TECHNICAL NOTE:

PAN-028006 Nobley Farm, Presteigne licence variation

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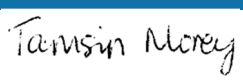
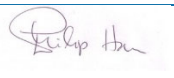
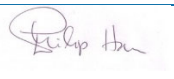
Authors

	Name	Signed
Prepared by	Tamsin Morey	
Checked by	Phil Ham	
Approved by	Phil Ham	

Shrewsbury Office
Windsor House
Windsor Place
Shrewsbury
SY1 2BY

Tel: 01332 871 882
E mail: info@envireauwater.co.uk
Web: www.envireauwater.co.uk

1 INTRODUCTION

1.1 Background

Farmpoint Ltd (Farmpoint) has applied to remove the hands-off flow condition (HoF) on their groundwater abstraction licence (WA/055/0008/0003) from the Devensian Till at Nobley Farm. Natural Resources Wales (NRW) provided initial comment on the operational test pumping exercise carried out and the conclusions drawn by Envireau Water on impact of the abstraction on the Nobley Brook (a tributary of the River Lugg).

An MSTeams call was carried out between NRW (Liz Cole and Stefan Le Roy) and Envireau Water (Tamsin Morey and Phil Ham) on 18th June 2025 to discuss the application. It was agreed that NRW needed further information to properly understand the usual pattern of water usage throughout the year at the site in order to be able to further comment on the viability of the proposed licence variation.

1.2 Scope of Work

This report summarises the usual operational cycle of the site throughout the year and also relates the test pumping period and the data collected to this cycle.

1.3 NRW Comments

The initial comments provided by NRW were primarily concerned with:

- The rate / length of the constant rate test, and a requirement for an extended period of test pumping to justify the maximum licensed rate.
- Clarity on groundwater / surface water interaction considering the above.
- The impact of the hydraulic characteristics of the Till, again considering the above.

With focus centring on the risks of potential prolonged abstraction at the fully licensed rate.

2 WATER USAGE

Water usage at the site can be summarised as follows.

- The site is concerned with raising poultry in 'crops' of approximately 311,500 birds each.
- Cropping cycles are very well defined. There are 7.4 crops of approximately 7 weeks length each per year.
- After each crop there is a washdown phase lasting approximately 5 days.
- Water need is low at the start of a cycle when birds are small and typically steadily increases as they grow.
- At day 30 the crop is thinned with 25% of the birds taken off site, this results in a drop in water usage.
- The remaining 75% continue growing until day 38 when they are all taken off site.
- The washdown phase then commences prior to a new crop cycle starting.
- The usage cycle is very consistent throughout the year and year on year.

Historically water has been abstracted directly from the borehole as required for use. The usage cycle of a typical year operating at full capacity is presented as Figure 1.

During the 2024 summer season a 160 m^3 storage tank was installed to act as a buffer and ensure greater than one day's need in case of supply issues. The borehole now pumps into the tank, with the pump control being set to keep the tank as full as possible, and water is distributed to the birds from the tank as needed.

The existing licence permits maximum rates of 5 m^3/hour, 120 m^3/day and 20,739 m^3/year. This reflects the peak demand of the site and is sufficient for the future. Based on the pattern of need through each crop cycle the maximum licensed rate of 120m^3/day is required for up to c. 3 - 5 days before the crop is thinned on day 30 but otherwise the daily rates used are lower, usually changing daily to keep up with the changing demands of the crop. The maximum licensed rate is also occasionally used during the washdown phase. Over a typical crop cycle lasting 49 days, the average usage rate is approximately 60.1 m^3/day, which represents 50% of the maximum licensed rate. The maximum potential usage on a monthly basis is around 2,600 m^3, considering a month end coinciding with the most water intensive period of a crop.

3 TEST PUMPING

Test pumping was caried out between 26th June 2024 and 30th September 2024. It was carried out operationally to reflect actual pumping requirements as summarised in Section 2. The testing also coincided with the installation of the tank. As such the pumping monitored reflects initial filling of the tank, a changeover in infrastructure and then the ongoing refilling of the tank in response to usage.

