**Experimental Data Measured at Potterne WWTP**

**Dissolved Oxygen (mg/l)**

Date: 22nd August 2018

All measurements taken near to water surface.

Measurements taken in anti-clockwise direction in oxidation ditch 1

Measurements taken in clockwise direction in oxidation ditch 2

Temperature measured at 20.5 C

Measurements taken at a height of 1.7 m (0.1 m below water surface)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| OD1 | Description | DO  (mg/l)  Meas | DO  Pred  4mm | DO  Pred  3mm | DO  Pred  2mm | DO  Pred  1 mm | DO  Pred  4mm  Surfaerx4 | DO  Pred  4mm  ExpCond |
| 1 | Inlet | 0.08 | 0.08 (s) | 0.08 (s) | 0.08 (s) | 0.08 (s) | 0.08 (s) | 0.08 (s) |
| 2A | Bridge near inlet  - upstream  - inside centre | 0.05 | 0.54 | 0.49 | 0.37 | 0.17 | 0.70 | 0.52 |
| 2B | - outside centre | 0.07 | 0.56 | 0.56 | 0.54 | 0.48 | 0.58 | 0.56 |
| 3A | Bridge near inlet  - downstream  - near central wall | 1.06 | 0.59 | 0.57 | 0.50 | 0.44 | 0.78 | 0.57 |
| 3B | - near outside wall | 0.46 | 0.56 | 0.59 | 0.63 | 0.71 | 0.61 | 0.56 |
| 4 | 5 divisions from bridge near inlet (22 divisions between bridges)  - near outside wall | 0.05 | 0.49 | 0.48 | 0.42 | 0.29 | 0.49 | 0.49 |
| 5 | 16 divisions from bridge near inlet  - near outside wall | 0.06 | 0.45 | 0.41 | 0.31 | 0.07 | 0.44 | 0.45 |
| 6 | Bridge away from inlet  - end of walkway  - other side of central wall | 0.46 | 0.21 | 0.004 | 0 | 0 | 0.31 | 0.16 |
| 7 | Opposite grid aerator  - 1 m after bridge  - near outside wall | 0.86 | 0.84 | 1.00 | 1.31 | 1.97 | 0.83 | 0.85 |
| 8 | Opposite jet aerator  - near outside wall | 1.38 | 0.72 | 0.85 | 1.12 | 1.85 | 0.72 | 0.73 |
| 9 | Opposite end of central wall  - near outside wall | 1.10 | 0.71 | 0.83 | 1.06 | 1.68 | 0.71 | 0.72 |
| 10a | Bridge away from inlet  - upstream  - outside centre | 0.19 | 0.70 | 0.77 | 0.89 | 1.19 | 0.72 | 0.71 |
| 10b | Bridge away from inlet  - upstream  - inside centre  - stagnant flow zone | 5.52\* (outlier) | 0.83 | 0.93 | 1.10 | 1.49 | 0.93 | 0.83 |
| 11a | Bridge away from inlet  - downstream  - near central wall | 0.36 | 0.75 | 0.82 | 0.91 | 1.09 | 0.94 | 0.75 |
| 11b | Bridge away from inlet  - downstream  - near outside wall | 0.22 | 0.75 | 0.88 | 1.10 | 1.64 | 0.87 | 0.76 |
| 12 | Halfway along outside wall | 0.29 | 0.68 | 0.77 | 0.91 | 1.27 | 0.70 | 0.69 |
| 13 | Outlet | 0.065 | 0.59 | 0.61 | 0.64 | 0.68 | 0.57 | 0.59 |
|  |  |  |  |  |  |  |  |  |
|  | Mean points | 0.44 | 0.61 | 0.66 | 0.74 | 0.90 | 0.68 | 0.61 |
|  | Max points | 1.38 | 0.84 | 1.00 | 1.31 | 1.97 | 0.94 | 0.85 |
|  | Min points | 0.06 | 0.21 | 0.003 | 0 | 0 | 0 | 0 |
|  | Mean ditch | - | 0.57 | 0.56 | 0.55 | 0.62 | 0.61 | 0.56 |
|  | Max ditch | - | 1.40 | 1.80 | 2.49 | 3.83 | 2.03 | 1.41 |
|  | Min ditch | - | 0 | 0 | 0 | 0 | 0 | 0 |

TABLE 1 Dissolved Oxygen Measurements in Oxidation Ditch 1

|  |  |  |  |
| --- | --- | --- | --- |
| Experimental Measurement in OD2 | Description | DO (mg/)  measured | DO (mg/l)  Predicted  D = 4 mm  -0.00275 kg/s |
| 1 | Inlet | 0.04 (set) | 0.04 (set) |
| 2 | Inlet  - downstream  - end of weir furthest from walkway  - near outside wall | 0.29 | 0.32 |
| 3 | Opposite grid aerator 3  - grid closest to inlet  - near outside wall | 0.49 | 0.44 |
| 4 | Opposite grid aerator 2 + booster  - near walkway  - outside wall | 0.37 | 0.90 |
| 5a | Walkway near inlet  - upstream  - near outside wall | 0.30 | 1.11 |
| 5b | Walkway near inlet  - upstream  - outside centre | 0.24 | 1.24 |
| 5c | Walkway near inlet  - upstream  - near centre wall | 0.31 | 0.34 |
| 6 | Walkway near inlet  - downstream  - opposite jet aerator 1  - near outside wall | 0.21 | 1.18 |
| 7 | Opposite grid aerator 1  - divisions 5.5(from 22)  - near outside wall | 0.41 | 1.24 |
| 8 | Halfway along outside wall (11 divisions)  - near outside wall | 0.44 | 0.95 |
| 9a | Walkway away from inlet (same side inlet)  - near outside wall | 0.04 | 0.76 |
| 9b | Walkway away from inlet (same side inlet)  - near centre wall | 0.03 | 0.44 |
| 10 | Opposite centre wall away from inlet  - near outside wall | 0.03 | 0.22 |
| 11 | Walkway furthest from inlet  - upstream  - inside centre | 0.04 | 0.37 |
| 12a | Walkway furthest from inlet  - downstream  - near centre wall | 2.40 | 0.89 |
| 12b | Walkway furthest from inlet  - downstream  - near jet aerator 2  - inside centre  - stagnant flow zone | 3.67 | 1.23 |
| 12c | Walkway furthest from inlet  - downstream  - near jet aerator 1  - outside centre  - highest flow zone | 3.11 | 1.10 |
| 13 | Along outside wall  - divisions 5.5(from 22) | 0.23 | 0.29 |
| 14 | 2/3rds between bridges near probe  - outside wall | 0.03 | 0.10 |
| 15 | Opposite bridge nearest outlet weir  - outside wall | 0.03 | 0 |
| 16 | Walkway near inlet  - upstream  -other side centre wall  - near centre wall | 0.09 | 0.16 |
| 17 | Outlet  - upstream  - end of weir closest to walkway | 0.11 | 0 |
| 18 | Outlet | 0.04 | 0 |
|  |  |  |  |
|  | Mean (points) | 0.55 | 0.70 |
|  | Max (points) | 3.64 | 1.24 |
|  | Min (points) | 0.03 | 0 |
|  | Mean (ditch) | - | 0.57 |
|  | Max (ditch) | - | 3.07 |
|  | Min (ditch) | - | 0 |

TABLE 2 Dissolved Oxygen Measurements in Oxidation Ditch 2