

Appendix R

GE Water & Process Technologies

Proposal No. GM-06

ZENON
membrane solutions

Proposal for a Z-MOD™ -S Wastewater Treatment System for Tuscon, AZ

Submitted to:

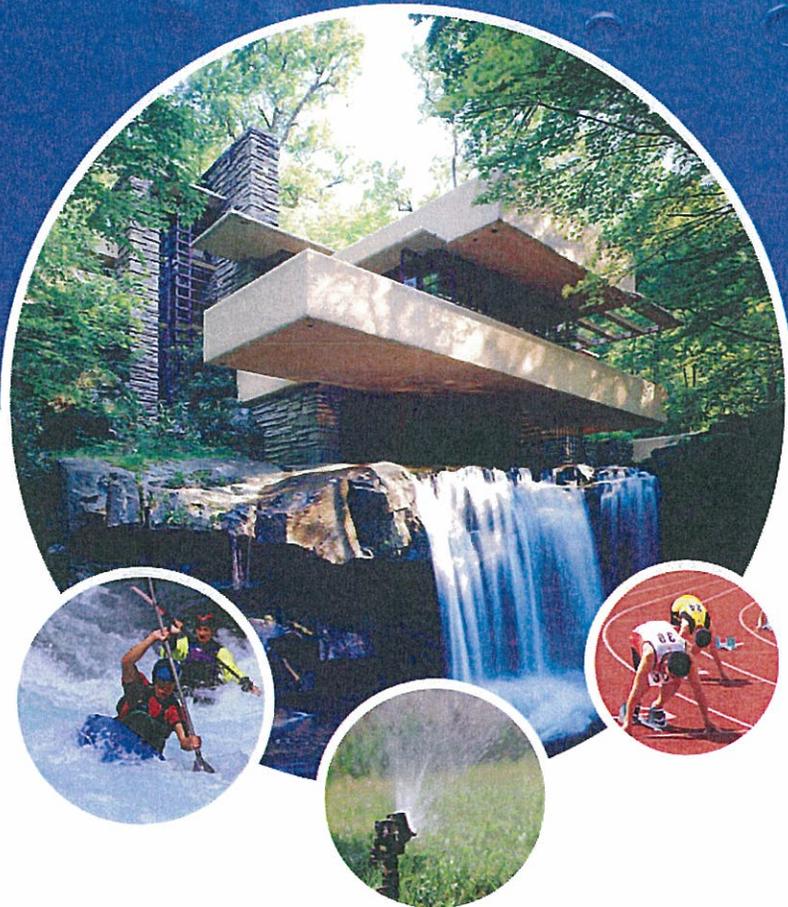
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1 System Overview

1.1 The Z-MOD™ Advantage

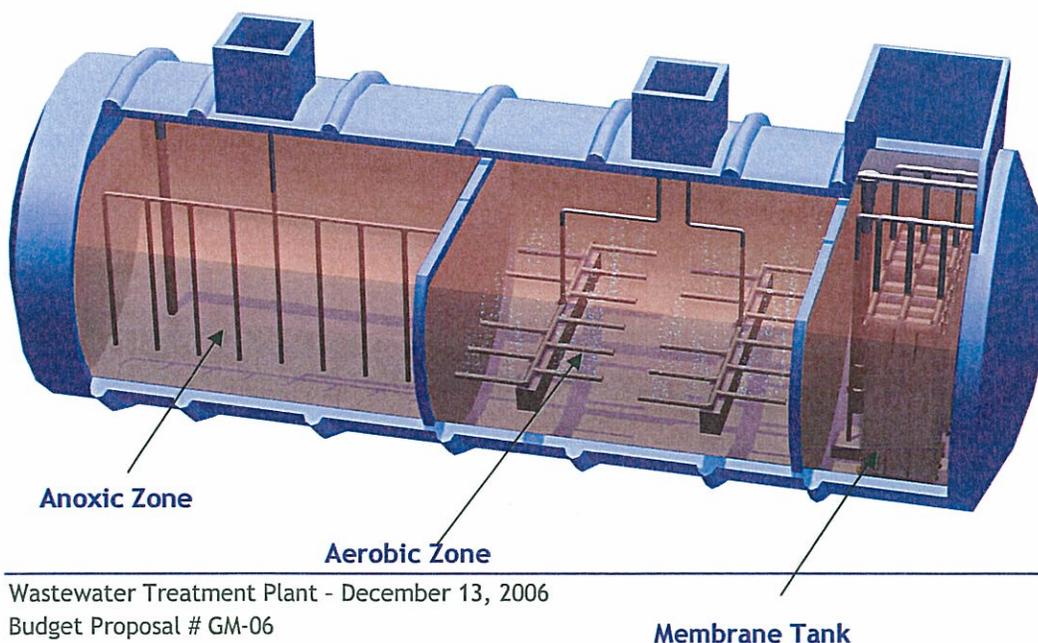
The ZENON Z-MOD™-S is a fully integrated wastewater treatment system that incorporates all biological processes, ultrafiltration membranes, and ancillary equipment into a single, compact tank, enabling simple, cost-effective set up, maintenance, and operation. These plug-and-play ultrafiltration (UF) systems outperform conventional treatment alternatives in all categories, offering reduced operating costs, smaller plant footprints, more reliable performance, and high quality effluent that meets or exceeds the world's most stringent discharge and reuse standards.

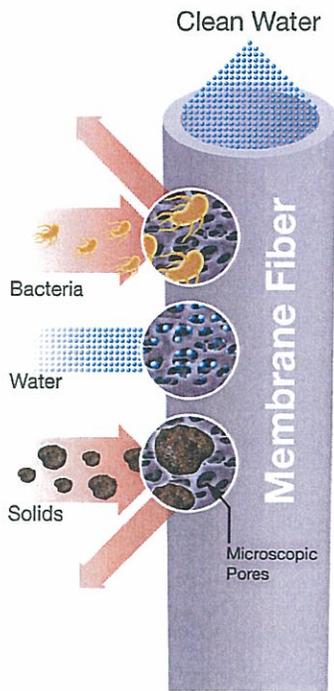
Z-MOD™-S produces superior quality effluent through an innovative combination of immersed, low-pressure ZENON ZeeWeed® ultrafiltration membranes and a suspended growth biological reactor. ZeeWeed® UF membranes replace the solids separation function of secondary clarifiers and the polishing function of granular filter media that are found in conventional activated sludge systems. By eliminating the need for sludge settling, the Z-MOD™ MBR process can operate at mixed liquor suspended solids (MLSS) concentrations in the range of 10,000 to 15,000 mg/L—three to five times greater than conventional systems, resulting in plants that are significantly more compact than a conventional plant.

