

## APPENDIX A: EXPLORATORY LOGS AND PHOTOGRAPHIC RECORDS

Location
CB - GW01
CB - GW02
CB - GW03
CB - LG01
CB - LG02
CB - SA01
CB - SA02
CB - SA03
CB - SA04
CB - TP01
CB - TP02
CB - TP03
CB - TP04
CB - TP04
CB - TP05
CB - TP06
CB - TP07
CB - TP08
CB - TP09
CB - TP10
CB - TP11
CB - TP12
CB - TP13
CB - TP14
CB - TP15

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# KEY TO SYMBOLS ON EXPLORATORY HOLE RECORDS

All linear dimensions are in metres or millimetres

## DESCRIPTIONS

\*\* Drillers Description  
Friable Easily crumbled

## SAMPLES

U( ) Undisturbed 102mm diameter sample, ( ) denotes number of blows to drive sampler  
U( )F, U( )P F- not recovered, P-partially recovered  
U38 Undisturbed 38mm diameter sample  
P(F), (P) Piston sample - disturbed  
B Bulk sample - disturbed  
D Jar Sample - disturbed  
W Water Sample  
CBR California Bearing Ratio mould sample  
ES Chemical Sample for Contamination Analysis  
SPTLS Standard Penetration Test S lump sample from split sampler

## CORE RECOVERY AND ROCK QUALITY

TCR Total Core Recovery (% of Core Run)  
SCR Solid Core Recovery (length of core having at least one full diameter as % of core run)  
RQD Rock Quality Designation (length of solid core greater than 100mm as % of core run)  
Where there is insufficient space for the TCR, SCR and RQD, the results may be found in the remarks column  
lf Fracture Spacing in mm (Minimum/Average/Maximum) NI - non intact, NR - no recovery  
AZCL Assumed Zone of Core Loss  
NI Non intact

## GROUNDWATER

▽ Groundwater strike  
▼ Groundwater level after standing period  
Date/Water Date of shift (day/month)/Depth to water at end of previous shift shown above the date and depth to water at beginning of shift given below the date

## INSITU TESTING

S Standard Penetration Test - split barrel sampler  
C Standard Penetration Test - solid 60° cone  
SW Self Weight Penetration  
Ivp, HVp (R) In Situ Vane Test, Hand Vane Test (R) demonstrates remoulded strength  
K(F), (C), (R), (P) Permeability Test  
HP Hand Penetrometer Test

## MEASURED PROPERTIES

N Standard Penetration Test - blows required to drive 300mm after seating drive  
x/y Denotes x blows for y mm within the Standard Penetration Test  
x\*/y Denotes x blows for y mm within the seating drive  
 $c_u$  Undrained Shear Strength (kN/m<sup>2</sup>)  
CBR California Bearing Ratio

## ROTARY DRILLING SIZES

Index Letter	Nominal Diameter (mm)	
	Borehole	Core
N	75	54
H	99	76
P	120	92
S	146	113



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Drilled By:  
 KM+SOR  
 Logged By:  
 N/A

Borehole No.  
**CB-GW01**  
 Sheet 1 of 3

Project Name: Longford Landfills - Cartron Big      Project No. P18159      Co-ords: 617324E - 775740N      Hole Type: Rotary open hole

Location: Co. Longford      Level: 66.97m OD      Scale: 1:50

Client:      Dates: 12/09/2018      13/09/2018

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%)			Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description	
				TCR	SCR	RQD					
							0.80	66.17		Open hole boring. Driller described: Clayey Gravel.	
							1.30	65.67		Open hole boring. Driller described: Weathered Limestone.	1
										Open hole boring. Driller described: Limestone bedrock.	2
											3
											4
											5
											6
											7
											8
										9	

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<b>Groundwater:</b>				<b>Hole Information:</b>			<b>Equipment:</b>	Deltabase 520
Struck, m	Rose to	After, min	Sealed	Comment	Hole Depth (m)	Hole Dia (mm)	Casing Dia (mm)	<b>Method:</b>
				See shift data.	25.00	131	131	Compressed air mist.

<b>Remarks:</b> Borehole terminated at 25.0m bgl. Falling head test carried out in borehole. 90mm dia. standpipe installed. Response zone from 2.0m to 25.0m bgl.	<b>Shift Data:</b>	<b>Groundwater</b>	<b>Shift</b>	<b>Hole Depth</b>	<b>Remarks</b>
		Dry	06/09/2018 08:00	0.00	Start of shift.
		2.2	06/09/2018 18:00	4.30	End o shift
		Dry	12/09/2018 08:00	4.30	Start of shift.
		Dry	12/09/2018 18:00	15.00	End of shift.
		Dry	13/09/2018 08:00	15.00	Start of shift.



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 Logged By:  
 N/A

Borehole No.  
**CB-GW01**  
 Sheet 2 of 3

Project Name: Longford Landfills - Cartron Big      Project No. P18159      Co-ords: 617324E - 775740N      Hole Type: Rotary open hole

Location: Co. Longford      Level: 66.97m OD      Scale: 1:50

Client:      Dates: 12/09/2018      13/09/2018

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%)			Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description	
				TCR	SCR	RQD					
										Open hole boring. Driller described: Limestone bedrock.	
											10
											11
											12
											13
											14
											15
											16
											17
											18

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<b>Groundwater:</b>				<b>Hole Information:</b>			<b>Equipment:</b>	
Struck, m	Rose to	After, min	Sealed	Comment	Hole Depth (m)	Hole Dia (mm)	Casing Dia (mm)	Deltabase 520
				See shift data.	25.00	131	131	<b>Method:</b> Compressed air mist.

<b>Remarks:</b> Borehole terminated at 25.0m bgl. Falling head test carried out in borehole. 90mm dia. standpipe installed. Response zone from 2.0m to 25.0m bgl.	<b>Shift Data:</b>	<b>Groundwater</b>	<b>Shift</b>	<b>Hole Depth</b>	<b>Remarks</b>
		Dry	06/09/2018 08:00	0.00	Start of shift.
		2.2	06/09/2018 18:00	4.30	End o shift
		Dry	12/09/2018 08:00	4.30	Start of shift.
		Dry	12/09/2018 18:00	15.00	End of shift.
		Dry	13/09/2018 08:00	15.00	Start of shift.



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Drilled By:  
 KM+SOR  
 Logged By:  
 N/A

Borehole No.  
**CB-GW01**  
 Sheet 3 of 3

Project Name: Longford Landfills - Cartron Big      Project No. P18159      Co-ords: 617324E - 775740N      Hole Type: Rotary open hole

Location: Co. Longford      Level: 66.97m OD      Scale: 1:50

Client:      Dates: 12/09/2018      13/09/2018

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%)			Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description	
				TCR	SCR	RQD					
										Open hole boring. Driller described: Limestone bedrock.	19
											20
											21
											22
											23
											24
							25.00	41.97		End of Borehole at 25.000m	25
											26
											27

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<b>Groundwater:</b>					<b>Hole Information:</b>			<b>Equipment:</b>	
Struck, m	Rose to	After, min	Sealed	Comment	Hole Depth (m)	Hole Dia (mm)	Casing Dia (mm)	Deltabase 520	
				See shift data.	25.00	131	131	<b>Method:</b> Compressed air mist.	

<b>Remarks:</b> Borehole terminated at 25.0m bgl. Falling head test carried out in borehole. 90mm dia. standpipe installed. Response zone from 2.0m to 25.0m bgl.	<b>Shift Data:</b>	<b>Groundwater</b>	<b>Shift</b>	<b>Hole Depth</b>	<b>Remarks</b>
		Dry	06/09/2018 08:00	0.00	Start of shift.
		2.2	06/09/2018 18:00	4.30	End o shift
		Dry	12/09/2018 08:00	4.30	Start of shift.
		Dry	12/09/2018 18:00	15.00	End of shift.
		Dry	13/09/2018 08:00	15.00	Start of shift.

