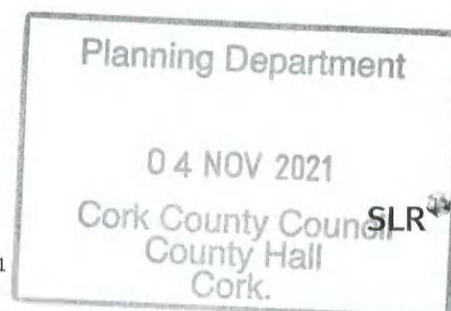
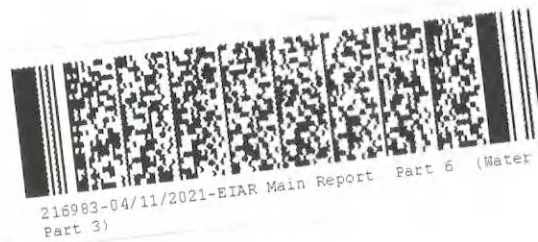


Appendices



## Appendix 7.1

Discharge Licences:

Lagan [WP(W)08/18(R)]  
(Plus Compliance Construction Report Lagan 20<sup>th</sup> May 2020)

and adjacent

Kilsaran Site [WP(W)10/18]

Planning Department

04 NOV 2021

Cork County Council  
County Hall  
Cork.

# Comhairle Contae Chorcaí Cork County Council

An Stiúrthóireacht Comhshaoil,  
Inis Cara, Co. Corcaigh P31 X738.  
Fón: (021) 4532700 • Faics: (021) 4532727  
Suíomh Gréasáin: www.corkcoco.ie  
Environment Directorate,  
Inniscarra, Co. Cork P31 X738.  
Tel. No. (021) 4532700 • Fax No. (021) 4532727  
Web: www.corkcoco.ie



Lagan Quarries Limited  
Dominica Baird  
SLR Consulting  
7 Dundrum Business Park, Windy Arbour  
Dublin D14 N2Y7

25 FEB 2019

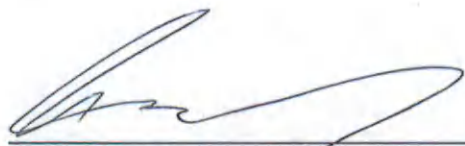
**RE: Application for Licence Register Number WP(W)08/18(R)**

A Chara,

I refer to your application for a Licence under the Water  
Pollution Act received on 19/09/2018

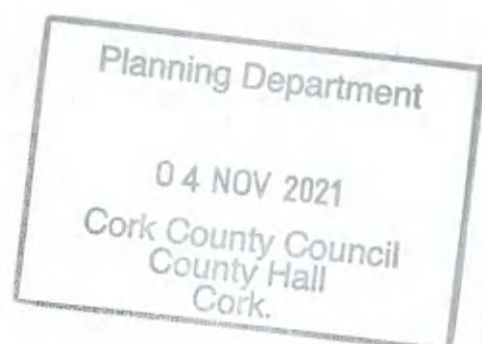
Please find enclosed Licence issued as a result of your application. I  
draw your attention to the notes on the decision to grant regarding the  
appeal of the decision.

Is Mise le Meas,

  
Adam McCarthy

Environment Department

c.c. Alan Costello, Cork County Council, Inniscarra  
c.c. South Western Regional Fisheries Board, Macroom  
c.c. Executive Engineer, Cork County Council, 3



## CORK COUNTY COUNCIL

### LOCAL GOVERNMENT ( WATER POLLUTION ) ACTS 1977 AND 1990

Licence to discharge Trade Effluent or Sewage Effluent to Waters

Reference **TO / Lagan Quarries Limited**  
No. In  
WP(W)08/18(R) **Rosemount Business Park**  
**Ballycoolin Road**  
**Dublin 11**

The Council of the County of Cork, in exercise of the powers conferred on it by the Local Government ( Water Pollution ) Acts, 1977 to 2007, as amended, hereby **GRANTS** a Licence, Reference Number WP(W)08/18(R)

To **Lagan Quarries Limited**  
**Rosemount Business Park**  
**Ballycoolin Road**  
**Dublin 11**

To Discharge **Trade effluent arising from Quarry operations including the quarrying, the crushing of stone and asphalt production**

To (River) **Groundwater at Rossmorre**

Located at **Rossmore, Carrigtwohill, Co. Cork**

subject to the Conditions set out in the schedule attached hereto. It should be noted that a person shall not be entitled solely by reason of a licence to make, cause or permit a discharge to a sewer.

**ENVIRONMENT  
DEPARTMENT,  
ROOM FF14,  
CORK COUNTY COUNCIL,  
INNISCARRA,  
CO CORK.**

Signed on behalf of the said Council,

  
**STAFF OFFICER**

Dated this 21<sup>st</sup> day of February, 2019

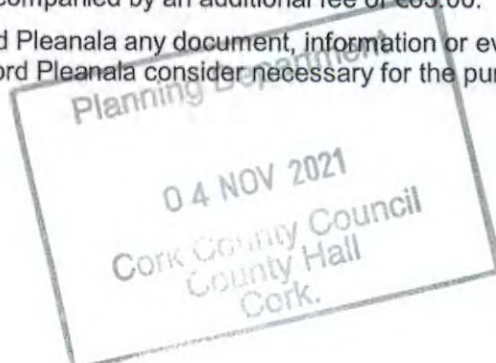
#### **NOTE:**

An appeal against a decision made by a Sanitary Authority under Section 4, Section 16 and Section 17 of the Act of 1977, may be made to An Bord Pleanala under Section 20 of the Act, as inserted by Section 15 of the Local Government (Water Pollution) (Amendment) Act, 1990 within one month of the date of the Licence.

Appeals should be addressed to THE SECRETARY, AN BORD PLEANALA, 64 Marlborough Street, Dublin 1, and will be invalid unless accompanied by an additional fee of €126.00.

A request for an oral hearing shall be accompanied by an additional fee of €63.00.

A party to an appeal shall give to An Bord Pleanala any document, information or evidence in his possession or procurement, which An Bord Pleanala consider necessary for the purpose of determining the appeal.





Cork  
County Council  
Comhairle Contae Chorcaí

Environment Directorate,  
Inniscarra,  
Co. Cork

License to Discharge a Trade Effluent to Water  
Issued under Section 4 of the Local Government (Water Pollution) Acts  
1977 to 2007

**WP (W) 08/18 (R)**

**Lagan Quarries Limited,**  
Rosemount Business Park,  
Ballycoolin Road,  
Dublin 11.

Discharge from:

Lagan Quarries Limited,  
Rossmore,  
Carrigtwohill,  
Co. Cork



## Schedule

Wastewater Discharges shall take place only as specified in the licence application **WP(W)08/18 (R)** as modified and/or controlled by this licence and subject to the requirements of law. Any changes in the nature or quantity of any emission shall require the Licensee to notify the Licensing Authority and in the case of any material change, for the Licensee to request a review or obtain a new licence as may be determined by the Licensing Authority prior to any such change being made. The Licensing Authority shall determine whether any change is material or not.

In the event of the licence being transferred to another party or company the applicant shall notify the Licensing Authority of this fact and shall also provide the details of the new licence holder prior to the transfer of the licence.

### **1 WASTEWATER MANAGEMENT**

- 1.1. The Licensee shall employ the best available techniques in the avoidance, minimisation, treatment and disposal of wastewaters produced on site, having regard to any environmental quality standard established for the receiving waters.
- 1.2. Standard operating procedures shall be prepared in respect of wastewater control and treatment systems to assist personnel with responsibilities for the operations of such systems and plant. These procedures shall be retained on site for inspection and submitted to the Licensing Authority on request.
- 1.3. Employees with responsibilities in the wastewaters control and treatment shall receive training adequate to enable them to execute their tasks in relation to pollution control. These records shall be retained on site for auditing by the Licensing Authority.
- 1.4. No substances listed in Table 12 of Schedule 6 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009) shall be discharged from this site.
- 1.5. Surface water drainage from the impermeable hard stand refueling area shall be discharged via Class 1 hydrocarbon interceptor (to IS EN 858). A high level alarm shall be fitted to the oil storage chamber of the hydrocarbon interceptor. The interceptor and sump shall be installed and operated to the satisfaction of the Licensing Authority.

*Reason: For the management of wastewaters on the site*

Planning Department

04 NOV 2021

Cork County Council

### **2 CONTAMINATED WASTE WATERS**

- 2.1. All contaminated wastewater, including surface water runoff, arising from the operation of Lagan Quarries Limited, Rossmore, Carrigtwohill, Co. Cork shall be collected and discharged following treatment to groundwater (Milestone Groundwater Body - IE\_SW\_G\_058) as indicated on drawings and maps which accompanied this application.
- 2.2. The Licensee shall ensure that any discharge from the site does not cause deterioration in the status of the receiving groundwater body.

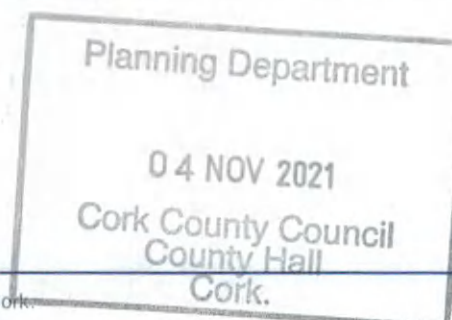
- 2.3. The wastewater flow from the wastewater treatment system shall not exceed 12,000m<sup>3</sup>/day or 500m<sup>3</sup>/hr. A flow meter shall be provided within 3 months of the date of issue of this licence.
- 2.4. In the event that there is a deterioration in the water quality indentified in EPA harbour monitoring assessments, the applicant shall at the request of the Licensing Authority, undertake an assessment of the impact of this discharge on the receiving water.
- 2.5. The Licensee shall agree with the Licensing Authority an effluent monitoring point, representative of the final effluent. Safe access shall be provided and maintained to this sampling point which shall be clearly identified with a permanent sign 'GW01 – Sampling Point'.
- 2.6. The Licensee shall establish a monitoring programme for the parameters listed in Table 1 at the required frequency. Grab samples shall be taken at GW01 – Sampling Point. A sample taken at GW01 shall be assumed to be representative of the discharge until the contrary can be shown.

**Table 1: Discharge Point SW01**

Parameter	Unit	ELV	Commencement date	Monitoring Frequency
pH	pH units	6.0 – 9.0	01/04/2019	Quarterly
Temperature	°C	25	01/04/2019	Quarterly
Suspended Solids	mg/L	35	01/04/2019	Quarterly
Total Heavy Metals (Ba, Cd, Cr, Cu, Hg, Ni, Pb,Zn)	mg/L	1	01/04/2019	Quarterly
Chromium VI	mg/L	0.15	01/04/2019	Annually
Phenols	mg/L	1	01/04/2019	Quarterly
Benzo(a)pyrene	mg/L	0.05	01/04/2019	Annually
Naphtalene	mg/L	0.05	01/04/2019	Annually

- 2.7. Test methods used by the Licensee for the monitoring of the nature of the discharge shall be derived from Standard Methods For the Examination of Water and Wastewater (APHA, AWWA, WEF).
- 2.8. In the event of malfunction or breakdown of the pollution abatement equipment, or, any other incident on site which may give rise to water pollution, the Licensee shall immediately report the incident to the Licensing Authority by telephone (021 4532700) or fax (021 4532777) and shall confirm the communication in writing within twenty four hours.
- 2.9. For parameters other than pH, eight out of ten consecutive results shall not exceed the emission limit value. No individual results similarly calculated shall exceed 1.2 times the emission limit value. pH shall not deviate from specified range.

*Reason: To control the emissions prior to discharge*



### 3 SURFACE & GROUND WATERS

- 3.1. The Licensee shall on request of the Licensing Authority, implement a programme of surface and/or groundwater monitoring agreed in advance with the Licensing Authority. This monitoring shall include the monitoring of a minimum of three wells, one of which shall be located above and one below the site's hydraulic gradient. The locations of the wells are to be agreed with the Licensing Authority.
- 3.2. All fuels, chemicals, lubricants and concrete additives shall be stored in a bunded area, impervious to the material stored within. Storage areas shall be bunded to a volume 110% of the volume of the largest tank. The bunded area shall be fitted with a locking penstock valve which shall only open to discharge storm water surface drainage system.

*Reason: To protect surface and ground waters from polluting matter*

### 4 RESPONSIBLE PERSON

- 4.1 The Licensee shall ensure that a person or persons is/are available at all times to give relevant information on emissions to the Licensing Authority. The Licensee shall identify to the Licensing Authority each such person.

*Reason: To protect surface and ground waters from polluting matter*

### 5 MONITORING

- 5.1. The Licensee shall grant immediate and unhindered access to the site and any portion of the pollution abatement equipment to any authorized personnel representing any Body having statutory responsibility for water pollution control, at all times, to carry out such inspections monitoring and investigations as the Body deems necessary. The Licensing Authority may install such equipment as may be necessary to collect this information at the Licensee's premises. The cost of this work will be borne by the Licensee.
- 5.2. The Licensee shall keep records of all monitoring carried out and shall retain such records for a minimum period of five years. The Licensee shall submit to the Licensing Authority at quarterly intervals the result of all monitoring relating to the previous quarter, together with any other records relating to pollution control which may be required by the Licensing Authority.
- 5.3. Any non-compliance with the terms of the licence shall be highlighted and the reason why this occurred shall be stated. The measures taken to ensure non-recurrence of the non-compliance shall also be outlined.
- 5.4. All submitted reports shall be signed by the Licensee's facility manager or other senior officer designated by the company.

*Reason: To provide for adequate monitoring*





## 6 TREATMENT PLANT

- 6.1. The Licensee shall initiate an approved maintenance programme for all such plant in use in the treatment process or in pollution control. As a minimum the following conditions shall be performed:

Oil/water separators, washdown and silt trap separators shall be inspected at least monthly and cleaned at a minimum annual basis. Wastes from all pollution abatement equipment shall be removed by licensed waste disposal contractors only.

