

Our Ref: IE2490/PMS/5768

Your Ref:

Date: 11th February 2022

An Bord Pleanála
64 Marlborough Street
Dublin 1
D01 V902

Dear Sir / Madam

Re: Application to An Bord Pleanála for Substitute Consent for Retention of Existing Farm Shed at Grennan TD, Attanagh, Co Laois for Mr Patrick Lalor – Surface Water Management Plan

IE Consulting hereby confirms to having undertaken an assessment of the existing and proposed surface water management regime pertaining to the existing farm shed at Grennan TD, Attanagh, Co Laois and to which this substitute consent for retention application relates. We wish to comment as follows:

The existing farm shed structure to which this substitute consent application relates is illustrated in *Figure 1* below:-

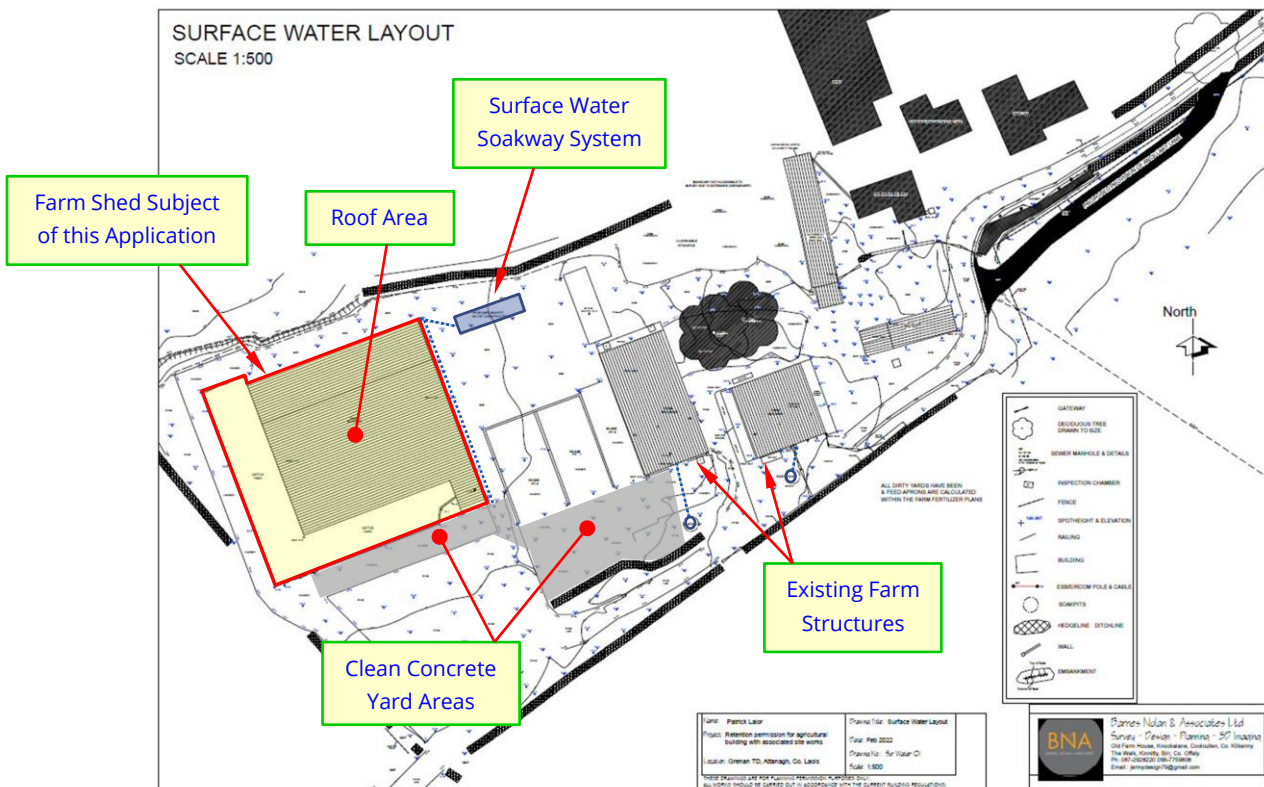


Figure 1

Surface water runoff shall be generated from the farm shed from two separate sources, these being runoff generated from external hard-standing areas and runoff generated from roof drainage.

In consideration of the type and form of facility structure for which substitute consent is sought, surface water runoff from external hard-standing areas where livestock are present or trafficked is considered as soiled water and surface water runoff from roof drainage and clean concrete yard areas where livestock is not present or is trafficked is considered as clean or uncontaminated water.

