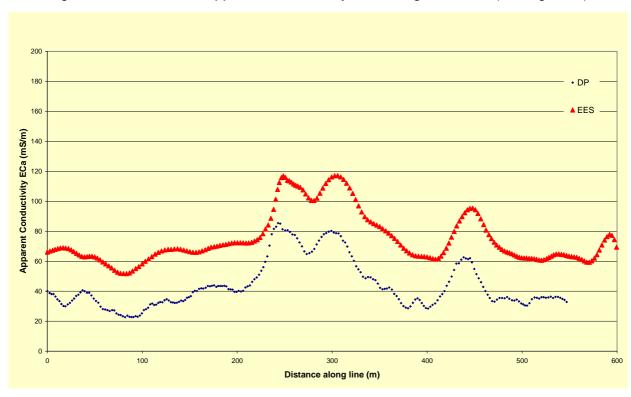


Figure 2 – DP and EES Apparent Conductivity data along check line (looking north)

The combined dataset was opened in the MapInfo/Discover GIS environment for spatial analysis and display, georeferenced in the AGD94/MGA94 coordinate system.



Using interpolation by krigging, the ECa data set was gridded and displayed as a colour image with a continuous colour spectral scale in mS/m, the principal colours ranging through the boundary values of the Chhabra (1996) salinity classification scheme generally as follows (Table 1):

Table 1 – Colour Spectrum for Apparent Conductivity Image (Chhabra classification)

Blue	0 mS/m	
		Non-saline
Cyan	50 mS/m	
		Slightly saline
Yellow	100 mS/m	
		Moderately saline
Orange	150 mS/m	
		Very saline
Red	200 mS/m	
		Extremely saline

2.3 Correlation

After observation of reasonable qualitative correlations between locations of high ECa values, some high ECe values from soil sample tests and visible indicators of salinity, quantitative correlations were carried out aimed at re-scaling the apparent conductivities and re-presentation as "apparent salinities" or estimated ECe values (in dS/m) over the area of the EM survey.

For this correlation (Figure 3 below), all measured ECe values from soil samples at depths of the order of 1.5 m (1.3 – 1.7 m) were plotted on a scattergram against apparent conductivities from the EM31 measurement point closest to the relevant test pit. This sample depth was selected after observation of vertical soil salinity profiles from five control test pits, sampled at 0.25m intervals, showing maximum salinities generally at depths of the order of 1.5 m hence likely to contribute most of the EM31 volume response. Correlations were made between 185 ECa and ECe data pairs, with many of the 176 test pits in reasonable proximity to multiple profiles.



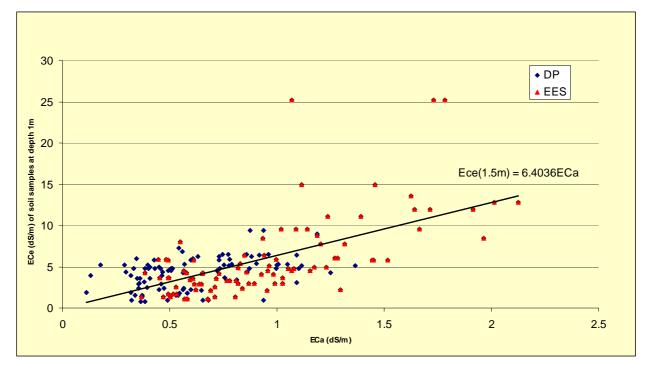


Figure 3 – Correlation of Salinities with Apparent Conductivities, Oran Park Precinct

The general linear relationship between ECe and ECa indicates that the EM31 system was responding to soil salinity. The linear regression performed on the scattergram indicates a factor of 6.4 by which to multiply apparent conductivities (in dS/m) to estimate ECe values throughout the EM31 data set.

2.4 Apparent Salinity (Estimated ECe) Mapping

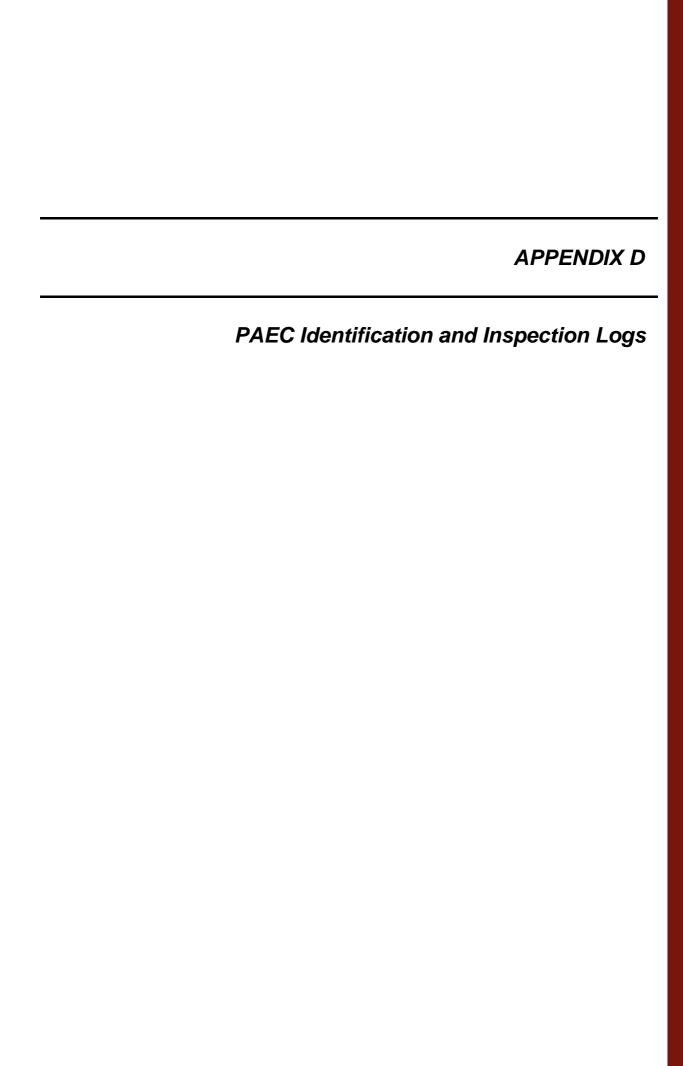
The derived correlation factor was applied to all data, which were then re-gridded for presentation as an apparent salinity image with a continuous colour spectral scale in dS/m, with the principal colours ranging through the boundary values of the Richards (1954) salinity classification scheme, generally as follows (Table 2):



Table 2 – Colour Spectrum for Apparent Salinity Image (Richards classification)

Blue	0 dS/m	
		Non-saline
Cyan	2 dS/m	
		Slightly saline
Yellow	4 dS/m	
		Moderately saline
Orange	8 dS/m	
		Very saline
Red	16 dS/m	
		Highly saline

Finally, the 4 dS/m and 8 dS/m contours were added to the image to assist in the assessment of areas of moderately, very or highly saline soil.





Client: Project:		Centres Commission Contamination Assess		ct Number	: 40740 18/01/07
Location	: Oran Pa	rk	Logge	ed:	AT
Location:					
Property	: Lot 3 E	P 738249 (20 Curtis	GPS Coo	rdinates	
Grid Ref				sting:	292 580
PAEC #:	1		No	orthing:	6235 770
Identified fron	n·				
Site Inspe		☐ Conductivity	Data □	Other (list	below):
Title Dee		☐ Interviews		Council R	
Geotechr		☐ Aerial Photo	_	- Council IX	ecords X
		_	graphly 🛄		_
Historical	Society	Year:			
Details:					
	ized use as	truck depot and storage	ge of materials	and equip	ment of unknown
		drums of unknown con			
1998 and	111 th of Aug	ust 2003.			
Also, una	uthorized c	onstruction of a dwellin	ıa.		
Follow up:					
Follow up:	oction room	ired to assess current	status and dal	inoato cizo	Tosting may
	· .	iled to assess current	status and dei	illeate Size	. Testing may
be require	ed.				
Insp <u>ection De</u>					
Inspected		CCK	Photograp	hed:	No
Date Insp		22 Feb 2007			
Inspectio	n Method:	Walkover			
Observations					
		vious commercial (truc	king) use. Furt	her investig	gation is required
		mmercial use extende			•
to determ				Joor Site	
Reasoning:				Classifie	ed as an AEC ?
Unknown	use			Γ,	Yes X
					No 🔲
				l L'	



Property: Lot 4 DP 738249 (24 Curtis GPS Coordinates Lane) Grid Ref: Easting: 692 620 Northing: 6235 840	Client: Project: Location:	Stage	1 Conta	s Commission mination Assessme	ent	Project Date: Logge	ct Number: ed:	: 40740 18/01/07 AT	7
Grid Ref:	ocation:								
Grid Ref: PAEC #: 2 Northing: 692 620 Northing: 6235 840 dentified from: Site Inspection	Property:			249 (24 Curtis	GP	S Coo	rdinates		
Site Inspection									
Title Deed info.	entified from:								
Geotechnical	Site Inspec	tion		Conductivity Da	ata		Other (list	below):	
Geotechnical Aerial Photography Historical Society Year: Historical Year: Historical Society Year: Historical Year: Histo	Title Deed	info.		Interviews			Council R	ecords	X
Historical Society	Geotechnic	cal		Aerial Photogra	aphy				_ 🗀
Irrigation of land using water from septic tank. Site plans detailing locations have been acquired from Council Description Details:	Historical S	Society		-					
Irrigation of land using water from septic tank. Site plans detailing locations have been acquired from Council Date Inspected by:			_						
been acquired from Council follow up: Inspection Details: Inspected by: Date Inspected: Inspection Method: Debservations: Classified as an AEC ? Council Approved		f land us	ing wate	er from sentic tank	Site	nlans	detailing lo	cations hav	ρ.
Inspection Details: Inspected by: Date Inspected: Inspection Method: Inspection Method: Deservations: Classified as an AEC ? Council Approved					Oito	Piaris			
Inspection Details: Inspected by: Date Inspected: Inspection Method: Deservations: Classified as an AEC ? Council Approved Photographed: Classified as an AEC ?	been acqu	ired from	Counci	1					
Inspection Details: Inspected by: Date Inspected: Inspection Method: Deservations: Classified as an AEC ? Council Approved Photographed: Classified as an AEC ?									
Inspection Details: Inspected by: Date Inspected: Inspection Method: Description									
Inspection Details: Inspected by: Date Inspected: Inspection Method: Disservations: Classified as an AEC ? Council Approved									
Inspected by: Date Inspected: Inspection Method: Description: Descript	ollow up:								
Inspected by: Date Inspected: Inspection Method: Description: Descript									
Inspected by: Date Inspected: Inspection Method: Description: Descript									
Inspected by: Date Inspected: Inspection Method: Description: Descript									
Inspected by: Date Inspected: Inspection Method: Description: Descript	snection Deta	ile.							
Date Inspected: Inspection Method: Disservations: Classified as an AEC? Council Approved Yes	•				Pho	otogran	ohed:		
Inspection Method: bbservations: easoning: Classified as an AEC ? Yes									
easoning: Classified as an AEC ? Yes									
easoning: Classified as an AEC ? Yes									
Council Approved Yes	bs <u>ervations:</u>								
Council Approved Yes									
Council Approved Yes									
Council Approved Yes									
Council Approved Yes									
	easoning:						Classifie	d as an AE	C ?
	Council An	proved				7	l 「	Yes	
NO X	23410117tp	P10100				-			_
						_	['	NU	٨



	Client: Project: Location:	Stage 1 Co	ntres Commission ntamination Assessme	-		: 40740 19.01.2007 CFK
.oca	ation:					
	Property:		Oran Park	GPS Cod	ordinates	
	Grid Ref:		Raceway	F	asting:	290 660
	PAEC #:		3		orthing:	6234 810
den	tified from:					
	Site Inspec	_		ata 🔲	Other (list	•
	Title Deed	info. 🔲	Interviews		EES Inve	stigation X
	Geotechnic	al 🔲	Aerial Photogra	iphy 🔲		
	Historical S	Society 🔲	Year:			
)eta	ails:					
		USTs. oil st	orage areas, 2 greas	e traps. si	urficial hydr	ocarbon staining.
			n to have wetted down	•	•	, can be in the state of the st
				with Sump	OII.	
			ent unit on site.			
	Unknown f	ill north of m	edical building and h	illed area	west of the	north circuit and
	between th	e pit area and	d the main straight of t	he South (Circuit.	
	See EES F	igure 6b.				
olle	ow up:					<u> </u>
	•					
nen	ection Deta	ile.				
ıσρ	Cotion Deta					
	Inspected b			Photogra	phed:	
	Date Inspe					
	Inspection	wethou:				
)bs	ervations:					
Reas	soning:				Classifie	ed as an AEC ?
ı						
	Unknown fi	II and potenti	al UST leaks			Yes X
						No 🔲
					-	



Project: Location:	Stage 1 Co	ntres Commission ntamination Assessr	nent Da t	oject Number te: gged:	: 40740 19.01.200 CFK)7
eation:		W/D D 1	0000			
Property:		4WD Park	GPS C	oordinates		
Grid Ref:				Easting:	290 600	
PAEC #:		4		Northing:	6234 130	
ntified from:						
Site Inspect	tion 🔲	Conductivity I	Data 🔲	Other (list	•	
Title Deed i	nfo. 🔲	Interviews		EES Inve	stigation	Χ
Geotechnic	al 🔲	Aerial Photog	raphy 📮]		
Historical S	ociety 🔲	Year:		-		=
ails:						
Fill mound f	or 4WD cou	rse (PAEC 01)				
Pit area for	4WD					
low no.						
low up:						
low up:	ils:					
pection Deta			Photog	raphed:		
	y:		Photog	ıraphed:		
pection Deta	y: cted:		Photog	ıraphed:		
pection Detainspected be Date Inspected	y: cted:		Photog	ıraphed:		
Inspected book Date Inspection I	y: cted:		Photog	ıraphed:		
Inspected book Date Inspection I	y: cted:		Photog	raphed:		
Inspected book Date Inspection I	y: cted:		Photog	ıraphed:		
Inspected book Date Inspection I	y: cted:		Photog	raphed:		
Inspected book Date Inspection I	y: cted:		Photog		ed as an AEC	??
Inspected be Date Inspection Inspection Inspections:	oy: cted: Method:		Photog	Classifie	.,	; ? X



ocation: Property:	Project: Location:		ntres Commission ntamination Assessme		ed:	19.01.2007 CFK
Grid Ref:	ocation:					
Grid Ref: 5	Property:			GPS Coo	rdinates	
PAEC #: 5	Grid Ref:		00,	Ea	sting:	289 940
Site Inspection	PAEC #:		5			6234 260
Site Inspection	lentified from:					
Title Deed info.		ion 🗖	Conductivity Da	ata 🗇	Other (list	below):
Geotechnical	•	_	· · · · · · · · · · · · · · · · · · ·	_		and the second second
Historical Society Year:						<u> </u>
Facilities (huts and toilet amenities) were constructed of asbestos cement sheeting Plan Layout indicates a fuel pump. Anecdotal information indicates live firing was not undertaken on the site. EES reported no evidence of it's existence ollow up: Inspection Details: Inspected by: Date Inspected: Inspection Method: Deservations: Classified as an AEC? Possible onsite fuel storage, hazardous Yes X		_	-			
Facilities (huts and toilet amenities) were constructed of asbestos cement sheeting Plan Layout indicates a fuel pump. Anecdotal information indicates live firing was not undertaken on the site. EES reported no evidence of it's existence ollow up: Inspection Details: Inspected by: Date Inspected: Inspection Method: Deservations: Classified as an AEC? Possible onsite fuel storage, hazardous Yes X	eteile.	•				
Plan Layout indicates a fuel pump. Anecdotal information indicates live firing was not undertaken on the site. EES reported no evidence of it's existence ollow up: Inspection Details: Inspected by: Date Inspected: Inspection Method: bservations: Classified as an AEC? Possible onsite fuel storage, hazardous	etaiis:					
Anecdotal information indicates live firing was not undertaken on the site. EES reported no evidence of it's existence pollow up: Inspection Details: Inspected by: Date Inspected: Inspection Method: bservations: Classified as an AEC? Possible onsite fuel storage, hazardous Yes X	Facilities (hu	uts and toilet	t amenities) were cons	tructed of a	sbestos ce	ment sheeting
EES reported no evidence of it's existence collow up: Inspection Details: Inspected by: Date Inspected: Inspection Method: Classified as an AEC? Possible onsite fuel storage, hazardous Photographed: Classified as an AEC?	Plan Layout	indicates a	fuel pump.			
pollow up: spection Details: Inspected by:	Anecdotal in	nformation in	ndicates live firing was	not underta	aken on the	site.
Inspected by: Date Inspected: Inspection Method: bservations: easoning: Classified as an AEC? Yes X	EES reporte	ed no eviden	ce of it's existence			
Inspected by: Date Inspected: Inspection Method: Photographed: Inspection Method: Photographed: Classified as an AEC? Possible onsite fuel storage, hazardous Photographed: Classified as an AEC?						
Date Inspected: Inspection Method: bservations: easoning: Classified as an AEC ? Possible onsite fuel storage, hazardous Yes X	spection Detai	ls:				
Date Inspected: Inspection Method: bbservations: easoning: Classified as an AEC ? Possible onsite fuel storage, hazardous Yes X	Inspected by			Photogram	hed:	
Inspection Method: bservations: easoning: Classified as an AEC ? Possible onsite fuel storage, hazardous Yes X				Thotograp	nieu.	
easoning: Classified as an AEC ? Possible onsite fuel storage, hazardous Yes X						
Possible onsite fuel storage, hazardous Yes X	bservations:					
	easoning:				Classifie	d as an AEC ?
	Possible on	site fuel stor	age, hazardous		l [res X
	Materials ar	nd unknown	land use		1	



	Client: Project: Location:	Stage 1 Contamination Assessment			ct Number: ed:	40740 19.01.2007 CFK
Loca	ation:					
	Property:		Leppington Pastoral Company	GPS Coo	rdinates	
	Grid Ref:			Ea	sting:	
	PAEC #:		6		orthing:	
lden	tified from:					
	Site Inspect	_		ita 🔲	Other (list	•
	Title Deed i	nfo. 🔲	Interviews		EES Inves	tigation X
	Geotechnic	al 🔲	Aerial Photogra	phy 🔲		
	Historical S	ociety 🔲	Year:			
Deta	ils:					
	Acquired by	/ Lemington i	in 1985, used for dairy	farming.		
	An (unident	ified) area w	as used for dumping d	ead cow ca	arcasses	
	(
Folia	ow up:					
Insp	ection Deta	ils:				
	Inspected b	v:		Photograp	ohed:	
	Date Insped					
	Inspection I	Method:				
Obs	ervations:					
Reas	soning:				Classifie	d as an AEC ?
	Unknown m	naterial in bur	rial area			'es X
	Jimilowii II		indi di du			′es X lo □
					<u>L</u>	



	Client: Project: Location:			ommission ation Assessme	nt D a	ojec ate: ogge	t Number d:	: 40740 19.01.200 CFK	07
003	ation:								
.002	Property:			Dairy (PAEC	GPS (Cool	dinates		
-	Onial Date		32, Al	EC 17)			-4!	200 440	
-	Grid Ref: PAEC #:		7				sting: rthing:	290 140 6235 750	
L	I ALO #.		1			110	itillig.	0233 730	
den	tified from:								
	Site Inspec	tion 🔲		Conductivity Da	ıta [Other (lis	t below):	
	Title Deed i	nfo. 🔲		Interviews	Ţ		EES Inve	stigation	Χ
	Geotechnic	al 🔲		Aerial Photogra	phy [o [•]			
	Historical S	ociety		Year:					
eta	ils:								
Ī	Old Dairy	demolished b	v Perio	:h's					
•				oing waste (EES	SPAFC	: 32	nart of an	old dairy)	
		ed minor sur	-			, 02,	- Part or arr	- Cia dali y)	
	LL3 Teporti		iace us	sturbance.					
OIIC	ow up:								
ısp	ection Deta	ils:							
	Inspected b	oy:			Photo	grap	hed:		
	Date Insped								
	Inspection I	Method:							
bse	ervations:								
leas	soning:						Classifie	ed as an AE	C ?
	Unknown fi	ll material						Yes No	X
<u>l</u>							_		



Local	t: ct: tion:		Con	tres Commission tamination Assessme		Date:	ct Number	: 40740 19.01.20 CFK	07
	tion:	Oran Pa	IK			Logge	ea:	CFK	
ocation:									
Prope	erty:			Unidentified disturbance (PAEC 33, AEC 18)	GP	S Coo	rdinates		
Grid I	Ref:					Ea	sting:	290 020	
PAEC	C #:			8			orthing:	6235 430	
	nspect			Conductivity Da	ata		Other (list	•	
Title [Deed i	nfo.		Interviews			EES Inve	stigation	Χ
Geote	echnic	al		Aerial Photogra	phy				
Histor	rical S	ociety		Year:		_			
etails:		,							
				1: 4047	400				
House	e and	shed obs	erve	ed in 1947 removed b	y 199	92			
Poten	ntial co	ntaminan	ts H	IM, TPH/BTEX, PAH,	OCF	and a	sbestos		
ollow up:	:								
nspection	Detai	ls:							
					Pho	otogran	ohed:		
Inspe	cted b	y:			Pho	otograp	ohed:		
Inspe	cted b	y:			Pho	otograp	ohed:		
Inspectors Inspectors	cted b Inspec	y: cted:			Pho	otograp	ohed:		
Inspectors Inspectors	cted b Inspec	y: cted:			Pho	otograp	ohed:		
Inspedient	cted b Inspec ction N	y: cted:			Pho	otograp		ed as an AE	C ?
Date Inspe	cted b Inspec ction M ons:	y: cted:			Pho	otograp	Classifie	ed as an AE Yes	C?



