*Aquatic, Ecology, Environmental and Land Management Consultants*

# Canvey Lake

## Water Quality Report – September 2026

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# 1.0 Executive Summary

A.G.A. Group Consultancy Limited undertook water-quality monitoring and a wildfowl census at Canvey Lake 18th September 2026 as part of the ongoing monitoring programme. This is the final monthly water report before the regular monitoring programme transitions to a bi-monthly water quality treatment and monitoring programme between October-February.

The results indicate that the lake remains in a significantly degraded and eutrophic condition. Elevated ammonium, un-ionised ammonia, nitrite, suspended solids, TOC, BOD and COD demonstrate substantial nutrient and organic loading. These results indicate impaired nitrogen cycling and an oxygen limitation within the lake.

A total of 228 wildfowl were recorded, including 153 Canada geese. The high bird population, intentional feeding and heavily grazed banks are likely to contribute nutrients, organic matter, microbial contamination and sediment runoff to the lake.

The existing monthly Bacterius® N, Bacterius® 5B, Bacterius® Muck and Lake Aid BioX treatment programme will cease between October-February due to the limited effectiveness of these products in colder water temperatures. Winter AquaBio treatment is recommended but should be applied once the de-silting works have been completed. Surface aeration is also recommended to improve oxygen transfer, circulation and biological nutrient processing. Further recommendations include reducing waterfowl feeding, stabilising eroded banks, installing floating eco-islands, continued monitoring and fulfilment of the scheduled de-silting works.

## 2.0 Introduction

A.G.A Group Consultancy Limited (AGA) was commissioned by Stuart Jarvis, Assistant Director Environment on behalf of Castle Point Borough Council to undertake water quality monitoring of Canvey Lake, on 18th September 2026.

This assessment is the last of the monthly water monitoring programme which henceforth will transition to a bi-monthly water monitoring programme for the winter months. The purpose of this assessment is to evaluate current water quality conditions and identify factors that may be contributing to historically poor water quality and algal growth.

Water samples were analysed for key water quality parameters including pH, nutrients and microbials present within the lake.

This report presents the results of the water quality analysis, discusses the findings and provides recommendations to support improvements in water quality and ecological condition.

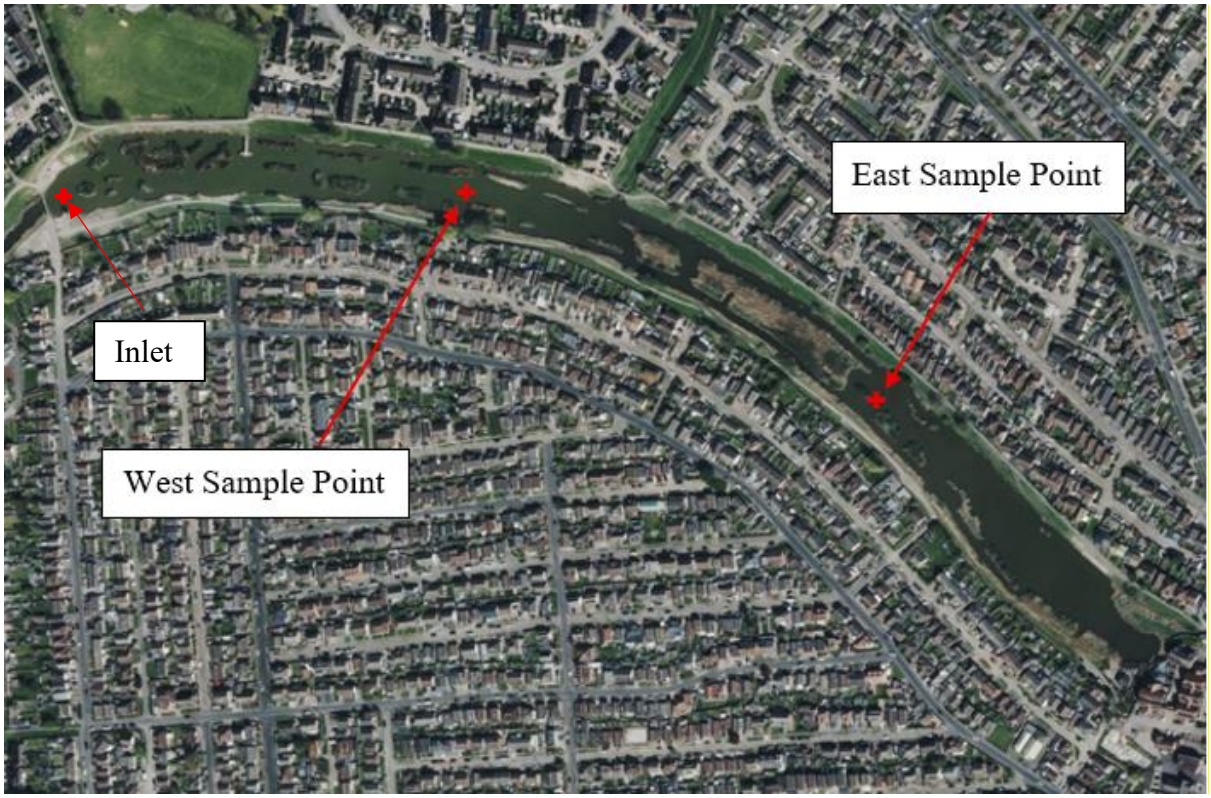



**Figure 1 – Canvey Lake with annotated water sampling points.**

# 3.0 Results

## 3.1 Water Quality Results

### 3.1.1 Table of Results

The water quality results from samples taken 18th September and analysed for the Lake are shown in *Table 1* below.