Z-MOD™ packaged plants bring the proven large-plant features and performance of ZeeWeed® membranes to compact, pre-engineered wastewater treatment

Fewer processes, combined with highly automated PLC operation makes plant operation less labor intensive and much more straightforward. Plant operators are only required to perform regular preventive maintenance on system pumps, blowers, and associated mechanical equipment to ensure efficient biological processes and optimum membrane permeation.

Figure 1: Z-MOD™-S Configuration





At the core of the Z-MOD™-S is the ZeeWeed® 500 reinforced hollow fiber membranes—the industry’s leading choice for long-life and high performance in the harsh, high-solids environment of a bioreactor. The rugged fibers are held in large modular cassettes that are immersed directly into the bioreactor. With nominal and absolute pore sizes of 0.04 microns and 0.1 microns respectively, ZeeWeed® 500 virtually ensures a particulate-free effluent.

Each cassette has a permeate header that is connected to the suction side of a self priming centrifugal pump, which applies a low-pressure vacuum to draw treated effluent through the microscopic pores of the fibers in an outside-in flowpath. This method of permeation minimizes energy demands and prevents particles from fouling and plugging the inside of the membrane fiber.

Outside-in permeation also simplifies membrane cleaning and maintenance, enabling a continuous stream of coarse bubbles to rise vertically along the length of the membrane to scour rejected solids away from the membrane surface. Periodically, the permeate flow is automatically reversed to backflush solids that have accumulated in the membrane pores. When necessary, in-tank chemical recovery cleanings can restore membrane permeability to optimum levels.

solids that have accumulated in the membrane pores.

ZeeWeed® UF membranes operate under a low-pressure vacuum, drawing clean water to the inside of the fiber (outside-in flow path), while leaving impurities in the process

ZeeWeed® 500 is the membrane of choice for strict nitrogen and phosphorous discharge limits. The lead end of the bioreactor is designed as an anoxic (zero dissolved oxygen) zone. This is used to assist with pH control in standard systems and for denitrification in applications where extremely low levels of total nitrogen (TN) are required in the effluent stream.

The process may be easily enhanced for significant phosphorus reduction by adding a metal salt, such as ferric chloride or alum. As the Z-MOD™ MBR process does not rely on settling for solid reduction, a minimal volume of metal salts is needed to create a “pin-floc”. The membrane then effectively blocks the microscopic floc from entering the effluent stream resulting in phosphorous levels typically below 0.1 mg/L.



2 System Description

2.1 Design Criteria

The Z-MOD™-S MBR system proposed for this project is designed to treat an average daily flow (ADF) of 0.025 MGD. The system can support a Maximum Daily Flow (MDF) of 0.050 MGD for periods generally not exceeding 24 continuous hours. Any flow conditions greater than the above-noted flow limits must be equalized prior to treatment in the membrane bioreactor unit.

The following table summarizes the main design parameters on which the Z-MOD™-S MBR system has been designed. The column titled “influent” is typical of medium strength sanitary wastewater—to be approved by the client. The column titled “effluent” is the anticipated treated water quality that the Z-MOD™-S can achieve based on current ZENON design.

Table 1: Design Parameters

Parameter	Influent	Effluent	Units
Average Daily Flow Rate	0.025	0.025	MGD
Max Daily Flow Rate ⁽¹⁾	0.050	0.050	MGD
Design Water Temperature	15 °C*	15 °C	°C
BOD ₅	300	<5	mg/L
TSS	300	<5	mg/L
Alkalinity ⁽²⁾	250*	n.a.	mg/L
Turbidity	n.a.	< 1	NTU
TP	n.a.	n.a.	mg/L
TKN	60	<10	mg/L
NH ₄ -N	35	<1	mg/L
E-coli ⁽³⁾	n.a.	< 2.2	cfu/100 ml

*Assumed

Note⁽¹⁾: Maximum daily flow can generally be maintained for periods not exceeding 24 consecutive hours. However, the average flow for any given month shall not exceed the specified ADF. If the average monthly flow exceeds the ADF design for this system, please notify GE ZENON and the system design and pricing will be modified accordingly.

Note⁽²⁾: ZENON is assuming that sufficient influent alkalinity is available to ensure proper performance of the biological system. If influent alkalinity level is not sufficient, chemical addition will be required.

Note⁽³⁾: With the use of UV or Ozone post disinfection.

2.2 Standard ZENON-Supplied Equipment

The Z-MOD™-S MBR is a fully integrated system designed for rapid, plug-and-play installation. Biological processes, membranes, pumps, chemical dosing pumps and blowers are shipped and installed in a single compact unit.

2.2.1 Bioreactor

A single-train bioreactor is provided by ZENON. The bioreactor is a horizontal epoxy coated steel tank. The tank is divided into an anoxic zone, aerobic zone and filtration chamber.



Table 2: Bioreactor Characteristics

Parameter	Value	Units
Average Daily Flow (ADF)	0.025	MGD
Max Daily Flow (MDF)	0.050	MGD
Design HRT	14	hours
Anoxic Volume Supplied*	6,868	USgal
Aerobic Volume Supplied*	8,718	USgal
Membrane Volume Supplied	4,200	USgal
Tank Dimensions *	12'Ø 26	ft
Design MLSS	10-15,000	mg/L

*Note: Tank volumes and sizing are preliminary only and may change once final detail design commences.

2.2.2 Screening System

Trash and non-biodegradable solids, such as hair, lint, grit and plastics may foul or damage the membranes if allowed to pass into the membrane chamber.

Pre-engineered self cleaning static screens can be included in the system however in cases where they are not, to enhance the long-term operation and effectiveness of the treatment system Zenon recommends;

An internally-fed screen with mesh or punched-hole opening less than or equal to 2 mm with no possibility of bypass or carryover.

For full redundancy, duty and standby screens can be installed.

2.2.3 Aeration System

There are two aeration blowers (one operating and one standby) mounted on the process skid. The blowers provide air for the biological tank and ensure that sufficient oxygen is available to maintain the biological processes in the tank. The blowers also enable membrane air scouring, which removes accumulated organic debris from the surface of the membrane and maintains permeability.

2.2.4 Fine Bubble Diffusers

A fine bubble diffused aeration system delivers air from the aeration blowers to the aerobic zone of the steel tank. Z-MOD™ -S is equipped with high efficiency diffusers that can operate with smaller aeration blowers, thus reducing operating costs.

2.2.5 Anoxic Zone Mixers

The anoxic zone is mixed using periodic air surges to turn over the contents of the chamber and prevent solids from settling in the anoxic chamber.

2.2.6 Membrane Equipment

The membranes are assembled into cassettes that are installed in the steel biological tank, resulting in a compact, space-saving footprint.

This system includes 16 membrane modules in two cassettes. Each cassette is part of an independent train that provides redundancy at average daily flow.