Client: Project: Location	Stage 1 Co	ntres Commission ontamination Assessme	•	ct Number: ed:	: 40740 19.01.200 CFK	07
Location:						
Property	y:	Residential Building (EES PAEC 34, AEC 19)	GPS Coo	rdinates		
Grid Re		·	Ea	sting:	289 830	
PAEC#	<u> </u>	9	No	orthing:	6234 860	
Identified fro	m.					
Site Insp		Conductivity Da	ata 🗍	Other (list	helow).	
Title De		Interviews		EES Inves	-	Χ
Geotech	_		_	LLO IIIVO	Stigation	- 🗀
	_	-				_ _
HISIOTICA	al Society	Year:				
Details:						
Dotailo.						
House a	nd Sheds obse	rved in 1961 and remo	ved by 200	2.		
Follow up:						
Inspection D	etails:					
Inspecte	d bv:		Photograp	ohed:		
Date Ins			11.5159.4			
	on Method:					
Observations	S:					
Reasoning:				Classifie	d as an AE	2 ?
Demolis	hed building				Yes	<u></u>
Demois						X
				<u>[</u>	No	L
				1		



Growth Centres Commission Client: **Project Number:** 40740 **Project:** Stage 1 Contamination Assessment Date: 19.01.2007 Location: Oran Park CFK Logged: Location: **GPS Coordinates** Property: Residential Building (EES PAEC 35) **Grid Ref:** Easting: 290 100 PAEC #: 10 Northing: 6234 890 **Identified from:** Site Inspection Conductivity Data Other (list below): Title Deed info. **EES Investigation** Interviews Χ Geotechnical Aerial Photography **Historical Society** Year: _____ **Details:** House and Sheds Follow up: **Inspection Details:** Inspected by: Photographed: Date Inspected: Inspection Method: **Observations:** Reasoning: Classified as an AEC? Onsite structures Yes Χ No



Project: Stag		s Commission mination Assessme		ct Number ed:	: 40740 19.01.20 CFK	007
Location:			99		.	
Property:	(E	esidential Building ES PAEC 36, EC 20)	GPS Coo	rdinates		
Grid Ref:		,		sting:	291 030	
PAEC #:	11		No	orthing:	6235 120	
Identified from: Site Inspection		Conductivity Da		Other (list	-	
Title Deed info.		Interviews		EES Inve	stigation	_ X
Geotechnical		Aerial Photogra				_ 🗖
Historical Society		Year:				
Details:						
House/sheds obs	erved in 1	970 removed by 20	002			1
110000/011000 000						
Follow up:						
Inspection Details:						
Inspected by:			Photograp	ohed:		
Date Inspected:						
Inspection Metho	d:					
Observations:						
Reasoning:				Classifie	ed as an AE	C ?
Demolished struc	tures			[F	Yes	Χ
2 3.113.137104 01140				_	No	<u>^</u>
					110	



	Client: Project: Location:	Stage 1 Co	ntres Commission Intamination Assessme		ct Number ed:	: 40740 19.01.20 CFK	007
Loca	ation:			99		0	
LOC	Property:		Residential Building (EES PAEC 37, AEC 21)	GPS Coo	rdinates		
	Grid Ref:		,		asting:	291 250	
	PAEC #:		12	No	orthing:	6234 220	
Iden	tified from: Site Inspec				Other (list	· ·	
	Title Deed i	_			EES Inve	stigation	_ X
	Geotechnic	al 🔲	Aerial Photogra	phy 🔲			
	Historical S	ociety	Year:				
Deta	nils:						
	In-filled Dar	m. indicated t	hat filling material was	natural so	il		
		,					
ı							
Follo	ow up:						
ı							
Insp	ection Deta	ils:					
	Inspected b	ov:		Photograp	ohed:		
	Date Inspec			3 - 1			
	Inspection I	Method:					
Obs	ervations:						
Rea	soning:				Classifie	ed as an AE	C ?
	Unknown fi	ll material			[·	Yes	Χ
					_	No	
							_



Project Number: 40740

PAEC Identification & Inspection Log

Growth Centres Commission

Client:

Project: Stage 1 Co Location: Oran Park	ntamination Assessme	ent Date: Logge	ed:	19.01.20 CFK	007
Location:					
Property:	Residential Building (EES PAEC 38, AEC 22)	GPS Coo	rdinates		
Grid Ref:	,	Ea	asting:	291 330	
PAEC #:	13	No	orthing:	6234 120	
Identified from:	Conductivity	nta □	Other (lie	t balaw).	
Site Inspection Title Deed info.			Other (lis		V
_		. 🛄	EES Inve	estigation	_ X
Geotechnical	•				_ ⊔
Historical Society	Year:				
Details:					
Not inspected by EES, a	as the property was oc	cupied			
Observed in 1956 and r	emoved by 2002				
Inspection Details:					
		DI (
Inspected by: Date Inspected:		Photograp	onea:		
Inspection Method:					
Observations:					
Reasoning:			Classifi	ed as an AE	C ?
Demolished structure			- Γ	Yes	Χ
				No	



Project: Location:		ntres Commission ntamination Assessme	•	ed:	19.01.2007 CFK	7
Property:		Residential Building (EES PAEC 39 figure 5 AEC 23	GPS Coo	rdinates		
Grid Ref: PAEC #:		Figure 6b)		nsting: orthing:	289 970 6234 218	
dentified from: Site Inspect	_	Conductivity Da	ıta 🔲	Other (list	below):	V
Title Deed in Geotechnica Historical So	al 🔲	Aerial Photogra	· · —	EES Inves	stigation	X
etails:						
follow up:		emoved by 1994				
Inspected b			Photograp	ohed:		
Date Inspec			Thologia	Jileu.		
Inspection N						
Observations:						
leasoning:				Classifie	d as an AEC	?
Demolished	structure				Yes X	<u>(</u>



Client: Project: Location:	ect: Stage 1 Contamination Assessment Date: ation: Oran Park Logged:			40740 19.01.200 CFK	07	
cation:						
Property:		Residential Building (EES PAEC 40, AEC 24)	GPS Coo	rdinates		
Grid Ref:			Ea	asting:	290 190	
PAEC #:		15	No	orthing:	6234 210	
entified from						
Site Inspe		Conductivity Da	ata 🗆	Other (list	below):	
Title Deed				•	-	Χ
Geotechni	_		_		oligation	- 🗀
	_					
Historical	Society \square	Year:				
etails:						
talis.						
House/she	eds Observed	in 1956 removed by 1	994			
		as the property was oc				
	, , , , , , , , , , , , , , , , , , ,					
ollow up:						
spection Det	ails:					
Inspected	bv:		Photograp	ohed:		
Date Inspe						
Inspection						
oservations:						
easoning:				Classifie	d as an AE	C ?
Demolishe	ed structure				⁄es	Χ
				1	No	



Pro	ent: oject: cation:	Growth Centres Commission Stage 1 Contamination Assessment Oran Park			ect Number: : ed:	40740 19.01.2007 CFK	
Location	1:			00			
	pperty:		Residential Building (EES PAEC 44, AEC 27)		ordinates		
	d Ref: EC #:		16		asting: orthing:	290 970 6234 180	
Title Ge	d from: e Inspect e Deed i otechnicatorical Se	nfo. \Box	Interviews Aerial Photogr	aphy 🔲	Other (list	•	
Details:							
Но	use/shec	ds Observed	in 1994 removed by	2002			
Follow u	ip:						
Inspecti	on Detai	ils:					
Dat	pected b te Inspec pection N	cted:		Photogra	phed:		
Observa	itions:						
Reasoni	ng:				Classifie	ed as an AEC ?	
Dei	molished	structure				Yes X No □	
					<u>L</u>		



Client: Project: Location:	Growth Cen Stage 1 Cor Oran Park		ct Number: ed:	40740 19.01.2007 CFK	
Location:					
Property:		Unidentified disturbance (EES PAEC 45, AEC 28)	GPS Coo		
Grid Ref: PAEC #:		17		sting: orthing:	290 510 6234 420
Identified from: Site Inspect Title Deed i Geotechnic Historical S	nfo. \Box	Interviews	phy 🔲	Other (list EES Inves	•
Details:					
Follow up:	ils:	entified in 1961 aerial			
Inspected b Date Inspection I	cted:		Photograp	onea:	
Observations:					
Reasoning:				Classifie	d as an AEC ?
Possible fill				_	Yes X No □



	h Centres Comm 1 Contaminatior Park		Project Numbe Date: Logged:	r: 40740 19.01.2007 CFK
Location:				
Property:	Unidentific disturbance PAEC 46)	ce (EES	S Coordinates	
Grid Ref: PAEC #:	18		Easting: Northing:	291 250 6235 030
Identified from: Site Inspection Title Deed info. Geotechnical Historical Society	☐ Inter	ductivity Data views al Photography r:	☐ EES Inv	estigation X
Details:				
Unknown disturbat	nce			
Follow up:				
Inspection Details:				
Inspected by: Date Inspected: Inspection Method	:	Ph	otographed:	
Observations:				
Reasoning:			Classif	ied as an AEC ?
Possible fill] [Yes X No 🗖



Project: Stage	Growth Centres Commission Stage 1 Contamination Assessment Oran Park			ct Number: ed:		19.01.2007	
Location:							
Property:	dist	dentified urbance (EES EC 47, AEC 29)	GPS Coo	rdinates			
Grid Ref: PAEC #:	19			esting: orthing:	290 120 6236 000		
Identified from: Site Inspection Title Deed info. Geotechnical Historical Society		Conductivity Da Interviews Aerial Photogra Year:	phy 🔲	Other (list	· ·	_ X _ □	
Details:							
Possible market ga	rden or cr	opping area.					
Follow up:							
Inspection Details:							
Inspected by: Date Inspected: Inspection Method:			Photograp	ohed:			
Observations:							
Reasoning:				Classifie	d as an AE	C ?	
Possible pesticide u	ise			<u> </u>	Yes No	X	



Project:	Growth Centres Commission Stage 1 Contamination Assessment Oran Park Project Number: Date: Logged:		40740 19.01.2007 RL		
ocation:					
Property:		gfield Road Field (Lot 2522 DP	GPS Coo		
Grid Ref:	292850E	6236050		sting:	292 680
PAEC #:	20		No	orthing:	6236 270
lentified from:					
Site Inspecti	on \square	Conductivity D	ata 🗆	Other (list	below):
Title Deed in		Interviews		EES Inves	•
Geotechnica	_	Aerial Photogra	_	Property A	
	_	·	—		
Historical Sc	ciety \square	Year:			
etails:					
ctans.					
Approval for	a backfill d	am (15.01.1997) (unic	entified by I	EES).	
Түргэхэн		() (
Concerns for	r filling of ur	nknown origin.			
ollow up:					
spection Detail	s:				
Inspected by	' :	CCK	Photograp	ohed:	No
Date Inspect		22 Feb 2007	J 1		
Inspection M	lethod:	Interview			
bservations:					
Interviews su	uggest that	walls of farm dams we	ere made fro	om locally s	ourced natural
material					
easoning:				Classifie	d as an AEC ?
Natural mate	erial used			<u> </u>	res 🔲
				<u> </u>	No X



		ntres Commission ntamination Assessme	-	ect Number:	40740 24.01.2007
	ran Park	mammation Assessine	Logg		RL
			33	,	
ocation:					1
Property:		Oran Park		ordinates	204 272 22
Grid Ref:		Area within: 291200E 6234800N	E	Easting:	291,270.02
		291200E 6235000N			
PAEC #:		21	1	Northing:	6,234,911.65
lentified from:					
Site Inspection	n 🗇	Conductivity Da	ıta 🗖	Other (list	pelow).
Title Deed info	_			EES Inves	,
Geotechnical	<i>"</i>	Aerial Photogra	_	Property A	
	ت المانات	_		Floperty A	
Historical Soc	iety 🔲	Year: 1994, 200)4		
etails:					
Disturbed area					
Disturbed area	.				
ollow up:					
-					
ollow up: A walkover as	sessment				
-	sessment				
-	sessment				
A walkover as					
-					
A walkover as			Photogra	phed:	No
A walkover as	:	CCK 22 Feb 2007	Photogra	iphed:	No
A walkover as a spection Details Inspected by:	: d:	ССК	Photogra	phed:	No
A walkover as a spection Details Inspected by: Date Inspecte Inspection Me	: d:	CCK 22 Feb 2007	Photogra	phed:	No
A walkover as a spection Details Inspected by: Date Inspecte	: d:	CCK 22 Feb 2007	Photogra	iphed:	No
A walkover as a spection Details Inspected by: Date Inspecte Inspection Metails bservations:	d: thod:	CCK 22 Feb 2007 Walkover			
A walkover as a spection Details Inspected by: Date Inspecte Inspection Metails bservations:	d: thod:	CCK 22 Feb 2007			
A walkover as a spection Details Inspected by: Date Inspecte Inspection Metails bservations:	d: thod:	CCK 22 Feb 2007 Walkover			
A walkover as a spection Details Inspected by: Date Inspecte Inspection Metails bservations:	d: thod:	CCK 22 Feb 2007 Walkover			
A walkover as a spection Details Inspected by: Date Inspecte Inspection Metails bservations:	d: thod:	CCK 22 Feb 2007 Walkover			
A walkover as a spection Details Inspected by: Date Inspecte Inspection Metails Inspection Metails Inspected by: Date Inspecte Inspection Metails Inspection Metails Inspected by: Date Inspected by: Date Inspected by: Date Inspected by: Date Inspection Metails Inspected by: Date	d: thod:	CCK 22 Feb 2007 Walkover		tually a farm	dam
A walkover as a spection Details Inspected by: Date Inspecte Inspection Metails bservations:	d: thod:	CCK 22 Feb 2007 Walkover		tually a farm	
A walkover as a spection Details Inspected by: Date Inspection Metails Inspection Metails Inspected by: Date Inspection Metails Inspection Metails Inspection Metails Inspected by: Date Inspected by: Date Inspected by: Date Inspected by: Date Inspection Metails Inspected by: Date	d: thod: revealed t	CCK 22 Feb 2007 Walkover hat the area of disturb		tually a farm	dam d as an AEC ?
A walkover as a spection Details Inspected by: Date Inspection Metails Inspection Metails Inspected by: Date Inspection Metails Inspection Metails Inspection Metails Inspected by: Date Inspected by: Date Inspected by: Date Inspected by: Date Inspection Metails Inspected by: Date	d: thod: revealed t	CCK 22 Feb 2007 Walkover		tually a farm Classified	dam



		ntamination Assessmer	nt Date: Logged:	24.01.2007 RL
Loca	ntion:			
	Property:	Oran Park	GPS Coordinates	
	Grid Ref:	Area within: 290600E 6235000N 290600E 6235400N	Easting:	290,739.60
	PAEC #:	22	Northing:	6,235,260.61
Iden	tified from:			
14011	Site Inspection	Conductivity Dat	a 🔲 Other (list l	below):
	Title Deed info.	•	☐ EES Inves	•
	Geotechnical	Aerial Photograp	<u> </u>	
	Historical Society			
Deta	• —			
_				
-	Dam			
-				
L				
Folic	ow up:			
Insp	ection Details:			
	Inspected by:		Photographed:	
	Date Inspected:			
	Inspection Method:			
Obse	ervations:			
	Interviews suggest that	walls of farm dams wer	e made from locally so	urced natural
	material			
Reas	soning:		Classified	d as an AEC ?
-	Natural material used			es 🛄
<u>_</u>				



Location: Oran Park	ontamination Assessme		٠	24.01.2007 RL
		Logge	eu.	KL
Cation:		CBS Co	ordinates	
Property: Grid Ref:	Area within:		asting:	290,288.97
Ond Ner.	290000E 6235400N 290000E 6235600N	_	asting.	290,200.97
PAEC #:	23	N	orthing:	6,235,546.58
ntified from:				
Site Inspection	Conductivity Da	ta 🔲	Other (list	below):
Title Deed info.	-		EES Inves	•
Geotechnical	Aerial Photogra	ohy X	Property A	
Historical Society		, , ,		
tails:	-			
Dam				
pection Details:				
	1	Photograp	ohed:	
pection Details: Inspected by: Date Inspected:		Photograp	ohed:	
Inspected by:		Photograp	ohed:	
Inspected by: Date Inspected: Inspection Method:		Photograp	ohed:	
Inspected by: Date Inspected:	walls of farm dams wer	<u> </u>		ourced natural
Inspected by: Date Inspected: Inspection Method: servations:	walls of farm dams wer	<u> </u>		ourced natural
Inspected by: Date Inspected: Inspection Method: servations: Interviews suggest that	walls of farm dams wer	<u> </u>		ourced natural
Inspected by: Date Inspected: Inspection Method: servations: Interviews suggest that	walls of farm dams wer	<u> </u>	om locally so	ourced natural
Inspected by: Date Inspected: Inspection Method: servations: Interviews suggest that material	walls of farm dams wer	<u> </u>	om locally so	
Inspected by: Date Inspected: Inspection Method: servations: Interviews suggest that material asoning:	walls of farm dams wer	<u> </u>	om locally so	d as an AEC ?



	Client: Project:	Stage 1 Co	ntres Commission ntamination Assessmer	nt Date:	ct Number:	40740 24.01.2007
	Location:	Oran Park		Logge	ed:	RL
Loca	ation:					
	Property:		Mcintosh		ordinates	
-	Grid Ref:		286000E 6235700N		asting:	289,629.48
	PAEC #:		24	N	orthing:	6,235,674.75
Iden	tified from:					
	Site Inspect	_	Conductivity Dat	а 🔲	Other (list I	·
	Title Deed i	nfo. 🔲	Interviews		EES Invest	tigation 🔲
	Geotechnic	al 🔲	Aerial Photograp	hy X	Property A	ttribute
	Historical S	ociety 🔲	Year: 1984-2004	ļ		
Deta	ils:					
_						
-	Dams					
-						
-						
Į.						
Folic	ow up:					
1 0110	ow up.					
	A walkover	assessment	followed by testing.			
-			, ,			
Insp	ection Deta	ils:				
Г	Inspected b			Photograp	hod:	
	Date Inspec			Filologia	nieu.	
	Inspection I					
L						
Obse	ervations:					
_						
	Interviews s	suggest that	walls of farm dams were	e made fro	om locally so	urced natural
	material					
-						
_	_					
Reas	soning:				Classified	d as an AEC ?
Г	Notural mast	oriol used				
	Natural mat	leriai used				es 🔲
					N	o X
L						



Client: Project: Location:		Cor	ntres Commission ntamination Assessment		et Number:	40740 24.01.2 RL	007
ation:						1	
Property:			Oran Park 290000E 6235800N &		ordinates	200 454	00
Grid Ref:			290000E 6235800N & 290200E 6235800N	E	asting:	290,151.	90
PAEC #:			25	N	orthing:	6,235,80	8.40
tified from:							
Site Inspec	tion		Conductivity Data		Other (list	helow).	
Title Deed i					EES Inves	•	
Geotechnic				_	Property A		_ 5
				У	1 Toperty A	ittibute	
Historical S ails:	ociety		1 Edi. 1901-2004				
1115.							
Dams							
Dame							
ow up:							
ow up:	ils:						
ection Deta				lhotograp	phod		
ection Deta	y:		P	hotograp	ohed:		
ection Deta	y: cted:		P	'hotograp	ohed:		
Inspected because Inspection Inspection Inspection Inspections:	y: cted: Method:	that v	P walls of farm dams were			ourced nat	ural
Inspected because Inspection Inspection Inspection Inspections:	y: cted: Method:	that v				ourced nat	ural
Inspected because Inspection Inspection Inspections:	y: cted: Method:	that v				ourced nat	ural
Inspected because Inspection Inspection Inspections:	y: cted: Method:	that v			om locally so	ourced nat	
Inspected by Date Inspection Inspection Inspections: Interviews something in the servations in the servation	y: cted: Method: suggest t				om locally so		
Inspected be Date Inspection I ervations: Interviews seematerial	y: cted: Method: suggest t				om locally so	d as an Al	



	Client: Project: Location:		ntres Commission ntamination Assessme		ct Number: ed:	40740 24.01.2007 RL
_oca	ation:			Г		
	Property:		A 141.		ordinates	
	Grid Ref:		Area within: 291800E 6236600N 291800E 6237000N 292200E 6237000N	E	asting:	292,051.61
	PAEC #:		26	N	orthing:	6,236,703.62
den	tified from:					
	Site Inspec	tion 🔲	Conductivity Dat	ta 🔲	Other (list	below):
	Title Deed i		· ·		EES Inves	•
	Geotechnic	al 🗖	Aerial Photograp	_	Property A	
	Historical S	_		, , ,		
Deta		, –				
	Dam					
	Dam					
-Ollo	ow up:					
nsp	ection Deta	ils:				
	Inspected b	ov:		Photograp	ohed:	
	Date Inspec			otog.ap	511041	
	Inspection I					
Dbs	ervations:					
	Interviews	suggest that	walls of farm dams wer	e made fro	om locally so	ourced natural
	material					
Reas	soning:				Classifie	d as an AEC ?
	Natural mat	terial used				′es 🔲
	i tatarai iila	torial adda			l —	lo X
						^
					I	



Client: Project: Location:	Stage 1 Co	ntres Commission ntamination Assessmer		et Number:	40740 24.01.2007 RL
Location:		Malatach	CDS Cod	ordinates	
Property: Grid Ref:		McIntosh 288800E 6236500N		asting:	288,852.69
PAEC #:		27		orthing:	6,236,468.44
I ALO III.				ortimig.	0,200,400.44
Identified from:					
Site Inspec	ction 🔲	Conductivity Dat	ta 🔲	Other (list I	pelow):
Title Deed	info.	Interviews		EES Inves	tigation 🔲
Geotechni	cal 🔲	Aerial Photograp	ohy X	Property A	ttribute 🔲
Historical S	Society \square				
Details:	, , , , , , , , , , , , , , , , , , ,	1001.1001.200	•		
Details.					
Follow up: Inspection Deta Inspected Date Inspe	by: ected:		Photograp	ohed:	
Inspection	Method:				
Observations: Interviews material	suggest that	walls of farm dams wer	e made fro	om locally sc	ourced natural
Reasoning:				Classified	l as an AEC ?
Natural ma	terial used			Y	es 🗆
				N	
					V