### Falling head permeability test

**P18159 Longford Landfills - Cartron Big**

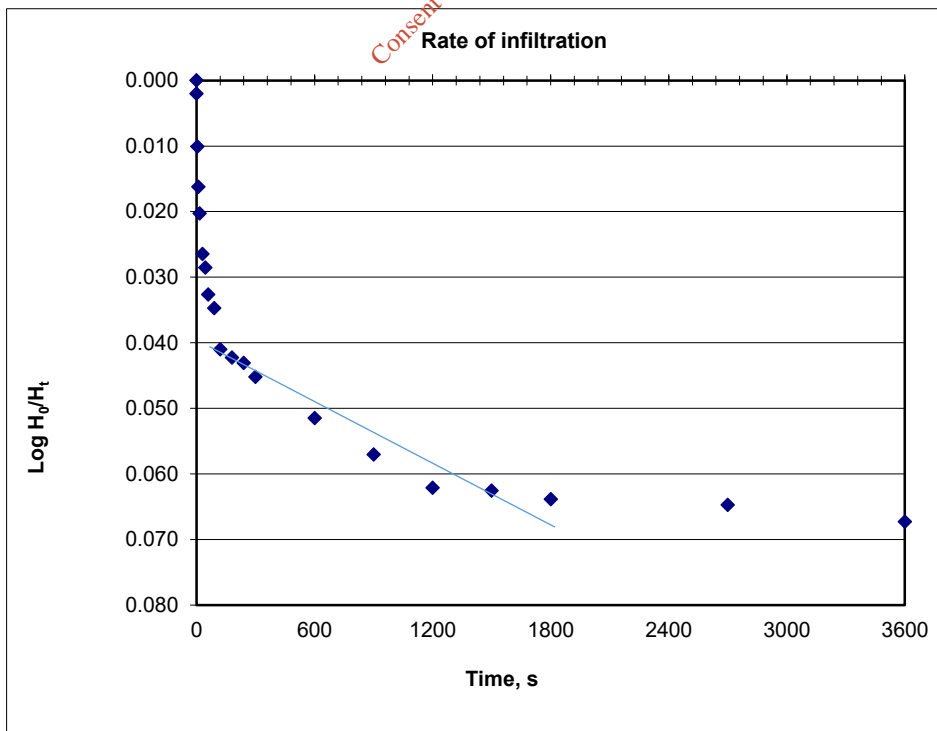
Refer to GW01 for details for standpipe details

Location

BH ID	<b>GW01</b>	$H_w/H_o$	<b>24.90</b>
Casing diameter	<b>98 mm</b>		
Casing depth	<b>1.3 m</b>		
Borehole depth	<b>25 m</b>		
Groundwater level	<b>25.00 m bgl</b>		
Date	<b>05/07/2018</b>		
Strata	<b>Peat overlying Limestone</b>		

Min	Sec	depth, m bgl	vol, cu.m	$H_t$	$\log H_o/H_t$
0	0	0.100	0.00075	24.90	0.000
0.00	0	0.150	0.00113	24.85	0.002
0.08	5	0.350	0.00264	24.65	0.010
0.17	10	0.500	0.00377	24.50	0.016
0.25	15	0.600	0.00452	24.40	0.020
0.50	30	0.750	0.00565	24.25	0.026
0.75	45	0.800	0.00603	24.20	0.029
1	60	0.900	0.00679	24.10	0.033
1.5	90	0.950	0.00716	24.05	0.035
2	120	1.100	0.00829	23.90	0.041
3	180	1.130	0.00852	23.87	0.042
4	240	1.150	0.00867	23.85	0.043
5	300	1.200	0.00905	23.80	0.045
10	600	1.350	0.01018	23.65	0.052
15	900	1.480	0.01116	23.52	0.057
20	1200	1.600	0.01206	23.40	0.062
25	1500	1.610	0.01214	23.39	0.063
30	1800	1.640	0.01236	23.36	0.064
45	2700	1.660	0.01251	23.34	0.065
60	3600	1.720	0.01297	23.28	0.067

$k_{mean}$  **6.98E-08**  $ms^{-1}$   
 $k_H = k_V$





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**Drilled By:**  
 KM  
**Logged By:**  
 N/A

Borehole No.  
**CB-GW02**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617447E - 775847N  
**Hole Type:** Rotary open hole

**Location:** Co. Longford  
**Level:** 65.13m OD  
**Scale:** 1:50

**Client:**  
**Dates:** 13/09/2018 13/09/2018

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%)			Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description	
				TCR	SCR	RQD					
							1.10	64.03		Open hole boring. Driller described: Topsoil.	1
										Open hole boring. Driller described: Limestone bedrock.	2
											3
											4
											5
											6
											7
							7.50	57.63		End of Borehole at 7.500m	8
											9

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<b>Groundwater:</b>				<b>Hole Information:</b>			<b>Equipment:</b>	Deltabase 520
Struck, m	Rose to	After, min	Sealed	Comment	Hole Depth (m)	Hole Dia (mm)	Casing Dia (mm)	<b>Method:</b>
4.50				See shift data.	7.50	100	131	Compressed air mist.

<b>Remarks:</b> Borehole terminated at 7.5m bgl, required depth. 90mm dia. standpipe installed. Response zone from 2.0m to 7.5m bgl. Falling head test carried out in borehole.	<b>Shift Data:</b>	<b>Groundwater</b>	<b>Shift</b>	<b>Hole Depth</b>	<b>Remarks</b>
		5.7	13/09/2018 08:00 13/09/2018 18:00	0.00 7.50	Start of shift. End of borehole.

### Falling head permeability test

#### P18159 Longford Landfills - Cartron Big

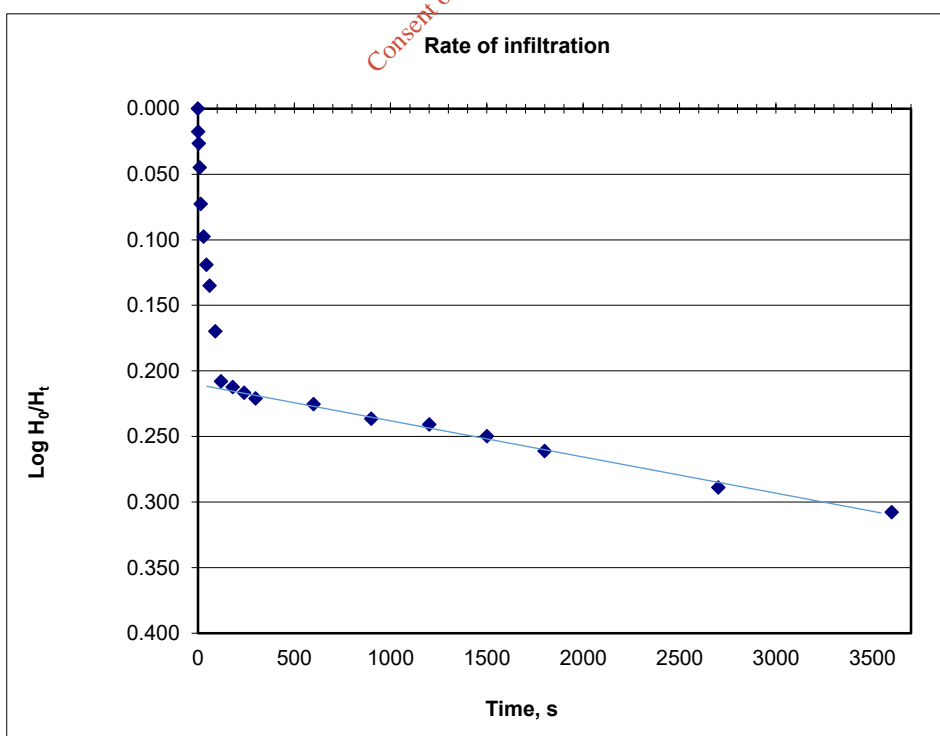
Refer to GW02 for details for standpipe details

