2018

# SITE SUITABILITY REPORT

Client: Kilkenny county council

Location: Shanganny, Jenkinstown,

Co.Kilkenny – Site B



William Bolger-Hynes

**BOLGER - HYNES ARCHITECTURAL** 

DESIGN

12/23/2018

# **APPENDIX B: SITE CHARACTERISATION FORM**

File Reference: SITE B
1.0 GENERAL DETAILS (From planning application)
Prefix: First Name: KILKENNY COUNTY COUNCIL Surname:
Address: Site Location and Townland:
HOUSIN CAPITAL, KILKENNY COUNTY COUNCIL SHANGANNY, JENKINSTOWN, CO.KILKENNY
Telephone No: Fax No:
E-Mail:
Maximum no. of Residents: 5 No. of Double Bedrooms: 3 No. of Single Bedrooms: 0
Proposed Water Supply: Mains Private Well/Borehole Group Well/Borehole
2.0 GENERAL DETAILS (From planning application)
Soil Type, (Specify Type): BEDCROP/OUTCROP/SUBCROP
Aquifer Category: Regionally Important Locally Important Poor PI
Vulnerability: Extreme ✓ High Moderate Low High to Low Unknown
Bedrock Type: NAMURIAN SANDSTONES
Name of Public/Group Scheme Water Supply within 1 km: NONE
Groundwater Protection Scheme (Y/N): Yes Source Protection Area: SI SO
Groundwater Protection Response: R21
Presence of Significant Sites (Archaeological, Natural & Historical):
Past experience in the area: NONE.
Comments:
(Integrate the information above in order to comment on the potential suitability of the site, potential targets at risk, and/or any potential site restrictions).
Potential targets at risk are the Pi aquifer. There are no apparent potential site restrictions at this stage. The ground water protection response R2¹ acceptable subject to normal good practice (i.e system selection, construction, operation and maintenance in accordance with EPA CoP. (Sources: www.gsi.ie, www.osi.ie, www.irishwater.ie, www.archaelogy.ie, kilkenny county council)

Note: Only information available at the desk study stage should be used in this section.

## 3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment
Landscape Position: SIDE OF HILL.
Slope: Steep (>1:5) Shallow (1:5-1:20) ✓ Relatively Flat (<1:20)
Surface Features within a minimum of 250m (Distance To Features Should Be Noted In Metres)
Houses: NEAREST HOUSE APPROX. 50M UP GRADIENT IN A EASTERLY DIRECTION.
Existing Land Use: AGRICULTURAL - GRAZING.
Vegetation Indicators: MAINLY GRASS WITH VARIBLE THISTLES.
Groundwater Flow Direction: PROBABLE DIRECTION OF GROUNDWATER FLOW - NORTH EAST TO SOUTH WEST.
Ground Condition: FIRM TO SOFT ON 14/12/18.
Site Boundaries: SEE COMMENTS BELOW.
Roads: LOCAL ROAD APPROX. 18M UP IN A EASTERLY DIRECTION.
Outcrops (Bedrock And/Or Subsoil): NONE EVIDENT.
Surface Water Ponding: NONE EVIDENT. Lakes: NONE EVIDENT.
Beaches/Shellfish: NONE WITHIN 250M. Areas/Wetlands: NONE WITHIN 250M.
Karst Features: NONE WITHIN 250M.
Watercourse/Stream*: NONE EVIDENT.
Drainage Ditches*: NONE EVIDENT.
Springs / Wells*: NEAREST WELL WITHIN IN SITE APPROX. 90M UP GRADIENT IN A EASTERLY DIRECTION.
Comments: (Integrate the information above in order to comment on the potential suitability of the site, potential targets at risk, the suitability of the site to treat the wastewater and the location of the proposed system within the site).
BOUNDARIES: EAST WEST- TIMBER POST AND WIRE FENCE WITH NATURAL HEDGEROW.  NORTH - TIMBER POST AND WIRE FENCE WITH EXISTING DERELICTED DWELLING.  SOUTH - NATURAL HEDGEROW. (SEE OSI MAP ATTACHED)  TARGETS AT RISK: THE NEAREST EXISTING WELL IS UP GRADIENT APPROX 50M IN A EASTHERLY DIRECTION ACROSS A LOCAL ROAD ON A ADJOINING SITE. (BEYOND MINUMIM DISTANCE REQUIREMENTS)  VEGETATION INDICATORS SUGGUEST GROUND CONDITIONS COULD BE DRY.

<sup>\*</sup>Note and record water level

### 3.2 Trial Hole (should be a minimum of 2.1m deep (3m for regionally important aquifers))

To avoid any accidental damage, a trial hole assessment or percolation tests should not be undertaken in areas, which are at or adjacent to significant sites (e.g. NHAs, SACs, SPAs, and/or Archaeological etc.), without prior advice from National Parks and Wildlife Service or the Heritage Service.