*Reason: To provide for the operation of pollution abatement equipment*

## 7 CONTRIBUTIONS

- 7.1 The Licensee shall pay to the Licensing Authority such annual contributions towards the cost of monitoring the discharge as the Licensing Authority considers necessary for the performance of its duties under this Act as follows:

- a) Not later than September 30<sup>th</sup> 2019 the Licensee shall pay to the Licensing Authority a contribution of not less than (€1150).
- b) In subsequent years the Licensee shall pay to the Licensing Authority an annual amount of not less than (€1150) updated in accordance with the Consumer Price Index from the date of the grant of this licence to the value pertaining at the time of payment of each annual contribution.
- c) Notwithstanding the foregoing, the rate of contribution each year shall take account of the actual costs of monitoring as incurred by the Licensing Authority in the previous year and as estimated for the next year.

*Reason: To provide for the sampling and implementation of licence*



Cork County Council  
Environment Department,  
Room FF14,  
Cork County Council,  
Inniscarra,  
Co. Cork.

**By Email Only to [John.OREgan@CorkCoCo.ie](mailto:John.OREgan@CorkCoCo.ie) & [Alan.Costello@CorkCoCo.ie](mailto:Alan.Costello@CorkCoCo.ie)**

25<sup>th</sup> May 2020

**Re: Lagan Materials Ltd. - Quarry at Rossmore, Carrigtwohill, Co. Cork.  
Discharge Licence Ref. WP(W)08/18 – Compliance Submission**

Dear Sirs,

We refer to the above referenced discharge licence, which was granted by Cork County Council on 21<sup>st</sup> February 2019 pursuant to Local Government (Water Pollution) Acts 1977 and 1990.

A number of conditions contained within the licence require agreement with the planning authority, each of which is addressed, as follows.

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#### Condition 1.2

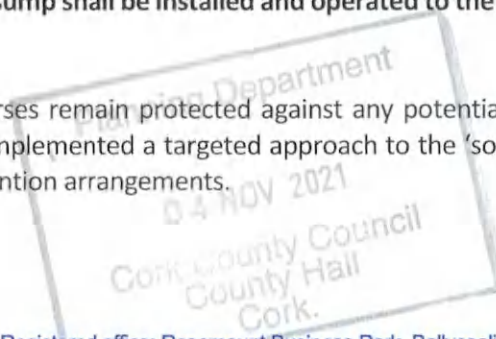
**“Standard operating procedures shall be prepared in respect of wastewater control and treatment systems to assist personnel with responsibilities for the operations of such systems and plant. These procedures shall be retained on site for inspection and submitted to the Licencing Authority on request.”**

Our water management procedure (copy enclosed) is provided as document DP008 within the Environmental Management System (EMS) for the site. The EMS is accredited to ISO14001 standard. The policy details how water and wastewater are managed and controlled onsite, how monitoring and reporting is undertaken, and the corrective actions to be followed in the event of a non-compliance. A full copy of the EMS was included within Appendix 08 of the discharge licence application.

#### Condition 1.5

**“Surface water drainage from the development shall be discharged via Class 1 hydrocarbon interceptor (to IS EN 858) prior to discharge. A high level alarm shall be fitted to the oil storage chamber of the hydrocarbon interceptor. The interceptor and sump shall be installed and operated to the satisfaction of the Licencing Authority.”**

In order to ensure that surrounding watercourses remain protected against any potential hydrocarbon contamination arising from the site, we have implemented a targeted approach to the ‘source-pathway-receptor’ model in relation to hydrocarbon retention arrangements.



We have significantly reduced the hydrocarbon risk, with no bulk fuels stored onsite. All fuels are transported to site for the refueling of plant and machinery directly from the transport tank of the fuel supplier. During refueling, drip trays are used to capture any hydrocarbon drips from refueling nozzles.

Hydrocarbon spill kits will continue to be maintained at locations throughout the entire site, and personnel are trained on the correct use of hydrocarbon spill kits.

As outlined in the discharge licence application documentation, it is proposed to install baffle / scum boards at the outlet to the settlement lagoon to inhibit outflow of any hydrocarbons which may enter the settlement lagoon. A schematic is shown in Figure 1 below.

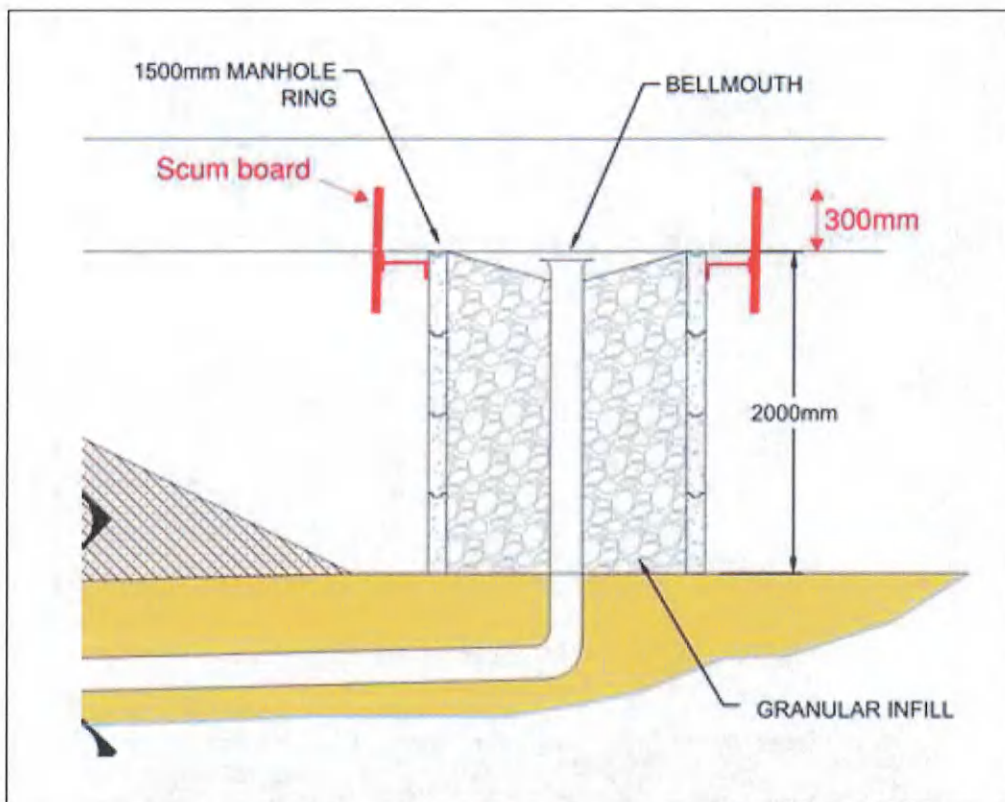


Figure 1 - Proposed Baffle Boards / Scum Boards

### Condition 2.3

**“The wastewater flow from the wastewater treatment system shall not exceed 500m<sup>3</sup>/day or 25m<sup>3</sup>/hr. A flow meter shall be provided within 3 months of the date of issue of this licence.”**

An in-line ultrasonic flow meter has been ordered and will be installed on the discharge line as soon as possible. This flow meter will automatically record discharge flow volumes.



**Condition 2.5**

“The Licensee shall agree with the Licencing Authority an effluent monitoring point, representative of the final effluent. Safe access shall be provided and maintained to this sampling point which shall be clearly identified with a permanent sign ‘GW01 – Sampling Point’.

The proposed effluent monitoring point which is representative of the final effluent from the site is identified as GW1 on Figure 2 below. The sample is collected at the culvert where water discharges from the settlement pond into the infiltration area as shown on Figure 3. We have ordered a sign to clearly identify this monitoring point as ‘GW1’ and this will be erected at the monitoring point as soon as possible.



**Figure 2 - GW1 Monitoring Location**



**Figure 3 - GW1 Sampling Point**

#### Condition 2.6

**“The Licensee shall establish a monitoring programme for the parameters listed in Table 1 at the required frequency. Grab samples shall be taken at GW01 – Sampling Point. A sample taken at GW01 shall be assumed to be representative of the discharge until the contrary can be shown.”**

We currently utilise the services of TMS Environment Ltd. to undertake water sampling at the site in accordance with the requirements of the discharge licence. Samples are taken at the culvert where water discharges from the settlement pond to the infiltration area, as per Figure 3 above.

#### Condition 3.2

**“All fuels, chemicals, lubricants and concrete additives shall be stored in a bunded area, impervious to the material stored within. Storage areas shall be bunded to a volume of 110% of the volume of the largest tank. The bunded area shall be fitted with a locking penstock valve which shall only open to discharge storm water surface drainage system.**

We do not store any bulk fuels onsite and as such, there are no storage tanks present which require bunding. Small drums containing up to a maximum of 40L of lubricants are placed on mobile bunds to ensure that a 110% capacity is maintained.

#### Condition 4.1

**“The licensee shall ensure that a person or persons is/are available at all times to give relevant information on emissions to the Licensing Authority. The Licensee shall identify to the Licensing Authority each such person.”**

In the event that relevant information on emissions is required by the Licencing Authority, the following personnel can be contacted:

1. Stuart King (Quarry Manager)  
Tel: 086-8212658  
Email: [stuart.king@breedongroup.com](mailto:stuart.king@breedongroup.com)
2. John Fennell (Planning & Estates Officer)  
Mob: 087-3761688  
Email: [john.fennell@breedongroup.com](mailto:john.fennell@breedongroup.com)

#### Condition 5.2

**“The Licensee shall keep records of all monitoring carried out and shall retain such records for a minimum period of five years. The Licensee shall submit to the Licensing Authority at quarterly intervals the result of all monitoring relating to the previous quarter, together with any other records relating to pollution control which may be required by the Licensing Authority.”**

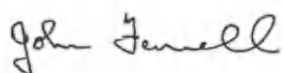
We will keep records of all monitoring carried out and shall retain such records for a minimum period of five years. All monitoring results will be submitted to the licensing authority on a quarterly basis, together with any other records relating to pollution control which may be required by the licensing authority.



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We would be grateful if you could confirm that our submission is in order and should you have any questions, please don't hesitate to contact the undersigned.

Yours sincerely,



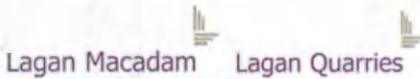
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**John Fennell**  
Planning & Estates Officer  
Lagan Materials Ltd.

Tel: 01-8859999  
Mob: 087-3761688  
Email: john.fennell@breedongroup.com

Enclosed: DP008 Water Management



	<b>Document No. DPM-001</b>	<b>Effective Date</b>	<b>Amendment</b>
	<b>Depot Procedures Manual</b>	<b>01.02.2017</b>	<b>1</b>

## **DP008 Water Management**

**Scope:** This procedure defines the conditions relating to management, monitoring and control of surface water discharges, trade effluent discharges and groundwater dewatering and management for the site.

### **1. Relevant Permits, Licences, Authorisations & Conditions**

A copy of all Permits, Licences and Authorisations must be held on site and available for inspection by the relevant Authorities at all times.

### **2. Management and Control**

A current and accurate site drawing showing all surface water drainage and discharge points shall be held on site and should clearly differentiate between surface and foul water drainage. A map showing all groundwater monitoring locations shall be maintained at the site. All water usage at the site shall be monitored and recorded. Any significant changes in water usage shall be investigated and the findings documented.

All discharge points shall be visually inspected daily unless otherwise specified in any regulatory requirement. A sampling regime that is in line with the requirements of the discharge licence and the site's pollution risks shall be established. This shall include testing of samples where appropriate. Where any visual pollution is detected in the discharge, a sample shall be taken immediately and tested.

Water with high suspended solids shall be prevented from entering watercourses and surface water drains by proper onsite management of surface water and by using silt traps, interceptors and settlement systems where appropriate. Settlement systems shall be carefully managed to ensure effective settlement capacity by desilting or rotation.

Effective controls to prevent contamination of groundwater resources and an effective monitoring programme to monitor groundwater quality and supply shall be put in place. The main controls planned for the protection of groundwater resources at the site and in the area include:

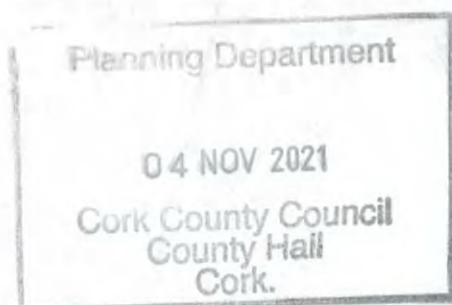
- Measures shall be taken to minimise water demand where appropriate;
- Wheel washing water travels into the underground interceptor for treatment prior to discharge into storm drain. Sampling is carried out at this discharge point.  
The drainage arrangements proposed for the site shall ensure that no uncontrolled discharge of drainage from the site occurs at any time, and hence no infiltration to groundwater.
- Storage of wastes, fuels and hazardous materials shall be in designated bunded storage areas to prevent any risk of contamination of groundwater.


In instances when an actual or suspected uncontrolled release of pollutants occurs to a watercourse or ground water, site management shall inform the Technical Manager immediately and the emergency response procedures as per depot procedure DP004 shall be implemented.

### **3. Monitoring and Reporting**

Environmental monitoring reports will be prepared by external consultants and shall contain all information as required by the various conditions set out in the permissions. A hardcopy report with the results assessed against the permit limits will be issued to the permitting authority and also to the site. A soft-copy will be issue to the Lagan Macadam and Quarries head office.

### **4. Corrective Actions**



 Lagan Macadam    Lagan Quarries	<b>Document No. DPM-001</b>	<b>Effective Date</b>	<b>Amendment</b>
	Depot Procedures Manual	01.02.2017	1

If a non-compliance with an Objective or Target is noted, an immediate review will be undertaken to identify the cause of the non-compliance. The details of the investigation together with details of corrective actions to be taken will be recorded in accordance with the Corrective Action Depot Procedure.

Planning Department  
04 NOV 2021  
Cork County Council  
County Hall  
Cork.



## CORK COUNTY COUNCIL

### LOCAL GOVERNMENT ( WATER POLLUTION ) ACTS 1977 AND 1990

Licence to discharge Trade Effluent or Sewage Effluent to Waters

Reference **TO / Kilsaran Concrete t/a Kilsaran Build**  
No. In  
WP(W)10/18 Piercetown  
Dunboyne  
Co. Meath

The Council of the County of Cork, in exercise of the powers conferred on it by the Local Government ( Water Pollution ) Acts, 1977 to 2007, as amended, hereby **GRANTS** a Licence, Reference Number WP(W)10/18

To **Kilsaran Concrete t/a Kilsaran Build**  
**Piercetown**  
**Dunboyne**  
**Co. Meath**

To Discharge **Trade effluent arising from quarrying operations including the quarrying, the crushing and screening of stone, readymix concrete production and block production**

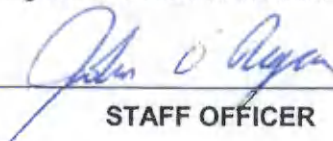
To (River) **Groundwater**

Located at **Rossmore, Carriqtohill, Co. Cork**

subject to the Conditions set out in the schedule attached hereto. It should be noted that a person shall not be entitled solely by reason of a licence to make, cause or permit a discharge to a sewer.