| Parameter | Unit | Canvey Lake West | Canvey Lake East | Canvey Lake Inlet |
|---|---|---|---|---|
| pH | at 25°C | 7.4 | 7.5 | 8 |
| Total Phosphorus | mg/l | 0.199 | 0.497 | 0.212 |
| Ammonia Un-ionised as NH3 | mg/l | 0.028 | 0.215 | 1.362 |
| Ammonium as NH4+ | mg/l | 2.29 | 1.75 | 1.18 |
| Nitrite (NO2-) | mg/l | 0.197 | 0.888 | 0.526 |
| Nitrate (NO3-) | mg/l | 2.7 | 31.828 | 2.887 |
| Total Organic Carbon (TOC) | mg/l | 68.7 | 33.4 | 29 |
| Biological Oxygen Demand (BOD) | mg/l | 98 | 22 | 18 |
| Chemical Oxygen Demand (COD) | mg/l | 228 | 122 | 127 |
| Total Alkalinity | mg/l as CaCO3 | 355 | 370 | 322 |
| Calcium Carbonate | mg/l as CaCO3 | 223 | 220 | 214 |
| Suspended Solids | mg/l | 287 | 107 | 143 |
| Coliforms | MPN/100ml | >2420 | >2420 | >2420 |
| E. coli | MPN/100ml | 1300 | 273 | 70 |
| Enterococci | CFU/100ml | >1000 | >400 | >400 |
| Calcium | mgCa/l | 89 | 88.1 | 85.4 |

**Table 1. Laboratory results for 18th September 2026, West sample, East sample and Inlet sample.**

## 3.2 Historical Comparison

The water quality results in *Table 2* compares the July, August and September samples for the West sample point, whilst *Table 3* compares the July, August and September samples for the East sample point in the lake.

| Determinand (unit) | July West | August West | September West |
|---|---|---|---|
| Phosphorus (mg/l) | 0.152 | 1.56 | 0.199 |
| Un-ionised Ammonia as NH3 (mg/l) | 0.182 | 0.149 | 0.028 |
| Ammonium (mgNH4/l) | 2.62 | 40.8 | 2.29 |
| Nitrite (mgNO2/l) | 0.2 | <0.0328 | 0.197 |
| Nitrate (mgNO3/l) | 0.07 | <0.0885 | 2.7 |
| TOC (mg/l) | 38.5 | 219 | 68.7 |
| BOD (mg/l) | 76.0 | 290 | 98 |
| COD (mg/l) | 611 | 1100 | 228 |
| Suspended Solids (mg/l) | 1550 | 1920 | 287 |
| pH (at 25°C) | 8.2 | 7.0 | 7.4 |
| Alkalinity (mg/l CaCO3) | 255 | 126 | 355 |
| Calcium (mg/l) | 112 | 133 | 89 |
| Calcium Carbonate (mgCaCO3/l) | 280 | 333 | 223 |
| Total coliforms (MPN/100ml) | > 2420 | 155400 | >2420 |
| E. coli (MPN/100ml) | 194 | 400 | 1300 |
| Intestinal Enterococci (cfu/100ml) | > 200 | > 20000 | >1000 |

**Table 2. July-September water sample results comparison for the West sample point.**

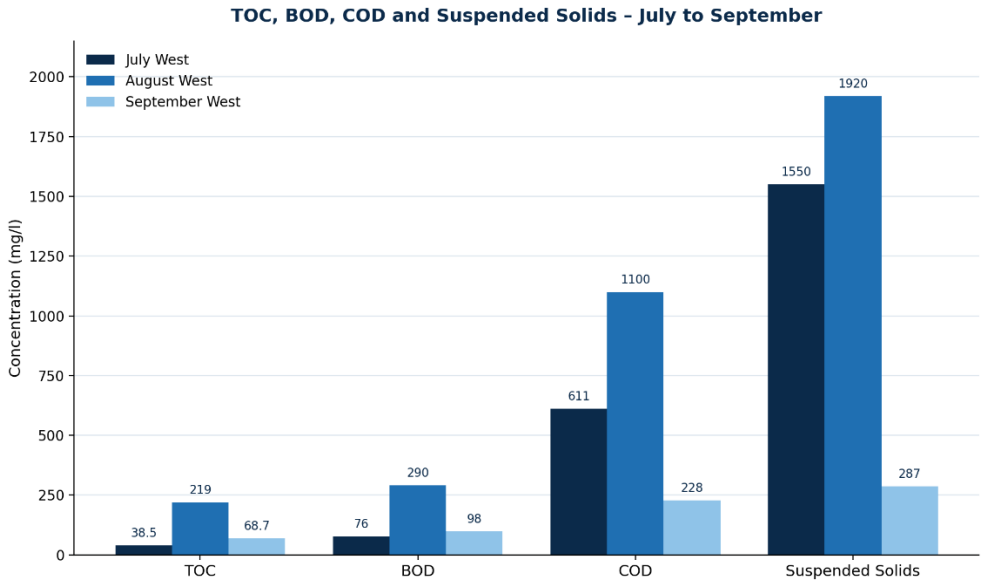



**Figure 2. July-September West sample point. Bars show reported BOD, COD, TOC and Suspended Solids.**

| Determinand (unit) | July East | August East | September East |
|---|---|---|---|
| Phosphorus (mg/l) | < 0.010 | < 0.010 | 0.497 |
| Un-ionised Ammonia as NH3 (mg/l) | 0.69 | 0.034 | 0.215 |
| Ammonium (mgNH4/l) | 2.58 | 2.97 | 1.75 |
| Nitrite (mgNO2/l) | 0.16 | <0.033 | 0.888 |
| Nitrate (mgNO3/l) | 0.06 | <0.089 | 31.828 |
| TOC (mg/l) | 33.3 | 118 | 33.4 |
| BOD (mg/l) | 33.0 | 130 | 22 |
| COD (mg/l) | 348 | 1400 | 122 |
| Suspended Solids (mg/l) | 737 | 1790 | 107 |
| pH (at 25°C) | 8.9 | 7.5 | 7.5 |
| Alkalinity (mg/l CaCO3) | 173 | 150 | 370 |
| Calcium (mg/l) | 60.4 | 104 | 88.1 |
| Calcium Carbonate (mgCaCO3/l) | 151 | 260 | 220 |
| Total coliforms (MPN/100ml) | > 2420 | > 2420 | >2420 |
| E. coli (MPN/100ml) | 28 | 0 | 273 |
| Intestinal Enterococci (cfu/100ml) | 41 | 800 | >400 |

