FORM No. H.E. 443

DRILLING RECORD

AREA: MERSEY FORTH POWER DEVELOPMENT

LOCATION: FISHER SCHEME TUNNEL – OFFSET LINE.

GEOLOGICAL PLAN: SURVEY PLAN: SG-426866

DATES (a) DRILLED: July – Nov. 166 (b) WATER TABLE:

METHOD: D.D. DIAMETER: No4, NX, BX, AXT.

SITE REMARKS: Hole drilled in pro-talus ridge below Tier Escarpment.

POSITION	CO-ORDINATES:	E: 428. 1872	N: 868. 1993	HOLE No.
	ON LINE:	BEARING:	AT CH:	5921
	AT STN:	BEARING:	DIST:	FILE No.
LEVEL.	SURFACE	COLLAR	WATER TABLE	
	2775			SHEET 1 OF 6 SHEETS
INCL.	HOLE DRILLED	ANGLE FROM HORIZONTAL	DIRECTION	
	VERT./~~HOR./INC.~~	90°		

DEPTH	CORE DRAWN	CORE LENGTH	CASING	RECOVERY % (20 40 60 80 100)	GRAPHIC LOG	JOINTS No. Per Foot.	FLUID RETURN	GROUND WATER	WATER PRESSURE TESTS LEAKAGE	REMARKS
0			No. 4.				Grey.			0 – 104'2" Dolerite scree and talus composed of massive, hard, dark grey medium grained dolerite showing weathered surfaces and decomposed & weathered joints. Core loss probably represents dolerite clay. Bedrock possibly at 104'2", definitely at 166'7"
5										
10							Water lost.			
15										
20		6" – 3'0"								
25										
30										
35										
40		1'–1½"								
45										
50			Nx							
55		3'–1½"								
60										
65										
70										
75										
80		2'5"								
85										
90										
95										
100										

FORM No. H.E. 443

DRILLING RECORD

AREA: MERSEY FORTH POWER DEVELOPMENT

LOCATION: FISHER SCHEME TUNNEL – OFFSET LINE

GEOLOGICAL PLAN: SURVEY PLAN: SJ-426866

DATES (a) DRILLED: July – Nov. '66 (b) WATER TABLE:

METHOD: DD DIAMETER: No. 4, NX, BX, AXT

SITE REMARKS:

POSITION	CO-ORDINATES:	E: 428.1872	N: 868.1993	HOLE No. 5921
	ON LINE:	BEARING:	AT CH:	
	AT STN:	BEARING:	DIST:	FILE No.
LEVEL.	SURFACE	COLLAR	WATER TABLE	
INCL.	HOLE DRILLED	ANGLE FROM HORIZONTAL	DIRECTION	SHEET 2 OF 6 SHEETS
	VERT/~~HOR. LINE~~	90°		

DEPTH	CORE DRAWN	CORE LENGTH	CASING	RECOVERY %	GRAPHIC LOG	JOINTS No. Per Foot.	FLUID RETURN	GROUND WATER	WATER PRESSURE TESTS LEAKAGE	REMARKS
0			NX							10'2" – 39'1" Medium grained, hard, dark grey dolerite generally broken up and often decomposed. Large core loss probably dolerite clay. Occasionally longer sticks recovered as at 198' – 203'. Bedrock doubtful at 10'2" possibly only recovered below 166'7" – talus/bedrock junction difficult to determine.
5			BX							
10		4'5"								
15										
20										
25										
30		4'12"								
35										
40										
45										
50										
55										
60										
65										
70										
75										
80										
85										
90										
95										
200										

FORM No. H.E. 443

DRILLING RECORD

AREA: MERSEY FORTH POWER DEVELOPMENT

LOCATION: FISHER SCHEME TUNNEL – OFFSET LINE

GEOLOGICAL PLAN: SURVEY PLAN: 54-426866

DATES (a) DRILLED: July – Nov. '66 (b) WATER TABLE:

METHOD: D.D DIAMETER: No. 4, NX.BX, AXT.

SITE REMARKS: Hole drilled in pro-talus ridge below Tier's Escarpment.

POSITION	CO-ORDINATES	E: 428. 1872	N: 868. 1993	HOLE No. 5921
	ON LINE:	BEARING:	AT CH:	
	AT STN:	BEARING:	DIST:	FILE No.