Location

BH ID **GW02**  $H_w/H_o$  **5.70**  
 Casing diameter **98 mm**  
 Casing depth **1.1 m**  
 Borehole depth **7.5 m**  
 Groundwater level **5.70 m bgl**  
 Date **13/09/2018**  
 Strata **Topsoil overlying Limestone**

Min	Sec	depth, m bgl	vol, cu.m	$H_t$	$\log H_0/H_t$
0	0	0.000	0.00000	5.70	0.000
0.02	1	0.100	0.00075	5.60	0.018
0.08	5	0.150	0.00113	5.55	0.027
0.17	10	0.250	0.00188	5.45	0.045
0.25	15	0.400	0.00302	5.30	0.073
0.50	30	0.530	0.00400	5.17	0.098
0.75	45	0.640	0.00483	5.06	0.119
1	60	0.720	0.00543	4.98	0.135
1.5	90	0.890	0.00671	4.81	0.170
2	120	1.070	0.00807	4.63	0.208
3	180	1.090	0.00822	4.61	0.212
4	240	1.110	0.00837	4.59	0.217
5	300	1.130	0.00852	4.57	0.221
10	600	1.150	0.00867	4.55	0.225
15	900	1.200	0.00905	4.50	0.236
20	1200	1.220	0.00920	4.48	0.241
25	1500	1.260	0.00950	4.44	0.250
30	1800	1.310	0.00988	4.39	0.261
45	2700	1.430	0.01078	4.27	0.289
60	3600	1.510	0.01138	4.19	0.308

$k_{mean}$  **3.29E-07 ms<sup>-1</sup>**  
 $k_H = k_V$







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<b>Drilled By:</b>	Borehole No.	
KM	<b>CB-GW03</b>	
<b>Logged By:</b>		Sheet 1 of 3
N/A		

<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617271E - 775981N	<b>Hole Type:</b> Rotary cored
<b>Location:</b> Co. Longford		<b>Level:</b> 63.06m OD	<b>Scale:</b> 1:50
<b>Client:</b>		<b>Dates:</b> 27/09/2018	

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%)			Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description
				TCR	SCR	RQD				
										Open hole boring. Driller described: Topsoil with waste material.
		2.50 - 4.00	40mm 280mm 170mm	100	93	63	2.50 6/m	60.56		Lithology: Strong, dark grey LIMESTONE.  Weathering: Slightly weathered with slight clay smearing on fracture planes and clay infill. Fractures: One main fracture set dipping sub-horizontal 0 to 15 degrees, planar to undulated smooth fracture surfaces, closely spaced.]
			20mm 230mm 100mm				9/m 4.00	59.06		Detail: Not intact from 3.90m to 4.00m. Large clay in fill section from 2.93m to 3.03m. Slightly fossiliferous. Open hole boring. Driller described Limestone bedrock. End of Borehole at 4.000m

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<b>Groundwater:</b>				<b>Hole Information:</b>			<b>Equipment:</b> Deltabase 520		
Struck, m	Rose to	After, min	Sealed	Comment	Hole Depth (m)	Hole Dia (mm)	Casing Dia (mm)	<b>Method:</b> Compressed air mist	
				None encountered.	4.00	131	131		
<b>Remarks:</b>				<b>Shift Data:</b>		<b>Groundwater</b>	<b>Shift</b>	<b>Hole Depth</b>	<b>Remarks</b>
Borehole terminated at 4.00m bgl. 90mm dia. standpipe installed. Response zone from 3.0m to 25.0m bgl. Falling head test carried out in borehole.				Dry			14/09/2018 08:00	0.00	Start of shift.
							14/09/2018 18:00	25.00	



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**Drilled By:**  
 KM  
**Logged By:**  
 N/A

Borehole No.  
**CB-GW03**  
 Sheet 2 of 3

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617271E - 775981N  
**Hole Type:** Rotary cored

**Location:** Co. Longford  
**Level:** 63.06m OD  
**Scale:** 1:50

**Client:**  
**Dates:** 27/09/2018

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%)			Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description	
				TCR	SCR	RQD					
										Open hole boring. Driller described Limestone bedrock.	
											10
											11
											12
											13
											14
											15
											16
											17
											18

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<b>Groundwater:</b>					<b>Hole Information:</b>			<b>Equipment:</b>	
Struck, m	Rose to	After, min	Sealed	Comment	Hole Depth (m)	Hole Dia (mm)	Casing Dia (mm)	Deltabase 520	
				None encountered.	4.00	131	131	<b>Method:</b> Compressed air mist	

<b>Remarks:</b> Borehole terminated at 4.00m bgl. 90mm dia. standpipe installed. Response zone from 3.0m to 25.0m bgl. Falling head test carried out in borehole.	<b>Shift Data:</b>	<b>Groundwater</b>	<b>Shift</b>	<b>Hole Depth</b>	<b>Remarks</b>
		Dry	14/09/2018 08:00 14/09/2018 18:00	0.00 25.00	Start of shift. End of borehole.



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Drilled By:  
 KM  
 Logged By:  
 N/A

Borehole No.  
**CB-GW03**  
 Sheet 3 of 3

Project Name: Longford Landfills - Cartron Big      Project No. P18159      Co-ords: 617271E - 775981N      Hole Type: Rotary cored

Location: Co. Longford      Level: 63.06m OD      Scale: 1:50

Client:      Dates: 27/09/2018

Well	Water Strike (m)	Depth (m)	Type /Fs (min, max, avg)	Coring (%)			Depth (m) / Fl (/m)	Level (mOD)	Legend	Stratum Description	
				TCR	SCR	RQD					
										Open hole boring. Driller described Limestone bedrock.	
											19
											20
											21
											22
											23
											24
							25.00	38.06			25
											26
											27

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<b>Groundwater:</b>					<b>Hole Information:</b>			<b>Equipment:</b>	
Struck, m	Rose to	After, min	Sealed	Comment	Hole Depth (m)	Hole Dia (mm)	Casing Dia (mm)	Deltabase 520	
				None encountered.	4.00	131	131	<b>Method:</b> Compressed air mist	

<b>Remarks:</b> Borehole terminated at 4.00m bgl. 90mm dia. standpipe installed. Response zone from 3.0m to 25.0m bgl. Falling head test carried out in borehole.	<b>Shift Data:</b>	<b>Groundwater</b>	<b>Shift</b>	<b>Hole Depth</b>	<b>Remarks</b>
		Dry	14/09/2018 08:00 14/09/2018 18:00	0.00 25.00	Start of shift. End of borehole.

