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hydro



Tyle Garw Hydro Scheme

Hydromorphology Survey

January 2018

**Hydropower Consultancy &
Development**

**Document Control**

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1st Survey Date & Time: 17th January 2017, 11am-4pm (19 Locations)

Conducted by: Dafydd Morgan

Flow Conditions: Moderate/ High



Hyrdomophology Survey

The hydromorphology survey was taken on the 17/01/18 between the 11:00am and 4:00pm. Twenty Locations were selected throughout the water course ranging from 500m up from the proposed intake down to the proposed outfall. For each location a grid reference was taken along with photographs of the location and where possible a photograph of the river bed sediment. Each grid reference was taken from the location of the measuring staph. The photographs taken of the surrounding area would consist of a photo of four photos of the watercourse, upstream, downstream, the north river bank and the south river bank; the figure below with which orientation in north, south up and down stream. It should be noted that areas of the water course it is difficult and dangerous to access areas. This meant that some locations may not have all four photographs of the surrounding area or the measuring stave is not visible.

Location 1 – SN 93576 20188



Figure 1: Upstream



Figure 2: Downstream



Figure 3: Right Bank



Figure 4: Left Bank



Figure 5: Sediment

Location 2 – SN 93549 20209



Figure 6: Upstream



Figure 7: Downstream



Figure 8: Right Bank



Figure 9: Left Bank



Figure 10: Sediment

Location 3 – SN 93508 20254



Figure 11: Upstream



Figure 12: Downstream



Figure 13: Left Bank



Figure 14: Right Bank

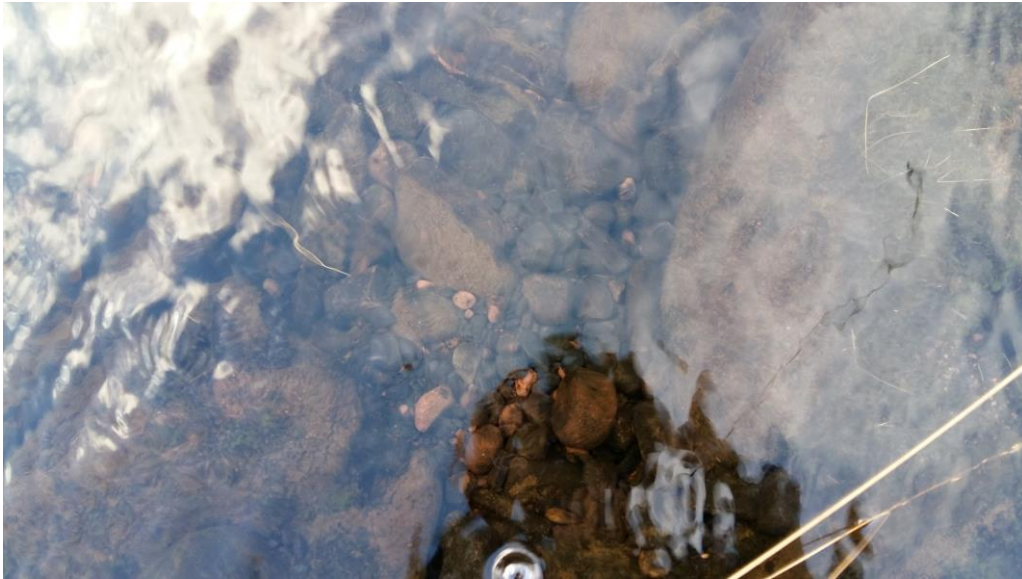


Figure 15: Sediment

Location 4 – SN 93480 20289



Figure 16: Upstream



Figure 17: Downstream



Figure 18: Right Bank



Figure 19: Right Bank



Figure 20: Sediment

Location 5 – SN 93454 20305



Figure 21: Upstream



Figure 22: Downstream



Figure 23: Left Bank



Figure 24: Right Bank



Figure 25: Sediment

Location 6: SN 93416 20349 (Road Crossing)

At Location 6 the water course crosses over a section of agricultural road.



