ENVIRONMENT ACT PROPOSAL
CHERRY HILL ESTATE
RECREATION VEHICLE SITE EXPANSION
ONSITE WASTEWATER MANAGEMENT SYSTEM

Prepared for:

Mr. Harry Fehr
Cherry Hill Estate
Box 20640
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Project No: 101-17928-01

March 2013

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0.0 EXECUTIVE SUMMARY

Leading up to this Environment Act Proposal (EAP), GENIVAR was retained by Cherry Hill Estate to assess the options available to provide onsite wastewater treatment systems for additional Recreational Vehicle Sites to be developed at NE 05-07-07 EPM in the Rural Municipality of Ste. Anne.

Upon approval from Manitoba Conservation and issuance of an Environment licence, it is anticipated that the tender and construction will begin in 2014.

1.0 DEVELOPMENT INFORMATION

Cherry Hill Estate – Onsite Wastewater Management System
Name of development

3718426 Manitoba Ltd.
Legal name of the proponent of the development

NE 05-07-07 EPM, RM of Ste. Anne
Location of development

Contact Person for Proponent:

Mr. Harry Fehr
Cherry Hill Estate
Box 20640
Steinbach, Manitoba R5G 1S1

Contact Person for Environmental Assessment:

Mr. Iain Pimlott, B. Sc., C. Tech.
Senior Environmental Scientist
GENIVAR
10 Prairie Way
Winnipeg, Manitoba R2J 3J8

2.0 DESCRIPTION OF DEVELOPMENT

2.1 CERTIFICATE OF TITLE

The proposed development is located 5 kilometres east of the City of Steinbach in the R.M. of Ste. Anne at NE 05-07-07 EPM. The Certificate of Title for the proposed development area is included in Appendix A.

Figure 2.1: Location map of proposed development

2.2 NAME OF OWNER

The development area is owned by **3718426 Manitoba Ltd.**

2.3 MINERAL RIGHTS

According to correspondence with Crown Lands & Property Agency – Lands Branch, NE 05-07-07 EPM was originally transferred in August 1917 along with the sand & gravel. The Crown kept the mines & minerals and continues to own them today. Correspondence is included in Appendix D.

2.4 DESCRIPTION OF EXISTING LAND USE

Cherry Hill Estate is a recreational complex located at NE 05-07-07 EPM in the Rural Municipality of Ste. Anne Manitoba. Individual wastewater disposal systems situated near the respective location, service each facility. Two separate groundwater wells provide the needed water supply for the existing development.

In 2005, the Cherry Hill Restaurant & Bar was developed on a ridge in the east-central part of the quarter section. Operating on seasonal basis, it is served by its own groundwater well for domestic water supply and by an onsite wastewater management system (OWMS) with a design capacity of 10,000 litres per day. The normal operating season for these facilities is from about May 1 to October 31 annually.

The Cherry Hill Seasonal Campground and RV Park were also developed in 2005. The development is located in the western part of the quarter section. A long, narrow gravel quarry, which has been remediated to form a small lake for water recreation, lies immediately to the east of the Campground and RV Park development. A total of 66 camping and RV sites were developed along the western side of the lake. Services include electricity outlets, water service and gravity wastewater collection. Water is provided from a well and treatment system at the north end of the campground. Wastewater is treated in an OWMS located near the western boundary of the quarter section.

In 2007, a 33-site RV Park was developed on the northeast side of the lake. An additional 37 sites were developed on the southeast side of the lake in 2008 for a total of 136 camping and RV sites.

Cherry Hill Estate added a second banquet tent at a separate location from the restaurant and bar. It was used when the main banquet tent was booked for a simultaneous event. The second banquet tent was serviced by a wastewater holding tank to store wastewater that was then hauled away for offsite disposal elsewhere after each event. This second banquet tent is no longer in operation and is not expected to be reopened.

At the original campground, a shower and laundry facility building that was originally built in 2006 was expanded for the 2010 season. The average daily wastewater flow from this building has been about 500 litres per day during the peak months of July and August.

3.0 POPULATION SERVICED AND DESIGN LOADING

3.1 SOURCES OF WASTEWATER

Based on actual occupancy and on metered flows of wastewater in the 2006, 2007 and 2008 seasons from the original 66 sites on the western side of the lake, it was projected that the additional 70 sites could be accommodated by the capacity in the existing OWMS for the campground. In 2009, the averages of the total daily wastewater flow from all 136 sites, for the peak months of July and August, were 6787 and 6796 respectively. In 2010, the average total daily wastewater flows for these months were 6,758 and 6,793 litres respectively. And in 2011, the average daily wastewater flow for these peak months was 7,029 and 7,071 litres respectively. The design capacity of the OWMS is 7,237 litres per day. The continuous occupancy of the park during these three seasons has been 110 sites. The average wastewater flow per RV unit during the overall peak month (August 2011) is 64 litres/day.