2.2.7 Permeate Equipment

One permeate pump per train is employed to draw water through the pores of the membrane fibers and into the backpulse tank. Once full, the treated water is automatically diverted away from the backpulse tank to a final disposal point.

2.2.8 Backpulse Equipment

Separate pumps mounted on the process skid are used to periodically reverse the flow of the permeate and backpulse the membranes at regular intervals. Under normal operating conditions “relax mode” can replace backpulsing. In this process, permeation is stopped and aeration is used to dislodge particles from the surface of the membrane fibers.

Unless specific operating conditions require backpulsing, the “relax mode” can provide effective membrane cleaning while eliminating the operational cost of running backpulse pumps.

Manual throttling valves are used to adjust the discharge flow of each pump. Permeate and backpulse pumps are selected to optimize efficiency within their design parameters.

2.2.9 Mixed Liquor Recirculation Equipment

Submersible recirculation pumps transfer mixed liquor from the membrane chamber to the anoxic chamber at a rate of 4 x ADF. The sludge returns to the membrane chamber by gravity feed through the screens at 5 x ADF.

The sludge circulation moves accumulated solids away from the membranes and produces more uniform mixed liquor in the bioreactor.

2.2.10 Control

A GE Fanuc Programmable Logic Controller (PLC) and Panel View 600 HMI and Human Machine Interface (HMI), installed in the main NEMA 12 control panel, monitors and manages all critical process operations.

Level controls monitor the level of mixed liquor in the process tanks and transmit this information to the Z-MOD™ PLC. The PLC will activate the permeate pump train to ON during high mixed liquor levels, or to STANDBY during low mixed liquor levels in the process tanks.

During an influent surge, the permeate pump will enable the system to handle up to twice the ADF for a period not to exceed 24 consecutive hours. The plant operator can set the permeate flow rate by adjusting the manual permeate flow valve.

In the event of a system or equipment problem requiring operator attention, the PLC can either alert the operator or shut the system down.

The control panel includes all motor control hardware for the ZENON-supplied equipment.

2.2.11 Sludge Wasting System

Sludge wasting is accomplished by periodically drawing mixed liquor directly from the bioreactor. The frequency of wasting is a function of influent characteristics, reactor



design and operator preference. Typically, mixed liquor wasting may be performed monthly, or over significantly longer periods.

2.3 Additional Process Equipment

Additional process equipment may be required for the process. Details are listed below. The following equipment may be provided by ZENON.

2.3.1 Equalization (By Others)

Equalization is required for any system with variable flow rates. An equalization (EQ) tank must be installed prior to or built into the biological tank. ZENON can provide additional EQ volume in the steel tank for equalization capacity. A minimum equalization capacity of 12 to 24 hours is recommended.

2.3.2 Grinder Pumps (Option Offered)

Grinder pumps shred domestic waste to eliminate clogging and solid buildup in feed piping. The grinder pumps are automatically activated by the PLC according to the level controls in the equalization tank.

2.3.3 Chemical Addition (By ZENON)

2.3.3.1 Sodium Hypochlorite Dosing

The Sodium Hypochlorite Dosing system is used during cleaning process to eliminate organic fouling on the membrane surface

2.3.3.2 Citric Acid Dosing

The Citric Acid Dosing system is used during cleaning process to eliminate inorganic scaling on the membrane surface.

2.3.4 Effluent Flow Measurement (By Others)

An effluent flow meter can provide daily discharge flow measurements.

2.3.5 Effluent Turbidity Analyzer (By ZENON)

An effluent turbidity analyzer can monitor effluent water quality and alert operators if effluent turbidity rises beyond acceptable parameters.

2.3.6 Effluent Disinfection (Option Offered)

Ultraviolet disinfection can be configured to meet peak flows with no redundancy or be equipped with redundant components to meet average daily flow.

2.3.7 ZenoTrac™ (Option Available)

ZenoTrac™ is a powerful plant process support tool that provides fully automated process data monitoring and trend analysis. The system stores field-acquired and calculated values in a central database and provides reports via e-mail, web site or printed documents. ZenoTrac™ helps operators to quickly view trends, improve productivity and optimize processes.



2.3.8 Membrane Cleaning

Air scouring and backpulsing are the day-to-day methods used to maintain membrane flux*. Over longer periods of time, the membranes can experience fouling caused by accumulation of organic matter or crystallized salts within the membrane fiber pores. On these occasions, the ZeeWeed® membranes may require recovery cleaning to restore permeability. The frequency of recovery cleaning is site-specific and directly dependent on influent water characteristics and plant duty cycle.

Typical recovery cleaning frequency is once every six months and includes soaking the membranes overnight in a cleaning solution.

Recovery cleaning is a chemical process that is carried out manually and in-situ using sodium hypochlorite and/or citric acid (as required) stored in closed-topped transportable chemical containers. Sodium hypochlorite is used to oxidize organic foulants and citric acid removes inorganic scaling. The membrane cassette does not have to be removed from the Z-MOD unit in order to perform this cleaning process.

* "Flux" is defined as the amount of treated water that can pass through a given surface area of membrane. Cleaner membranes and warmer water allow for a higher flux.

2.4 Typical Equipment Selection

Table 3: ZENON-supplied Equipment

Equipment	Supplier
Membrane Modules	ZENON
Backpulse Pump	G&L
Permeate pump	Gorman Rupp
Skid mounted reversible permeate pumps complete with valves and associated piping	Assembled by ZENON
Membrane air scour & process air blowers	Aerzen
Flow meter, magnetic	Endress & Hauser
Pressure transmitter	Endress & Hauser
Pressure level transmitter	Endress & Hauser
Level switches	Signal Master
Pressure indicators	Ashcroft
Temperature indicator	Ashcroft
Automatic valves (3" and above)	Keystone
Ball valves - stainless steel	Pinacle
Ball valves - PVC	Chemline
Diaphragm valves	Chemline
Butterfly valves (3" and above)	Keystone
PVC Ball Check valves	Chemline
Storage tanks	Aco-Equipment
Chemical dosing pumps	Prominent
Recirculation pumps	Price
Grinder Pumps	ABS
HMI	GE
PLC	GE



3 Support Services

3.1 Business Hours - Technical Support

For the life of each system supplied by ZENON Membrane Solutions, Plant Operators have telephone access to a skilled ZENON technical support specialist who will assist Plant Operators in troubleshooting of system problems during business hours. Plant Operators call the telephone number provided during the period 8:30 am to 5:00 pm. Eastern Time Zone GMT -5 and ask for Technical Support for issues occurring during these business hours and for non-urgent issues.

Having the following plant documentation conveniently available to the plant operator and to the telephone will contribute to effective and rapid troubleshooting.