Usage over the testing period and comparison of the testing period and the typical usage cycle is presented as Figure 2. This figure shows that the testing period reflects the typical usage pattern covering two partial and one full crop cycles.

The sections of the testing period chosen to represent the short (1st August 2024) and long term (2nd – 25th August 2024) constant rate tests (CRT) presented with the application sat within the full crop cycle monitored and saw an average pumping rate of 62.8 m^3/day. The CRT's covered crop development to the point of thinning by 25% (peak demand).

During the operational test the abstraction cycled on and off relative to filling of the tank. While this does not represent a constant rate test in its true form, the frequency of cycling is so high compared to the duration of the test that it can justifiably be approximated to one and, given the distance of the monitoring points, the groundwater system will experience the same net effect of the removal of the total volume of water over the test period. No evidence of leakage is observed in the monitoring data during a period of normal operation of the site.

The test was carried out operationally, over a sufficient period, to reflect actual pumping requirements. This is the best type of test for demonstrating actual, long-term impacts. The data collected reflects the operational cycle and confirms the peak and average requirement.

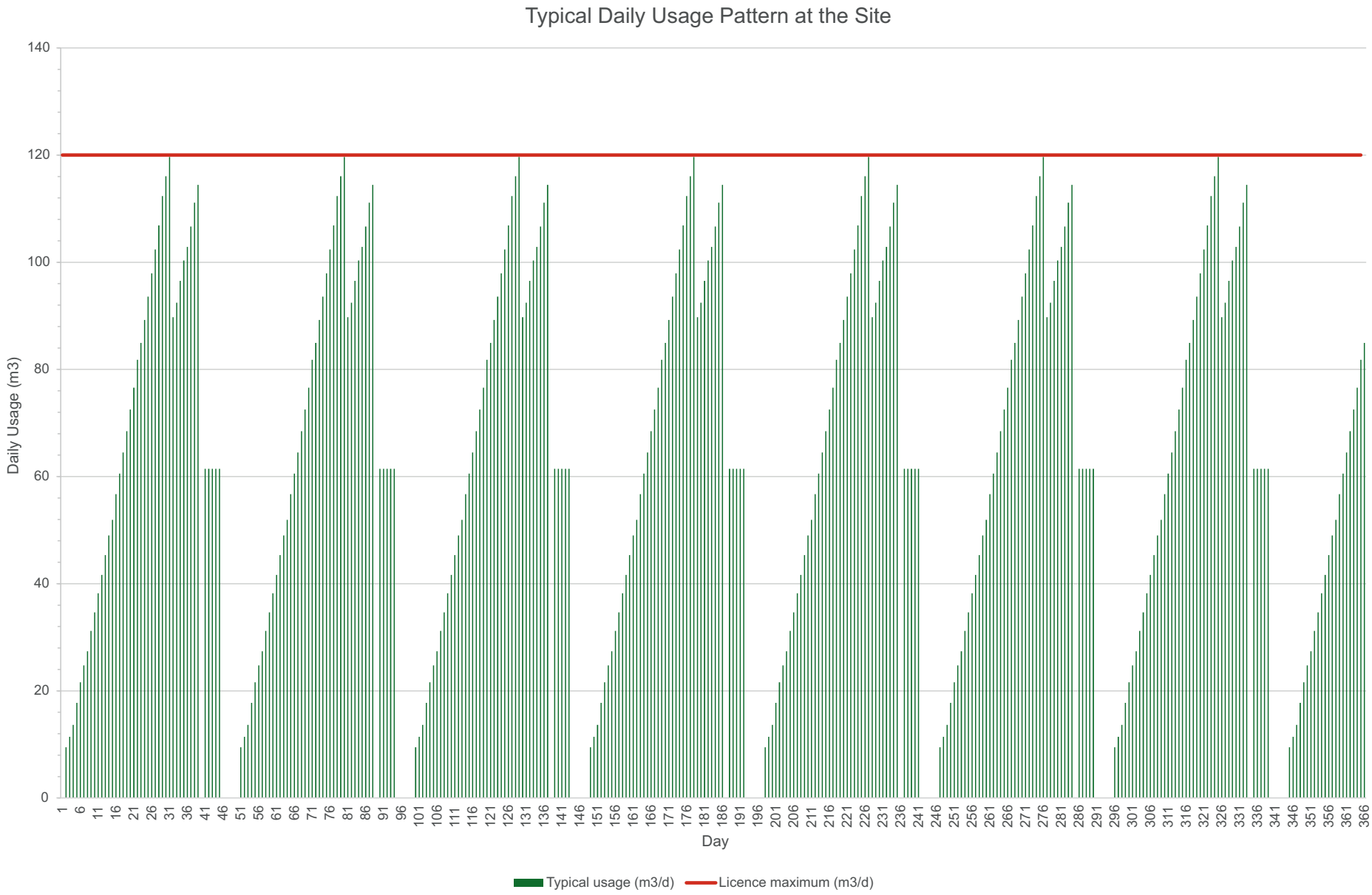


Figure 1: Typical Annual Usage

Date:	10 July 2025
Project No.	3490494
Client:	Farmpoint Limited
Ref:	TN Water Usage Fig 1
Drawn by:	TM

