Water Industry Act 1991 - Section 166 Consent to Discharge

Discharges by Water Undertakers in pursuance of their duties to supply water

If in England please send below;

To: The Environment Agency		
Email: PSC.Sheffield1.NE@environment-agency.gov.uk	Office Use Only	
	Application No:	
	Date Received:	

If in Wales please send below;

To: Natural Resources Wales		
Email: permitreceiptcentre@naturalresourceswales.gov.uk	Office Use Only	
	Application No:	
	Date Received:	

FAO Water Quality Team

Registered address:
Dŵr Cymru
Pentwyn Road
Nelson
Treharris
Mid Glamorgan
CF46 6LY

Correspondence address:

FAO:	Samuel Tudor
Contact Name:	Samuel Tudor
Address	Dinas Depot, Llanwnda, Gwynedd, LL54 5UD
Tel:	07867395423
Email:	Samuel.Tudor@dwrcymru.com

Site Address to which this application applies:	Plas Uchaf Reservoir, nr. Llanefydd. NGR: SH96874 71446

On behalf of Dŵr Cymru Cyfyngedig I hereby apply for a consent to make a discharge of effluent under the provisions of;

- Section 166(3) (b) of the Water Industry Act 1991

Plan to accompany the application is included. Please refer all inquiries on this application to me at the address provided.

Signed: 

Print Name: Arwel Jones

On behalf of: Dŵr Cymru Cyfyngedig

Date: 14/01/2019

1) **Discharge from Plas Uchaf**
   a) National Grid Reference: SH967715
      i) Discharge Point: Low Level Outlet
      ii) Sample Point: Low Level Outlet
   b) Pipe Diameter (mm): 254mm
   c) Volume
      i) Total Volume to be discharged: ~41,000 cubic metres
      ii) Total Daily Volume: ~29,300 cubic metres per day (Only 2x per week)
      iii) Rate of Discharge: ~0.34 m^3/second

Discharge from Dolwen

   a) National Grid Reference: SH971706 (however this flows into the upstream end of Plas Uchaf reservoir before being released into the watercourse from Plas Uchaf as above
      i) Discharge Point: Draw off tower
      ii) Sample Point: Low Level Outlet
   b) Pipe Diameter (mm): 306mm
   c) Volume
      i) Total Volume to be discharged: ~200,000 + duration inflows cubic metres
      ii) Total Daily Volume: ~56,000 cubic metres per day (Only 2x per week)
      iii) Rate of Discharge: ~0.65 m^3/second

Note: These volumes do not include inflows into the reservoir during the window. These will be difficult to accurately predict due to a lack of upstream gauging. As such inflow values have been excluded due to usually being routed through the reservoir under normal operation. It should also be noted that DCWW will aim to use the water resource for water supply wherever possible so will limit the volume entering the downstream watercourse.

2) **Application Type**

A discharge under S166 (3)(b)	

3) **State Name of Receiving Water Course:** Afon Elwy (approximately 1km downstream in minor watercourse)

4) Nature of Work To Be Carried Out:

There is a 'Measure in the Interest of Safety' under the Reservoirs Act 1975 to replace the spillway at the reservoir as its size is insufficient against current guidance standards. To enable this works and to ensure Dŵr Cymru Cyfyngedig complies with new drawdown guidance and construction flood risks it is essential that the low level outlet is improved.

The work will require the water levels in the reservoir to be lowered during the works to allow for the construction flood risk. Under current guidance within '*Floods and Reservoir Safety – 4th Edition'* there is a need for the dam to pass a flood of predetermined magnitude, in the case of Plas Uchaf the All Reservoirs Panel Engineer under the Reservoirs Act 1975 has decided that a flood with an annual probability 0.001 should be used as the construction flood due to Plas Uchaf being a high risk reservoir.

To further supplement the flood attenuation Dolwen Reservoir directly upstream of Plas Uchaf will also need to be lowered by approximately 5m, the water from Dolwen flows into Plas Uchaf reservoir via a short un named water course of a few hundred metres for this reason following discussions with NRW permit team it has been decided to include the Dolwen discharge on this consent as the final discharge of both dams is from Plas Uchaf.

5) Nature of Resulting Discharge

A discharge of approximately ~0.34 m^3s^{-1} will be discharged from the reservoir using the low level outlet at Plas Uchaf. This will be used to supplement the drawdown which it is hoped is largely achieved using normal draw off from the WTW, for the first 2m of the reservoirs depth below Top Water Level (TWL). Once the reservoir is lowered to the required level there will be a need for periodic Valving to maintain the levels within the reservoir.

As there is regular inflow into the reservoir from Dolwen Reservoir directly upstream and also flows pumped into the Reservoir from Bryn Aled so the water quality within the reservoir is not envisaged to be poor. The flows from will be increased at times to maintain the flood attenuation provided but this will be from the upper most draw off at all times to provide the best water quality.