- a) The electrical drawings showing the location of devices and fuses;
- b) The Process & Instrumentation drawings (P&ID's);
- c) The Control Narrative (CN) describing how your plant operation is controlled;
- d) The Control Logic Summary Chart (CLSC) listing alarms and alarm responses;
- e) The Operation Sequence Chart (OSC), explaining which valves and pumps are open or running during each mode of your plant operation.

3.2 After-Hours 24/7 Emergency Telephone Technical Support

One year of 24/7 Emergency Telephone Technical Support is included with your plant purchase.

Our Technical Support Group is always on call 24/7/365. The Technical Support team is equipped with the system information for the plant to effectively talk a Plant Operator through an emergency. This allows the Plant Operators to contact a ZENON Technical expert in the event of any emergency condition, potentially averting loss of plant production and expensive call outs. The Plant Operator calls the toll-free number provided at startup and cites the Plant's Access Code. The Telephone Technical Support Group maintains dedicated hard copy of all plant drawings for rapid reference during 24/7 support calls. The Telephone Technical Support group has portable computers equipped to dial into the plant control system, if permitted and setup for this, in order to gain a better understanding of the situation, and to make any necessary adjustments to set points or software.

Not all issues can be resolved through telephone support. In the event that the ZENON Technical Support Group cannot resolve the problem with the Operator over the phone, on site service and off-site programming is available at the rates and under the conditions published in the ZENON Services Labour Rate Sheet. Should a situation require a more detailed investigation of control code, a ZENON programmer is on call at all times. Process Support engineers are pulled in as required to resolve the more difficult process issues.

Contact the ZENON Technical Support Group for pricing information.



4 Scope Of Supply - ZENON



Qty	Item	
1	Aeration Equipment - (1) Standby and (1) Operating Blower for membrane and aerobic chamber aeration. Includes piping, diffusers, pressure gauge, low flow switch and associated valving	Included
1	Anoxic Mixing - Anoxic down tubes and automated isolation valve for periodic anoxic mixing using process air.	Included
1	Aerobic Equipment - Stainless Steel aeration diffusers and associated piping are included	Included
1	Membrane Equipment - Zeeweed Membranes, cassette hardware, piping and associated valving	Included
1	Recirculation Equipment - (1) Standby and (1) Operating recirculation pump operating at 4xADF transferring mixed liquor from the membrane chamber to the anoxic chamber. Includes piping, (2) pressure gauges and associated valving	Included
1	Permeate Equipment - (1) Standby and (1) Operating self priming permeate pump, (2) pressure transmitters, (2) flow meters, piping and associated valving	Included
1	Backpulse Equipment - (1) Standby and (1) Operating centrifugal Backpulse pump, Backpulse Tank, Tank level control, piping and associated valving	Included
1	Plant Fabrication Equipment - Epoxy Coated Carbon Steel biological tank and equipment skid provided	Included
1	System Hardware - GE PLC, HMI, Control Panel and MCC included	Included
1	Plant Commissioning - Zenon trained personnel for plant start-up and operator training	Included
1	Effluent Turbidity Meter - Turbidity meter including isolation valves, throttle valve and backplate.	Included
1	UV Disinfection - Average Flow - UV Unit designed for average flow including piping and isolation valves	Option
1	Low TN Recirculation Pumps - (1) Standby and (1) Operating recirculation pump that recirculates mixed liquor from Aerobic to Anoxic zones at 5xADF	Available on Request
1	Co-Nutrient Addition - Includes dosing pump, storage tank, tank tray and cabinet, drum pump and associated valving.	Available on Request
1	EQ Tank Grinder/Transfer Pump - (1) Standby and (1) Operating submersible Grinder pump transferring raw sludge from the EQ tank to the Process tank at roughly 1.5xPDF. Includes piping, guide rail assembly, (3) level switches and associated valving	Option
1	Citric Systems - Includes dosing pump, storage tank, tank tray, tank mixer, associated valving and piping	Included
1	NaOCl Systems - Includes dosing pump, storage tank, tank tray, associated valving and piping	Included
1	Coagulant Addition - Includes dosing pump, storage tank, tank tray, associated valving and piping	Available on Request
1	pH Control - Includes dosing pump, integrated pH sensor and drum tray	Available on Request
1	Membrane Blower Enclosure - N/A	Available on Request

Additional man-hours will be billed separately from the proposed system capital cost at a rate of \$950 US per day plus living and traveling expenses. Detailed ZENON Membrane Solutions service rates are available upon request.



4.1 Scope of Supply - Others

The following items are for supply by OTHERS and will include, but are not limited to:

- Overall plant design responsibility;
- Review and approval of design parameters related to the membrane separation system;
- Review of ZENON-supplied equipment drawings and specifications;
- Detail drawings of all termination points where ZENON equipment or materials tie into equipment or materials supplied by others;
- Equipment foundations, civil work, equipment mounting pads, buildings etc.;
- Receiving, unloading and safe storage of ZENON-supplied equipment at site until ready for installation;
- HVAC equipment design, specifications and installation (where applicable);
- UPS, power conditioner, emergency power supply and specification (where applicable);
- Process and utilities piping, pipe supports, hangers, valves etc. including but not limited to:
 - Piping, pipe supports and valves between ZENON-supplied; equipment and other plant process equipment;
 - Piping between any loose-supplied ZENON equipment;
 - Equalization tank system piping (where applicable);
- Electrical wiring, conduit and other appurtenances required to provide power connections as required from the electrical power source to the ZENON control panel and from the control panel to any electrical equipment, pump motors and instruments external to the ZENON-supplied enclosure;
- All bolts, brackets and fasteners to install ZENON-supplied equipment;
- Raw materials, chemicals, and utilities during equipment start-up and operation, bulk chemical storage facilities;
- Laboratory services, operating and maintenance personnel during equipment checkout, start-up and operation;
- Disposal of initial start-up wastewater and associated chemicals.



5 Commercial Terms

5.1 Pricing

Qty	Item	Price
1	Z-MOD™-S8 unit, fully assembled with 8 membrane modules for a capacity of 0.025 MGD ADF, 0.050 MGD MDF.	USD 372,726
Option	UV Disinfection, Duty and Standby, designed for average daily flow	28,378
Option	EQ Tank Grinder/Transfer Pump - (1) Standby and (1) Operating submersible Grinder pump transferring raw sludge from the EQ tank to the Process tank at roughly 1.5xPDF. Includes piping, guide rail assembly, (3) level switches and associated valving	13,773

5.2 Validity

Pricing is valid for 30 days, after which it may be subject to change.

All orders are subject to review and acceptance by ZENON Membrane Solutions.