Reference to the drainage proposals produced in support of this substitute consent application and the original planning application as submitted to Laois County Council indicate that all potentially soiled surface water runoff generated from external hard-standing areas where livestock is present or trafficked shall be directed and discharge to an appropriate slatted tank constructed in accordance with relevant Department of Agriculture Code of Practices and Specifications. Potentially soiled surface water runoff that discharges to this slatted tank shall be managed in accordance with an appropriate Nutrient Management Plan. In this regard, any potentially soiled surface water runoff from the facility structure for which substitute consent is sought will not result in an adverse or detrimental impact to the existing hydrological regime of the area.

With respect to clean or uncontaminated surface water runoff generated from roof drainage reference is made to the figures and details provided by Environmental Agricultural Consultants in support of the original planning application as submitted to Laois County Council. As illustrated in *Figure 1* above, surface water runoff generated from roof drainage shall be collected via a suitable gutter and pipe drainage system and shall discharge to a soakaway system at the location illustrated in *Figure 1*. The soakaway system shall provide both appropriate attenuation of surface water runoff from the roof drainage and permit discharge of surface water runoff to ground via infiltration.

The analysis and details of the soakaway system undertaken by Environmental Agricultural Consultants is presented in *Appendix A*. These details indicate that the soakaway system has been appropriately designed in accordance with recognised and industry standard methodologies and Codes of Practice (i.e. BRE Digest 365) and that the soakaway shall be constructed utilising appropriate materials.

Surface water runoff from clean concrete yard areas where livestock is not present or is trafficked simply discharges from these areas to adjacent hardcore areas and discharges to ground via infiltration.

Summary

In summary, the facility structure for which substitute consent is sought shall incorporate an appropriate Surface Water Management Plan and system. All potentially soiled surface water runoff shall discharge to a slatted tank and shall be managed in accordance with an appropriate Nutrient Management Plan. All clean or uncontaminated surface water runoff from roof drainage shall discharge to an appropriately designed and constructed soakaway system and surface water runoff from clean concrete yard areas shall discharge to ground via infiltration.

No surface water runoff generated from the facility structure shall discharge directly to any receiving surface watercourse. Although beyond the scope of this particular assessment, surface water runoff from the existing farm structures as illustrated in *Figure 1* above discharge to existing soakaway systems. In this regard surface water runoff from these existing structures will not adversely impact the facility structure for which substitute consent is sought.

In this regard, surface water runoff generated from the facility structure for which substitute consent is sought would not result in an adverse impact to any Natura 200 site, Special Area of Conservation or any other European site. The Surface Water Management Plan that shall be incorporated is therefore considered to be appropriate from a hydrological perspective.

Yours Sincerely

Paul McShane



Senior Hydrological Engineer

For IE Consulting

Jer Keohane



Technical Director

For IE Consulting

Appendix A



SOAKWAY - DESIGN

Designed in accordance with BRE Digest 365

Client	P.Lalor
Project	Proposed Agricultural Shed
Location	Grenan, Co. Laois
Designed by	M.Cotter

STORM EVENT DESIGN

Notation for Storm Events is given as MX-D
 where X = Return period in Years
 D = Storm Duration in Minutes

ASSUMPTIONS

10 Year Return Period
 2 Hour Storm Duration
 An r value = 0.35

CALCULATING DESIGN RAINFALL

$r = 0.35$
 For M5-120 - $Z1=1.22$ (Table 1 BRE Digest 365)
 For M5-120 - Rainfall = $20 \times 1.22(Z1) = 24.4\text{mm}$
 For M10-120 - $Z2=1.18$ (Table 2 BRE Digest 365)
 For M10-120 - Rainfall = $24.4 \times 1.18(Z2) = 28.8\text{mm}$

SOAKWAY DESIGN

KNOWN VALUES

Impermeable Area =	1950 m ²
Soil Infiltration Rate (f) =	1.67E-04 m/s
Soakway Width (w) =	3 m
Soakway Depth =	1.15 m
Soakway Effective Depth (d) =	1 m

DEFINITIONS

a_{50} = 50% of perimeter area
 t_{50} = Time to empty 50%
 I = Inflow to Soakway
 O = Outflow from Soakway
 S = Storage Volume of Soakway