**ENVIRONMENT  
DEPARTMENT,  
ROOM FF14,  
CORK COUNTY COUNCIL,  
INNISCARRA,  
CO CORK.**

Signed on behalf of the said Council,

  
\_\_\_\_\_  
**STAFF OFFICER**

Dated this 8<sup>th</sup> day of March 2019

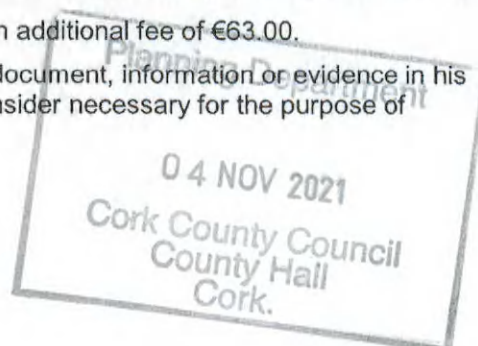
#### **NOTE:**

An appeal against a decision made by a Sanitary Authority under Section 4, Section 16 and Section 17 of the Act of 1977, may be made to An Bord Pleanala under Section 20 of the Act, as inserted by Section 15 of the Local Government (Water Pollution) (Amendment) Act, 1990 within one month of the date of the Licence.

Appeals should be addressed to THE SECRETARY, AN BORD PLEANALA, 64 Marlborough Street, Dublin 1, and will be invalid unless accompanied by an additional fee of €126.00.

A request for an oral hearing shall be accompanied by an additional fee of €63.00.

A party to an appeal shall give to An Bord Pleanala any document, information or evidence in his possession or procurement, which An Bord Pleanala consider necessary for the purpose of determining the appeal.





Cork  
County Council  
Comhairle Contae Chorcaí

Environment Directorate,  
Inniscarra,  
Co. Cork

License to Discharge a Trade Effluent to Water.  
Issued under Section 4 of the Local Government (Water Pollution) Acts  
1977 to 2007

**WP (W) 10/18**

Kilsaran Concrete t/a Kilsaran Build  
Piercetown  
Dunboyne  
Co. Meath

Discharge from:  
Kilsaran Quarry  
Rossmore  
Carrigtohill  
Co. Cork



**Schedule**

Wastewater Discharges shall take place only as specified in the licence application **WP (W) 10/18** as modified and/or controlled by this licence and subject to the requirements of law. Any changes in the nature or quantity of any emission shall require the Licensee to notify the Licensing Authority and in the case of any material change for the Licensee to request a review or obtain a new licence as may be determined by the Licensing Authority prior to any such change being made. The Licensing Authority shall determine whether any change is material or not.

This licence supersedes all previous licenses and correspondence issued in respect of the facility under the terms of the Local Government Water Pollution Act 1977 to 2007.

In the event of the licence being transferred to another party or company the applicant shall notify the Licensing Authority of this fact and shall also provide the details of the new licence holder prior to the transfer of the licence.

Planning Department  
04 NOV 2021  
Cork County Council  
County Hall  
Cork.

**1 WASTEWATER MANAGEMENT & POLLUTION CONTROL**

- 1.1. The Licensee shall employ the best available techniques in the avoidance, minimisation, treatment and disposal of wastewaters produced on site
- 1.2. Standard operating procedures shall be prepared in respect of wastewater control and treatment systems to assist personnel with responsibilities for the operations of such systems and plant. These procedures shall be retained on site for inspection and submitted to the Licensing Authority on request.
- 1.3. The Licensee shall ensure that a documented Accident Prevention and Control Procedure is in place that addresses the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. The Licensee shall ensure that this procedure shall be reviewed annually by a competent person and updated as necessary, and shall maintain written proof of all such reviews and shall make them available to the Licensing Authority on request.
- 1.4. Employees with responsibilities in wastewater control and treatment shall receive training adequate to enable them to execute their tasks in relation to pollution control. These records shall be retained on site for auditing by the Licensing Authority.
- 1.5. No substances listed in Table 12 of Schedule 6 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009) shall be discharged from this site.
- 1.6. Within three months of the date of issue of this licence, a risk assessment of all site fuel storage, handling facilities and emergency response protocols shall be undertaken by a competent person. This assessment will have regard to *Wetstock Reconciliation at Fuel Storage Facilities- An Operator's Guide*, Health and Safety Authority, 2013 and *Design, construction, modification, maintenance and decommissioning of filling stations*, 4<sup>th</sup> edition, Association for Petroleum and Explosives Administration (APEA) and Energy Institute, 2018.

*Reason: For the management of wastewater and prevention of pollution on the site*



## 2 CONTAMINATED WASTE WATERS

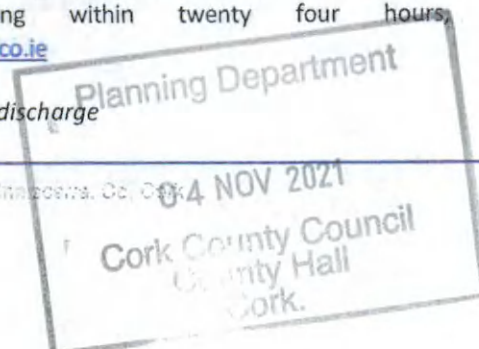
- 2.1. All contaminated wastewater including surface water runoff arising from the operation of Kilsaran Concrete t/a Kilsaran Build at Rossmore, Carrigtohill,, Co. Cork shall be collected and discharged to ground waters (Midleton IE\_SW\_G-058) as indicated on drawings and maps which accompanied this application.
- 2.2. WP(W)10/18 authorizes the discharge of a trade effluent arising from the following activities:
- 2.2.1. Concrete and concrete products manufacturing
  - 2.2.2. Quarrying and extraction activities , inc. washings from aggregate crushing and sorting
  - 2.2.3. Void ground/surface water arising from quarrying activities below water table
- 2.3. Pumping from the quarry sump shall be managed and restricted so that water shall not overflow from the final surface water feature (referred to as 'Pond No. 3' in application documents) to Cork Harbour North Channel.
- 2.4. The licensee shall agree with the Licensing Authority an effluent monitoring point, representative of the final discharge. Safe access and egress shall be provided and maintained to this sampling point which shall be clearly identified with a permanent sign 'SW-01'. Samples taken from SW-01 shall be assumed to be representative of the discharge to ground water unless the contrary can be shown.
- 2.5. The licensee shall establish a monitoring programme for the parameters listed in Table 1 at the required frequency. Grab samples shall be taken of the discharge at SW01. This monitoring programme shall commence on 01/04/2019, and quarterly thereafter.

**Table 1: Effluent Monitoring**

Parameter	Unit	ELV	Commencement date	Monitoring Frequency
pH	pH units	6.0 – 9.5	01/04/2019	Quarterly
Total Heavy Metals (Ba, Cd, Cr, Cu, Hg, Ni,	mg/L	1	01/04/2019	Quarterly
Chromium VI	mg/L	0.15	01/04/2019	Quarterly
Phenols (as Total C)	mg/L	1.0	01/04/2019	Quarterly
Total BTEX	mg/L	0.5	01/04/2019	Quarterly
Mineral Oils	mg/L	1.0	01/04/2019	Quarterly

- 2.6. Test methods used by the Licensee for the monitoring of the nature of the discharge shall be derived from Standard Methods For the Examination of Water and Wastewater (APHA, AWWA, WEF).
- 2.7. In the event of malfunction or breakdown of the pollution abatement equipment, or, any other incident on site which may give rise to water pollution, the Licensee shall immediately report the incident to the Licensing Authority by telephone (**021 4532700**) and shall confirm the communication in writing within twenty four hours, or by email [environment.licences@corkcoco.ie](mailto:environment.licences@corkcoco.ie)

Reason: To control the emissions prior to discharge



### 3 GROUNDWATER

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- 3.1. An area shall be clearly delineated for the washing of readymix plant and truck washouts. Wash water shall pass through a series of settlement chambers with the final chamber discharging to 'Pond 2'.
- 3.2. All fuels, chemicals, lubricants and concrete additives shall be stored in a clearly delineated bunded area, impervious to water and any material stored within. Storage areas shall be bunded to a volume 110% of the volume of the largest tank. All inlets, outlets, vent pipes, valves and gauges shall be within the bunded area.
- 3.3. Within 3 months of the date of issue of this licence, and every five years thereafter, all bunds and drum/tank storage areas shall be certified as being in compliance with condition 3.2 by a Chartered Engineer. The licensee shall maintain copies of such certification and shall make them available to the Licensing Authority on request.
- 3.4. The domestic wastewater treatment plant shall be operated and maintained in accordance with manufacturers recommendations and evidence of a maintenance agreement shall be made available on request.

*Reason: To protect groundwaters from polluting matter*

### 4 RESPONSIBLE PERSON

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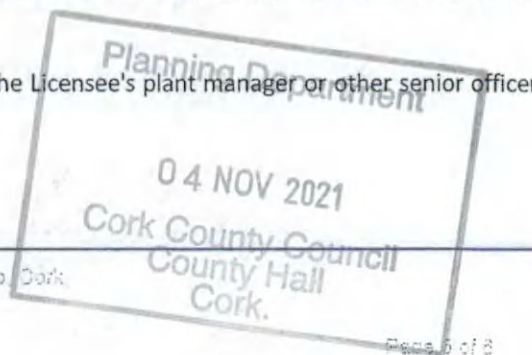
- 4.1. The Licensee shall ensure that a person or persons is/are available at all times to give relevant information on emissions to the Licensing Authority. The Licensee shall identify to the Licensing Authority each such person.

### 5 MONITORING

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- 5.1. The Licensee shall grant immediate and unhindered access to the site and any portion of the pollution abatement equipment to any authorized personnel representing any body having statutory responsibility for water pollution control, at all times, to carry out such inspections monitoring and investigations as the body deems necessary. The Licensing Authority may install such equipment as may be necessary to collect this information at the Licensee's premises. The cost of this work will be borne by the Licensee
- 5.2. The Licensee shall keep records of all monitoring carried out and shall retain such records for a minimum period of five years. The Licensee shall submit to the Licensing Authority at quarterly intervals the result of all monitoring relating to the previous quarter, together with any other records relating to pollution control which may be required by the Licensing Authority.
- 5.3. Any non-compliance with the terms of the licence shall be highlighted and the reason why this occurred shall be stated. The measures taken to ensure non-recurrence of the non compliance shall also be outlined.
- 5.4. All submitted reports shall be signed by the Licensee's plant manager or other senior officer designated by the company.

*Reason: To provide for adequate monitoring*



## 6 POLLUTION CONTROL EQUIPMENT

- 6.1 The Licensee shall initiate an approved maintenance programme for all such plant in use in the treatment process or in pollution control.
- 6.2 Oil/water separators, washdown and silt trap separators shall be inspected at least monthly and cleaned at a minimum annual basis. Wastes from all pollution abatement equipment shall be removed by licensed waste disposal contractors only.
- 6.3 Spill trays shall be provided for all vehicle maintenance operations. Plant and equipment waste maintenance materials (e.g. oil filters, used hydraulic fluids etc.) shall be stored in a secure bunded area while awaiting recovery/disposal
- 6.4 All production operatives and their supervisors shall be trained to operate/deploy pollution control equipment, and of their reporting obligations. Evidence of such training shall be made available on request by the Licensing Authority.

*Reason: To provide for the operation and maintenance of pollution abatement equipment*

## 7 CONTRIBUTIONS

- 7.1 The Licensee shall pay to the Licensing Authority such annual contributions towards the cost of monitoring the discharge as the Licensing Authority considers necessary for the performance of its duties under this Act as follows:-
  - a) Not later than September 30<sup>th</sup> 2019 the Licensee shall pay to the Licensing Authority a contribution of not less than € 1150.
  - b) In subsequent years the Licensee shall pay to the Licensing Authority an annual amount of not less than €1150 updated in accordance with the Consumer Price Index from the date of the grant of this licence to the value pertaining at the time of payment of each annual contribution.
  - c) Notwithstanding the foregoing, the rate of contribution each year shall take account of the actual costs of monitoring as incurred by the Licensing Authority in the previous year and as estimated for the next year.

*Reason: To provide for the sampling and implementation of licence*



Appendix 7.2

Historical Site Investigations

Borehole Logs  
(Appendix 7.1 of 2015 EIS)

&

Geotechnical Review Report  
(Appendix 7.2 of 2015 EIS)

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From the Soils Chapter of the 2015 EIS accompanying the 37L Application  
(Tom Phillips & Associates)

Geological information was compiled from the available site investigations previously carried out on the Lagan site and the lands to the east of the private road also in the ownership of the applicant. The previous investigations are summarised in Table 7.1.