	Client: Project: Location:		ntres Commission ntamination Assessme		ct Number: ed:	40740 24.01.2007 RL
Loca	ition:					
	Property:		Oran Park		ordinates	
	Grid Ref:		289900E 6234900N		asting:	289,933.47
	PAEC #:		28	N	orthing:	6,234,861.58
Ident	tified from:					
	Site Inspect	ion 🔲	Conductivity Da	ta 🔲	Other (list I	oelow):
	Title Deed in	nfo.	Interviews		EES Inves	tigation 🔲
	Geotechnic	al 🔲	Aerial Photogra	phy X	Property A	ttribute
	Historical S	ociety 🔲	Year: 1961-200	4		
Deta		, –				
_						
	Dam					
L						
- -11-						
FOIIC	ow up:					
Г						
L						
Insp	ection Detai	ils:				
F						
	Inspected b			Photograp	ohed:	
	Date Inspec					
L	Inspection I	vietnoa:				
Ohse	ervations:					
ODS	or valions.					
	Interviews s	suggest that	walls of farm dams wer	e made fro	om locally so	urced natural
-						
	material					
L						
Reas	oning:				Classified	d as an AEC ?
	J					
	Natural mat	erial used			Y	es 🔲
ŀ					N	o X
						Λ



F	Client: Project: Location:		tres Commission ntamination Assessmer		ct Number: ed:	40740 24.01.2007 RL
.ocati						,
F	Property:		McIntosh	GPS Cod	ordinates	
(Grid Ref:		Area within: 288400E 6234200N 288800E 6234400N	E	asting:	288,742.64
F	PAEC #:		29	N	orthing:	6,234,414.19
S 7 (fied from: Site Inspect Fitle Deed in Geotechnic	nfo. \Box	Conductivity Date Interviews Aerial Photograp	ohy X	Other (list EES Inves Property A	tigation
H	Historical S	ociety 🔲	Year: 1994-2004	4		
Detail	s:					
Follow	•	u.				
·	ction Detai					
	nspected b Date Inspec nspection N	ted:		Photograp	ohed:	
)bser	vations:					
Π	nterviews s	suggest that v	walls of farm dams wer	e made fro	om locally so	ourced natural
r	material					
L Reasc	oning:				Classifie	d as an AEC ?
N	Natural mat	erial used				′es □ lo X
L						



Client: Project:		ntres Commission ntamination Assessmer		ct Number:	40740 24.01.2007
Location:	Oran Park		Logged:		RL
ocation:					
Property:		McIntosh	GPS Cod	ordinates	
Grid Ref:		288000E 6234000N	Е	asting:	288,844.74
PAEC #:		30	N	orthing:	6,234,062.79
entified from:					
Site Inspect	tion 🗇	Conductivity Dat	a 🗇	Other (list	helow).
Title Deed i	_	Interviews		EES Inves	•
Geotechnic	_		_	Property A	_
	_	Aerial Photograp	, , ,	Property A	unbute
Historical S	ociety \square	Year: 1947-2004	1		
etails:					
Ruildings n	resent in vari	ous forms since before	1947 Δn	nears to he	original farm
	associated s		1547. 7τρ	pears to be	onginariann
Tiodoc aria	accorated of	11000			
ollow up:					
A walkover	assessment	•			
spection Deta	IIS:				
Inspected b	v:	ССК	Photograp	hed:	No
Date Inspec		22 Feb			
Inspection I		Walkover			
		1		<u>, </u>	
bservations:					
<u></u>					
Property is	a residential	dwelling occupied sinc	e at least 1	1947	
easoning:				Classified	d as an AEC ?
Long histor	v of occupati	on. Further title info is		l v	es X
	•				, ,
Required a	nd interviews	with owners		N	lo 🔲 📗
				1	



40740

PAEC Identification & Inspection Log

Growth Centres Commission

Client:

Project Number: Project: Stage 1 Contamination Assessment Date: 24.01.2007 Location: Oran Park Logged: RL Location: **GPS Coordinates** Property: McIntosh **Grid Ref:** Area within: Easting: 289,329.21 289200E 6234000N 289400E 6234400N PAEC #: 31 Northing: 6,234,370.94 **Identified from:** Site Inspection Conductivity Data Other (list below): Title Deed info. Interviews **EES Investigation** Property Attribute Geotechnical Aerial Photography X Year: 2004 **Historical Society Details:** College Campus Follow up: **Inspection Details:** Inspected by: Photographed: Date Inspected: Inspection Method: **Observations:** Reasoning: Classified as an AEC? Site has already been the subject of an enviro. Yes assessment, no change in land use is proposed No



	Client: Project: Location:		ntres Commission Intamination Assessmer	•	ct Number:	40740 24.01.2007 RL
				35		
Loca	ation:					
	Property:		McIntosh		ordinates	
	Grid Ref:		289600E 6234000N		asting:	289,733.45
	PAEC #:		32	N	orthing:	6,234,178.90
lden	tified from:					
iacii	Site Inspect	tion 🗇	Conductivity Dat	a □	Other (list	below):
	Title Deed i	_	Interviews		EES Inves	,
	Geotechnic	_	Aerial Photograp	_	Property A	_ <u>`</u>
	Historical S	_	Year: 1984-2004	, , ,	- 100011,71	
Deta		ociety <u> </u>	16ai. 1904-200-	•		
Deta	IIIS:					
	Farthmovin	a activity has	occurred in the past a	nd now a f	ow buildings	e/ehade have
			area (dairy farm). Son			
		994 and 2004		ie demoni	ion may nav	e taken place
	Detween 13	754 and 200-	<u> </u>			
Follo	ow up:					
. О	ow up.					
	A walkover	assessment	. Include check for pres	sence of re	empant huild	ling refuse
	A Walkovei	assessifiert.	. Include check for pre-	Serice of re	Similarit build	ing reluse
Insp	ection Deta	ils:				
р						
	Inspected b	y:		Photograp	ohed:	
	Date Inspec					
	Inspection I					
	•				<u>. </u>	
Obs	ervations:					
Doo	soning:				Classifie	d as an AEC ?
Reas	soning:				Ciassine	as an AEC?
						′oo
						es 🔲
					N	lo X
					I	



Client: Project: Location:		ntres Commission ntamination Assessme		ed:	40740 24.01.2007 RL
Location:					
Property:		Oran Park		ordinates	
Grid Ref:		291000E 6235900N		asting:	291,085.09
PAEC #:		33	N	orthing:	6,235,847.05
Identified from:					
Site Inspect	tion 🔲	Conductivity Da	ta 🔲	Other (list I	below):
Title Deed i	nfo. \square	Interviews		EES Inves	•
Geotechnic	al 🗖	Aerial Photograp	_	Property A	
Historical S	_		, , ,		
Details:	ociety <u> </u>	16ai. 1970-200-	•		
DEIGIIS.					
Bare earth	oatcn				
Follow up:					
A walkover	assessment				
Inspection Deta	ils:				
Inspected b	٧.	CCK	Photograp	ohed:	Yes
Date Inspec		22 Feb	Thotograp	oriou.	100
Inspection I		Walkover			
Observations:	ek line in a h	nigh salinity area – Salin	ne scald		
	,				
Reasoning:				Classified	d as an AEC ?
No cut or fil	l activities				les 🔲



Client: Project: Location:	Stage 1 Co	ntres Commission ntamination Assessmer		et Number:	40740 12.02.2007 AT
			>33	-	
Cation:		McIntosh	GDS Cod	ordinates	
Property: Grid Ref:		289300E 6235100N			200 002 20
PAEC #:		34		asting: orthing:	288,892.30 6,235,220.36
FALC#.		34	IN	orunng.	0,233,220.30
entified from:					
Site Inspec	tion 🔲	Conductivity Dat	a 🛚	Other (list I	below):
Title Deed i	_			EES Inves	•
Geotechnic	_		_	Property A	
	_	• .	, , ,	1 Topolty 70	
Historical S	Society	Year: 1961-2004	ŀ		
tails:					
Dam					1
Daiii					
llow up:					
now up.					
Walk over s	site assessm	ent			
-					
pection Deta	ils:				
-		,			
Inspected b			Photograp	ohed:	
Date Inspe					
Inspection I	Method:				
servations:					
Intorvious	ouggoet thet	walls of form dama war	o mada fra	m locally sa	urood natural
interviews	suggest that	walls of farm dams wer	e made ird	om locally so	ourcea natural
Material					
asoning:				Classified	d as an AEC ?
				_	
Natural ma	terial used			Υ	es 🔲
				l —	lo X
					^



Client: Project: Location:	Stage 1 Co	ntres Commission ntamination Assessmen	Project Number: t Date: Logged:		40740 12.02.2007 AT
ocation:					
Property:		McIntosh	GPS Cod	ordinates	
Grid Ref:		289700E 6235900N		asting:	289.789.86
PAEC #:		35		orthing:	6,235,934.68
			1.		
entified from:					
Site Inspec	tion 🔲	Conductivity Date	ta 🔲	Other (list	below):
Title Deed	info. 🔲	Interviews		EES Inves	tigation 🔲
Geotechnic	al □	Aerial Photograp	ohy X	Property A	ttribute
Historical S	_	· .	, , ,	-1 - 3	
	ociety _	16ai. 1901-200-	•		
etails:					
Dam					
Daili					
ollow up:					
mow up.					
Walk over s	site assessm	ent			
Walk over t					
spection Deta	ils:				
Inspected b	ov.		Photograp	ohed.	
Date Inspe			otog.a	311041	
Inspection					
тороспол	.viourou.				
oservations:					
Interviews	suggest that	walls of farm dams wer	e made fro	om locally so	ourced natural
Material					
Material					
easoning:				Classified	d as an AEC ?
Natural ma	terial used			[V	'es □
Ivatararina	torial asca				
					lo X
1					



Client: Project: Location:		ntres Commission ntamination Assessme	Project Number: t Date: Logged:		40740 12.02.2007 AT
Location:					
Property:		McIntosh	GPS Cod	ordinates	
Grid Ref:		289850E 6236250		asting:	289,803.02
PAEC #:		36	N	orthing:	6,236,235.41
Identified from:					
Site Inspec	tion 🔲	Conductivity Dat	ta 🔲	Other (list	below):
Title Deed i	_	Interviews		EES Inves	•
Geotechnic	_	Aerial Photograp		Property A	
	_	• .	, , ,	Floperty A	
Historical S	ociety \square	Year: 1984-2004	+		
Details:					
Dam					
Walk over s	site assessm	ent			
Inspection Deta	ils:				
Inspected b	v:		Photograp	ohed:	
Date Inspec					
Inspection I					
Observations:					
Interviews	suggest that	walls of farm dams wer	e made fro	om locally so	ourced natural
Material					
Reasoning:				Classified	d as an AEC ?
Natural mat	erial used				es 🔲
					Λ



Client: Project: Location:		ntres Commission ntamination Assessmen	•	ct Number: ed:	40740 12.02.2007 AT
Location:					
Property:		McIntosh	GPS Cod	ordinates	
Grid Ref:		289500E 6235900N	E	asting:	289,487.97
PAEC #:		37	N	orthing:	6,235,984.09
Identified from:					
Site Inspec	tion 🗖	Conductivity Date	ta 🔲	Other (list	below):
Title Deed i	_	Interviews		EES Inves	•
	_				
Geotechnic	_	Aerial Photograp	, , ,	Property A	ttribute
Historical S	ociety 🔲	Year: 1984-2004	1		
Details:					
Dam					
Walk over s	site assessm	ent			
Inspection Deta	ils:				
Inspected b	ov:		Photograp	ohed:	
Date Inspec					
Inspection I					
Observations:					
Interviews	suggest that	walls of farm dams wer	e made fro	om locally so	ourced natural
Material					
Reasoning:				Classified	d as an AEC ?
Natural mat	terial used				lo X



Project: S		tres Commission ntamination Assessmer	•	ed:	40740 12.02.2007 AT
Location:					
Property:		McIntosh	GPS Cod	ordinates	
Grid Ref:		288500E 6236900N	E	asting:	288,481.97
PAEC #:		38	N	orthing:	6,236,844.80
Identified from:					
Site Inspection	n 🗖	Conductivity Dat	a 🗆	Other (list	below):
Title Deed inf		Interviews		EES Inves	,
	· _				
Geotechnical		Aerial Photograp	, , ,	Property A	ttribute
Historical Soc	ciety 🔲	Year: 1978-2004	ļ		
Details:					
Dam					
Follow up: Walk over sit	e assessme	ent			
Inspection Details	S:				-
Inspected by:			Photograp	ohed:	
Date Inspect					
Inspection Me					
Observations:					
Interviews su	ggest that v	walls of farm dams wer	e made fro	om locally so	urced natural
Material					
Reasoning:				Classified	d as an AEC ?
Natural mate	rial used				es 🔲
					lo X



Client: Project: Location:	Stage 1 Co	ntres Commission ntamination Assessmer		et Number:	40740 12.02.2007 AT
Location:					
Property:		McIntosh		ordinates	
Grid Ref:		290300E 6236500N		asting:	290,234.20
PAEC #:		39	N	orthing:	6,236,431.62
Identified from:					
Site Inspec	ction 🔲	Conductivity Dat	a 🔲	Other (list I	pelow):
Title Deed	info.			EES Invest	•
Geotechnic	_	Aerial Photograp	_	Property A	
	_	• .	, , ,	1 Topolty 7	
Historical S	Society \square	Year: 1984-2004	ł		
Details:					
Follow up: Walk over	site assessm	ent			
Inspected	bv:		Photograp	ohed:	
Date Inspe			· · · · · · · · · · · · · · · · · · ·		
Inspection					
Observations: Interviews Material	suggest that	walls of farm dams wer	e made fro	om locally so	urced natural
Reasoning:				Classified	l as an AEC ?
Natural ma	aterial used			Y N	es 🔲 o X



	Client: Project: Location:		tres Commission ntamination Assessmer	-	ct Number: ed:	40740 12.02.2007 AT
Locat	ion:					
_	Property:		Oran Park and McIn	GPS Cod	ordinates	
	Grid Ref:		289750E 6234500N		asting:	289,645.93
	PAEC #:		40		orthing:	6,234,480.47
						, ,
Identi	fied from:					
;	Site Inspect	ion 🔲	Conductivity Dat	a 🔲	Other (list	below):
	Title Deed ii	nfo. \square	Interviews		EES Inves	tigation 🔲
	Geotechnic	al 🗍	Aerial Photograp	hy X	Property A	ttribute \square
	Historical S	_	Year: 1947	, <u>X</u>		
Detail		ociety <u> </u>	16ai. 1341			
Detail	15.					
Г	Suspected 6	ex-military ha	ase (Narellan Army Car	nn) No e	evidence of t	his activity
			al composite.	πρ). 140 (evidence of t	This activity
<u> </u>	alocciriable	111 1001 4011	ai composito:			
<u> </u>						
Follo	w up:					
	Milsearch A	ssessment				
-						
Inspe	ction Detai	ls:				_
П	Inspected b	٧.		Photograp	hed:	
	Date Inspec			Thologia	oried.	
	Inspection N					
<u></u>	пороспон н	viotriou.	<u> </u>			
Obse	rvations:					
	Milsearch h	ave undertak	en a review of the site	for military	purposes.	Reference
				•		
1	snould be m	nade to their	report			
L						
Reas	oning:				Classified	d as an AEC ?
Г						es X
L						
					N	lo 🔲
L						



Client: Project: Location:		ntres Commission ntamination Assessmer	Project Number: nt Date: Logged:	40740 12.02.2007 AT
Location:				
Property:		Oran Park	GPS Coordinates	
Grid Ref:		290100E 6235700N	Easting:	290,201.92
PAEC #:		41 (may be same as PAEC #7)	Northing:	6,235,707.43
Identified from:				
Site Inspect	ion 🔲	Conductivity Dat	a 🔲 Other (list	below):
Title Deed i	nfo. 🔲	Interviews	☐ EES Inves	tigation 🔲
Geotechnic	al 🗖	Aerial Photograp		
Historical S	_		, ,	
Details:	ociety <u> </u>	16ai. 1301 - 130	, ,	
photograph Follow up:	ite assessm	ent – check for presence CCK 22 Feb 2007 Walkover	,	
Observations:	viouriou.	Walkevol		
Foundations	s and buildin	g rubble observed		
Reasoning:			Classifie	d as an AEC ?
Age of build	ling indicates	s that hazardous buildir	ig Y	'es X
	ay have bee			10



P L	Client: Project: Location:		tres Commission ntamination Assessme	•	et Number:	40740 12.02.2007 AT
Locati						
	Property:		McIntosh		ordinates	
	Grid Ref:		289600E 6234600N		asting:	289,576.20
Р	PAEC #:		42	N	orthing:	6,234,637.41
	fied from:					
	Site Inspect	_	Conductivity Date	ta 🔲	Other (list	•
Т	itle Deed in	nfo. 🔲	Interviews		EES Inves	tigation 🔲
G	Geotechnic:	al 🔲	Aerial Photograp	ohy X	Property A	ttribute
F	Historical So	ocietv 🗖	Year: 2004			
Details		_				
Inspec	Valk over s ction Detainspected botto Inspected botto Inspected	y: cted:	ent	Photograp	ohed:	
lr	nspection N	Method:				
Obser	oning:					d as an AEC ?
						lo X



	ntamination Assessmen	nt Date: Logged:	: 40740 12.02.2007 AT
		Loggea.	7(1
Location: Property:	McIntosh	GPS Coordinates	
Grid Ref:	288900E 6236300N	Easting:	288,643.37
PAEC #:	43	Northing:	6,236,137.25
TALOW.	-10	Northing.	0,200,101.20
dentified from:			
Site Inspection	Conductivity Dat	ta 🔲 Other (lis	t below):
Title Deed info.	Interviews	☐ EES Inve	
Geotechnical	Aerial Photograp		
Historical Society	Year:1947-1961		
Details:	16ai.1947-1901		
Details:			
Ground disturbance			
Follow up: Site walkover inspection			
Inspection Details:	CCK	Photographed:	No
Date Inspected:	22 Feb	i notograpnea.	140
Inspection Method:	Walkover/ Interview		
Observations: Silage pits?			
Glidge pilot			
Reasoning:		Classifie	ed as an AEC ?
			Yes No X



	Client: Project: Location:		ntres Commission ntamination Assessme			40740 12.02.2007 AT
Loca	ation:			0000		
	Property:		McIntosh		ordinates	222 222 72
	Grid Ref:		288950E 6236350N		asting:	288,896.73
	PAEC #:		44	N	lorthing:	6,236,288.52
lden	tified from:					
	Site Inspec	tion 🔲	Conductivity Dat	ta 🔲	Other (list	below):
	Title Deed i	nfo.	Interviews		EES Inves	tigation 🔲
	Geotechnic	al 🗆	Aerial Photograp	οhy χ	Property A	
	Historical S	_	Year:1978	, ,	-1 7	
Deta		ocicty _	1001.1370			
Deta	ilis:					
	Ground dist	turbance. Ma	ay be related to PAEC	43.		
Follo	ow up: Walkover s	ite inspection	1			
Insp	ection Deta	ils:				
	Inspected b			Photogra	nhed:	
	Date Inspec			Thologia	priod.	
	Inspection I					
Obs	ervations:					
Rea	soning:				Classifie	d as an AEC ?
					Y	′es □
						lo X
						^



Client: Project	:: Stage 1 Co	ntres Commission ntamination Assessmei	nt Date:	t Number:	12.02.2007
Locatio	on: Oran Park		Logge	ed:	AT
Location:					
Proper	•	McIntosh	GPS Cod		
Grid Re		289300E 6235400N		asting:	289,364.27
PAEC #	# :	45	N	orthing:	6,235,434.72
Identified fro	om:				
Site Ins	pection \square	Conductivity Date	a 🔲	Other (list b	pelow):
Title De	ed info.	Interviews		EES Invest	tigation 🔲
Geotec	hnical \square	Aerial Photograp	ohy X	Property A	ttribute 🔲
Historic	al Society 🔲	Year: 1984	. ,		
Details:					
Details.					
Cluster	of nossibly relat	ed ground disturbances	:		
OldStol	or possibly relat	ca ground distarbances			
Follow up:					
ollow up.					
Walkey	er site inspection	`			
VValkov	er site irispectioi	I			
manaatian F	Natalla.				
Inspection D	Details:				
Inspect	ed hv.	CCK	Photograp	hed:	No
	spected:	22 Feb	Thotograp	nica.	140
	ion Method:	Walkover			
Порсос	ion mourou.	vvaikovoi			
Observation	s.				
Review	of all aerials and	d a walkover, suggest a	low risk la	nd use and	standard
		a a wantovor, oaggoot a	TOW HOR IO	ina acc ana	otanaara —
croppin	g in this area				
Reasoning:				Classified	d as an AEC ?
Low risi	k landuse			L Y	es 🔲
				N	о Х
				<u> </u>	



			itres Commission ntamination Assessmei	-	ct Number:	40740 12.02.2007
L	_ocation:	Oran Park		Logge	ed:	AT
Locati	ion:					
F	Property:		McIntosh	GPS Cod	ordinates	
	Grid Ref:		289000E 6234525N		asting:	288,987.10
F	PAEC #:		46	N	orthing:	6,234,548.20
Identif	fied from:					
5	Site Inspecti	ion 🔲	Conductivity Dat	a 🔲	Other (list I	pelow):
1	Γitle Deed ir	nfo.	Interviews		EES Invest	tigation 🔲
(Geotechnica	al 🔲	Aerial Photograp	ohy X	Property A	ttribute 🔲
ŀ	Historical So	ociety \Box	Year:2004	, ,		
Detail						
Detail	J.					
	Ground dist	urbance				
	<u> </u>					
Follov	v up:					
	-					
٧	Nalkover sit	e inspection				
-		· · · · · · · · · · · · · · · · · · ·				
Insped	ction Detail	ls:				
		1			II.	
	nspected by		CCK	Photograp	ohed:	No
	Date Inspec		22 Feb 2007			
	nspection M	lethod:	Walkover			
Obser	vations:					
_						
	roded surfa	ace at dam e	edge – Possibly associa	ated with h	igh salinity	
						•
Reaso	oning:				Classified	l as an AEC ?
	Not a cut or	fill site			□	es 🗖
<u> </u>	NOL A CUL OF	IIII SILE				
					N	o X
<u> </u>						