Depth of trial	hole (m): <b>2.30</b>								
Depth from ground surface  to bedrock (m) (if present):  Depth from ground surface  to water table (m) (if present):  2.20									
Depth of water	r ingress:	2.20 Rock type	e (if present): OC	CASIONAL SANDSTO	NE COBBLE				
Date and time	of excavation: 12	/12/2018 09:3	O Date ar	nd time of examina	tion: 14/12/201	11:00			
	Soil/Subsoil Texture & Classification**	Plasticity and dilatancy***	Soil Structure	Density/ Compactness	Colour****	Preferential flowpaths			
0.1 m <b>P1.2.3</b> 0.2 m	TOP SOIL 0 - 0.250m CLAY LOAM		CRUMB	VERY SOFT	BROWN	FREQUENT GRASS ROOTLETS 0.3mm			
0.3 m T1,2,3 0.4 m 0.5 m 0.6 m 0.7 m 0.8 m 0.9 m 1.0 m 0.9 m	SUBSOIL 2 0.250m -1.5m SLIGHTLY RASPY Gravelly / CLAY	T = 6 R = 140mm D = N	SUBANGULAR STRUCTURE- LESS	SOFT/ UNCOMPACTED	BROWN	VARIABLE GRAVELS VARIABLE COBBLES			
1.1 m	BOTTOM OF TRIAL HOLE 1.6M	NO BEDROCK PRESENT @ 1.5M		W.T.L PRESENT @ 1.5M on 14/12/18					
2.1 m									

Likely T value: 50.00

Note: \*Depth of percolation test holes should be indicated on log above. (Enter P or T at depts as appropriate).

<sup>\*\*</sup> See Appendix E for BS 5930 classification.

<sup>\*\*\* 3</sup> samples to be tested for each horizon and results should be entered above for each horizon.

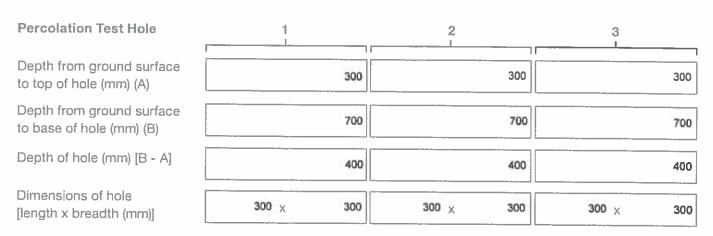
<sup>\*\*\*\*</sup> All signs of mottling should be recorded.

#### 3.2 Trial Hole (contd.) Evaluation:

THE TRIAL HOLE INCIDATES THAT SUBSOIL 1 IS THE MOST SUITABLE SOIL FOR PERCOLATION PURPOSES.

## 3.3(a) Percolation ("T") Test for Deep Subsoils and/or Water Table

Step 1: Test Hole Preparation

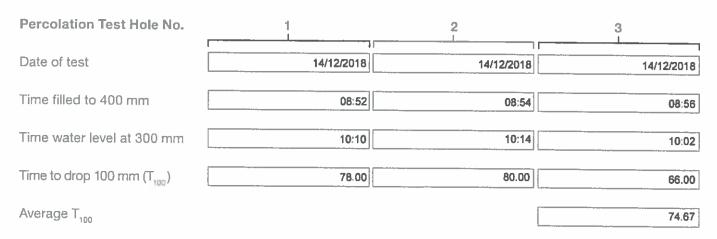


Step 2: Pre-Soaking Test Holes

Date and Time			
pre-soaking started	13/12/2018 09:00	13/12/2018 09	02 13/12/2018 09:04

Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring T<sub>ton</sub>



If  $T_{100} > 300$  minutes then T-value >90 – site unsuitable for discharge to ground

If  $T_{100} \le 210$  minutes then go to Step 4;

If  $T_{100} > 210$  minutes then go to Step 5;

**Step 4:** Standard Method (where  $T_{100} \le 210$  minutes)

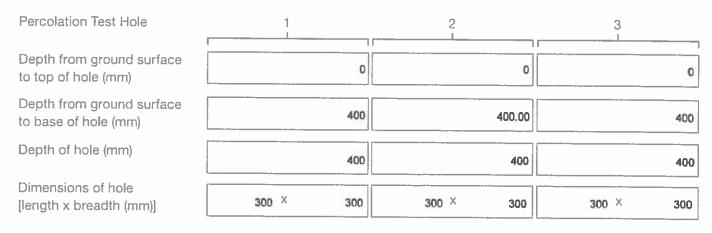
<b>0.00</b> 1.00.	10010 1110111	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100 70 1111	. ratooj							
Percolation Test Hole		1			2			3			
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)		
1	10:12	12:14	122.00	10:16	12:22	126.00	10:05	11:48	103.00		
2	12:16	14:47	151.00	12:25	15:05	160.00	11:50	14:03	133.00		
3	14:50	17:43	173.00	15:08	18:20	192.00	14:05	17:07	182.00		
Average ∆t Value			148.67			159.33			139.33		
Average $\Delta t/4 =$ Average $\Delta t/4 =$ Average $\Delta t/4 =$ [Hole No.1] 37.17 (t <sub>1</sub> ) [Hole No.2] 39.83 (t <sub>2</sub> ) [Hole No.3]								<b>34.83</b> (t <sub>3</sub> )			
Result of Tes	st: T = [		<b>37.28</b> (m	in/25 mm)							
Comments:	Comments:										
T-TEST PASSES. THIS INDICATES SUBSOIL 1 IS SUITABLE FOR PERCOLATION PURPOSES.  Step 5: Modified Method (where T <sub>100</sub> > 210 minutes)											
Percolation Test Hole No.		1			2			3			