Date	Boreholes/ Trial Pits	Names	Purpose
Jul-Aug 2005	3 Boreholes	BHA, BHB, BHC	Site investigation for planning application by Healy Brothers Ltd
Jul 2008	7 Boreholes	MW1, MW2, MW3, MW4, PW1, BH2, BH3	Monitoring wells in Lagan quarry for planning application
Apr 2009	5 Trial Pits	TP1-TP5	Preliminary assessment of infiltration capacity in lands to east of Lagan quarry
Nov 2009	1 Borehole	MW5	Replacement well for damaged MW1

Table 7.1 Summary of previous boreholes & trial pits

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**APPENDIX 7.1**  
**BOREHOLE & TRIAL PIT DETAILS**

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Borehole Inventory - Lagan, Rossmore

Name	Easting	Northing	Total Depth (mbgl)	Elevation of Top of Casing (mOD Malin)	Elevation of Top of Casing (magl)	Date Drilled	BH Diameter (mm)	Pipe Diameter (mm)
BHA	182945	70989	51.82	23.600	0.72	31/07/2005	140	50
BHB	182625	70760	19.20	5.600	0.49	02/08/2005	140	50
BHC	182700	71447	79.25	28.230	0.54	04/08/2005	140	50
PW1	182474	71027	72.00	1.139	0.11	25/07/2008	200	open
MW1	182376	70821	72.00	3.634	0.66	17/07/2008	160	50
MW2	182354	70944	66.00	-0.675	0.12	18/07/2008	160	50
MW3	182240	71439	78.00	12.053	0.44	25/07/2008	160	50
MW4	182497	71421	84.00	18.626	0.63	25/07/2008	160	50
MW5	182372	70823	50.00	3.543	0.7	17/11/2009	160	50
BH2	182561	71081	84.00	20.768	0.14	14/07/2008	160	50
BH3	182455	70960	66.00	2.222	0.85	17/07/2008	160	50
BH4	182420	71057	9.94	1.046	0.31	13/02/2012	120	open
BH5	182422	71059	20.34	1.144	0.36	24/02/2012	120	open
BH6	182459	71074	10.42	1.251	0.55	13/02/2012	120	open
BH7	182443	71036	20.36	0.983	0.35	24/02/2012	120	open
BH8	182445	71037	14.60	0.570	-0.03	13/02/2012	120	open
BH9	182473	71045	18.73	0.993	0.21	24/02/2012	120	open
BH10	182417	71009	17.73	1.281	0.29	24/02/2012	120	open
BH11	182417	71006	14.88	1.112	0.16	13/02/2012	120	open
BH12	182443	71012	14.59	1.064	0.27	13/02/2012	120	open
BH13	182492	71031	25.08	1.240	0.43	24/02/2012	120	open
BH14	182475	71000	25.13	0.912	0.19	13/02/2012	120	open
BH15	182505	70970	15.30	1.048	0.32	13/02/2012	120	open
BH16	182507	70923	19.86	1.065	0.08	24/02/2012	120	open
BH17	182437	70747	25.09	5.390	0.59	23/02/2012	250/160	open
BH18	182420	70739	13.40*	2.996	0.43	22/02/2012	250/160	open
BH19	182826	70751	4.61*	4.812	0.53	22/02/2012	120	open
TW1	182477	71022	54.50	1.155	0.66	22/02/2012	300/200	open
TW2	182447	70760	50.00	5.109	0.58	23/03/2012	220/160	125
TW3	182448	70764	50.00	4.859	0.33	02/04/2012	440/300/200	open
RC1	182441	70753	24.70	4.994	0.34	23/02/2012	121	50
RC2	182498	71002	20.38	1.116	0.21	27/02/2012	121	50
WS1	182823	70764	3.96	4.778	0.375	28/02/2012	86	50
WS2	182821	70763	4.03	4.378	0.53	28/02/2012	86	50
WS3	182830	70771	4.54	4.687	0.42	29/02/2012	86	50
WS4	182829	70773	4.75	4.644	0.87	29/02/2012	86	50
WS5	182838	70764	4.21	4.652	0.35	29/02/2012	86	50
WS6	182840	70765	4.75	4.736	0.92	29/02/2012	86	50
WS7	182830	70756	4.91	5.055	0.63	28/02/2012	86	50
WS8	182831	70755	4.61	5.023	1.04	29/02/2012	86	50

Notes:

mbgl - meters below ground level

magl - meters above ground level

\* - collapsed lower section

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### Trial Pit Inventory - Lagan, Rossmore

Name	Easting	Northing	Total Depth (mbgl)	Date Excavated	Standpipe Installed (mm)	Elevation of Top of Casing (mOD Malin)	Elevation of Top of Casing (magl)
TP1	182719	70751	4.20	16/04/2009	No	-	-
TP2	182792	70749	5.20	16/04/2009	No	-	-
TP3	182877	70767	3.00	16/04/2009	No	-	-
TP4	182776	70758	3.00	16/04/2009	No	-	-
TP5	182691	70740	3.00	16/04/2009	No	-	-
TP6	182399	70729	3.00	23/02/2012	No	-	-
SP1	182412	70736	4.99	23/02/2012	Yes	2.539	0.745
SP2	182745	70774	4.94	23/02/2012	Yes	4.281	0.57
SP3	182793	70785	4.03	23/02/2012	Yes	4.811	1.04
SP4	182869	70779	3.64	23/02/2012	Yes	5.165	0.96
SP5	182795	70761	3.45	23/02/2012	Yes	4.498	0.93

**Notes:**

mbgl - meters below ground level

magl - meters above ground level





**Geotechnical & Environmental Services**

Campus Innovation Centre,  
Green Rd.,  
Carrlow.

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Fax: 059-9140499





Borehole Log

BH A

Sheet 1 of 1

Method: Rotary Date: 31/07/05 Site: Carrigtwohill

Dia.mm: 140 Coords: G.L.mO.D. Client: Healy Brothers

Water and Progress	Completion	Depth	Description of Strata	Legend
		0.00m		
		-3.35	OVERBURDEN	
		-10.00	LIMESTONE rock	
		-17.68		
		-19.81	Fractured LIMESTONE	
		-30.00	LIMESTONE rock	
		-40.00		
		-50.00		
		-51.82	END OF BOREHOLE	
		-60.00		
		-70.00		
		-80.00		
		-90.00m		

Water entry  
@ 51.82m (with sand)

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Remarks: 1. Yield estimated @ 2000 gallons per hour. Logged by: JH Scale: 1/500 End Casing Depth: Job No: 05-63

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Borehole Log

BH B

Sheet 1 of 1

Method: Rotary	Date: 2/08/05	Site: Carrigtwohill
Dia.mm: 140	Coords:	G.L.mO.D. 5
		Client: Healy Brothers

Water and Progress	Completion	Depth	Description of Strata	Legend
		0.00m		
		-3.00	CLAY & GRAVEL	
		-9.14	CLAY & GRAVEL	
		-10.00	LIMESTONE	
Water entry @ 13.72m		-18.20	LIMESTONE	
		-18.20	END OF BOREHOLE	
		-30.00		
		-40.00		
		-50.00		
		-60.00		
		-70.00		
		-80.00		
		-90.00m		

Remarks: 1. Yield estimated @ 300 gallons per hour.	Logged by: JH	Scale: 1/500	End Casing Depth:	Job No: 05-63
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Borehole Log

BH C

Sheet 1 of 1

Method: Rotary	Date: 4/08/05	Site: Carrigtwohill
Dia.mm: 140	Coords:	G.L.m.O.D. 27.50
		Client: Healy Brothers

Water and Progress	Completion	Depth	Description of Strata	Legend
		0.00m		
		-3.00	Earth & Overburden	
			LIMESTONE rock	
		-9.14	Cavity-Broken rock	
		-10.36		
		-20.00		
		-26.82	Broken rock	
		-28.96		
		-30.00		
		-40.00		
Rock harder to drill after 51.82m		-50.00		
		-60.00		
Water entry @ 69.49m		-70.00		
		-78.25		
		-88.00		
		-90.00m	END OF BOREHOLE	

<b>Remarks:</b> 1. Water entry @ 69.49m. 2. Yield estimated @ 1000 gallons per hour. 3. Rock was harder to drill after 51.82m.	Logged by:	Scale:	End Casing Depth:	Job No:
		JH	1/500	

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## BOREHOLE LOG

Sheet 1 of 2

BOREHOLE NO. PW01

### GENERAL DETAILS

Project No: 13692  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182474 71027  
Top of Casing: 1.139 mOD  
Total Depth: 72 meters

Commenced: 25/07/2008  
Completed: 27/07/2008  
Contractor: Leo O'Sullivan & Co.  
Machine: Atlas Copco  
Drilling Method: Air Rotary  
Logged by: Phoebe Conway, TMS Environment Ltd.

### DRILLING DETAILS

Ground level - 4mbgl: drilled at 12-inch diameter.  
4 - 72 mbgl: drilled at 8-inch diameter  
Casing depth: 0 - 4mbgl  
Casing diameter: 8-inch steel to 4mbgl

### WATER

Water strikes at 5mbgl and 27mbgl  
Estimated Final Yield at 72mbgl: 1200 gallons per hour

### FINAL INSTALLATION

Plastic Liner Installed:  
Ground level - 27mbgl: 5 inch wavin pipe, 27-72mbgl: slotted 5 inch wavin pipe.

### NOTES

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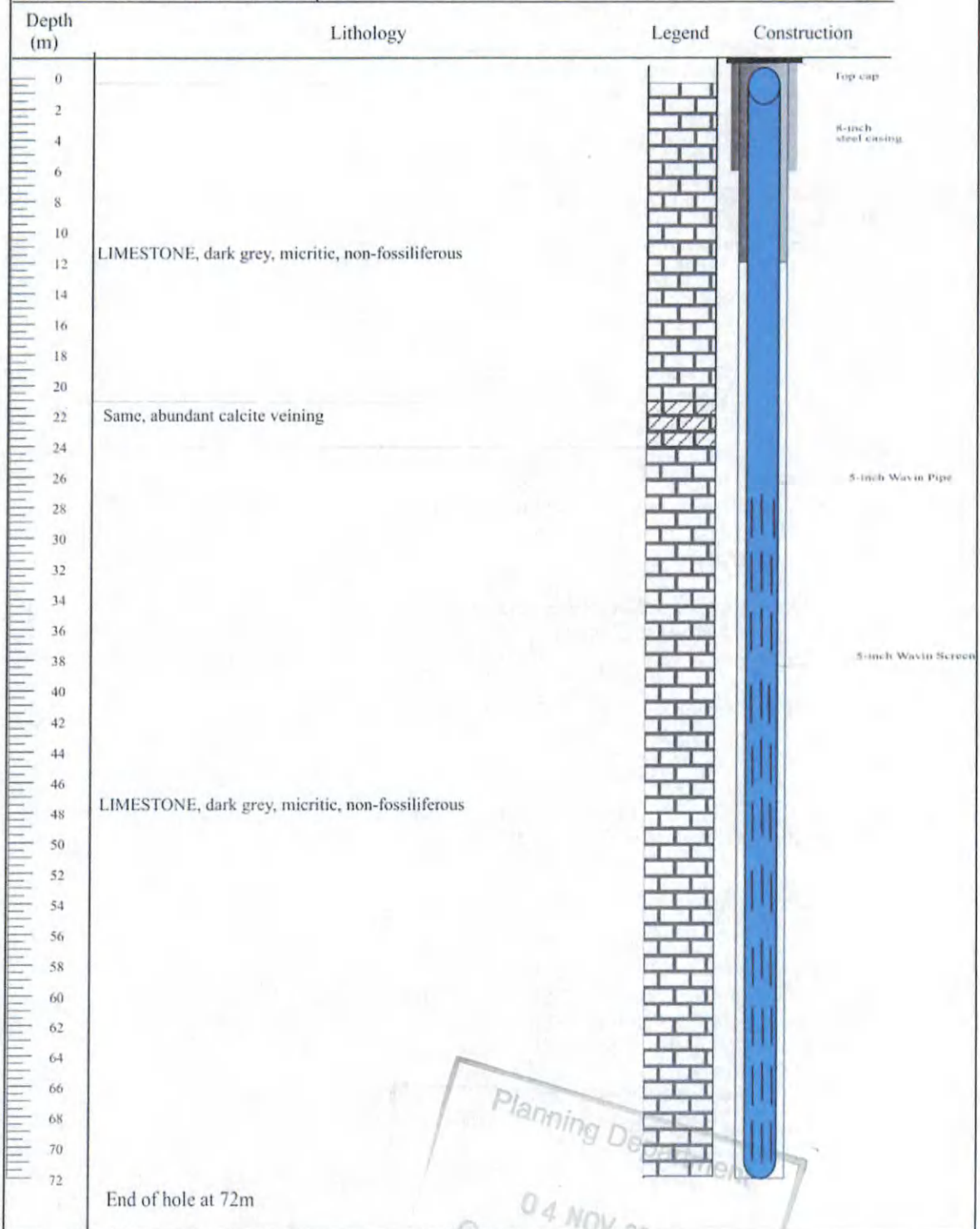


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Project No. 13692  
Site Name: Rossmore Quarry  
Borehole No. PW01

Sheet 2 of 2

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## BOREHOLE LOG

Sheet 1 of 2

BOREHOLE NO. MW01

### GENERAL DETAILS

Project No: 13692  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182376 70821  
Top of Casing: 3.634 mOD  
Total Depth: 72 meters

Commenced: 17/07/2008  
Completed: 17/07/2008  
Contractor: Southern Pumps Ltd.  
Machine: Atlas Copco  
Drilling Method: Air Rotary  
Logged by: Phoebe Conway, TMS Environment Ltd.

### DRILLING DETAILS

Ground level - 6mbgl: drilled at 8-inch diameter.  
6 - 72mbgl: drilled at 6-inch diameter  
Casing depth: 0 - 6mbgl

Casing diameter: 6-inch steel to 6mbgl

### WATER

Water strikes at 9mbgl, 35mbgl, 51mbgl and 64mbgl  
Estimated Final Yield: 1100 gallons per hour

### FINAL INSTALLATION

1 Standpipe installed.  
Ground level - 24mbgl: plain 2-inch PVC, 24 - 72mbgl: 2-inch PVC screen.  
Ground level - 6mbgl: pea gravel (5mm to 8mm), 6 - 7mbgl: bentonite pellets,  
7 - 72mbgl: pea gravel (5mm to 8mm).