Figure 26: Upstream



Figure 27: Downstream



Figure 28: Right Bank



Figure 29: Left Bank



Figure 30: Sediment

Location 7- Intake Location – SN 93360 20426

Location 7 is where the proposed Intake will be located. Situated at this point is a large waterfall and a plunge pool. This Location is not visible from the agricultural track in Location 6.



Figure 31: Upstream



Figure 32: Waterfall Crest Right Bank



Figure 33: Waterfall Crest Left Bank



Figure 34: Downstream of Waterfall

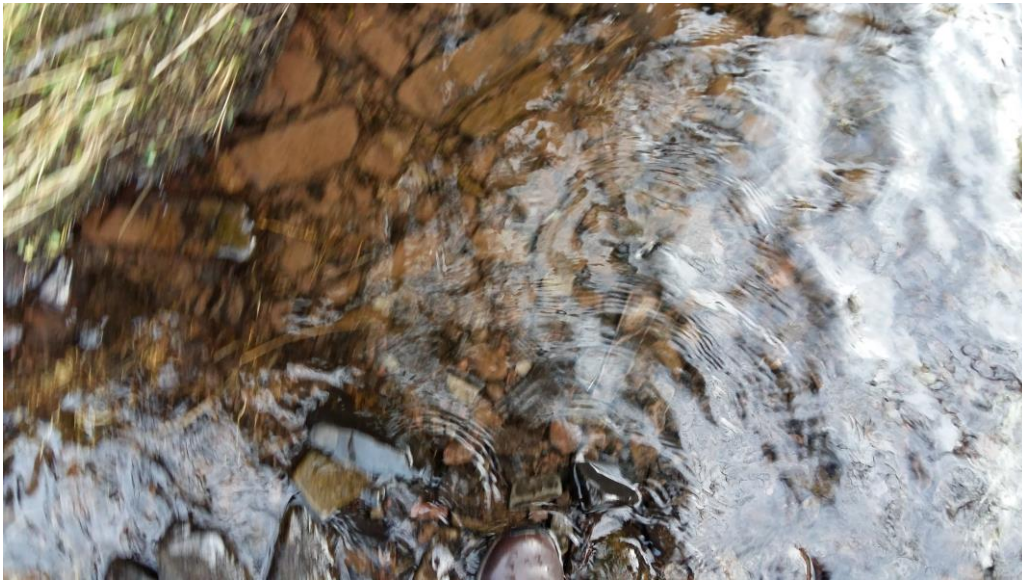


Figure 35: Sediment

Location 8 – SN 93332 20480



Figure 36: Upstream



Figure 37: Downstream



Figure 38: Right Bank



Figure 39: Sediment

Location 9 – SN 93310 20499



Figure 40: Upstream



Figure 41: Waterfall Crest

Location 10 – SN 93310 20554

At location 10 a tributary joins into the main water course.