Percolation Test Hole No.		1				2				3		
Fall of water in hole (mm)	Time Factor = T,	Time of fall (mins) = T <sub>m</sub>	K <sub>18</sub> = T <sub>1</sub> / T <sub>m</sub>	T – Value = 4.45 / K <sub>rs</sub>	Time Factor = T <sub>r</sub>	Time of falt (mins) = T <sub>m</sub>	K <sub>ts</sub>	T – Value = 4.45 / K <sub>ts</sub>	Time Factor = T,	Time of fall (mins) = T <sub>m</sub>	K <sub>fa</sub> = T <sub>t</sub> / T <sub>m</sub>	T – Value = 4.45 / K <sub>16</sub>
300 - 250	8.1				8.1				8.1			
250 - 200	9.7				9.7				9.7			
200 - 150	11.9				11.9				11.9			
150 - 100	14.1				14.1				14.1			
Average T- Value	T- Value	e Hole 1:	= (t <sub>1</sub> )	0.00	T- Value	Hole 1=	: (t <sub>2</sub> )	0.00	T- Value	Hole 1=	= (t <sub>3</sub> )	0.00

Result of Test: T =	0.00 (min/25 mm)		
Comments:			
			-

## 3.3(b) Percolation ("P") Test for Shallow Soil / Subsoils and/or Water Table

### Step 1: Test Hole Preparation

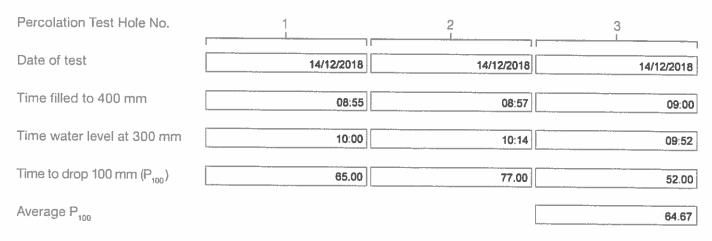


Step 2: Pre-Soaking Test Holes

Date and Time			
pre-soaking started	13/12/2018 09:10	13/12/2018 09:12	13/12/2018 09:15

Each hole should be pre-soaked twice before the test is carried out. Each hole should be empty before refilling.

Step 3: Measuring P<sub>too</sub>



If  $P_{100} > 300$  minutes then P-value >90 – site unsuitable for discharge to ground

If  $P_{100} \le 210$  minutes then go to Step 4;

If P<sub>100</sub> > 210 minutes then go to Step 5;

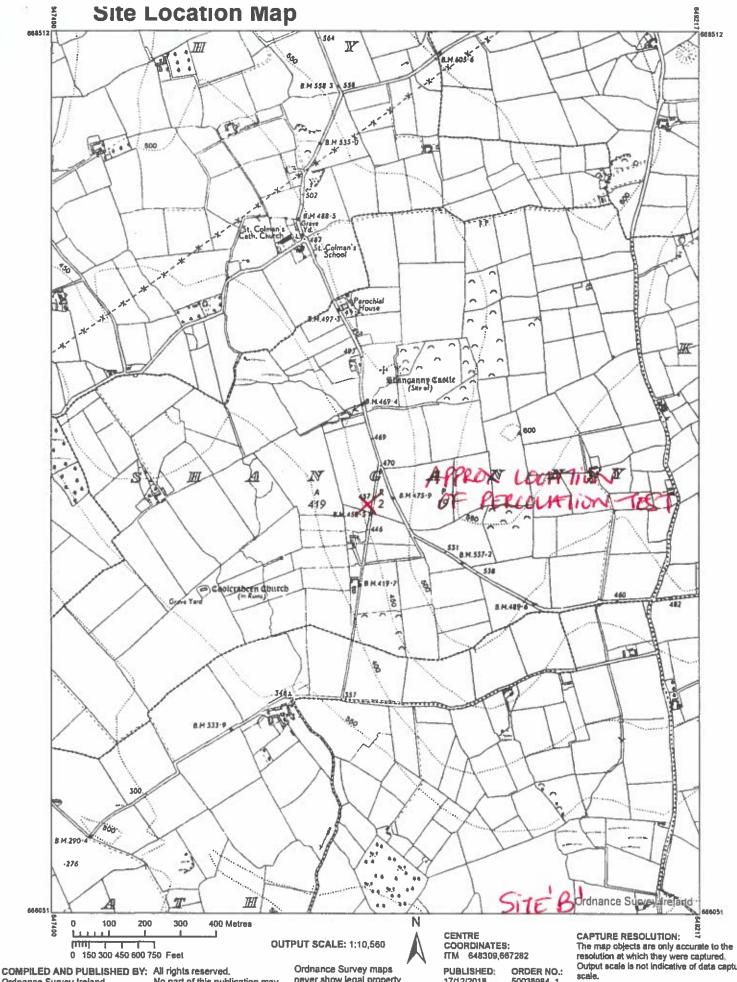
**Step 4:** Standard Method (where  $P_{100} \le 210$  minutes)