### NOTES

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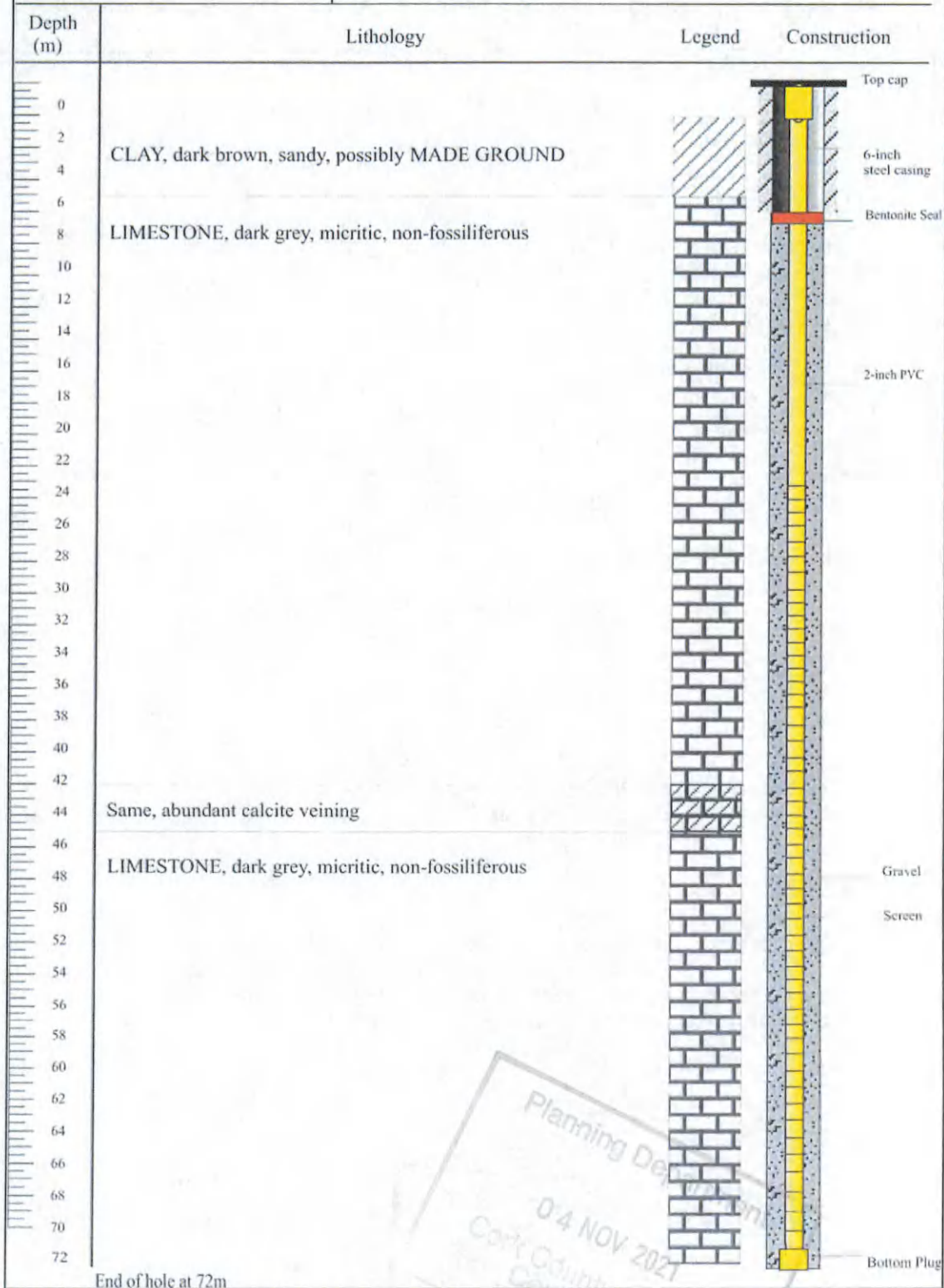


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Project No.13692  
Site Name: Rossmore Quarry  
Borehole No. MW01

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**BOREHOLE LOG**

Sheet 1 of 2

**BOREHOLE NO. MW 02**

**GENERAL DETAILS**

Project No: 13692

Client: Lagan

Site Name: Rossmore Quarry

Grid Ref: 182354 70944

Top of Casing: -0.675 mOD

Total Depth: 66 meters

Commenced: 18/07/2008

Completed: 18/07/2008

Contractor: Southern Pumps Ltd.

Machine: Atlas Copco

Drilling Method: Air Rotary

Logged by: Phoebe Conway, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 6mbgl: drilled at 8-inch diameter.

6 - 66mbgl: drilled at 6-inch diameter

Casing depth: 0 - 6mbgl

Casing diameter: 6-inch steel to 6mbgl

**WATER**

Water strikes at 7mbgl and 36mbgl

Estimated Final Yield: 20 gallons per hour

**FINAL INSTALLATION**

1 Standpipe installed.

Ground level - 18mbgl: plain 2-inch PVC, 18 - 66mbgl: 2-inch PVC screen.

Ground level - 6mbgl: pea gravel (5mm to 8mm), 6 - 7mbgl: bentonite pellets,

7 - 66mbgl: pea gravel (5mm to 8mm).

**NOTES**

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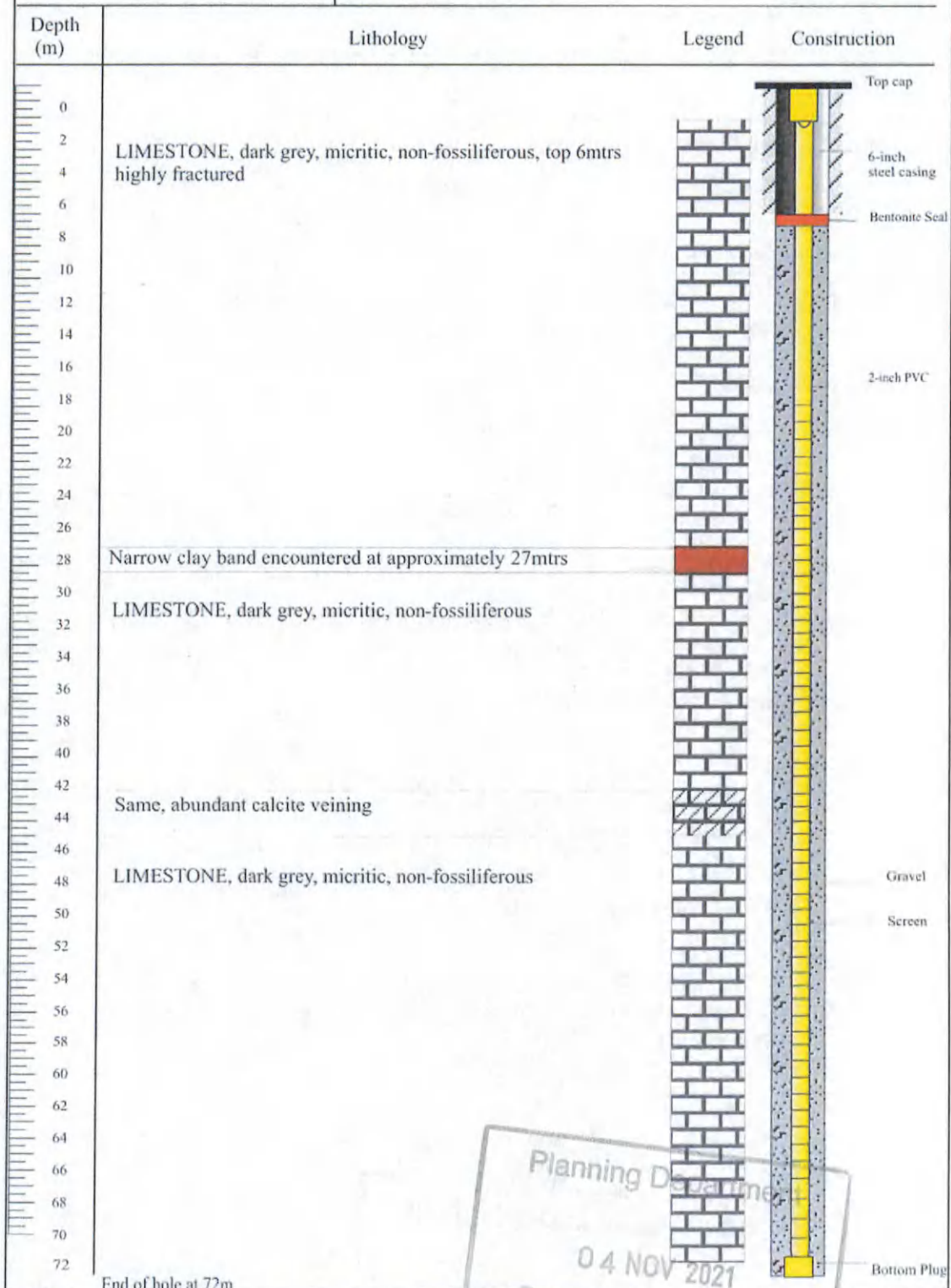


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Project No.13692  
Site Name: Rossmore Quarry  
Borehole No. MW 02

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**BOREHOLE LOG**

Sheet 1 of 2

BOREHOLE NO. MW 03

**GENERAL DETAILS**

Project No: 13692  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182240 71439  
Top of Casing: 12.053 mOD  
Total Depth: 78 meters

Commenced: 25/07/2008  
Completed: 25/07/2008  
Contractor: Leo O'Sullivan & Co.  
Machine: Atlas Copco  
Drilling Method: Air Rotary  
Logged by: Phoebe Conway, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 12mbgl: drilled at 9-inch diameter.  
12 - 78mbgl: drilled at 6-inch diameter  
Casing depth: 0 - 12mbgl  
Casing diameter: 6-inch steel to 12mbgl

**WATER**

Water strikes at 28mbgl, 48mbgl, 56mbgl and 72mbgl  
Estimated Final Yield: 450 gallons per hour

**FINAL INSTALLATION**

1 Standpipe installed.  
Ground level - 48mbgl: plain 2-inch PVC, 48 - 78mbgl: 2-inch PVC screen.  
Ground level - 15mbgl: pea gravel (5mm to 8mm), 15 - 18mbgl: bentonite pellets,  
18 - 78mbgl: pea gravel (5mm to 8mm).

**NOTES**

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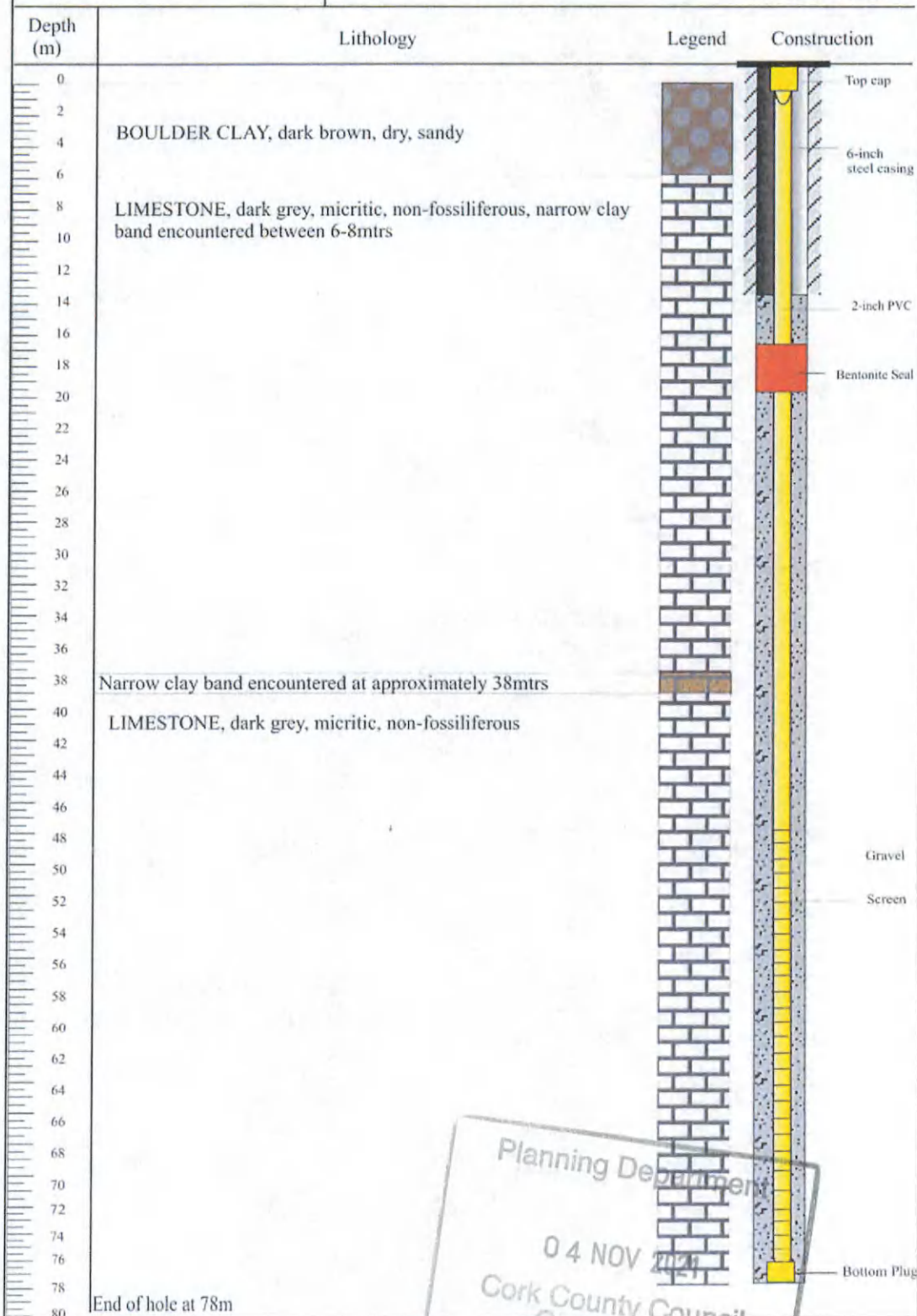


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Project No.13692  
Site Name: Rossmore Quarry  
Borehole No. MW 03

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## BOREHOLE LOG

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BOREHOLE NO. MW 04

### GENERAL DETAILS

Project No: 13692  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182497 71421  
Top of Casing: 18.626 mOD  
Total Depth: 84 meters

Commenced: 25/07/2008  
Completed: 25/07/2008  
Contractor: Leo O'Sullivan & Co.  
Machine: Atlas Copco  
Drilling Method: Air Rotary  
Logged by: Phoebe Conway, TMS Environment Ltd.

### DRILLING DETAILS

Ground level - 6mbgl: drilled at 9-inch diameter.  
6 - 84mbgl: drilled at 6-inch diameter  
Casing depth: 0 - 6mbgl  
Casing diameter: 6-inch steel to 6mbgl

### WATER

Water strikes at 26mbgl and 52mbgl  
Estimated Final Yield: 100 gallons per hour

### FINAL INSTALLATION

1 Standpipe installed.  
Ground level - 48mbgl: plain 2-inch PVC, 48 - 84mbgl: 2-inch PVC screen.  
Ground level - 20mbgl: pea gravel (5mm to 8mm), 20 - 22mbgl: bentonite pellets,  
22 - 84mbgl: pea gravel (5mm to 8mm).