5.3 Freight, Taxes and Duties

All equipment is quoted FCA Oakville, Ontario. No freight, taxes or duties are included in the above-noted pricing. All freight, taxes and duties are for the account of the purchaser.

5.4 Terms of Payment

The budget pricing quoted in this proposal is based on the following terms of payment:

- 15% with Purchase Order;
- 30% on submission of General Arrangement Drawings;
- 50% on notification that equipment is ready to ship;
- 5% within thirty (30) days of equipment start-up or within sixty (60) days of equipment shipment, whichever is sooner.

ZENON shall only proceed with preparation of Engineering Drawings upon receipt of a formal purchase order and a written Notice to Proceed with Engineering Drawings from the Buyer. If, as of the date Engineering Drawings are submitted, the Buyer terminates ZENON's Contract, then the Buyer shall pay Zenon the milestone price for Engineering Drawings, or ZENON's actual costs plus 10% for drawing preparation to the date of notice of termination, whichever is greater.

ZENON shall only proceed with procurement and production of equipment and materials upon receipt of a formal purchase order and a written Notice to Proceed with Equipment and Materials Supply from the Buyer.



5.5 Typical Schedule

A typical drawing submission and equipment shipment schedule is indicated below. Drawing submission milestones and equipment shipment periods are quoted from date of receipt of a formal signed purchase order:

Submission of P&ID, Bill of Materials, General layout	4 weeks after acceptance of a Purchase Order by ZENON
Equipment Shipment	10 - 12 weeks from drawing submittal
Plant Operation Manuals	2 weeks after shipment of equipment to site
Operator Training	When preferred by Client but no later than 2 weeks prior to the scheduled plant start-up

5.6 Limit of Liability

ZENON's liability for damages shall not exceed the payment, if any, received by ZENON for the materials or services furnished or to be furnished, as the case may be, which is the subject of claim or dispute. In no event will ZENON be liable for incidental, consequential or special damages, of any kind, however caused, arising out of, or in any way connected with, the materials or services furnished by ZENON to the customer.

5.7 Indemnification

ZENON's indemnity and hold harmless obligations as to any claim or suit within the scope of this clause shall be reduced to the extent of any concurrent negligence, or violation of law by Buyer. ZENON shall be obligated, however, to defend Buyer against any claim or suit arising from an alleged defect in the Equipment or from ZENON's acts or omissions in connection with this Agreement unless and until the extent of Buyer's concurrent negligence, or violation of law is agreed to by Buyer and ZENON or finally determined through the applicable dispute resolution process. Once the proportion of Buyer's concurrent responsibility has been established, Buyer shall be obligated to contribute that proportion of ZENON's past and future costs of defense and settlement of the claim or suit.

For purposes of this clause as well as the indemnity, hold harmless and defense obligations, the term Buyer includes Buyer, Owner and its and their officers, employees, affiliates, agents, successors, and assigns, and such other entities of which Buyer may notify ZENON as being participants in the Project to which this Agreement relates.

5.8 Customer Caused Shipping Delays

Where ZENON has procured the equipment, including membranes, in accordance with the Customer's purchase order and the equipment is being stored at the ZENON production facility and is ready for shipment to the project site on the "shipping date", and where the Customer is not ready to receive the equipment or does not have adequate facilities for properly storing the equipment at the project site, the Customer shall provide written notification to ZENON, at least 15 calendar days before the scheduled shipment date, advising that there shall be a Customer caused shipping delay, and on or before the scheduled shipment date, send a representative to the ZENON production facility, at the Customer's expense, to jointly inspect the equipment with a ZENON representative and to certify that



the materials are now ready for shipment, and provide the ZENON representative with a payment of the amount due to ZENON upon shipment and delivery of the equipment.

As ZENON receives the payment of the amount due to ZENON upon shipment and delivery of the equipment, ZENON shall issue the Customer a Lien Waiver and Warehouse Receipt, whereby the Customer takes ownership of the materials and ZENON agrees to store the materials in a secured facility, for a storage fee of warehouse floor area occupied (amount to be negotiated), until such time as the Customer provides ZENON with written notification that the project site is ready to receive the materials and written instruction is given to ZENON to deliver the materials to the project site.

Warranties on equipment, other than membranes, potentially supplied under this contract shall begin on the scheduled date for delivery of the equipment as specified at the time a Notice to Proceed with equipment purchasing has been received from the buyer. The start date for the equipment warranty may only be delayed if Zenon receives written notice no less than ten (10) weeks prior to the scheduled shipment date that shipment of equipment is to be delayed and a new scheduled shipment date has been identified.

5.9 Customer / Contractor Caused Commissioning Delays

On time completion of the start up and commissioning services will require satisfactory installation of all equipment by the Owner's Installation Contractor. In order to prevent delays in the start-up and commissioning schedule and cost overages due to these delays, ZENON will utilize an Installation Check List as part of a full Commissioning Plan to ensure all tasks are identified and scheduled. ZENON Field Service personnel will not be deployed to site for start-up and commissioning services until the Installation Check List is completed by the General Contractor and approved in writing by the Owner's Engineer. This will ensure that ZENON field service personnel will be able to complete all start-up and commissioning tasks upon arrival at the project site.

In the event equipment installation tasks, identified as being completed on the Installation Check List, are found to be incomplete upon arrival at site, ZENON will be entitled to back charge the General Contractor and or Owner for delays associated with the incomplete equipment installation tasks. Charges will be billed at ZENON Field Service Labor Rates.



6 Standard Terms and Conditions

ZENON Membrane Solutions, a part of GE Water & Process Technologies, hereinafter referred to as ZENON, desires to provide its Customers with prompt and efficient service. To negotiate individually the Terms and Conditions of each Sales contract would substantially impair ZENON's ability to provide such service. Accordingly, Products and Services furnished by ZENON are sold only on the Terms and Conditions stated herein. Notwithstanding any terms or conditions on Customer's order, ZENON's performance of any contract is expressly made conditional on Customer's agreement to ZENON's Terms and Conditions of Sale unless otherwise specially agreed to in writing by ZENON. In the absence of such agreement, commencement of performance and/or shipment shall be for Customer's convenience only and shall not be deemed or construed to be acceptance of Customer's Terms and Conditions, or any of them. If a contract is not earlier formed by mutual agreement in writing, acceptance of any Product or Service shall be deemed acceptance of the Terms and Conditions stated herein. All contracts for the Sale of Products shall be construed under and governed by the law of the location of ZENON's plant at Oakville, Ontario, Canada.