**Table 3. July-September water sample results comparison for the East sample point.**

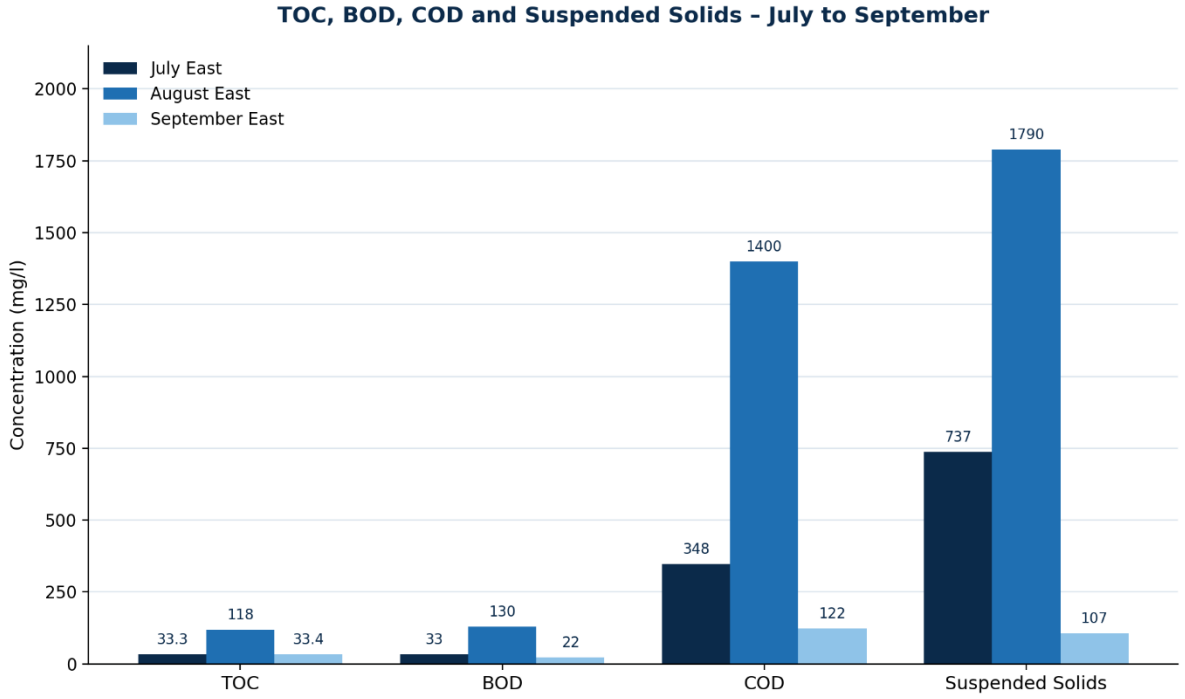



**Figure 3. July-September East sample point. Bars show reported BOD, COD, TOC and Suspended Solids.**

## 3.3 pH

The ideal pH range for water bodies is between 6.5 and 8.5. Over time, water bodies tend to become more acidic due to the accumulation of organic material, which lowers the pH.

The recorded pH for the lake was 7.4 for the West sample point and 7.5 for the East sample point of the lake. Both sections of the lake are within normal range. When compared with historical results, there are early signs of the pH becoming more balanced as there has been less fluctuation in August and September, at the East sample point the reported pH was 7.5 for both August and September. Further water sample analysis will be able to confirm if this is the case. The Inlet sample point reported a pH of 8.0; this is slightly elevated but remains within the normal range.

## 3.4 Phosphate

Elevated phosphate concentrations can lead water bodies into a eutrophic state. Eutrophication can severely threaten aquatic ecosystems.

This eutrophication can include oxygen depletion due to the increased decomposition of organic matter, which may result in a loss of fish populations. Phosphorus levels are shown in *Table 1*. The total phosphate concentration for the West sample point 0.199 mg/l and the East sample point was 0.497 mg/l. The concentration within both sample points of the lake are significantly elevated above the 0.1mg/l limit where eutrophic conditions are met. It should be noted that the total phosphate concentration for the West sample point has fallen from August's result of 1.56 mg/l, whilst this is a significant decrease the result from September remains significantly elevated.

## 3.5 Nitrogen

Total oxidised nitrogen ($NO_x$-N) is the sum of the concentrations of nitrate, nitrite, and ammoniacal nitrogen.

### 3.5.1 Nitrate ($NO_3$)

For many freshwater systems, nitrate levels should be kept below 1 mg/l to protect sensitive species, such as salmonids. Concentrations above 10 mg/l can cause eutrophication in lakes, although nitrate alone is unlikely to harm non-sensitive fish species. The World Health Organization (WHO) recommends a maximum nitrate concentration of 50 mg/l in drinking water. The nitrate levels recorded for in the West and East sample points were 2.7 and 31.828 mg/l respectively, which is significantly elevated and indicates that the nitrogen cycle is not

functioning efficiently. The nitrate concentrations for the Inlet are 2.887 mg/l, this is also above normal ranges.