### NOTES





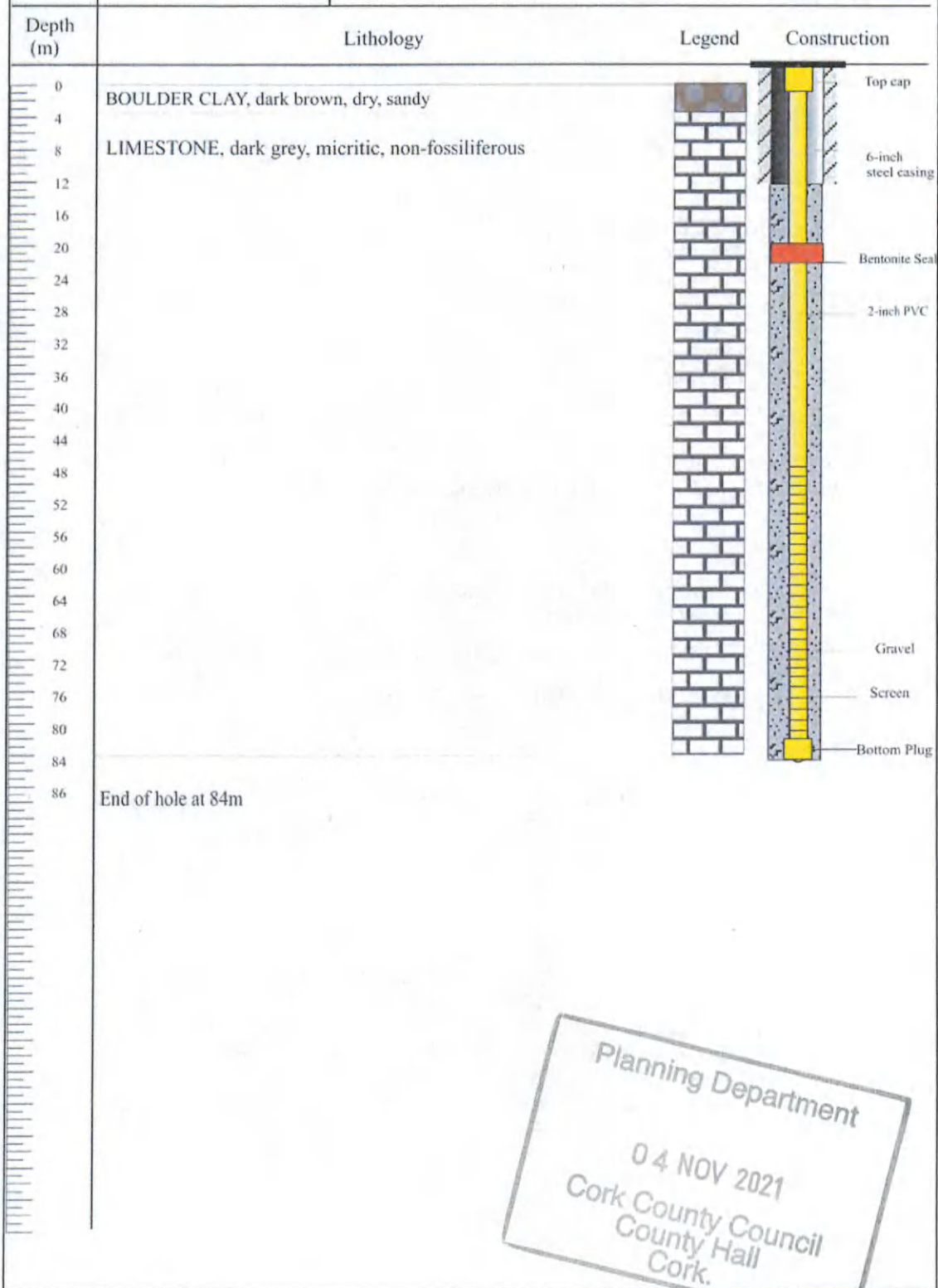


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Project No.13692  
Site Name: Rossmore Quarry  
Borehole No. MW 04

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**BOREHOLE LOG**

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BOREHOLE NO. MW 05

**GENERAL DETAILS**

Project No: 13692  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182372 70823  
Top of Casing: 4.543 mOD  
Total Depth: 50 meters

Commenced: 17/11/2009  
Completed: 17/11/2009  
Contractor: Leo O'Sullivan & Co.  
Machine: Atlas Copco  
Drilling Method: Air Rotary  
Logged by: Phoebe Conway, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 9mbgl: drilled at 10-inch diameter.  
9 - 50mbgl: drilled at 6-inch diameter  
Casing depth: 0 - 9mbgl

Casing diameter: 6-inch steel to 9mbgl

**WATER**

Water strikes at 8mbgl, 12mbgl, 15mbgl and 36mbgl  
Estimated Final Yield: 920 gallons per hour

**FINAL INSTALLATION**

2 Standpipes installed.  
Ground level - 35mbgl: plain 2-inch PVC, 35 - 50mbgl: 2-inch PVC screen.  
Ground level - 9mbgl : plain 1-inch PVC, 9 - 24mbgl: 1-inch PVC screen  
Ground level - 8.5mbgl: Bentonite/cement mix, 8.5 - 9mbgl: Bentonite Pellet Layer,  
9 - 24mbgl: pea gravel (5mm to 8mm), 24 - 32.5mbgl: bentonite/cement mix,  
32.5 - 33.5mbgl: Bentonite Pellet Layer, 33.5 - 34mbgl: Sand Layer,  
34 - 50mbgl: pea gravel (5mm to 8mm).

**NOTES**

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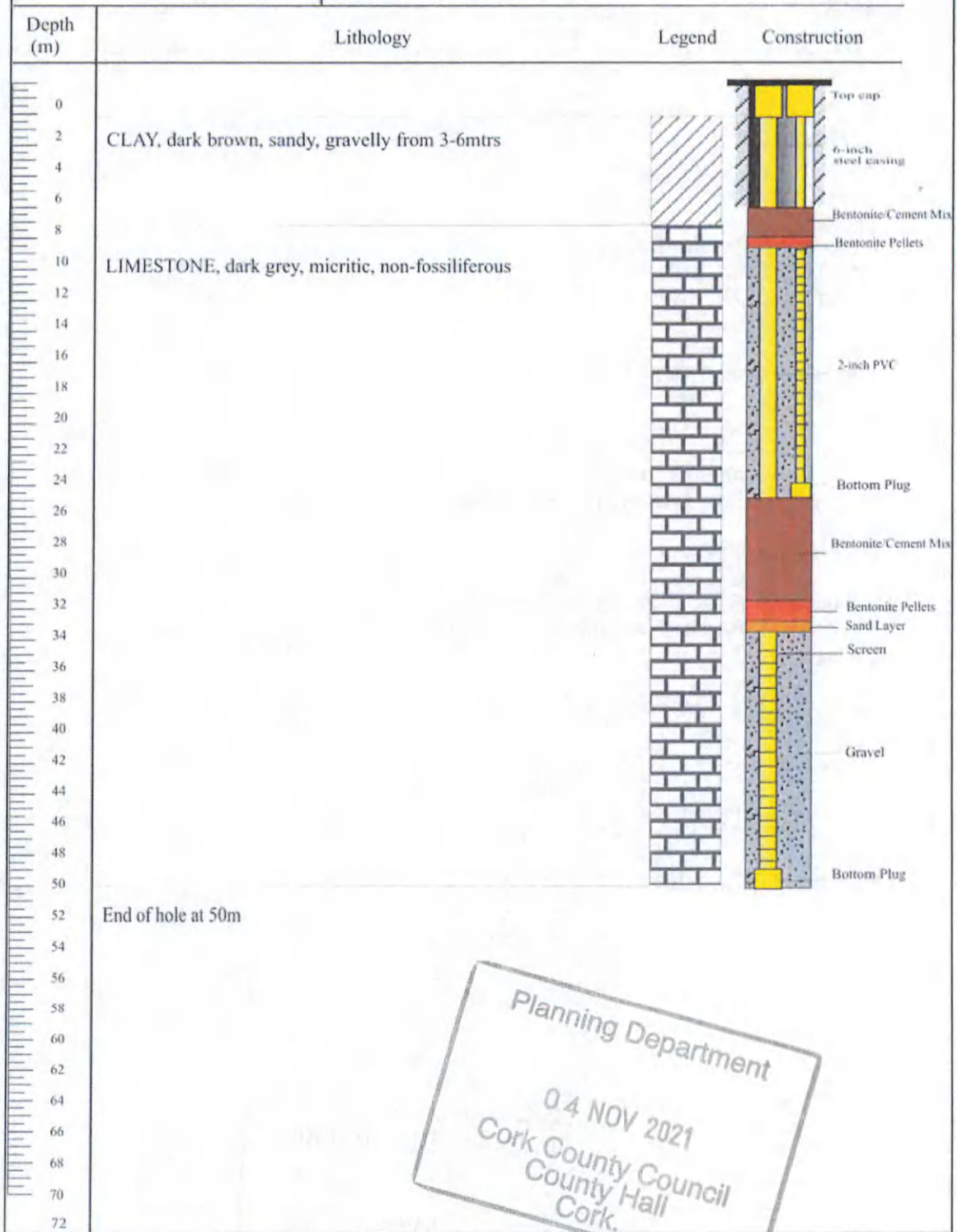
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Project No.13692  
Site Name: Rossmore Quarry  
Borehole No. MW 05

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**BOREHOLE LOG**

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**BOREHOLE NO. BH 02**

**GENERAL DETAILS**

Project No: 13692  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182561 71081  
Top of Casing: 20.768 mOD  
Total Depth: 84 meters

Commenced: 14/07/2008  
Completed: 14/07/2008  
Contractor: Southern Pumps Ltd.  
Machine: Atlas Copco  
Drilling Method: Air Rotary  
Logged by: Phoebe Conway, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 11mbgl: drilled at 8-inch diameter.  
11 - 84mbgl: drilled at 6-inch diameter  
Casing depth: 0 - 12.5mbgl

Casing diameter: 6-inch steel to 12.5mbgl

**WATER**

Water strike at 60mbgl  
Estimated Final Yield: 15 gallons per hour

**FINAL INSTALLATION**

No installation in well, borehole completed open hole.

**NOTES**

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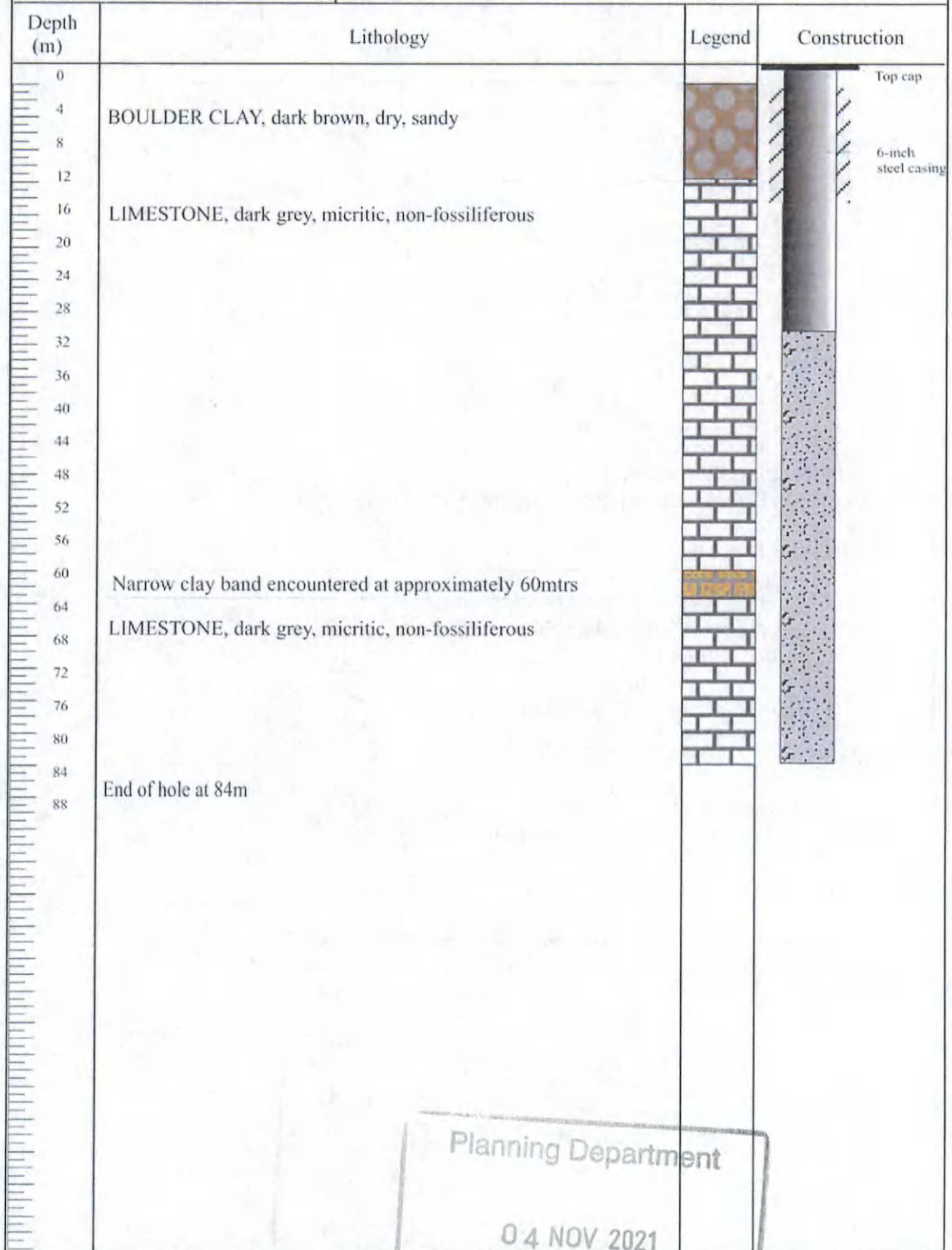


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Project No. 13692  
Site Name: Rossmore Quarry  
Borehole No. BH 02

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**BOREHOLE LOG**

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BOREHOLE NO. BH 03

**GENERAL DETAILS**

Project No: 13692  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182455 70960  
Top of Casing: 2.222 mOD  
Total Depth: 66 meters

Commenced: 17/07/2008  
Completed: 17/07/2008  
Contractor: Southern Pumps Ltd.  
Machine: Atlas Copco  
Drilling Method: Air Rotary  
Logged by: Phoebe Conway, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 3mbgl: drilled at 12-inch diameter.  
3 - 66mbgl: drilled at 8-inch diameter  
Casing depth: 0 - 3mbgl

Casing diameter: 8-inch steel to 3mbgl

**WATER**

Water strike at 48mbgl  
Estimated Final Yield: 50 gallons per hour

**FINAL INSTALLATION**

No installation in well, borehole completed open hole.