Percolation Test Hole		1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δp (min)	
1	10:0	11:30	88.00	10:15	11:56	101.00	09:5	11:06	71.00	
2	11:3	13:26	114.00	12:00	14:18	138.00	11:08	12:48	100.00	
3	13:3	15:52	142.00	14:20	17:17	177.00	12:50	15:07	137.00	
Average ∆p Value			114.67			138.67		,	102.67	
	Average . [Hole No.		<b>28.67</b> (p <sub>1</sub> )	Average Δ [Hole No.2		<b>34.67</b> (p <sub>2</sub> )	Average / [Hole No.		25.67 (p <sub>3</sub> )	
Result of Te	st: P =		<b>29.67</b> (mir	1/25 mm)						
Comments:										
P-TEST PASSES. THIS INDICATES TOPSOIL IS SUITABLE FOR PERCOLATION PURPOSES.  Step 5: Modified Method (where P <sub>100</sub> > 210 minutes)										
Percolation Test Hole No.		1			2			3		
Fall of water in hole (mm)	Factor = T,	Time K <sub>1s</sub> of fall = T <sub>1</sub> (mins) / T <sub>m</sub>	P Value = 4.45 / K <sub>is</sub>	Factor o	ime K <sub>ia</sub> = T, nins) / T <sub>m</sub>	P – Value = 4.45 / K <sub>1s</sub>	Factor (	Fime K <sub>rs</sub> = T, (mins) / T <sub>m</sub>	P – Value = 4.45 / K <sub>rs</sub>	
300 - 250	8.1			8.1			8.1			
250 - 200 200 - 150	9.7			9.7			9.7			
150 - 100	14.1			14.1			14.1			
Average P- Value	P- Value	Hole 1= (p, )	0.00	P- Value I-	lole 1= (p <sub>2</sub> )	0.00	P- Value	Hole 1= (p <sub>3</sub> )	0.00	
Result of Te	st: P =		0.00	(min/25 mr	n)					
Comments:										

# 3.4 The following associated Maps, Drawings and Photographs should be appended to this site characterisation form.

- 1. Discovery Series 1:50,000 Map indicating overall drainage, groundwater flow direction and housing density in the area.
- 2. Supporting maps for vulnerability, aquifer classification, soil, bedrock.
- 3. North point should always be included.
- 4. (a) Sketch of site showing measurements to Trial Hole location and
  - (b) Percolation Test Hole locations,
  - (c) wells and
  - (d) direction of groundwater flow (if known),
  - (e) proposed house (incl. distances from boundaries)
  - (f) adjacent houses,
  - (g) watercourses,
  - (h) significant sites
  - (i) and other relevant features.
- 5. Cross sectional drawing of the site and the proposed layout should be submitted.
- 6. Photographs of the trial hole, test holes and site (date and time referenced).

<sup>&</sup>lt;sup>1</sup> The calculated percolation area or polishing filter area should be set out accurately on the site layout drawing in accordance with the code of practice's requirements.



Ordnance Survey Ireland, Phoenix Park, Dublin 8. Ireland.