### Falling head permeability test

#### P18159 Longford Landfills - Cartron Big

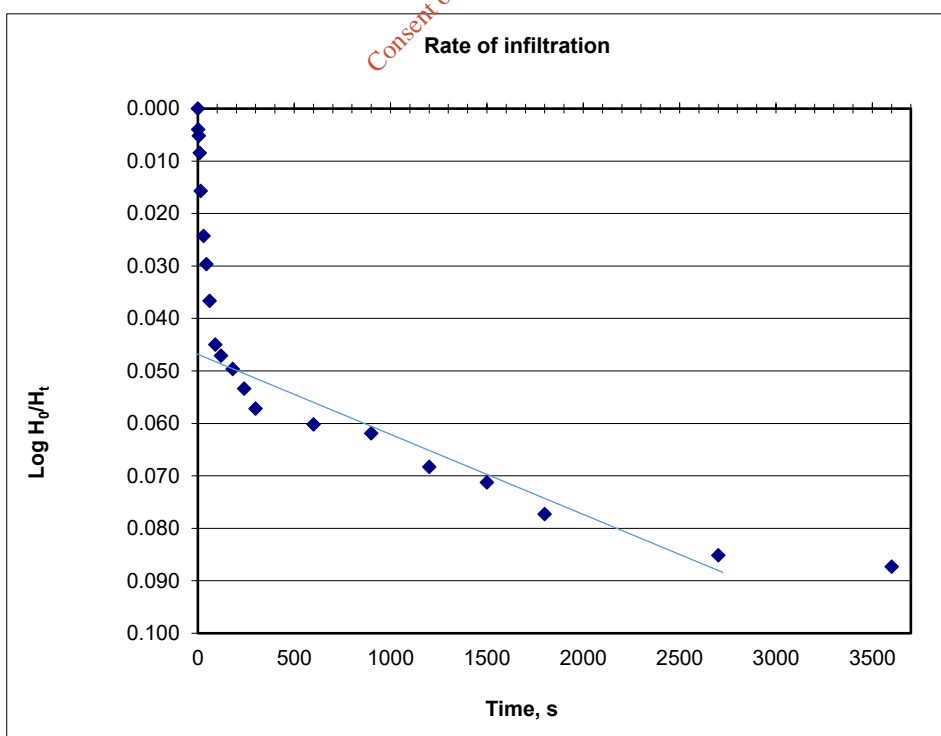
Refer to GW03 for details for standpipe details

Location

BH ID **GW03** H<sub>w</sub>/H<sub>o</sub> **25.00**  
 Casing diameter **98 mm**  
 Casing depth **2.5 m**  
 Borehole depth **25 m**  
 Groundwater level **25.00 m bgl**  
 Date **14/09/2018**  
 Strata **Topsoil overlying Limestone**

Min	Sec	depth, m bgl	vol, cu.m	H <sub>t</sub>	log H <sub>0</sub> /H <sub>t</sub>
0	0	0.000	0.00000	25.00	0.000
0.02	1	0.100	0.00075	24.90	0.004
0.08	5	0.130	0.00098	24.87	0.005
0.17	10	0.210	0.00158	24.79	0.008
0.25	15	0.390	0.00294	24.61	0.016
0.50	30	0.600	0.00452	24.40	0.024
0.75	45	0.730	0.00550	24.27	0.030
1	60	0.900	0.00679	24.10	0.037
1.5	90	1.100	0.00829	23.90	0.045
2	120	1.150	0.00867	23.85	0.047
3	180	1.210	0.00912	23.79	0.050
4	240	1.300	0.00980	23.70	0.053
5	300	1.390	0.01048	23.61	0.057
10	600	1.460	0.01101	23.54	0.060
15	900	1.500	0.01131	23.50	0.062
20	1200	1.650	0.01244	23.35	0.068
25	1500	1.720	0.01297	23.28	0.071
30	1800	1.860	0.01402	23.14	0.077
45	2700	2.040	0.01538	22.96	0.085
60	3600	2.090	0.01576	22.91	0.087

**k<sub>mean</sub> 9.33E-08 ms<sup>-1</sup>**  
**k<sub>H</sub> = k<sub>V</sub>**





<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617336E - 775780N <b>Level:</b> 66.24m OD	<b>Date:</b> 31/07/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 2.80 x 3.80	<b>Scale:</b> 1:25
-------------------------------	------------------------------------	--------------------

<b>Client:</b>	<b>Depth:</b> 4.50m BGL	<b>Logged PH</b>
----------------	-------------------------	------------------

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
▼	0.10 - 0.40	B		0.40	65.84	[Pattern]	(TOPSOIL) Brown, sandy SILT. Sand is fine to coarse.
	0.10 - 0.40	D					(MADE GROUND) Dark black, waste material with plastic, timber, cables, glass and mulch. <i>0.40m - 4.50m: Strong hydrocarbon odor.</i>
				4.50	61.74		End of Pit at 4.500m

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<b>Stability:</b> Moderate.	<b>Groundwater:</b> Slow rate of flow.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 4.50m at the required depth.



<b>Number:</b> CB – TP01	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Number:

CB - TP01

**Project**  
**Project No**  
**Engineer**


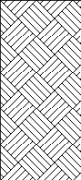

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617366E - 775802N <b>Level:</b> 65.52m OD	<b>Date:</b> 31/07/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 3.50m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20 - 0.60	B		0.60	64.92		(TOPSOIL) Brown, slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
	0.20 - 0.60	D					(MADE GROUND) Dark brown black, waste material with plastic, metal, concrete and mulch. <i>Strong hydrocarbon odor. Oil in groundwater.</i>
				3.50	62.02		End of Pit at 3.500m

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<b>Stability:</b> Moderate	<b>Groundwater:</b> 2.85m: Steady rate of flow.
<b>Plant:</b> 13T Track machine	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 3.50m bgl at the required depth.





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<b>Number:</b> CB – TP02	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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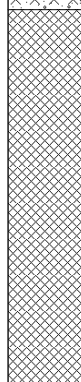
<b>Number:</b> CB – TP02	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617409E - 775852N <b>Level:</b> 64.39m OD	<b>Date:</b> 31/07/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 1.80m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20 - 0.55	B		0.55	63.84		Brown, sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
	0.20 - 0.55	D					(MADE GROUND) Dark black brown, waste material with plastic, glass, metal and wood. <i>0.55m - 1.80m: Hydrocarbon odor and oil sheen in groundwater.</i>
				1.80	62.59		End of Pit at 1.800m

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<b>Stability:</b> Good	<b>Groundwater:</b> 1.80m: Slow rate of flow.
<b>Plant:</b> 13T Track machine.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.80m bgl at the required depth.



**Number:**

**CB – TP03**

**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



**Number:**

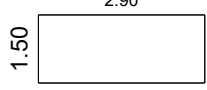
**CB – TP03**

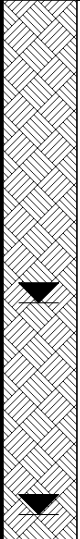

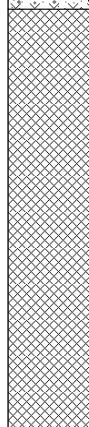
**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617372E - 775916N <b>Level:</b> 63.63m OD	<b>Date:</b> 31/07/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
<b>Client:</b>	<b>Depth:</b> 1.80m BGL	<b>Logged PH</b>

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10 - 0.40	B		0.40	63.23		Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
	0.10 - 0.40	D					(MADE GROUND) Dark brown, gravelly waste material with metal, plastic, wood. <i>0.40m - 1.80m: Hydrocarbon odor. Oil sheen in water. Gas bubbling up through groundwater.</i>
				1.80	61.83		End of Pit at 1.800m

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<b>Stability:</b> Moderate.	<b>Groundwater:</b> 1.00m Slow rate of flow. 1.70m: Fast rate of flow.
<b>Plant:</b> 13T Track machine	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.80m bgl at the required depth.