Figure 42: Upstream



Figure 43: Right Bank



Figure 45: Joining tributary

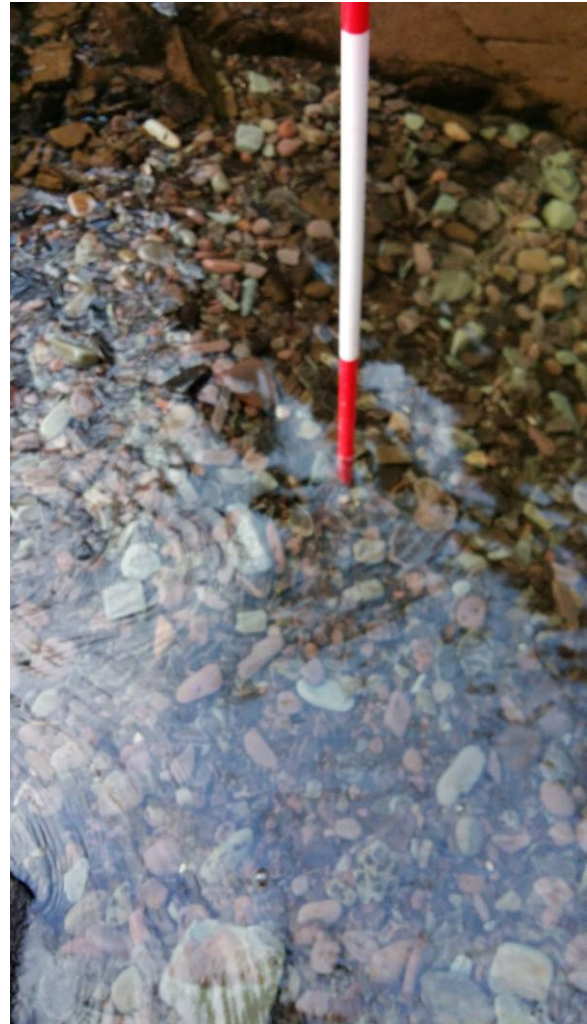


Figure 44: Sediment



Location 11 – SN 93278 20587



Figure 46: Upstream



Figure 47: Downstream



Figure 48: Left Bank



Figure 49: Sediment

Location 12 – SN 93275 20598

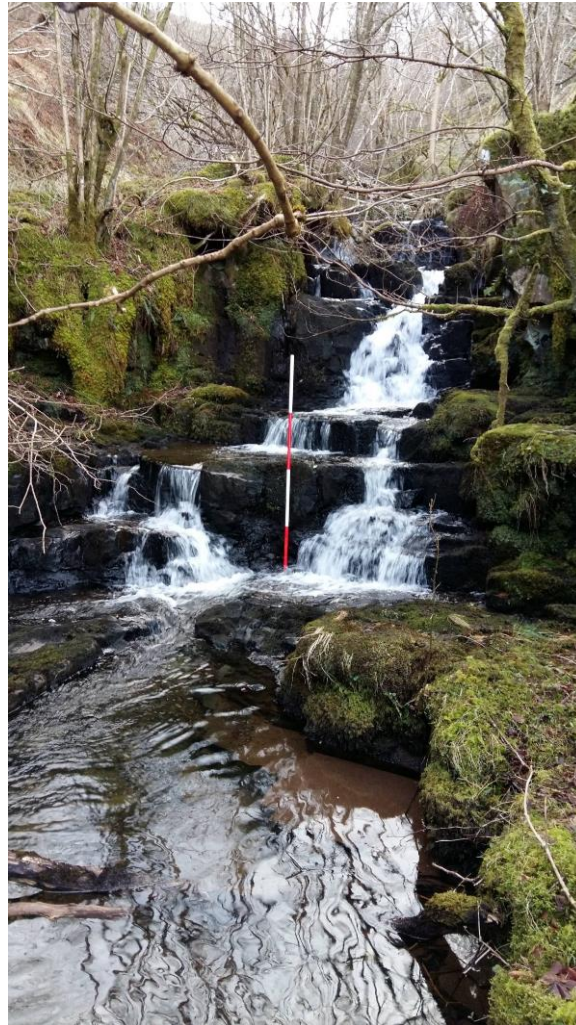


Figure 50: Upstream



Figure 51: Downstream



Figure 53: Left Bank

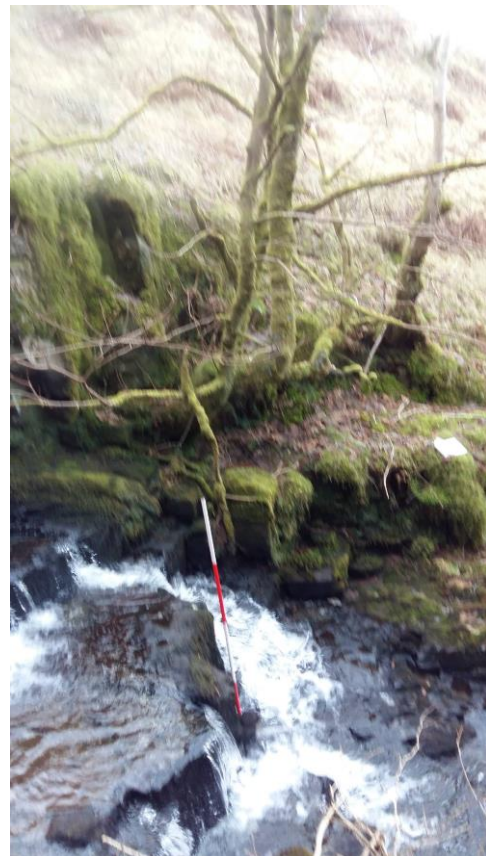


Figure 52: Right Bank

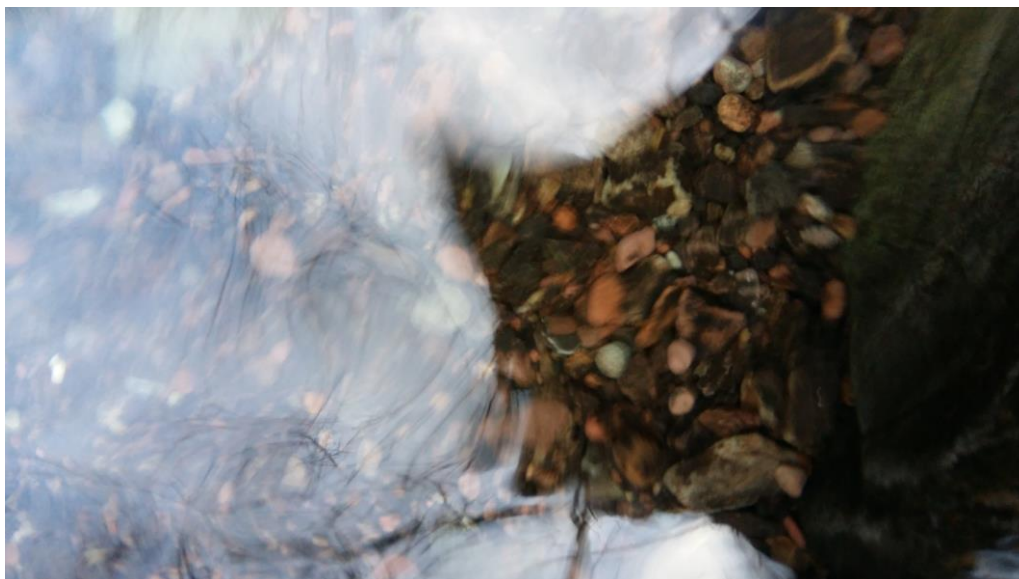


Figure 54: Sediment

Location 13 – SN 93238 20644