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17/12/2018 50038984\_1

6 Inch Raster

MAP SERIES: MAP SHEETS: 6 Inch Raster 9900-14

KK010

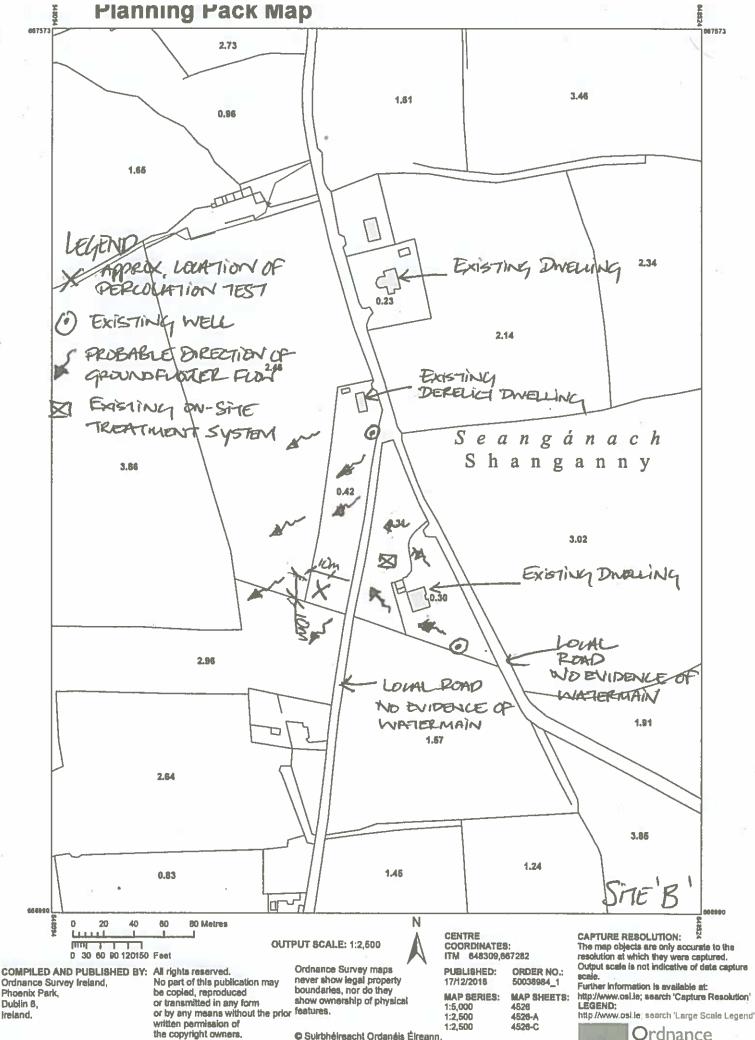
The map objects are only accurate to the resolution at which they were captured. Output scale is not indicative of data capture

Further information is available at: http://www.osi.le; search 'Capture Resolution'

http://www.osi.le\_search/Large Scale Legend



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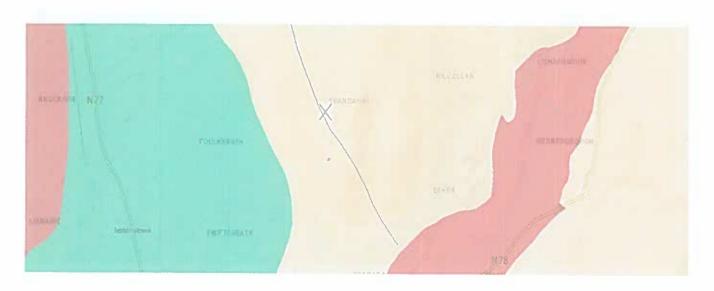
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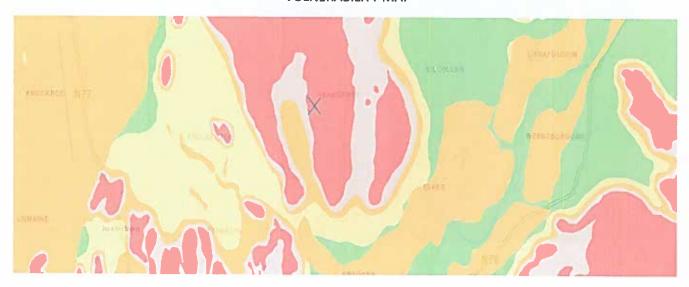
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## **GROUNDWATER AQUIFER MAP**