LEVEL	SURFACE	COLLAR	WATER TABLE

INCL.	HOLE DRILLED	ANGLE FROM HORIZONTAL	DIRECTION
	VERT./~~HOR./~~INC.	90°	

SHEET 3 OF 6 SHEETS

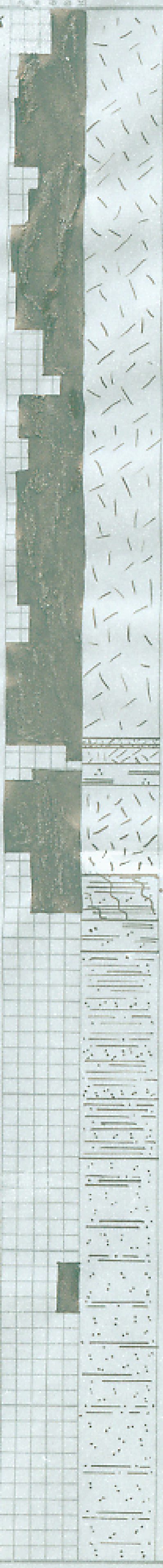
DEPTH	CORE DRAWN	CORE LENGTH	CASING	RECOVERY % (20 40 60 80 100)	GRAPHIC LOG	JOINTS No Per Foot.	FLUID RETURN	GROUND WATER	WATER PRESSURE TESTS LEAKAGE	REMARKS
20 0			BX							
5'		3-18" fragmented.								
10'										
15'										
20'		4'6"								
25'										
30'			AX							
35'		4' 18"								
40'										
45'										
50'										
55'										
60'		4'6"								258'1" 3" of fine grained dark grey dolerite.
65'										
70'										
75'		Usually fragmented								
80'										
85'										
90'										
95'										
300' 3										

FORM No. H.E. 443

DRILLING RECORD

AREA: MERSEY FORTH POWER DEVELOPMENT	CO-ORDINATES:	E: 428.1872	N: 868.1993	HOLE No. 5921
LOCATION: FISHER SCHEME TUNNEL – OFFSET LINE.	ON LINE:	BEARING:	AT CH.	
GEOLOGICAL PLAN: SURVEY PLAN: S4 – 426866	AT STN:	BEARING:	DIST:	FILE No.
DATES (a) DRILLED: July – Nov. '66 (b) WATER TABLE:	LEVEL: SURFACE	COLLAR	WATER TABLE	
METHOD: S.D. DIAMETER: No. 4, NX, BK, AXT.				SHEET 4 OF 6 SHEETS
SITE REMARKS: Hole drilled in pre-talus ridge below Tiers Escarpment.	INCL. HOLE DRILLED	ANGLE FROM HORIZONTAL	DIRECTION	
	VERT/~~HOR/INC.~~	90°		

DEPTH	CORE DRAWN	CORE LENGTH	CASING	RECOVERY %	GRAPHIC LOG	JOINTS No. Per Foot.	FLUID RETURN	GROUND WATER	WATER PRESSURE TESTS LEAKAGE	REMARKS
300–347'		Generally fragmented, ave 7"	AX							
340'		⌀5"								
347'1"–347'5"		2"-frag.								347'1" – 347'5" Black medium – fine grained dolerite.
347'5"–347'9"										347'5"–347'9" Fragments of light brown argillite and hard dense sandstone.
347'9"–348'5"										347'9" – 348'5" Dark grey medium grained dolerite.
348'5"–350'2"										348'5" – 350'2" Fragments of quartzite, mudstone (argillite?) and dolerite set in light brown clay matrix.
350'2"–354'4"										350'2" – 354'4" Small recovery of black dolerite.
354'4"–358'8"										354'4" – 358'8" Pebbles and small fragments of dolerite, baked sandstone and argillite. dolerite base 356?
358'8"–360'8"		1 – 8"								358'8" – 360'8" Medium grained grey sandstone with very thin black silty partings.
360'8"–374'1"						Joints very sparse				371 – 372 Waxed sample taken 360'8" – 374'1" Black very fine grained siltstone with thin partings of sandstone up to 3" thick. 376'3" – 376'8" Waxed sample taken. 388 1/4" – 389' Waxed sample of interbedded thin black siltstone and grey sandstone.
374'1"–400'		⌀ 17"								374'1" – 436' Hard, medium to coarse grained grey to light brown sandstone, occasionally gritty, showing black, thin silty partings and occasional bands of black fine grained siltstone-mudstone up to 12" thick but generally much less.



Depth scale: 300 – 400 ft (marks 0, 5, 10 … 95, 100); Recovery % scale: 20, 40, 60, 80, 100.