### 3.5.2 Nitrite ($NO_2$)

Nitrite is toxic to aquatic organisms, even at low concentrations. Ideally, nitrite levels should be kept below 0.1 mg/l for many freshwater species. Acute toxicity can occur at levels as low as 0.2 mg/l, and concentrations above 1 mg/l can be lethal. The recorded nitrite levels in the lake are 0.197 mg/l for the West sample point and 0.888 mg/l for the East sample point and 0.526 mg/l. Indicating the conditions for acute toxicity are met in the eastern section of Canvey Lake and at the Inlet sample point, the western section of the lake is nearing acute toxicity levels.

### 3.5.3 Unionized Ammonia ($NH_3$-N)

Unionized ammonia should ideally be kept below 0.02 mg/l to protect sensitive aquatic life. Concentrations above 0.1 mg/l can be harmful or lethal, depending on pH and temperature. The $NH_3$-N levels recorded in the West sample point area are 0.028 mg/l and 0.215 mg/l in the East sample point, this is significantly elevated outside of the safe range for aquatic life and in particular fish. The Inlet sample point was reported as 1.362 mg/l, this is significantly outside the normal range and could indicate a contributing source of unionised ammonia in the lake.

### 3.5.4 Ammonium ($NH_4^+$)

While less toxic than un-ionized ammonia, elevated ammonium levels can still impact aquatic ecosystems by contributing to nutrient loading and promoting eutrophication.

Concentrations below 0.5 mg/l are generally considered acceptable. Higher concentrations, particularly above 1 mg/l, can contribute to nutrient imbalances. The ammonium levels recorded in the West sample point are 2.29 mg/l, 1.75 mg/l in the East sample point and 1.18 mg/l at the Inlet sample point. These concentrations are all significantly elevated and show signs that the nitrogen cycle is not functioning efficiently.

## 3.6 Total Organic Carbon (TOC)

In a eutrophic lake, characterised by high biological productivity, TOC typically ranges from 3 to 12 mg/l. Recommended TOC levels for lakes are around 0.5 mg/l. The TOC concentration in the West sample point are 68.7 mg/l, the concentration in the East sample are 33.4 mg/l and at the Inlet sample point the concentrations are 29 mg/l. The lake's TOC is significantly

elevated, indicating a significant input of organic pollution likely from decomposing plant/algae matter.

## 3.7 Biological Oxygen Demand (BOD)

BOD measures the oxygen demand of organic components in the water system. High BOD can cause hypoxic or anoxic conditions, which are detrimental to fish health. The BOD levels in the West sampling point of the lake are 98 mg/l, in the East sampling point the levels are 22 mg/l and at the Inlet sampling point the levels are 18 mg/l, all sampling locations are categorised as poor.

Prolonged, elevated BOD may promote anaerobic (low-oxygen) conditions within the lake sediments, increasing the likelihood of foul-smelling hydro-soil development.

## 3.8 Chemical Oxygen Demand (COD)

COD measures the amount of oxygen required to chemically oxidise both organic and inorganic compounds in the water. High COD levels can indicate pollution and contribute to eutrophication, oxygen depletion and reduced bathing water amenity.

The COD concentration recorded in the lake was 228 mg/l in the West sample point, 122 mg/l in the East sample point and 127 mg/l in the Inlet sample point, indicating a significant pollution load.

The lake shows elevated levels categorised as “very poor”, indicating elevated concentrations of organic material which can lead to decreased dissolved oxygen during decomposition.

## 3.9 Total Alkalinity

Freshwater alkalinity should typically be between 20 and 200 mg/l as $CaCO_3$, as levels within this range help buffer water against rapid pH changes and provide a stable environment for aquatic life. The alkalinity levels recorded in the West sample point in the lake are 355 mg/l, 370 mg/l in the East sample point and 322 mg/l in the Inlet sample point, this is outside the ideal range but not a cause for concern. It should be noted that this will increase the buffering capacity of the waterbody, reducing pH fluctuations.

## 3.10 Suspended Solids

Suspended solids at elevated concentrations can reduce underwater visibility, detract from the aesthetic quality of the waterbody and may indicate increased organic or sediment inputs.

The suspended solids concentration recorded in the West sampling point are 287 mg/l, 107 mg/l in the East sampling point and 143 mg/l in the Inlet sampling point, this is significantly elevated and will be contributing to poor water clarity.

### 3.11 Coliforms

Coliform concentrations can indicate potentially harmful bacteria or organic pollution entering the water.

Coliform levels in the lake were recorded at all of the sampling points in Canvey Lake as >2420 MPN/100ml which is above detection limits and significantly elevated.

### 3.12 E. Coli

*E. Coli* is an indicator of organic pollution. The concentrations recorded in the West sample point are 1300 MPN/100 ml, 273 MPN/100ml in the East sampling point and 70 MPN/100ml in the Inlet sampling point. The results for the East and Inlet sampling point are low and within the excellent standard for The UK Bathing Regulations (2013), whilst the West sampling point result is classified as good.

### 3.13 Enterococci

Enterococci concentrations indicate potential faecal contamination. The recorded levels in the lake were >1000 CFU/100ml in the West sample point, >400 CFU/100ml in the East sample point and >400 CFU/100ml in the Inlet sample point.

The western section of the lake has a significantly high concentration, meeting the conditions for a significant risk of high levels of minor illness transmission. Both the East and Inlet sample point have moderate concentrations and are within the good standard for the UK Bathing Regulations (2013).

### 3.14 Wildfowl Census

A wildfowl census has been conducted to form baseline data of wildfowl population through the seasons of the year. Given one of the management objectives is to reduce the wildfowl population at Canvey Lake, this will allow monitoring of the changes in wildfowl population surrounding the lake in order to evaluate if reduction of the resident population has been achieved.

| Species | Count |
|---|---|
| Coot *Fulica atra* | 8 |
| Moorhen *Gallinula chloropus* | 26 |
| Canada Goose *Branta canadensis* | 153 |
| Mallard *Anas platyrhynchos* | 38 |
| Grey Heron *Ardea cinerea* | 1 |
| Mute Swan *Cygnus olor* | 2 |

**Table 4. Species abundance across Canvey Lake 18th September 2026.**

# 4.0 Discussion

## 4.1 Overall Condition

The results indicate that Canvey Lake is in a significantly degraded and eutrophic condition. Both sections of the lake are affected by elevated organic matter, suspended solids, ammonia and nitrite, although conditions were generally poorest in the western section.