<b>Number:</b> CB – TP04	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Number:</b> CB – TP04	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Trial Pit No  
**CB-TP05**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big      **Project No.:** P18159      **Co-ords:** 617333E - 775890N  
**Level:** 64.38m OD      **Date:** 31/07/2018

**Location:** Co. Longford      **Dimensions (m):** 1.40 x 3.00

**Client:**      **Depth:** 2.10m BGL      **Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
▼	0.20 - 0.60	B		0.60	63.78	[Cross-hatch pattern]	(TOPSOIL) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
	0.20 - 0.60	D					(MADE GROUND) Dark brown black, waste material with mainly plastic, metal, wood and mulch. <i>0.60m - 2.10m: Oil sheen in groundwater. Hydrocarbon odor.</i>
				2.10	62.28		End of Pit at 2.100m

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**Stability:** Good      **Groundwater:** 2.00m: Fast rate of flow.  
**Plant:** 13T Track machine  
**Backfill:** Arisings.

**Remarks:** Trial pit terminated at 2.10m bgl at the required depth.



Number:

CB – TP05

**Project**  
**Project No**  
**Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



<b>Number:</b> CB – TP05	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Trial Pit No  
**CB-TP06**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617293E - 775862N  
**Level:** 65.06m OD  
**Date:** 01/08/2018

**Location:** Co. Longford  
**Dimensions (m):** 2.30  
**Scale:** 1:25

**Client:**  
**Depth:** 1.30m BGL  
**Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
▼				0.40	64.66	[Cross-hatched pattern]	(MADE GROUND) Brown, sandy gravelly SILT with plastic glass and timber inclusions. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				1.30	63.76		(MADE GROUND) Grey, sandy CLAY with waste material, plastic, glass, timber.
							End of Pit at 1.300m

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**Stability:** Good.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings.  
**Groundwater:** 1.10m: Slow flow rate.

**Remarks:** Trail pit terminated at 1.3m bgl at the required depth.



<b>Number:</b> CB – TP06	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Number:

CB – TP06

**Project**  
**Project No**  
**Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney

<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617288E - 775924N <b>Level:</b> 64.37m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
<b>Client:</b>	<b>Depth:</b> 3.00m BGL	<b>Logged:</b> PH

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
▼	0.20 - 0.70	B					(MADE GROUND) Brown, sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				0.80	63.57		(MADE GROUND) Brown, slightly gravelly sandy SILT with plastic glass metal and wood.
				3.00	61.37		2.9m: Hydrocarbon odor with oil sheen in groundwater. End of Pit at 3.000m

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<b>Stability:</b> Good.	<b>Groundwater:</b> 2.90m: Slow flow rate.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 3.00m bgl at the required depth



<b>Number:</b> CB – TP07	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Number:</b> CB – TP07	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617340E - 775959N <b>Level:</b> 63.01m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
<b>Client:</b>		<b>Logged PH</b>

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.65	62.36		(MADE GROUND) Very soft, brown, sandy SILT.
				0.90	62.11		(MADE GROUND) Very soft, brown sandy SILT with plastic wood and metal.
							End of Pit at 0.900m

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<b>Stability:</b> Moderate.	<b>Groundwater:</b> 0.65m: Fast flow rate.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 0.90m bgl, groundwater encountered.



<b>Number:</b> CB – TP08	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<p><b>Number:</b> CB –TP08</p>	<p><b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney</p>	
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<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617267E - 775969N <b>Level:</b> 63.63m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 2.90 1.00	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 1.35m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
▼	0.10 - 0.50	B					(MADE GROUND) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				0.50	63.13		(MADE GROUND) Brown grey, slightly sandy gravelly SILT with plastic glass wood metal and concrete waste material.
				1.35	62.28		1.20m. Strong hydrocarbon odor with oil sheen on groundwater. End of Pit at 1.350m

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<b>Stability:</b> Good.	<b>Groundwater:</b> 1.20m: Steady flow rate.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.35m bgl, required depth.



Number:

CB – TP09

**Project**  
**Project No**  
**Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



**Number:**

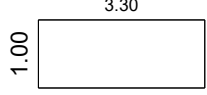
**CB – TP09**


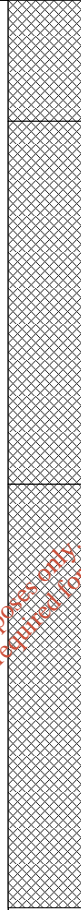
**Project  
Project No  
Engineer**

Longford Landfills – Cartron Big  
P18159  
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<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617234E - 775948N <b>Level:</b> 64.08m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
<b>Client:</b>	<b>Depth:</b> 3.00m BGL	<b>Logged:</b> PH

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.40	63.68		(MADE GROUND) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse.
				1.60	62.48		(MADE GROUND) Dark brown CLAY with plastic glass metal and wood waste material.
				3.00	61.08		(MADE GROUND) Grey, slightly sandy gravelly CLAY with plastic metal wood and concrete waste material. Sand is fine to coarse. Gravel is fine to coarse.
							2.90m. Strong order in groundwater. End of Pit at 3.000m

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<b>Stability:</b> Good.	<b>Groundwater:</b> 2.90m: Steady flow rate.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings	

**Remarks:** Trial Pit terminated at 3.00m bgl at the required depth.



# Photographic Record



<b>Number:</b> CB – TP10	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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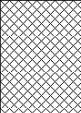
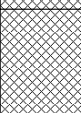
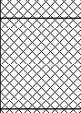
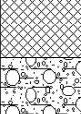



<b>Number:</b> CB – TP10	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617212E - 775940N <b>Level:</b> 63.56m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
<b>Client:</b>	<b>Depth:</b> 1.50m BGL	<b>Logged:</b> PH

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00 - 0.40	B					(MADE GROUND) Brown, slightly sandy gravelly SILT
				0.40	63.16		(MADE GROUND) Brown, slightly sandy gravel SILT with plastic glass metal and wood waste material. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-sub-rounded.
				0.80	62.76		(MADE GROUND) Grey, slightly sandy gravelly SILT with plastic metal waste material. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				1.10	62.46		(MADE GROUND) Slightly sandy gravelly SILT with dark black waste material layer.
	1.30 - 1.50	B		1.30	62.26		Grey, slightly sandy gravelly CLAY with high boulder content. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				1.50	62.06		End of Pit at 1.50m

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<b>Stability:</b> Good.	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 13t tracked excavator	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.5m bgl at the required depth.



<b>Number:</b> CB – TP11	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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# Photographic Record



Number:

CB – TP11

**Project**  
**Project No**  
**Engineer**

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Trial Pit No  
**CB-TP12**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617269E - 775828N  
**Level:** 64.96m OD  
**Date:** 01/08/2018

**Location:** Co. Longford  
**Dimensions (m):** 2.40  
**Scale:** 1:25

**Client:**  
**Depth:** 1.10m BGL  
**Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
Water Strike & Backfill	0.10 - 0.80	B					(TOPSOIL) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
	0.10 - 0.80	D					
				0.80	64.17	Boulders	Brown grey, silty BOULDERS. Boulders sub-angular to sub-rounded, 200mm to 800mm.
				1.10	63.86		End of Pit at 1.100m

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**Stability:** Good.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings  
**Groundwater:** None encountered.

**Remarks:** Trial pit terminated at 1.10m bgl at the required depth.



<b>Number:</b> CB – TP12	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Number:</b> CB – TP12	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Trial Pit No  
**CB-TP13**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big      **Project No.:** P18159      **Co-ords:** 617288E - 775801N  
**Level:** 65.45m OD      **Date:** 01/08/2018

**Location:** Co. Longford      **Dimensions (m):** 2.90 x 1.10  
**Client:**      **Depth:** 2.80m BGL      **Scale:** 1:25  
**Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
Water Strike & Backfill				0.40	65.05	Legend	(MADE GROUND) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
							(MADE GROUND) Grey black, CLAY with plastic glass and timber waste material.
				2.80	62.65		End of Pit at 2.800m

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**Stability:** Good.      **Groundwater:** None encountered.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings.