QUOTATION AND PRICES

All quotations are subject to the Terms and Conditions stated herein as well as any additional Terms and Conditions that may appear on the face hereof. In the case of a conflict between the Terms and Conditions stated herein and those appearing on the face hereof, the latter shall control. ZENON's prices and quotations are subject to the following:

- a) All published prices are subject to change without notice.
- b) Unless otherwise specified in writing, all quotations expire thirty (30) days after date thereof, may be terminated earlier by notice and constitute only solicitations for offer to purchase; further, budgetary quotations and estimates are for preliminary information only and shall neither constitute offers, nor impose any obligation or liability upon ZENON.
- c) Unless otherwise stated in writing by ZENON, all prices quoted shall be exclusive of transportation, insurance, taxes (including, without limitation, any sales, use, or similar tax, and any tax levied on or assessed to ZENON after Product shipment by reason of ZENON's retention of a security interest as provided herein), license fees, customs fees, duties and other charges related thereto and Customer shall report and pay any and all such shipping charges, premiums, taxes, fees, duties and other charges related thereto, and shall hold ZENON harmless therefrom, provided that, if ZENON, in its sole discretion, chooses to make any such payment, Customer shall reimburse ZENON in full upon demand.
- d) Stenographic, typographical and clerical errors are subject to correction.
- e) Prices quoted are for Products only and do not include technical data, proprietary right of any kind, patent rights, qualification, environmental or other than ZENON's standard tests and other than ZENON's normal domestic commercial packaging unless expressly agreed to in writing by ZENON.
- f) Published weights and dimensions are approximate only. Certified dimension drawings can be obtained upon request. Manuals, drawings or other documentation required hereupon must be referenced specifically.

This is merely a quotation, and the technology disclosed herein may be covered by one or more ZENON patents or patent applications. Any disclosure in this offer does not hereby grant, and nothing contained in the offer shall obligate ZENON to grant, an option to obtain a license to any technology or any other rights under any patent now or hereafter owned or controlled by ZENON.

TERMS OF PAYMENT

Unless credit is granted or otherwise specified in writing, payment is due upon shipment. All payments on approved credit accounts shall be due in full thirty (30) days from date of invoice. Past due balances shall be subject to a service charge of 1-1/2% per month (18% per annum), but not more than the amounts allowed by law. Partial shipments will be billed as made and payments therefor are subject to the above terms. Payment shall not be withheld for delay in delivery of required documentation unless a separate price is stated therefor, and then only to the extent of the price stated for such undelivered documentation. ZENON may cancel or delay delivery of Products in the event Customer fails to make prompt payment therefor, or in the event of an arrearage in Customer's account with ZENON. ZENON hereby retains a security interest in the Products furnished until Customer has made payment in full in accordance with the terms hereof. Customer shall cooperate fully with ZENON to



execute such documents and to accomplish such filings and/or recordings thereof as ZENON may deem necessary for the protection of ZENON's interest in the Products furnished.

TRANSPORTATION AND RISK OF LOSS

Transportation will normally follow Customer's shipping instructions, but ZENON reserves the right to ship Products freight collect and to select the means of transportation and routing when Customer's instructions are deemed unsuitable. Unless otherwise advised, ZENON may insure to full value of the Products or declare full value thereof to the transportation company at the time of shipment and all freight and insurance costs shall be for Customer's account. Risk of loss and/or damage shall pass to Customer at the FCA point, which shall be the point of manufacture or such other place as ZENON shall specify in writing, notwithstanding installation by or under supervision of ZENON. Confiscation or destruction of, or damage to, Products shall not release, reduce or in any way affect the liability of Customer therefor. All Products must be inspected upon receipt and claims should be filed with the transportation company when there is evidence of shipping damage, either concealed or external. Notwithstanding any defect or nonconformity, or any other matter, risk or loss and/or damage shall remain with the Customer until the Products are returned at Customer's expense to such place as ZENON may designate in writing. Customer, at its expense, shall fully insure Products against all loss and/or damage until ZENON has been paid in full therefor, or the Products have been returned, for whatever reason, to ZENON.

PERFORMANCE

ZENON will make all reasonable effort to observe its dates indicated for performance. However, ZENON shall not be liable in any way because of any delay in performance hereupon due to unforeseen circumstances or to causes beyond its control, including, without limitation, strike, lockout, riot, war, acts of terrorism, fire, act of God, accident, failure or breakdown of components necessary to order completion, subcontractor, supplier or customer caused delays, inability to obtain or substantial rises in the price of labour, materials or manufacturing facilities, curtailment of, or failure to obtain sufficient, electrical or other energy supplies, or compliance with any law, regulation or order, whether valid or invalid of any cognizant governmental body or any instrument thereof whether now existing or hereafter created. Performance shall be deemed suspended during, and extended for, such time as any such circumstances or causes delay its execution. Whenever such circumstances or causes are remedied, ZENON will make, and Customer shall accept, performances hereupon. In addition, ZENON's inventories and current production must be allocated so as to comply with applicable Government regulations. In the absence of such regulations, ZENON reserves the right, in its sole discretion, to allocate inventories and current production and substitute suitable materials when, in its opinion, such allocation or substitution is necessary due to such circumstances or causes. No penalty clause of any kind shall be effective. As used herein, "performance" shall include, without limitations, fabrication, shipment, delivery, assembly, installation, testing, and warranty repair or replacement as applicable.

ACCEPTANCE

The furnishing by ZENON of a Product to the Customer shall constitute acceptance of that Product by Customer, unless notice of defect or nonconformity is received by ZENON within thirty (30) days of receipt of the Product at Customer's designated receiving address; provided that, for Product for which ZENON agrees in writing to perform acceptance testing after installation, the completion of ZENON's applicable acceptance tests, or execution of ZENON's acceptance form by Customer, shall constitute acceptance of the Product by Customer. Notwithstanding the foregoing, any use of a Product by Customer, its agents, employees, contractors or licensees for any purpose, after receipt thereof, shall constitute acceptance of that Product by Customer. ZENON may repair or, at its option, replace defective or non-conforming parts after receipt of notice of defect or nonconformity.

ASSIGNMENTS AND TERMINATIONS

Any assignment by Customer of any contract hereupon without the express written consent of ZENON is void. No order may be terminated by Customer except by mutual agreement in writing. Terminations by mutual agreement are subject to the following conditions:

- a) Customer will pay, at applicable contract prices, for all Products which are completely manufactured and allocable to Customer at the time of ZENON's receipt of notice of termination.
- b) Customer will pay all costs, direct and indirect, which have been incurred by ZENON with regard to Products which have not been completely manufactured at the time of ZENON's receipt of notice of termination.
- c) Customer will pay a termination charge on all other determined costs and other charges. To reduce termination charges, ZENON will divert completed parts, material or work-in-process from terminated contracts to other Customer's whenever, in ZENON's sole discretion, it is practicable to do so.

ZENON may terminate the agreement for cause, at its discretion, whenever approved payments are overdue.

