Rowlands View, Templeton, Narberth,
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www.gdharries.co.uk

Jennifer Pocock
Water Resources Permitting Team
Natural Resources Wales
Cambria House,
29 Newport Road,
Cardiff, CF24 0TP

8th July 2019

Dear Ms Pocock,

Re: **Transitional abstraction licence application number: PAN-004463**
Site name: Bolton Hill Quarry

Thank you for your letter of 17 April. With respect to the points you raised:

I have attached a letter of authorisation, signed by a company director to say that I am authorised to sign and submit an application for a transitional water resources licence on behalf of GD Harries & Sons Ltd

In your letters with respect to Blaencilgoed and Coygen quarries you indicated that our transitional application should be for a ***transfer licence,*** as opposed to a ***full abstraction*** licence. Having discussed this with our consultant hydrogeologist, Professor John Gunn, we feel that Bolton Hill also requires a transfer licence for the water discharged off-site and we are enclosing a cheque for £1365 as per the other two sites. The amount of water used in concrete production amounts to 2% or less of the water transferred off-site (see table below) and the annual volume is less than $20m^3$/day when averaged over the year. Our understanding is that no abstraction licence is required for amounts less than $20m^3$/day. On that basis we plan to use a separate pump to abstract at $20m^3$/day, to store the water on those days when concrete is not being produced, and to use the additional water on those days when more than $20m^3$ is required. Please could you confirm whether this is acceptable?

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| | water transferred off-site (m3) | water used in concrete production (m3) | % concrete |
|---|---|---|---|
| 2015 | 346867 | 6964 | 2.01 |
| 2016 | 375800 | 5490 | 1.46 |
| 2017 | 379586 | 5797 | 1.53 |

**Rights of access**

The attached file "*Landholdings_Planning Consent Boundaries.pdf*" provides evidence that GDH have a legal right of access to the points of abstraction.

**Abstraction History and Evidence**

Abstraction quantities from sumps 1 and 2

You wrote: *On your application form (table 8.1) you have provided a combined quantity of water abstracted from sumps 1 and 2. Please confirm if water abstracted from each sump is measured separately or in combination. If in combination, please provide an estimate of the proportion of water abstracted from each sump separately. If measured separately please refer to the 'evidence' section below.*
As required by our existing discharge consent GDH monitor the total amount of water discharged off-site. This comprises water pumped from the old quarry (sump 1, west of site), water pumped from the extension area (sump 2, east of site) and settled site drainage (all water falling on the haul roads, etc flows through settlement lagoons before being discharged off-site). The amount of water pumped from sump 2 is measured separately by a meter that is read manually at intervals of 1-4 weeks. During the 2017-18 hydrometric year 43% of the water discharged off-site was pumped from sump 2.

Maximum abstraction quantities

You wrote: "*On your application form (table 8.1) you have not specified which are the maximum quantities you wish to have licensed*". We are not clear what you mean as Table 8.1 simply asks for the maximum quantities abstracted historically. There is no box to indicate the maximum quantity that we wish to have licensed. Indeed it is hard to specify the maximum amount because

As per previous application

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the purpose of abstraction is to prevent flooding of the working area in the extension area and to prevent catastrophic slope failure in the old quarry (water is pumped from the now dormant quarry workings to prevent the water surface elevation in the quarry from rising above 56m aOD because the slope around the void became unstable when the water surface was allowed to rise higher). As noted above, the water discharged off-site also includes settled site drainage from incident rainfall. If there is a future year that is markedly wetter than the years for which we have data then it will be necessary to pump out more water to prevent flooding or slope failure. Further we understand from your letter that for a transfer licence the licensed abstraction quantities are not routinely included on the licence. Please could you clarify?

Purpose water used for (Cement Production)

We apologise for two errors on Table 8.1. Firstly, there is no cement production at Bolton Hill Quarry and this should have read "concrete production". Secondly the figures were entered in the wrong order so the figure entered as 2015 was for 2017 and the figure entered for 2017 was for 2015. This is clarified in the table below.

In Table 8.1 the annual quantities labelled as "dewatering" are the total volume of water discharged off-site (ie water pumped from the sumps and settled site drainage as outlined above). The figures incorrectly labelled 'cement production' comprise additional water abstracted for concrete production and represent the only consumptive use.

GDH wish to continue to abstract water for the purpose of concrete production but as noted above are not clear whether a licence is required for an abstraction of less than 20m3/day.