**Remarks:** Trial pit terminated at 2.80m bgl at the required depth.



<b>Number:</b> CB – TP13	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Number:</b> CB – TP13	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Trial Pit No  
**CB-TP14**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617240E - 775977N  
**Level:** 63.02m OD  
**Date:** 01/08/2018

**Location:** Co. Longford  
**Dimensions (m):** 3.20  
**Scale:** 1:25

**Client:**  
**Depth:** 1.40m BGL  
**Logged:** PH

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.40	62.62		(TOPSOIL) Brown, slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel fine to coarse, sub-angular to sub-rounded.
				1.40	61.62		(MADE GROUND) Grey, waste material with plastic metal timber and glass.
							Grey CLAY with high boulder content. Boulders sub-angular to sub-rounded, 200mm to 700mm. End of Pit at 1.400m

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**Stability:** Good.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings.  
**Groundwater:** None encountered.

**Remarks:** Trial pit terminated at 1.4m bgl at the required depth.



Number:

CB – TP14

**Project**  
**Project No**  
**Engineer**


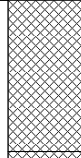
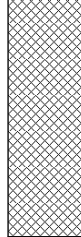

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney



<b>Project Name:</b> Longford Landfills - Cartron Big	<b>Project No.:</b> P18159	<b>Co-ords:</b> 617277E - 775980N <b>Level:</b> 63.15m OD	<b>Date:</b> 01/08/2018
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<b>Location:</b> Co. Longford	<b>Dimensions (m):</b> 	<b>Scale:</b> 1:25
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<b>Client:</b>	<b>Depth:</b> 1.60m BGL	<b>Logged PH</b>
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Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.50	62.65		(MADE GROUND) Brown sandy slightly gravelly SILT.
							(MADE GROUND) Dark grey, waste material with plastic timber glass and wood.
	1.30 - 1.60	B		1.30	61.85		Stiff to firm, grey, sandy CLAY. Sand is fine to coarse.
				1.60	61.55		End of Pit at 1.600m

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<b>Stability:</b> Good	<b>Groundwater:</b> None encountered.
<b>Plant:</b> 13t tracked excavator.	
<b>Backfill:</b> Arisings.	

**Remarks:** Trial pit terminated at 1.60m bgl at the required depth.



<b>Number:</b> CB – TP15	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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<b>Number:</b> CB – TP15	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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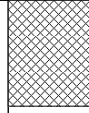
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Trial Pit No  
**CB-SA01**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big      **Project No.:** P18159      **Co-ords:** 617342E - 775814N  
**Level:** 65.45m OD      **Date:** 01/08/2018

**Location:** Co. Longford      **Dimensions (m):**       **Scale:** 1:25

**Client:**      **Depth:** 0.35m BGL      **Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10 - 0.35	B		0.35	65.10		(MADE GROUND) Brown, slightly sandy gravelly SILT with wood and mulch. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
							End of Pit at 0.350m
							1
							2
							3
							4
							5

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**Stability:** Good.      **Groundwater:** None encountered.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings.

**Remarks:** Trial pit terminate at 0.35m bgl, required depth. Soakaway test carried out.

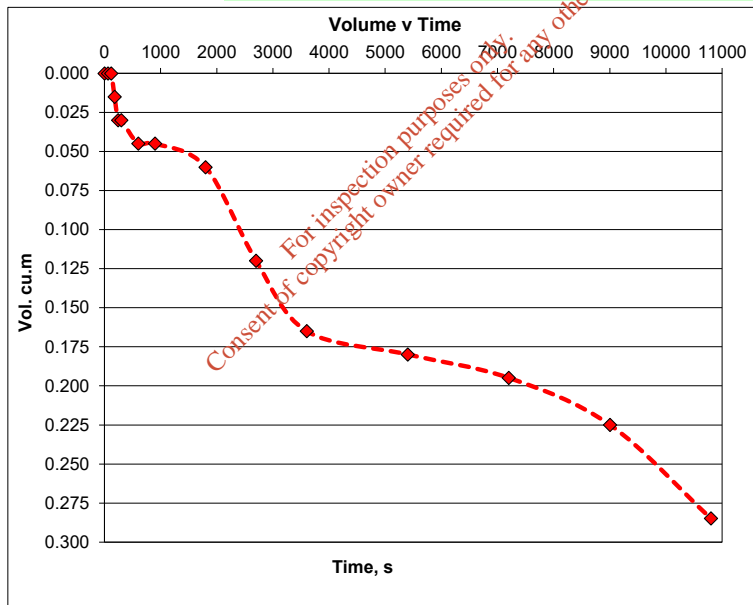
P18159

Longford Landfills - Cartron Big  
 CB - SA01  
 01/08/2018

l, m 1.00 b, m 1.10 d, m 0.35  
 l\_base, m 1.00 d\_eff, m 0.27  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.08	0	0.27	0.00	0.000
1	0.08	60	0.27	0.00	0.000
2	0.08	120	0.27	0.00	0.000
3	0.09	180	0.26	0.01	0.015
4	0.10	240	0.25	0.02	0.030
5	0.10	300	0.25	0.02	0.030
10	0.11	600	0.24	0.03	0.045
15	0.11	900	0.24	0.03	0.045
30	0.12	1800	0.23	0.04	0.060
45	0.16	2700	0.19	0.08	0.120
60	0.19	3600	0.16	0.11	0.165
90	0.20	5400	0.15	0.12	0.180
120	0.21	7200	0.14	0.13	0.195
150	0.23	9000	0.12	0.15	0.225
180	0.27	10800	0.08	0.19	0.285

Area 1.10 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.19 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 1.84 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.1045 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.50 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 6316.20 s  
 Infiltration Coefficient, f 1.10E-05 ms<sup>-1</sup>



**NOTES:**

See CB - SA01 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.



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<b>Number:</b> CB – SA01	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Trial Pit No  
**CB-SA02**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617391E - 775838N  
**Level:** 64.80m OD  
**Date:** 01/08/2018

**Location:** Co. Longford  
**Dimensions (m):** 1.00 x 1.30  
**Scale:** 1:25

**Client:**  
**Depth:** 0.35m BGL  
**Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10 - 0.35	B		0.35	64.45		(MADE GROUND) Brown, slightly sandy gravelly SILT with waste material. Sand is fine to coarse. Gravel os fine to coarse, sub-angular to sub-rounded.
	0.10 - 0.35	D					
	End of Pit at 0.350m						
							1
							2
							3
							4
							5

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**Stability:** Good.  
**Plant:** 13t tracked excavator.  
**Backfill:** Arisings.  
**Groundwater:** None encountered.