## **VULNERABILITY MAP**



TOPSOIL MAP





TRIAL HOLE



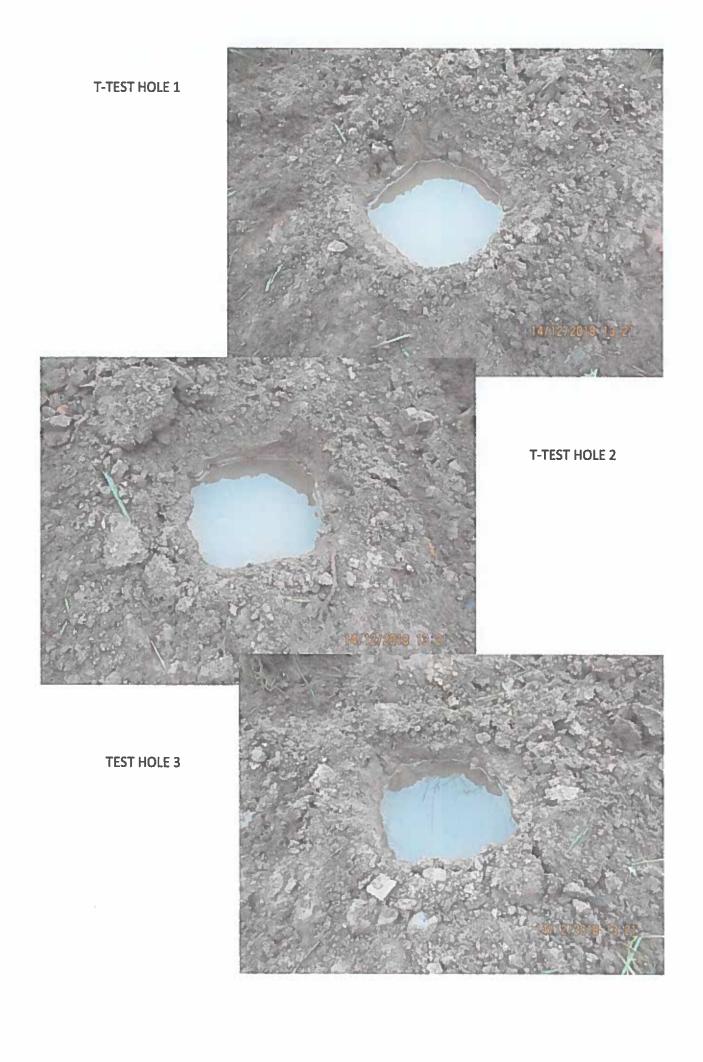
SIDE PROFILE OF TRIAL HOLE

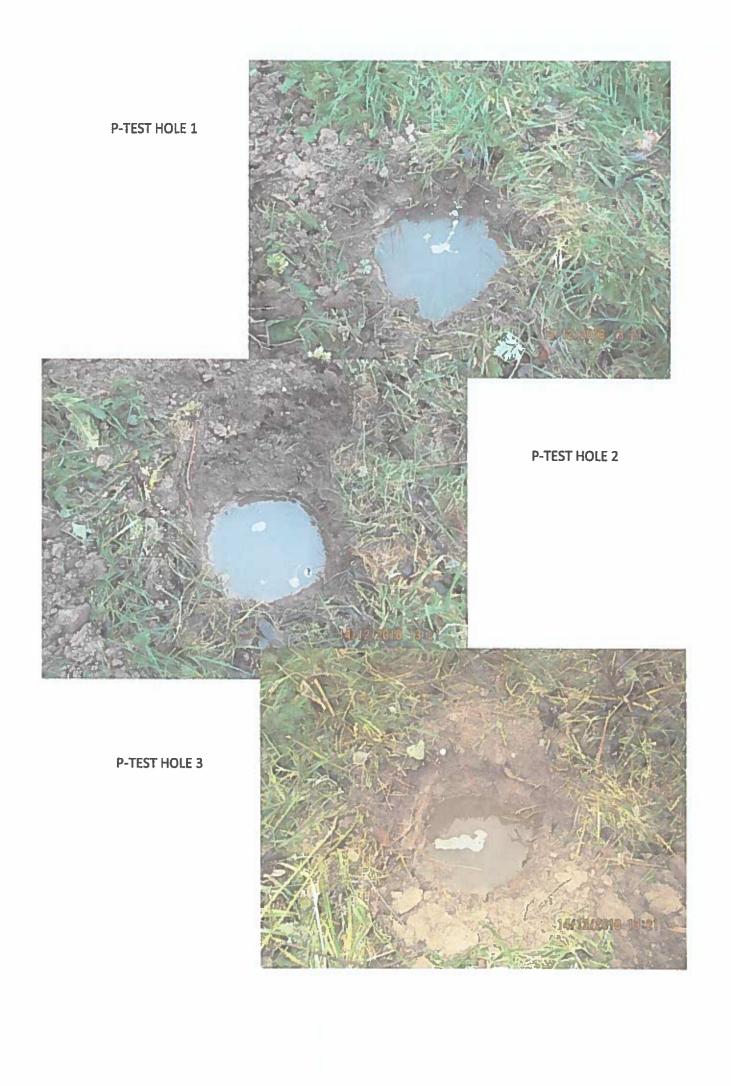


SOIL/SUBSOIL/COBBLES OF EXCAVATED TRIAL HOLE



SOIL/SUBSOIL OF EXCAVATED TRIAL HOLE





## 4.0 CONCLUSION of SITE CHARACTERISATION

Integrate the information from the desk study and on-site assessment (i.e. visual assessment, trial hole and percolation tests) above and conclude the type of system(s) that is (are) appropriate. This information is also used to choose the optimum final disposal route of the treated wastewater.