We cannot supply daily and hourly abstraction quantities but the monthly amounts are shown in the table below.

Concrete production has historically occurred on site and the table below shows the number of loads of concrete that left the site in each month since January 2015 together with the amount of water used in production.

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**Bolton Hill Quarry: Loads of concrete leaving site and water used in production**

| | 2015 | | 2016 | | 2017 | |
|---|---|---|---|---|---|---|
| Month | No of loads | Water used | No of loads | Water used | No of loads | Water used |
| Jan | 317 | 473 | 213 | 313 | 235 | 350 |
| Feb | 493 | 736 | 261 | 384 | 138 | 206 |
| Mar | 456 | 681 | 291 | 428 | 205 | 305 |
| Apr | 424 | 633 | 351 | 516 | 285 | 425 |
| May | 395 | 590 | 327 | 481 | 318 | 474 |
| Jun | 481 | 718 | 322 | 474 | 338 | 504 |
| Jul | 430 | 642 | 296 | 435 | 479 | 714 |
| Aug | 347 | 518 | 380 | 559 | 469 | 699 |
| Sep | 347 | 518 | 258 | 380 | 360 | 536 |
| Oct | 423 | 631 | 358 | 527 | 373 | 556 |
| Nov | 332 | 496 | 404 | 594 | 375 | 559 |
| Dec | 218 | 325 | 271 | 399 | 318 | 474 |
| YEAR | 4663 | **6960** | 3732 | **5490** | 3893 | **5800** |

Additional requirements for dewatering applications

I am enclosing:

- A plan that shows the extent of current and future workings, the abstraction point in each sump, the location of the meter that records water pumped from the extension area (sump 2), the flume through which all water is discharged off-site (this was used to provide the values in Table 8.1) and the off-take location for concrete production.
- A cross - section showing the extent of current workings and future workings. Note that the western (old) quarry is dormant and there will be no future working in this area.
- Pump details (e.g. installation date, capacity)

You also asked for a cross - section to show current and planned water table levels. Please note that this is a complex fractured rock groundwater system with a very low primary permeability and a poorly integrated secondary permeability. Hence the term 'water table' should be used with caution. This is well illustrated by boreholes around the perimeter of the eastern quarry sump. The water surface elevation in these boreholes has remained unchanged at >69m aOD since 2009

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despite the quarry working to a current depth of 57m aOD. Planning permission has been granted for stone extraction to a depth of 10m aOD and pumping of rainfall and influent groundwater will be required. However, no significant impact on the surrounding water table is expected. Support for this can be obtained from the western quarry which was worked to a depth of 6m aOD without any impact on the environment. When dewatering ceased the water surface rose steadily and (as noted above) water is now pumped to prevent the water surface elevation from rising above 56m aOD because the slope around the void became unstable when the water surface was allowed to rise higher.

Evidence

I have attached a file "*2014-2017 Bolton Hill discharge off-site.xls*" that shows the total amount of water discharged off-site by calendar-day from 2014 to 2017. The data were obtained from a weir at the site outlet which has a water-depth recorder. Details are given in LRC Report 2019/07 "*Hydrogeological assessment of dewatering at Bolton Hill Quarry, Tiers Cross, Haverfordwest, Pembrokeshire 2017 – 2018 hydrometric year*" which is also attached.

**Abstraction location**

The sump in the eastern (Extension) quarry is approximately 5m by 5m so GDH hope that the grid reference in Table 7.2 will suffice. The water surface in the western quarry is broadly triangular in shape with apices at (191575, 211350), (191815, 211304) and (191862 211540).

**Abstraction duration**

Bolton Hill Quarry has planning permission that runs to 2053 and has been subject to a recent RoMP. The planning conditions include a requirement for a hydrogeological assessment of dewatering to be sent to the planning authority each hydrometric year and this is copied by them to NRW. We would argue that subjecting a licence likely to be issued in late 2019 to a CAMS review likely to start 3-4 years later is a waste of both NRW and GDH time and is unlikely to be in the interest of either party. Hence, we would be grateful if you could provide information on the business case criteria for issuing a longer duration licence.



mistake in the invalid letter Slipping principle will apply

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I trust this answers you queries regarding our application, however if you require any further information, please don't hesitate to contact me.

Kind Regards

Simon Dorken
Environmental Manager

***DD 01834 862356***

*Email SimonDorken@gdharries.co.uk*