Client: Project: Location:	Stage 1 Co	ntres Commission ntamination Assessme	•	ct Number:	40740 12.02.2007 AT
			33		
Location:			0000		
Property:		McIntosh		ordinates	
Grid Ref:		289250E 6234600N		asting:	289,157.13
PAEC #:		47	N	orthing:	6,234,638.41
Identified from	:				
Site Inspe	ction 🔲	Conductivity Da	ta 🔲	Other (list	below):
Title Deed	info.	Interviews	_	EES Inves	•
Geotechni	_	Aerial Photograp	_	Property A	
Historical	_	Year:2004	, X		
	Society _	1 ear.2004			
Details:					
Evidence	of cultivation s	and presence of shed li	ko etruetur	e Potential	for posticide
		nd / or storage.	NE SITUCIUI	e. Foteriliai	ioi pesticide
and / or ne	andicide use ai	iu / or storage.			
Follow up:					
rollow up.					
latom dove					
Interview					
nspection Det	ails:				
Inchested	h.,,	CCK	Photograp	ahad:	
Inspected		CCN	Photograp	mea.	
Date Inspe					
Inspection	Method.				
Observations:					
PAEC is w	ith in the bour	nds of McArthur Anglica	an school /	Agricultural a	area. There has
not been a	long term us	e of the site for this lan	d use and	there is curr	ently no
proposed	change				
Reasoning:				Classified	d as an AEC ?
No change	e in land use			ΓY	'es □
Tto onange					
				l N	lo X



Client: Project: Location	Stage 1 Co	ntres Commission ntamination Assessme	-	et Number:	40740 12.02.2007 AT
Location:					
Property		McIntosh		ordinates	
Grid Ref:		288650E 6234650N		asting:	288,552.11
PAEC #:		48	N	orthing:	6,234,663.19
Identified from					
Site Inspe	ection 🔲	Conductivity Da	ta 🔲	Other (list	below):
Title Deed	d info. \square	Interviews		EES Inves	tigation 🔲
Geotechn	ical 🗆	Aerial Photograp	ohy X	Property A	ttribute 🔲
Historical	Society \square		, ,		_
	Cocicty	1001.1304			
Details:					
Site inspection Der Inspected Date Inspection Inspection	by: ected:	CCK 22 Feb 2007 Walkover/ Interview	Photograp	ohed:	No
Observations:					
No evider	nce of intensive	e use. Interview with sit	e owners i	ndicate site	was never
used for i	ntensive agricu	ılture.			
Reasoning:				Classified	d as an AEC?
No actual	agricultural la	nd use			res □ IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII



Client: Project: Location:		ntres Commission Intamination Assessme	•	ct Number: ed:	40740 12.02.2007 AT
Location:					
Property:		McIntosh	GPS Cod	ordinates	
Grid Ref:		289050E 6234200N		asting:	289,004.86
PAEC #:		49		orthing:	6,234,233.09
Identified from: Site Inspec	tion 🔲	Conductivity Da	ta 🔲	Other (list	below):
Title Deed	info. \square	Interviews	$\overline{\Box}$	EES Inves	tigation 🗇
Geotechnic	_	Aerial Photograp	_	Property A	_
	_		, V	1 Topolty 7	
Historical S	ociety	Year:1970			
Details:					
Evidence for	or cultivation.	Potential for pesticide	/ herbicide	e use.	
		·			
Follow up:					
Site inspec	tion, intervie	W			
Inspection Deta	ils:				
Inspected b	y:	CCK	Photograp	ohed:	No
Date Inspe	cted:	22 Feb			
Inspection	Method:	Walkover / Aerial			
Observations:					
A walkover	did not reve	al any current market g	ardens. Re	eview of the	aerial
photograph	suggests th	ese areas were used fo	r standard	l cropping, n	ot intensive
agriculture.					
Reasoning:				Classified	d as an AEC ?
Low risk lar	nduse				'es □
LOW HISK IAI	iduse			<u> </u>	<u> </u>
				^	lo X



Client: Project: Location:	Stage 1 Co	ntres Commission ntamination Assessme	•	et Number:	40740 12.02.2007 AT
_ocation:					
Property:		Oran Park	GPS Cod	ordinates	
Grid Ref:		290250E 6235750N	Е	asting:	290,302.64
PAEC #:		50		orthing:	6,235,719.74
dentified from:					
Site Inspec		Conductivity Da	ta 🔲	Other (list	pelow).
Title Deed	_	Interviews		EES Inves	•
Geotechnic	_		_		
	_	Aerial Photograp	ohy X	Property A	unbute
Historical S	Society 🔲	Year:1984			
Details:					
Evidence for	or cultivation.	Potential for pesticide	/ herbicide	e use	
Site inspec	tion,				
nspection Deta	nils:				
Inspected I	ov:	CCK	Photograp	ohed:	No
Date Inspe		22 Feb 2007			
Inspection		Walkover/ Aerial			
Observations:					
A walkover	did not reve	al any current market g	ardens. Re	eview of the	aerial
photograph	n suggests th	ese areas were used fo	r standard	cropping, n	ot intensive
agriculture					
Reasoning:				Classified	d as an AEC ?
Low risk la	nduse			Y	es 🔲
				N	lo X
				l	



ition:						
Property:		Lot 1 DP 599327	GPS Co	ordinates		
Grid Ref:		289750E 6234250N	E	asting:	289,733.	45
PAEC #:		51 (refer also to 32)		lorthing:	6,234,17	
ified from:		0 1 (11)	. –	011 /11: (
Site Inspection		,	_	•	•	_
Title Deed info	_		. 🗖			_
Geotechnical		3		Property A		[
Historical Soci	ety 🔲	Year:		GeoEnviro	Report	>
ils:						
T. O. E. :			DD FOOGS			
	•	the following on Lot 1				
		naterials consisting of t				
		nolition rubble consisting	ng of concr	ete, bricks a	and timber	aion
the eastern bo		wild upodowe wantless !	ن ما الممان	- مدادما مائن	lov ni======	ام دا
		orth western portion be	ing tilled w	iin broken c	iay pipes a	ınd
possibly used	as an eva	poration bed				
-						
ow up:				a CH a surrant		
	inspection	to determine if these i	ssues are	still current.		
Site walkover	•	to determine if these i	ssues are	still current.		
Site walkover	•	to determine if these i				
Site walkover ection Details: Inspected by:		to determine if these i	ssues are			
ection Details: Inspected by: Date Inspected	d:	to determine if these i				
Site walkover ection Details: Inspected by:	d:	to determine if these i				
ection Details: Inspected by: Date Inspected Inspection Me	d:	to determine if these i				
ection Details: Inspected by: Date Inspected Inspection Me	d:	to determine if these i				
ection Details: Inspected by: Date Inspection Me	d:	to determine if these i				
ection Details: Inspected by: Date Inspection Me	d:	to determine if these i				
ection Details: Inspected by: Date Inspected Inspection Me	d:	to determine if these i				
ection Details: Inspected by: Date Inspected Inspection Me	d:	to determine if these i				
ection Details: Inspected by: Date Inspected Inspection Me	d:	to determine if these i		phed:	d ac an Ac	
ection Details: Inspected by: Date Inspected Inspection Me	d:	to determine if these i		phed:	d as an Al	≡€ ?
ection Details: Inspected by: Date Inspected	d:	to determine if these i		phed: Classifie	d as an Al	=== C ?

Potential AEC Identification and Inspection CCK 03012007



	Client: Project:	Stage 1	th Centres Commission 1 Contamination Assessment Park			Project Number: Date: Logged:		12.02.2007	
	Location:	Oran Pa						AT	
Loca	ation:								
	Property:		Catherin	ngfield Road, e Field (Lot 9861221)	GF	PS Cod	ordinates		
	Grid Ref:			6236300N			asting:	292,629.71	
	PAEC #:		52			N	orthing:	6,236,250.38	
ldan	tified from:								
iueii	Site Inspec	tion		Conductivity Dat	ta		Other (list	below):	
	Title Deed i			Interviews			EES Inves	,	
	Geotechnic			Aerial Photograp	hv	X	Property A		
	Historical S			Year: 2004	Olly	^	GeoEnviro		
Deta		Ociety	ш	16al. 2004			Geochivilo	rteport	
Dela	IIIS.								
	Possible ma	arket gar	dening ac	tivities.					
		J							
Follo	ow up:								
1 011	Site walkov	er insned	tion						
	One wanter	ст торос	7.11011						
Insp	ection Deta		001/		DI: -		la a ala	NI-	
	Inspected b		22 F		Pnc	otograp	onea:	No	
	Inspection I		Walk						
	тороспотт	viouiou.	vvan						
Obs	ervations:								
•									
Rea	soning:					_		d as an AEC ?	
	Market Gar	den					Y	'es X	
							N	lo 🔲	
						_			



	Client: Project: Location:		1 Contami	Commission Ination Assessme	ent l	Projed Date: Logge	et Number: ed:	40740 18/01/07 CCK	
Loca	ation:								
	Property:	McIn	tosh Land		GPS		rdinates		
	Grid Ref:						sting:	288 390	
	PAEC #:	53				No	orthing:	6234 380	
lden	tified from:								
	Site Inspect	ion		Conductivity Da	ata		Other (list	below):	
	Title Deed i	nfo.		Interviews		Χ	Council R	ecords	
	Geotechnic	al		Aerial Photogra	phy				ב
	Historical S	ociety		Year:		_			_
Deta	ils:								
	Asbestos pi	pe syst	em						
	, 10000100 p.	po 0,00							
Follo	ow up:								
	None requir	ed							
	-								
Insp	ection Detai	ils:							
-	Inspected b				Pho	tograp	hed:		
	Date Inspec					•			
	Inspection I	Method:							
Obs	ervations:								_
Reas	soning:						Classifie	d as an AEC ?)
	Hazardous	huildina	ı məteriəl			1		res X	
	i iazai uous	bulluling	illal c iial			4			
								No 🗖	
						_	_		



Clien Proje				es Commission Imination Assessmo		Project Date:	ct Number:	40740 18/01/07	
	tion:	Oran P		imination Assessme		Logge	ed:	CCK	
			-			99			
ocation:									
Prop		Oran	Park		GP		rdinates		
Grid		5 4					sting:		
PAE	#:	54				NO	orthing:		
entified	from:								
	nspect	ion		Conductivity Da	ata		Other (list	below):	
	Deed ir		$\overline{}$	Interviews		X	Council R	-	
	echnica			Aerial Photogra	anhv				
				Year:	дрију	Ч			_
ПІЗІО	rical So	ociety	_	rear.					
etails:									
	stos ni	pe syste	em						
7.000	otoo pi		,,,,						
ollow up		1							
None	requir	ea							
spection	n Detai	ls:							
	cted by				Pho	otograp	hed:		
	Inspec								
Inspe	ction N	/lethod:							
bservation	ons:								
L									
easoning	g:						Classifie	d as an AEC	?
				- 1		7	-		,
Haza	rdous l	building	materia	ai					(
							1	No []



Client: Project: Location:	Stage 2	1 Contar	s Commission mination Assessme	nt D a	oject Number ite: igged:	: 40740 18/01/07 CCK
Location.	Olali P	air		LO	yy c u.	CON
cation:						
Property:	Oran	Park		GPS (Coordinates	
Grid Ref:					Easting:	290 230
PAEC #:	55				Northing:	6234 240
entified from:	•					
Site Insped			Conductivity Da	ta [Other (list	t helow):
Title Deed			Interviews	-	Council R	•
	_	X		•	 -	
Geotechni			Aerial Photogra	pny [_	
Historical S	Society		Year:			
4-11-						
tails:	-fb	£	- d	4:4-	47.0.57	
Fragments	of asbes	stos tour	nd near surface of t	est pits	4/ & 5/	
llow up:						
None requ	ired					
Ttono roqu						
spection Deta	ails:					
Inspected	by:			Photog	graphed:	
Date Inspe						
Inspection	Method:					
os <u>ervations:</u>						
<u> </u>						
easoning:					Classifie	1 4500
_					Olassiii	ed as an AEC?
					Olassiii	ed as an AEC?
Hazardous	building	materia	l .			
Hazardous	building	materia	l			Yes X
Hazardous	building	materia	I			



Client:		entres Commission		ct Number		
Project:		ontamination Assessme			18/01/07	
Location:	Oran Park		Logg	ed:	CCK	
cation:						
Property:	Oran Pa	rk	GPS Coo	rdinates		
Grid Ref:	Oran r a			asting:	290 540	
PAEC #:	56			orthing:	6235 830	
	•		•			
ntified from:						
Site Inspect	_	Conductivity Da	ata 🔲	Other (list	· ·	
Title Deed i	nfo.	Interviews		Council R	ecords	
Geotechnic	al X	Aerial Photogra	phy 🔲			
Historical S	ociety [Year:				
	, -					
ails:						
Fragments	of asbestos	s found near the surface	of test pits	73 & 88		
			<u>'</u>			
low up:						
None requir	ed					
pection Detai	ile					
Inspected b			Photogra	had.		
Date Inspec			Thologia	orieu.		
Inspection I						
			1		<u>I</u>	
servations:						
asoning:				Classifie	ed as an AEC	?
g.				Jiassiiia	ac an ALO	•
Hazardous	buildina ma	aterial		[·	Yes X	<u>, </u>
				_		<u>`</u>
					No [
		-				



Client: Project: Location:	Stage 1	Contam	Commission nination Assessme	nt D	rojed ate: ogge	t Number: ed:	40740 18/01/07 CCK	
ocation:								
Property:	Oran	Park		GPS	Coo	rdinates		
Grid Ref:					Ea	sting:	290 340	
PAEC #:	57				No	rthing:	6235 880	
entified from:								
Site Inspec	tion	Χ	Conductivity Da	ıta		Other (list	below):	
Title Deed i			Interviews			Council Re	-	
Geotechnic	al		Aerial Photogra	phy				
Historical S	ociety		Year:	. ,	_			_
etails:								
Building rul	oble in cr	eek line						
oll <u>ow up:</u>								
None requi	red							
spection Deta	ils:							
Inspected b				Photo	grap	hed:		
Date Inspe	cted:							
Inspection	Method:							
bservations:								
								ľ
easoning:						Classifie	d as an AEC	?
Possibly co	ntains as	shestos					/es	Y
1 0001019 00	Titali io a						No	X
						_ <u> </u>	NU	



Client:		ntres Commission		ct Number		
Project:	-	ontamination Assessme			18/01/07	
Location:	Oran Park		Logg	ea:	CCK	
cation:						
Property:	Oran Par	k	GPS Coc	rdinates		
Grid Ref:	- Crair r ai	IX.		asting:	292260	
PAEC #:	58			orthing:	6236316	
ļ.	- 1					
entified from:						
Site Inspec	tion 🗀	Conductivity Da	ata 🔲	Other (list	below):	
Title Deed i	nfo.	Interviews		Council R	ecords	
Geotechnic	al X	Aerial Photogra	aphy 🔲			
Historical S	/\	•	_		'	_
r iistoricai O	Colory	i car.				
tails:						
	of achaetoe	found near the surface	of test nit	146		
Tragments	01 83063103	Tourid flear the Surface	or test pit	140		
llow up:						
None requi	ed					
1						
spection Deta	ils:					
Inspected b	y:		Photogra	phed:		
Date Inspec						
Inspection I	Method:					
_						
servations:						
easoning:				Classifie	ed as an AEC 1	?
3						
Hazardous	building ma	terial			Yes X	
	J -		I		- /\	
					VIO 🗆	1
				1	Vo 🗆	<u> </u>

APPENDIX E	
Notes from Interviews	



26 Feb 07

Project Number: 40740

Date:

Standard Interview Sheet

Growth Centres Commission

Land Capability Assessment

Client:

Project:

Location: Interviewee:	Turner Road Ian McIntosh	Interviewed by: Occupation:	Chris Kline
stion 1 – Wher	e did you work?		
3 areas			
	t period were you wo f farm operations?	orking the subject site? What	t period do you
Working since	1970's Nephew of Ron	McIntosh. Full knowledge of fa	arming history
From earliest of	days as a farm		
Dairy farm 20	oresent or former inter	nsive agriculture?	
Dally lain 20	years ago		
stion 4 – Any p	oresent or former marl	ket gardens, orchards or nurs	series?
No			
	type of agriculture ha	ıs been undertaken on site? F	lerds? Crops?
stion 5 – What	type of agriculture ha		lerds? Crops?
stion 5 – What	eef cattle, prior to 1987		



Question 6 – Any known use of filling materials on site?

	nstructed from local material. A few trucks of clay came from within the	
curtlege		
_		
ion 7 – <i>F</i>	Any known history of Flytipping?	
No		
		_
1	TO THE PROPERTY OF THE PROPERT	
tion 8 – v	Was there any storage of fuels on the site? USTs? ASTs?	
No		—
NO		
tion 9 – V	Was there a central chemical storage? What chemicals were kep	ıt?
· I .		
No		
		_
tion 10 <u>–</u>	- Any known instances of spills or accidents?	
lion io		
	osphate spill – within curtlege (i.e. outside subject site)	—
	osphate spill – within curtlege (i.e. outside subject site)	<u> </u>
	osphate spill – within curtlege (i.e. outside subject site)	
	osphate spill – within curtlege (i.e. outside subject site)	



Question 11 – What is the history of pesticide application?

No stion 12 – Were cattle dips used on site? No stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies? Yes, Jamie Ingles		
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?	No boom spraying prior to fodder cr	ops. Spot spraying used.
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
stion 13 – Cattle spraying areas? If no, where were animals treated? Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?	stion 12 – Were cattle dips used or	n site?
Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?	No	
Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Drenching yards in curtlege, Johnson's yards in the northeast. stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
stion 14 – Any buildings that may have been demolished? Construction type? Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?	Drenching yards in curtlege, Johnson	on's yards in the northeast.
Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Small brick building (1900s) north of school Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?		
Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?	stion 14 – Any buildings that may l	have been demolished? Construction type?
Weatherboard dwelling in northern section moved to curtlege stion 15 – Any use of any part of the site by other individuals or companies?	Small brick building (1900s) north of	f school
stion 15 – Any use of any part of the site by other individuals or companies?		
	Weatherboard dwelling in northern	section moved to cartiego
Yes, Jamie Ingles	stion 15 – Any use of any part of th	ne site by other individuals or companies?
	Yes, Jamie Ingles	



Question 16 - How and where was waste disposed on the site? Historically?