Figure 55: Upstream



Figure 56: Downstream



Figure 57: Sediment

Location 14 – SN 93201 20725



Figure 58: Upstream



Figure 59: Waterfall Crest



Figure 60: Right Bank at Waterfall Crest



Figure 61: Left Bank at Waterfall Crest



Figure 62: Sediment

Location 15 – SN 93115 20778



Figure 63: Upstream



Figure 64: Downstream



Figure 65: Right Bank



Figure 66: Left Bank



Figure 67: Sediment



Location 16 – SN 93115 20778



Figure 68: Upstream



Figure 69: Left Bank

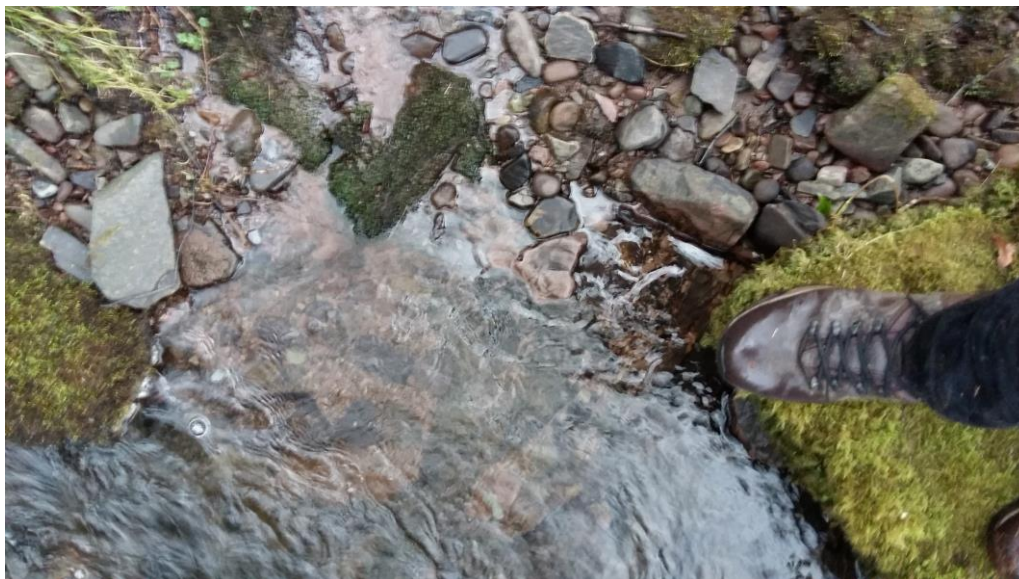


Figure 70: Sediment