**Remarks:** Trial pit terminated at 0.35m bgl, required depth. Soakaway test carried out in pit.

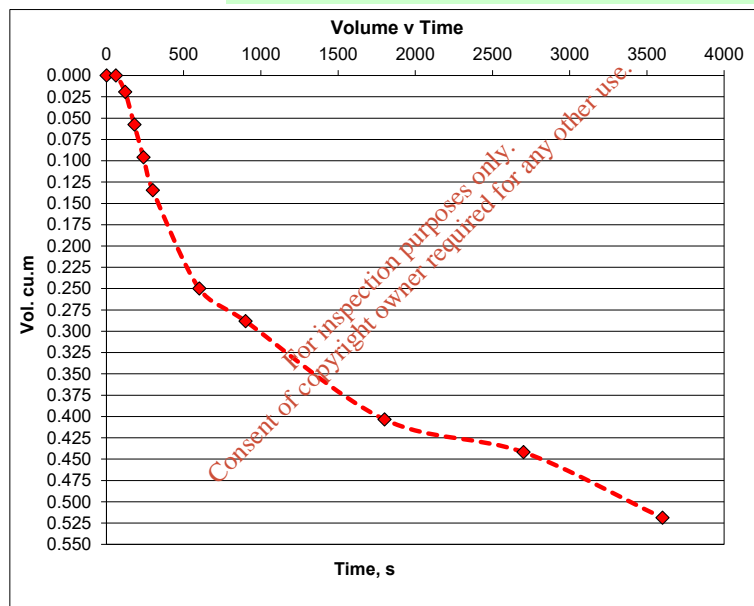
P18159

Longford Landfills - Cartron Big  
 CB - SA02\_1  
 02/08/2018

l, m 1.30 b, m 1.00 d, m 0.35  
 l\_base, m 1.30 d\_eff, m 0.27  
 l\_eff, m 1.30 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.08	0	0.27	0.00	0.000
1	0.08	60	0.27	0.00	0.000
2	0.09	120	0.26	0.01	0.019
3	0.11	180	0.24	0.03	0.058
4	0.13	240	0.22	0.05	0.096
5	0.15	300	0.20	0.07	0.134
10	0.21	600	0.14	0.13	0.250
15	0.23	900	0.12	0.15	0.288
30	0.29	1800	0.06	0.21	0.403
45	0.31	2700	0.04	0.23	0.442
60	0.35	3600	0.00	0.27	0.519

Area 1.30 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.23 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 2.11 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.1755 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.92 m<sup>2</sup> t<sub>p 75-25 actual</sub> time 1400.00 s  
 Infiltration Coefficient, f 6.53E-05 ms<sup>-1</sup>



NOTES:

See CB - SA02 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.

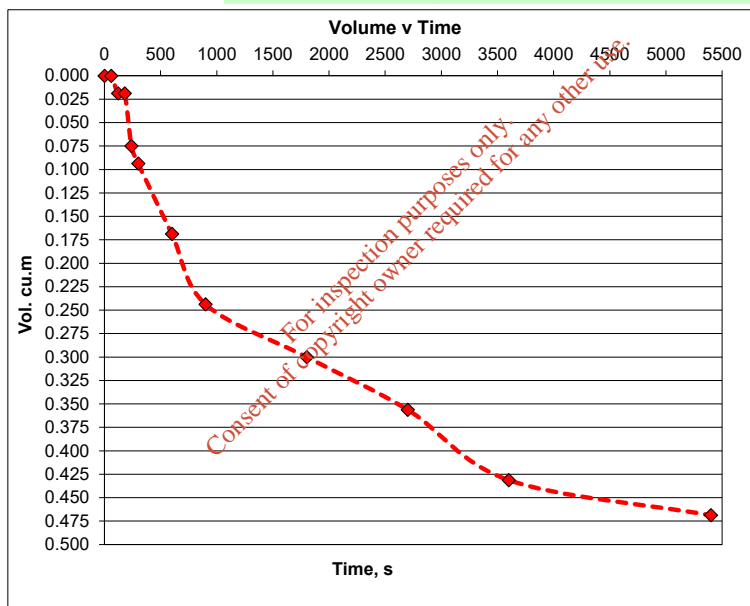
P18159

Longford Landfills - Cartron Big  
 CB - SA02\_2  
 02/08/2018

l, m 1.30 b, m 1.00 d, m 0.35  
 l\_base, m 1.30 d\_eff, m 0.25  
 l\_eff, m 1.30 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.10	0	0.25	0.00	0.000
1	0.10	60	0.25	0.00	0.000
2	0.11	120	0.24	0.01	0.019
3	0.11	180	0.24	0.01	0.019
4	0.14	240	0.21	0.04	0.075
5	0.15	300	0.20	0.05	0.094
10	0.19	600	0.16	0.09	0.169
15	0.23	900	0.12	0.13	0.244
30	0.26	1800	0.09	0.16	0.300
45	0.29	2700	0.06	0.19	0.356
60	0.33	3600	0.02	0.23	0.431
90	0.35	5400	0.00	0.25	0.469

Area 1.30 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.23 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 2.11 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.1625 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.88 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 2226.00 s  
 Infiltration Coefficient, f 3.89E-05 ms<sup>-1</sup>



NOTES:

See CB - SA02 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.



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<b>Number:</b> CB – SA02	<b>Project</b> Longford Landfills – Cartron Big <b>Project No</b> P18159 <b>Engineer</b> Fehily Timoney	
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Trial Pit No  
**CB-SA03**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617325E - 775954N  
**Level:** 63.27m OD  
**Date:** 01/08/2018

**Location:** Co. Longford  
**Dimensions (m):** 1.10  
**Scale:** 1:25

**Client:**  
**Depth:** 0.50m BGL  
**Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
Water Strike & Backfill	0.15 - 0.45	B		0.15	63.12		(TOPSOIL) Brown, sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub-rounded.
				0.45	62.82		(MADE GROUND) Light brown, silty slightly gravelly SAND. Sand is fine to coarse.
				0.50	62.77		(MADE GROUND) Dark brown, sandy SILT with mulch. Sand is fine to coarse. End of Pit at 0.500m
							1 2 3 4 5

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**Stability:** Good  
**Plant:** 12t tracked excavator.  
**Backfill:** Arisings.  
**Groundwater:** None encountered.

**Remarks:** Trial pit terminated at 0.50m bgl at the required depth.



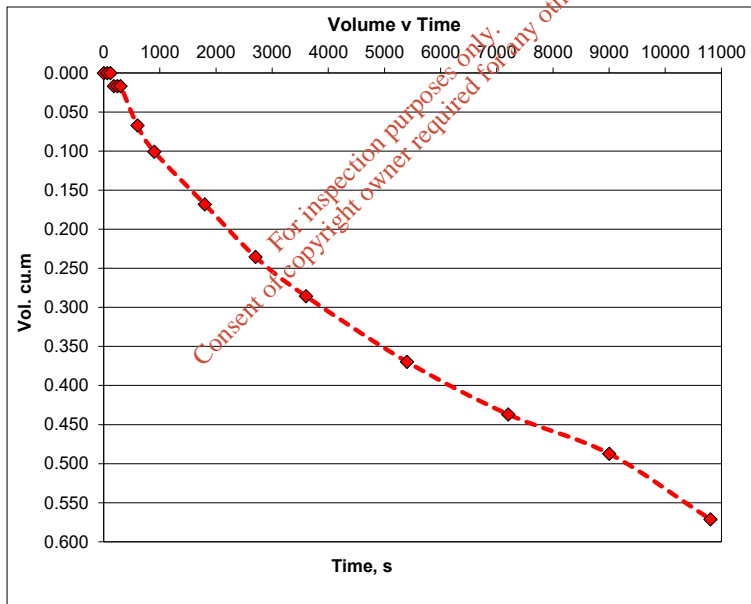
P18159

Longford Landfills - Cartron Big  
 CB - SA03  
 01/08/2018

l, m 1.00 b, m 1.00 d, m 0.50  
 l\_base, m 1.00 d\_eff, m 0.44  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.06	0	0.44	0.00	0.000
1	0.06	60	0.44	0.00	0.000
2	0.06	120	0.44	0.00	0.000
3	0.07	180	0.43	0.01	0.017
4	0.07	240	0.43	0.01	0.017
5	0.07	300	0.43	0.01	0.017
10	0.10	600	0.40	0.04	0.067
15	0.12	900	0.38	0.06	0.101
30	0.16	1800	0.34	0.10	0.168
45	0.20	2700	0.30	0.14	0.235
60	0.23	3600	0.27	0.17	0.286
90	0.28	5400	0.22	0.22	0.370
120	0.32	7200	0.18	0.26	0.437
150	0.35	9000	0.15	0.29	0.487
180	0.40	10800	0.10	0.34	0.571

Area 1.00 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.25 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 2.00 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.17 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.68 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 5495.00 s  
 Infiltration Coefficient, f 1.84E-05 ms<sup>-1</sup>



**NOTES:**

See CB - SA03 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.