Within cu	will a see
	rtiege
Ī	
estion 17 –	How and where is animal effluent disposed on the site? Historically
Dairy in c	curtlege
	 What water management practices are undertaken on site? (Dan elines, diesel pumps?)
Asbestos	cement 6 inch pipe – Ian knows the location
	In your opinion is there any other activities that may contribute ial for contamination?
ner potent	
her potent	
No Stion 20 -	- Do you know any other individuals who may have knowledge of t
No	- Do you know any other individuals who may have knowledge of t
No Stion 20 Part Contact	- Do you know any other individuals who may have knowledge of t
No stion 20 -? Contact	- Do you know any other individuals who may have knowledge of t

APPENDIX F
Bore Logs and Construction Notes for Groundwater Wells

CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:** 6234494 **NORTHING:** 288791 **DIP/AZIMUTH:** 90°/--

BORE No: OP1 **PROJECT No: 40740 DATE:** 05 Feb 07 SHEET 1 OF 1

Γ			Description	U		Sam	pling 8	In Situ Testing		Well
뮙	Dep (m	pth	of	Graphic Log	e				Water	Construction
	(11)	"	Strata	Q_	Type	Depth	Sample	Results & Comments	>	Details
	-		CLAY - red brown clay with some sand and silt							Backfill Case
	- - - - - - - -									Bentonite
	- -2 - - - -		- becoming wet							Gravel
	- 3 									3 Screen
	- - - -	4.5	Bore discontinued at 4.5m (target depth reached)							
	- 5 - - - -									- 5 - 5
	- 6 									-6 -6 -
	- - - - - - -									-7 -
	-									-

DRILLER: Boers LOGGED: J Smalley CASING: RIG: Gemco 210B

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed **REMARKS:**

SAMPLING & IN SITU TESTING LEGEND

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

CHECKED
Initials:
Date:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:** 6235884 **NORTHING:** 289282 **DIP/AZIMUTH:** 90°/--

BORE No: OP2 **PROJECT No: 40740 DATE:** 05 Feb 07 SHEET 1 OF 1

		Description	je T		San		& In Situ Testing		Well
ט וַי	epth (m)	of Charles	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Construction
\vdash		SILTY CLAY - brown silty clay	1///	_	Δ	S	00		Details
		o.e oe s.o o.e., o.e.,							
ţ	0.5		1//						-
ļ		CLAY - orange brown clay							-
ļ'									['
ļ		- with some sand (ironstone)							
Ė									
-									
-2									-2
ļ									-
E	2.5	CLAY - yellow brown clay	1						
ļ		,							-
-3									-3
Ē	3.3	- with some gravel							
ŀ	0.0	CLAY - grey mottled yellow clay							-
-									
-4	3.8	CLAY - brown clay (residual rock)	1//						
-	4.2								-
-		SHALE - brown shale							-
-	4.5	Bore discontinued at 4.5m (target depth reached)							-
-5									-5
-									-
-									-
Ė									
-									
-6									-6
Ė									
-									<u> </u>
-									-
-7									-7
-									
ŀ									
ŀ									<u> </u>
F									-

DRILLER: Boers LOGGED: J Smalley CASING: RIG: Gemco 210B

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed **REMARKS:**

SAMPLING & IN SITU TESTING LEGEND

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

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:** 6235699 **NORTHING:** 289911 **DIP/AZIMUTH:** 90°/--

BORE No: OP3 **PROJECT No: 40740 DATE:** 05 Feb 07 SHEET 1 OF 1

Donth	Description	hic				& In Situ Testing	_ _	Well	
Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Construction	
	Strata		F	۵	Sal	Comments	\perp	Details	~ •
	SILTY CLAY - light brown silty clay							· Soil —	
0.3	CLAY - light brown clay	177							
								Case	X -1
-1 1.0	CLAY - brown clay							- [
								Bentonite -	
								· ·	
1.7		1//						· ·	
	CLAY - light brown clay								
-2 2.0	CLAY - red brown clay, humid							-2	:] <u>=</u>
2.2								Sand -	
	G , ,								
								Screen	$+ \exists$
-3								-3	
3.5	CLAY - grey clay	1//							
-4 4.0		1//						- -4	
	CLAY - light brown and grey clay							·	
4.3	SHALE - highly weathered, low strength shale							· ·	
4.5									. -
	(target depth reached)								
-5								-5	
-6								-6	
-7								-7	

DRILLER: Boers LOGGED: J Smalley CASING: RIG: Gemco 210B

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed **REMARKS:**

SAMPLING & IN SITU TESTING LEGEND

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

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:** 6236182 **NORTHING:** 290765 **DIP/AZIMUTH:** 90°/--

BORE No: OP4 **PROJECT No: 40740 DATE:** 05 Feb 07 SHEET 1 OF 1

Donth	Description	hic		San		& In Situ Testing		Well
Depth (m)	of Strate	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Construction Details
	SILTY CLAY - brown silty clay				Ss		+	Details
	SILTY SEAT - BIOWITSHLY Glay	1/1/						- Backfill -
0.4	CLAY - brown clay	<u> </u>						Case
	OEAT BIOWITOLEY							
								Bentonite
1	- harder							-1
	- humid							
2								2 Sand
								Screen
2.7								
	CLAY - orange brown clay							
3 3.1								-3
3.3	CLAY - light grey orange clay	1//						
	CLAY - grey clay							
3.8	SHALE - highly weathered shale							
4 4.0 4.1	SHALE - weathered shale							-4
	Bore discontinued at 4.1m (target depth reached)							
	(Migot dopariodoliod)							
								-
								-
5								-5 -
								-
								-
6								-6 -
								-
7								-
7								-7 - -
								-

DRILLER: Boers LOGGED: J Smalley CASING: RIG: Gemco 210B

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed **REMARKS:**

SAMPLING & IN SITU TESTING LEGEND

pp Pocket penetrometer (kPa)
pp Pocket penetrometer (kPa)
PID Photo ionisation detector
S standard penetration test
PL Point load strength Is(50) MPa
V Shear Vane (kPa)
V Water seep
Water level Auger sample
Disturbed sample
Bulk sample
Tube sample (x mm dia.)
Water sample
Core drilling

CHECKED
Initials:
Date:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:** 6236733 **NORTHING:** 292042 **DIP/AZIMUTH:** 90°/--

BORE No: OP5 **PROJECT No: 40740 DATE:** 05 Feb 07 SHEET 1 OF 1

De	epth	Description	b hic				& In Situ Testing	er	Well
(n	n)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Construction Details
-		SILTY CLAY - brown silty clay	1/1/			0)			I NA
- - - - - -	0.2	CLAY - brown clay							Backfill Case Reptopite
- - - -	1.75								Case
-2	2.0	CLAY - light brown clay CLAY - light grey brown clay							-2
- - - - -	2.3-	CLAY - orange clay							Bentonite
-3	3.5-	CLAY - grey clay							-3
- - -4 -									Sand
-5	4.7 -	SHALE - highly weathered shale							-5
-6	5.85 -	Bore discontinued at 5.85m (target depth reached)							- ; = - - - - - - - - -

DRILLER: Boers LOGGED: J Smalley CASING: RIG: Gemco 210B

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed **REMARKS:**

SAMPLING & IN SITU TESTING LEGEND

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

CHECKED
Initials:
Date:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:** 6235997 **NORTHING:** 291707 **DIP/AZIMUTH:** 90°/--

BORE No: OP6 PROJECT No: 40740 DATE: 05 Feb 07 SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing	- e	Well
뷥.	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Construction Details
-	0.4	SILTY CLAY - light brown silty clay CLAY - red brown clay			_	8			- Backfill
-1	ı								-1 Bentonite
- 2	1.5	CLAY - light orange brown clay							
	2.1 -	CLAY - red mottled grey clay CLAY - grey clay							Sand
-3	3								Screen
-4	3.8-	SHALE - highly weathered, low to medium strength shale							[
- 5		Bore discontinued at 4.2m (target depth reached)	[: = :
- - - - - - - - -	,								-7 7

DRILLER: Boers LOGGED: J Smalley CASING: RIG: Gemco 210B

TYPE OF BORING: Solid flight auger

WATER OBSERVATIONS: No free groundwater observed **REMARKS:**

SAMPLING & IN SITU TESTING LEGEND

Auger sample
Disturbed sample
Bulk sample
Tube sample (x mm dia.)
Water sample
Core drilling

pp Pocket penetrometer (kPa)
pp Pocket penetrometer (kPa)
PID Photo ionisation detector
S Standard penetration test
PL Point load strength Is(50) MPa
V Shear Vane (kPa)
V Water seep
Water level

CHECKED
Initials:
Date:



APPENDIX G Test Pit Logs



NOTES RELATING TO THIS REPORT

Introduction

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

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

Description and Classification Methods

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

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

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

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

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

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

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

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

Sampling

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

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

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

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

Drilling Methods.

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

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

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

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

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and in sands above the water

Issued: October 1998 Page 1 of 4



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

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

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

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

Standard Penetration Tests

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

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

The test results are reported in the following form.

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

as
$$4, 6, 7$$

 $N = 13$

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

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

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

Cone Penetrometer Testing and Interpretation

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

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

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

The information provided on the plotted results comprises: —

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

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

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

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

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

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

$$q_c = (12 \text{ to } 18) c_u$$

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

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

Issued: October 1998 Page 2 of 4



Hand Penetrometers

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

Two relatively similar tests are used.

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

Laboratory Testing

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

Bore Logs

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

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

Ground Water

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

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be

- the same at the time of construction as are indicated in the report.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations are to be made.

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

Engineering Reports

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

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

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

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

Site Anomalies

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

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section

Issued: October 1998 Page 3 of 4



is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

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

Copyright © 1998 Douglas Partners Pty Ltd

Issued: October 1998 Page 4 of 4

DESCRIPTION AND CLASSIFICATION OF ROCKS FOR ENGINEERING PURPOSES

DEGREE OF WEATHERING

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

ROCK STRENGTH

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

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

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

Issued: April 2000 Page 1 of 2

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

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



STRATIFICATION SPACING

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

DEGREE OF FRACTURING

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

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

ROCK QUALITY DESIGNATION (RQD)

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

SEDIMENTARY ROCK TYPES

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

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

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

Copyright © 2000 Douglas Partners Pty Ltd

GRAPHIC SYMBOLS FOR SOIL & ROCK

SOIL

BITUMINOUS CONCRETE CONCRETE **TOPSOIL FILLING** PEAT CLAY SILTY CLAY SANDY CLAY **GRAVELLY CLAY** SHALY CLAY SILT **CLAYEY SILT** SANDY SILT SAND **CLAYEY SAND** SILTY SAND **GRAVEL** SANDY GRAVEL **CLAYEY GRAVEL** COBBLES/BOULDERS **TALUS**

SEDIMENTARY ROCK

BOULDER CONGLOMERATE

CONGLOMERATE

CONGLOMERATIC SANDSTONE

SANDSTONE FINE GRAINED

SANDSTONE COARSE GRAINED

SILTSTONE

LAMINITE

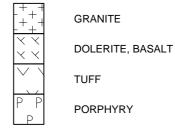
MUDSTONE, CLAYSTONE, SHALE

COAL

LIMESTONE

METAMORPHIC ROCK

IGNEOUS ROCK





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PROJECT No: 40740 DATE: 15 Jan 07 SHEET 1 OF 1

PIT No: 1

DIP/AZIMUTH: 90°/--

		Description	je.	Sampling & In Situ Testing					Duramia Danatramatan Tast		
R	Depth (m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)		
L		Strata	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	F	٥	Sa	Comments	-	5 10 15 20		
	-	TOPSOIL - brown silty clay		D	0.1				-		
	- - 0.3		W								
	-	CLAY - hard, red brown and orange brown clay.									
	-			D	0.5		pp > 400kPa				
	-										
	-										
	-										
	-1 -			D	1.0		pp > 400kPa		-1		
	-								-		
	-										
	-			D	1.5		pp > 400kPa				
	-								-		
	-										
	-										
	-2			D	2.0		pp > 400kPa		-2		
	-										
	-										
	-										
	-			D	2.5						
	-										
	-										
	-				0.0		1 400LD-				
	-3 - 3.1			D	3.0		pp > 400kPa		-3		
		Pit discontinued at 3.1m (limit of investigation)							-		
	-	, , , , , , , , , , , , , , , , , , , ,									
	-										
	-								-		
	-								<u> </u>		
	-4								-4		
	-										
	-										
	-										
	-								<u> </u>		
	- -										
	-								-4		
	-								}		
\Box		I					l .				

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PROJECT No: 40740 DATE:** 15 Jan 07 SHEET 1 OF 1

PIT No: 2

_													
			Description	.je		San	npling	& In Situ Testing		Dime	:- D	- 4 4	T
	귙	Depth (m)	of	rapt Log	be	pth	Jple	Results &	Nate		mic Pen ا blows)		
			Strata	Ō	Ţ	De	San	Comments		5	10	15	20
ſ			TOPSOIL - brown sandy silty clay	$\mathcal{Y}\mathcal{Y}$		0.1						:	:

		Description	ic		Sampling & In Situ Testing				Dunamia Danatramatar Taat			
씸	Depth (m)	of	Graphic Log	Log Comments & Comments				Water	Dynan	Dynamic Penetrometer Test (blows per mm)		
	` '	Strata	O	Тy	De	San	Comments		5	10	15	20
	-	TOPSOIL - brown sandy silty clay			0.1				-			
	- 0.3	SILTY CLAY - hard, brown silty clay			0.5		pp > 400kPa					
	- 0.9 -1 -	CLAY - hard, orange brown and grey clay			1.0		pp > 400kPa		-1			
	-				1.5		pp > 400kPa					
	-2				2.0		pp = 200kPa		-2			
	- 2.5 - -	GRAVELLY SILTY CLAY - stiff, orange brown and dark grey gravelly silty clay. Gravel fine grained.			2.5							
	-3				3.0		pp = 100-200kPa		-3			
	- 3.2 - -	Pit discontinued at 3.2m (limit of investigation)							-			
	- - - 4 -								-4			
	-											
	-								-			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No**: 3 **PROJECT No: 40740 DATE:** 15 Jan 07

SHEET 1 OF 1

	Donth	Description	hic	Comments Sampling & In Situ Testing Sampling & In Situ Testing Results & Comments					Dynamic Penetrometer Test		
묍	Depth (m)	of Strata		Туре	Depth	Sample	Results & Comments	Water	20		
H		TOPSOIL - brown silty clay		D	0.1	0)			5 10 15	:	
			RX								
	0.4	CLAY - hard, brown/orange brown clay		D	0.5		pp > 400kPa				
	-1			D	1.0		pp > 400kPa		-1		
				D	1.5		pp > 400kPa				
	1.6	CLAY - hard, orange brown and grey clay									
	-2			D	2.0				-2		
				D	2.5		pp = 350kPa				
	-3			D	3.0		pp = 150-200kPa		-3		
	3.2	Pit discontinued at 3.2m	<u> </u>								
		(limit of investigation)									
	-4								-4		
									_		
										-	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED
Initials:
Date:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- PIT No: 4

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

Donth	Description	h Pic				& In Situ Testing	_ b	Dynamic F	Penetromete	r Test
Depth (m)	of Strate	Graphic Log	Type	Depth	Sample	Results & Comments	Water		Penetromete ws per mm)	
	Strata TOPSOIL - brown silty clay	V X			Š			5 1	0 15	20
-	TOPSOIL - brown sitty day		D	0.1				-		
-								<u> </u>		
0.3	CLAY - hard, orange brown clay							<u> </u>		
	, ,		-	0.5		1001.5				i
		Y//	D	0.5		pp > 400kPa				
		1//								÷
										:
1		Y//	D	1.0		pp > 400kPa		-1		
								. :		÷
								<u> </u>		:
		V//						<u> </u>		
1.4	SHALE - slightly weathered low to medium strength grey							ŀ		
1.5	SHALE - slightly weathered, low to medium strength, grey and orange brown shale Pit discontinued at 1.5m		—D—	—1.5—				:		\pm
	Pit discontinued at 1.5m (refusal in medium strength shale)									÷
	(reludal in mediam duengin dhale)									
										÷
2								-2		:
_								[* :		÷
										:
										:
								ļ .		
								<u> </u>		
								<u> </u>		÷
								<u> </u>		÷
3								-3		
										÷
								[÷
										:
								. :		÷
										÷
								<u> </u>		
4								-4		÷
								†		:
								t i		
								[i
								[:		÷
								ļ.		
								;	: :	:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No**: 6

PROJECT No: 40740 DATE: 16 Jan 07 SHEET 1 OF 1

		Description			San		& In Situ Testing	<u></u>	D	io Derect	- 1 -	r To-4
귒	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		blows pe	er mm)	
\vdash		Strata TOPSOIL - brown silty clay	177X			Sa	Comments		5	10	15	20
				D	0.1							
	0.3	CLAY - hard, red brown clay	V/						-			
		<u></u>		D	0.5		pp > 400kPa					
-					0.0		pp 10014 d		-			
	0.7	CLAY - hard, grey and orange brown clay with trace gravel	1//									
-		- gravel content increasing with depth.										
	1			D	1.0		pp > 400kPa		-1			
-									-			
-				D	1.5				-			
-	1.8	SHALE - extremely to highly weathered, extremely low to very low strength, grey and orange brown shale	===									
[:	2	very low strength, grey and orange brown shale		D	2.0				-2			
-									-			
									-			
-:	3 3.0	Pit discontinued at 3.0m	<u> </u>	•					3			
		(refusal in very low to low strength shale)							-			
									-	:		
									-		:	
	4								4			
									-			
									<u> </u>			
											:	:
									-			:
									<u> </u>		:	
Ш											•	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- PIT No: 7

PROJECT No: 40740 DATE: 16 Jan 07 SHEET 1 OF 1

D "	Description	hic -		Sam		& In Situ Testing		Dunami	o Donoto	ometer	Toot
Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynami (b			
-	TOPSOIL - brown silty clay		D	0.1	Š			5	10	15	20
- 0.3	CLAY - hard, red brown clay, humid		D	0.5		pp > 400kPa		-			
0.9											
- 1 -	CLAY - hard, grey mottled orange brown clay with a trace of gravel		D	1.0		pp > 400kPa		-1			
-			D	1.5							
- -2 -			D	2.1				- -2 -			
-								-			
- -3 3.0 -	Pit discontinued at 3.0m (refusal in extremely low to very low strength shale)							- - 3			
-	(retusal in extremely low to very low strength shale)							-			
-											
-4								-4			
								-			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

Initials:

CHECKED



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No**: 8

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing		Dynamic Pe	netrometer Test
R	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows	s per mm)
-	. 0.3-	TOPSOIL - brown silty clay		D	0.1	0)			-	
-	- - -	SILTY CLAY - hard, brown silty clay		D	0.5		pp > 400kPa			
-	- - 1 - -			D	1.0		pp > 400kPa		-1	
	- 1.4 - - - -	SILTY CLAY - hard, orange brown and grey silty clay with trace gravel.		D	1.5		pp > 400kPa			
	-2 - - -			D	2.0		pp > 400kPa		-2	
-	- - 2.6 - - 2.7 -	SHALE - moderately weathered, low to medium strength, grey and orange brown, shale. Pit discontinued at 2.7m (refusal in low to medium strength shale)		D	2.5		pp > 400kPa			
-	- -3 - -	(refusal in low to medium suerigin shale)							-3	
-	· -									
-	-4 - -								-4	
	- - -									
	-									

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 9

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

_)onth	Description	hic				& In Situ Testing	- li	Dynamic F	Penetrom	eter Tect
뷥	epth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blo	ws per m	m)
+		TOPSOIL - brown silty clay	XX			ιχ			5 1	0 15	20
t	0.2			D	0.1						i
-	0.2	CLAY - hard, light orange brown and red brown clay									:
-									-		
t				D	0.5		pp > 400kPa				
-									- :		i
-									-		:
-1	0.9	GRAVELLY SILTY CLAY - hard, grev and orange brown		D	1.0		pp > 400kPa		-1		
Ι΄		gravelly silty clay			1.0		ρρ - 400κι α		'		:
-		þ							-		:
İ	1.4	,									:
-		SHALE - slightly weathered, low to medium strength, grey shale		D	1.5				-		
-									-		
	1.7	Pit discontinued at 1.7m							. :		:
-		(refusal in medium strength shale)									
-2									-2		:
İ											:
-									. :		
-									-		÷
İ											
-									. :		
-									-		
									-		:
-3									-3		:
ŀ									-		
ŀ									-		
-									-		į
-									-		
											÷
-4									-4		
-									-		
[
-											
+									-		:
t											i
Γ											:
ŀ											

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/--

PIT No: 11 **PROJECT No: 40740 DATE:** 19 Jan 07 SHEET 1 OF 1

П			Description	. <u>o</u>		Sam	npling &	& In Situ Testing	Ι.			
귐	Dep (m	oth 1)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic P (blov	enetromete vs per mm)	er Test
Ш			Strata	0		De	Sar	Comments	ļ_	5 10 : :	15	20
			TOPSOIL - brown silty clay		D	0.1				-		
		0.2	CLAY - hard, red brown clay									
					D	0.4		pp > 400kPa				
	. (0.45	SHALE - extremely to highly weathered, extremely to very low strenth, orange brown and grey shale	===	D	0.5				- :		
			low strenth, orange brown and grey shale									
											:	:
	-											
	-1									¹		
		1.2	Pit discontinued at 1.2m									<u>:</u>
	-		(refusal on low to medium strength shale)							-		
										- : :	:	:
	-									-		
	-2									-2		
	-									-		
										-	÷	:
										-	:	
	-3									-3	i	:
										["	į	
										-		
											:	:
										[
										-		
											:	
										ļ <u>i</u>		
	-4									-4		
												:
										}		
										<u> </u>	:	:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Moved pit 30m west ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PROJECT No: 40740 DATE: 19 Jan 07 SHEET 1 OF 1

PIT No: 12

DIP/AZIMUTH: 90°/--

	Depth	Description	bhic g				& In Situ Testing	ē	Dynamic Penetrometer Test
씸	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
	- 0.2	TOPSOIL - brown silty clay		D	0.1	S			3 10 13 20
	-	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa		
	- - 0.7	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale	====	Б	0.5		μρ > 400κ-α		
	- -1 -	very low strength, orange brown and grey shale		D	1.0				-1
	-								
	-								
	- -2 -								-2
	-								
	- - - 2.7	Pit discontinued at 2.7m		D	2.5				
	- - -3	(refusal on low strength shale)							-3
	-								
	-								
	- - -4								-4
	- - -								
	-								
	-								
oxdot									

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 13

PROJECT No: 40740 DATE: 16 Jan 07 SHEET 1 OF 1

Graphic Log	Туре	ᅟᅟᅟ	<u>o</u>				OMETER LEST
	Ţ	Depth	Sample	Results & Comments	Water	Dynamic Penetr (blows pe	r mm)
	D	0.1	S			5 10	15 20
	D	0.5		pp > 400kPa			
ne	D	1.0		pp > 400kPa		- - -1	
/ to =====	D	1.5					
<u> </u>							
						-3	
						-4	
	ne vito	ne D	ne D 1.0	ne D 1.0	D 1.0 pp > 400kPa	D 1.0 pp > 400kPa	D 1.0 pp > 400kPa -1

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 14

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

		Description	<u>ا</u> اخ		Sam		& In Situ Testing	يا	Dum	Donot	otor Ta-t
	epth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		ows per m	
\vdash		TOPSOIL - brown silty clay	\\X			Š		+	5	10 15	20
-	0.1	GRAVELLY SILTY CLAY - hard, brown gravelly silty clay		D	0.1						
-				D	0.5		pp > 400kPa				
-1				D	1.0		pp > 400kPa		-1 -1		
	1.6-	SHALE - highly to extremely weathered, low to medium strength, light brown shale		D	1.5		pp > 400kPa		-		
-2	2.2-			D	2.0		pp > 400kPa		-2 -		
-		Pit discontinued at 2.2m (refusal in low to medium strength shale)									
-3									-3		
-4									-4		
-											

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 15 **PROJECT No: 40740 DATE:** 17 Jan 07

SHEET 1 OF 1

	Description	Description Sampling & In Situ Testing						Dynamic Penetrometer Test			
전 Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)			
	Strata TOPSOIL - brown silty clay	J	-	۵	Sa	Comments		5 10 15 20			
-	TOI SOIL - BIOWITSHIY Clay		D	0.1							
0.3		VY.									
-	SILTY CLAY - hard, red brown silty clay										
			D	0.5		pp > 400kPa					
		1/1/									
-								-			
-1		1/1/	D	1.0		pp > 400kPa		-1			
ļ'				1.0		ρρ > 400KFa					
-											
ţ											
_			D	1.5		pp > 400kPa					
_		1,1									
-		1/1/									
-2		1/1/	D	2.0		pp > 400kPa		-2			
-		1/1/									
-		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	_								
			D	2.5		pp > 400kPa					
-											
ł								-			
-3			D	3.0		pp > 400kPa		-3			
- 3.1	Pit discontinued at 3.1m	<u>/</u>				PP 33					
†	(limit of investigation in hard silty clay)										
[
+								-			
<u> </u>								 			
[
+											
-4								-4			
-								 			
-								<u> </u>			
+											
Ī											