Location 17 – SN 93094 20814



Figure 71: Upstream

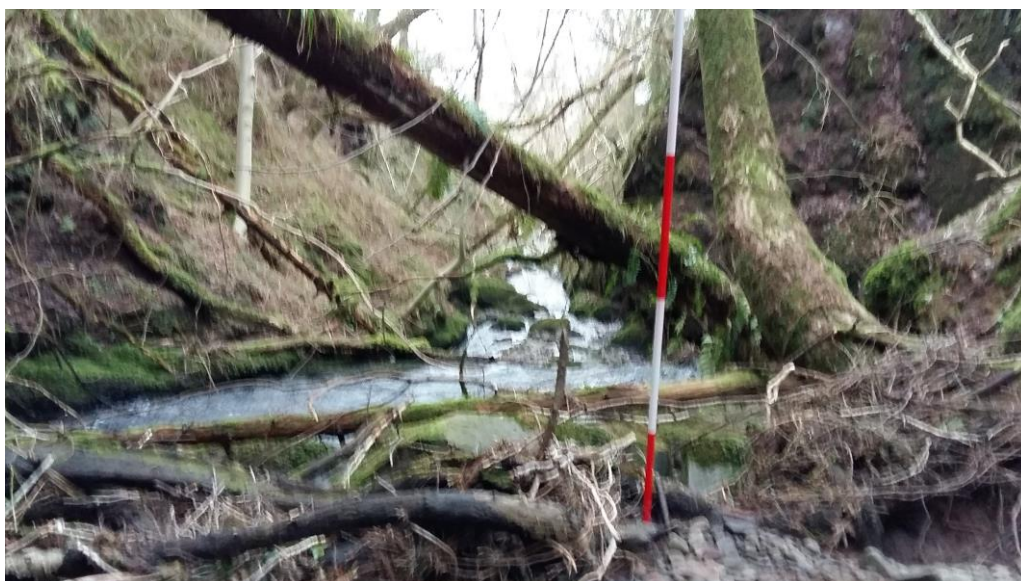


Figure 72: Downstream

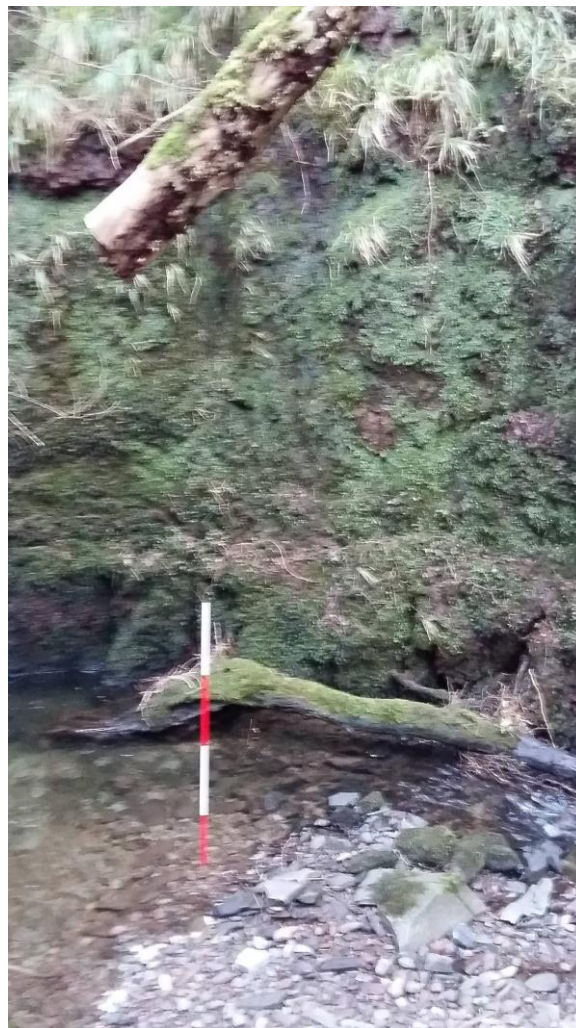


Figure 73: Right Bank

Location 18 – SN 93074 20877



Figure 74: Upstream



Figure 75: Downstream



Figure 76: Right Bank



Figure 77: Left Bank



Figure 78: Sediment

Location 19 – SN 92998 20941



Figure 80: Upstream



Figure 79: Downstream



Figure 81: Left Bank



Figure 82: Right Bank



Figure 83: Sediment



Location 20 – SN 92890 20916 (Power House, and Outfall Location)