Not Suitable for Development	
Suitable for <sup>1</sup> 1. Septic tank system (septic tank and percolation area)	Discharge Route Discharge to Ground Water
2. Secondary Treatment System	
a. septic tank and filter system constructed on-site and polishing filter; or	
b. packaged wastewater treatment system and polishing filter Yes	
5.0 RECOMMENDATION	
Propose to install: Packaged wastewater treatment system and polishing filter	
and discharge to: Ground Water	
Trench Invert level (m): 100.00	
Site Specific Conditions (e.g. special works, site improvement works testing etc	
IT IS PROPOSED TO HAVE A PACKAGED TREATMENT SYSTEM AND RAISED SOIL POLISHIND DESGIN CRITERIA FOR TANK:  5PE @ 150L/DAY = 750L/DAY. 750L+ 2000L = 2750L THEREFORE THERE IS A MINIMUM 2750L WASTEWATER TREAMENT TANK.  DESIGN CRITERIA FOR PERCOLATION AREA: IT IS PROPOSED TO A HAVE RAISED PERCOLATION OF 0.550M ABOVE THE HIHEST CONTO 1.2M OF SUITABLE SOIL/SUBSOIL BELOW THE PERCOLATION TRENCH. THE INVERT LEVEL 0.550M BELOW THE TOP OF THE RAISED PERCOLATION AREA.  THE P/T IS BETWEEN 21-40. THEREFORE THE LOADING RATE ON TRENCH WILL BE 25L/M2/OF PERCOLATION SHALL BE 60M.THE MAX. RUN PER PERCOLATION TRENCH 10M.  THERE SHALL BE AN AIR VENT UPSTAND ATTACHED AT THE END OF EACH PERCOLATION PERCOLATION TRENCH SHALL BE 0.5M.THERE SHALL BE A GRADIENT OF 1:200 FOR EACH SEE DRAWINGS ATTACHED.	UR IN ORDER TO ACHEIVE A MIN. OF OF PERCOLATION PIPE SHOULD BE DAY. THE TOTAL REQUIRED LENGTH

<sup>1</sup> note: more than one option may be suitable for a site and this should be recorded

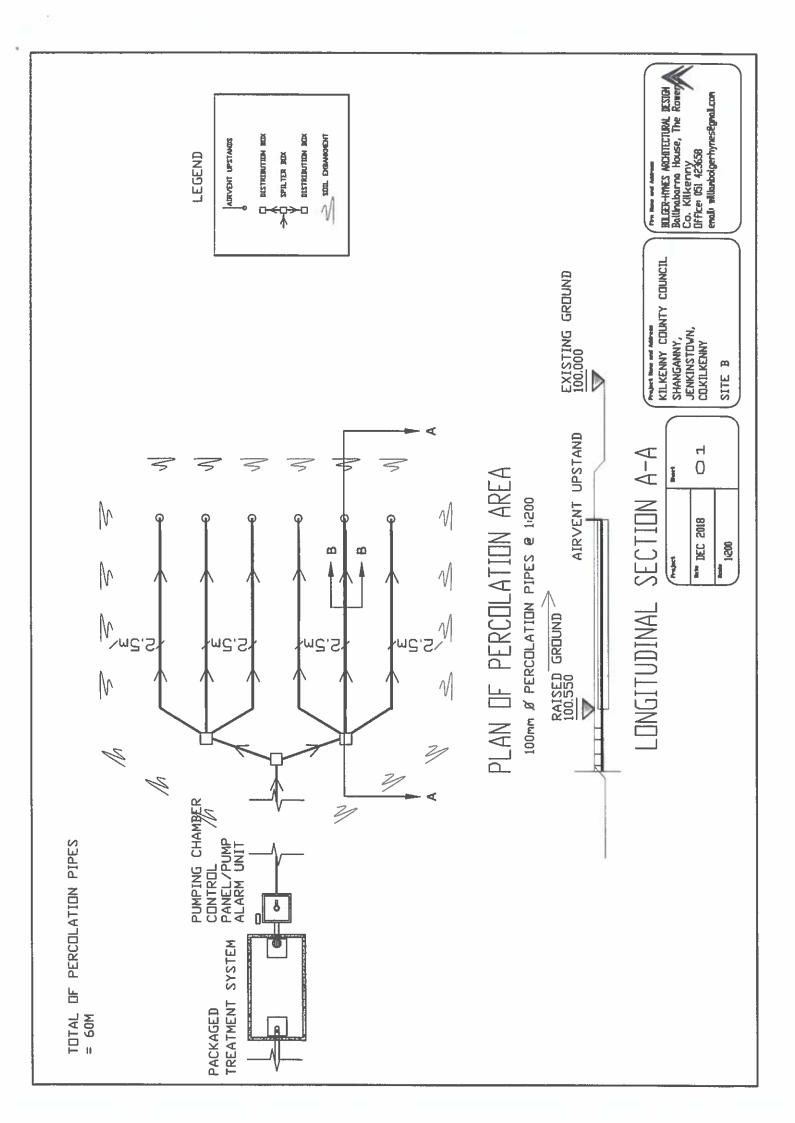
<sup>&</sup>lt;sup>2</sup> A discharge of sewage effluent to "waters" (definition includes any or any part of any river, stream, lake, canal, reservoir, aquifer, pond, watercourse or other inland waters, whether natural or artificial) will require a licence under the Water Pollution Acts 1977-90. Refer to Section 2.6.2,