**NOTES**

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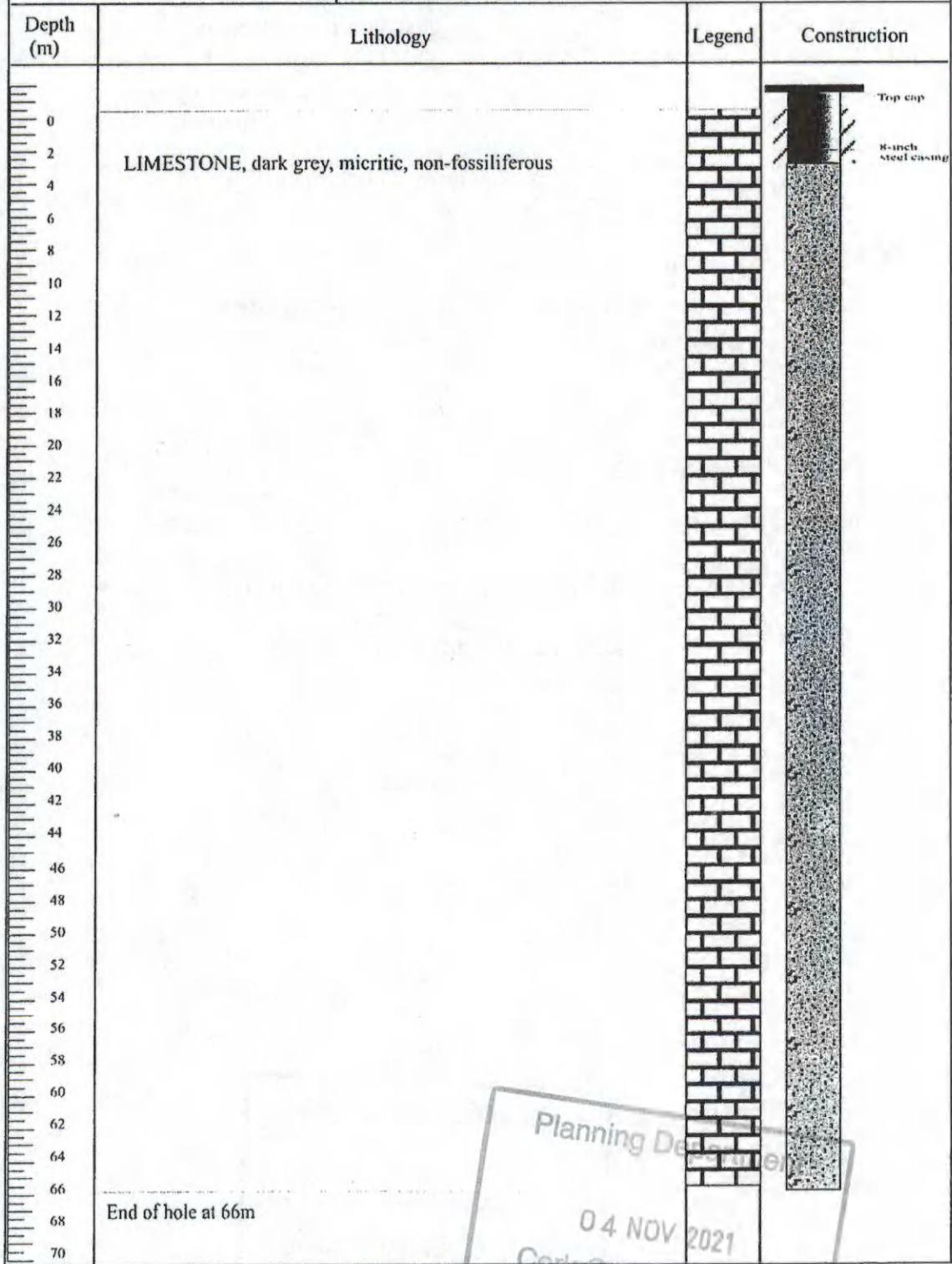
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Project No.13692  
Site Name: Rossmore Quarry  
Borehole No. BH 03

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## Borehole Record

# BH4

Project No: 18794  
Client: Lagan  
Site Location: Rossmore, Co. Cork

Date: 13/2/2012  
Driller: Eddie Hogan  
Drilling Method: DTH hammer/air flush  
Supervisor: Craig O'Connor  
Irish Grid Ref: 182420 71057

### Lithology:

0 – 10m Limestone, dark grey, micritic, non-fossiliferous  
10m End of Hole

### Comments:

Borehole Diameter: 120mm

Fractures: Solid rock, no cavities or significant fracture zones encountered

Water Strikes: No significant water strikes, returns wet from 7m

Completion: Open hole - 3m plastic liner installed at surface

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## Borehole Record

BH5

Project No: 18794  
Client: Lagan  
Site Location: Rossmore, Co. Cork

Date: 24/2/2012  
Driller: Eddie Hogan  
Drilling Method: DTH hammer/air flush  
Supervisor: Craig O'Connor  
Irish Grid Ref: 182422 71059

### Lithology:

0 – 20m      LIMESTONE, dark grey, micritic, non-fossiliferous  
20m          End of Hole

### Comments:


Borehole Diameter: 120mm

Fractures: Broken rock 0 - 2m, solid rock 2 – 20m, no cavities, no significant fracture zones encountered below 2m

Water Strikes: No significant water strikes, returns wet from 7m

Completion: Open hole - 3m plastic liner installed at surface

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<p>Project No: 18794 Client: Lagan Site Location: Rossmore, Co. Cork</p>	<p>Date: 13/2/2012 Driller: Eddie Hogan Drilling Method: DTH hammer/air flush Supervisor: Craig O'Connor Irish Grid Ref: 182459 71074</p>
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<p><u>Lithology:</u></p> <p>0 – 10m      LIMESTONE, dark grey, micritic, non-fossiliferous 10m          End of Hole</p> <p><u>Comments:</u></p> <p>Borehole Diameter: 120mm</p> <p>Fractures: Broken rock 0 - 3m, solid rock 3 – 9m, clay filled cavity at 9m, no significant fracture zones encountered below 3m</p> <p>Water Strikes: No significant water strikes, returns wet from 4.5m</p> <p>Completion: Open hole - 3m plastic liner installed at surface</p>
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## Borehole Record

# BH7

Project No: 18794  
Client: Lagan  
Site Location: Rossmore, Co. Cork

Date: 24/2/2012  
Driller: Eddie Hogan  
Drilling Method: DTH hammer/air flush  
Supervisor: Craig O'Connor  
Irish Grid Ref: 182443 71036

### Lithology:

0 – 20m      LIMESTONE, dark grey, micritic, non-fossiliferous  
20m          End of Hole

### Comments:

Borehole Diameter: 120mm

Fractures: Broken rock 0 - 2m, solid rock 2 – 20m, no cavities, no significant fracture zones encountered below 2m


Water Strikes: No significant water strikes, returns wet from 5m

Completion: Open hole - 3m plastic liner installed at surface

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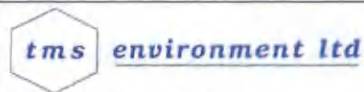
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<p>Project No: 18794 Client: Lagan Site Location: Rossmore, Co. Cork</p>	<p>Date: 13/2/2012 Driller: Eddie Hogan Drilling Method: DTH hammer/air flush Supervisor: Craig O'Connor Irish Grid Ref: 182445 71037</p>
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<p><u>Lithology:</u></p> <p>0 – 15m      LIMESTONE, dark grey, micritic, non-fossiliferous 15m            End of Hole</p> <p><u>Comments:</u></p> <p>Borehole Diameter: 120mm</p> <p>Fractures: Solid rock, no cavities or significant fracture zones encountered</p> <p>Water Strikes: No significant water strikes, dry when drilled</p> <p>Completion: Open hole - 3m plastic liner installed at surface</p> <div data-bbox="491 1579 1013 2033" style="border: 1px solid black; padding: 10px; transform: rotate(-15deg); margin-top: 20px;"> <p>Planning Department 04 NOV 2021 Cork County Council County Hall Cork.</p> </div>
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## Borehole Record

# BH9

Project No: 18794

Client: Lagan

Site Location: Rossmore, Co. Cork

Date: 24/2/2012

Driller: Eddie Hogan

Drilling Method: DTH hammer/air flush

Supervisor: Craig O'Connor

Irish Grid Ref: 182473 71045

### Lithology:

0 – 20m      LIMESTONE, dark grey, micritic, non-fossiliferous  
20m          End of Hole

### Comments:

Borehole Diameter: 120mm

Fractures: Broken rock 0 - 2m, solid rock 2 – 20m, no cavities, no significant fracture zones encountered below 2m

Water Strikes: No significant water strikes, returns wet from 4m

Completion: Open hole - 3m plastic liner installed at surface

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Project No: 18794  
Client: Lagan  
Site Location: Rossmore, Co. Cork

Date: 24/2/2012  
Driller: Eddie Hogan  
Drilling Method: DTH hammer/air flush  
Supervisor: Craig O'Connor  
Irish Grid Ref: 182417 71009

Lithology:

0 – 20m      LIMESTONE, dark grey, micritic, non-fossiliferous  
20m          End of Hole

Comments:

Borehole Diameter: 120mm

Fractures: Broken rock 0 - 2m, solid rock 2 – 20m, no cavities, no significant fracture zones encountered below 2m

Water Strikes: No significant water strikes, returns wet from 6m

Completion: Open hole - 3m plastic liner installed at surface

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Project No: 18794  
Client: Lagan  
Site Location: Rossmore, Co. Cork

Date: 13/2/2012  
Driller: Eddie Hogan  
Drilling Method: DTH hammer/air flush  
Supervisor: Craig O'Connor  
Irish Grid Ref: 182417 71006

Lithology:

0 – 15m      LIMESTONE, dark grey, micritic, non-fossiliferous  
15m          End of Hole

Comments:

Borehole Diameter: 120mm

Fractures: Solid rock, no cavities or significant fracture zones encountered

Water Strikes: No significant water strikes, returns wet from 9.5m

Completion: Open hole - 3m plastic liner installed at surface

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## Borehole Record

# BH12

Project No: 18794

Client: Lagan

Site Location: Rossmore, Co. Cork

Date: 13/2/2012

Driller: Eddie Hogan

Drilling Method: DTH hammer/air flush

Supervisor: Craig O'Connor

Irish Grid Ref: 182443 71012

### Lithology:

0 – 15m      LIMESTONE, dark grey, micritic, non-fossiliferous  
15m          End of Hole

### Comments:

Borehole Diameter: 120mm

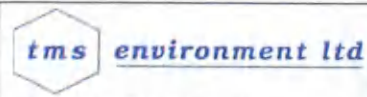
Fractures: Solid rock, no cavities or significant fracture zones encountered

Water Strikes: No significant water strikes, returns wet from 4m

Completion: Open hole - 3m plastic liner installed at surface







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## Borehole Record

# BH13

Project No: 18794

Client: Lagan

Site Location: Rossmore, Co. Cork

Date: 24/2/2012

Driller: Eddie Hogan

Drilling Method: DTH hammer/air flush

Supervisor: Craig O'Connor

Irish Grid Ref: 182492 71031

### Lithology:

0 - 25m      LIMESTONE, dark grey, micritic, non-fossiliferous  
25m          End of Hole

### Comments:

Borehole Diameter: 120mm

Fractures: Broken rock 0 - 2m, solid rock 2 - 20m, broken rock 20 - 25m, no cavities, no significant fracture zones encountered between 2m - 20m

Water Strikes: No significant water strikes, returns wet from 3.5m

Completion: Open hole - 3m plastic liner installed at surface

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## Borehole Record

# BH14

Project No: 18794  
Client: Lagan  
Site Location: Rossmore, Co. Cork

Date: 13/2/2012  
Driller: Eddie Hogan  
Drilling Method: DTH hammer/air flush  
Supervisor: Craig O'Connor  
Irish Grid Ref: 182475 71000

### Lithology:

0 – 25m Limestone, dark grey, micritic, non-fossiliferous  
25m End of Hole

### Comments:


Borehole Diameter: 120mm

Fractures: Solid rock, no cavities or significant fracture zones encountered

Water Strikes: No significant water strikes, returns wet from 3m

Completion: Open hole - 3m plastic liner installed at surface



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<p>Project No: 18794 Client: Lagan Site Location: Rossmore, Co. Cork</p>	<p>Date: 13/2/2012 Driller: Eddie Hogan Drilling Method: DTH hammer/air flush Supervisor: Craig O'Connor Irish Grid Ref: 182505 70970</p>
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Lithology:

0 – 15m      LIMESTONE, dark grey, micritic, non-fossiliferous  
15m          End of Hole

Comments:

Borehole Diameter: 120mm

Fractures: Solid rock, no cavities or significant fracture zones encountered

Water Strikes: No significant water strikes, returns wet from 3m

Completion: Open hole - 3m plastic liner installed at surface

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## Borehole Record

# BH16

Project No: 18794  
Client: Lagan  
Site Location: Rossmore, Co. Cork

Date: 24/2/2012  
Driller: Eddie Hogan  
Drilling Method: DTH hammer/air flush  
Supervisor: Craig O'Connor  
Irish Grid Ref: 182507 70923

### Lithology:

0 – 20m      LIMESTONE, dark grey, micritic, non-fossiliferous  
20m          End of Hole

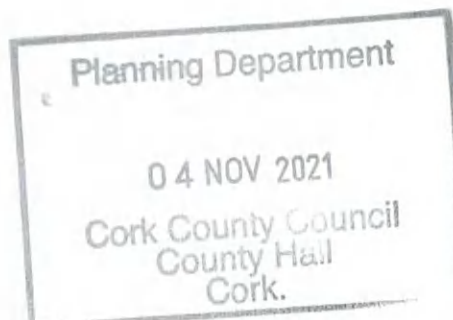
### Comments:

Borehole Diameter: 120mm

Fractures: Broken rock 0 - 2m, solid rock 2 – 20m, no cavities, no significant fracture zones encountered below 2m

Water Strikes: No significant water strikes, returns wet from 2.5m

Completion: Open hole - 3m plastic liner installed at surface





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**BOREHOLE LOG**

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**BOREHOLE NO. BH 17**

**GENERAL DETAILS**

Project No: 18794  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182437 70747  
Top of Casing: 5.390 mOD  
Total Depth: 26 meters