envireau WATER

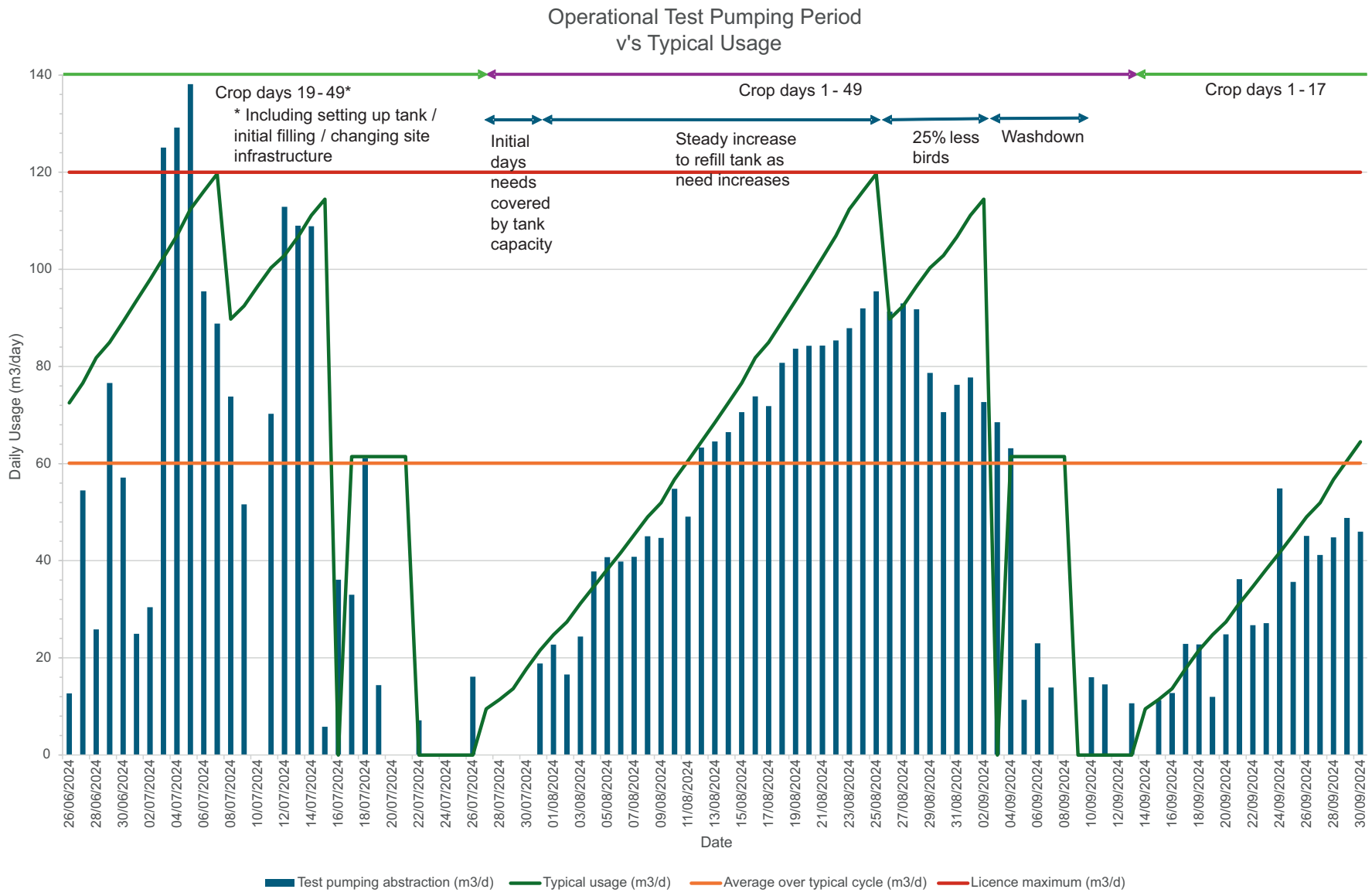


Figure 2: Usage During Test Pumping v's Typical Cycle

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4 ABSTRACTION LICENCE REQUIREMENTS

The existing maximum licensed rates of 5 m^3/hour, 120 m^3/day and 20,739 m^3/year remain required by the site to cover peak demand periods.

The way the licence is currently worded facilitates 24 hours/day abstraction and a maximum of 173 days continuous abstraction at the maximum daily rate. This is a key concern of NRW as they consider the potential for removal of the HoF from the licence as applied for. The test pumping carried out, due to its operational nature, did not contain an extended period pumping at the licensed maximum.

Licences are written as standard to cover the maximum hourly and daily rates required but do not mean that abstraction will always be at maximum rate. This is the case at the site as shown by the typical cycle data and patterns in usage evidenced during the test pumping. The peak demand period where the maximum licensed rate of 120m^3/day is required is short, comprising a short number of days before a crop is thinned on day 30. For the remainder of each cycle the daily rates used are lower, usually changing daily to keep up with the changing demands of the crop.

There is not currently, nor will there be a need at the site for the ability to abstract at maximum rate continuously until the annual volume is used up. As such carrying out an extended CRT at the fully licensed rate is unnecessary since the testing carried out to date has demonstrated the actual impact of the normal operation of the site, to which there will be no change in the future.

In this case, adding additional detail into the licence wording to remove the potential for continuous abstraction at maximum rate offers an appropriate way for NRW to constrain the abstraction.

5 POTENTIAL LICENCE WORDING CHANGES

NRW's concerns can be addressed through appropriately worded licence conditions.

