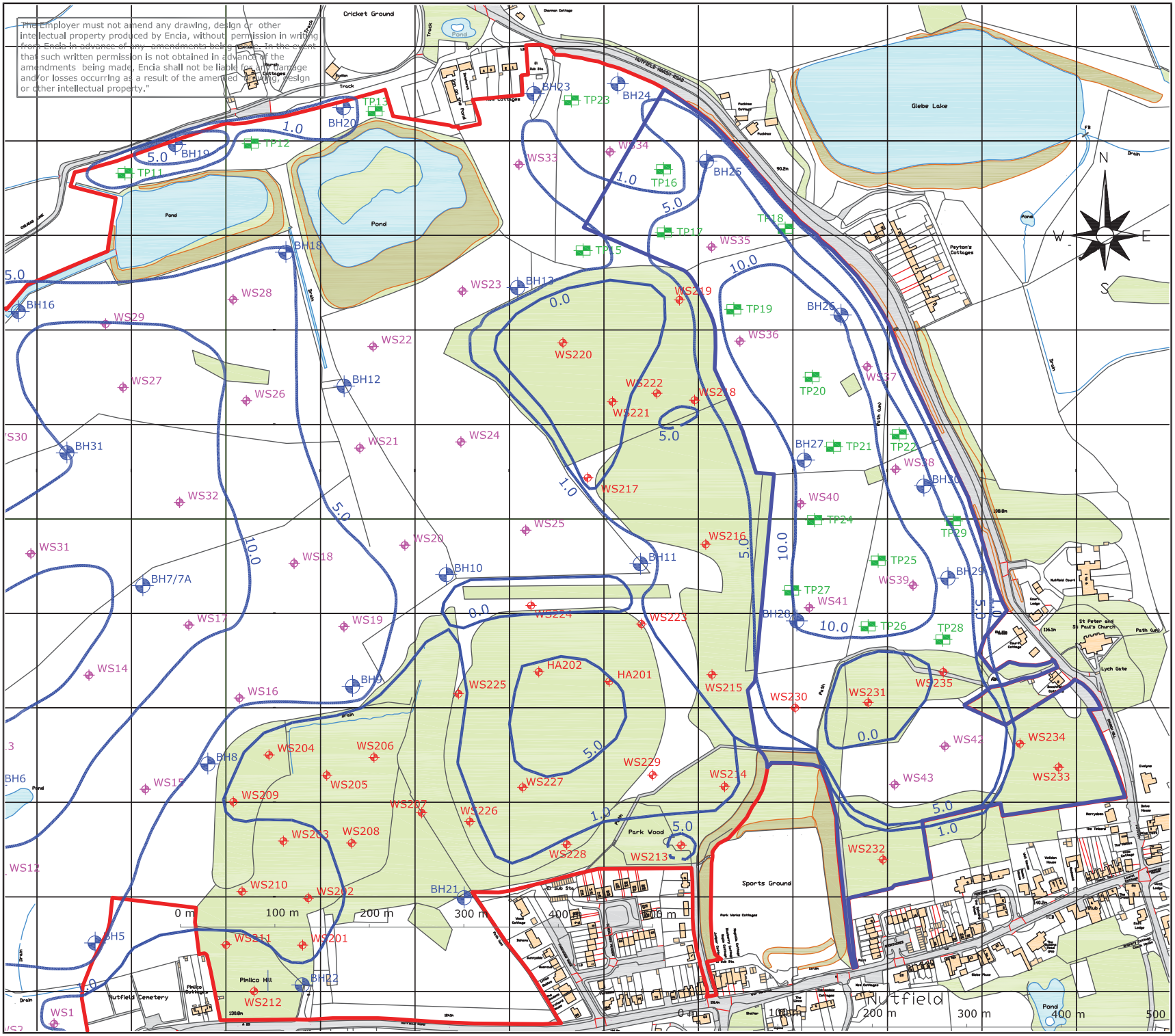
APPENDIX F2



KEY

- SITE BOUNDARY
- BEECHFIELD QUARRY AREA BOUNDARY
- WS201 ENCIA WINDOW SAMPLE (2012)
- TP1 ENCIA TRIAL PIT (2011)
- BH1 ENCIA BOREHOLE (2011)
- WS1 ENCIA WINDOW SAMPLE (2011)
- 10.0 APPROXIMATE DEPTH OF MADE GROUND (m)

ENCIA
2 Regent Street Knutsford Cheshire WA16 6GR
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E info@encia.co.uk W encia.co.uk
Company No 6731047

CLIENT

EVONIK DEGUSSA UK HOLDINGS LTD

JOB TITLE

FORMER LANDFILLS/QUARRIES REDHILL, SURREY

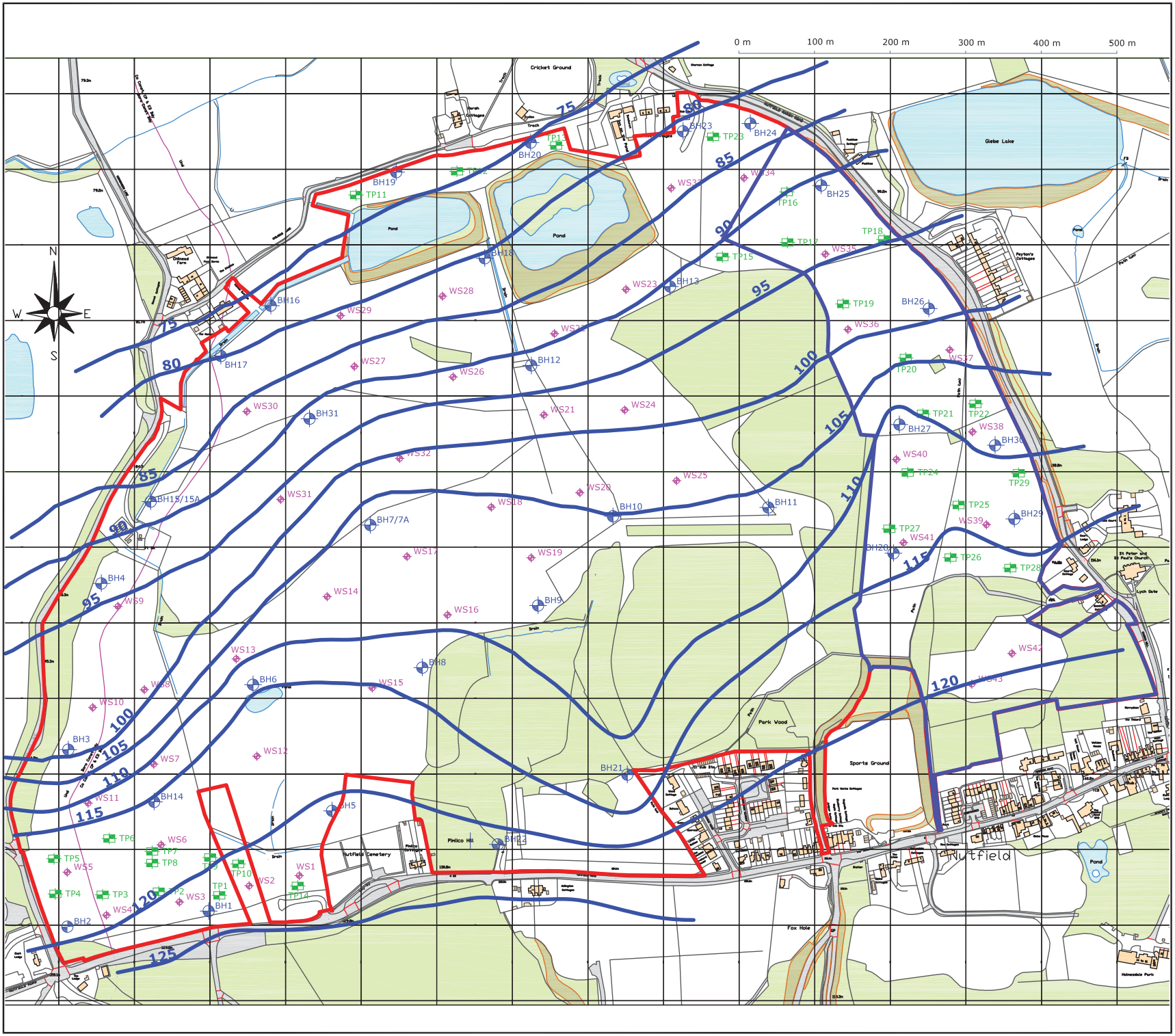
DRAWING TITLE

APPROXIMATE DEPTH OF FILL MATERIALS - CHURCH HILL AREA

STATUS: FINAL

DRAWN BY	SIGNATURE	DATE
KL		22/05/2013
APPROVED	SIGNATURE	DATE
AJA		22/05/2013

SCALE	DRG No.
1:4000@A3	20096-F-10



KEY

SITE BOUNDARY

CHURCH HILL AREA BOUNDARY

85 APPROXIMATE GROUNDWATER CONTOUR (mAOD) (11-12 December 2012)

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CLIENT

EVONIK DEGUSSA UK HOLDINGS LTD

JOB TITLE

FORMER LANDFILLS/QUARRIES REDHILL, SURREY

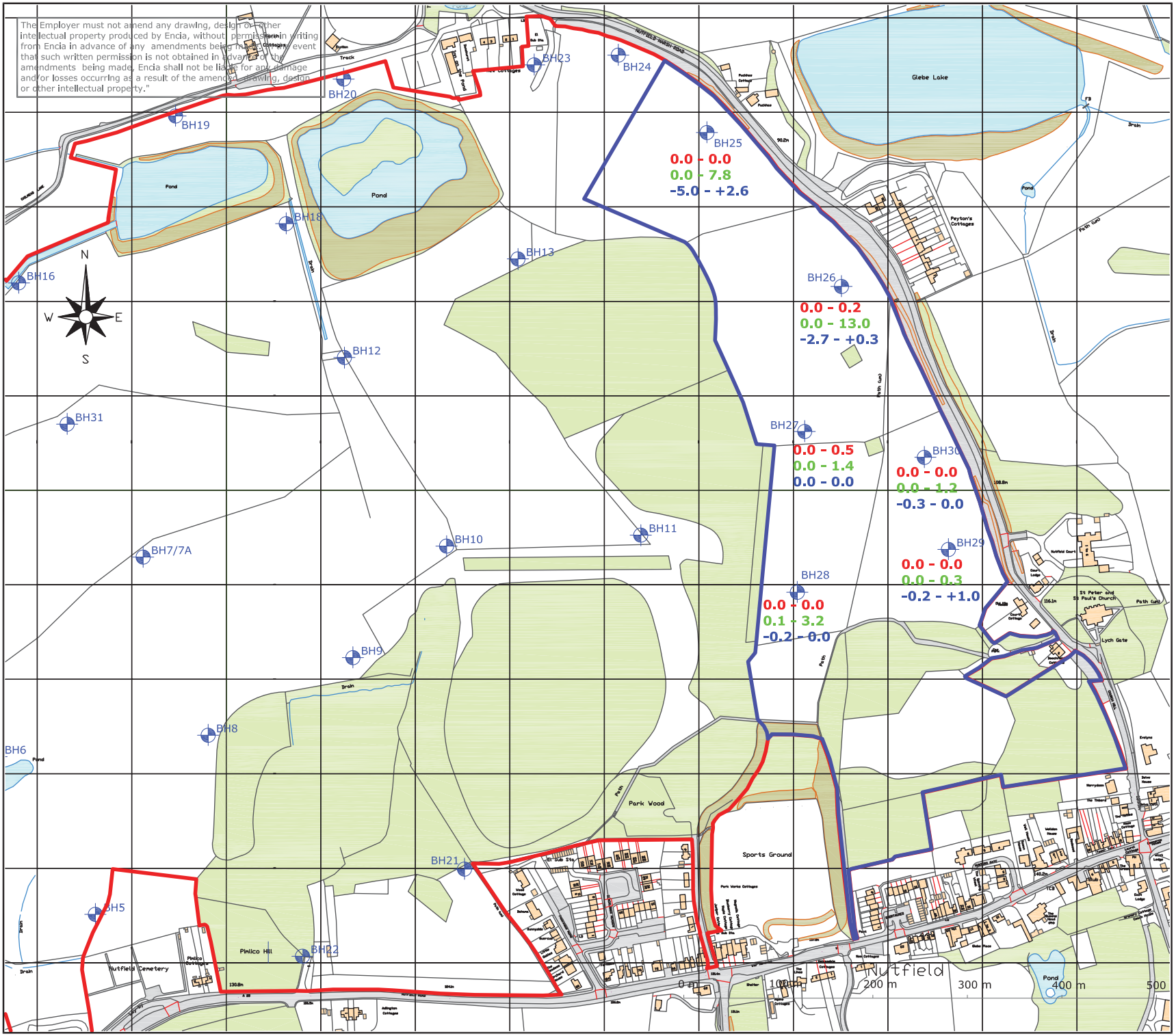
DRAWING TITLE

APPROXIMATE GROUNDWATER CONTOURS (DECEMBER 2012)

STATUS: FINAL

DRAWN BY	SIGNATURE	DATE
KL		22/05/2013
APPROVED	SIGNATURE	DATE
AJA		22/05/2013

SCALE	DRG No.
1:5000@A3	20096-F-11



KEY

- SITE BOUNDARY
- CHURCH HILL AREA BOUNDARY
- BH1 ENCIA BOREHOLE (2011)

CH4 (%v/v)
CO2 (%v/v)
Flow (l/hr)
– October 2011-March 2013

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Company No 6731047

CLIENT
EVONIK DEGUSSA UK HOLDINGS LTD

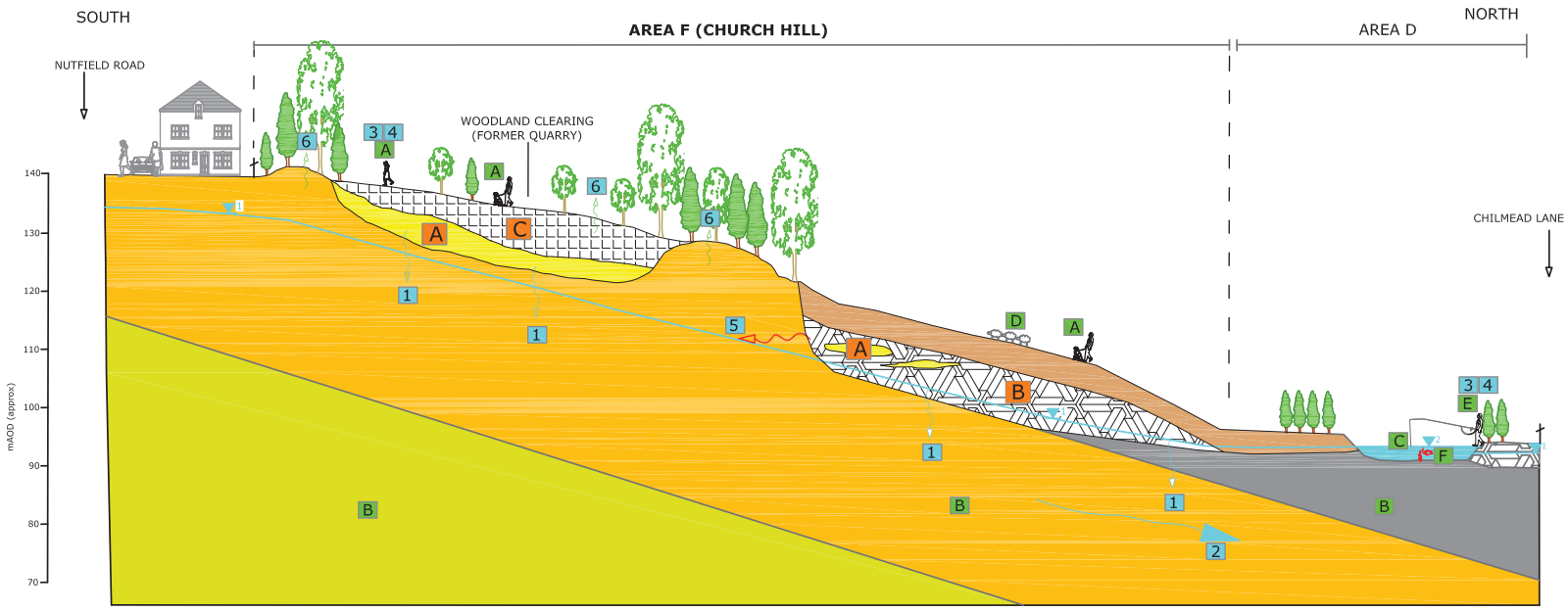
JOB TITLE
FORMER LANDFILLS/QUARRIES REDHILL, SURREY

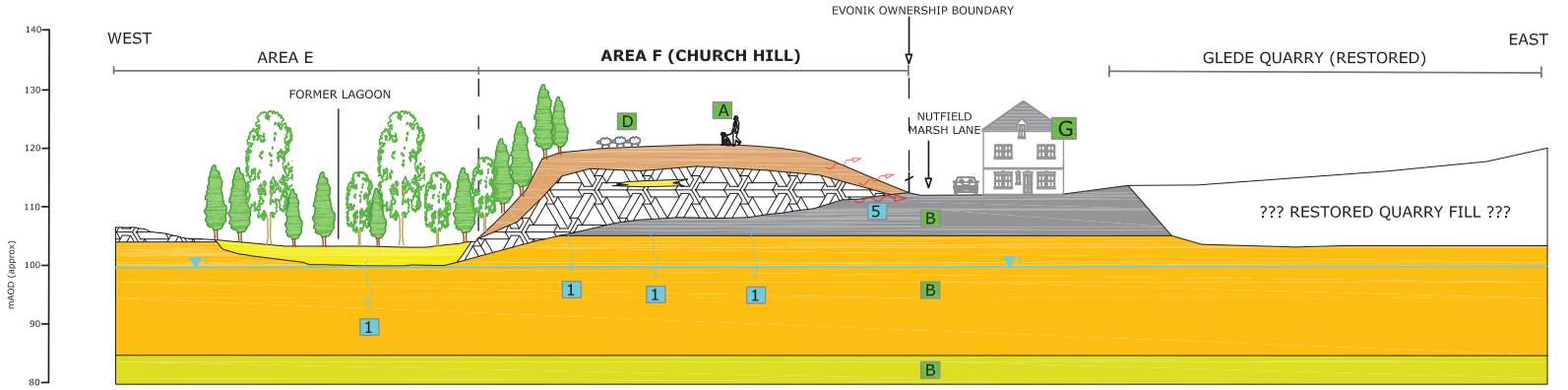
DRAWING TITLE
LANDFILL GAS CONCENTRATIONS - CHURCH HILL AREA

STATUS: FINAL

DRAWN BY: KL	SIGNATURE:	DATE: 22/05/2013
APPROVED: AJA	SIGNATURE:	DATE: 22/05/2013

SCALE: 1:4000@A3
DRG No.: 20096-F-12





KEY

- RESTORATION SOILS
- INERT WASTE
- MADE GROUND
- MADE GROUND (Yellow Lagoon Silt)
- FOLKESTONE BEDS
- SANDGATE BEDS
- HYTHE BEDS
- 1 GROUNDWATER
- 2 SURFACE WATER

SOURCES

- A LAGOON SILTS - Arsenic, SO4
- B WASTES
- C MADE GROUND: - Reworked natural strata

PATHWAYS

- 1 LEACHING/MIGRATION TO GROUNDWATER
- 2 GROUNDWATER MIGRATION
- 3 INJESTION/DERMAL CONTACT
- 4 INHALATION
- 5 HAZARDOUS GAS MIGRATION
- 6 VEGETATION UPTAKE

RECEPTORS

- A SITE USERS (Walkers/cyclists)
- B CONTROLLED WATERS (Sandgate Beds Secondary 'A' and Folkestone/Hythe Beds Principal Aquifers)
- C CONTROLLED WATERS (Surface Waters - Angling Ponds and Country Park)
- D LIVESTOCK
- E SITE USERS (Anglers)
- F AQUATIC/WOODLAND ECOSYSTEMS
- G OFF SITE PROPERTY/RESIDENTS

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Company No 6723047

CLIENT

EVONIK DEGUSSA UK HOLDINGS LTD

JOB TITLE

FORMER LANDFILL & QUARRIES, REDHILL, SURREY

DRAWING TITLE

CONCEPTUAL SITE MODEL - CHURCH HILL AREA

STATUS		
FINAL		
DRAWN BY: AJA	SIGNATURE:	DATE: 29/05/2013
APPROVED: KL	SIGNATURE:	DATE: 29/05/2013
SCALE: NOT_TO_SCALE	DRG No.: 20096-F-13	

APPENDIX F2

APPENDIX B

Photographic Survey

APPENDIX B
PHOTOGRAPHIC SURVEY

Photograph 24 – View looking southeast from the northeastern corner of the study site across the former Church Hill area. Note the break of slope in the centre of the image which suggests infilling to the south of this slope.