# 6.0 TREATMENT SYSTEM DETAILS

SYSTEM TYPE: Septi	c Tank System								
Tank Capacity (m³)	F	Percolation Area				Mounded Percolation Area			
	1	No. of Trenches		N		lo. of Trenc	hes		
	L	ength of Trenche	es (m)			ength of Tr	enches (m	)	
	Îr	nvert Level (m)			] Ir	nvert Level (	(m)		
SYSTEM TYPE: Secon	ndary Treatmer	ıt System							
Filter Systems						Pack	age Treat	ment Sys	tems
Media Type	Area (m²)*	Depth of F	ilter	Invert L	evel	Туре			
Sand/Soil						BIOLO	GICAL AER	ATION SYS	TEM
Soil						Capac	city PE		
Constructed Wetland						Sizing	of Primar	y Compar	tment
Other							4.00	m³	
SYSTEM TYPE: Tertian	ry Treatment Sy	ystem							
Polishing Filter: Surfa	ce Area (m²)*		Pac	kage Trea	tment S	System: Ca	pacity (pe	3)	
or Gravity Fed:			Col	nstructed \	Netland	Is Queface /	\ ran /m2\*		
No. of Trenches		6	001	iotruoteu i	retiallo	i. Guilace A	wea (m-)	L	
Length of Trenches (m)		10.00							
Invert Level (m)		100.00							
DISCHARGE ROUTE:									
Groundwater 🗸	Hydraulic	Loading Rate *	' (l/m³	.d)	25.00				
Surface Water **	Discharg	e Rate (m³/hr)							
TREATMENT STANDA	RDS:								
Treatment System Perfo	ormance Stand	lard (mg/l) B(	OD	SS	1	NH <sub>4</sub> - N	Total N	Total	Р
			1	5.00	15.00	5.00	20	.00	
QUALITY ASSURANC	E:								
Installation & Commissi	oning		0	n-going Ma	intenan	се	···		
INTALLATION AND COMMIS BY A QUALIFIED PERSONN MANUAL CODE OF PRACTI	VAL IN ACCORDAN	NCE WITH THE EPA	. [ ]	REGULAR DE BASIS.	-SLUDGIN	NG AND MAIN	ITEANCE O	N AN ANNU	AL

<sup>\*</sup> Hydraulic loading rate is determined by the percolation rate of subsoil

<sup>\*\*</sup> Water Pollution Act discharge licence required



( At highest contour ) EXISTING GROUND 100,000 SECTION B-B OF RAISED PERCOLATION TRENCH 100mm 150mm 550mm 300mm 300mm F200mm TOPSOIL GRAVEL GRAVEL 1200mm 100mm Ø PERCULATION PIPE GEDTEXTILE LAYER EN ISO 10319 RAISED GROUND 100.550 SUBSOIL 3 EXISTING EXISTING BEDROCK REFER TO ANNEX F EPA CoP LIGHTLY COMPACT AND TEST PLACE IN LAYERS OF 300mm SDIL/SUBSDIL WITH P/T P/T VALUES OF 10/-30 IMPORT IN SUITABLE

Through one percolation trench )

Kilkenny county council Shanganny, Jenkinstown, county council shanganny, Jenkinstown, county council state B

Ballinabarna House, The Rowery Co. Kilkenny
Brice: 451 423638
emal: wilterholgerhynes@mal.com

## 7.0 SITE ASSESSOR DETAILS

Company:	BOLGER HYNES ARCHITE	ECTURAL DESIGN							
Prefix:	Mr. First Name:	WILLIAM	Surname:	BOLGER-HYNES					
Address:	BALLINABARNA HOUSE, 1	THE ROWER, CO.KILKENNY							
Qualifications/Experience: DIP IN CIVIL ENG. FETAC CERTIFICATION IN SITE SUITABILITY ASSESSMENT									
Date of Rep	ort: 23/12/2018								
Phone: 051	423658	Fax: 051 423658	e-mail	williambolgerhynes@gmail.com					
Indemnity Insurance Number: FV481810R									
Signature:	Willia 9	Bolzer-Hynes							



Broker Reference: BOLG05PI01 Date:

27/04/2018

#### TO WHOM IT MAY CONCERN

### **Bolger-Hynes Architectural Design** Ballinabarna House The Rower Co Kilkenny

We act as insurance broker for the above client and as such can confirm the following cover

#### **Business Description**

Engineer

## **Professional Indemnity Insurance**

Limit of Indemnity

€ 1,000,000, any one claim

**Policy Excess** 

€ 500 each and every claim

Period of Cover

26/04/2018 to 25/04/2019

Both days inclusive local standard time at above address

Insurers

Lloyds -Professional Indemnity

Policy No

API0002006

Note

Policy extends to include PSDP cover

The cover provided contains no unusual terms or conditions and is fully applicable to any work which the Insured Practice may be appointed in connection with his business description.

**Donal Cronin** 

**Arachas Corporate Brokers Limited** 

<sup>&</sup>quot;These statements have been made in good faith and are a resume of the insurance cover in force (which is subject to the full terms and conditions of the policy). We accept no responsibility whatsoever for any inadvertent or negligent act, error or omission on our part in preparing these statements or for any loss, damage or expense thereby occasioned to any recipient of this letter".