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<b>Number:</b>	<b>CB – SA03</b>	<b>Project</b>	Longford Landfills – Cartron Big
		<b>Project No</b>	P18159
		<b>Engineer</b>	Fehily Timoney



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Trial Pit No  
**CB-SA04**  
 Sheet 1 of 1

**Project Name:** Longford Landfills - Cartron Big  
**Project No.:** P18159  
**Co-ords:** 617235E - 775940N  
**Level:** 64.20m OD  
**Date:** 01/08/2018

**Location:** Co. Longford  
**Dimensions (m):** 1.10  
**Scale:** 1:25

**Client:**  
**Depth:** 0.40m BGL  
**Logged PH**

Water Strike & Backfill	Samples & In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10 - 0.40	B		0.40	63.80		(TOPSOIL) Brown, slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is fine to coarse, sub-angular to sub rounded.
							End of Pit at 0.400m

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**Stability:** Good.  
**Plant:** 14t tracked excavator.  
**Backfill:** Arisings.  
**Groundwater:** None encountered.

**Remarks:** Trial pit terminated at 0.40m bgl at the required depth. Soakaway test carried out in pit.

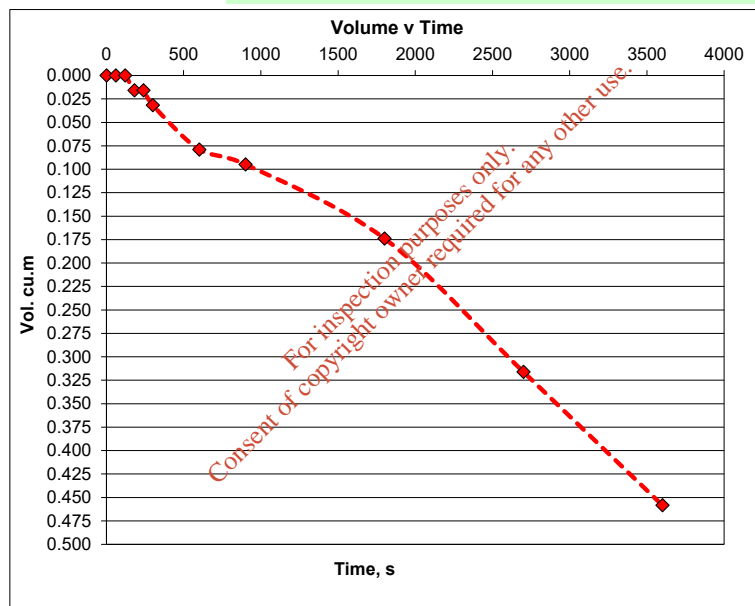
P18159

Longford Landfills - Cartron Big  
 CB - SA04\_1  
 01/08/2018

l, m 1.00 b, m 1.00 d, m 0.40  
 l\_base, m 1.00 d\_eff, m 0.29  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.11	0	0.29	0.00	0.000
1	0.11	60	0.29	0.00	0.000
2	0.11	120	0.29	0.00	0.000
3	0.12	180	0.28	0.01	0.016
4	0.12	240	0.28	0.01	0.016
5	0.13	300	0.27	0.02	0.032
10	0.16	600	0.24	0.05	0.079
15	0.17	900	0.23	0.06	0.095
30	0.22	1800	0.18	0.11	0.174
45	0.31	2700	0.09	0.20	0.316
60	0.40	3600	0.00	0.29	0.458

Area 1.00 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.20 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 1.80 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.145 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.58 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 1755.00 s  
 Infiltration Coefficient, f 5.23E-05 ms<sup>-1</sup>



**NOTES:**

See CB - SA04\_1 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.

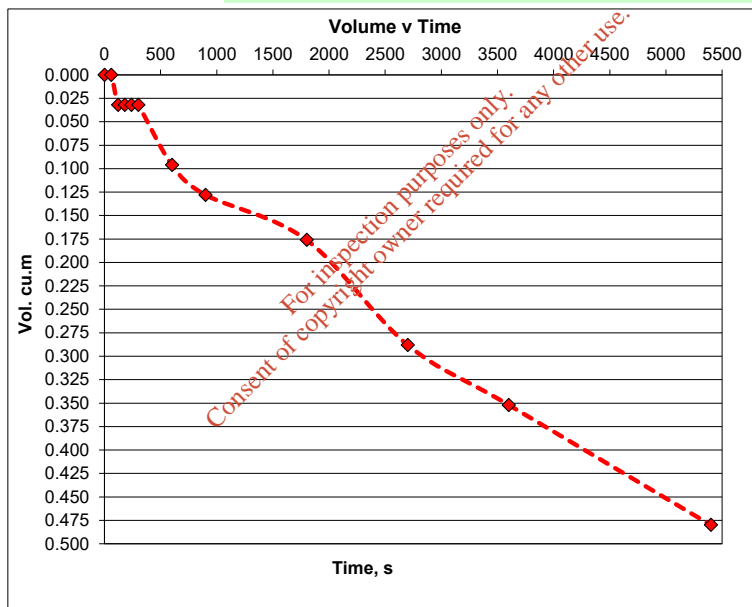
P18159

Longford Landfills - Cartron Big  
 CB - SA04\_2  
 01/08/2018

l, m 1.00 b, m 1.00 d, m 0.40  
 l\_base, m 1.00 d\_eff, m 0.32  
 l\_eff, m 1.00 GW, m

Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
0	0.08	0	0.32	0.00	0.000
1	0.08	60	0.32	0.00	0.000
2	0.10	120	0.30	0.02	0.032
3	0.10	180	0.30	0.02	0.032
4	0.10	240	0.30	0.02	0.032
5	0.10	300	0.30	0.02	0.032
10	0.14	600	0.26	0.06	0.096
15	0.16	900	0.24	0.08	0.128
30	0.19	1800	0.21	0.11	0.176
45	0.26	2700	0.14	0.18	0.288
60	0.30	3600	0.10	0.22	0.352
90	0.38	5400	0.02	0.30	0.480
120	0.40	7200	0.00	0.32	0.512

Area 1.00 m<sup>2</sup> V<sub>p75-25 theory</sub> volume 0.20 m<sup>3</sup>  
 50% Area\_eff, a<sub>p50</sub> 1.80 m<sup>2</sup> V<sub>p 75 - 25 actual</sub> volume 0.15 m<sup>3</sup>  
 50% Area\_act, a<sub>p50</sub> 1.60 m<sup>2</sup> t<sub>p 75- 25 actual</sub> time 3150.00 s  
 Infiltration Coefficient, f 2.98E-05 ms<sup>-1</sup>



**NOTES:**

See CB - SA04 for detailed overburden description. No groundwater encountered. Pit assumed unsaturated.

# Photographic Record



Number:

CB – SA04

**Project**  
**Project No**  
**Engineer**

Longford Landfills – Cartron Big  
P18159  
Fehily Timoney