Photograph 25 – View looking northwest from the centre of the former Church Hill

Photograph 26 – View looking southwest across a clearing in woodland within a raised area of land in the south of the former Church Hill area in the southeast of the study site

Photograph 27 – View looking north across the former Church Hill area.

APPENDIX C

Aerial Photographs (1945-2009)

APPENDIX C
AERIAL PHOTOGRAPHS

2009 Google Earth™ Aerial Image

2006 Google Earth™ Aerial Image

2003 Google Earth™ Aerial Image

2000/2001 Google Earth™ Aerial Image

1999 Google Earth™ Aerial Image

1945 Google Earth™ Aerial Image

APPENDIX D

Exploratory Hole Records (Church Hill Area)

Window Sample Boreholes WS35-WS43, WS230-WS235

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS35

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
					MADE GROUND: Brown sandy topsoil with rootlets. (MADE GROUND)				
					MADE GROUND: Brown clayey silty fine to medum sand.	0.25			
001D	0.50				Below 1.3m locally grey and brown mottled (MADE GROUND)				
002D	1.50								
					End of borehole at 2.00 m	2.00			

Remarks

No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS36

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
					MADE GROUND: Brown sandy topsoil with rootlets. (MADE GROUND)				
001D	0.40				MADE GROUND: Brown, reddish brown and orange brown slightly clayey silty fine to medium sand with rare subrounded fine to medium gravel. (MADE GROUND)	0.25			
					MADE GROUND: Firm to stiff brown, reddish brown and grey mottled very sandy silty clay. (MADE GROUND)	1.80			
					End of borehole at 3.00 m	3.00			

Remarks

No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS37

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.30				MADE GROUND: Brown sandy topsoil with rootlets. (MADE GROUND)	0.25			
					MADE GROUND: Brown, reddish brown and orange brown slightly clayey silty fine to medium sand with rare subrounded fine to medium gravel. (MADE GROUND)				
					End of borehole at 2.00 m	2.00			

Remarks

No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS38

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.30				MADE GROUND: Brown sandy topsoil with rootlets. (MADE GROUND)				
					MADE GROUND: Very stiff (hard) grey and orange brown mottled very sandy clay (MADE GROUND)	0.40			
002D	1.50				MADE GROUND: Brown and orange brown slightly clayey silty fine to medium sand. (MADE GROUND)	1.10			
					MADE GROUND: Very stiff dark grey and blueish grey very sandy silty clay. (MADE GROUND)	2.60			
					End of borehole at 3.00 m	3.00			

Remarks

No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS39

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
					MADE GROUND: Brown sandy topsoil with rootlets. (MADE GROUND)				
						0.40			
001D	0.60				MADE GROUND: Black sandy subangular fine to medium gravel of slag, clinker and ash. (MADE GROUND)				
						0.80			
					MADE GROUND: Firm bright yellow silt with occasional 20cm bands of black ash and clinker. (Redeposited Fullers Earth) (MADE GROUND)				
002D	2.00								
					End of borehole at 4.00 m				

Remarks

No groundwater encountered.
Between 0.8-4.0m - each 1m penetration achieved with a single blow of the percussive hammer

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS40

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.50				MADE GROUND: Brown sandy gravelly topsoil with rootlets (MADE GROUND)	0.20			
					MADE GROUND: Very stiff grey sandy clay with occasional subangular fine to medium gravel of sandstone. (MADE GROUND)				
					MADE GROUND: Orange brown, brown and grey clayey fine to medium sand with rare fine to coarse gravel of brick. Fragment of timber at 1.7m (MADE GROUND)	1.20			
					End of borehole at 2.00 m	2.00			

Remarks

No groundwater encountered.

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS41

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.20				MADE GROUND: Brown sandy topsoil with rootlets (MADE GROUND)				
					MADE GROUND: Very stiff (hard) brown, orange brown and reddish brown very sandy clay with occasional angular fine to coarse gravel of sandstone (MADE GROUND)	0.30			
002D	1.50				MADE GROUND: Brown reddish brown and orange brown clayey silty fine to medium sand with rare subrounded fine to medium gravel. (MADE GROUND)	1.40			
					End of borehole at 3.00 m	3.00			

Remarks

No groundwater encountered.

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS42

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.20				MADE GROUND: Brown sandy topsoil with rootlets (MADE GROUND)				
					MADE GROUND: Very stiff sandy clay with occasional subangular fine to medium gravel of sandstone. (MADE GROUND)	0.30			
					MADE GROUND: Light brown sandy angular gravel of sandstone (MADE GROUND)	0.60			
					MADE GROUND: Firm bright yerllow silt (Redeposited Fullers Earth) (MADE GROUND)	1.10			
					MADE GROUND: Firm light grey slightly sandy clay with occasional fragements of rubber. (MADE GROUND)	1.40			
					End of borehole at 2.00 m	2.00			

Remarks

No groundwater encountered.
Between 1.1-1.4m penetration was made with a single blow of the percussion hammer

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

Start date 29/09/2011 Co-ords

End date 29/09/2011 Ground Level

WS43

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
					MADE GROUND: Brown clayey topsoil with rootlets (MADE GROUND)				
					MADE GROUND: Stiff brown slightly sandy clay. (MADE GROUND)	0.20			
001D	0.50								
					MADE GROUND: Very dark grey clayey sand with much angular fine to medium gravel of clinker, ash and brick. (MADE GROUND)	0.60			
					MADE GROUND: Brown and orange brown silty fine to medium sand (MADE GROUND)	0.80			
					MADE GROUND: Firm bright yellow silt (Redeposited Fullers Earth) (MADE GROUND)	1.30			
					End of borehole at 3.00 m	3.00			

Remarks

No groundwater encountered.
Between 1.3-3.0m penetration was made with a only three blows of the percussion hammer.

Equipment/Methods	Logged by	JOB	FIGURE
Dando Terrier 2000 rig. Borehole advanced using percussive methods using 120-90mm diameter sample tubes	AJA	20096	

WINDOW SAMPLE LOG

CLIENT	Evonik Degussa UK Holdings Limited		
SITE	Former Landfills, Nutfield Road, Redhill		
Start date	24/02/2012	Co-ords	530601.00 150800.00
End date	24/02/2012	Ground Level	122.90mAOD

WS230

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.10				MADE GROUND: Brown sandy clay with occasional fine to coarse subrounded to subangular gravel of sandstone and brick (MADE GROUND)				
						1.00	121.90		
002D	1.20				MADE GROUND: Dark grey fine to coarse subangular sandy gravel of ash and clinker (MADE GROUND)				
						1.70	121.20		
003D	1.80				MADE GROUND: Soft yellow silty clay (MADE GROUND)				
					End of borehole at 3.00 m	3.00	119.90		

Remarks

1. No groundwater encountered.

Equipment/Methods	Logged by	JOB	FIGURE
Percussively drilled by a Terrier type Windowless Sample drilling rig.	KL	20096	

WINDOW SAMPLE LOG

CLIENT	Evonik Degussa UK Holdings Limited		
SITE	Former Landfills, Nutfield Road, Redhill		
Start date	24/02/2012	Co-ords	530680.00 150806.00
End date	24/02/2012	Ground Level	130.60mAOD

WS231

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.10				Brown sandy CLAY with occasional fine to coarse subrounded to subangular gravel and cobble of sandstone (CLAY)				
					Hard grey SANDSTONE (BEDROCK)	0.90	129.70		
					End of borehole at 1.00 m	1.00	129.60		

Remarks

1. No groundwater encountered.

Equipment/Methods	Logged by	JOB	FIGURE
Percussively drilled by a Terrier type Windowless Sample drilling rig.	KL	20096	

WINDOW SAMPLE LOG

CLIENT	Evonik Degussa UK Holdings Limited		
SITE	Former Landfills, Nutfield Road, Redhill		
Start date	24/02/2012	Co-ords	530695.00 150639.00
End date	24/02/2012	Ground Level	140.00mAOD

WS232

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.10				Brown sandy CLAY with occasional fine to coarse subrounded to subangular gravel and cobble of sandstone (CLAY)				
					becoming slightly paler brown below 1.1m				
					End of borehole at 2.00 m	2.00	138.00		

Remarks

1. No groundwater encountered.

Equipment/Methods	Logged by	JOB	FIGURE
Percussively drilled by a Terrier type Windowless Sample drilling rig.	KL	20096	

WINDOW SAMPLE LOG

CLIENT	Evonik Degussa UK Holdings Limited		
SITE	Former Landfills, Nutfield Road, Redhill		
Start date	24/02/2012	Co-ords	530881.00 150737.00
End date	24/02/2012	Ground Level	135.50mAOD

WS233

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.10				Pale brown mottled pale grey sandy CLAY with occasional fine to coarse subrounded to subangular gravel of sandstone and some gravel sized nodules of hard grey clay (CLAY)				
					becoming very stiff below 1.2m				
002D	1.50				becoming more orange brown below 2m				
					End of borehole at 3.00 m	3.00	132.50		

Remarks

1. No groundwater encountered.

Equipment/Methods	Logged by	JOB	FIGURE
Percussively drilled by a Terrier type Windowless Sample drilling rig.	KL	20096	

WINDOW SAMPLE LOG

CLIENT	Evonik Degussa UK Holdings Limited		
SITE	Former Landfills, Nutfield Road, Redhill		
Start date	24/02/2012	Co-ords	530840.00 150762.00
End date	24/02/2012	Ground Level	132.90mAOD

WS234

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
					Pale brown mottled pale grey sandy CLAY with occasional fine to coarse subrounded to subangular gravel of sandstone and some gravel sized nodules of hard grey clay (CLAY)				
					End of borehole at 1.00 m	1.00	131.90		

Remarks

1. No groundwater encountered.

Equipment/Methods	Logged by	JOB	FIGURE
Percussively drilled by a Terrier type Windowless Sample drilling rig.	KL	20096	

WINDOW SAMPLE LOG

CLIENT	Evonik Degussa UK Holdings Limited		
SITE	Former Landfills, Nutfield Road, Redhill		
Start date	24/02/2012	Co-ords	530757.00 150838.00
End date	24/02/2012	Ground Level	124.00mAOD

WS235

Sheet 1 of 1

Scale 1:25

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.20				MADE GROUND: Dense dark grey fine to coarse subangular sandy gravel of ash and clinker with occasional gravel of brick (MADE GROUND)				
					MADE GROUND: Coarse cobbles of brick and sandstone (MADE GROUND)	0.60	123.40		
					End of borehole at 0.70 m	0.70	123.30		

Remarks

1. No groundwater encountered.
2. Borehole terminated on concrete obstruction at 0.7m.

Equipment/Methods	Logged by	JOB	FIGURE
Percussively drilled by a Terrier type Windowless Sample drilling rig.	KL	20096	

APPENDIX E

Exploratory Hole Records (Church Hill Area)

Boreholes BH25 – BH30

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH25

Start date 02/10/2011

End date 02/10/2011

Co-ords 530508 151378

Ground Level 92.95mAOD

Sheet 1 of 2

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.50				MADE GROUND: Soft to firm brown mottled grey very sandy clay. (MADE GROUND)				
002D	1.00		N=9						
003D	2.00		N=10						
						2.50	90.45		
004D	3.00		N=12		MADE GROUND: Firm brown mottled grey very sandy gravelly clay. Gravel is fine to coarse, angular of sandstone. (MADE GROUND)				
						3.80	89.15		
005D	4.00		N=17		MADE GROUND: Stiff brown mottled black sandy gravelly clay with fragments of glass. Gravel is fine to coarse, angular of flint and chalk. Hydrocarbon odour encountered. (MADE GROUND)				
						4.90	88.05		
006D	5.00		N=28		Medium dense brown gravelly fine to medium SAND. Gravel is fine to coarse, angular of flint (possible MADE GROUND) (NATURAL)				
						5.80	87.15		
007D	6.00		N=17		Medium dense brown silty fine to medium SAND. (NATURAL)				
						6.50	86.45		
008D	7.00		N=20		Medium dense brown slightly sandy angular fine to coarse GRAVEL of sandstone. (NATURAL)				
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH25

Start date 02/10/2011

End date 02/10/2011

Co-ords 530508 151378

Ground Level 92.95mAOD

Sheet 2 of 2

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
009D	8.00		N=18		Medium dense brown slightly sandy angular fine to coarse GRAVEL of sandstone. (NATURAL)	8.40	84.55		
010D	9.00		N=23		Medium dense to very dense yellowish brown silty fine to medium SAND (NATURAL)				
011D	10.00		N=25						
012D	11.00		N=30						
013D	12.00		N=20						
014D	13.00		N=26						
015D	14.00		N=43						
016D	15.00		50/190mm		*End of borehole at 15.40 m*	15.40	77.55		

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods
Cable tool percussion boring using 150mm diameter casings

Logged by AB

JOB 20096

FIGURE

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH26

Start date 01/10/2011

End date 01/10/2011

Co-ords 530508 151378

Ground Level 102.20mAOD

Sheet 1 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.50				MADE GROUND: Firm brown sandy clay with sand bands. (MADE GROUND)				
002D	1.00		N=14						
003D	2.00		37/105mm		MADE GROUND: Firm grey sandy clay with sandstone cobbles. (MADE GROUND)	2.00	100.20		
004D	3.00		N=20		MADE GROUND: Stiff grey very sandy clay. (MADE GROUND)	2.90	99.30		
005D	4.00		N=15		MADE GROUND: Stiff to very stiff brown very sandy gravelly clay with rare fragments of timber and glass. Gravel is fine to coarse, angular of brick and flint. Hydrocarbon odour noted. (MADE GROUND)	3.30	98.90		
006D	5.00		N=30						
007D	6.00		N=18						
008D	7.00		N=51						
					Continued on next sheet				

Remarks

Groundwater encountered at 7.2m rising to 6.9m in 20 minutes
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH26

Start date 01/10/2011

End date 01/10/2011

Co-ords 530508 151378

Ground Level 102.20mAOD

Sheet 2 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
009D	8.00		N=18		MADE GROUND: Stiff to very stiff brown very sandy gravelly clay with rare fragments of timber and glass. Gravel is fine to coarse, angular of brick and flint. Hydrocarbon odour noted. (MADE GROUND)				
010D	9.00		N=22						
						9.80	92.40		
011D	10.00		N=32		Dense to very dense orange brown silty fine to medium SAND (NATURAL)				
012D	11.00		N=30						
013D	12.00		N=32						
014D	13.00		N=32						
015D	14.00		N=34						
016D	15.00		N=39						
					Continued on next sheet				

Remarks

Groundwater encountered at 7.2m rising to 6.9m in 20 minutes
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH26

Start date 01/10/2011

End date 01/10/2011

Co-ords 530508 151378

Ground Level 102.20mAOD

Sheet 3 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
017D	16.00		50/265mm		Dense to very dense orange brown silty fine to medium SAND (NATURAL)				
018D	17.00		65/275mm						
019D	18.00		50/200mm						
					End of borehole at 18.30 m	18.30	83.90		

Remarks

Groundwater encountered at 7.2m rising to 6.9m in 20 minutes
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH27

Start date 07/10/2011

End date 07/10/2011

Co-ords 530612 151063

Ground Level 117.80mAOD

Sheet 1 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
					MADE GROUND: Dark brown sandy TOPSOIL with rootlets (MADE GROUND)	0.25	117.55		
001D	1.00				MADE GROUND: Medium dense brown and grey, locally black, clayey fine to medium sand with occasional subangular fine to coarse gravel for sandstone. Rare fragments of brick and occasional bands of ash with fine gravel of clinker (MADE GROUND)				
002D	2.00		N=16						
003D	3.00		N=19						
004D	4.00		N=0		MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth) (MADE GROUND)	4.00	113.80		
005D	5.00		N=1						
006D	6.00		N=0						
007D	7.00		N=0						
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring
2hrs chiselling 10.2-11.0m

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH27

Start date 07/10/2011

End date 07/10/2011

Co-ords 530612 151063

Ground Level 117.80mAOD

Sheet 2 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
008D	8.00		N=0		MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth) (MADE GROUND)				
009D	9.00		N=1						
					MADE GROUND: Very dark grey/black, clayey fine to coarse sand with occasional framents of timber and fabric. Pockets of ash throughout (MADE GROUND)	9.50	108.30		
010D	10.00		50/125mm						
					MADE GROUND: Concrete (MADE GROUND)	10.20	107.60		
011D	11.00		N=24		Medium dense, becoming dense, yellowish brown silty fine to medium SAND (NATURAL)	11.00	106.80		
012D	12.00		N=24						
013D	13.00		N=29						
014D	14.00		N=33						
015D	15.00		N=33						
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring
2hrs chiselling 10.2-11.0m

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH27

Start date 07/10/2011

End date 07/10/2011

Co-ords 530612 151063

Ground Level 117.80mAOD

Sheet 3 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
016D	16.00		N=41		Medium dense, becoming dense, yellowish brown silty fine to medium SAND (NATURAL)				
017D	17.00		N=44						
018D	18.00		44/158mm						
					End of borehole at 18.35 m	18.35	99.45		

Remarks

No groundwater encountered
Water added to assist boring
2hrs chiselling 10.2-11.0m

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH28

Start date 03/10/2011

End date 03/10/2011

Co-ords 530604 150393

Ground Level 121.30mAOD

Sheet 1 of 2

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
					MADE GROUND: Grass onto brown silty sand. (Topsoil) (MADE GROUND)	0.10	121.20		
001D	0.50				MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth). (MADE GROUND)				
002D	1.00		N=0						
003D	2.00		N=0						
004D	3.00		N=0						
					MADE GROUND: Soft to firm brown slightly gravelly sandy clay. Gravel is fine to medium, angular of sandstone. (MADE GROUND)	3.70	117.60		
005D	4.00		N=8						
006D	5.00		N=10						
007D	6.00		N=10						
008D	7.00		N=1						
					MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth). (MADE GROUND)	7.10	114.20		
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH28

Start date 03/10/2011

End date 03/10/2011

Co-ords 530604 150393

Ground Level 121.30mAOD

Sheet 2 of 2

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
009D	8.00		N=13		MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth). (MADE GROUND)	8.10	113.20		
010D	9.00		N=10		MADE GROUND: Firm grey slightlygravelly sandy clay with occasional pockets of ash. Gravel is fine to medium, angular of brick and sandstone. (MADE GROUND)				
011D	10.00		N=19			10.20	111.10		
012D	11.00		N=18		Medium dense brown silty fine to medium SAND with clay bands. (NATURAL)				
013D	12.00		N=18		Stiff brown sandy CLAY (NATURAL)	12.00	109.30		
014D	13.00		N=39		Brown medium grained SANDSTONE, moderately weak (NATURAL)	13.10	108.20		
015D	14.00		50/145mm		*End of borehole at 14.30 m*	14.30	107.00		