FORM No. H.E. 463

DRILLING RECORD

AREA:	MERSEY FORTH POWER DEVELOPMENT
LOCATION:	FISHER SCHEME TUNNEL – OFFSET LINE.
GEOLOGICAL PLAN:	SURVEY PLAN: 54-426 666
DATES (a) DRILLED: July–Nov. 66	(b) WATER TABLE:
METHOD: D.D.	DIAMETER: No. 4, NX, BX, AXT
SITE REMARKS:	Hole drilled in pro-talus ridge below Tiers Escarpment.

POSITION			
CO-ORDINATES:	E: 428.1872	N: 868.1993	HOLE No. 5921
ON LINE:	BEARING:	AT CH:	
AT STN:	BEARING:	DIST:	FILE No.

LEVEL		
SURFACE	COLLAR	WATER TABLE

INCL.			
HOLE DRILLED	ANGLE FROM HORIZONTAL	DIRECTION	SHEET 5 OF 6 SHEETS
VERT/~~HOR/INC.~~	90°		

DEPTH | CORE DRAWN | CORE LENGTH | CASING | RECOVERY % (20 40 60 80 100) | GRAPHIC LOG | JOINTS No. Per Foot. | FLUID RETURN | GROUND WATER | WATER PRESSURE TESTS LEAKAGE | REMARKS

Depth: 400 – 5 – 10 – 15 – 20 – 25 – 30 – 35 – 40 – 45 – 50 – 55 – 60 – 65 – 70 – 75 – 80 – 85 – 90 – 95 – 500

Casing: AX

Core length: 2–13" ; 1–7" ; 7–4" Generally closer, usually drilling breaks.

REMARKS

401'2" – 401'10" Waxed sample – black mudstone.

407' – 407'6" Waxed sample – grey medium grained sandstone.

414' – 414'10" So Waxed sample – Grey sandstone with black siltstone partings up to ½" wide.

438' – 521' Black fine grained siltstone tending to mudstone with occasional harder coarser bands containing quartz pebbles as at 459, 488'3" & 496'8". Joints sparse, tight, occasional thin calcareous partings common below 480'. Below 509' bands 6" – 12" wide of soft black mudstone appear.

439'5" – 439'10" Waxed sample of black mudstone with silty partings.

460'8" – 461'1" Waxed sample of black siltstone with pebbles?

466'8" – 467'2" Waxed sample of black fine grained siltstone

470'4" – 470'10" "

472'10" – 473'5" "

475'2" – 475'9" "

478'4" – 478'11" "

DRILLING RECORD

AREA: MERSEY FORTH ROVER DEVELOPMENT

LOCATION: FISHER SCHEME TUNNEL – OFFSET LINE

GEOLOGICAL PLAN: SURVEY PLAN: S4 – 426866.

DATES (a) DRILLED: July – Nov. 166 (b) WATER TABLE:

METHOD: D.D. DIAMETER: No. 4. NX, BX, AXT.

SITE REMARKS: hole drilled in pro-talus ridge below Tick Escarpment.

POSITION

CO-ORDINATES:	E: 428. 1872	N: 868. 1993.
ON LINE:	BEARING:	AT CH:
AT STN:	BEARING:	DIST:

LEVEL.

SURFACE	COLLAR	WATER TABLE

INCL.

HOLE DRILLED	ANGLE FROM HORIZONTAL	DIRECTION
VERT./~~HOR./INC.~~	90°	

HOLE No. 592/

FILE No.

SHEET 6 OF 6 SHEETS

DEPTH	CORE DRAWN	CORE LENGTH	CASING	RECOVERY % (20 40 60 80 100)	GRAPHIC LOG	JOINTS No. Per Foot.	FLUID RETURN	GROUND WATER	WATER PRESSURE TESTS LEAKAGE	REMARKS
50										
55		1–6"				Joints very coarse.				
60		1–12"								
65	Core 1–6"									
70	Core 3–12"									
75										
80										
85										
90										
95										
100										

521'–524'6" Black fine grained silty sandstone with occasional pebbles of quartzite up to 1".

524'6"–534' Dark grey silty fine grained conglomerate & light grey quartzite conglomerate. Rock generally hard, pebbles of quartzite and schistose quartzite up to 2", generally rounded – sub-rounded, occasionally angular.

534'–543'8" Black fine grained silty sandstone showing occasional pebbles of quartzite ± ½"

543'8"–553'2" Dark grey occasionally light grey conglomerate composed of pebbles of light grey quartzite – rounded sub-rounded occasionally sub-angular – set in dark grey silty sand matrix with occasional bands of silty sand up to 6"

553'2"– Hard grey quartzite with clay filled joints interplotated with light green quartzose schist with clay and pyrite filled joints sub-parallel to core axis.

Hole completed.

Logged by G.E. Rawlings

23.11.66.