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 16

PROJECT No: 40740

DATE: 17 Jan 07 **DIP/AZIMUTH:** 90°/--SHEET 1 OF 1

Donth	Description	hic				& In Situ Testing		Dynamic Penetrometer Test
교 Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
-	TOPSOIL - brown silty clay		D	0.1				
- 0.3	CLAY - hard, dark brown clay with trace gravel		D	0.5		pp > 400kPa		
-1 -			D	1.0		pp > 400kPa		-1 -1
1.7	GRAVELLY SILTY CLAY - hard, grey gravelly silty clay	97	D	1.5		pp > 400kPa		
-2			D	2.0		pp > 400kPa		-2
2.3	SHALE - medium strength, fresh, grey shale		D_	2.5		pp > 400kPa		
-	Pit discontinued at 2.5m (refusal in medium strength shale)			2.5		рр		
-3								-3
- - - - 4								-4
-								

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 17 **PROJECT No: 40740 DATE:** 18 Jan 07 SHEET 1 OF 1

	De	pth	Description	g				& In Situ Testing	- je	Dynar	nic Pene	tromete	r Test
R	(n	n)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	5	(blows p	er mm) 15	20
	-		TOPSOIL - brown silty clay	M	D	0.1	0)			-			
	-	0.2	CLAY - hard, red brown clay										
										-			
	-				D	0.5		pp > 400kPa			:		:
	_												
	_	0.9	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange brown shale	<u> </u>									
	- 1 -		medium strength, grey and orange brown shale		D	1.0				-1			
	_												
	-				1	4.5							
					D	1.5							
	-	1.7	Pit discontinued at 1.7m (limit of investigation in extremely low to medium strength	 						-			
	- -2		shale)							-2			
	-									-			
										-			
	-												
	-												
	- -3									-3			
	-												
	-									-			
	-												
	-												
	-4									-4	:	i	i
	-									-			
	-												
	-									<u> </u>			
	-									. :			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 18

PROJECT No: 40740 DATE: 19 Jan 07 SHEET 1 OF 1

		Description	U		Sampling & In Situ Testing							
군 De	epth m)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynami (b	c Penetrolows pe	ometer r mm)	Test
		Strata	O	Ty	De	San	Comments	<u> </u>	5	10	15	20
		TOPSOIL - brown silty clay		D	0.1				-			
	0.2	CLAY - hard, red brown and orange brown clay									:	
									-			
				D	0.5		pp > 400kPa		-	:	:	:
-									-	:	:	:
				D	1.0		pp > 400kPa		-1			
'					1.0		pp - 400M d			:		:
	4.0								<u> </u>			
	1.3	SILTY CLAY - hard, red brown silty clay	1/1/									
-			1/1/	D	1.5		pp > 400kPa		}			
									-	:	:	:
-2			1/1/						-2			
			1/1/									
-									-			
				D	2.3		pp > 400kPa					
									-	:	:	:
			1/1/	_					<u> </u>			
				D	2.7							
-									-			
-3	3.0	Pit discontinued at 3.0m							3		<u> </u>	
		(limit of investigation)							-			
									<u> </u>			
-									-			
									. :	:		:
-4									-4			
									[:	:	:
									-			
									<u> </u>			
									[
									<u> </u>			
									[:	:	:
											<u>:</u>	<u>:</u>

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 19

PROJECT No: 40740 DATE: 16 Jan 07 SHEET 1 OF 1

Depth	Description	Shic		Sampling & In Situ Testing				Dynamic Penetrometer Test			
(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	5	blows p	er mm)	
	TOPSOIL - brown silty clay	XX	i i		S			:	10	15	20
			D	0.1							
0.25	CLAY - hard, red brown clay	1//						-			
.			_					- :			:
0.55	GRAVELLY SILTY CLAY - hard, orange brown and grey		D	0.5		pp > 400kPa					
	gravelly silty clay		}					- :	:	:	:
0.9											
-1	CLAY - hard, grey mottled red brown clay		D	1.0		pp > 400kPa		-1			
]					-		:	i
								-			÷
1.5	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale	===						-			
	very low strength, orange brown and grey shale		D	1.7					:	:	i
2								-2			
								- :		:	÷
			1					-			
									i	i	i
2.6	Pit discontinued at 2.6m	<u> </u>						. :	i		\pm
	(refusal on low to medium strength shale)							- :	i	:	:
3								-3 -		:	
								-			
								-			
								-			
										:	:
4								-4			i
										:	
											:
.								-			
								<u> </u>		:	i
									i	:	i
								:	:	÷	:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/--

SHEET 1 OF 1

PIT No: 20 PROJECT No: 40740 DATE: 17 Jan 07

	Dav	-46-	Description	hic				& In Situ Testing	_ h	Dynar	nic Pene	tromete	ar Toet
씸	Dep (m	1)	of Otroto	Graphic Log	Type	Depth	Sample	Results & Comments	Water		(blows p	er mm)	
Н			Strata TOPSOIL - brown silty clay	1 VX			Sa	Commonic	+	5	10	15	20
	-	0.2			D	0.1				-			
	-	0.2	CLAY - hard, red brown clay							[i	i	Ė
	-												
	-				D	0.5		pp > 400kPa					
	-	0.7	CDAVITLY CITY CLAY, hard areago brown growth.							. :	i	i	Ė
	-		GRAVELLY SILTY CLAY - hard, orange brown gravelly silty clay										
	- - 1				D	1.0		pp > 400kPa		1		:	
						1.0		pp · room u				i	
	-												
	-			Z	D	1.5		pp > 400kPa		- :		i	
	-												
	-										i	:	Ė
	-									-		i	
	-2				D	2.0		pp > 400kPa		-2			
	-												
	-									- :	:	:	i
	-	2.4	SHALE - highly weathered, very low to medium strength,		D	2.5							
	-		grey and orange brown shale		D	2.5				-			
	-	2.7	Pit discontinued at 2.7m							:	:	:	:
	-		(refusal in medium strength shale)										
	-3									-3		:	:
	-									- :		i	i
	-												
	-												
	-									- :		:	Ė
	-											:	
	-									-			
	-									<u> </u>		:	
	-4 -									-4	:	:	:
	-												
	-									}			
	-									<u> </u>	:	:	:
	-									}	:	i	:
	-												
Ш													

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 21 **PROJECT No: 40740 DATE:** 18 Jan 07 SHEET 1 OF 1

DIP/AZIMUTH: 90°/--

	- alla	Description	hic		Sampling & In Situ Testi	& In Situ Testing	<u>_</u>	Dynamic Penetrometer Test		
로 (n	pth n)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows p	per mm)
-		TOPSOIL - brown silty clay		D	0.1	<u>o</u>				
	0.3	CLAY - hard, red brown and grey clay		D	0.5		pp > 400kPa			
-1 -1 -				D	1.0		pp > 400kPa		-1 -1	
-	1.5	SHALE - extremely to highly weathered, extremely low to medium strength, red brown and grey shale		D	1.5					
-2				D	2.0				-2	
	2.3	Pit discontinued at 2.3m (refusal in low to medium strength shale)								
-3									-3	
-4									-4	
-										
-									-	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No: 22**

PROJECT No: 40740 DATE: 18 Jan 07 SHEET 1 OF 1

	Daretta	Description	jic J		Sam		& In Situ Testing	er	Dynamic Penetrometer Test			
귐	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows per mm)			
	-	TOPSOIL - brown silty clay		D	0.1	S			5 10 15 2	20		
	- 0.3 - - - -	CLAY - hard, orang brown clay with trace gravel		D	0.5		pp > 400kPa					
	- 1 - 1 			D	1.0		pp > 400kPa		-1 -1			
	-			D	1.5		pp > 400kPa					
	- 2 - 2 			D	2.0		pp > 400kPa		-2			
	2.3- - -	SILTY CLAY - stiff, brown silty clay		D	2.5		pp > 150kPa					
	- 3 - 3.1-	Pit discontinued at 3.1m		D	3.0		pp = 150kPa		-3			
	4	(limit of investigation in stiff clay)							-4			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- Initials:

CHECKED



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PROJECT No: 40740 DATE:** 16 Jan 07 SHEET 1 OF 1

PIT No: 23

	Description	. <u>j</u>		Sam		& In Situ Testing					
전 Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water			etrometer er mm)	
-	TOPSOIL - brown silty clay		D	0.1	Ø			5	10	15	20
0.8	CLAY - hard, orange brown clay, humid		D	0.5		pp > 400kPa					
- 1 - 1			D	1.0		pp > 400kPa		-1			
			D	1.5		pp > 400kPa					
-2			D	2.0		pp > 400kPa		-2			
			D	2.5		pp > 400kPa					
-3 - 3.1	Pit discontinued at 3.1m		D	3.0				-3			
-	(limit of investigation)										
-4								-4			
-								-			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: Lackenby



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 24

PROJECT No: 40740 DATE: 15 Jan 07 SHEET 1 OF 1

ے Depth	Description	hic				& In Situ Testing	- ja	Dynamic Penetrometer Test
군 (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
-	TOPSOIL - brown silty clay		D	0.1	0,			
0.4	CLAY - hard, red brown and brown clay		D	0.5		pp > 400kPa		
-1	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown shale		D	1.0		pp > 400kPa		-1
1.7	Pit discontinued at 1.7m		D	1.5				
-2	(refusal on low to medium strength shale)							-2
-3								-3
-								-4
-								
-								

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: Lackenby



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No: 25 PROJECT No: 40740**

DATE: 17 Jan 07 SHEET 1 OF 1

	Donth	Description	hic				& In Situ Testing		Dynam	nic Pene	tromete	er Test
귐	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	5 Dynan	blows p	er mm)	20
П		TOPSOIL - brown silty clay	M	D	0.1	0			- :	:	:	:
	0.2	CLAY - hard, red brown clay										
	-											
				D	0.5		pp > 400kPa					
	-											
	-1 -			D	1.0		pp > 400kPa		-1			
	-											
				D	1.5		pp > 400kPa					
	-											
	-											
	-2			D	2.0		pp > 400kPa		-2			
	-											
				D	2.5		pp > 400kPa		-			
	-								-			
	-3 3.0 -	Pit discontinued at 3.0m	1//						3			
	-	(limit of investigation in hard clay)							-			
	-								. :			
	-											
	-4								-4			
										:	i	:
									<u> </u>			
Ш										:	<u>:</u>	_:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

Auger sample
Disturbed sample
Bulk sample
Tube sample (x mm dia.)
Water sample
Core drilling

pp Pocket penetrometer (kPa)
pp Pocket penetrometer (kPa)
PID Photo ionisation detector
S Standard penetration test
PL Point load strength (s(50) MPa
V Shear Vane (kPa)
D Water seep
Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 26

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

	5 "	Description	Jic T		Sam		& In Situ Testing	<u></u>	Dynamic Penetrometer Test
ద	Depth (m)	of Other	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
\vdash		Strata		_	۵	Sa	Comments		5 10 15 20 : : : :
-	0.0	TOPSOIL - brown silty clay		D	0.1				
-	0.3	SILTY CLAY - hard, brown and red brown silty clay with some gravel		D	0.5		pp > 400kPa		
	1.2-	SHALE - slightly weathered, medium strength, grey shale	111	D	1.0		pp > 400kPa		-1
	1.4	Pit discontinued at 1.4m		—D—	-1.4-				
-		(refusal in medium strength shale)							
	-2								-2
-	·3								-3
	· 4								-4

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 27

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

J C	Depth	Description	Graphic Log				& In Situ Testing	Water	Dynar	mic Pene	etromete	er Test
	(m)	of Strata	Gra	Type	Depth	Sample	Results & Comments	Wa	5	(blows p	per mm) 15	20
-		TOPSOIL		D	0.1							
-	0.2	GRAVELLY SILTY CLAY - hard, red/brown and orange/brown gravelly silty clay						-				
-	0.0			D	0.5		pp > 400kPa	-				
-1 -	0.9	CLAY - hard, red/brown and grey clay with trace gravel		D	1.0		pp > 400kPa		-1			
-				D	1.5		pp > 400kPa					
-2				D	2.0		pp > 400kPa		-2			
-		- gravel content increasing with depth		D	2.5		pp > 400kPa					
- -3	2.8	SHALE - extremely to highly weathered, extremely low to very low strength, grey and red/brown shale						-	-3			
-	3.2	Pit discontinued at 3.2m (refusal on low to medium strength shale)	<u> </u>									
- -4 -									-4			
-												
-								-				

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PROJECT No: 40740 DATE:** 18 Jan 07

SHEET 1 OF 1

PIT No: 29

	Donth	Description	hic L				& In Situ Testing	<u></u>	Dynamic Penetrometer Test
묍	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
-		TOPSOIL - brown silty clay		D	0.1	<u>s</u>			10 13 20
	0.3	CLAY - hard, red/brown and grey clay		D	0.5		pp > 400kPa		
-	1			D	1.0		pp > 400kPa		-1
-	1.7-	SHALE - extremely to highly weathered, extremely low to		D	1.5		pp > 400kPa		
-	2 2.1-	SHALE - extremely to highly weathered, extremely low to medium strength, grey ad orange brown shale		D	2.0				-2
		Pit discontinued at 2.1m (refusal in low to medium strength shale)							
-	3								-3
	4								-4
									<u> </u>

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





☐ Sand Penetrometer AS1289.6.3.3

CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 30

PROJECT No: 40740 DATE: 19 Jan 07 SHEET 1 OF 1

		Description	<u>.</u>		Sam	npling &	& In Situ Testing	L	
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		Strata	Ö	Σ	De	San	Comments		5 10 15 20
		FILLING - brown silty clay		D	0.1				
	0.25	CLAY - hard, brown and orange brown clay		D	0.5		pp > 400kPa		
	- 0.7 - - -1 -	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown, red brown and grey shale		D	1.0				-1
	• • •			D	1.5				
	- 2 								-2
	- - - 2.8	Pit discontinued at 2.8m							
	- -3 -	(refusal in extremely low to very low strength shale)							-3
	- - -								
	• •								
	-4 - -								-4
	- - -								

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed REMARKS: Pit moved about 50m north towards road

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: Lackenby



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 31 **PROJECT No: 40740 DATE:** 18 Jan 07 SHEET 1 OF 1

DIP/AZIMUTH: 90°/--

_ Dep	nth	Description	hic				& In Situ Testing	<u></u>	Dynamic Penetrometer Test
되 (u	n)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
-		TOPSOIL - brown gravelly silty clay		D	0.1	0)			
-	0.7			D	0.5		pp > 400kPa		
-1		GRAVELLY SILTY CLAY - hard, brown, gravelly silty clay		D	1.0		pp > 400kPa		-1 -1
				D	1.5		pp > 400kPa		
-2	2.1	Pit discontinued at 2.1m		D	2.0		pp > 400kPa		-2
		(refusal in extremely low to low strength, extremely weathered, orange/brown shale)							
-3									-3
-									
- 4 - - -									-4
-									

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: N Boers



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 32

PROJECT No: 40740 DATE: 19 Jan 07 SHEET 1 OF 1

	Depth	Description	ohic g				& In Situ Testing	- ja	Dynamic	Penetr	omete	Test
집	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(b	lows pe	r mm) 15	20
	-	TOPSOIL - brown silty clay		D	0.1	o,						
	0.45 - - -	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa					
	-1 - - - 1.3			D	1.0		pp > 400kPa		-1			
	- - - -	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale		D	1.5							
	- 2 - - - -								-2			
	- 2.8 - 3 3 	Pit discontinued at 2.8m (near refusal on low strength shale)	<u> </u>						-3			
	- - -4 - -								-4			
	- - -											

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Pit moved off ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: Lackenby



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DATE: 16 Jan 07 SHEET 1 OF 1

PROJECT No: 40740

PIT No: 33

DIP/AZIMUTH: 90°/--

		Description	je		Sam		& In Situ Testing	ب	Decree 5	Dans for		
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic F (blo	Penetror ws per r	nm)	
Ц		Strata	V ×	Ĺ,	٦	Sa	Comments	_	5 1	0 1	:	
	-	TOPSOIL - brown silty clay	KN)	D	0.1				<u> </u>			
	-								-			
	0.35	CLAY - hard, red brown clay with trace gravel	XX								:	
		CLAT - Hard, red brown day with trace graver		D	0.5		pp > 400kPa					
	-						PP 13311 2					
	-								-		:	
	-								-			
	- -1		Y //	D	1.0		pp > 400kPa		1			
					1.0		pp · room u					
	-		Y //						-			
	-								-			
			V //	D	1.5							
	-				1.5						:	
ŀ	-								-		:	
	-								-			
İ	-2			D	2.0				-2			
	- 2		Y //	, D	2.0				[* :		:	
									-			
			Y //						-			
	-				0.5				-			
Ī				D	2.5							
	-											
	-								-			
	-		Y //						-			
İ	-3 - 3.1			D	3.0		pp > 400kPa		-3			
	. 3.1	Pit discontinued at 3.1m							. :			
	-	(limit of investigation)							-			
	-								-		:	
Ì	-											
ļ												
	-								<u> </u>			
	-4								-4		:	
	-								}			
	-								<u> </u>		:	
	-								† .		:	
								1	:	: :	:	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: Lackenby



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 34

PROJECT No: 40740 DATE: 16 Jan 07 SHEET 1 OF 1

		Description	je		Sam		& In Situ Testing	ڀ	Domania Danstervista Tod
R	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
Н		Strata TOPSOIL - brown silty clay	 	-	۵	Sa	Comments		5 10 15 20 : : : :
		TOT GOIL - BIOWIT SIRY Glay		D	0.1				
	0.3	CLAY I I I I I	VI)						
	-	CLAY - hard, red brown clay							
				D	0.5		pp > 400kPa		
	- - 0.9								
	-1	SHALE - moderately to highly weathered, extremely low to low strength, grey and orange brown shale		D	1.0				-1
	-								
	1.4	Pit discontinued at 1.4m							
		(refusal on low to medium strength shale)							
	-								-
	.								
	-2								-2
	.								
	.								
	-								
	-								
	-3								-3
	-								+
									-
	-4								-4
	.								
	.								
	.								
	-								}
	.								
	.								
Ш									L : : : : :

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PiD Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:

LOGGED: N Boers



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 35 **PROJECT No: 40740 DATE:** 16 Jan 07 SHEET 1 OF 1

Depth	h	Description	Graphic Log				In Situ Testing	Water	Dynamic Pen	etrometer Tes
(m)		of Strata	Gra	Type	Depth	Sample	Results & Comments	Ma	(blows	per mm)
- - - 0	0.3	TOPSOIL - brown silty clay		D	0.1	0,			-	
- - - -		CLAY - hard, orange brown clay with some gravel gravel content increasing with depth.		D	0.5		pp > 400kPa			
-1 - - 1	.2	SHALE extremely to highly weathered extremely low to		D	1.0		pp > 400kPa		-1	
- - - -		SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale (excavates as a mixture of silty clay and gravel)								
-2 - - -		- slightly to moderately weathered							-2	
- - 2	2.7	Pit discontinued at 2.7m								
- -3 -		(refusal in low to medium strength shale)							-3	
-									-	
- - -										
- -4 -									-4	
• •										
- - -									-	
-										

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:

LOGGED: N Boers



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **DATE:** 18 Jan 07 SHEET 1 OF 1

PROJECT No: 40740

PIT No: 36

	Description	ji.		San		& In Situ Testing	يا	D	mic D-	otrom =1	vr Te
Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dyna 5	amic Pen (blows	per mm)	20
-	TOPSOIL - brown silty clay		D	0.1	0)			-			
- 0.3 - - -	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa					
- - 1 -			D	1.0		pp > 400kPa		-1			
-	- trace gravel		D	1.5		pp > 400kPa					
- -2 -			D	2.0		pp > 400kPa		-2			
- 2.4 - - -	GRAVELLY SILTY CLAY - very stiff, grey and orange/brown gravelly silty clay		D	2.5		pp = 300kPa					
- -3 - - 3.2-	SHALE - extremely to highly weathered, extremely low to		D	3.0		pp = 300kPa		-3			
- 3.3 - - - -	medium strength, grey shale Pit discontinued at 3.3m (refusal in extremely low to medium strength shale)	<u> </u>	— D—	3.3				-			
-4								-4			
-											
_								<u> </u>			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 37 PROJECT No: 40740

DATE: 18 Jan 07 SHEET 1 OF 1

		Description	از _	Sampling & In Situ Testing		& In Situ Testing	_	ับ Dynamic Penetrometer Test				
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)			
H		Strata TOPSOIL - brown silty clay	XX			S	Commente		5 10 15 20 			
	- 0.3-	CLAY - hard, grey mottled red/brown clay		D D	0.1		pp > 400kPa					
	- - - 0.9- -1	SHALE - extremely weathered, extremely low to medium strength, grey and orange/brown shale		D	1.0				-1			
	- - - - 1.7-	Pit discontinued at 1.7m		D	1.5							
	- -2 -	(refusal in extremely low to medium strength shale)							-2			
	-											
	-3								-3			
	-											
	-4								-4			
	-											
L												

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: N Boers



CLIENT: Growth Centres Commission PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No: 38** PROJECT No: 40740 **DATE:** 18 Jan 07 SHEET 1 OF 1