7) Duration of Discharge

Start Date :	28/01/2019	End Date :	01/10/2019

8) Mitigating Measures

- The majority of inflows will be routed through the supply main to Glascoed WTW which is the normal operation of the reservoirs. Only following heavy rainfall would additional releases be considered.
- The area immediately around the inlet has been desilted and maintained through regular operation.
- A visual check will be carried out of the flow to ensure it is not carrying a high ratio of suspended solids. With the proposed flows it will be difficult to use silt mats or straw bales would likely be ineffective or washed away, however once the reservoir level lowers if flows allow such measures could then be utilised.
- Checks of the embankments upstream will be checked for any movement of soils that could be washed through the outlet
- Flows will be reduced or stopped if there is significant rainfall to as not to supplement additional flows if the Elwy is in spate until after the peak flood flows have passed

9) Other Relevant Information

- The valves at the site are exercised biannually as part of the routine valve testing Dŵr Cymru Cyfyngedig has a permit in place for. There has never been any concerns raised in respect of the raw water quality of this discharge.
- The water will initially discharge into the spillway's stilling basin before flowing through a 200m long culvert which should allow settlement of solids that escape mitigation in place. Straw bales will be used as a mitigation measure.

10) Attach plan/map showing location of reservoir and washout to water course:

Figure 1 - Site location

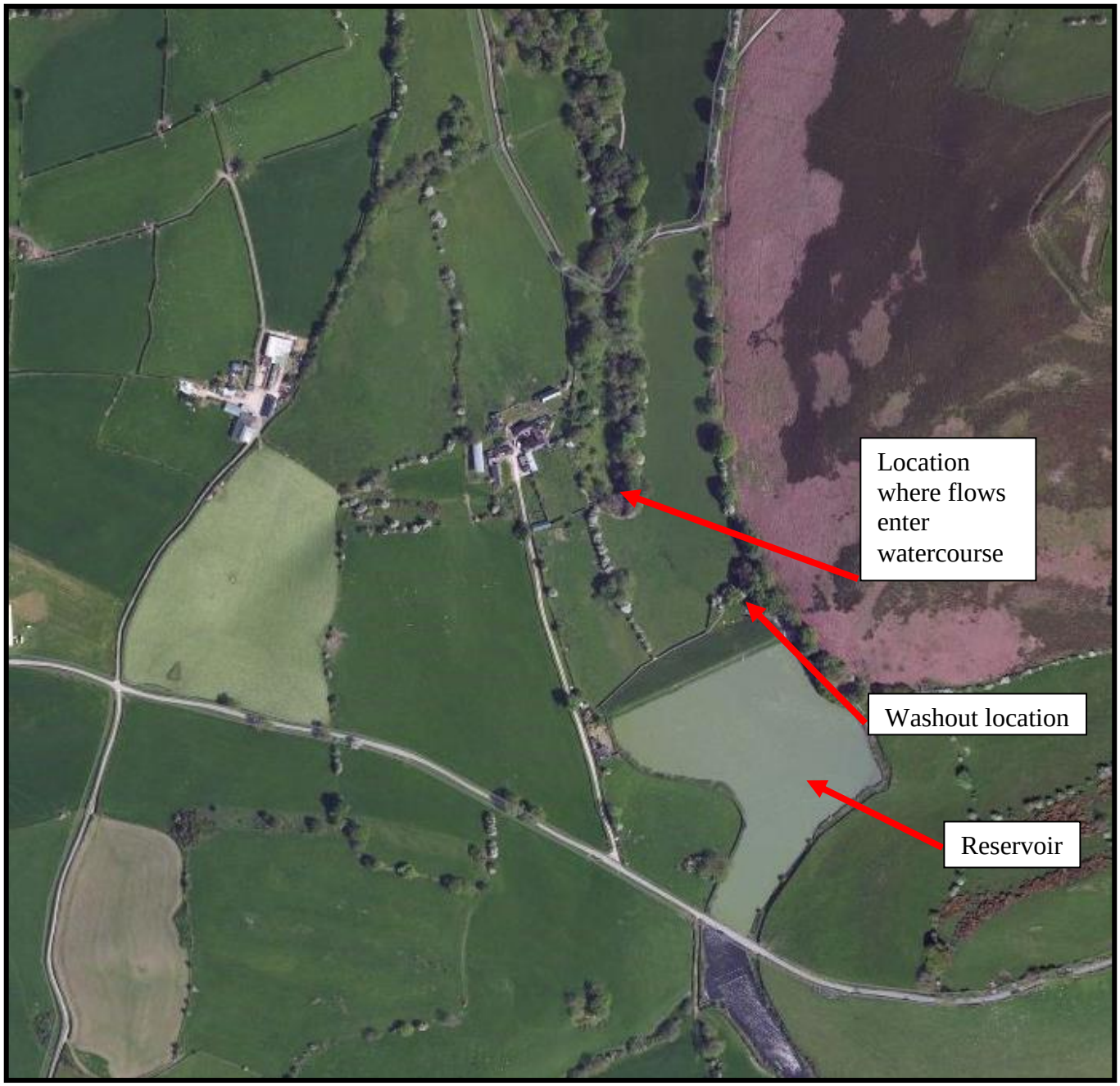

Figure 2 - location map of site with washout position and location where culvert enters stream.

Figure 3 -Flow coming from low level outlet/ washout