The combination of nutrient enrichment and organic loading indicates that the lake is under substantial ecological pressure and presents a risk to fish, wildlife, dogs and recreational users.

## 4.2 Oxygen Demand and Nitrogen Cycling

Although dissolved oxygen was not measured, the extremely elevated BOD, COD and TOC concentrations indicate a substantial demand for oxygen within the lake.

The accumulation of ammonium and nitrite, alongside very low nitrate concentrations, also suggests that the nitrogen cycle is not functioning effectively. As the biological conversion of ammonia and nitrite requires oxygen, these results are consistent with poor circulation and limited oxygen availability.

## 4.3 Current Treatment Programme

A monthly water-quality treatment programme was introduced to address the nutrient, organic matter and algal pressures affecting the lake, this has now transitioned to a bi-monthly water-quality monitoring programme as of September 2026 with the treatment programme ceasing over the winter period, and will refer back to a monthly programme in March 2027.

Bacterius® N is being applied to introduce and support nitrifying bacteria responsible for converting ammonia and nitrite into less harmful forms. Bacterius® 5B is also being used to support nitrifying bacterial activity and assist with the biological breakdown of accumulated organic matter.

Lake Aid BioX, a barley-straw extract treatment, is being applied to help suppress nuisance algal growth and reduce the likelihood of further bloom development.

During winter, Lake Aid AquaBio is also proposed. AquaBio acts as a hydro-soil conditioner, helping to improve anaerobic sediment conditions and reduce internal phosphorus availability by binding phosphorus within the sediment. This continues to be recommended after de-silting works take place as a means to control silt build up that naturally occurs over time within a body of water.

These treatments are intended to improve biological processing within the lake; however, their effectiveness is likely to remain constrained where oxygen availability and water circulation are insufficient.

## 4.4 Aeration

Additional mechanical aeration is therefore strongly recommended throughout the lake to improve oxygen transfer, circulation and biological nutrient processing.

Due to the shallow depth of Canvey Lake, surface aerators are considered the most appropriate option. Aerators should be distributed along the lake to reduce stagnant areas rather than being concentrated in one location. The depth of the water however is approximately 250-400mm and so is still too shallow for surface aerators to function. Therefore, each aerator should be installed within a sunken sump in which the aerator can be positioned within. This would prevent soft sediment from encroaching around the equipment, restricting water flow and potentially causing overheating or mechanical failure. The de-silting works due to take place in early 2027 will benefit the mechanical aerations systems and allow for greater gas exchange within the water, whilst the depth should be greatly increased by these works, the total depth of Canvey Lake remains insufficient for diffused aeration to function effectively.

## 4.5 Wildfowl and Bank Condition

The census recorded a substantial wildfowl population, including 153 Canada geese. At this density, faecal inputs are likely to contribute to nutrient enrichment and microbial contamination, as reflected by the elevated coliform results.

Intentional feeding is likely to support unnaturally high bird numbers, while uneaten feed contributes additional organic matter and nutrients to the lake. Heavy grazing has also created barren banks, increasing erosion and the movement of sediment, nutrients and faecal material into the water.

Waterfowl feeding should therefore be substantially reduced or discontinued, and the feeding of bread prohibited, supported by educational signage. Barren banks should also be restored and protected while vegetation becomes established.

## 4.6 Management Approach

The existing treatment programme should continue alongside the installation of surface aeration, coir rolls, floating eco-islands and early 2027 de-silting.