Sampling & In Situ Testing Description Graphic Log Dynamic Penetrometer Test Depth of 占 Depth Type (blows per mm) Results & Comments (m) Strata 20 TOPSOIL - brown silty clay D 0.1 CLAY - hard, orange brown clay D 0.5 D 1.0 D 1.5 - 2 D 2.0 -2 D 25 SHALE - extremely to highly weathered, extremely low to medium strength, red brown and orange brown shale Pit discontinued at 2.7m (refusal in extremely low to medium strength shale) -3

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- PD Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 PL Point load strength Is(50) MPa
 PO Shear Vane (kPa)
 Water seep
 Water level

CHECKED Initials:

LOGGED: N Boers



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

PIT No: 39

DIP/AZIMUTH: 90°/--

	D 41-	Description	nic 3				& In Situ Testing	<u></u>	Dynamic Penetrometer Test
씸	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
-		TOPSOIL - brown silty clay		D	0.1	<u> </u>			
	0.4								
-		SILTY CLAY - hard, light orange brown silty clay		D	0.5		pp > 400kPa		
-	1			D	1.0		pp > 400kPa		-1
-				D	1.5		pp > 400kPa		-
-	2 2.0 2.1	SHALE - extremly to highly weathered, extremly low to medium strength, orange brown and grey shale Pit discontinued at 2.1m		D	2.0		pp > 400kPa		-2
-		Pit discontinued at 2.1m (refusal in low to medium strength shale)							
-									
	3								-3
-									-
-									
	4								-4

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--SHEET 1 OF 1

PIT No: 41 **PROJECT No: 40740 DATE:** 19 Jan 07

Ι.	Depth	Description	ohic g	Sampling & In Situ Testing				er	Dynamic Penetrometer Test
R	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
	- 0.3	TOPSOIL - brown silty clay		D	0.1	0)			
	-	CLAY - hard, red brown mottled grey clay		D	0.5		pp > 400kPa		
	-1 1.0	SHALE - extremely to highly weathered, extremely low to very low strength, orange brown and grey shale		D	1.0				-1
	- 1.7 -	Pit discontinued at 1.7m (refusal on low to medium strength shale)							-
	-2								-2
	- - - 3 -								-3
	-4								-4
	-								

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: Lackenby



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PROJECT No: 40740 DATE:** 18 Jan 07

PIT No: 42

SHEET 1 OF 1

	anth	Description	hic				& In Situ Testing	<u></u>	Dynamic Penetrometer Test
물 (i	epth m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
		TOPSOIL - brown silty clay		D	0.1	S			5 10 15 20
-	0.3	CLAY - hard, red brown clay		D	0.5				
- - -1	0.7	GRAVELLY SILTY CLAY - very stiff, orange brown gravelly silty clay		D	1.0		pp = 250kPa		-1
				D	1.5		pp = 250kPa		
-2	2.0	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange brown shale Pit discontinued at 2.0m		—D—	-2.0-				2
		(refusal in low to medium strength shale)							
-3									-3
-									
-4									-4

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

CHECKED

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 43

PROJECT No: 40740 DATE: 18 Jan 07 SHEET 1 OF 1

	Donth	Description	pic R				& In Situ Testing	_ h	Dynan	nic Pene	atromete	ar Toet
R	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water		(blows p	er mm)	
Н		TOPSOIL - brown silty clay	W	D	0.1	ισ			5	10	15	20
					0.1							
	0.0	CLAY - hard, red/brown and grey clay							-			
				D	0.5		pp > 400kPa		-	į	į	
	-1			D	1.0		pp > 400kPa		-1			
											:	
									-			
	1.4	GRAVELLY SILTY CLAY - hard, grey gravelly silty clay		D	1.5		pp > 400kPa		-			
	1.6	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange brown shale										
		medium strength, grey and orange brown shale										
	-2			D	2.0				-2	i		
	2.	Pit discontinued at 2.1m	====		2.0				- :	- :	- :	
		(refusal in low to medium strength shale)										
										:		
	-3								-3	:		
									-			
										i		
									-	:	i	
	-4								-4			
												:
									<u> </u>			:
									-			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 44

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

Depth of Strata TOPSOIL brown silty clay CLAY - hard, red brown clay CGRAVELLY CLAY - hard, grey and orange brown gravely clay Depth of Orange brown gravely clay Depth o	Donth	Description	hic				& In Situ Testing	_ h	Dynamic Pe	enetrometer Test
TOPSOIL - brown silty clay D 0.1 O.3 CLAY - hard, red brown clay D 0.5 pp > 400kPa 1 pp > 400kPa 1 pp > 400kPa 1 pp > 400kPa 1 pp > 400kPa 2 22 22 22 3 3.0 Pit discontinued at 3.0m (limit of investigation)	전 Depth (m)	OI	Grapl	Туре	Depth	ample	Results & Comments	Water	(blows	s per mm)
CLAY - hard, red brown day D 0.5 pp > 400kPa 1 O 0.5 pp > 400kPa 1 D 1.5 pp > 400kPa 1 D 2.7 pp > 400kPa PIT discontinued at 3.0m (limit of investigation)	-					S			- : : :	15 20
GRAVELLY CLAY - hard, grey and orange brown gravelly clay D 1.0 pp > 400kPa -1 -2 2-2 SHALE - extremly weathered, extremly low strength, orange brown and grey shale D 2.7 pp > 400kPa -3 3.0 Pit discontinued at 3.0m (limit of investigation)	0.3	CLAY - hard, red brown clay		D	0.5		pp > 400kPa			
SHALE - extremly weathered, extremly low strength, orange brown and grey shale D 2.2 pp > 400kPa D 2.7 pp > 400kPa Pit discontinued at 3.0m (limit of investigation)		GRAVELLY CLAY - hard, grey and orange brown gravelly		D	1.0		pp > 400kPa		-1	
orange brown and grey shale 3 3.0 Pit discontinued at 3.0m (limit of investigation)	-2			D	1.5		pp > 400kPa		-2	
Pit discontinued at 3.0m (limit of investigation)	- 2.2	SHALE - extremly weathered, extremly low strength, orange brown and grey shale								
Pit discontinued at 3.0m (limit of investigation)	2 20									
		Pit discontinued at 3.0m							-4	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 45

PROJECT No: 40740 DATE: 18 Jan 07 SHEET 1 OF 1

Depth of Strata TOPSOIL - brown sitty clay CLAY - hard, red brown mottled grey clay O.3 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly sitty clay 1.2 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 2.0 Sampling & In Situ Testing Dynamic Penetrom (blows per m 5 to 0 15 t	mm)
TOPSOIL - brown silty clay 0.3 CLAY - hard, red brown mottled grey clay 0.5 pp > 400kPa 1.0 pp = 250kPa 1.1 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown gravelly silty clay 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 pp = 250kPa 1.5 pp = 250kPa	5 20
CLAY - hard, red brown mottled grey clay 0.5 pp > 400kPa 1.0 pp = 250kPa 1.3 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 pp = 250kPa 1.5 pp = 250kPa	
CLAY - hard, red brown mottled grey clay 0.9 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.0 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 Description: 1.6 Description: 1.7 Description: 1.8 Description: 1.9 Description: 1.9 Description: 1.9 Description: 1.10 Description: 1.0 Description: 1.0 Description: 1.10 Description: 1.2 Description: 1.3 Description: 1.5 Description: 1.6 Description: 1.7 Description: 1.8 Description: 1.9 Description: 1.9 Description: 1.9 Description: 1.9 Description: 1.9 Description: 1.0	
GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.2 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 Description: 1.6 Description: 1.7 Description: 1.8 Description: 1.9 Descri	
GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.2 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.0 pp = 250kPa 1.3 pp = 250kPa	
GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.2 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown gravelly silty clay 1.5	
GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.2 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown gravelly silty clay 1.5	
GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.2 SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 The property of highly weathered, extremely low to medium strength, orange brown and red brown gravelly silty clay 1.5	
SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 pp = 250kPa	•
SHALE - extremely to highly weathered, extremely low to medium strength, orange brown and red brown shale 1.5 GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay 1.5 pp = 250kPa	
GRAVELLY SILTY CLAY - very stiff, grey and red brown gravelly silty clay	
GRAVELLY SILIY CLAY - very stiff, grey and red brown gravelly silty clay	
gravelly silty clay	
-2 2.0 pp = 300kPa -2	
2.0 pp = 300kPa -2	
2.0 pp = 300kPa	
2.5 pp = 300kPa	
2.9 SHALE - extremely to highly weathered, extremely low to	
T3 medium strength, orange brown and red brown shale	
Pit discontinued at 3.1m	
(refusal in extremely low to medium strength shale)	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

LOGGED: N Boers

CHECKED

Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 46 **PROJECT No: 40740 DATE:** 17 Jan 07

SHEET 1 OF 1

	Description	ic	Sampling & In Situ Testing			& In Situ Testing	L	Dynamic Penetrometer Test			
균 Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)			
	Strata	Θ	T	De	Sar	Comments		5 10 15 20			
-	TOPSOIL - brown silty clay		D	0.1				-			
0.2	SILTY CLAY - hard, orange brown silty clay with some gravel		D	0.5		pp > 400kPa					
- 1 1.0	GRAVELLY SILTY CLAY - hard, grey and red brown gravelly silty clay		D	1.1		pp > 400kPa		-1			
-			D	1.5		pp > 400kPa					
-2			D	2.0		pp > 400kPa		-2			
-			D	2.5		pp > 400kPa					
- 2.9	Dit discontinued at 0.0m										
-4	Pit discontinued at 2.9m (limit of investigation in gravelly silty clay)							-4			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 47

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

	D"	Description	je -		Sam		& In Situ Testing	<u></u>	Dynamic Ponetrometer Test
ద	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
H		Strata TOPSOIL - brown silty clay with some fibreboard	77			Se			5 10 15 20
	0.2			D	0.1				
		CLAY - hard, orange brown clay							-
[D	0.5		pp > 400kPa		
	-1			D	1.0		pp > 400kPa		- 1
							PP		-
	1.3								
$ \cdot $		SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale							
	1.6	Pit discontinued at 1.6m	<u></u>						
		(refusal on low to medium strength shale)							
									-
	-2								-2
	-3								-3
ŀ									
									-
	-4								-4
									-

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Asbestos in topsoil ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 48 **PROJECT No: 40740 DATE:** 22 Jan 07 SHEET 1 OF 1

	Depth	Description	ohic g				& In Situ Testing	- e	Dynamic F	enetror	neter Test
집	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blo	ws per r	mm)
	- 0.2	TOPSOIL - brown silty clay		D	0.1	0)			-		
	-	CLAY - hard, brown orange clay							-		
	- - 0.6 - -	GRAVELLY CLAY - hard, brown and orange 3mm sized gravelly clay		D	0.5		pp > 400kPa				
-	- 0.9 -1 -	CLAY - hard, brown orange clay		D	1.0		pp > 400kPa		-1 -1		
-	- - -	- trace gravel, gravel content increasing with depth		D	1.4		pp > 400kPa		-		
	- - 1.7 - -	SHALE - extremely to very highly weathered, extremely low to very low strength, orange, grey and black shale							-		
-	- 1.9 -2 -	Pit discontinued at 1.9m (refusal on low to medium strength shale)							-2		
-	-								-		
-	· ·										
-	-3 -								-3		
-	- -								-		
-	- -										
-	- 4 - 4								-4		
	- -										
	-										

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 49 **PROJECT No: 40740 DATE:** 22 Jan 07 SHEET 1 OF 1

Sampling & In Situ Testing

		Description	. <u>S</u>		Sam	npling 8	& In Situ Testing	_	
뭅	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	- 0.2	TOPSOIL - brown silty clay with trace gravel		D	0.1	- 07			
	- 0.2	CLAY - hard, orange brown clay		D	0.5		pp > 400kPa		
	- 0.8 - 1 - 1 - 1.25	CLAY - hard, grey and orange clay		D	1.0		pp > 400kPa		-1 -1
	-	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale		D	1.5				
	- 1.8 - -2	Pit discontinued at 1.8m (refusal in low to medium strength shale)							-2
	-								
	3								-3
	-								
	-								
	- 4 - -								-4
	-								
	-								

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 50

PROJECT No: 40740 DATE: 23 Jan 07 SHEET 1 OF 1

	Description	ji _		Sam		& In Situ Testing		Durania Danatramatan Tast
전 Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	Strata	0	<u> </u>	۵	Sal	Comments		5 10 15 20
0.3	TOPSOIL - brown silty clay CLAY - hard, red brown mottled grey clay		D	0.1				
	OLAT - Hard, red blown motiled grey day		D	0.5				
-1			D	1.0				-1
1.7	SHALE - highly weathered, extremely low to medium		D	1.5				
-2	SHALE - highly weathered, extremely low to medium strength, red/brown and grey shale		D	1.9				-2
-4	Pit discontinued at 2.9m (refusal in low to medium strength shale)							-4

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 51

PROJECT No: 40740 DATE: 23 Jan 07 SHEET 1 OF 1

(111)		Graphic	О Туре	Depth	Sample	Results & Comments	Water	5	blows pe		
		8	D					3	10	15	20
CLAY - hard, red brown	clay			0.1			-				
<u> </u>			D	0.5		pp > 400kPa					
GRAVELLY CLAY - hard	i, grey gravelly clay										
-1			D	1.0		pp > 400kPa		-1			
SHALE - slightly weathe 1.5 SHALE - slightly weathe strength, grey shale Pit discontinued at 1.5m (refusal in low to mediun	red, extremely low to medium		—D—	—1.5—							
-2	J. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.							-2			
-											
- - - -3								-3			
· ·											
·											
-4 - -								-4			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 52 **PROJECT No: 40740 DATE:** 23 Jan 07

SHEET 1 OF 1

	Description	jc _		Sam		& In Situ Testing	<u></u>	Dunamia Danatramatar Tart
로 Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
	Strata		_	۵	Sa	Comments		5 10 15 20 : : : :
-	TOPSOIL - brown silty clay		D	0.1				
0.3	CLAY - hard, red brown clay							
-			D	0.5		pp > 400kPa		
-1			D	1.0		pp > 400kPa		-1
- - - 1.5-	GRAVELLY CLAY - hard, grey gravelly clay		D	1.5		pp > 400kPa		
-2 2.0	SHALE avtramely to highly weathered autramely law to							-2
-	SHALE - extremely to highly weathered, extremely low to medium strength, red brown and grey shale		D	2.1				
2.3	Pit discontinued at 2.3m (refusal in low to medium strength shale)							
-3 - -								-3
-4								-
-								
+								<u> </u>

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 54 **PROJECT No: 40740**

DATE: 17 Jan 07 SHEET 1 OF 1

	Description	j <u>e</u>		Sam		& In Situ Testing		
전 Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
-	TOPSOIL - light brown silty clay		D	0.1	Š			5 10 15 20
- - 0.5 - - -	CLAY - hard, red brown and orange clay		D	0.5		pp > 400kPa		
- -1 - -			D	1.1		pp > 400kPa		-1 -1 -
- - 1.5 - - -	SILTY CLAY - hard, grey and red brown silty clay with trace gravel		D	1.7		pp > 400kPa		
-2		1/						-2 -
- 2.2	Pit discontinued at 2.2m (refusal on low to medium strength shale)							
-3								-3
- - - -4								-4 -4
-								
-								

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:

LOGGED: N Boers



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PIT No: 55 **PROJECT No: 40740 DATE:** 17 Jan 07 SHEET 1 OF 1

DIP/AZIMUTH: 90°/--

		Description	Description Sampling & In Situ Testing				L		
귙	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
	-	TOPSOIL - brown silty clay		D	0.1	0)			
	- 0.2 -	CLAY - hard, red brown and grey clay							
	-			D	0.5		pp > 400kPa		
	- -1 -			D	1.0		pp > 400kPa		-1
	-			D	1.5		pp > 400kPa		
	- 1.8- - -2 -	GRAVELLY SILTY CLAY - hard, grey and red brown gravelly silty clay		D	2.0		pp > 400kPa		-2
	-			D	2.5		pp > 400kPa		
	- - -3 3.0-			D	2.9		pp > 400kPa		
	-	Pit discontinued at 3.0m (limit of investigation in gravelly silty clay)							
	-4								-4

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:

LOGGED: N Boers



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 56 **PROJECT No: 40740 DATE:** 17 Jan 07

SHEET 1 OF 1

	Donth	Description	hic				& In Situ Testing	_ io	Dynamic Penetrometer Test			
귐	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows per mm)			
H		TOPSOIL - brown silty clay	M	D	0.1	S			5 10 15 20			
-	0.2	SILTY CLAY - hard, brown silty clay with some gravel, dry		D	0.1							
-				D	0.5		pp > 400kPa					
-	·1			D	1.0		pp > 400kPa		-1			
-	1.4	GRAVELLY SILTY CLAY - hard, brown gravelly silty clay, dry		D	1.5		pp > 400kPa					
-	-2 2.3			D	2.0		pp > 400kPa		-2			
	2.3	GRAVELLY SILTY CLAY - hard, grey gravelly silty clay, dry. High gravel content		D	2.5		pp > 400kPa					
-	3 3.0	Pit discontinued at 3.0m (limit of investigation in low strength shale)							-4			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PiD Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 57

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

	Depth	Description	hic	Sampling & In Situ Testing					1					Dynamic Penetrometer Test			
R	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20								
	- 0.2	TOPSOIL - brown silty clay with some concrete and fibreboard		D	0.1				-								
	-	CLAY - hard, orange brown clay		,	0.5		4001.5		-								
	0.65	SHALE - extremely to very highly weathered, extremely		D	0.5		pp > 400kPa										
	- 0.8	SHALE - extremely to very highly weathered, extremely low to very low strength, orange/brown shale Pit discontinued at 0.8m	<u> </u>														
	-1	(refusal on low to medium strength shale)							-1								
	-																
	-																
	-																
	- 2								-2								
	-																
	-																
	-																
	-																
	-3								-3								
	-																
	-																
	-																
	- - -4								-4								
	- -																
	-																
	-																
	-																
	-																

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Possible asbestos found on surface ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S standard penetration test
 PL Point load strength Is(50) MPa
 V Shear Vane (kPa)
 V Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 58

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

	Depth	Description	hic	Sampling & In Situ Testing					Dynamic Penetrometer Test			
씸	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20			
		TOPSOIL - brown silty clay with some gravel		D	0.1	0)						
	0.2	CLAY - hard, orange brown clay										
				D	0.5		pp > 400kPa					
	0.65	SHALE - very highly to highly weathered, extremely low to										
	0.8	SHALE - very highly to highly weathered, extremely low to very low strength, orange and grey shale Pit discontinued at 0.8m	===									
	-1	(refusal on low to medium strength shale)							-1			
									-			
	-2								-2			
	-3								-3			
	-4								-4			
									-			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DATE: 22 Jan 07 SHEET 1 OF 1

PIT No: 59

PROJECT No: 40740

DIP/AZIMUTH: 90°/--

	Description	jic		Sam		& In Situ Testing	_	Dynamic Penetrometer Test			
고 Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynai 5	nic Penet (blows pe	romete er mm)	r Test
-	TOPSOIL - brown silty clay		D	0.1	0)			-			
- 0.2	CLAY - hard, orange brown clay										
			D	0.5		pp > 400kPa					
-			D	0.0		ρρ - 400Ν α		-			
0.8	SHALE - very highly to highly weathered, extremely low to										
- -1	SHALE - very highly to highly weathered, extremely low to very low strength, orange and grey shale							-1			
-								-			
- 1.3	Pit discontinued at 1.3m								:	:	:
	(refusal on low to medium strength shale)										
-								-			
-											
-2								-2			
-								-			
-									:		
-3								-3			:
-								-	:		
-								-			:
-								- -		:	:
-4								-4			
-								<u> </u>			
-								<u> </u>			
									:	:	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 60

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

	Dep	th	Description	hic	Sampling & In Situ Testing					Dynamic Penetrometer Test			
씸	(m))	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows	s per mm)		
-		0.2	TOPSOIL - brown silty clay with trace gravel CLAY - hard, orange brown clay		D	0.1	S				13 20		
-					D	0.5		pp > 400kPa					
-	1	0.8	SHALE - highly weathered, extremely low to very low strength, grey shale							-1			
-		1.1	Pit discontinued at 1.1m (refusal on low to medium strength shale)	<u> </u>									
-	2									-2			
-													
-													
-	3									-3			
-													
-													
-	4									-4			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PROJECT No: 40740 DATE: 23 Jan 07 **DIP/AZIMUTH:** 90°/--SHEET 1 OF 1

PIT No: 61

П		Description Sampling & In Situ Testing						يا	Dynamic Penetrometer Test			
귐	Depth (m)	of Strate	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)			
H		Strata TOPSOIL - brown silty clay	- X			တိ		\vdash	5 10 15 20 : : : :			
	-			D	0.1							
	- 0.3	CLAY - hard, red/brown mottled grey clay, humid	K/J									
	-	CEAT - Hard, red/blown motified grey day, humid			0.5		4001 5					
	-			D	0.5		pp > 400kPa					
	-											
	-]								
	-1			D	1.0		pp > 400kPa		-1			
	-											
	-]								
	- 1.4	GRAVELLY SILTY CLAY - hard, brown and grey gravelly silty clay, humid		D	1.5							
	-	silty clay, humid			1.5							
	-								-			
	- 1.8 - 1.9	SHALE - fresh, very low to medium strength, grey shale		D_	—1.9—							
	-2	Pit discontinued at 1.9m (refusal in low to medium strength shale)							-2			
	-											
	-											
	-											
	-											
	-											
	-											
	-3								-3			
	-											
	-								-			
	-											
	-											
	-								-			
	-											
	-4								-4			
	-											
	_											
	-											
	-								-			
	-											
Ш												

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- Initials:

LOGGED: Jackson

CHECKED



CLIENT: Growth Centres Commission PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **DATE:** 23 Jan 07 SHEET 1 OF 1