ASSUMPTION

30% Free Volume

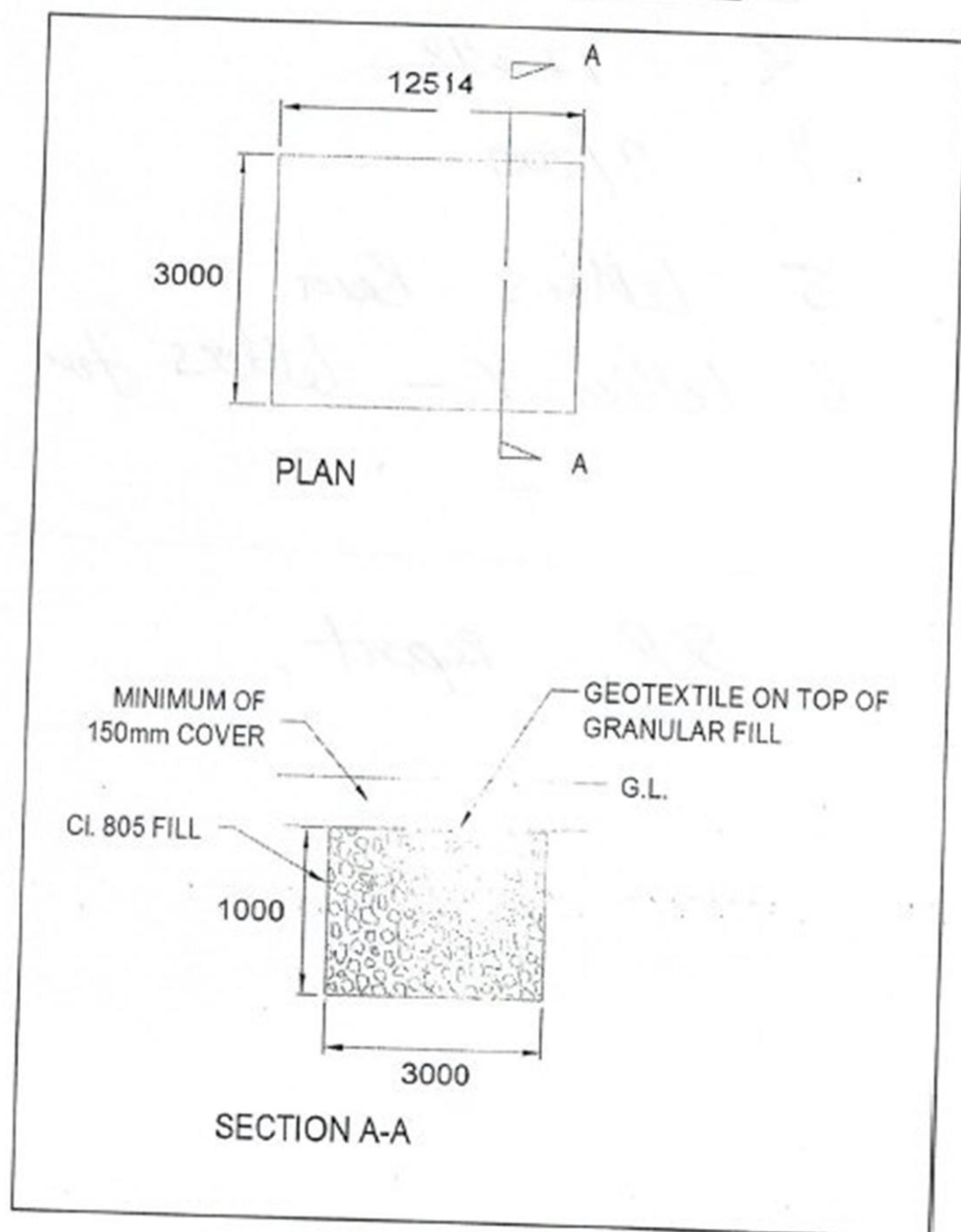
DESIGN OF SOAKWAY CALCULATIONS

a_{50} =	15.51 m
I =	56.16 m ³
O =	18.82 m ³
S =	37.54 m ³
S =	37.54 Check

Soakway Length (L) = 12.5 m

t_{50} = 2.02 hours Less than 24 hours therefore OK

SOAKWAY - DRAWING & DETAIL



Scale - Not to Scale
All dimensions in mm

Client
Project
Location
Designed by

P.Lalor
Proposed Agricultural Shed
Grenan, Co. Laois
M.Cotter