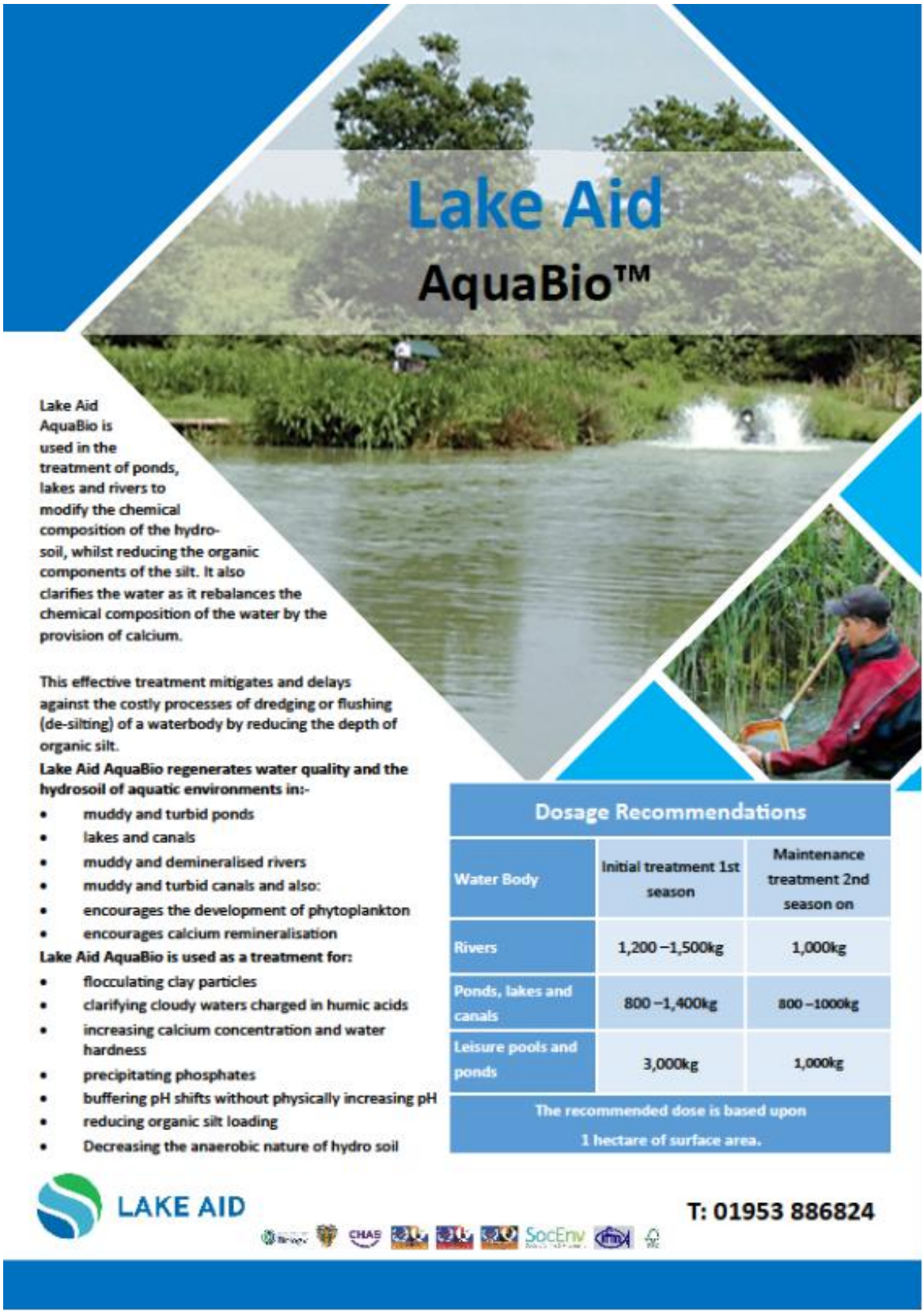
Bi-monthly water-quality and wildfowl monitoring should continue to establish baseline data to inform management actions during the winter period.

Overall, the results demonstrate that Canvey Lake requires coordinated intervention to address organic loading, impaired nitrogen cycling, cyanobacterial dominance, bank erosion and likely oxygen instability.

# 5.0 Recommendations

| Recommendation | Rationale |
|---|---|
| **Continue the Bacterius® N, Bacterius® Muck and Bacterius® 5B treatment programme. Appendix C** | Bacterius® N is a nitrifying bacterial treatment intended to support the conversion of ammonia and nitrite into less harmful nitrogen compounds. Bacterius® 5B supports nitrifying bacteria while also assisting with the biological breakdown of organic matter. Continued monthly treatment is recommended due to the elevated ammonium, un-ionised ammonia and high sediment volume. |
| **Continue the Lake Aid BioX treatment programme. Appendix B** | Lake Aid BioX is a barley-straw extract treatment used to help limit nuisance algal and cyanobacterial growth. Continued treatment is recommended due to the high algal concentrations and strong dominance of potentially toxin-producing cyanobacteria recorded throughout the lake. |
| **Undertake a winter Lake Aid AquaBio treatment programme. Appendix A** | AquaBio is a hydro-soil conditioner intended to improve redox conditions within organically enriched and anaerobic sediments. The treatment can help reduce phosphorus availability by binding phosphorus within the sediment, thereby limiting internal nutrient release and reducing the nutrients available to support future algal growth. |
| **Apply Bacterius® Muck. Appendix C** | Bacterius® Muck is recommended to support the biological breakdown of accumulated organic sediment. Reducing the quantity of decomposing organic material within the lakebed will help lower sediment oxygen demand, improve nutrient cycling and reduce internal nutrient loading. |
| **Install distributed surface aeration throughout the lake.** | The highly elevated BOD, COD and TOC concentrations, together with ammonia accumulation, elevated nitrite and high algal abundance, indicate a concerning oxygen bottleneck. Surface aeration is recommended due to the shallow depth of the lake and would improve oxygen transfer, circulation and the effectiveness of the biological treatment programme. |
| **Install surface aerators within sunken sumps or equivalent sediment-exclusion structures.** | The shallow water and accumulation of soft sediment may allow sediment to encroach around the aerators, restrict water flow and cause overheating or mechanical failure. A sunken sump would maintain sufficient clear water around each unit and reduce sediment disturbance. |
| **Continue water-quality monitoring and algal surveys.** | Ongoing monitoring will allow changes in water quality, algal abundance and cyanobacterial composition to be assessed. It will also provide early warning of further deterioration and allow the effectiveness of the treatment and aeration programme to be reviewed. |
| **Substantially reduce or discontinue intentional waterfowl feeding.** | Feeding supports unnaturally high wildfowl numbers and encourages birds to congregate around the lake. Uneaten feed and increased faecal inputs contribute organic matter, nutrients, microbial contamination and oxygen demand. Educational signage should be installed to explain the effects of feeding on water quality, bird health and the wider lake ecosystem. |
| **Install planted coir rolls along eroded and heavily grazed banks.** | Planted coir rolls are recommended to stabilise eroding banks, reduce sediment and nutrient runoff and establish marginal vegetation. This would improve water clarity, provide aquatic habitat and reduce the effects of grazing and trampling by wildfowl. |
| **Install vegetated floating eco-islands.** | Vegetated eco-islands would provide direct nutrient uptake, additional habitat and suspended root surfaces for beneficial microbial communities, including bacteria involved in nitrogen cycling. They would also improve habitat diversity within the otherwise degraded lake environment. |
| **Undertake de-silting works as a longer-term intervention.** | De-silting work is currently being tendered by Caste Point Borough Council, this work is imperative to improving Canvey Lake as an amenity waterbody as well as for the ecology of the lake. De-silting would remove nutrient-rich and organically enriched sediment, increase effective water depth and reduce sediment oxygen demand and internal nutrient loading. |

# 6.0 Appendix A: Lake Aid AquaBio





## LAKE AID AQUABIO.

To enhance fishery conditions Lake Aid AquaBio facilitates the breakdown of previously partially decomposed organic material and boosts aerobic digestion. Untreated the hydro-soil becomes anaerobic producing the undesirable gases methane and hydrogen sulphide. Because of their inbuilt instincts fish will always avoid these poor water areas.