PATENTS AND OTHER INDUSTRIAL PROPERTY RIGHTS



ZENON will hold Customer harmless, as set forth herein, in respect to any claim that the design or manufacture of any Product in ZENON's commercial line of Products, or manufactured to specifications set by ZENON and furnished herein, constitutes an infringement of any patent or other industrial property rights of the United States or Canada. ZENON will pay all damages and costs, either awarded in a suit or paid, in ZENON's sole discretion, by way of settlement, which are based on such claim of infringement, provided that ZENON is notified promptly in writing of such claim of infringement but there is no liability whatsoever herein with respect to any claims settled by Customer without ZENON's prior written consent. In the event that ZENON is required to hold Customer harmless hereupon, ZENON will, in its sole discretion and at its own expense, either procure for Customer the right to continue using said Product, replace it with a non-infringing product, or remove it and refund an equitable portion of the selling price and transportation costs thereof. This shall constitute ZENON's entire liability for any claim based upon or related to any alleged infringement of any patent or other industrial rights. Customer shall hold ZENON harmless against any expense, loss, costs or damages resulting from claimed infringement of patents, trademarks, or other industrial property rights arising out of compliance by ZENON with Customer's designs, specifications, or instructions. ZENON disclaims liability for U.S. or Canadian patent or copyright infringement arising from use or manufacture by anyone of inventions in connection with products or services sold, used, or intended for sale or use, in performing contracts within the United States or Canada.

WARRANTY

- 1) Unless otherwise agreed to in writing, ZENON warrants its Products to be free from defects in material or workmanship for a period of 12 months from the shipment of Product by ZENON, provided that such Products are used, cleaned and maintained in accordance with the ZENON's instructions. This warranty does not apply to normally replaceable parts or components such as filter cartridges, pump seals, membranes etc., (see below for membrane warranties).
- 2) Customer undertakes to give immediate notice to ZENON if goods or performance appear defective and to provide ZENON with reasonable opportunity to make inspections and tests. If ZENON is not at fault, Customer shall pay ZENON the costs and expenses of the inspections and tests.
- 3) ZENON's obligations under this warranty are limited to the repair or replacement at its factory, of any device or part thereof which shall prove to have been thus defective. If Customer asks ZENON to replace defective parts at Customer's premises, Customer agrees to pay for any traveling time and expenses, plus the ZENON's labour to complete the replacement/repair.
- 4) Goods shall not be returned to ZENON without ZENON's permission. ZENON will provide Customer with a "Return Material Authorization" number to use for returned goods. All returns are F.O.B. - Oakville, Ontario, Canada. Repaired or replaced items will be shipped back to customers from ZENON FCA Oakville, Ontario.
- 5) Warranty on the membranes applies only if the membrane element(s) has been operated and cleaned according to ZENON's instructions. When either permeate or concentrate flow drops by 10% from the original rates at the same operating conditions, cleaning must be initiated or the warranty will be null and void. Elements must be clean and be kept moist. They should be shipped to ZENON in water-tight bags and must be protected from freezing. WARNING - if element conditions of use given in ZENON's instructions are not followed, the warranty will be null and void.

Implied warranties, including but not limited to warranties of fitness for particular purpose, use or application, and all other obligations or liabilities on the part of the ZENON, unless such warranties, obligations or liabilities are expressly agreed to in writing by ZENON, are null and void.

DAMAGES AND LIABILITY

ZENON's liability for damages shall not exceed the payment, if any, received by ZENON for the unit of product or service furnished or to be furnished, as the case may be, which is the subject of claim or dispute, to a maximum of ten percent (10%) of ZENON's total contract value for all such claims under this Agreement. In no event will ZENON be liable for incidental, consequential or special damages of any kind, however caused, arising out of, or in any way connected with, the products furnished by ZENON to Customer.

DISPUTES

All disputes under any contract concerning Products not otherwise resolved between ZENON and Customer shall be resolved in a court of competent jurisdiction for the location of ZENON's plant at Oakville, Ontario, Canada, and no other place. Provided that, in ZENON's sole discretion, such action may be heard in some other place designated by ZENON, if necessary to acquire jurisdiction over third persons, so that the dispute can be resolved in one action. Customer hereby consents to the jurisdiction of such court or courts and agrees to appear in any such action upon written notice thereof. No action, regardless of form arising out of, or in any way connected with, the Products or Services furnished by ZENON, may be brought by Customer more than one (1) year after the cause of action has occurred. If any part, provision or clause of the Terms and Conditions of Sale, or the application thereof to any person or circumstances, is held invalid, void or unenforceable, such holding shall not affect and shall leave



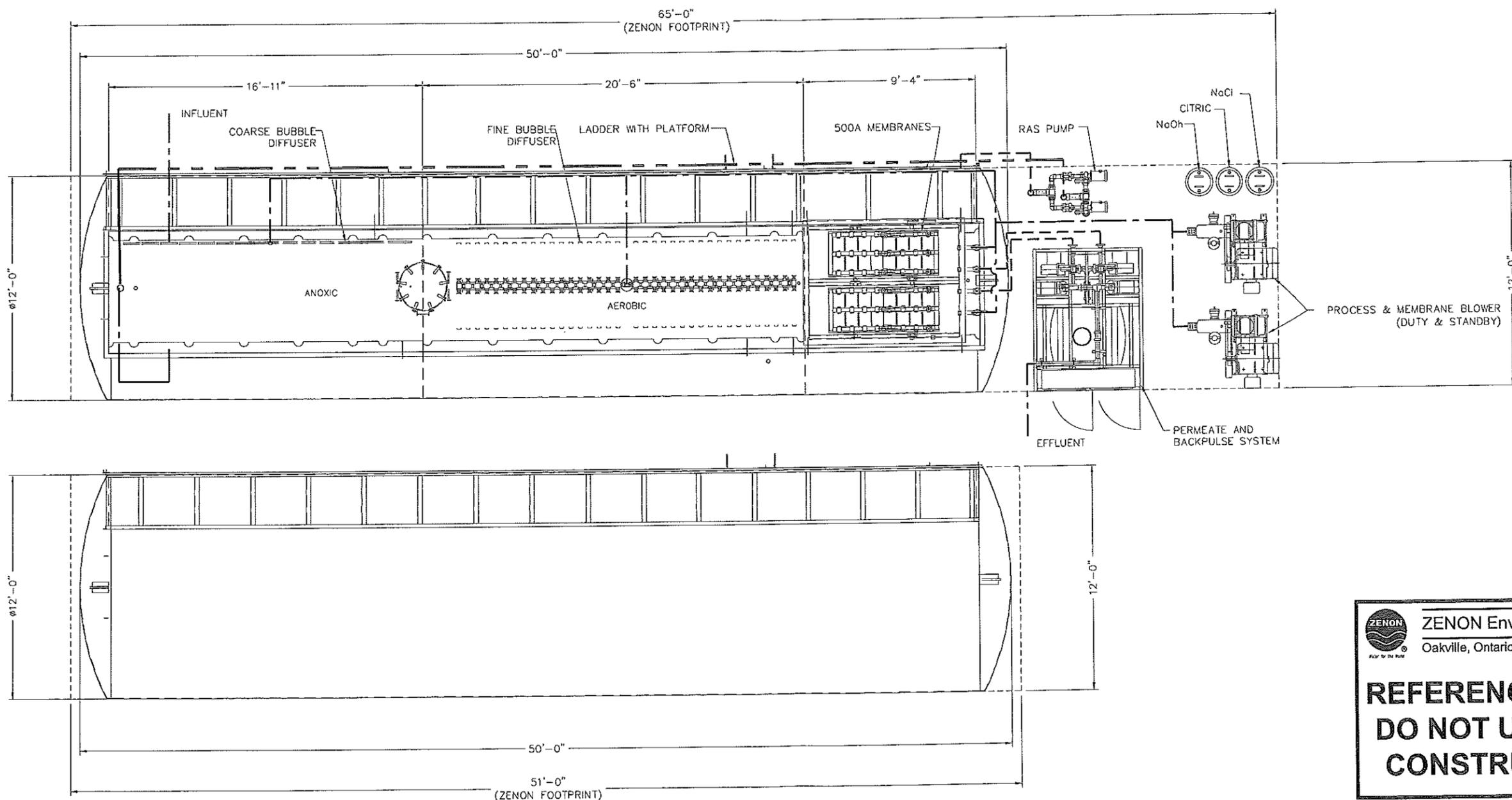
valid all other parts, provisions, clauses or applications of the Terms and Conditions remaining, and to this end the Terms and Conditions shall be treated as severable.