The power house will contain the hydroelectric schemes turbine and electrical load systems. After passing through the turbine a short twin-wall pipe will redirect the water back into the water course at the approximate grid reference location of: SN 92889 20920.



Figure 84: Powerhouse Location Shown in Red



Figure 85: Downstream



Figure 86: Right Bank (Outfall Location)



Figure 87: Left Bank

Location 21 – SN 92832 20932



Figure 88: Upstream



Figure 89: Downstream



Figure 90: Right Bank



Figure 91: Left Bank

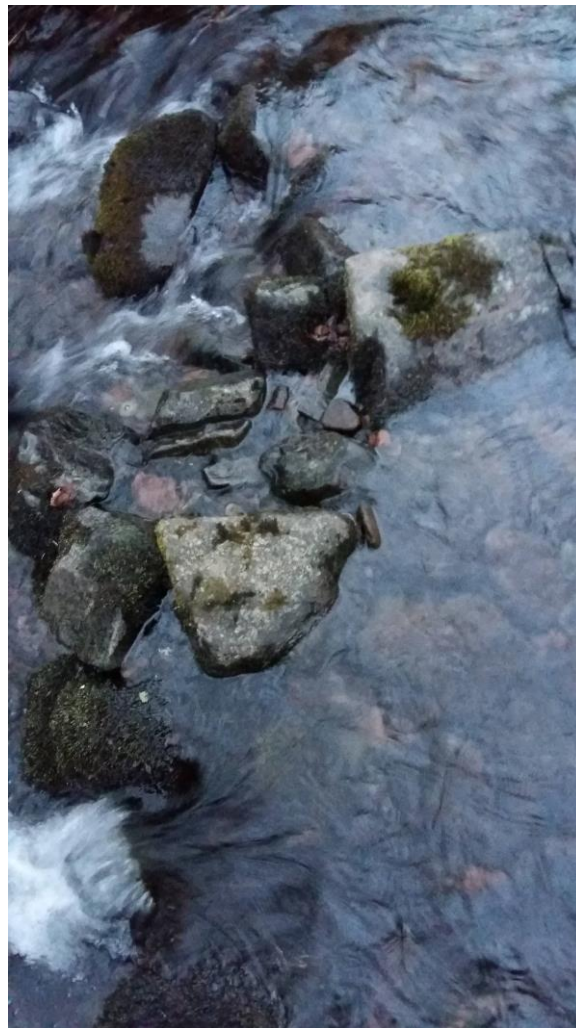


Figure 92: Sediment