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH29

Start date 02/10/2011

End date 02/10/2011

Co-ords 530764 150937

Ground Level 118.85mAOD

Sheet 1 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.50				MADE GROUND: Orange brown slightly clayey slightly gravelly silty fine to medium sand. Gravel is fine to coarse, angular of sandstone. (MADE GROUND)				
002D	1.00		N=8		MADE GROUND: Loose dark grey gravelly fine to coarse sand with bands of ash. Gravel is fine to coarse, angular of clinker, (MADE GROUND)	0.80	118.05		
003D	2.00		N=0		MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth). (MADE GROUND)	1.60	117.25		
004D	3.00		N=0						
005D	4.00		N=0						
006D	5.00		N=0						
007D	6.00		N=0						
008D	7.00		N=0						
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH29

Start date 02/10/2011

End date 02/10/2011

Co-ords 530764 150937

Ground Level 118.85mAOD

Sheet 2 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
009D	8.00		N=0		MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth). (MADE GROUND)				
010D	9.00		N=1						
						9.60	109.25		
011D	10.00		N=21		Medium dense to dense light brown slightly silty fine to medium SAND (NATURAL)				
012D	11.00		N=24						
013D	12.00		N=24						
014D	13.00		N=32						
015D	14.00		N=33						
016D	15.00		N=33						
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH29

Start date 02/10/2011

End date 02/10/2011

Co-ords 530764 150937

Ground Level 118.85mAOD

Sheet 3 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
017D	16.00		N=36		Medium dense to dense light brown slightly silty fine to medium SAND (NATURAL)				
018D	17.00		N=39						
019D	18.00		46/245mm						
					End of borehole at 18.40 m	18.40	100.45		

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH30

Start date 01/10/2011

End date 01/10/2011

Co-ords 530739 151035

Ground Level 112.90mAOD

Sheet 1 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
001D	0.50				MADE GROUND: Medium dense orange brown slightly gravelly silty fine to medium SAND. Gravel is fine to coarse, angular of sandstone and flint. (MADE GROUND)				
002D	1.00		N=16						
						1.80	111.10		
003D	2.00		N=0		MADE GROUND: Very soft orange clayey silt (Reworked Fullers Earth). (MADE GROUND)				
004D	3.00		N=0						
005D	4.00		N=0						
006D	5.00		N=0						
007D	6.00		N=0						
						6.40	106.50		
008D	6.50				MADE GROUND: Firm to stiff brown mottled grey slightly sandy silty gravelly clay. Gravel is fine to coarse, angular of flint and sandstone. (MADE GROUND)	6.80	106.10		
009D	7.00		N=21		Medium dense to dense light brown slightly silty fine to medium SAND (NATURAL)				
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH30

Start date 01/10/2011

End date 01/10/2011

Co-ords 530739 151035

Ground Level 112.90mAOD

Sheet 2 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
010D	8.00		N=25		Medium dense to dense light brown slightly silty fine to medium SAND (NATURAL)				
011D	9.00		N=35						
012D	10.00		N=35						
013D	11.00		N=44						
014D	12.00		N=42						
015D	13.00		N=34						
016D	14.00		N=37						
017D	15.00		N=37						
					Continued on next sheet				

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

BOREHOLE LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill

BH30

Start date 01/10/2011

End date 01/10/2011

Co-ords 530739 151035

Ground Level 112.90mAOD

Sheet 3 of 3

Scale 1:50

Sample no & type	Sample depth (m)	Casing depth (m)	U100 SPT & N value	Well / backfill details	Description	Depth (m)	Reduced level (m)	Ground-water	Legend
018D	16.00		N=48		Medium dense to dense light brown slightly silty fine to medium SAND (NATURAL)				
						16.50	96.40		
					End of borehole at 16.50 m				

Remarks

No groundwater encountered
Water added to assist boring

Equipment/Methods	Logged by	JOB	FIGURE
Cable tool percussion boring using 150mm diameter casings	AB	20096	

APPENDIX F

Exploratory Hole Records (Church Hill Area)

Trial Pits TP16-TP22, TP24-TP29

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

DATE 06/10/2011 Ground Level

TP16

Sheet 1 of 1

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
			MADE GROUND: Grass onto brown silty sand with rootlets (TOPSOIL). (MADE GROUND)	0.20			
001D	0.30		MADE GROUND: Stiff brown mottled red dish brown slightly sandy gravelly clay. Gravel is fine to coarse, angular of sandstone. (MADE GROUND)	0.50			
			Light brown slightly clayey silty fine to medium SAND. (NATURAL)				
002D	2.00						
			End of trial pit at 2.50 m	2.50			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.	AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

DATE 06/10/2011 Ground Level

TP17

Sheet 1 of 1

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
			MADE GROUND: Grass onto brown slightly silty sand with rootlets (TOPSOIL). (MADE GROUND)	0.10			
001 002B	0.50		MADE GROUND: Stiff brown very sandy gravelly clay. Gravel is fine to coarse, angular of ironstone and flint. (MADE GROUND)				
			MADE GROUND: Firm orange brown very sandy CLAY (MADE GROUND)	1.00			
			MADE GROUND: Soft to firm greenish grey very sandy CLAY (MADE GROUND)	1.60			
003D	2.00						
			End of trial pit at 2.50 m	2.50			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.	AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

DATE 06/10/2011 Ground Level

TP18

Sheet 1 of 1

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
001D	0.30		MADE GROUND: Grass onto brown slightly silty gravelly sand with rootlets. Gravel is fine to coarse, angular of flint (TOPSOIL). (MADE GROUND)				
			MADE GROUND? Firm to stiff orange brown slightly gravelly very sandy clay. Gravel is fine to coarse, angular of flint. (MADE GROUND)	0.50			
			MADE GROUND: Firm to stiff grey sandy CLAY with bands of brown sand. (MADE GROUND)	1.30			
002D	2.00		MADE GROUNDL Brown clayey silty fine to medium SAND. (MADE GROUND)	2.10			
			MADE GROUND: Firm to stiff grey CLAY with sandstone cobbles. (MADE GROUND)	2.50			
			End of trial pit at 2.80 m	2.80			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.

Logged by: AB

JOB: 20096

FIGURE:

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

DATE 06/10/2011 Ground Level

TP19

Sheet 1 of 1

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
			MADE GROUND: Grass onto brown slightly silty gravelly sand with rootlets. Gravel is fine to coarse, angular to sub-rounded of flint and quartz. (MADE GROUND)	0.30			
001D	0.50		MADE GROUND: Brown clayey slightly gravelly fine to medium sand with pockets of stiff clay. Gravel is fine to coarse, angular of flint and sandstone. (MADE GROUND)				
002B	1.00						
				2.00			
003D	2.20		MADE GROUND: Orange brown slightly clayey silty fine to medium SAND. (MADE GROUND)				
			End of trial pit at 2.70 m	2.70			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.

Logged by	JOB	FIGURE
AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

TP20

Sheet 1 of 1

DATE 06/10/2011 Ground Level

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
			MADE GROUND: Grass onto brown slightly silty gravelly sand with rootlets. Gravel is fine to coarse, angular to sub-rounded of flint and quartz. (TOPSOIL) (MADE GROUND)	0.20			
001D	0.50		MADE GROUND: Brown clayey slightly gravelly sand with pockets of stiff clay. Gravel is fine to coarse, angular of flint and sandstone. (MADE GROUND)				
			MADE GROUND: Firm grey sandy CLAY (MADE GROUND)	0.90			
			MADE GROUND Firm orange brown very sandy CLAY with occasional cobbles of sandstone. (MADE GROUND)	1.20			
002D	1.50						
003D	2.00		MADE GROUND: Soft to firm greenish greyish brown very sandy gravelly CLAY. Gravel is fine to coarse, angular of sandstone. (MADE GROUND)	1.90			
			End of trial pit at 2.50 m	2.50			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.

Logged by	JOB	FIGURE
AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

DATE 06/10/2011 Ground Level

TP21

Sheet 1 of 1

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
001D	0.20		MADE GROUND: Grass over brown silty sand with cobbles of ironstone and rootlets (TOPSOIL). (MADE GROUND)	0.15			
			MADE GROUND: Brown clayey fine to medium sand with pockets of stiff clay. (MADE GROUND)	0.30			
			MADE GROUND: Stiff grey sandy clay (MADE GROUND)	0.50			
			MADE GROUND: Brown clayey fine to medium sand with pockets of stiff clay. (MADE GROUND)				
			MADE GROUND: Stiff grey sandy clay. (MADE GROUND)	1.20			
002D	1.50		MADE GROUND: Greenish grey slightly clayey gravelly fine to coarse sand. Gravel is fine to coarse, angular of sandstone. (MADE GROUND)	1.60			
			End of trial pit at 2.30 m	2.30			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.

Logged by	JOB	FIGURE
AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

TP22

Sheet 1 of 1

DATE 06/10/2011 Ground Level

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
001D	0.10		MADE GROUND: Grass over brown silty sand with cobbles of ironstone and rootlets (TOPSOIL). (MADE GROUND)	0.15			
			MADE GROUND: Firm to stiff light brown very sandy clay. (MADE GROUND)	0.30			
002B	0.50		MADE GROUND: Stiff grey sandy clay. (MADE GROUND)				
			MADE GROUND: Soft becoming firm greenish brown sandy clay. (MADE GROUND)	1.20			
003D	1.50						
			MADE GROUND: Stiff grey sandy clay. (MADE GROUND)	2.10			
			End of trial pit at 2.30 m				

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.

Logged by	JOB	FIGURE
AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

DATE 06/10/2011 Ground Level

TP24

Sheet 1 of 1

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
			MADE GROUND: Grass onto brown slightly gravelly silty sand with rootlets. Gravel is fine to coarse, angular of flint (TOPSOIL). (MADE GROUND)	0.20			
001D	0.50		MADE GROUND: Firm to stiff grey gravelly sandy clay. Gravel is fine to coarse, angular of chalk, flint and sandstone. (MADE GROUND)	0.70			
			MADE GROUND: Firm brown slightly gravelly sandy clay. Gravel is fine to coarse, angular of sandstone. (MADE GROUND)	1.70			
002D 003B	2.00		MADE GROUND: Very soft orange silt (Reworked Fullers Earth). (MADE GROUND)				
			End of trial pit at 2.60 m	2.60			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.

Logged by	JOB	FIGURE
AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

TP25

Sheet 1 of 1

DATE 06/10/2011 Ground Level

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
			MADE GROUND: Grass onto light brown slightly gravelly silty sand with rootlets. Gravel is fine to coarse, angular of flint (TOPSOIL). (MADE GROUND)	0.15			
001D	0.50		MADE GROUND: Stiff brown slightly gravelly clay with sand bands. Gravel is fine to coarse, angular of quartz, flint and ironstone. (MADE GROUND)				
			MADE GROUND: Brown clayey gravelly sand. (MADE GROUND)	1.00			
002D	1.50		MADE GROUND: Dark grey ashy gravelly fine to coarse sand. Gravel is generally fine to coarse, angular of clinker. (MADE GROUND)	1.40			
			MADE GROUND: Very soft orange silt (Reworked Fullers Earth). (MADE GROUND)	1.60			
			End of trial pit at 2.50 m	2.50			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.	AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

TP26

Sheet 1 of 1

DATE 06/10/2011 Ground Level

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
			MADE GROUND: Grass onto brown silty sand with rootlets (TOPSOIL). (MADE GROUND)	0.20			
001D 002B	0.50		MADE GROUND: Brown clayey gravelly fine to coarse sand with cobbles of sandstone. Gravel is fine to coarse, angular of sandstone, breeze block, brick and ironstone. Occasional fragments of rubber, metal wheels, glass bottles and 6"nails encountered. (MADE GROUND)	0.70			
				0.80			
003D	1.00		MADE GROUND: Dark grey ashy gravelly fine to coarse sand. Gravel is fine to coarse, angular generally of clinker. (MADE GROUND)				
			MADE GROUND: Soft orange silt (Reworked Fullers Earth). (MADE GROUND)				
			End of trial pit at 1.50 m	1.50			

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.	AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

TP27

Sheet 1 of 1

DATE 06/10/2011 Ground Level

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
001D	0.20		MADE GROUND: Grass onto brown slightly clayey very gravelly sand with rootlets. Gravel is fine to coarse, angular of flint (TOPSOIL). (MADE GROUND)	0.30			
			MADE GROUND: Stiff brown sandy gravelly clay. Gravel is fine to coarse, angular of flint, brick and ironstone. Occasional Timber fragments. (MADE GROUND)	0.90			
			MADE GROUND: Stiff grey sandy clay. (MADE GROUND)				
002D	1.30			1.30			
003B	1.50		MADE GROUND: Dark grey ashy gravelly fine to coarse sand. Gravel is fine to coarse, angular generally of clinker. (MADE GROUND)	1.40			
			MADE GROUND: Very soft silt with glass bottles and jars and tin cans (Reworked Fullers Earth). (MADE GROUND)	1.80			
			End of trial pit at 1.80 m				

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.

Logged by	JOB	FIGURE
AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

TP28

Sheet 1 of 1

DATE 06/10/2011 Ground Level

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
001D	0.30		MADE GROUND: Grass onto brown slightly silty gravelly sand with rootlets. Gravel is fine to coarse, angular of flint (TOPSOIL). (MADE GROUND)	0.15			
			MADE GROUND: Stiff brown very sandy slightly gravelly clay with ash bands. Gravel is fine to coarse, angular of flint and brick. (MADE GROUND)				
			MADE GROUND: Brown slightly clayey gravelly fine to coarse sand with many sandstone cobbles. (MADE GROUND)	0.80			
002D	1.50						
			End of trial pit at 2.30 m	2.30			

Remarks

Trial Pit unstable below 2.0m
No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.	AB	20096	

TRIAL PIT LOG

CLIENT Evonik Degussa UK Holdings Limited

SITE Former Landfills, Nutfield Road, Redhill Co-ords

TP29

Sheet 1 of 1

DATE 06/10/2011 Ground Level

Scale 1:25

sample no & type	depth (m)	in-situ test	description	depth (m)	level (m)	ground water	legend
001D	0.00		MADE GROUND: Grass onto brown slightly clayey sand with rootlets (TOPSOIL). (MADE GROUND)				
				0.30			
			MADE GROUND: Dark grey ashy gravelly sand. Gravel is fine to coarse, angular of clinker. (MADE GROUND)				
002B	0.50						
				0.60			
			MADE GROUND: Very soft orange silt (Reworked Fullers Earth). (MADE GROUND)				
003D	1.50						
				2.00			
			End of trial pit at 2.00 m				

Remarks

Trial Pit Stable
No groundwater encountered

Equipment/Methods	Logged by	JOB	FIGURE
Excavated using JCB 3CX backhoe excavator with 0.6m wide toothed bucket. No support used.	AB	20096	

APPENDIX G

Summary of Groundwater Level Measurements

(October 2011 – March 2013)

Appendix G
Former Landfills, Nutfield Road, Redhill, Surrey
Summary of Groundwater Level Measurements

Borehole	BH Level mAOD	Date															min	max	mean
		03/10/2011	06/10/2011	24/10/2011	09/11/2011	21/11/2011	05/12/2011	21/02/2012	02/04/2012	02/05/2013	29/05/2012	02/07/2012	01/08/2012	10/09/2012	11/12/2012	12/03/2013			
BH1	126.4	5.23	5.30	5.50	5.10	5.22	5.20	4.70	5.00	2.90	4.90	4.95	4.58	4.96	3.15	4.90	2.90	5.50	4.77
BH2	125.35	Dry	Dry	Dry	Dry	Dry	Dry	Dry	DRY	DRY	Dry	Dry	Dry	Dry	Dry	Dry			
BH3	108.95	9.22	9.34	9.30	9.30	9.22	9.24	9.50	9.27	9.20	9.20	9.18	9.07	9.22	9.95	9.50	9.07	9.95	9.31
BH4	95.85	4.91	5.10	4.30	4.70	5.25	5.28	3.60	3.17	3.00	2.95	3.05	2.00	2.48	1.76	1.45	1.45	5.28	3.53
BH5	123.75	Dry	Dry	Dry	Dry	Dry	Dry	6.00	DRY	5.95	Dry	Dry	Dry	Dry	Dry	DRY	5.95	6.00	5.98
BH6	118.75	7.97	8.11	7.70	7.25	7.45	7.45	7.40	6.90	6.90	6.70	7.10	5.12	5.35	4.60	5.05	4.60	8.11	6.74
BH7A	114.95	7.48	7.48	7.50	7.60	7.62	7.57	7.80	7.60	7.80	7.70	7.50	7.20	7.42	6.70	6.50	6.50	7.80	7.43
BH8	117.45	Dry	Dry	Dry	Dry	Dry	Dry	Dry	3.60	3.50	3.55	Dry	Dry	Dry	3.75	3.8	3.50	3.80	3.64
BH9	110.3	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	5.05	4.98	4.98	5.05	5.02
BH10	105.3	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	2.35	Dry	Dry	Dry	NR	Dry	NR	2.35	2.35	2.35
BH11	110.7	5.04	5.07	5.20	5.25	5.25	5.26	2.85	2.60	2.20	2.20	2.35	2.03	NR	1.98	NR	1.98	5.26	3.64
BH12	91.55	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NR	0.61	NR	0.61	0.61	0.61
BH13	94.2	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NR	Dry	NR			
BH14	118.2	3.65	3.66	3.70	3.75	3.76	3.80	3.40	3.30	3.30	3.40	3.50	3.35	3.62	3.70	3.60	3.30	3.80	3.57
BH15A	88.3	2.86	2.88	2.90	2.36	2.90	2.85	2.10	2.40	1.80	2.45	2.80	2.38	2.95	2.15	2.35	1.80	2.95	2.54
BH16D	84.15	11.79	12.18	12.50	12.45	12.50	12.50	12.70	DRY	12.70	12.10	12.70	11.53	11.05	10.92	6.25	6.25	12.70	11.71
BH16S	84.15	5.27	5.36	5.50	5.50	5.54	5.60	5.33	5.10	5.00	4.70	4.90	3.95	6.50	6.50	3.55	3.55	6.50	5.22
BH17D	85.05	7.54	8.40	6.30	7.30	8.30	8.25	7.20	7.40	6.45	5.90	7.65	5.36	5.36	5.01	5.10	5.01	8.40	6.77
BH17S	85.08	4.97	Dry	5.00	Dry	4.95	4.85	Dry	Dry	Dry	Dry	4.35	Dry	Dry	4.43	5.10	4.35	5.10	4.81
BH18	85.55	Dry	Dry	Dry	Dry	Dry	Dry	Dry	4.90	4.80	4.80	Dry	4.60	4.85	4.63	4.80	4.60	4.90	4.77
BH19	82.6	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	5.18	5.95	5.85	4.70	4.70	5.95	5.42
BH20	84.2	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry			
BH21	113.4	Dry	Dry	Dry	Dry	Dry	Dry	1.50	2.80	0.70	2.90	Dry	2.81	Dry	1.23	1.50	0.70	2.90	1.92
BH22	122.3	Dry	Dry	Dry	Dry	Dry	Dry	Dry	DRY	6.50	Dry	Dry	6.47	Dry	6.80	6.70	6.47	6.80	6.62
BH23	88.2	Dry	Dry	Dry	Dry	Dry	Dry	Dry	DRY	DRY	Dry	Dry	Dry	Dry	Dry	6.00	6.00	6.00	6.00
BH24	88.15	5.69	5.70	5.90	5.90	5.91	5.80	6.30	6.30	6.45	6.05	5.90	5.50	5.60	4.97	4.18	4.18	6.45	5.74
BH25	92.95	Dry	Dry	5.50	Dry	5.57	5.60	5.50	Dry	Dry	Dry	5.6	Dry	NR	Dry	NR	5.50	5.60	5.55
BH26	102.2	3.66	3.66	3.20	2.70	3.36	3.40	3.20	3.10	3.30	3.35	3.30	3.08	NR	3.22	NR	2.70	3.66	3.27
BH27	117.8	NR	NR	6.90	6.95	Dry	Dry	6.70	6.60	6.40	6.30	6.90	6.13	NR	6.10	NR	6.10	6.95	6.55
BH28	121.3	Dry	Dry	Dry	Dry	Dry	Dry	9.50	9.50	9.20	9.20	9.25	9.20	NR	9.55	NR	9.20	9.55	9.34
BH29	118.85	Dry	Dry	Dry	Dry	Dry	Dry	Dry	DRY	7.15	6.10	Dry	5.75	NR	5.52	6.52	5.52	7.15	6.21
BH30	112.9	5.00	Dry	4.80	4.75	4.75	4.65	3.40	3.70	3.30	3.65	3.45	3.63	3.95	3.05	3.15	3.05	5.00	3.95
BH31	96.05	5.29	5.4	5.30	5.40	5.32	5.30	5.05	5.00	5.15	5.00	5.20	4.49	4.65	4.45	3.90	3.90	5.40	4.99

Measurements equate to depth to standing groundwater level (mbg)
NR = Not recorded

APPENDIX H

Statistical Analysis of Soil Chemical Test Results
Church Hill Area

Encia Job No.	20096/6F
Site Name	Church Hill (AREA F)
Engineer	KL

Analytical Data			Mean Value Test			Outlier Test	
Material Type	Data (mg/kg)	Log Data	n	t	t value	T_{crit} 10 %	T_{crit} V
Restoration Soils	20.00	1.3010	2	6.3138			
	25.00	1.3979	3	2.9200			
	26.00	1.4150	4	2.3534		1.425	
	24.00	1.3802	5	2.1318		1.602	
	14.00	1.1461	6	2.0150		1.729	
	26.00	1.4150	7	1.9432		1.828	
	12.00	1.0792	8	1.8946		1.909	
	12.00	1.0792	9	1.8595		1.977	
	50.00	1.6990	10	1.8331		2.036	
	34.00	1.5315	11	1.8125		2.088	
	36.00	1.5563	12	1.7959		2.134	
	24.00	1.3802	13	1.7823		2.176	
	21.00	1.3222	14	1.7709		2.213	
	26.00	1.4150	15	1.7613		2.248	
	26.00	1.4150	16	1.7531		2.279	
	14.00	1.1461	17	1.7459		2.309	
	26.00	1.4150	18	1.7396		2.336	
	32.00	1.5051	19	1.7341		2.361	
	40.00	1.6021	20	1.7291		2.385	
	29.00	1.4624	21	1.7247		2.408	
	28.00	1.4472	22	1.7207		2.429	
	29.00	1.4624	23	1.7171		2.449	
	29.00	1.4624	24	1.7139		2.468	
	28.00	1.4472	25	1.7109	1.711	2.486	2.486
	19.00	1.2788	26	1.7081		2.503	
			27	1.7056		2.520	
			28	1.7033		2.536	
			29	1.7011		2.551	
			30	1.6991		2.565	
			31	1.6973		2.579	
			32	1.6955		2.592	
			33	1.6939		2.605	
			34	1.6924		2.618	
			35	1.6909		2.630	
			36	1.6896		2.641	
			37	1.6883		2.652	
			38	1.6871		2.663	
			39	1.6860		2.674	
			40	1.6849		2.684	
			41	1.6839		2.694	
			42	1.6829		2.704	
			43	1.6820		2.713	
			44	1.6811		2.722	
			45	1.6802		2.731	
			46	1.6794		2.739	
			47	1.6787		2.748	
			48	1.6779		2.756	
			49	1.6772		2.764	
			50	1.6766		2.772	

Determinand:	Arsenic in Restoration Soils
No. of samples:	25
SGV:	32.0
t value:	1.711
mean (x):	26.00
st.dev (s):	8.67
95% ile:	**28.97**

Is the Mean Value Test Higher or Lower than the SGV?	
Higher or Lower	Lower
Y max:	1.699
Y mean:	1.390
Y st.dev.:	0.153
T value	2.012
Comparator	2.486

Maximum Value Test Result:	
Outlier Test?	Maximum is within a Normal Distribution

Outlier Values	Sample Number

Encia Job No.	20096/6F
Site Name	Church Hill (AREA F)
Engineer	KL

Analytical Data			Mean Value Test			Outlier Test	
Material Type	Data (mg/kg)	Log Data	n	t	t value	T_{crit} 10%	T_{crit} V
Waste Materials	20.00	1.3010	2	6.3138			
	21.00	1.3222	3	2.9200			
	30.00	1.4771	4	2.3534		1.425	
	17.00	1.2304	5	2.1318		1.602	
	17.00	1.2304	6	2.0150		1.729	
	15.00	1.1761	7	1.9432		1.828	
	37.00	1.5682	8	1.8946		1.909	
	15.00	1.1761	9	1.8595		1.977	
	26.00	1.4150	10	1.8331		2.036	
	29.00	1.4624	11	1.8125		2.088	
	41.00	1.6128	12	1.7959		2.134	
	4.00	0.6021	13	1.7823	1.782	2.176	2.176
	12.00	1.0792	14	1.7709		2.213	
			15	1.7613		2.248	
			16	1.7531		2.279	
			17	1.7459		2.309	
			18	1.7396		2.336	
			19	1.7341		2.361	
			20	1.7291		2.385	
			21	1.7247		2.408	
			22	1.7207		2.429	
			23	1.7171		2.449	
			24	1.7139		2.468	
			25	1.7109		2.486	
			26	1.7081		2.503	
			27	1.7056		2.520	
			28	1.7033		2.536	
			29	1.7011		2.551	
			30	1.6991		2.565	
			31	1.6973		2.579	
			32	1.6955		2.592	
			33	1.6939		2.605	
			34	1.6924		2.618	
			35	1.6909		2.630	
			36	1.6896		2.641	
			37	1.6883		2.652	
			38	1.6871		2.663	
			39	1.6860		2.674	
			40	1.6849		2.684	
			41	1.6839		2.694	
			42	1.6829		2.704	
			43	1.6820		2.713	
			44	1.6811		2.722	
			45	1.6802		2.731	
			46	1.6794		2.739	
			47	1.6787		2.748	
			48	1.6779		2.756	
			49	1.6772		2.764	
			50	1.6766		2.772	

Determinand:	Arsenic in Waste Materials
No. of samples:	13
SGV:	32.0
t value:	1.782
mean (x):	21.85
st.dev (s):	10.38
95% ile:	**26.97**

Is the Mean Value Test Higher or Lower than the SGV?	
Higher or Lower	Lower
Y max:	1.613
Y mean:	1.281
Y st.dev.:	0.260
T value	1.275
Comparator	2.176

Maximum Value Test Result:	
Outlier Test?	Maximum is within a Normal Distribution

Outlier Values	Sample Number

Encia Job No.	20096/6F
Site Name	Church Hill (AREA F)
Engineer	KL

Analytical Data			Mean Value Test			Outlier Test	
Material Type	Data (mg/kg)	Log Data	n	t	t value	T_{crit} 10%	T_{crit} V
Natural	13.00	1.1139	2	6.3138			
	49.00	1.6902	3	2.9200			
	1.90	0.2788	4	2.3534		1.425	
	2.10	0.3222	5	2.1318		1.602	
	51.00	1.7076	6	2.0150		1.729	
	25.00	1.3979	7	1.9432		1.828	
	58.00	1.7634	8	1.8946	1.895	1.909	1.909
	41.00	1.6128	9	1.8595		1.977	
			10	1.8331		2.036	
			11	1.8125		2.088	
			12	1.7959		2.134	
			13	1.7823		2.176	
			14	1.7709		2.213	
			15	1.7613		2.248	
			16	1.7531		2.279	
			17	1.7459		2.309	
			18	1.7396		2.336	
			19	1.7341		2.361	
			20	1.7291		2.385	
			21	1.7247		2.408	
			22	1.7207		2.429	
			23	1.7171		2.449	
			24	1.7139		2.468	
			25	1.7109		2.486	
			26	1.7081		2.503	
			27	1.7056		2.520	
			28	1.7033		2.536	
			29	1.7011		2.551	
			30	1.6991		2.565	
			31	1.6973		2.579	
			32	1.6955		2.592	
			33	1.6939		2.605	
			34	1.6924		2.618	
			35	1.6909		2.630	
			36	1.6896		2.641	
			37	1.6883		2.652	
			38	1.6871		2.663	
			39	1.6860		2.674	
			40	1.6849		2.684	
			41	1.6839		2.694	
			42	1.6829		2.704	
			43	1.6820		2.713	
			44	1.6811		2.722	
			45	1.6802		2.731	
			46	1.6794		2.739	
			47	1.6787		2.748	
			48	1.6779		2.756	
			49	1.6772		2.764	
			50	1.6766		2.772	

Determinand:	Arsenic in Natural Soils
No. of samples:	8
SGV:	32.0
t value:	1.895
mean (x):	30.13
st.dev (s):	22.64
95% ile:	45.29

Is the Mean Value Test Higher or Lower than the SGV?	
Higher or Lower	Higher
Y max:	1.763
Y mean:	1.236
Y st.dev.:	0.614
T value	0.859
Comparator	1.909

Maximum Value Test Result:	
Outlier Test?	Maximum is within a Normal Distribution

Outlier Values	Sample Number

Encia Job No.	20096/6F
Site Name	Church Hill (AREA F)
Engineer	KL

Analytical Data			Mean Value Test			Outlier Test	
Material Type	Data (mg/kg)	Log Data	n	t	t value	T_{crit} 10%	T_{crit} V
Restoration Soils	0.14	-0.8539	2	6.3138			
	0.10	-1.0000	3	2.9200			
	0.10	-1.0000	4	2.3534		1.425	
	0.10	-1.0000	5	2.1318		1.602	
	0.10	-1.0000	6	2.0150		1.729	
	0.10	-1.0000	7	1.9432		1.828	
	0.26	-0.5850	8	1.8946		1.909	
	0.10	-1.0000	9	1.8595		1.977	
	0.10	-1.0000	10	1.8331		2.036	
	2.00	0.3010	11	1.8125		2.088	
	0.10	-1.0000	12	1.7959		2.134	
	0.18	-0.7447	13	1.7823		2.176	
	0.10	-1.0000	14	1.7709		2.213	
	2.50	0.3979	15	1.7613		2.248	
	0.81	-0.0915	16	1.7531		2.279	
	0.39	-0.4089	17	1.7459		2.309	
	1.00	0.0000	18	1.7396		2.336	
	0.56	-0.2518	19	1.7341		2.361	
	2.20	0.3424	20	1.7291		2.385	
	3.20	0.5051	21	1.7247		2.408	
	0.47	-0.3279	22	1.7207		2.429	
	0.76	-0.1192	23	1.7171		2.449	
	2.50	0.3979	24	1.7139	1.714	2.468	2.468
	0.90	-0.0458	25	1.7109		2.486	
			26	1.7081		2.503	
			27	1.7056		2.520	
			28	1.7033		2.536	
			29	1.7011		2.551	
			30	1.6991		2.565	
			31	1.6973		2.579	
			32	1.6955		2.592	
			33	1.6939		2.605	
			34	1.6924		2.618	
			35	1.6909		2.630	
			36	1.6896		2.641	
			37	1.6883		2.652	
			38	1.6871		2.663	
			39	1.6860		2.674	
			40	1.6849		2.684	
			41	1.6839		2.694	
			42	1.6829		2.704	
			43	1.6820		2.713	
			44	1.6811		2.722	
			45	1.6802		2.731	
			46	1.6794		2.739	
			47	1.6787		2.748	
			48	1.6779		2.756	
			49	1.6772		2.764	
			50	1.6766		2.772	

Determinand:	Total PAH in Restoration Soils
No. of samples:	24
SGV:	1.6
t value:	1.714
mean (x):	0.78
st.dev (s):	0.95
95% ile:	**1.12**

Is the Mean Value Test Higher or Lower than the SGV?	
Higher or Lower	Lower
Y max:	0.505
Y mean:	-0.437
Y st.dev.:	0.559
T value	1.685
Comparator	2.468

Maximum Value Test Result:	
Outlier Test?	Maximum is within a Normal Distribution

Outlier Values	Sample Number

Encia Job No.	20096/6F
Site Name	Church Hill (AREA F)
Engineer	KL

Analytical Data			Mean Value Test			Outlier Test	
Material Type	Data (mg/kg)	Log Data	n	t	t value	T_{crit} 10%	T_{crit} V
Inert Waste	28.00	1.4472	2	6.3138			
	0.30	-0.5229	3	2.9200			
	0.67	-0.1739	4	2.3534		1.425	
	1.50	0.1761	5	2.1318		1.602	
	0.10	-1.0000	6	2.0150		1.729	
	0.21	-0.6778	7	1.9432		1.828	
	1.20	0.0792	8	1.8946		1.909	
	1.20	0.0792	9	1.8595		1.977	
	0.10	-1.0000	10	1.8331		2.036	
	2.70	0.4314	11	1.8125		2.088	
	0.88	-0.0555	12	1.7959		2.134	
	0.51	-0.2924	13	1.7823		2.176	
	1.60	0.2041	14	1.7709	1.771	2.213	2.213
	0.10	-1.0000	15	1.7613		2.248	
			16	1.7531		2.279	
			17	1.7459		2.309	
			18	1.7396		2.336	
			19	1.7341		2.361	
			20	1.7291		2.385	
			21	1.7247		2.408	
			22	1.7207		2.429	
			23	1.7171		2.449	
			24	1.7139		2.468	
			25	1.7109		2.486	
			26	1.7081		2.503	
			27	1.7056		2.520	
			28	1.7033		2.536	
			29	1.7011		2.551	
			30	1.6991		2.565	
			31	1.6973		2.579	
			32	1.6955		2.592	
			33	1.6939		2.605	
			34	1.6924		2.618	
			35	1.6909		2.630	
			36	1.6896		2.641	
			37	1.6883		2.652	
			38	1.6871		2.663	
			39	1.6860		2.674	
			40	1.6849		2.684	
			41	1.6839		2.694	
			42	1.6829		2.704	
			43	1.6820		2.713	
			44	1.6811		2.722	
			45	1.6802		2.731	
			46	1.6794		2.739	
			47	1.6787		2.748	
			48	1.6779		2.756	
			49	1.6772		2.764	
			50	1.6766		2.772	

Determinand:	Total PAH in Inert Waste
No. of samples:	14
SGV:	1.6
t value:	1.771
mean (x):	2.79
st.dev (s):	7.29
95% ile:	**6.24**

Is the Mean Value Test Higher or Lower than the SGV?	
Higher or Lower	Higher
Y max:	1.447
Y mean:	-0.165
Y st.dev.:	0.670
T value	2.405
Comparator	2.213

Maximum Value Test Result:	
Outlier Test?	Maximum is an Outlier

Outlier Values	Sample Number
28	BH26 5.0

Encia Job No.	20096/6F
Site Name	Church Hill (AREA F)
Engineer	KL

Analytical Data			Mean Value Test			Outlier Test	
Material Type	Data (mg/kg)	Log Data	n	t	t value	T_{crit} 10%	T_{crit} V
Inert Waste			2	6.3138			
	0.30	-0.5229	3	2.9200			
	0.67	-0.1739	4	2.3534		1.425	
	1.50	0.1761	5	2.1318		1.602	
	0.10	-1.0000	6	2.0150		1.729	
	0.21	-0.6778	7	1.9432		1.828	
	1.20	0.0792	8	1.8946		1.909	
	1.20	0.0792	9	1.8595		1.977	
	0.10	-1.0000	10	1.8331		2.036	
	2.70	0.4314	11	1.8125		2.088	
	0.88	-0.0555	12	1.7959		2.134	
	0.51	-0.2924	13	1.7823	1.782	2.176	2.176
	1.60	0.2041	14	1.7709		2.213	
	0.10	-1.0000	15	1.7613		2.248	
			16	1.7531		2.279	
			17	1.7459		2.309	
			18	1.7396		2.336	
			19	1.7341		2.361	
			20	1.7291		2.385	
			21	1.7247		2.408	
			22	1.7207		2.429	
			23	1.7171		2.449	
			24	1.7139		2.468	
			25	1.7109		2.486	
			26	1.7081		2.503	
			27	1.7056		2.520	
			28	1.7033		2.536	
			29	1.7011		2.551	
			30	1.6991		2.565	
			31	1.6973		2.579	
			32	1.6955		2.592	
			33	1.6939		2.605	
			34	1.6924		2.618	
			35	1.6909		2.630	
			36	1.6896		2.641	
			37	1.6883		2.652	
			38	1.6871		2.663	
			39	1.6860		2.674	
			40	1.6849		2.684	
			41	1.6839		2.694	
			42	1.6829		2.704	
			43	1.6820		2.713	
			44	1.6811		2.722	
			45	1.6802		2.731	
			46	1.6794		2.739	
			47	1.6787		2.748	
			48	1.6779		2.756	
			49	1.6772		2.764	
			50	1.6766		2.772	

Determinand:	Total PAH in Inert Waste
No. of samples:	13
SGV:	1.6
t value:	1.782
mean (x):	0.85
st.dev (s):	0.77
95% ile:	1.23

Is the Mean Value Test Higher or Lower than the SGV?	
Higher or Lower	Lower
Y max:	0.431
Y mean:	-0.289
Y st.dev.:	0.503
T value	1.431
Comparator	2.176

Maximum Value Test Result:	
Outlier Test?	Maximum is within a Normal Distribution

Outlier Values	Sample Number

Encia Job No.	20096/6F
Site Name	Church Hill (AREA F)
Engineer	KL

Analytical Data			Mean Value Test			Outlier Test	
Material Type	Data (mg/kg)	Log Data	n	t	t value	T_{crit} 10 %	T_{crit} V
Natural Strata	0.13	-0.8861	2	6.3138			
	1.20	0.0792	3	2.9200			
	2.70	0.4314	4	2.3534		1.425	
	2.20	0.3424	5	2.1318		1.602	
	0.10	-1.0000	6	2.0150		1.729	
	0.58	-0.2366	7	1.9432		1.828	
	0.46	-0.3372	8	1.8946	1.895	1.909	1.909
	0.10	-1.0000	9	1.8595		1.977	
			10	1.8331		2.036	
			11	1.8125		2.088	
			12	1.7959		2.134	
			13	1.7823		2.176	
			14	1.7709		2.213	
			15	1.7613		2.248	
			16	1.7531		2.279	
			17	1.7459		2.309	
			18	1.7396		2.336	
			19	1.7341		2.361	
			20	1.7291		2.385	
			21	1.7247		2.408	
			22	1.7207		2.429	
			23	1.7171		2.449	
			24	1.7139		2.468	
			25	1.7109		2.486	
			26	1.7081		2.503	
			27	1.7056		2.520	
			28	1.7033		2.536	
			29	1.7011		2.551	
			30	1.6991		2.565	
			31	1.6973		2.579	
			32	1.6955		2.592	
			33	1.6939		2.605	
			34	1.6924		2.618	
			35	1.6909		2.630	
			36	1.6896		2.641	
			37	1.6883		2.652	
			38	1.6871		2.663	
			39	1.6860		2.674	
			40	1.6849		2.684	
			41	1.6839		2.694	
			42	1.6829		2.704	
			43	1.6820		2.713	
			44	1.6811		2.722	
			45	1.6802		2.731	
			46	1.6794		2.739	
			47	1.6787		2.748	
			48	1.6779		2.756	
			49	1.6772		2.764	
			50	1.6766		2.772	

Determinand:	Total PAH in Natural Strata
No. of samples:	8
SGV:	1.6
t value:	1.895
mean (x):	0.93
st.dev (s):	1.01
95% ile:	**1.61**

Is the Mean Value Test Higher or Lower than the SGV?	
Higher or Lower	Higher
Y max:	0.431
Y mean:	-0.326
Y st.dev.:	0.587
T value	1.289
Comparator	1.909

Maximum Value Test Result:	
Outlier Test?	Maximum is within a Normal Distribution

Outlier Values	Sample Number

APPENDIX I

Water Monitoring Report

(Ref: 20096/056 dated 31st January 2013)

Encia Regeneration Limited

20096/056

31st January 2013

Mr Dietrich Mehrhoff
Landplus GmBH
Hedwigstrasse 62
D-45131
Essen
Germany

****By Email Only****

Dear Dietrich

Evonik Degussa UK Holdings Ltd
Former Landfills, Nutfield Road, Redhill, Surrey

Groundwater Monitoring Report (October 2011 – December 2012)

Further to our proposal ref: 20096/P5/aja/001, dated 30th August 2012, we are pleased to provide our report on the supplementary groundwater monitoring performed at the above site.

Background

An exploratory ground investigation was undertaken by Landplus/Encia at the above site in late 2011. The findings of the exploratory investigation are presented in the following report:

- *"Exploratory Geoenvironmental Appraisal of Former Par, North Cockley and Beechfield Landfills, Nutfield Road, Redhill, Surrey".* Report No. 20096/1, January 2012

The study site can be divided into 6 areas, based on historical land use, as shown on **Drawing No. 20096/2 in Appendix A**, and as summarised below:

- Area A – Former Park Quarry Landfill
- Area B – Former North Cockley Landfill
- Area C – Gore Meadow
- Area D – Former Sand Pit
- Area E – Former Beechfield Quarry Landfill
- Area F – Former Church Hill Quarry Landfill

The above investigation entailed the establishment of 33 No. gas/groundwater monitoring wells across the site supplementary by additional exploratory holes, the locations of which are shown on **Drawing No. 20096/9-REVA in Appendix A**.

The investigation identified predominantly putrescible/degradable wastes within Areas A and B. 'Inert' wastes were indentified across Areas C, D, E and F to generally shallower depths, although in Area F the inert wastes (mainly quarry overburden materials) were observed to greater depths. Across all areas investigated, the putrescible/degradable and inert wastes appeared to be present directly above sand and sandstone strata and possess no 'basal line'r, although all restored landfill areas possess a good covering of clayey restoration soil cover and a geomembrane cap would appear to be present across much of Area B.

Groundwater and surface water sampling/testing was initially carried out on 2 occasions on 2nd-6th October 2011 and 9th-10th November 2011.

Given the environmental setting of the former landfills, combined with the inherent variability of environmental monitoring data which can be obtained from such sites, it has been recommended that the groundwater and surface water be monitored at the site for an extended period of time.

This letter and associated attachments represents our report on the additional groundwater and surface water sampling exercises carried out to date.

Groundwater and Surface Water Sampling

Samples of groundwater and surface water samples were obtained from site during sampling exercises on the following dates:

- 2nd and 6th October 2011 - Monitoring '**Round 1'**
- 9th and 10th November 2011 - Monitoring '**Round 2'**
- 21st and 22nd February 2012 - Monitoring '**Round 3'**
- 30th and 31st May 2012 - Monitoring '**Round 4'**
- 10/11th September 2012 - Monitoring **'Round 5'** – reduced testing suite
- 11/12th December 2012 - Monitoring **'Round 6'**

The borehole and surface water sampling locations are shown on **Drawing No. 20096/9-REVA in Appendix A.**

Groundwater Samples

Groundwater samples have been obtained from the groundwater monitoring wells, where sufficient water volume has allowed.

Samples were obtained my means of dedicated water bailers following the purging of three times the well volume of water from each borehole.

Surface Water Samples

Surface water samples were obtained on each sampling occasion from the following nearby surface water features (see **Drawing No. 20096/9-REVA**):

- 'Landfill Pond' (ref: SW1) – located in the centre of Area B (North Cockley Landfill).
- 'Glebe Lake' (ref: SW2) – located off site to the east/northeast of the study site.
- 'Inn on the Pond' (Ref: SW3) – located off site immediately to the north of Area D.
- 'Mercer Lake' (Ref: SW4) – located in Mercers County Park ca 300m to the north of the study site.
- 'Angling Pond' (Ref: SW5) – disused water filled quarry workings within Area D in the north of the site which is used by a local angling club.
- 'East Angling Pond (Ref: SW6) - disused water filled quarry workings within Area D. This pond has typically been dry, but contained water in December 2012.

Chemical Testing Analysis

The collected samples were scheduled for the following suite of tests and despatched to an MCerts/UKAS accredited chemical testing laboratory (Severn Trent Analytical Services, Coventry):

- pH and metals
- Conductivity, sulphate, ammoniacal nitrogen, BOD (5 day), COD, chloride, nitrate, nitrite
- Speciated TPH and BTEX
- Speciated VOCs
- Speciated SVOCs
- Speciated PCBs
- Speciated organo-chloride and organo-phosphorus Pesticides and Herbicides

The chemical testing performed in September 2012 comprised a reduced suite of tests and samples of 'up and down gradient' boreholes and nearby surface water features were tested for the following: pH, conductivity, sulphate, ammoniacal nitrogen, BOD (5 day), COD and chloride

The results of the chemical tests are summarised in the following tables which are presented in **Appendix B**.

- Table 1 - inorganic determinands
- Table 2 - organic determinands.

Groundwater Levels and Flow Pattern

Late 2011

The previous (late 2011) ground investigation identified a relatively regular pattern of groundwater flow across the site. **Drawing No. 20096/13A in Appendix A** presents approximate groundwater contours (in mAOD) as observed in November 2011.

Groundwater levels were in the order of 120-122mAOD in the south of the site and which decreased in a northerly direction to ca. 75mAOD in the vicinity of Chlimead Lane in the north. The approximate hydraulic gradient across the site was observed to be relatively steep and was calculated to be approximately 0.053m/m.

The groundwater levels closely correlate with the level of surface water bodies located on and near to the site, which indicates that these flooded former mineral extraction features are considered to be substantially groundwater fed, although local surface water ditches, runoff from roads and agricultural land also feed into these surface water features.

The groundwater monitoring has shown that a natural water table is present within the natural Sandgate and Folkestone Bed strata but this same groundwater body would appear to intersect the waste mass within Areas A and B and partially within Area F. No 'perched' leachate within the waste mass is discernable across the site and such waters within the waste would appear to represent a continuation of the 'natural' piezometric surface, although a perched groundwater body within the wastes would appear to be present in the north of the site (in BH16 and BH17). A slight 'deflection' of the groundwater contours is, however, noted within the areas noted to possess a significant thickness of waste deposits.

Late 2012

The original groundwater monitoring performed during the main ground investigation in late 2011 was carried out towards the end of an extended period of below average rainfall in Southern England. As such, the groundwater contours shown on Drawing No. 20096/13A could be regarded as representing 'minimum' groundwater levels.

From April 2012 onwards, Southern England, as well as the UK as a whole, has seen the second wettest year on record. Groundwater level monitoring carried out over the period May

to December 2012 has seen a steady recharge in groundwater, reflected in a subtle rise in groundwater levels, particularly in the southern-most parts of the site.

Drawing No. 20096/13B in Appendix A presents the approximate groundwater contours observed in December 2012. Groundwater levels in the south of the site have been observed to be close to 125mAOD with a deflection in groundwater contours within the central southern part of the site. Groundwater levels within the waste mass (in Areas A and B) have also risen marginally, although the overall hydraulic gradient across the majority of the site has remained relatively unchanged.

The eastern fishing pond in the north of the site in Area D has been observed to be dry between October 2011 and September 2012. However, in December 2012 considerable water was observed in this pond, possibly reflecting the overall recent rise in groundwater levels. Although it should also be noted that small but steady flows of water were also observed (for the first time) in the drainage ditches which feed this pond from the south.

Groundwater and 'Leachate' Quality

Water samples obtained from the borehole monitoring installations can be classified as follows:

- *Groundwater* – where the monitoring installation response zone is located within natural strata.
- *'Leachate'* - where the monitoring installation response zone is located within waste or other made ground materials.

Tables 1 and 2 in Appendix B indicate which samples can be classified as 'groundwater' (ref. 'GW') and 'leachate' (Ref. 'L').

Inorganic Determinands

A summary of the detected concentrations of inorganic determinands within groundwater/leachate is presented in **Table 1 in Appendix B**.

The groundwater and leachate at the site has been shown to routinely possess concentrations of inorganic determinands in excess of Freshwater Environmental Quality Standards (EQS) concentrations.

The groundwater and leachate at the study site is generally characterised by elevated concentrations of arsenic, chromium, lead, selenium, copper, nickel and zinc and ammoniacal nitrogen from Areas A and B, as would be expected in landfill areas possessing putrescible wastes.

Groundwaters obtained from parts of the site underlain by 'inert' wastes (e.g. Areas C, D, E and F) are of better quality with regard to inorganic determinands, although slightly elevated metals and sulphates have also been detected. It should be noted that many boreholes located in Area F locally encountered discrete horizons of yellow clayey silt reworked Fullers Earth deposit which is characterised by high 'total' sulphate concentrations.

Elevated electrical conductivity, BOD, COD and ammoniacal nitrogen concentrations have also been detected during each sampling round, and are particularly elevated within the putrescible waste areas (Areas A and B), and have remained consistently elevated during the monitoring period. Groundwater samples obtained from natural strata underlying putrescible wastes in 'BH16 (Deep)' and 'BH17 (Deep)' located down hydraulic gradient of the landfill areas in the north of Area B have also recorded elevated concentrations of these determinands.

Concentrations of mercury, cadmium, copper, cyanide, nitrate and nitrite have generally been detected below their laboratory limits of detection and/or their respective Freshwater EQS/UK

Drinking Water Standards in groundwaters/leachates, although elevated cadmium concentrations were noted in a number of boreholes in May 2012.

It is noteworthy that elevated concentrations of inorganic determinands have also noted in the samples of groundwater obtained from boreholes located 'up hydraulic gradient' of the site (i.e. BH1, BH21).

Organic Determinands

A summary of the detected concentrations of organic determinands within groundwater/leachate is presented in **Table 2 in Appendix B**

BTEX Compounds:

These compounds have generally not been detected in excess of their respective freshwater EQS in the groundwater/leachate. However, xylenes have been detected in excess of the freshwater EQS value of 30ug/l in the leachate samples obtained from BH6 and BH15 drilled within putrescible wastes (Area B) in all monitoring rounds up to a maximum concentration of 106ug/l (BH15, Round 3 – February 2012).

Total Petroleum Hydrocarbons (TPH):

Gasoline, Diesel and Lubricating Oil Range Organic Petroleum Hydrocarbons (GRO C_6-C_{10}, DRO C_{10}-C_{20} and LRO C_{20}-C_{40}) have been detected in excess of UK Drinking Water Standards in the majority of groundwater/leachate samples from within Area B as well as locally within Areas A and F. The highest recorded concentrations of total petroleum hydrocarbons have been detected in BH31 drilled within putrescible wastes within Area B (1457ug/l TPH C_6-C_{40} in Round 2).

Concentrations of TPH have, however, seen a significant decrease in all monitoring wells over the monitoring period and, in Area F (BHs 24-30), TPH compounds have not been detected in excess of laboratory limits of detection in monitoring Rounds 3, 4 and 6 (February – December 2012).

No TPH compounds have been detected in excess of laboratory limits of detection in Areas C, D and E in all samples tested.

Polycyclic Aromatic Hydrocarbons (PAH):

PAH compounds have generally been detected at concentrations in excess of Freshwater EQS from boreholes located across Area B and locally within Area F and have not been detected in excess of laboratory limits of detection in other parts of the site.

Naphthalene has been detected in excess of the Freshwater EQS value of 10ug/l within the centre of Area B (i.e. BH6, BH7, BH15, BH31), although the concentrations of naphthalene have been observed to decrease in the down gradient boreholes BH16 and BH17. Other PAH compounds have also been detected in boreholes located across Area A but at generally lower concentrations than naphthalene.

Significantly elevated naphthalene concentrations (max. 621ug/l) have also been observed in BH26 in Area F during monitoring Rounds 1 and 2 (Oct-Nov 2011), but have not been detected in this borehole, or any other boreholes located in Area F in the more recent monitoring. The source for this contamination initially noted in BH26 is considered to be the deposits of ash and clinker materials that are locally present within the fill materials in this part of the site.

Benzo(a)pyrene has not been detected in excess of the laboratory limit of detection in any samples tested to date.

Volatile Organic Compounds (VOCs):

VOCs have been detected in groundwater/leachate substantially across Area A and Area B at relatively low/trace concentrations (typically <10ug/l for each compound, were detected).

1,2,4-Trimethylbenzene was the most common contaminant and made up most of the VOC concentrations detected in the October 2011 (Round 1) samples. The November 2011 (Round 2) samples possessed more elevated concentrations of VOCs, particularly in BH6, BH15 and BH31 in Area A, and these contaminants predominantly comprised 1,2,4-trimethylbenzene as well as chloroethane, vinyl chloride, chlorobenzene and iso-propylbenzene.

The samples obtained in Round 3 (February 2012) recorded the presence of the following VOCs at trace concentrations, particularly within leachate from BH15 and within groundwater from BH17 (Deep).

- Chlorobenzene
- Chloroethane
- 1,4-Dichlorobenzene
- 1,2,4-trimethylbenzene
- 1,1-dichloroethane

The samples obtained during Round 4 (May 2012) again recorded VOCs in boreholes located in Area B, in particular BH6, BH15 and BH17. Chlorobenzene and 1,2,4-trimethylbenzene were the most commonly detected VOCs making up most of the 'total' VOC concentrations detected, although 1,3,5-trimeththylbenzene, p-isopropyltoluene, 1,4-dichlorobenzene and iso-propylbenzene were detected in BH15 at individual concentrations of <5ug/l.

The most recent monitoring results (Round 6 – December 2012) shows a similar pattern of VOC contamination, with these compounds being detected at in Areas A and B and mainly in BH6 and BH15. Chlorobenzene and 1,2,4-trimethylbenzene were again the most commonly detected VOCs making up most of the 'total' VOC concentrations detected, although p- and iso-propylbenzene, 1,2- and 1,4-dichlorobenzene were also locally detected at trace concentrations.

VOCs have not been detected at significant concentrations or in excess of limits of laboratory detection within boreholes located within Area A, C, E and F during any of the monitoring rounds.

Semi-Volatile Organic Compounds (SVOCs):

With regard to SVOCs, 3,4-Methylphenol and Dibenzofuran were the most commonly detected contaminants and were detected at trace concentrations in boreholes located across Areas A and B during monitoring Round 1 and 2.

The SVOCs dibenzofuran and 2-methylnaphthalene were detected at lower concentrations in a fewer number of boreholes in Area A and B during monitoring Round 3.

No SVOC compounds were detected in any borehole during the monitoring Round 4 carried out in late May 2012.

The only SVOC compound detected during the most recent monitoring Round 6 (December 2012 was diethylphthalate in upgradient BH1 (5.3ug/l)

Pesticides and Herbicides:

Organo-chlorine and organo-phosphorus pesticides/herbicides have been detected at trace concentrations (generally <0.05ug/l) from those boreholes drilled through putrescible waste materials within the centre of Area A (BH14) and across Area B (BH6, BH7, BH15, BH16, BH17

and BH31). The pesticides/herbicides detected have been 'dichlobenil' and 1,2,4 trichlorobenzene but these have not generally detected in excess of UK drinking water quality standard concentrations.

Polychlorinated biphenyls (PCBs):

PCBs have only been detected in excess of laboratory detection limits in the samples of leachate obtained from BH4 and BH14 (Area A) in the earliest 2 monitoring rounds (max. concentration 0.02ug/l – BH4, Round 1). No PCBs have been detected in any other borehole during any other monitoring round.

Surface Water Quality

Inorganic Determinands

A summary of the detected concentrations of inorganic determinands within surface waters is presented in **Table 1 in Appendix B**.

For the most part, the concentrations of metals have not been detected in excess of limits of laboratory detection or in excess of Freshwater Environmental Quality Standards (EQS). The exceptions to this were as follows:

- Zinc – detected marginally in excess of the most stringent EQS value of 8ug/l in the following samples:
  - SW1 and SW3 in Round 1
  - SW1-SW4 in Round 2,
  - SW5 in Round 3
  - SW2 and SW3 in Round 4.
- Lead - detected in excess of the most stringent EQS value of 4ug/l the following samples:
  - SW1 in Round 1
  - SW2 and SW3 in Round 4.
  - SW3 in Round 6

Ammoniacal nitrogen, BOD, COD and nitrite have been detected during different monitoring rounds in SW1 and SW3. The samples SW1 have been obtained from a surface water feature existing as a shallow pond on the surface of the former landfill area that is frequented by numerous seagulls and other birds and the presence of such contaminants would be expected. Samples SW3 are obtained from the pond near to the 'Inn on the Pond' public house and can only be obtained from the densely vegetated pond margins where significant organic detritus frequently enters the samples.

Organic Determinands

A summary of the detected concentrations of organic determinands within surface waters is presented in **Table 2 in Appendix B**.

No significant concentrations of inorganic determinands have been detected in the surface water samples obtained to date.

Trace concentrations of pesticides were noted in the Mercer's Lake (SW4) to the north of the site in monitoring Round 1 (0.01ug/l). The presence of trace concentrations of pesticides in this water body could be derived from adjacent agricultural land and was not detected in the subsequent (Round 2-6) samples.

A trace concentration of an SVOC compound (3,4-methylphenol) was detected in the 'Inn on

the Pond' surface water feature (SW3) in Round 2 (3.2ug/l). The compound is widely used as a disinfectant and insecticide but can also be naturally produced by bacteria and other small organisms in the breakdown of organic matter.

Petroleum hydrocarbons C_{20}-C_{40} have periodically been detected in SW1 (40ug/l - Round 2) and SW2 (80ug/l - Round 3). These detected concentrations are considered to be due to the presence of organic sediments which inadvertently entered the samples during sampling.

Summary and Conclusions

The study site comprises a series of contiguous former mineral extraction quarries which have subsequently been landfilled with controlled wastes. The waste materials possess no basal liner containment system or leachate collection systems and directly overlie permeable sand and sandstone strata. The landfills have therefore been designed on the 'dilute and disperse' principle.

The wastes within Area A and B have been observed to be putrescible in nature, whereas across the remainder of the site the wastes are more typically 'inert' in nature and visually possess less 'contamination potential' and are generally shallower in nature, although in Area F the inert wastes have been placed to ca 10-15m thickness.

The wastes across the whole site possess a good covering (ca 1.5-2.0m thick) of clayey restoration soil cover and in Area B, a geomembrane has been observed across parts of this part of the site. The presence of these restoration soils and cap, combined with the northerly sloping topography would ultimately be seek to reduce the amount of infiltration into the waste mass and thereby reduce leachate generation, and the site possesses a series of surface water collection ditches and drains.

However, groundwater level monitoring has shown that the natural groundwater table is within in situ natural strata at relatively shallow depth in the south of the site and the groundwater table would appear to intersect the lower waste deposits across Areas A and B, and also Area F. The shallower waste materials within Area C, D and E would appear to largely be present above the water table and are unsaturated.

The steep hydraulic gradient observed across the site, combined by the relatively high permeability of both the waste and underlying natural sand/sandstone strata would suggest that groundwater movement beneath the site and through the saturated waste mass would be relatively rapid. Given the age of most of the wastes (deposited in the 1960s-1980s), 'flushing' of contaminants from the wastes by a high groundwater flux over 50-25 years is likely to have taken place.

The quality of the leachate within Areas A and B and, to a lesser extent Area F, possesses contamination by some metals and is also characterised by elevated ammoniacal nitrogen, electrical conductivity, BOD and COD concentrations. However, the leachate is considered to be relatively 'dilute' when compared to leachates from modern contained landfill sites and this is considered to reflect the diluting and 'flushing' potential of the groundwater which flows through the waste mass. Furthermore, although the leachate possesses concentrations of VOC and TPH components, these are also at relatively low concentrations and the more volatile and soluble TPH and VOC fractions (e.g. BTEX compounds) are generally absent from the test data.

Groundwater beneath the landfilled areas is also locally characterised by elevated inorganic and organic contamination, although organic contaminants were generally absent from areas of inert wastes (e.g. Area C, D, E and F) in the later monitoring rounds.

The quality of the surface waters has been determined to be below freshwater Environmental Quality Standards with no evidence for landfill leachate being detected within them. Slightly elevated concentrations of zinc and lead has been detected in some surface water features but this has been detected in ponds located to the east and some distance to the north of the site

as well as in the nearby Angling Pond, and this could be a reflection of the natural local groundwater geochemistry or derived from other non-landfill sources. Similarly, trace concentrations of SVOC, pesticide and TPH compounds have periodically been detected in some surface water bodies, but this has been interpreted as being as a result of non-landfill sources or of natural origin.

The next scheduled groundwater monitoring exercise is proposed to be carried out in March 2013 for the reduced suite of inorganic determinands

We trust that you find the above and enclosed information to be of interest.

Yours sincerely

[redacted]

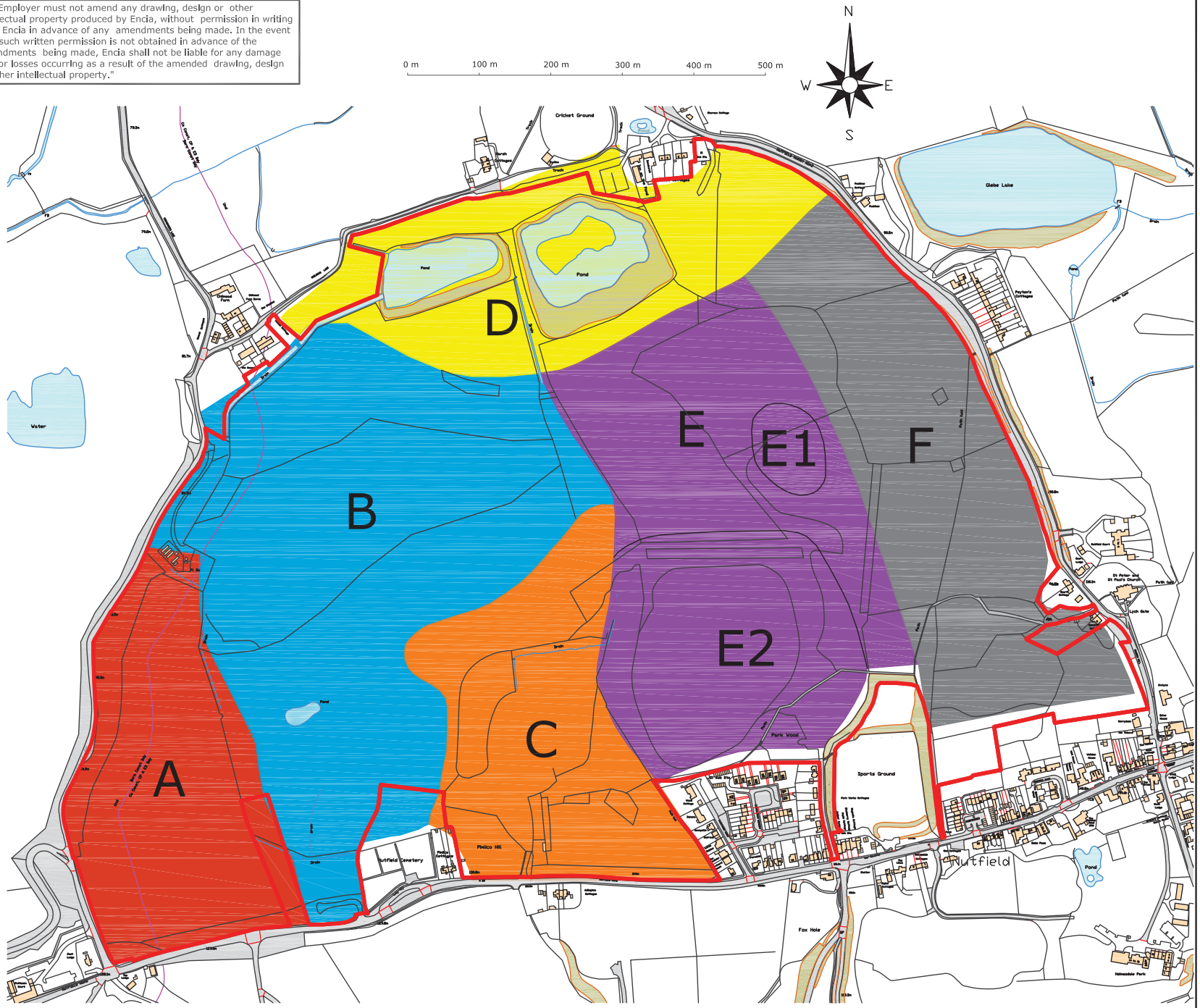
[redacted] BSc, MSc, FRGS, MCIWEM, C.WEM
for and on behalf of
ENCIA REGENERATION LIMITED

Encs – Appendix A - Drawings:
20096/2 – Site Areas Plan
20096/9-REVA – Exploratory Hole Location Plan
20096/13A – Approximate Groundwater Contours November 2011
20096/13B – Approximate Groundwater Contours December 2012

Appendix B – Groundwater/Surface Water Summary Tables
Table 1 – Inorganic Determinands
Table 2 – Organic Determinands

APPENDIX A

Drawings



KEY

A	PARK QUARRY
B	NORTH COCKLEY
C	GORE MEADOW
D	SAND PIT
E	BEECHFIELD QUARRY
F	CHURCH HILL

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Company No 6731047

CLIENT

EVONIK DEGUSSA UK HOLDINGS LTD

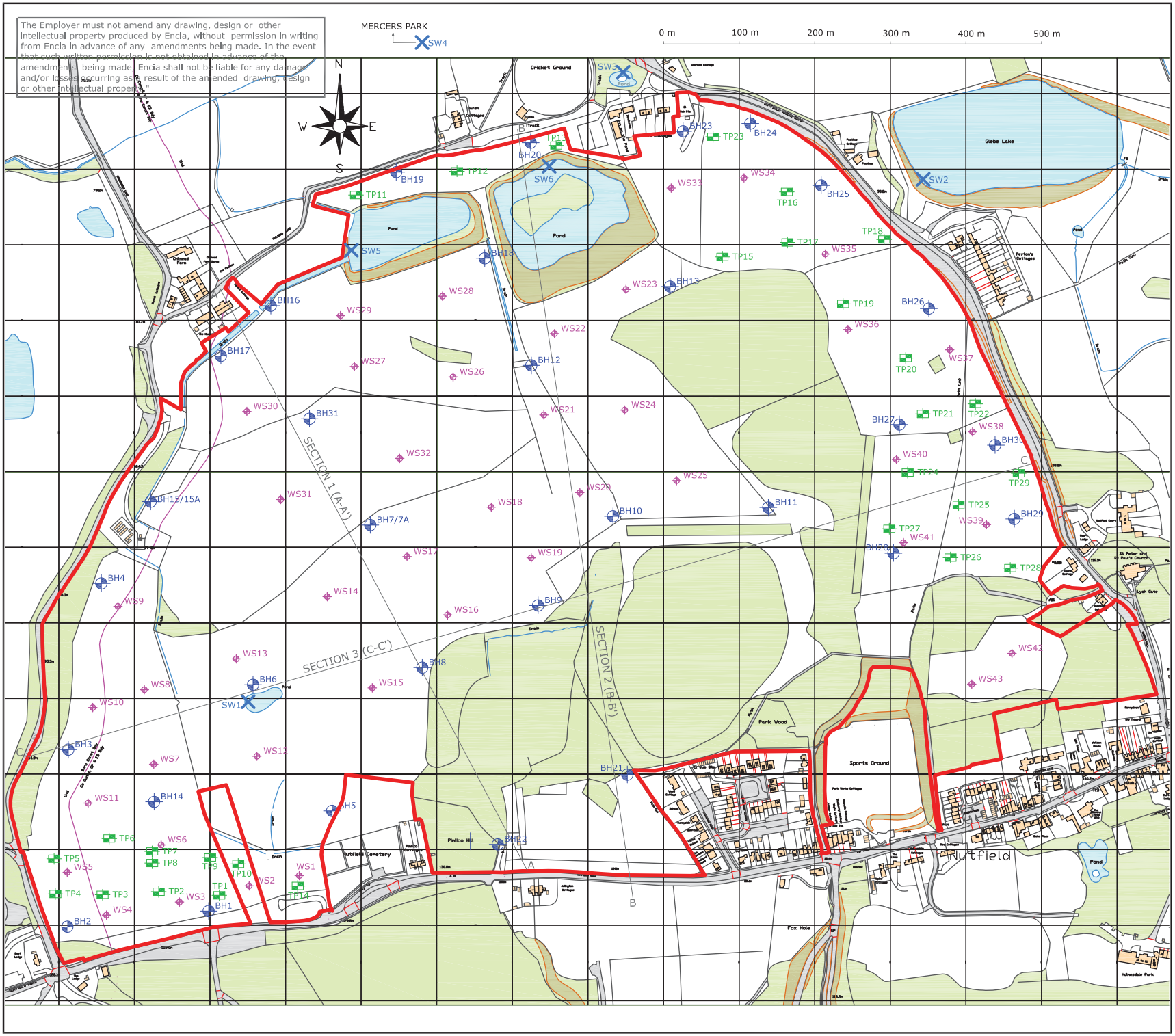
JOB TITLE

FORMER LANDFILL & QUARRIES
REDHILL, SURREY

DRAWING TITLE

SITE AREAS PLAN

STATUS	FINAL	
DRAWN BY: KL	SIGNATURE	DATE: 04/11/2011
APPROVED: AJA	SIGNATURE	DATE: 04/11/2011
SCALE: 1:5000@A3	DRG No.: 20096-2	



KEY

- SITE BOUNDARY
- TP1 — ENCIA TRIAL PIT (2011)
- BH1 — ENCIA BOREHOLE (2011)
- WS1 — ENCIA WINDOW SAMPLE (2011)
- SW1 — SURFACE WATER SAMPLE POINT

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CLIENT

EVONIK DEGUSSA UK HOLDINGS LTD

JOB TITLE

FORMER LANDFILLS/QUARRIES REDHILL, SURREY

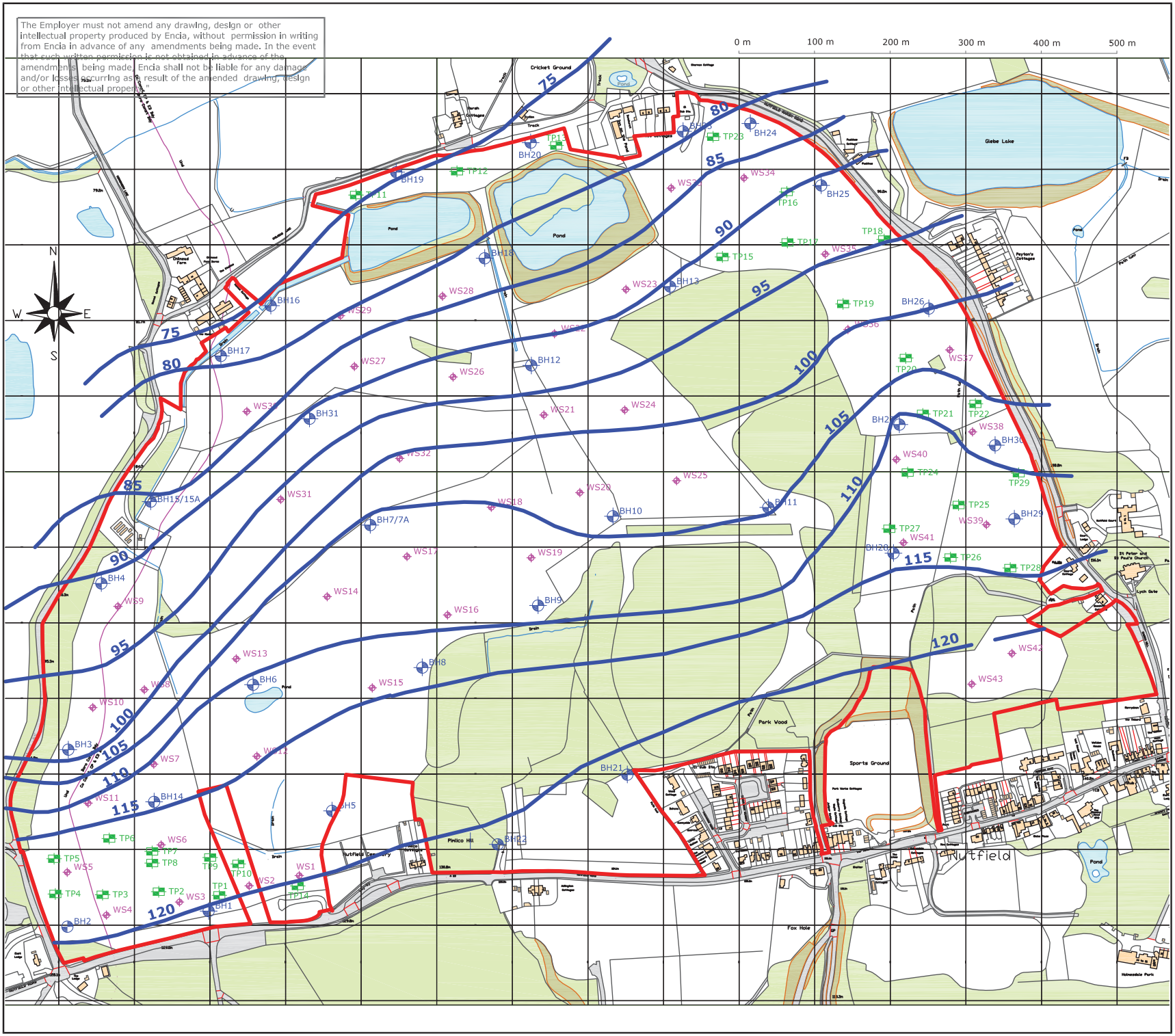
DRAWING TITLE

EXPLORATORY HOLE LOCATION PLAN

STATUS: FINAL

DRAWN BY	SIGNATURE	DATE
KL		13/12/2012
APPROVED	SIGNATURE	DATE
AJA		13/12/2012

SCALE	DRG No.
1:2500@A1	20096-9-REVA



KEY

SITE BOUNDARY

85 APPROXIMATE GROUNDWATER CONTOUR (mAOD) (9-10 November 2011)

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CLIENT

EVONIK DEGUSSA UK HOLDINGS LTD

JOB TITLE

FORMER LANDFILLS/QUARRIES REDHILL, SURREY

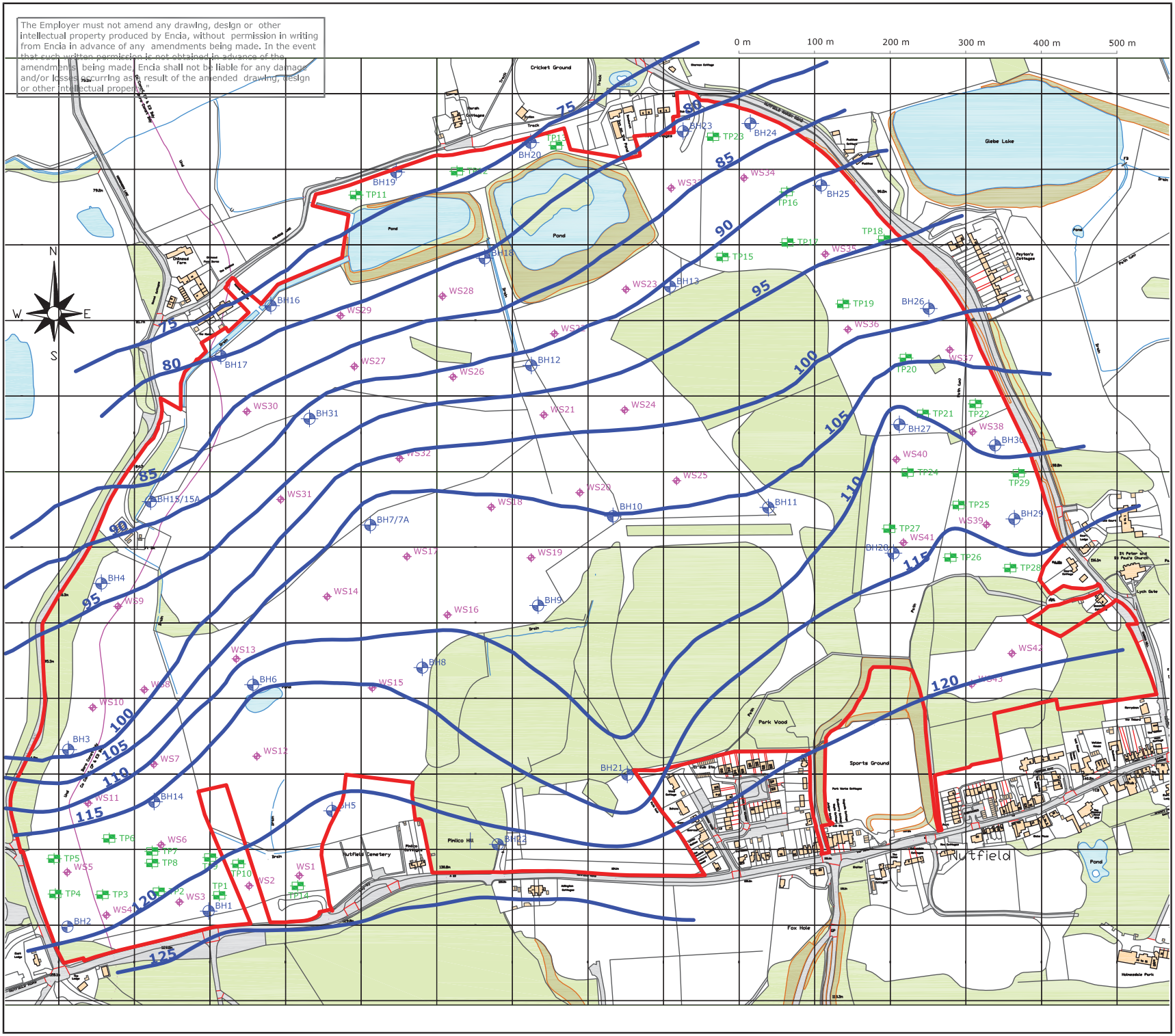
DRAWING TITLE

APPROXIMATE GROUNDWATER CONTOURS (NOVEMBER 2011)

STATUS: FINAL

DRAWN BY	SIGNATURE	DATE
KL		15/11/2011
APPROVED	SIGNATURE	DATE
AJA		15/11/2011

SCALE	DRG No.
1:5000@A3	20096-13A



KEY

SITE BOUNDARY

85 APPROXIMATE GROUNDWATER CONTOUR (mAOD) (11-12 December 2012)

ENCIA
2 Regent Street Knutsford Cheshire WA16 6GR
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CLIENT

EVONIK DEGUSSA UK HOLDINGS LTD

JOB TITLE

FORMER LANDFILLS/QUARRIES REDHILL, SURREY

DRAWING TITLE

APPROXIMATE GROUNDWATER CONTOURS (DECEMBER 2012)

STATUS: FINAL

DRAWN BY	SIGNATURE	DATE
KL		13/12/2012
APPROVED	SIGNATURE	DATE
AJA		13/12/2012

SCALE	DRG No.
1:5000@A3	20096-13B

APPENDIX B

Summary Tables

Former Landfills, Nutfield Road, Redhill Surrey

Table 1 **Summary of Inorganic Contamination in Groundwater and Surface Water (October 2011- December 2012)**

All results expressed as mg/l unless otherwise stated

ROUND 1 OCTOBER 2011

Determinand	Trigger Level	SITE AREA A				B							E	F	
		BH1	BH3	BH4	BH14	BH6	BH7	BH15	BH16 (D)	BH16 (S)	BH17(D)	BH31	BH11	BH24	BH26
		GW	L	GW	L	L	L	L	GW	L	GW	L	GW	GW	GW
pH		6.9	6.9	7	7	7.1	7.3	7	6.9	6.9	7.1	7.2	6.8	7.1	6.7
As	(0.05)*	0.0631	0.0651	0.0217	0.0574	0.0426	0.0495	0.0294	0.1096	0.0164	0.0776	0.0485	0.0553	0.0442	0.0434
Cd	(0.005)*	0.0138	0.0534	0.0052	0.0355	0.0134	0.0156	0.0221	0.0178	0.003	0.0194	0.0045	0.0029	0.0034	0.0089
Cr	(0.005)*	0.1656	0.2524	0.0587	0.1797	0.2012	0.5223	0.1613	0.5428	0.027	0.2991	0.1129	0.0357	0.2673	0.1571
Pb	(0.004)*	0.499	1.46	0.269	2.15	1.13	2.47	1.06	1.6	0.206	1.63	0.599	0.097	0.47	3.38
Hg	(0.001)*	0.0001	0.0004	0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001	<0.0001	<0.0001	0.0002	<0.0001
Se	(0.01)$	0.0914	0.0698	0.0381	0.0104	0.0469	0.0204	0.0129	0.059	0.0053	0.0194	0.0114	0.0115	0.0809	0.0105
B	(2)*	0.2	0.64	0.26	0.23	2.57	4	2.01	1.22	0.68	1.62	3.09	0.2	0.36	0.42
Cu	(0.028)*	0.572	1.29	0.082	0.43	0.364	0.716	0.424	0.987	0.113	0.47	0.022	0.033	0.348	0.412
Ni	(0.05)*	0.523	0.542	0.13	0.233	0.188	0.276	0.242	0.47	0.025	0.135	0.082	0.074	0.319	0.235
Zn	(0.008)*	1.16	2.86	0.468	4.15	3.56	3.69	1.78	3.95	0.266	2.31	0.909	0.214	0.915	6.46
CN	(0.05)$	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.011	0.066
SO_4	(400)*	64.8	79.4	47.9	14.2	17.9	<5.00	<5.00	20	15.1	52.9	8.82	327	99.7	349
Conductivity	(1500)$ uS/cm	1430	2620	625	1760	6200	8540	5740	3090	3000	4010	7670	1830	1250	1470
NH_3-N	(0.015)*	0.61	6.95	0.87	29.9	388	590	347	143	123	230	558	10.5	<0.19	2.59
BOD 5day	4	19	27	8	49	153	87	48	76	21	34	78	8	24	30
COD	250	1430	1900	161	981	1660	3050	1370	1500	554	1820	1870	244	525	770
Nitrate	(50)$	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	0.29	<0.29	<0.29	<0.29	<0.29
Nitrite	0.1($)	0.045	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.03	<0.006	<0.006

Surface Water				
SW1	SW2	SW3	SW4	SW5
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond
7.7	8.1	7.5	8	8.1
0.0037	<0.0014	<0.0014	0.0053	0.0019
0.0006	<0.0006	<0.0006	<0.0006	<0.0006
<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
<0.005	<0.005	<0.005	<0.005	<0.005
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
<0.12	0.12	<0.12	0.14	<0.12
<0.001	0.005	0.003	0.003	0.003
<0.002	0.004	0.003	0.007	0.003
<0.003	0.021	0.007	0.033	0.006
<0.009	0.02	0.021	0.015	0.015
1.2	47.9	1.3	128	28.4
309	259	454	585	315
0.64	<0.19	<0.19	<0.19	<0.19
2	<1	3	<1	<1
72	<11	37	14	20
<0.29	<0.29	<0.29	<0.29	<0.29
<0.006	<0.006	0.029	<0.006	<0.006

ROUND 2 NOVEMBER 2011

Determinand	Trigger Level	SITE AREA A				B							E	F	
		BH1	BH3	BH4	BH14	BH6	BH7	BH15	BH16 (D)	BH16 (S)	BH17(D)	BH31	BH11	BH26	BH27
		GW	L	L	L	L	L	L	GW	L	GW	L	GW	GW	GW
pH		6.9	6.8	7.2	7.1	7.1	7.4	7	7.1	6.9	7.2	7.5	6.8	6.7	8.1
As	(0.05)*	0.1329	0.04	0.007	0.0414	0.017	0.0421	0.0205	0.0344	0.0217	0.1885	0.0501	0.0392	0.0196	0.0352
Cd	(0.005)*	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0006	<0.0006	<0.0006
Cr	(0.005)*	0.0009	0.002	<0.0007	0.0009	0.0051	0.0393	0.0066	0.0031	0.0035	0.0036	0.0231	0.0008	<0.0007	0.0007
Pb	(0.004)*	<0.005	0.005	<0.005	0.007	<0.005	0.017	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hg	(0.001)*	0.0002	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0016
Se	(0.01)$	0.0029	0.0068	0.0031	0.0048	0.0047	0.0061	0.0035	0.0062	0.0036	0.0025	0.0045	<0.0016	0.0078	0.003
B	(2)*	0.32	0.39	0.23	0.46	2.11	3.69	1.79	1.29	1.23	1.62	2.99	0.26	0.34	0.31
Cu	(0.028)*	0.003	0.004	<0.003	<0.003	<0.003	0.011	<0.003	<0.003	<0.003	0.005	0.001	<0.003	<0.003	<0.003
Ni	(0.05)*	0.017	0.084	0.004	0.007	0.021	0.056	0.046	0.028	0.012	0.021	0.073	0.014	0.012	0.004
Zn	(0.008)*	0.082	0.055	0.008	1.08	0.015	0.028	0.581	0.009	0.196	0.244	0.381	0.05	0.047	0.018
CN	(0.05)$	<0.009	0.036	<0.009	0.145	0.011	0.019	0.011	<0.009	0.012	<0.009	0.028	<0.009	0.289	<0.009
SO_4	(400)*	107	10	29.5	8.2	55.1	2.7	<1.0	72.1	270	14.6	2.8	291	305	2740
Conductivity	(1500)$ uS/cm	1580	2850	600	1770	4240	8740	5970	3450	3320	4500	8740	1220	1330	3310
NH_3-N	(0.015)*	<0.19	9.93	0.55	25.8	241	589	363	174	143	49	642	8.18	0.91	0.48
BOD 5day	4	1	11	4	23	28	58	38	17	17	90	102	2	16	3
COD	250	167	646	80	612	577	1990	243	890	528	2290	1740	88	550	280
Nitrate	(50)$	1.4	<0.29	0.47	<0.29	<0.29	0.31	0.34	0.35	0.35	0.3	0.34	<0.29	<0.29	<0.29
Nitrite	0.1($)	<0.006	<0.006	0.072	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.044	<0.006	0.02

Surface Water				
SW1	SW2	SW3	SW4	SW5
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond
7.9	8.5	7.3	8	7.8
0.0034	<0.0014	<0.0014	0.0081	0.0015
<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
0.0008	<0.0007	<0.0007	<0.0007	<0.0007
0.006	<0.005	<0.005	<0.005	<0.005
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
0.23	0.21	0.35	0.28	0.24
0.002	0.002	0.002	<0.003	<0.003
<0.002	0.002	<0.002	0.002	<0.002
0.017	0.016	0.019	0.017	0.006
<0.009	<0.009	<0.009	<0.009	<0.009
3.1	49.6	<1.0	130	71.2
359	257	403	583	359
<0.19	<0.19	<0.19	<0.19	<0.19
3	15	17	1	1
73	157	44	21	111
1.3	0.36	0.39	0.52	0.49
0.031	<0.006	0.007	0.034	<0.006

ROUND 3 FEBRUARY 2012

Determinand	Trigger Level	SITE AREA A			B						C	E	F			
		BH1	BH4	BH14	BH6	BH7	BH15	BH16 (S)	BH17(D)	BH31	BH21	BH11	BH24	BH26	BH27	BH30
		GW	L	L	L	L	L	L	GW	L	GW	GW	GW	GW	GW	GW
pH		6.7	7	7	7	7.3	6.7	7	7.1	7.1	6.8	6.8	7.1	6.5	7.1	7.1
As	(0.05)*	0.1451	0.0103	0.0729	0.0536	0.0377	0.0245	0.0211	0.3255	0.0338	0.0336	0.1356	0.0659	0.047	0.073	0.0753
Cd	(0.005)*	<0.0006	<0.0006	0.0006	<0.0006	0.0006	<0.0006	<0.0006	0.0012	0.0013	<0.0006	<0.0006	<0.0006	0.0006	<0.0006	<0.0006
Cr	(0.005)*	<0.0020	0.002	<0.0020	0.009	0.0392	0.003	0.003	0.006	0.0125	0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Pb	(0.004)*	<0.006	<0.006	0.016	0.019	0.133	0.009	<0.006	0.037	0.043	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Hg	(0.001)*	0.0002	<0.0001	0.0001	<0.0001	<0.0001	0.0003	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0003	<0.0001	<0.0001
Se	(0.01)$	0.0082	0.0136	0.0116	0.015	0.0073	0.0054	0.0029	0.0048	0.0026	0.011	0.0126	0.0699	0.0124	0.0173	0.0199
B	(2)*	0.38	0.4	0.63	2.08	3.01	0.58	1.14	1.32	2.76	0.29	0.33	0.25	0.27	<0.23	<0.23
Cu	(0.028)*	<0.009	<0.009	<0.009	0.009	0.035	<0.009	<0.009	0.043	0.227	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Ni	(0.05)*	0.014	0.005	0.007	0.031	0.051	0.009	0.006	0.025	0.175	0.005	0.035	0.005	0.013	0.006	0.004
Zn	(0.008)*	0.02	<0.018	0.04	0.09	0.174	0.04	0.04	0.131	0.359	<0.018	<0.018	<0.018	0.02	<0.018	<0.018
CN	(0.05)$	<0.009	<0.009	<0.009	0.029	0.01	<0.009	0.01	<0.009	0.015	<0.009	<0.009	<0.009	0.065	<0.009	<0.009
SO_4	(400)*	96.8	24.5	35	48	220	280	101	344	1730	25.3	395	17.3	227	1390	1420
Conductivity	(1500)$ uS/cm	1940	556	2000	4330	7240	2160	3030	3740	8130	339	1450	410	1230	2040	2080
NH_3-N	(0.015)*	<0.27	<0.27	17.3	245	438	72	132	196	439	<0.27	<0.27	<0.27	0.58	<0.27	<0.27
BOD 5day	4	2	1	40	51	71	16	14	122	72	1	9	7	4	<1	3
COD	250	328	82	844	778	1820	371	288	2700	1080	275	413	-	177	135	139
Nitrate	(50)$	1	0.5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.5	<0.4	0.8	<0.4	0.7	0.7
Nitrite	0.1($)	0.046	0.058	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.213	<0.025	0.059	<0.025	<0.025

Surface Water				
SW1	SW2	SW3	SW4	SW5
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond
7.6	8.7	7.4	8.2	7.9
0.0028	<0.0014	<0.0014	0.0059	<0.0014
<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
<0.006	<0.006	<0.006	<0.006	<0.006
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
<0.23	<0.23	<0.23	0.26	<0.23
<0.009	<0.009	<0.009	<0.009	<0.009
<0.003	<0.003	<0.003	<0.003	0.003
<0.018	<0.018	<0.018	<0.018	0.02
<0.009	<0.009	<0.009	<0.009	<0.009
44.7	51.4	22.4	126	56
499	288	499	601	463
1.28	<0.27	<0.27	<0.27	<0.27
8	<1	2	<1	1
55	12	45	21	29
<0.4	<0.4	<0.4	<0.4	<0.4
<0.025	<0.025	<0.025	<0.025	<0.025

ROUND 4 MAY 2012

Determinand	Trigger Level	SITE AREA A			B						C	E	F			
		BH1	BH4	BH14	BH6	BH7	BH15	BH16 (S)	BH17 (S)	BH31	BH21	BH11	BH24	BH26	BH27	BH30
		GW	L	L	L	L	L	L	L	L	GW	GW	GW	GW	GW	GW
pH		7	7.1	7.1	7	7.4	7	7	7.1	7.4	DRY	6.8	DRY	7.1	7.6	7.1
As	(0.05)*	0.1082	0.0138	0.0659	0.0354	0.0253	0.0478	0.2766	0.192	0.1187		0.0404		0.142	0.227	0.0874
Cd	(0.005)*	0.0011	<0.0006	0.0393	0.0032	0.0039	0.0033	0.0067	0.0082	0.0042		<0.0006		0.0111	0.0198	0.0099
Cr	(0.005)*	0.0141	0.008	0.257	0.0267	0.0615	0.0449	0.0412	0.0739	0.0436		0.0111		0.1342	0.1428	0.1085
Pb	(0.004)*	0.056	0.021	3.33	0.095	0.309	0.318	0.125	0.245	0.442		0.028		0.509	4.18	0.422
Hg	(0.001)*	0.0003	0.0001	<0.0001	<0.0001	0.0003	0.0004	<0.0001	0.0001	<0.0001		<0.0001		0.0002	0.0015	<0.0001
Se	(0.01)$	0.0064	0.0212	0.0144	0.0071	0.0037	0.0077	0.0052	0.0035	0.0047		0.0026		0.0328	0.0495	0.0245
B	(2)*	<0.23	<0.23	0.65	0.55	3.25	0.74	0.74	0.95	2.13		<0.23		0.37	0.63	0.39
Cu	(0.028)*	0.059	0.02	0.621	0.044	0.078	0.121	0.089	0.101	0.66		0.012		0.145	0.387	0.119
Ni	(0.05)*	0.036	0.023	0.393	0.024	0.055	0.054	0.018	0.045	0.088		0.065		0.542	0.567	0.449
Zn	(0.008)*	0.273	0.164	5.32	0.567	0.28	0.537	0.194	0.351	1.64		0.08		2.27	3.93	1.85
CN	(0.05)$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	0.011		<0.01		<0.01	<0.01	<0.01
SO_4	(400)*	-	-	-	-	-	-	-	-	-		-		-	-	-
Conductivity	(1500)$ uS/cm	1970	559	1660	3360	6340	4020	3200	3940	7030		1490		2090	2420	2090
NH_3-N	(0.015)*	<0.27	<0.27	16	178	375	224	130	220	480		0.44		<0.27	<0.27	<0.27
BOD 5day	4	2	<1	42	38	59	42	33	69	88		9		3	5	3
COD	250	444	99	1600	779	1260	1240	655	1840	1420		134		435	306	248
Nitrate	(50)$	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		1.3		<0.4	<0.4	<0.4
Nitrite	0.1($)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025		<0.025		<0.025	<0.025	<0.025

Surface Water				
SW1	SW2	SW3	SW4	SW5
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond
7.9	7.1	7.4	8.2	8.4
0.0067	0.0116	0.003	0.0054	0.0016
<0.0006	0.0006	<0.0006	<0.0006	<0.0006
<0.002	0.004	0.002	<0.002	<0.002
<0.006	0.015	0.008	<0.006	<0.006
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
<0.23	<0.23	<0.23	<0.23	<0.23
<0.009	0.009	<0.009	<0.009	<0.009
0.006	0.013	0.005	0.005	<0.003
<0.018	0.07	0.05	<0.018	<0.018
<0.01	<0.01	<0.01	<0.01	<0.01
-	-	-	-	-
435	265	376	581	472
<0.27	<0.27	<0.27	<0.27	<0.27
3	9	7	<1	1
47	609	159	18	44
<0.4	<0.4	<0.4	<0.4	<0.4
0.291	0.026	0.226	<0.025	<0.025

ROUND 5 SEPTEMBER 2012 (Reduced 'Quarterly' Suite)

Determinand	Trigger Level	SITE AREA A			B						C	E	F			
		BH1	BH4	BH14	BH6	BH7	BH15	BH16 (S)	BH17 (S)	BH31	BH21	BH11	BH24	BH26	BH27	BH30
		GW	L	L	L	L	L	L	L	L	GW	GW	GW	GW	GW	GW
pH		7.3	7.6	-	-	-	7.0	7.3	7.4	-	-	-	8.1	-	-	7.5
As	(0.05)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cd	(0.005)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cr	(0.005)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pb	(0.004)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hg	(0.001)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Se	(0.01)$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	(2)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cu	(0.028)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ni	(0.05)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zn	(0.008)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CN	(0.05)$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SO_4	(400)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	(1500)$ uS/cm	1760	555	-	-	-	3990	7100	6730	-	-	-	575	-	-	2090
NH_3-N	(0.015)*	<0.27	<0.27	-	-	-	221	474	435	-	-	-	0.28	-	-	<0.27
BOD 5day	4	2	1	-	-	-	13	106	24	-	-	-	2	-	-	4
COD	250	39	19	-	-	-	392	1080	873	-	-	-	33	-	-	71
Chloride	250 *	317	7.33	-	-	-	463	1000	937	-	-	-	63.4	-	-	8.72
Nitrate	(50)$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite	0.1($)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Surface Water				
SW1	SW2	SW3 ■	SW4	SW5
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond
8.3	8.1	7.1	8.1	8.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
265	242	381	567	309
<0.27	<0.27	0.83	<0.27	<0.27
2	<1	100	<1	2
52	23	3020	49	35
16.8	10.3	49.1	61.7	10.8
-	-	-	-	-
-	-	-	-	-

ROUND 6 DECEMBER 2012

Determinand	Trigger Level	SITE AREA A				B							C	D	E		F				
		BH1	BH3	BH4	BH14	BH6	BH7	BH15	BH16 (S)	BH16 (D)	BH17 (D)	BH31	BH21	BH18	BH11	BH12	BH24	BH26	BH27	BH29	BH30
		GW	L	L	L	L	L	L	L	GW	GW	L	GW	L	GW	GW	GW	GW	GW	GW	GW
pH		7.10	6.70	7.10	7.10	7.10	7.40	7.00	7.10	6.90	7.00	7.10	6.80	7.00	7.00	7.40	6.80	6.90	7.50	7.60	7.00
As	(0.05)*	0.0077	0.0685	0.0046	0.0092	0.0048	0.0253	0.0106	0.0082	0.0151	0.0132	0.0174	0.0055	0.0451	0.0137	0.0238	0.0212	0.0350	0.0273	0.0128	0.0032
Cd	(0.005)*	<0.0006	0.003	<0.0006	0.001	<0.0006	0.0007	0.0006	<0.0006	<0.0006	0.0009	<0.0006	<0.0006	<0.0012	<0.0006	<0.0006	<0.0012	0.0006	<0.0012	<0.0006	<0.0006
Cr	(0.005)*	0.007	0.0257	0.003	0.006	0.005	0.0637	0.009	0.003	0.011	0.009	0.0106	0.005	0.1263	0.002	0.007	0.0201	<0.0020	0.006	0.004	<0.0020
Pb	(0.004)*	0.02	0.138	0.006	0.063	0.019	0.012	0.061	0.011	0.031	0.034	0.024	0.007	0.328	0.008	0.05	0.014	0.007	0.162	0.021	<0.006
Hg	(0.001)*	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	0.0002	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	<0.0001	0.0023	<0.0001	<0.0001	0.0002	<0.0001	<0.0001
Se	(0.01)$	0.0026	0.0076	0.0034	<0.0016	<0.0016	0.0031	0.0022	<0.0016	0.0024	0.0017	0.0022	<0.0016	0.022	<0.0016	0.0024	0.011	<0.0016	0.0054	0.0058	<0.0016
B	(2)*	<0.23	0.56	<0.23	0.28	0.84	2.85	0.85	0.83	0.7	1.07	1.22	<0.23	1.75	<0.23	<0.23	<0.46	<0.23	<0.46	<0.23	<0.23
Cu	(0.028)*	0.023	0.158	<0.009	0.012	0.01	0.012	0.035	<0.009	0.017	0.023	0.011	<0.009	0.175	<0.009	0.016	<0.018	<0.009	<0.018	0.012	<0.009
Ni	(0.05)*	0.014	0.054	0.009	0.01	0.015	0.032	0.02	0.014	0.016	0.026	0.028	0.008	0.124	0.047	0.016	0.008	0.011	0.027	0.009	0.011
Zn	(0.008)*	0.225	0.402	0.03	0.157	0.07	0.143	0.09	0.06	0.05	0.164	0.06	0.08	0.514	0.03	0.09	0.04	0.03	0.213	0.09	0.03
CN	(0.05)$	<0.009	<0.009	<0.009	0.013	<0.009	0.009	<0.009	<0.009	<0.009	<0.009	0.01	<0.009	<0.009	<0.009	<0.009	<0.009	0.011	<0.009	<0.009	<0.009
SO_4	(400)*	86.5	3.9	23.8	1.7	40.7	39.4	31.7	168	156	45.3	114	19.8	99.7	592	64.2	16.1	194	725	2140	544
Conductivity	(1500)$ uS/cm	1410	2910	571	1320	2420	6340	3150	2890	2810	3370	4430	371	906	1590	835	244	1070	1330	2630	1080
NH_3-N	(0.015)*	<0.27	43.4	<0.27	11.4	117	355	168	107	106	155	217	<0.27	0.74	1.58	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
BOD 5day	4	<1	36	1	19	9	36	25	16	29	23	32	6	65	5	19	4	6	8	7	1
COD	250	232	965	-	440	213	910	335	209	335	340	519	264	2460	-	630	-	238	85	132	72
Nitrate	(50)$	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	1	0.6	<0.4	<0.4	<0.4
Nitrite	0.1($)	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.057	<0.025	<0.025	<0.025	<0.025	<0.025
Chloride	250*	235	709	5.61	124	139	1000	330	193	179	298	474	22.6	16.4	12.7	7.13	5.97	24.1	8.84	9.57	5.56

Surface Water					
SW1	SW2	SW3 ■	SW4	SW5	SW6
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond	East Angling Pond
8.20	7.70	7.30	7.70	7.90	7.80
0.0020	<0.0014	0.0039	<0.0014	<0.0014	0.0043
<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
<0.0020	<0.0020	0.003	<0.0020	<0.0020	<0.0020
<0.006	<0.006	0.016	<0.006	<0.006	<0.006
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
<0.009	<0.009	0.025	<0.009	<0.009	<0.009
<0.003	<0.003	0.008	<0.003	<0.003	0.003
<0.018	<0.018	0.125	0.02	<0.018	0.08
<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
19.8	45.5	38.2	45.5	47	57
405	261	545	262	431	572
<0.27	<0.27	0.45	<0.27	<0.27	<0.27
2	1	15	1	3	4
52	20	318	15	33	95
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
11.6	11.4	82.7	11	11.4	22.2

Key		Source of Guidance Trigger Level	
(yellow)	Highlighted cells - value exeecds Tier 1 Screening Concentration	*	Freshwater Environmental Quality Standard
-	Parameter not tested for due to sample interference	$	Water Supply (Water Quality) Regulations 1989, as amended (UK Drinking Water Standard)
ND	None Detected		

GW	= Groundwater
L	= Leachate

■ Dense vegetation and resticted access permitted sample to only be obtained from pond margin. Sample noted to be contaminated by organic and 'anoxic' pond sediments

Former Landfills, Nutfield Road, Redhill Surrey

Table 2 Summary of Organic Contamination in Groundwater and Surface Water (October 2011- December 2012)

All results expressed as ug/l unless otherwise stated

ROUND 1 OCTOBER 2011

Determinand		Trigger Level	SITE AREA: A				B							E	F	
			BH1	BH3	BH4	BH14	BH6	BH7	BH15	BH16 (D)	BH16 (S)	BH17 (D)	BH31	BH11	BH24	BH26
			GW	L	L	L	L	L	L	GW	L	GW	L	GW	GW	GW
Benzene		(30)*	0.41	0.89	0.12	0.93	2.21	1.24	4.43	2.72	2.23	1.95	3.05	<0.10	<0.10	10.5
Toluene		(50)*	0.34	0.36	<0.10	0.24	3.21	1.38	0.67	0.42	0.34	0.27	0.71	<0.10	<0.10	9.1
Ethyl Benzene		(300)*	0.21	0.19	<0.10	0.51	24.1	19.6	7.22	1.32	1.17	0.17	6.8	<0.10	<0.10	3.56
Xylenes		(30)*	<0.20	0.48	<0.20	1.15	44.8	13	41.3	1.92	1.44	2.75	12.2	<0.20	<0.20	23.4
Phenols		(30)*	<1.0	8.8	<1.0	<2.0	<10.0	14.9	<10.0	<2.0	<1.0	<2.0	<10.0	<1.0	1	43.1
PAH	Naphthalene	(10)*	<1.0	<1.0	<1.0	8.7	<10	13.9	11.6	6.2	6.6	10.3	29.1	<1.0	<1.0	821
	BaP	(0.01)§	<1.0	<1.0	<1.0	<2.0	<10.0	<10.0	<10.0	<2.0	<1.0	<2.0	<10.0	<1.0	<1.0	<1.0
TPH - C_6 to C_{40}	GRO C_6-C_{10}	(10)§	<10	13	<10	<10	159	119	121	24	<14	40	126	<10	72	71
	DRO C_{10}-C_{28}	(10)§	<10	<10	<10	28	62	<59	<65	<47	49	196	902	<10	<10	1437
	LRO C_{28}-C_{40}	(10)§	21	<10	14	52	<21	<59	<65	<47	<20	<20	<59	<10	<10	<100
VOC			2.1	ND	ND	2.7	21.6	16.5	27.7	11.3	5.8	14.9	29.1	ND	1.6	13.2
SVOC			3.0	3.9	ND	11.5	47.7	17.3	10.8	2.3	4.3	3.2	103	ND	ND	ND
PCB		(0.5)#	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticides + Herbcides		(0.1)§	ND	ND	ND	0.023	0.064	0.23	0.067	0.02	0.039	0.009	0.06	ND	0.01	ND

Surface Water					
SW1	SW2	SW3	SW4	SW5	
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.20	<0.20	<0.20	<0.20	<0.20	
<1.0	<1.0	<1.0	<1.0	<1.0	
<1.0	<1.0	<1.0	<1.0	<1.0	
<1.0	<1.0	<1.0	<1.0	<1.0	
<10	<10	<10	<10	<10	
<10	<10	<10	<10	<10	
<10	<10	<10	<10	<10	
<10	<10	<10	<10	<100	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	
ND	ND	ND	0.01	ND	

ROUND 2 NOVEMBER 2011

Determinand		Trigger Level	SITE AREA: A				B							E	F	
			BH1	BH3	BH4	BH14	BH6	BH7	BH15	BH16 (D)	BH16 (S)	BH17 (D)	BH31	BH11	BH26	BH27
			GW	L	L	L	L	L	L	GW	L	GW	L	GW	GW	GW
Benzene		(30)*	0.25	0.87	<0.10	0.76	2.18	1.32	4.15	0.71	2.64	1.19	2.64	<0.10	1.21	<0.10
Toluene		(50)*	0.24	0.15	<0.10	0.31	5.7	1.28	1.55	0.12	0.58	<0.10	0.71	<0.10	1.54	<0.10
Ethyl Benzene		(300)*	0.27	0.29	<0.10	0.5	21.9	19	18.5	<0.10	0.93	<0.10	7.83	<0.10	0.8	<0.10
Xylenes		(30)*	<0.2	0.79	<0.2	1.04	51.28	11.99	72.2	0.63	2.0	<0.4	14.57	<0.2	4.34	<0.2
Phenols		(30)*	<1.0	<1.0	<1.0	<4.0	<4.0	<2.0	<2.0	<1.0	<10.0	<1.0	<10.0	<1.0	<1.0	<1.0
PAH	Naphthalene	(10)*	<1.0	<1.0	<1.0	5.6	15.8	16	10.5	<1.0	7.9	<4.0	242	<2.0	345	<1.0
	BaP	(0.01)§	<1.0	<1.0	<1.0	<4.0	<4.0	<2.0	<2.0	<1.0	<10.0	<1.0	<10.0	<1.0	<1.0	<1.0
TPH - C_6 to C_{40}	GRO C_6-C_{10}	(10)§	<10	<10	<10	<10	228	166	296	14	13	32	156	<10	<10	<10
	DRO C_{10}-C_{28}	(10)§	<10	<10	<10	56	187	<167	<67		181	<63	1053	<10	594	12
	LRO C_{28}-C_{40}	(10)§	<10	27	<10	101	<40	<167	101		47	<63	248	<10	<10	<10
VOC			4.0	1.8	ND	1.7	204.5	34.8	55.8	4.5	24.6	ND	62.3	ND	2.7	ND
SVOC			ND	1.1	ND	ND	36.9	11.4	9.9	2.2	ND	ND	72.3	ND	ND	ND
PCB		(0.5)#	ND	ND	ND	0.003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticides + Herbcides		(0.1)§	ND	ND	ND	0.012	0.016	0.015	0.094	0.03	0.029	0.127	0.05	ND	ND	ND

Surface Water					
SW1	SW2	SW3	SW4	SW5	
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	0.21	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.2	<0.2	<0.2	<0.2	<0.2	
<1.0	<1.0	1.4	<1.0	<1.0	
<1.0	<1.0	<2.0	<1.0	<1.0	
<1.0	<1.0	<1.0	<1.0	<1.0	
<10	<10	<10	<10	<10	
<10	<10	<10	<40	<10	
<40	<10	<10	<40	<10	
ND	ND	ND	ND	ND	
ND	ND	3.2	ND	ND	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	

ROUND 3 FEBRUARY 2012

Determinand		Trigger Level	SITE AREA: A			B					C	E	F			
			BH1	BH4	BH14	BH6	BH7	BH15	BH16 (S)	BH17 (D)	BH31	BH21	BH11	BH24	BH26	BH27
			GW	L	L	L	L	L	L	GW	L	GW	GW	GW	GW	GW
Benzene		(30)*	0.46	<0.10	0.83	2.1	0.93	1.62	1.84	1.08	1.2	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene		(50)*	0.41	<0.10	0.17	4.76	0.6	1.83	0.27	0.21	0.42	<0.10	<0.10	0.12	<0.10	<0.10
Ethyl Benzene		(300)*	<0.10	<0.10	0.31	6.82	16.7	35	6.39	0.13	3.23	<0.10	<0.10	<0.10	<0.10	<0.10
Xylenes		(30)*	<0.20	<0.20	0.26	12.2	3.49	106	0.94	0.76	5.01	<0.20	<0.20	<0.20	0.16	<0.20
Phenols		(30)*	<1.0	<4.0	<1.0	<4.0	<7.0	<4.0	<4.0	<4.0	1.4	<200	<1.0	<1.0	<1.0	<1.0
PAH	Naphthalene	(10)*	<1.0	<1.0	<4.0	11.2	50.8	<4.0	<4.0	6.3	4.1	76.3	<1.0	<1.0	<1.0	<1.0
	BaP	(0.01)§	<1.0	<4.0	<1.0	<4.0	<7.0	<4.0	<4.0	<4.0	<1.0	<200	<1.0	<1.0	<1.0	<1.0
TPH - C_6 to C_{40}	GRO C_6-C_{10}	(10)§	<10	<10	<10	97	112	206	31	26	231	<10	<10	<10	<10	<10
	DRO C_{10}-C_{28}	(10)§	<200	<10	36	<40	95	<40	98	<40	379	<200	<10	<40	<10	<20
	LRO C_{28}-C_{40}	(10)§	<200	<10	<20	<40	<40	<40	<40	137	<40	<200	<10	<40	<10	<20
VOC			3.5	ND	ND	ND	ND	29.9	ND	7.8	8.4	ND	ND	ND	ND	ND
SVOC			ND	ND	2.5	5.9	8.2	ND	ND	ND	8.9	ND	ND	ND	ND	ND
PCB		(0.5)#	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticides + Herbcides		(0.1)§	ND	ND	0.008	0.024	0.121	0.016	0.028	ND	0.047	ND	ND	ND	ND	ND

Surface Water					
SW1	SW2	SW3	SW4	SW5	
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.20	<0.20	<0.20	<0.20	<0.20	
<1.0	<1.0	<1.0	<1.0	<2.0	
<1.0	<1.0	<1.0	<2.0	<2.0	
<10	<10	<10	<10	<10	
<10	<40	<10	<10	<40	
<10	80	<10	<10	<40	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	
ND	ND	ND	0.006	ND	

ROUND 4 MAY 2012

Determinand		Trigger Level	SITE AREA: A			B					C	E	F			
			BH1	BH4	BH14	BH6	BH7	BH15	BH16 (S)	BH17 (S)	BH31	BH21	BH11	BH24	NH26	BH27
			GW	L	L	L	L	L	L	L	L	GW	GW	GW	GW	GW
Benzene		(30)*	0.47	<0.10	0.51	2.05	0.65	3.38	1.55	1.79	1.73	DRY	<0.10	DRY	<0.10	<0.10
Toluene		(50)*	0.39	<0.10	0.18	0.84	0.47	2.79	0.25	0.27	0.51		<0.10		<0.10	<0.10
Ethyl Benzene		(300)*	0.11	<0.10	0.2	2.73	7.53	34.8	0.76	0.2	3.82		<0.10		<0.10	<0.10
Xylenes		(30)*	<0.20	<0.20	<0.20	13.1	1.41	103	0.72	1.58	4.75		<0.20		<0.20	<0.20
Phenols		(30)*	<4.0	<1.0	<10.0	<20.0	<20.0	<10.0	<10.0	<10.0	<1.0		<1.0		<1.0	<1.0
PAH	Naphthalene	(10)*	<0.02	<0.04	<0.04	1.79	<0.04	0.091	5.3	7.2	62.6		<0.01		<0.04	<0.04
	BaP	(0.01)§	<4.0	<1.0	<10.0	<20.0	<20.0	<10.0	<10.0	<10.0	<1.0		<1.0		<1.0	<1.0
TPH - C_6 to C_{40}	GRO C_6-C_{10}	(10)§	<10	<10	<10	125	138	287	18	80	136		<10		<10	<10
	DRO C_{10}-C_{28}	(10)§	42	<20	<10	<40	<40	<40	<20	<40	<40		<13		<40	<10
	LRO C_{28}-C_{40}	(10)§	<20	<20	<10	<40	<40	<40	<20	65	<40		<13		<40	<20
VOC			ND	ND	ND	57.2	ND	79.4	4.1	20.4	10		ND		ND	ND
SVOC			ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND
PCB		(0.5)#	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND		ND	ND
Pesticides + Herbcides		(0.1)§	ND	ND	ND	ND	ND	0.031	ND	ND	ND		ND		ND	ND

Surface Water					
SW1	SW2	SW3	SW4	SW5	
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	
<0.20	<0.20	<0.20	<0.20	<0.20	
<2.0	<1.0	<1.0	<1.0	<1.0	
<1.0	<1.04	<0.01	<0.01	<0.02	
<2.0	<1.0	<1.0	<1.0	<1.0	
<10	<10	<10	<10	<10	
<10	<10	<10	<10	<10	
<10	<10	<10	20	<10	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	

ROUND 5 SEPTEMBER 2012 - No Organics Analysis Undertaken

ROUND 6 DECEMBER 2012

Determinand		Trigger Level	SITE AREA: A				B						C	D	E			F			
			BH1	BH3	BH4	BH14	BH6	BH7	BH15	BH16 (D)	BH16 (S)	BH17 (D)	BH31	BH21	BH18	BH11	BH12	BH24	BH26	BH27	BH29	BH30
			GW	L	L	L	L	L	L	GW	L	GW	L	GW	L	GW	GW	GW	GW	GW	GW	GW
Benzene		(30)*	0.14	1.73	<0.10	0.56	2.24	0.99	4.3	1.14	1.5	2.13	2.19	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene		(50)*	<0.10	0.39	<0.10	<0.50	0.7	1.16	1.7	0.19	0.14	0.36	2.35	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethyl Benzene		(300)*	<0.10	0.7	<0.10	<0.50	1.7	2.58	35	0.23	<0.10	<0.50	5.32	<0.10	<0.10	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylenes		(30)*	<0.20	1.1	<0.20	<1.00	6.9	<1.00	97.9	<0.40	<0.20	<1.00	15.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Phenols		(30)*	<1.0	<10.0	<1.0	<2.0	<20.0	<20.0	<2.0	<20.0	<10.0	<10.0	11.7	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PAH	Naphthalene	(10)*	<1.0	3.8	<1.0	3	12.6	<4.0	4.7	<4.0	<1.0	5.3	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0
	BaP	(0.01)§	<1.0	<10.0	<1.0	<2.0	<20.0	<20.0	<2.0	<20.0	<10.0	<10.0	<10.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
TPH - C_6 to C_{40}	GRO C_6-C_{10}	(10)§	<10	13	<10	<20	57	60	211	<10	<10	98	111	<10	<10	<10	<10	<10	<10	<10	<10	<10
	DRO C_{10}-C_{28}	(10)§	<10	101	<10	<20	55	<50	30	<50	47	30	43	<10	<20	<10	<20	<10	<10	<10	<10	<10
	LRO C_{28}-C_{40}	(10)§	<10	<20	<10	<20	<50	<50	219	<50	<20	<20	<20	<10	<20	<10	<20	<10	<10	<10	<10	<10
VOC			ND	14.9	ND	ND	36.3	4.8	53.6	4.3	7.4	12.3	16.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC			5.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB		(0.5)#	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticides + Herbcides		(0.1)§	ND	ND	ND	0.025	0.035	0.065	0.072	0.019	0.026	0.025	0.157	ND	ND	ND	ND	ND	ND	ND	0.011	ND

Surface Water						
SW1	SW2	SW3 ■	SW4	SW5	SW6	
Landfill 'pond'	Glebe Lake	Inn on the Pond	Mercer Lake	Angling Pond	East Angling Pond	
<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
<10	<10	<20	<10	<10	<10	
<10	<10	<20	<10	<10	<10	
ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	
ND	ND	ND	ND	ND	ND	

Key	
	=highlighted cells - value exeecds Tier 1 Screening Concentration
	Blank cells - parameter not tested for
ND	None Detected

GW	= Groundwater
L	= Leachate

Source of Guidance Trigger Level	
*	Freshwater Environmental Quality Standard
$	Water Supply (Water Quality) Regulations 1989, as amended (UK Drinking Water Standard)
◆	WHO Guidelines for Drinking Water Quality
#	US Drinking Water Standard

■ Dense vegetation and restricted access permitted sample to only be obtained from pond margin. Sample noted to be contaminated by organic and 'anoxic' pond sediments