The estimated total daily flow for the proposed Cherry Hill Estate Recreation Park expansion is about 52,080 litres per day. To service the expansion, it is proposed to develop a total of six individual onsite wastewater management systems each with a capacity of 10,000 litres per day.

3.2 HYDRAULIC LOADING

Wastewater flow records from the operations since the park opened in 2005 shows that the average daily flow per RV unit during the peak months of July and August has been about 64 litres per unit per day. In the last several years there has been a trend to switch to Park Model RV units. The transition to Park Models is expected to result in an increase in the per RV unit flow of wastewater to an estimated 120 litres per unit per day in peak periods.

The wastewater from the existing 66 RV sites on the west side of the property will continue to flow to the registered OWMS on the west side of the property. Due to the transition to Park Model it is proposed to increase the treatment and disposal capacity of this system to 10,000 litres per day by expanding the settling tank and disposal field capacity as part of this proposal. It would then be capable of treating the flow from the 66 Park Model units plus the flow from the shower and laundry building. The latter building has generated a wastewater

flow of about 500 litres per average day in peak summer months. This is estimated, for design purposes, to increase to a maximum of 1,500 litres per day in peak summer periods. The total wastewater flow to this expanded OWMS, in peak periods, is therefore estimated to be 9,420 litres per day, 7,920 from the RV units and 1,500 from the shower and laundry building.

The 10,000 litre/day OWMS, which was originally developed to serve the restaurant and bar will again be used to service those facilities. The restaurant and bar have been temporarily closed for several seasons. They will be reopened at a reduced scale in the upcoming seaon. The banquet tent will not be reopened. It is proposed that for 2013, the 70 RV units on the eastside of the lake will also be served by this OWMS. Flow meters are in place to monitor the wastewater flow from this system. This OWMS is equipped with a limiting device to ensure that the flows to the system do not exceed 10,000 L/day. It is not expected that flows from the serviced facilities will approach the capacity of the OWMS in the near future.

The 70 RV sites on the east side of the lake and the additional RV sites that are being planned are proposed to be serviced with new OWMS facilities. At this time the planned expansion is expected to consist of up to 364 new RV sites plus three additional shower and laundry buildings. The total peak wastewater flow from the 434 RV sites and the three new shower and laundry buildings is estimated to be 52,080 litres (434 x 120) and 4,500 litres (3 x 1,500) per day respectively for a total of 56,580 litres per day. It is proposed to develop a total of six individual OWMS units, each with a capacity of 10,000 litres per day, to service the expansion of the Cherry Hill Estate RV Park.

4.0 PROPOSED DEVELOPMENT

It is proposed to develop additional Recreational Vehicle (RV) sites and service facilities at Cherry Hill Estates in the NE ¼ Section 05-07-07 EPM. The plan is to increase the number of available RV sites from the current 136 to an estimated 500 sites. The sites would be distributed in various areas of Cherry Hill Estate. Shower and laundry facilities would be added in strategic locations. It is also proposed that the restaurant and bar will be reopened in the coming years. In order to facilitate this expansion, it is necessary to provide additional capacity to the OWMS facilities on the property.

4.1 SITE CONDITIONS

GENIVAR conducted a soil testing at the proposed site located in section NE 05-07-07 EPM during which nine test holes were excavated and soil samples were collected.

4.1.1 Soil Conditions

Eight test holes excavated to a depth of 0.45 metres at three separate areas on the site (2 test holes at Site 101, 3 test holes at Site 102 and 3 test holes at Site 103), revealed that the site is a glacial deposit of silt, sand and gravel. Based on the Manitoba Conservation soil classification triangle, Site 101 was classified as sand where the loam ranges from 87% to 91% sand, 3% to 7% silt and 3% clay. The soil test results from this site, when applied to the Manitoba Conservation soil classification triangle, indicate an effluent application rate of 29.35 litres per square metre per day. Site 102 was classified as loamy sand where the loam ranges from 77% to 82% sand, 6% to 7% silt and 3% to 5% clay. The soil test results from this site, when applied to the Manitoba Conservation soil classification triangle, indicate an effluent application rate of 29.35 litres per square metre per day. Site 103 was classified as Silt Loam. The loam ranges from 26% to 46% sand, 46% to 63% silt and 9% to 11% clay. For the loam in the upper layer at Site 103, the application rate varies from 13.70 to 16.63 litres per square metre per day. The lower, more conservative, figure will be used for design purposes. Soil analyses are attached in Appendix C.

Excavation was continued to a depth of 1.5 metres to confirm no groundwater was encountered at each of the sites (101 to 103).

4.2 SUMMARY OF PROPOSED DEVELOPMENT

The proposed development consists of the construction of six 10,000 litre/day pressurized sand treatment mound wastewater management systems. The new OWMS sites will provide treatment for a hydraulic loading of 60,000 L/day.