PROJECT No: 40740

PIT No: 62

Sampling & In Situ Testing Description Graphic Log Dynamic Penetrometer Test Depth of 占 Type Depth (blows per mm) Results & Comments (m) Strata 20 TOPSOIL - brown silty clay D 0.1 0.3 CLAY - hard, red brown clay D 0.5 0.6 GRAVELLY SILTY CLAY - hard, yellow brown and grey gravelly silty clay D 1.0 SHALE - highly weathered, extremely low to medium strength, yellow brown and grey shale Pit discontinued at 1.3m (refusal in low to medium strength shale) - 2 -2 -3

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- PD Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 PL Point load strength Is(50) MPa
 PO Shear Vane (kPa)
 Water seep
 Water level





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 63 **PROJECT No: 40740**

DATE: 23 Jan 07 SHEET 1 OF 1

	Depth	Description	Graphic Log				In Situ Testing	te	Dynamic Pe	enetromete	er Test
귐	(m)	of Strata	Grap	Type	Depth	Sample	Results & Comments	Water	(blow 5 10	s per mm)	20
	- - 0.3	TOPSOIL - brown silty clay		D	0.1	0)		-			
	-	CLAY - hard, red brown clay		D	0.5		pp > 400kPa	-			
	- 0.7 -	SHALE - moderately weathered, extremely low to medium strength, red brown and grey shale						-			
	-1 1.0- - - - -	Pit discontinued at 1.0m (refusal in low to medium strength shale)	<u> </u>	D-	 1.0			-	1		
	- - -2 -							-	-2		
	-							-			
	-3 - - -							-	-3		
	- - - - 4							-	-4		
	-							-			
	-										

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: Growth Centres Commission PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No: 64** PROJECT No: 40740 **DATE:** 23 Jan 07 SHEET 1 OF 1

Sampling & In Situ Testing Description Graphic Log Dynamic Penetrometer Test Depth 占 of Type Depth (blows per mm) Results & Comments (m) Strata 20 TOPSOIL - brown silty clay D 0.1 0.3 CLAY - hard, orange brown slightly silty clay with some gravel pp > 400kPa SILTY CLAY - hard, grey and orange silty clay D 0.5 0.85 SANDSTONE - extremely to very highly weathered, extremely low to very low strength, grey and orange fine grained sandstone Pit discontinued at 1.1m (refusal in low to medium strength fine grained sandstone) - 2 -2 -3

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- PD Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 PL Point load strength Is(50) MPa
 PO Shear Vane (kPa)
 Water seep
 Water level





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 65

PROJECT No: 40740 DATE: 23 Jan 07 SHEET 1 OF 1

	Б. "	Description	Jic T		Sam		& In Situ Testing		Dynam	io Pono	tromoto	ır Toot
R	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows p	er mm)	
-		TOPSOIL - brown silty clay		D	0.1	S			- :	10	15	20
-	0.3	CLAY - hard, brown orange clay		D	0.5		pp > 400kPa					
-	-1			D	1.0		pp > 400kPa		-1			
-	1.4	SILTY CLAY - very stiff, grey and orange silty clay		D	1.5		pp = 350-400kPa		-			
-	1.9 -2	CLAY - stiff, grey clay with trace gravel		D	2.0		pp = 350-400kPa		-2			
-				D	2.5		pp > 400kPa					
-	-3 3.05			D	3.0		pp > 400kPa		-3	:		
	-4	Pit discontinued at 3.05m (limit of investigation in hard clay with some gravel)							-4			
-									-			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 66

PROJECT No: 40740 DATE: 17 Jan 07 SHEET 1 OF 1

	_		Description	je _		Sam		& In Situ Testing		Dymar	mia Dana	tromoto	r Toot
묍	Dep (m	otn 1)	of	Graphic Log	Type	Depth	Sample	Results & Comments	Water		nic Pene (blows p	er mm)	
	-		Strata TOPSOIL - brown silty clay	M		0.1	Š			5	10	15	20
	-	0.3	OLAV hard and harry also harried	<i>XX</i>						-			
	-		CLAY - hard, red brown clay, humid		D	0.5		pp > 400kPa					
	-									. :			
	_									-			
	- 1 -	1.1								-1			
	-		SILTY CLAY - hard, grey and red brown silty clay, humid		D	1.2		pp > 400kPa		-			
	-				D	1.5		pp > 400kPa		-			
	-									-			
	-			1/1/									
	-2 -				D	2.0		pp > 400kPa		-2			
	-												
	-				D	2.5		pp > 400kPa		-			
	-									-			
	-									-			
	-3 -	3.0	Pit discontinued at 3.0m (limit of investigation in silty clay)							-3 : - :	- :		
	-		(,,,,,,,							-			
	-									-			
	-									- :			
	-									-			
	-4 -									-4			
	-									-			
	-									-			
	-									 			
	-									-			
ш										L :	:	_:	_:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: N Boers ☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 67

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

	De	nth	Description	ohic g				In Situ Testing	- je	Dynamic P	enetrometer Te	est
R	(n	n)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	5 10	vs per mm)	
	-		TOPSOIL - brown silty clay		D	0.1	0,					
	-	0.2	CLAY - hard, orange brown clay									
	_				D	0.5		pp > 400kPa				
	_				D	0.5		рр > 400кРа				
	-											
	- - 1	0.9	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale		D	1.0				-1		
	-		very low siterigiti, grey and orange shale									
	_											
	-	1.4	Pit discontinued at 1.4m (refusal on low to medium strength shale)							-		
	-		(Contraction of the Contraction							-		
	-											
	-2									-2		
	-									-		
	-											
	-											
	-									-		
	_									-		
	-3 -									-3		
	-											
	-									-		
	_									-		
	-											
	- -4									-4		
	_											
	-											
	-											
	-											
	-									-		

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 68

PROJECT No: 40740 **DATE:** 22 Jan 07 SHEET 1 OF 1

	Donth	Description	hic				& In Situ Testing		Dynamic Per	netromete	r Test
R	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynamic Per (blows		
\vdash		TOPSOIL - gravelly silty clay	W.	D.		Ø			5 10	15	20
	-			D	0.1						
	- 0.3	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale									
	- 0.5	very low strength, grey and orange shale Pit discontinued at 0.5m	===							<u>:</u>	-
	-	(refusal on low to medium strength shale)									
	-										:
	- -1								-1		
	-										
	-										
	-										
										:	
	-										:
	-										
	-2								-2		
	-										
	-										
	-										
	-										
	-										
	-3								-3		
	-									:	:
	-									:	:
	-										
	-										
	-										
	-4								-4		
	-										
										:	
										:	
	-										
L											<u> </u>

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PiD Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

PIT No: 69

DIP/AZIMUTH: 90°/--

		Description	i		Sam		& In Situ Testing	L			
뭅	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic I (blo	ws per m	m)
L		Strata	G	Тy	De	San	Comments		5	10 15	20
		TOPSOIL - brown silty clay	M	D	0.1						
	0.15	CLAY - hard, orange brown clay							-		
				D	0.5		pp > 400kPa				
	0.6	SHALE - highly weathered, extremely low to very low	<u> </u>						-		
	-	SHALE - highly weathered, extremely low to very low strength, grey shale							-		
	0.8	Pit discontinued at 0.8m									
	-1	(refusal on low to medium strength shale)							-1		
	-								-		
	İ l										
	.										
	-								-		
									-		
	-								-		
	-2								-2		
	[[
	-								-		
									-		
	-								-		
									-		
	-3								-3		
	.								. :		
	-								-		
									-		
	-										
	-								-		
	-4								-4		
	-								}		
									}		
]										
									. :		
	}								<u> </u>		:
	t								į į		:
											:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 70 **PROJECT No: 40740 DATE:** 22 Jan 07

SHEET 1 OF 1

	.	Description	je _		Sam		& In Situ Testing	_	Dunamia Danatromatar Toat
씸	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
Ш		Strata		Ę.	De	Sal	Comments		5 10 15 20 : : : :
	-	TOPSOIL - brown silty clay	KA .	D	0.1				
	0.2	CLAY - hard, orange brown clay							
	- 0.4								
	. 0.4	SHALE - extremely to very highly weathered, extremely low to very low strength, orange, grey and brown shale	===	D	0.5		pp > 400kPa		
	-	low to very low strength, orange, grey and brown shale							-
	-								
	- 0.9								
	- 1	Pit discontinued at 0.9m							-1
	-	(refusal on low to medium strength shale)							
	-								
	=								
	-								
	-								-
	-								
	- -2								-2
	- 2								
	-								
	-								
	-								
	-3								-3 : : : :
	-								
	-								-
	-								
	-								-
	-4								-4
	-								
	-								-
	-								
Ш									

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 71 **PROJECT No: 40740 DATE:** 23 Jan 07

SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing	ē	Dynamic Penetrometer Test
귐	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
-	0.3	TOPSOIL - brown silty clay GRAVELLY CLAY - hard, red/brown mottled grey gravelly		D	0.1	- 6,7			-
		clay		D	0.5		pp > 400kPa		
-	1 1.0 - 1.1 -	SHALE - highly weathered, extremely low to medium strength, red/brown and grey shale Pit discontinued at 1.1m (refusal in low to medium strength shale)	<u> </u>	D	1.0				-1
-:	2								-2
-									
-	3								-3
-	4								-4
									-

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 72 **PROJECT No: 40740**

DATE: 23 Jan 07 SHEET 1 OF 1

		Description	ے <u>ا</u> د		Sam		& In Situ Testing	ب	Dimenia Denetrometro Tori
귐	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
\sqcup		Strata			۵	Sa	Comments		5 10 15 20
-		TOPSOIL - brown silty clay		D	0.1				
	0.3	CLAY - hard, red/brown clay, humid		D	0.5		pp > 400kPa		
				ט	0.5		μμ > 400λ-2		
-	0.9	GRAVELLY SILTY CLAY - hard, yellow brown gravelly silty clay, humid		D	1.0		pp > 400kPa		-1 -1
-	1.5 -	SHALE - highly weathered, extremely low to medium strength, red/brown and grey shale		D	1.5				
	2			D	2.0				-2
	2.2	Pit discontinued at 2.2m	===						
-		(refusal in low to medium strength shale)							
 - -	3								-3
-									
-	4								-4
-									
-									

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PROJECT No: 40740 DATE:** 23 Jan 07 SHEET 1 OF 1

PIT No: 73

Description	hic				& In Situ Testing	<u>"</u>	Dynami	c Penetrome	oter Test
Depth of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(b	lows per mr	n) 20
TOPSOIL - brown silty clay		D	0.1				-		
0.2 CLAY - hard, orange brown clay with trace grav	rel ,						-		
-		D	0.5		pp > 400kPa		-		
- 0.8 SANDSTONE - extremely to very highly weath	ered						-		
SANDSTONE - extremely to very highly weather extremely low to very low strength, orange and fine grained sandstone	grey very						-1		
Pit discontinued at 1.1m (refusal in low to medium strength very fine grasandstone)	ined						-		
							-		
2							-2		
							-		
							-		
							- :		
3							-3		
							-		
							-		
							- :		
4							-4		
							-		
							-		
							-		
									:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed REMARKS: Possible asbestos found on surface

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 74 **PROJECT No: 40740 DATE:** 23 Jan 07

SHEET 1 OF 1

Double	Description	jic J		Sam		& In Situ Testing	<u></u>	Dynamic Penetrometer Test
군 Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
-	TOPSOIL - brown silty clay		D	0.1	S			5 10 15 20
- 0.4	SILTY CLAY - stiff, orange/brown mottled grey silty clay, moist		D	0.5		pp = 150kPa		
-1 -1			D	1.0		pp = 150kPa		-1
-			D	1.5		pp = 150kPa		
-2 2.0-	SHALE - extremely to highly weathered, extremely low to medium strength, grey and orange/brown shale		D	2.0		pp = 150kPa		-2
- 2.3	Pit discontinued at 2.3m (refusal in low to medium strength shale)	<u> </u>	D D	2.3 2.5		pp = 150kPa		
-3								-3
-								
-4								-4

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level





CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PROJECT No: 40740 DATE:** 23 Jan 07 SHEET 1 OF 1

PIT No: 75

	Description	<u>ခ</u> ြ		Sam		& In Situ Testing	<u></u>	D. m =	mio Donat	omete-	Tost
Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	Dynar 5	mic Penet (blows pe	r mm)	20 20
-	TOPSOIL - brown silty clay		D	0.1	•			-			
- 0.4 - -	CLAY - hard, brown/orange clay		D	0.5		pp > 400kPa					
- 0.8 - - - 1 - -	SILTY CLAY - hard, orange brown silty clay		D	1.0		pp > 400kPa		-1			
- - -			D	1.5		pp > 400kPa					
- -2 - -			D	2.0		pp > 400kPa		-2			
2.4	GRAVELLY SILTY CLAY - hard, orange brown and grey, gravelly silty clay		D	2.5		pp > 400kPa					
- 2.8 - -3 3.0	SANDSTONE - extremely to highly weathered, extremely low to very low strength, red and grey sandstone		D	2.95							
	Pit discontinued at 3.0m (limit of investigation in very low to low strength sandstone)							-4			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PROJECT No: 40740 DATE:** 23 Jan 07 SHEET 1 OF 1

PIT No: 76

Depth	Description	g Pic				& In Situ Testing		Dvnam	nic Pene	tromete	r Test
Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	5	(blows p	er mm)	
	TOPSOIL - brown silty clay	177			S		+	:	:	15	20
	,		D	0.1						:	
0.3		VЦ									
-	CLAY - hard, orange brown clay with some gravel							-			
-			D	0.5		pp > 400kPa		} !		•	
-								<u> </u>	i		
									i	÷	
- 0.9	Oll TV OLAY hand arrange brown either day	-									
-1	SILTY CLAY - hard, orange brown silty clay		D	1.0		pp > 400kPa		-1	:		
-		1//						<u> </u>			
-		1/1/								•	
-			D	1.5		pp > 400kPa		} !		i	
-								<u> </u>	i	i	
		(1/1/									
-											
-2		1/1/	D	2.0		pp = 350kPa		-2			
-								 			
-		1//									
								[
-			D	2.5		pp = 350kPa		-			
-		1/1/						} !	:	į	
2.7	GRAVELLY CLAY - very stiff to hard, orange brown and	6×1	·						i		
	black gravelly clay									-	i
-3		1 X X	D	3.0		pp = 400kPa		-3	:	÷	
3.1	Pit discontinued at 3.1m	V CS						:	- i	- :	\div
-	(limit of investigation in very stiff to hard gravelly clay)							<u> </u>	:	:	
											i
-											
-								} !		•	
-								<u> </u>			
								į į	i	:	
-4								-4		:	
ļ								}	:		
-								} !	i	i	
								†	:	į	
									:		
									:	:	
-								} !	:	i	:
-								} !	:	•	
<u> </u>								† :			:

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 77

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing		Dynamic I	Penetror	meter Test
집	(m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blo	ws per r	mm) 5 20
	- 0.3	TOPSOIL - brown silty clay with trace gravel SHALE - moderately weathered, extremely low to low strength, grey shale		D	0.1	0					
	0.55	Pit discontinued at 0.55m (refusal on low to medium strength shale)	====					-			
	- - 1 -								-1		
	-										
	- - -2							-	-2		
	-							-			
	-3							-	-3		
	-							-			
	-										
	-4								-4		
	-							-			
	_										

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 78 **PROJECT No: 40740**

DATE: 22 Jan 07 SHEET 1 OF 1

	Б	Description	Jic T		Sam		& In Situ Testing	<u></u>	Dynamic Penetrometer Test
퓝	Depth (m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per mm)
Н		Strata TOPSOIL - brown silty clay with trace gravel	1 VX	-	٥	Sa	Comments		5 10 15 20 : : : :
	. 0.2			D	0.1				
	. 0.2	CLAY - hard, orange brown clay							
	-								
	-			D	0.5		pp > 400kPa		
	-								
	- 0.8	GRAVELLY CLAY - hard, grey and orange gravelly clay, gravel content increasing with depth							
	-1	gravel content increasing with depth		D	1.0		pp > 400kPa		-1
			6						
	- 1.2 -	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale							
	1.4	Pit discontinued at 1.4m	<u> </u>						
	-	(refusal on low to medium strength shale)							
	-								
	-								
	-2								-2
	-								
	-								
	-								
	-								
	-								
	-								
	-3								-3
	-								
	-								
	-								
	-								
	-								-
	-								
	-4								-4
	-								
	.								
	-								-
	·								
	.								-
	.								

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level
- CHECKED Initials:



CLIENT: Growth Centres Commission PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **DATE:** 22 Jan 07 SHEET 1 OF 1

PROJECT No: 40740

PIT No: 79

Sampling & In Situ Testing Description Graphic Log Dynamic Penetrometer Test Depth 占 of Depth Type (blows per mm) Results & Comments (m) Strata TOPSOIL - brown silty clay 0.2 CLAY - hard, orange brown clay D 0.4 pp > 400kPa 0.5 SHALE - moderately weathered, extremely low to low strength, grey shale
Pit discontinued at 0.6m (refusal on low to medium strength shale) 1.0 -2 -2 -3

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

LOGGED: Jackson

☐ Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- PD Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 PL Point load strength Is(50) MPa
 PO Shear Vane (kPa)
 Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 80

PROJECT No: 40740 DATE: 23 Jan 07 SHEET 1 OF 1

ے Depth	Description	D Pic				& In Situ Testing	ē	Dynamic Penetrometer Test
로 (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows per mm) 5 10 15 20
- 0.2	TOPSOIL - brown silty clay with some gravel		D	0.1	0)			
			D	0.5		pp > 400kPa		
0.85	SHALE - highly weathered, extremely low to very low							1
	(refusal on low to medium strength shale)							
-2								-2
-3								-3
_								
-4								-4
								-4

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED

LOGGED: Jackson

Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 81

PROJECT No: 40740 DATE: 23 Jan 07 SHEET 1 OF 1

ے Depth	Description	hic				& In Situ Testing	- G	Dynamic Pe	enetrometer Test
로 (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blow:	s per mm)
-	TOPSOIL - brown silty clay		D	0.1					
0.3	CLAY - hard, red/brown mottled grey clay, moist		D	0.5		pp > 400kPa			
-1 1.0 -1 -	GRAVELLY SILTY CLAY - hard, grey and red/brown gravelly silty clay, moist		D	1.0		pp > 400kPa		-1	
- 1.4	SHALE - extremely weathered, extremely low to medium	131/	D	1.4					
-2	SHALE - extremely weathered, extremely low to medium strength, grey and red/brown shale Pit discontinued at 1.5m (refusal in low to medium strength shale)							-2	
-3								-3	
-4								-4	
- - - -								-	

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 83

PROJECT No: 40740 DATE: 23 Jan 07 SHEET 1 OF 1

	D	-41-	Description	ric 1				& In Situ Testing	_ h	1			
묍	De _l (m	n)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water				
	-	0.3	TOPSOIL - brown silty clay with trace gravel		D	0.1	S			5 10 15 20			
	-		CLAY - hard, orange brown slightly silty clay		D	0.5		pp > 400kPa					
	-	0.8	SANDSTONE - very highly to highly weathered, extremely low to very low strength, orange and grey sandstone										
	-1	1.0	Pit discontinued at 1.0m (refusal on low to medium strength sandstone)							-2			
	-3									-3			
	-4									-4			

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/--

PIT No: 84 **PROJECT No: 40740 DATE:** 23 Jan 07 SHEET 1 OF 1

	Donth	Description	hic				& In Situ Testing	<u></u>	Dynam	ic Pene	tromete	er Test
R	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	5 Dyriain	blows p	er mm)	20
	-	TOPSOIL - brown silty clay		D	0.1	0,			- :			
	- - - 0.	7 CLAY - hard, orange brown clay		D	0.5		pp > 400kPa		-			
	- - -1 -			D	1.0		pp > 400kPa		- - -1			
	- 1.: - - -	SILTY CLAY - hard, red brown silty clay		D	1.5		pp > 400kPa					
	- 1.º -2 -	CLAY - hard, orange and greyclay		D	2.0		pp > 400kPa		-2			
	- - -			D	2.5		pp > 400kPa					
	- -3 3.	0		D	2.9		pp > 400kPa		3			
	4	Pit discontinued at 3.0m (limit of investigation in hard clay)							4			
	- - - - -											

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING: DIP/AZIMUTH: 90°/-- **PIT No:** 85

PROJECT No: 40740 DATE: 23 Jan 07 SHEET 1 OF 1

	Depth	Description	hic				& In Situ Testing	- e	Dynamic Pe	netrometer Test
묍	(m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water	(blows	s per mm)
	- 0.3 0.8	TOPSOIL - brown silty clay SILTY CLAY - hard, orange brown silty clay with trace gravel		D D	0.1		pp > 400kPa			
	- 0.8 - 0.9 -1	SANDSTONE - highly weathered, extremely low to very low strength, fine grained sandstone Pit discontinued at 0.9m (refusal on low to medium strength fine grained sandstone)							-1 -1	
	- - -									

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

CHECKED Initials:



CLIENT: **Growth Centres Commission** PROJECT: Land Capability Assessment

LOCATION: Oran Park

SURFACE LEVEL: --**EASTING:**

NORTHING:

DIP/AZIMUTH: 90°/--

PIT No: 86

PROJECT No: 40740 DATE: 22 Jan 07 SHEET 1 OF 1

	Darette	Description	Jic R	Sampling & In Situ Testing										Dynamic Penetro	Penetrometer Test	
집	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blows per	mm)						
	- 0.55	GRAVEL AND CLAY - unconsolidated gravel and clay		D	0.5	65			-							
	- 0.7	SHALE - very highly to highly weathered, extremely low to very low strength, grey and orange shale Pit discontinued at 0.7m														
	- -1 - - - -	(refusal on low to medium strength shale)							-1 -1 -							
	-2								-2							
	-3 -								-3							
	-4 - - - -								-4							

RIG: Backhoe - 450mm bucket

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- pp Pocket penetrometer (kPa)
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 S Standard penetration test
 PL Point load strength (s(50) MPa
 V Shear Vane (kPa)
 D Water seep
 Water level

- CHECKED Initials:

