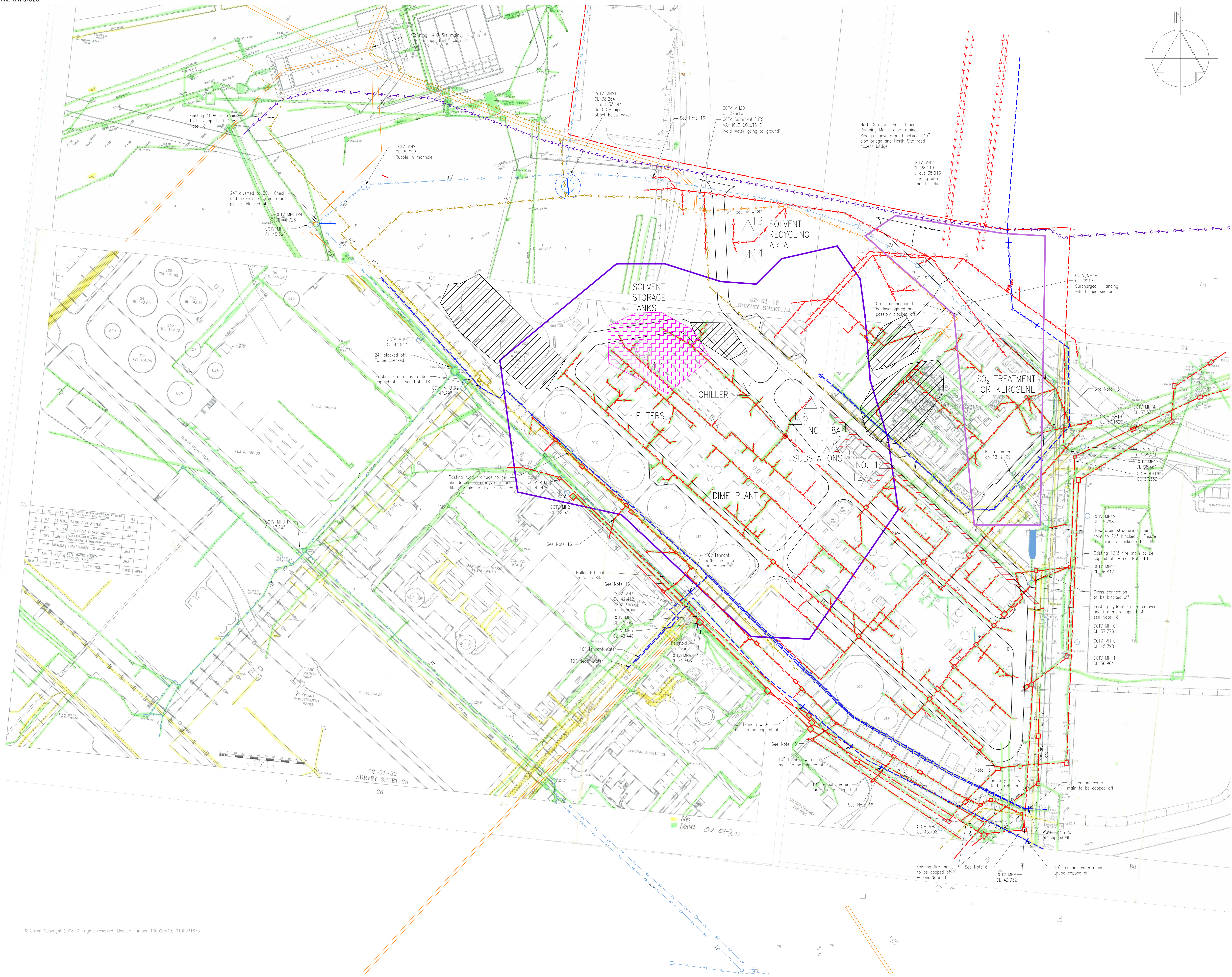
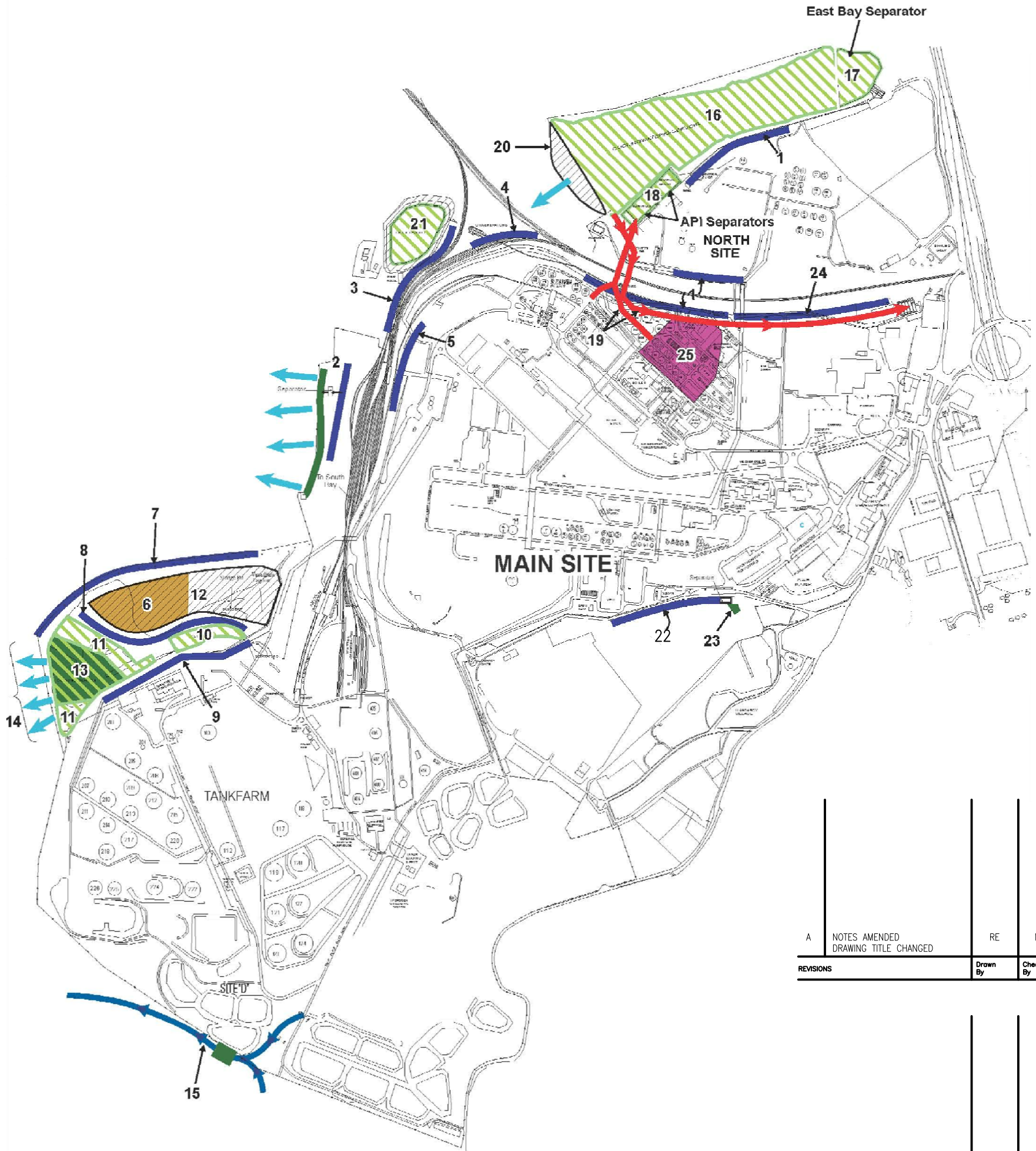
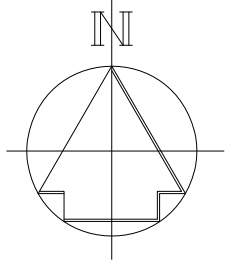




A	Boundary removed	MJ	ML	02.11.15
REVISIONS		Drawn By	Checked By	Date

PURPOSE OF ISSUE	Rev.	Authorised for issue	Date
Atkins Limited			
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CLIENT	ST.MODWEN
PROJECT	COED DARCY URBAN VILLAGE DIME
DRAWING TITLE	DRAINAGE DETAILS AND IDENTIFIED CONTAMINATION NOTED DURING HARDSTANDING REMOVAL WORKS
SCALE	1:500
DATE	06.12.10
CHECKED	ML
DATE	06.12.10
DESIGNED	ML
DATE	06.12.10
DRAWING NO	5041216-DIME-DWG-820
REV	A



A	NOTES AMENDED DRAWING TITLE CHANGED	RE	ML	10/03/10
REVISIONS		Drawn By	Checked By	Date

LLANDARCY BOG RAP REPORT	-	MP	02/09/09
PURPOSE OF ISSUE	Rev.	Authorised for issue	Date

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PROJECT
COED DARCY URBAN VILLAGE

DRAWING TITLE
RAP FEATURES PLAN

SCALES 1:10,000	DRAWN AJ	CHECKED SB	CO-ORD CHECK
DATE 02/09/09	DATE 02/09/09	DATE	DATE
DRAWING NO 5041216-RAP-DWG-538		SHEET A3	PLOT DATE 10/03/10 REV A

NOTES

1. THE FOLLOWING HAS BEEN AMENDED BY ATKINS - REFERENCE NUMBER 27 HAS BEEN REPLACED BY 22 FROM ORIGINAL DRAWING PROVIDED IN S106.

Key

- Diffuse Discharge
- Free product monitoring/ interception
- Free product source reduction
- Oily sludge removal & treatment
- Constructed wetland
- Earthwork/ capping/ landscaping
- Remove/reconfigure drainage
- Source reduction/ containment

Appendices

Appendix A. Adopted thresholds (DiMe)

Table RTC for the i e playing fields soil source

Contaminant	RTC mg g
benzo(a)pyrene	>saturation
benzene	47
toluene	>saturation
ethylbenzene	>saturation
total xylene	>saturation
TPH aromatic C7-C8	>saturation
TPH aromatic C8-C10	>saturation
TPH aromatic C10-C12	>saturation
TPH aromatic C12-C16	>saturation
TPH aliphatic C6-C8	>saturation
TPH aliphatic C8-C10	>saturation
TPH aliphatic C10-C12	>saturation
TPH aliphatic C12-C16	>saturation
1,2-dichloroethane	9.1
1,1,1-trichloroethane	>saturation
tetrachloroethene	>saturation
trichloroethene	220
vinyl chloride	0.78
dichloromethane (methylene chloride)	3100
cis-1,2-dichloroethene	190
trans 1,2-dichloroethene	330
Notes: - Where the lower of the vapour or aqueous saturation limits has been exceeded by the RTC calculated, the hazard quotient is considered to be less than 1 and as such >saturation has been presented - TPH aromatic C7-C8 is considered to comprise toluene only by Atkins - TPH >C16 are not considered to be volatile according to TPH Criteria Working Group (CWG). Consequently the inhalation of vapour pathways have not been considered and therefore no value has been presented here - Asbestos has not been considered here as it is being considered in a separate report - Additivity for TPHs and PAHs to be undertaken in line with guidance in Ref. Error Boo mar not defined - The S106 presents a single value for 1,2-dichloroethene. In line with Ref. Error Boo mar not defined, both isomers have been presented above. - RTC are rounded to two significant figures.	

Table RTC for the i e playing fields groundwater source

Contaminant	RTC mg l
benzo(a)pyrene	>saturation
benzene	3.5
toluene	>saturation
ethylbenzene	>saturation
total xylene	170
TPH aromatic C7-C8	>saturation
TPH aromatic C8-C10	38
TPH aromatic C10-C12	>saturation
TPH aromatic C12-C16	>saturation
TPH aliphatic C6-C8	>saturation
TPH aliphatic C8-C10	>saturation
TPH aliphatic C10-C12	>saturation
TPH aliphatic C12-C16	>saturation
1,2-dichloroethane	1.5
1,1,1-trichloroethane	530
tetrachloroethene	69
trichloroethene	9.0
vinyl chloride	0.09
Dichloromethane (methylene chloride)	500
cis-1,2 dichloroethene	22
trans 1,2 dichloroethene	26
Notes: 1. Where the lower of the vapour or aqueous saturation limits has been exceeded by the RTC calculated, the hazard quotient is considered to be less than 1 and as such >saturation has been presented 2. TPH aromatic C7-C8 is considered to comprise toluene only by Atkins 3. TPH >C16 are not considered to be volatile according to TPHCWG. Consequently the inhalation of vapour pathways have not been considered and therefore no value has been presented here 4. Asbestos has not been considered here as it is being considered in a separate report 5. The S106 presents a single value for 1,2-dichloroethene. In line with Ref. Error Boo mar not defined , both isomers have been presented above. 6. RTC are rounded to two significant figures.	

Appendix B. Historic Logs

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW220A		PAGE 1 of 3		
	NUMBER	TYPE					START DATE: 05/5/99		DRILLING METHOD: ROTARY AIR FLUSH		
							FINISH DATE: 11/5/99		BOREHOLE DIAMETER: 250/200/165 mm		
							DRILLER: R4		SCREEN TYPE & DIAMETER: 50 mm polypropylene		
				LOGGED BY: PW APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm					
							DESCRIPTION	COMMENTS			
							CONCRETE (MADE GROUND)			0	
							Loose angular GRAVEL (MADE GROUND)	Dry			
							Loose light brown sandy GRAVEL (MADE GROUND)	Dry, Slight solvent odour			
							Loose grey sandy GRAVEL with sandstone cobbles (MADE GROUND)	Strong solvent odour		1.0	
							Loose grey angular GRAVEL (MADE GROUND)	Sheen on water from 1-2m			
								Very productive from 2.3m		2.0	
								Water dark in colour			
								Water becomes brown-grey		3.0	
							Loose gravelly CLAY (BOULDER CLAY)	Poor returns			
								Wet		4.0	
								No sheen on water			
								Slight solvent odour		5.0	
								Water brown-orange from 5.3m			
							large sandstone cobbles from 5.9-6.2m becoming sandy from 6.2m	Drying out following rod connection at 6.2m		6.0	
							Large boulders from 6.5m with denser silty sand	Slight solvent odour from 7m		7.0	
								Damp			
								Very slight		9.0	
							increasingly silty from 8.8m with sandstone and mudstone cobbles			10	

LOCATION / NOTES:

1. All measurements in m below ground level (mbgl)

LEGEND

- Disturbed Sample
- Undisturbed Sample
- Headspace Analysis
- Down Borehole Analysis
- Groundwater Table
- Perched Water Table

BOREHOLE LOG

Job Title **SOIL & GROUNDWATER INVESTIGATION**

Location **LLANDARCY REFINERY**

Client **BP LLANDARCY LTD**

App'd **DRAFT**

Ref. **CR/MC/BRS**

Date **MAY 99**

Job No. **39991-004-401**

BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW220A		PAGE 2 of 3	
	NUMBER	TYPE					START DATE: 05/5/99		DRILLING METHOD: ROTARY AIR FLUSH	
							FINISH DATE: 11/5/99		BOREHOLE DIAMETER: 250/200/165 mm	
							DRILLER: R4		SCREEN TYPE & DIAMETER: 50 mm polypropylene	
LOGGED BY: PW		APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm						
						DESCRIPTION		COMMENTS		
						10	Dark brown fine sandy, silty CLAY (BOULDER CLAY)	Dry/Damp Slight solvent odour	10	
						11		Damp following rod connection at 11.0m Drying out from 11.5m	11	
						12		Damp from 12.0m	12	
						13			13	
						14	Loose orange-brown fine sandy CLAY with minor gravel	Slightly damp Slight solvent odour Dry to damp	14	
						15	Loose dark grey very sandy CLAY (BOULDER CLAY)	Damp Slight odour	15	
						16	Grey-brown very silty CLAY (BOULDER CLAY)	Very slight solvent odour Damp	16	
						17		Wet at 17m following rod connection	17	
						18	becoming orange-brown at 17.7m	Wet at 18m	18	
						19	Sandstone boulders from 19.0m	Wet following rod connection at 19.5m	19	
20			20							

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level		Disturbed Sample	Undisturbed Sample	Job Title SOIL & GROUNDWATER INVESTIGATION	
		Headspace Analysis	Down Borehole Analysis	Location LLANDARCY REFINERY	
		Groundwater Table	Perched Water Table	Client BP LLANDARCY LTD	
				App'd DRAFT	
				Ref. CR/MC/BRS	
				Date MAY 99	
				Job No. 39991-004-401	

BOREHOLE CONSTRUCTION		SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW220A		PAGE 3 of 3	
		NUMBER	TYPE					START DATE: 05/5/99		DRILLING METHOD: ROTARY AIR FLUSH	
								FINISH DATE: 11/5/99		BOREHOLE DIAMETER: 250/200/165 mm	
								DRILLER: R4		SCREEN TYPE & DIAMETER: 50 mm polypropylene	
						LOGGED BY: PW APPR'D BY:		SCREEN SLOT SIZE: 0.5 mm			
S	D					20		DESCRIPTION		COMMENTS	
						20	X	Grey-brown very silty CLAY (BOULDER CLAY)		Productive from 20.5m	
						21	X	becoming increasingly silty			
						22	X			12	
						23	X	ROCKHEAD: SANDSTONE / SILTSTONE (WEATHERED BEDROCK)		Dry	
						24	X	Grey SILTSTONE (BEDROCK)		Dry	
						24	X	Light grey fine grained SANDSTONE (BEDROCK)		Dry	
						24	X	Grey-brown SILTSTONE (BEDROCK)		Dry	
						25	X	Light grey crystalline SANDSTONE (BEDROCK) with interbedded siltstone		Damp	
						26	X			Dry following rod connection at 26m	
						27	X	Dark brown SILTSTONE lighter in colour from 27.2m		becoming drier	
						28	X	Grey crystalline SANDSTONE interbedded with thin bands of dark grey siltstone			
						28	X	Light grey fine to medium grained crystalline SANDSTONE			
						29	X			becoming damp at 29.7m	
						30	X			wet	

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)		Disturbed Sample Undisturbed Sample Headspace Analysis Down Borehole Analysis Groundwater Table Perched Water Table		Job Title SOIL & GROUNDWATER INVESTIGATION	
				Location LLANDARCY REFINERY	
				Client BP LLANDARCY LTD	
				App'd DRAFT	
				Ref. CR/MC/BR5	
				Date MAY 99	
				Job No. 39991-004-401	

DAMES & MOORE	
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BOREHOLE CONSTRUCTION	SAMPLE		SOIL VAPOUR (ppm)	GROUNDWATER	DEPTH (m)	GEOLOGY	BOREHOLE NUMBER: MSMW69s		PAGE 1 of 1	
	NUMBER	TYPE					START DATE: 17/06/98		DRILLING METHOD: Cable Percussion	
							FINISH DATE: 17/06/98		BOREHOLE DIAMETER: 200mm	
							DRILLER: CP1		SCREEN TYPE & DIAMETER: UPVC 50mm	
							LOGGED BY: SG APPRD BY:		SCREEN SLOT SIZE: 0.5mm	
						DESCRIPTION		COMMENTS		
					0	Loose grey angular medium GRAVEL (BALLAST)		No odour		0
						Soft black-grey silty CLAY		Very strong sweet hydrocarbon odour - black staining		
						Borehole terminated at 0.7 mbgl on refusal		Obstruction at 0.7m		
					1.0					1.0
					2.0					2.0
					3.0					3.0
					4.0					4.0
					5.0					5.0
					6.0					6.0
					7.0					7.0
					8.0					8.0
					9.0					9.0
					10					10

LOCATION / NOTES:		LEGEND		BOREHOLE LOG	
1. All measurements in m below ground level (mbgl)		 Disturbed Sample  Undisturbed Sample  Headspace Analysis  Down Borehole Analysis  Groundwater Table  Perched Water Table		Job Title SOIL & GROUNDWATER INVESTIGATION	
				Location LLANDARCY REFINERY	
				Client BP LLANDARCY	
				Appd DRAFT	
				Ref. MC/CR/BRS	
				Date JUL 98	
				Job No. 39991-001-401	
				 DAMES & MOORE	