New wording could be added to the licence to limit how abstraction can occur based on any or a number of the following, for example:

- A maximum number of consecutive abstraction days permitted at the maximum rate of 120 m^3/day
- An average abstraction rate or total volume over each complete crop cycle.

The required meter reading frequency could be set to demonstrate compliance with the above conditions.

The above options are suggestions and there are likely to be other options also available. The above is intended to form a starting point for discussions.

6 CONCLUSIONS

Farmpoint has applied to remove the hands-off flow condition (HoF) on abstraction licence WA/055/0008/0003 from the Devensian Till at Nobley Farm.

An extended monitored test pumping exercise under normal operational conditions was conducted over the Summer of 2024. The testing showed that water usage occurs on an approximate 49 day cycle with usage ramping steadily up to a peak before reducing again. The site sees approximately 7.4 regularly spaced cycles a year.

Peak need is 120 m^3/day as per the abstraction licence, for a small number of days only, with average rate through a crop cycle not exceeding 61 m^3/day. Continued usage at maximum licensed rate is not and will not be required.

The test pumping exercise covered greater than a full crop cycle and allowed appropriate assessment of the impacts of the normal operation of the abstraction during the summer low flow period. No evidence of leakage was observed – in fact, the opposite was true.

Based on the test pumping carried out, there is no evidence of impact on the Knobley Brook from the normal operation of the abstraction. On that basis the HoF can be removed for the normal operation of the site, without there being any detrimental impact to the Knobley Brook and the River Wye SAC downstream.

Appropriate wording of licence conditions will provide appropriate control, more thoroughly reflect normal operation and make sure that continuous abstraction at the maximum licensed rate is not permitted. Envireau Water would be happy to engage with NRW to agree suitably worded conditions.