## TREATMENT PERIOD.

Any time of the year but most effective between March to November in Temperate regions (water temp 10℃).

Two or three treatments spread over a season will be more effective than one application.

This is particularly true for lake bed hydro-soil where there is a significant proportion of partially digested sediment or anaerobic conditions forming the noxious gasses associated with the anaerobic substrate.

## PRODUCT DESCRIPTION.

**Lake Aid AquaBio** is completely harmless to all aquatic organisms including fish and amphibians.

**Lake Aid AquaBio** is a micronised powder produced from the processing of high purity mineral ($CaSO_4.2H_2O$ - Calcium Sulphate Di-hydrate).

**Lake aid AquaBio** is completely harmless to all aquatic organisms including fish and amphibians.

## TECHNICAL DATA.

For a comprehensive technical data sheet please contact A.G.A. direct.

## HEALTH AND SAFETY.

These products are not classified as dangerous/hazardous chemicals. Health and Safety information sheets are always available on request.

## SUPPLY DETAILS.

**Lake Aid AquaBio** is supplied in handy 25Kg plastic sacks.

## STORAGE.

When stored under normal dry conditions, this product will not deteriorate chemically, however it is susceptible to compaction lumps. Each bag is stamped with a date of manufacture and a batch reference. Stocks should be rotated so that the oldest material is used first.

This information is subject to change arising from new developments and findings. If you are unable to find the item you are looking for, please do not hesitate to contact us immediately.
The A.G.A. Group installation teams operate solely within the field of aquatic and bioengineering. We operate a policy of 'Best Practice' and are bound by the Code of Conduct of both the Institute of Fisheries Management and the Society of Biology. The A.G.A. Group will quote for the supply of materials, their installation or for 'turnkey' projects.
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# 7.0 Appendix A: Lake Aid BioX



## ALGAE CONTROL.




**Lake Aid Bio-X** is a concentrate of barley straw which conditions the water to inhibit and control algae growth. For years' environmentalist and pond keepers alike have been using barley straw treatment as a control against the nuisance of algae. This laborious and expensive control is no longer the ideal answer.

**Lake Aid Bio-X** should be applied initially at a dose rate of 5 litres per acre before dilution.

The concentrate should be added to the water body by mixing at least 1 part concentrate to 5 parts water, this is done, not directly to dilute the product, but simply to create volume thus ensuring a good initial spread across the entire area of the waterbody

Further weekly treatment should then be carried out at 1-5 litres per acre dosage, still diluting the product for ease of application across the water surface.

Ideally the dilute concentrate should be applied from a boat preferably by spraying out through a knapsack sprayer which should be kept clean of any other chemicals.

Alternatively it can be drizzled gradually into a running inlet which will then naturally distribute it with the flows and currents.

Lake Aid BioX contains: Aqueous barley straw extract as a natural source of plant lignin. Lake Aid Bio-X is triple distilled to ensure 'full strength' delivery of the active ingredient

## DOSAGE.

**Lake Aid Bio-X is available in handy 25 litre drums.**

**Other pack options such as IBC 1000 litre containers available**

Initial application rates 5 litre per acre. Subsequent regular applications 1.5 litre per acre should be carried out at weekly intervals.

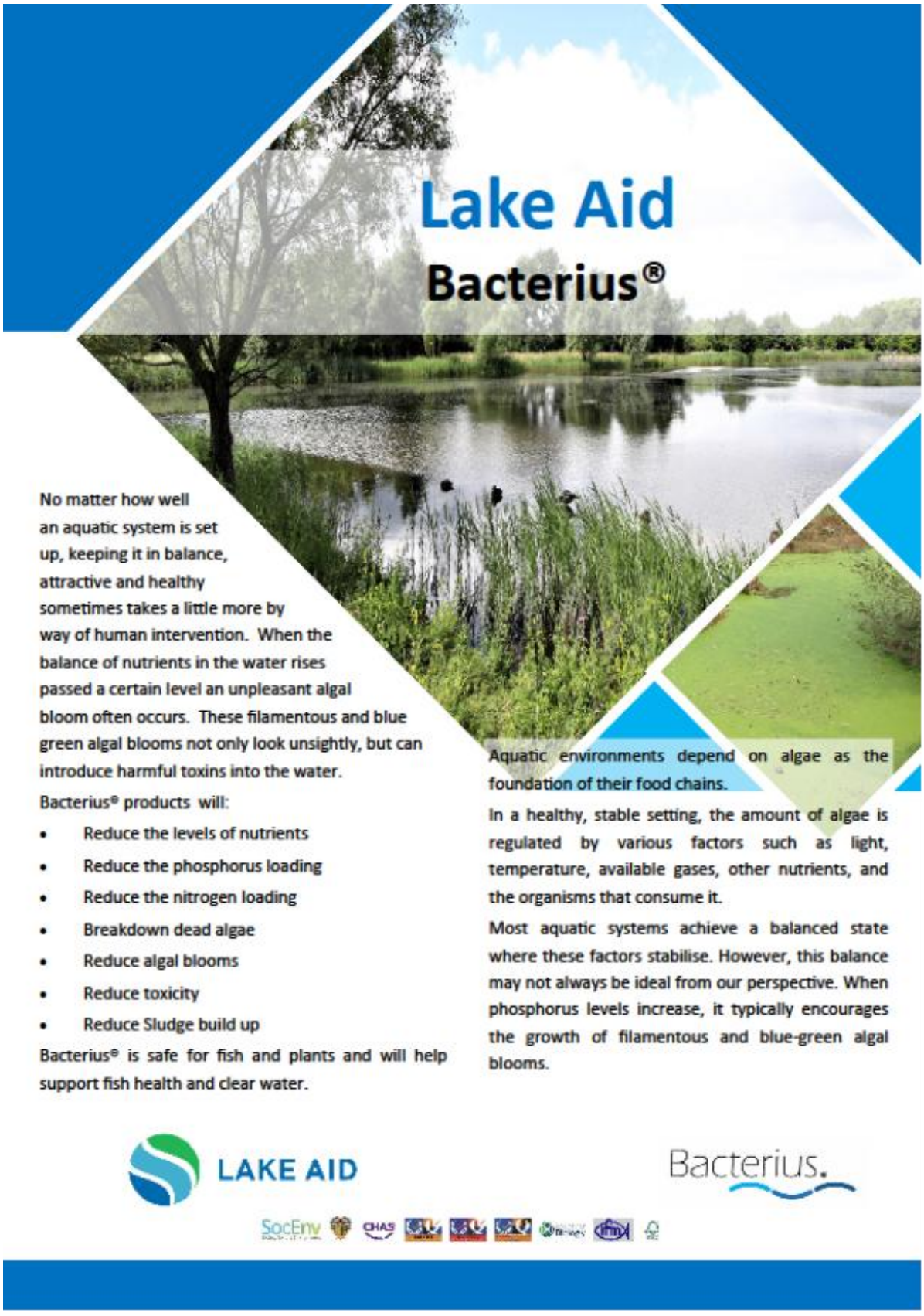
The treatment should be carried out through the algae season. We therefore recommended that the critical application of **Lake Aid Bio-X** is commenced in early spring and used throughout the spring and summer to prove most effective in the control of algae.