Commenced: 23/02/2012  
Completed: 23/02/2012  
Contractor: Leo O'Sullivan & Co. Ltd.  
Drilling Method: DTH Hammer (Air Flush)  
Logged by: Craig O'Connor, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 14mbgl: 10 inch borehole, 14 - 26 mbgl: 6 inch borehole  
Casing diameter: 6 inch steel 0 - 15 mbgl

**WATER**

Water strike at 12 mbgl (approx. 700 gallons per hour) at top of rock.  
Estimated Final Yield at 26mbgl: 1400 gallons per hour

**FINAL INSTALLATION**

0 - 12 mbgl: 6 inch steel, 12 - 26 mbgl: Open hole

**NOTES**

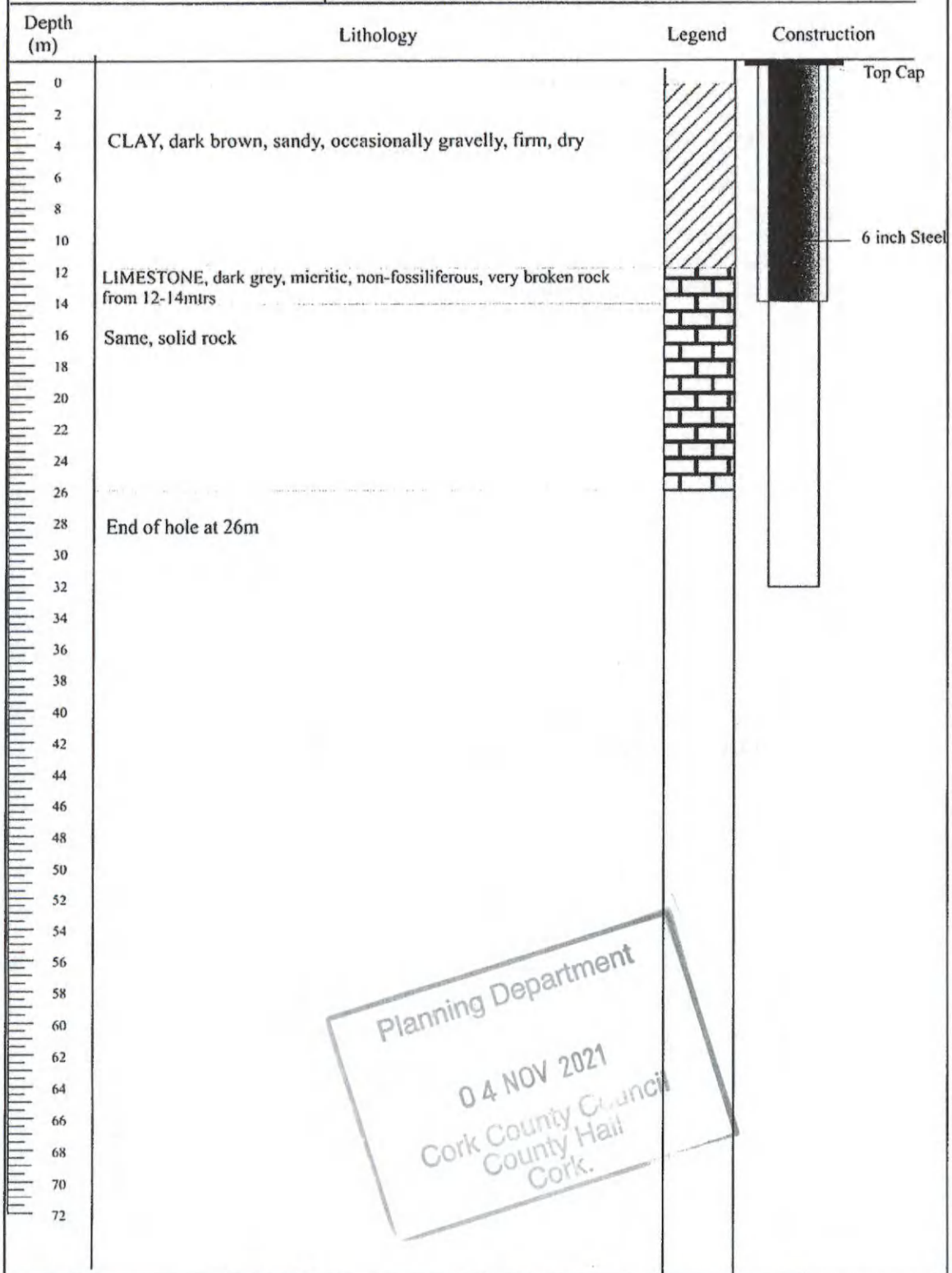




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Project No. 18794  
Site Name: Rossmore Quarry  
Borehole No. BH 17

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**BOREHOLE LOG**

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**BOREHOLE NO. BH 18**

**GENERAL DETAILS**

Project No: 18794  
Client: Lagan  
Site Name: Rossmore Quarry  
Grid Ref: 182420 70739  
Top of Casing: 2.996 mOD  
Total Depth: 17 meters

Commenced: 22/02/2012  
Completed: 22/02/2012  
Contractor: Leo O'Sullivan & Co. Ltd.  
Drilling Method: DTH Hammer (Air Flush)  
Logged by: Craig O'Connor, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 13mbgl: 10 inch borehole, 13 - 17 mbgl: 6 inch borehole  
Casing: 6" steel 0 - 13mbgl

**WATER**

Minor water strike at 3mbgl (within gravels)  
Water strike at 13mbgl (approx. 2000 gallons per hour) at top of rock  
Estimated Final Yield at 17mbgl: 2500 gallons per hour

**FINAL INSTALLATION**

0 - 13 mbgl: 6 inch steel, 13 - 17 mbgl: Open hole

**NOTES**



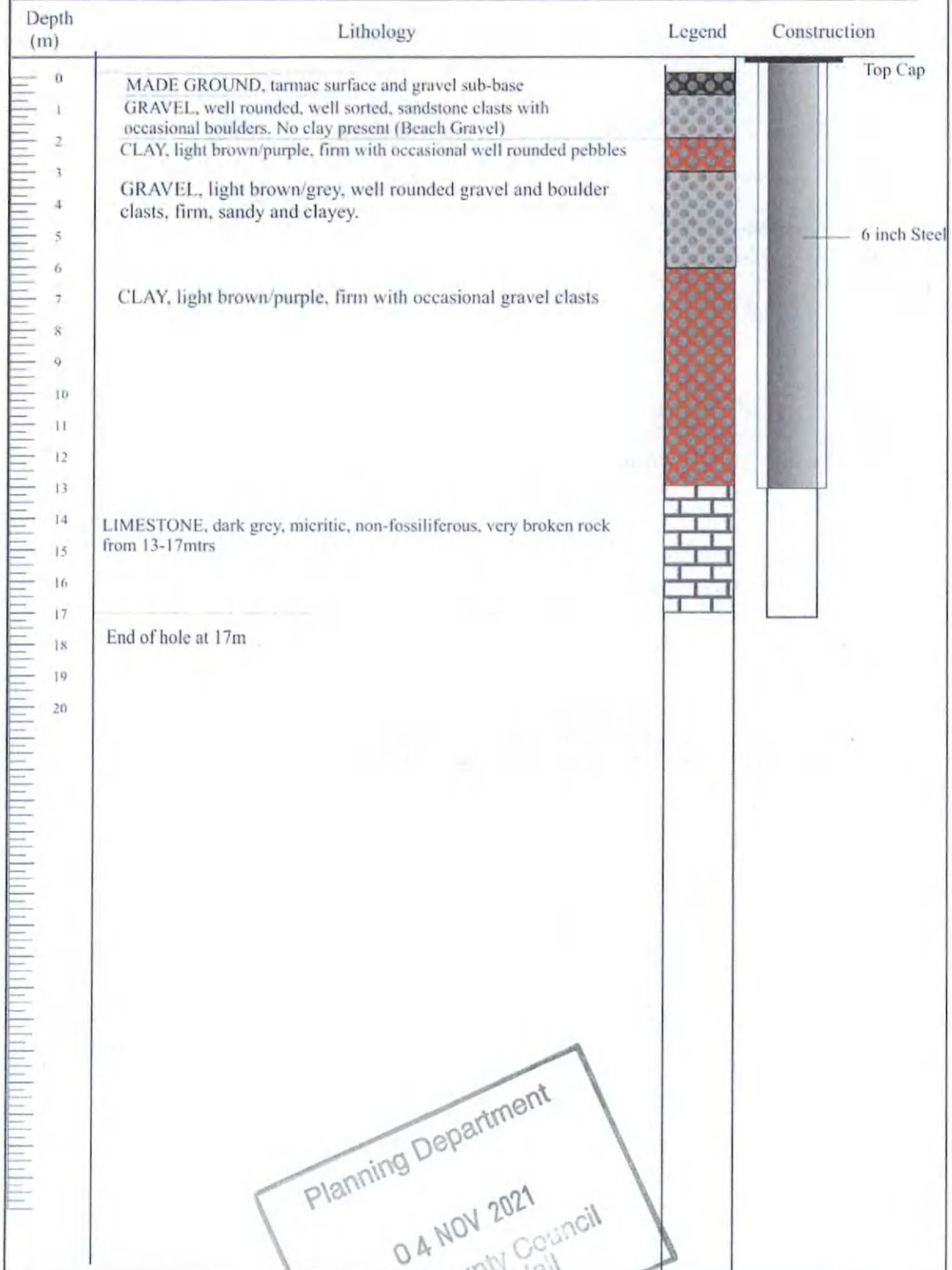


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Project No.18794  
Site Name: Rossmore Quarry  
Borehole No. BH 18

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**BOREHOLE LOG**

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**BOREHOLE NO. BH 19**

**GENERAL DETAILS**

Project No: 18794

Client: Lagan

Site Name: Rossmore Quarry

Grid Ref: 182826 70751

Top of Casing: 4.812 mOD

Total Depth: 14 meters

Commenced: 22/02/2012

Completed: 22/02/2012

Contractor: Eddie Hogan

Drilling Method: Atlas Copco L6

Logged by: Craig O'Connor, TMS Environment Ltd.

**DRILLING DETAILS**

Ground level - 14mbgl: 5 inch diameter

**WATER**

Water strike at 3 mbgl (within gravels)

**FINAL INSTALLATION**

0 - 14 mbgl: Open hole

**NOTES**

- Borehole to prove depth to bedrock next to infiltration trial area
- Borehole collapsed to 4.61m depth on completion

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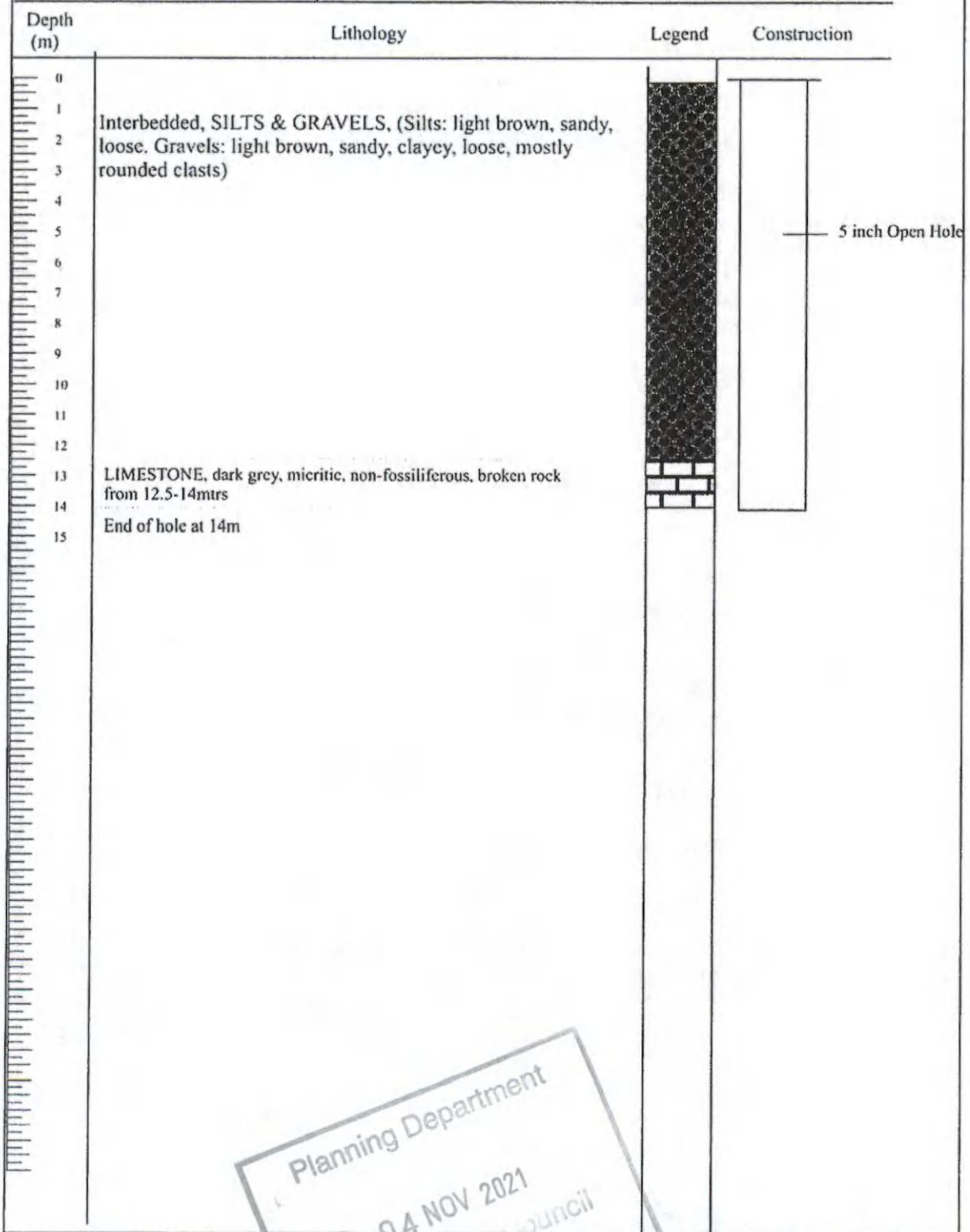


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Project No. 18794  
Site Name: Rossmore Quarry  
Borehole No. BH 19

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