NON-EXCLUSIVE ROYALTY FREE LICENSE

ZENON grants Customer a non-exclusive royalty free license to make or use any process or apparatus claimed in any patent owned by ZENON but only to the extent that this license is required by Customer to build and operate the Membrane System described in this contract using ZeeWeed® membrane modules supplied by ZENON. All

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ZENON Environmental Inc.
 Oakville, Ontario 905-465-3030

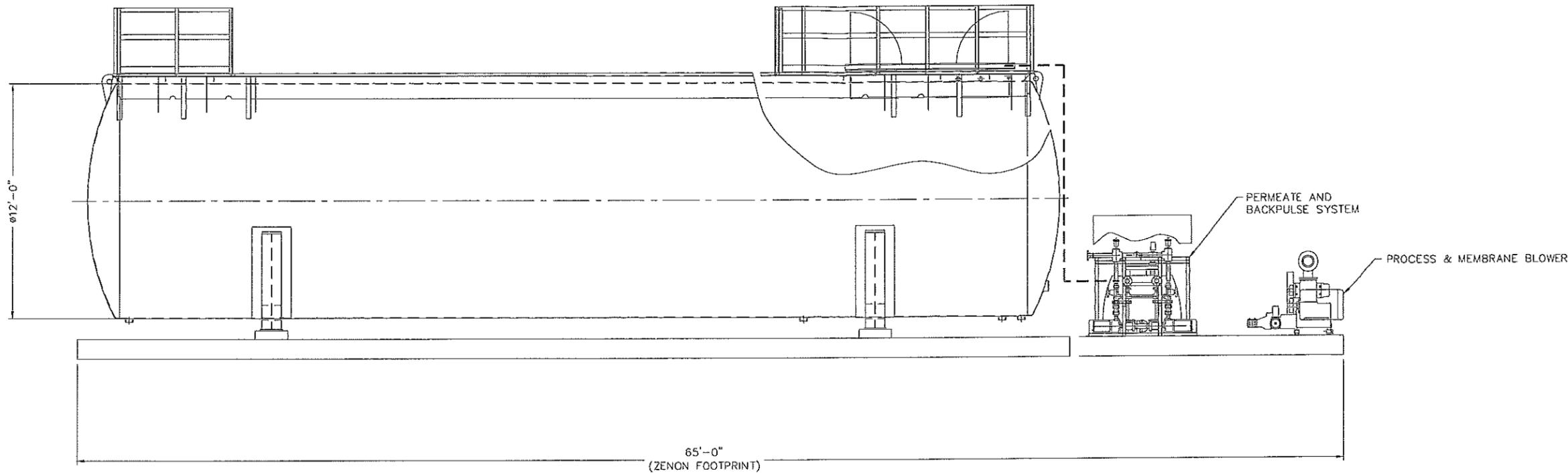
**REFERENCE ONLY
 DO NOT USE FOR
 CONSTRUCTION**

UNLESS OTHERWISE SPECIFIED:		APPROVAL		DATE		ZENON Environmental Inc.	
1. DIMENSIONS ARE IN INCHES		DRWN: J.Q.		05/10/20		ZEN - OAKVILLE ONTARIO	
2. TOLERANCES		DSGN: D.M.		05/10/20		CUSTOMER: Z-MOD-TYPE-S-16HV	
FRACTIONS	± 1/8"	CHKD:				TITLE: GENERAL ARRANGEMENT WASTEWATER TREATMENT PLANT	
DECIMALS	.X ± .030	APPD:				CAOD FILE: WDA16HV001.dwg	
ANGLES	± .5 DEG	SCALE:	NTS	SIZE:	D	DRAWING NO. WDA16HV-G-001	SHEET 1 of 2
HOLE SIZES	± 1/32"						REV. A
HOLE CENTRES	± 1/32"						

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ZENON Environmental Inc.
 Oakville, Ontario 905-465-3030

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 CONSTRUCTION**

UNLESS OTHERWISE SPECIFIED:		APPROVAL		DATE (Y/M/D)		ZENON Environmental Inc.	
1. DIMENSIONS ARE IN INCHES		DRWN: J.Q.		05/10/20		ZEN - OAKVILLE ONTARIO	
2. TOLERANCES		DSGN: D.W.		05/10/20		CUSTOMER: Z-MOD-TYPE-S-16HV	
FRACTIONS	± 1/8"	CHKD:				TITLE: GENERAL ARRANGEMENT WASTEWATER TREATMENT PLANT	
DECIMALS	X ± .030	APPD:				DRAWING NO. WDA16HV-G-001	
ANGLES	XX ± .015	CADD FILE: WDA16HV001.dwg				SHEET 2 of 2	
HOLE SIZES	± 1/32"					REV. A	
HOLE CENTRES	± 1/32"						
DRAWING INTERPRETATION: ANSI Y14.5 M		SCALE: NTS		SIZE: D			

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