This information is subject to change arising from new developments and findings. If you are unable to find the item you are looking for, please do not hesitate to contact us immediately.
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A.G.A. is Quality assured to: ISO45001 : 2018, ISO9001 : 2015 & ISO 14001 : 2015
A.G.A. Group, MMG and MHP and AGACES are trading styles of A.G.A. Group Enviro-Fix Limited

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The information set forth in this brochure reflects our best knowledge at the time of issue.
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All trade is subject to out Terms and Conditions of Sale.

# 8.0 Appendix C: Bacterius®



## BACTERIUS®



**Bacterius®: Natural Water Treatment Solutions**
Bacterius® is a brand of water treatment products designed to improve water quality as naturally as possible. Supplied by Canadianpond, a company renowned for its expertise in bioaugmentation and water treatments, Bacterius® products leverage the power of beneficial microorganisms to transform water parameters. In the UK, A.G.A Group is the exclusive supplier of this innovative technology and has successfully used it to treat ponds and lakes across the country.

**How Does It Work?**
Bioaugmentation involves introducing cultured beneficial microorganisms into an existing microbial community. These microorganisms reduce nutrient levels and break down unwanted compounds, thereby enhancing water quality. Specifically, the microorganisms in Bacterius® products produce enzymes that biodegrade or transform excess ammonia, nitrites, phosphorus, and hydrocarbon-based contaminants. This enzymatic activity is crucial in maintaining a healthy aquatic environment.
The enzymes released by the microbes in Bacterius® products break down various compounds that may contaminate aquatic environments. Bioaugmentation with Bacterius® offers many benefits:

- **Reducing Odours:** The breakdown of organic matter by beneficial microorganisms helps eliminate unpleasant odours commonly associated with stagnant or polluted water bodies.
- **Natural Clarification of Pond Water:** The enzymatic activity helps clear suspended particles and organic matter, increasing water clarity and enhancing the aesthetic appeal of ponds and lakes.
- **Reducing the Risk of Sickness and Death Among Fish:** By maintaining balanced nutrient levels and reducing harmful compounds, bioaugmentation promotes a healthier environment for fish, decreasing disease and mortality rates.
- **Clearing Lake or Pond Bottoms and Reducing Silt:** The microorganisms break down organic matter that accumulates on the bottoms of ponds and lakes, reducing silt and sediment buildup and maintaining the natural depth and health of these water bodies.
- **Controlling Algal Growth, Including Blue-Green Algae:** By breaking down excess nutrients, the beneficial microbes help control and prevent excessive algal growth, maintaining a balanced and healthy aquatic ecosystem.
- **Controlling Ammonia Levels:** Denitrifying bacteria break down harmful ammonia, converting it into nitrogen gas ($N_2$), which is harmlessly released into the atmosphere.



## PRODUCTS WE OFFER

Bacterius® products come in various different product types, each specialised to the needs of the water system, most are in liquid form and are applied to the surface while some are in solid forms designed to dig deep into the sediment.
All Bacterius® products are non-toxic and safe for the environment, the products A.G.A Group offers are highlighted below .

**Bacterius® C** – Organic matter and waste controller

**Bacterius® N** – Nitrogen controller to reduce ammonia and nitrites (water nitrification)

**Bacterius® EQUINOX** – Cold Water Beneficial Bacteria Treatment

**Bacterius® MUCK** – Concentrated bacterial pellets for treating shoreline muck and sediment rich areas

**Bacterius® 5B** – High concentration bacteria with barley straw for sediment reduction and water clarity

**Bacterius® 1B** – Natural bacteria with barley straw, same formulation as 5B but less concentrated

**Bacterius® POND** – Nitrification and control of organic sediment



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A.G.A. GROUP Consultancy Limited

# 9.0 Appendix D: Lake Aid Oxy