4.2.1 New Disposal Fields

The design criteria for the onsite wastewater effluent disposal field are developed in accordance with Manitoba Conservation Regulation 83/2003, *Onsite Wastewater Management Systems.*

Manitoba Conservation provides supplementary information to Regulation 83/2003. This includes a soil texture classification triangle with effluent application rates for various classifications of soil. For the loam in the upper layer at these sites, the application rate at Sites 1 and 2 is 29.35 litres per square metre per day and 13.70 litres per square metre per day at Site 3. The estimated total daily flow for the proposed Cherry Hill Estate Recreation Park expansion is about 52,080 litres per day. To service the expansion, it is proposed to develop a total of six individual onsite wastewater management systems each with a capacity of 10,000 litres per day. This exceeds the maximum flow for registration of an onsite wastewater management system under Regulation 83/2003. Consequently, this application for an Environment Act Licence is being made as an Environment Act Proposal to the Environmental Assessment and Licencing Branch.

The wastewater will be collected in a gravity or low pressure sewer system that will be engineered separately and submitted to Manitoba Conservation and Water Stewardship for approval. The wastewater will be pre-treated by sedimentation in a settling tank (or a series of settling tanks) with a combined capacity of 140% of the daily wastewater flow for each of the individual pressurized sand treatment mounds as described later in this proposal. The settling tanks will be of reinforced concrete, polyethylene or reinforced fibreglass construction in accordance with CSA Specification B66-00. The locations of the settling tanks will be determined once the RV Park layout is finalized. The effluent from the settling tanks will be discharged into pumping stations which will pump to the onsite disposal fields in controlled batches for uniform distribution and infiltration. The pumping station capacity will be equal to or greater than 20% of the daily wastewater flow for each unit. A filter screen

with openings of 1.6 mm will be installed to filter the effluent from the settling tank prior to discharge to the sand filter mounds.

Cherry Hill Estate proposes to install pressurized sand treatment mounds. This is an option provided for in the Director Variance for Manitoba Regulation 83/2003. The sand treatment mound provides a considerable margin of safety for long term operation of the proposed disposal fields. The sand treatment mound is proposed to be installed as shown on the attached Drawings C01 and C02 in Appendix B. Sand treatment mounds in the Manitoba environment have been shown to provide secondary level treatment of wastewater within the sand filter and before the effluent comes in contact with and infiltrates the underlying native soil.

The Manitoba Regulation and the Director Variance do not specify full details for the design of sand treatment mounds. Those requirements which are specified under the Regulation (as shown in Figure 1 of the Director Variance) will be incorporated in the design. Manitoba's current published Standard of Practice for onsite wastewater systems is a handbook produced for the Province of Manitoba Onsite Wastewater Management Systems Installers Education Program, First Edition 2011. The 2009 Alberta Private Sewage Systems Standard of Practice Handbook, which has been used successfully for onsite wastewater systems in Manitoba, has also been referenced in completing the design of the proposed sand treatment mound system.

The sand treatment mound system will consist of six separate units, two units located adjacent to each other at three separate locations. For purposes of this design, a daily capacity of 10,000 litres has been selected for each unit, for a total daily capacity of 60,000 litres. Each unit is divided into two zones for purposes of sequential pumping operations as described herein. The sand mound system will be constructed as indicated below:

Base Area Preparation

The base area of each of the six units is 11.0m wide by 75.0m long as shown in Drawing C01 in Appendix B. With a base area of 825 square metres per unit and a total base area of 4950 square metres for the six-unit mound system, this is in conformance with the allowable application rate for the underlying soil. At an application rate of 13.70 litres/square metre/day for the soil samples from Test Hole 3-102 and 3-103, and on the basis of the

design factors as indicated herein, the minimum required base area is 821 square metres. The application rate of 16.63 litres/square metre/day for the area of Test Hole 3-101 provides an additional safety factor for percolation into the underlying soil.

The foregoing analysis to determine the required application area is based on the requirements of Manitoba Regulation 83/2003, Schedule A, Article 2(6) and modified by the provisions of Article 2(7). Article 2(6) includes a formula which applies a safety factor of 1.5 on the projected daily flow to the field, which in this report is 10,000 L/day. Article 2(7) permits a reduction of up to 25% in the application area where aerobic treatment precedes the application of effluent to the native soil. The proposed chamber system in a sand filter mound with a minimum of 0.3 metres of percolation constitutes such aerobic treatment. Most of the percolation (and filtration) distance will be greater than 0.3 metres and up to 3.5 metres. It will occur in an aerobic environment both in the chambers and in the adjacent and underlying sand layer. The biomat, an integral component of the treatment system will be at the base and the lower sides of the chambers. Recent BOD_5 test results on effluent from a similar treatment system (chambers enclosed in sand and on a filter base of 0.6m thickness) were found to be as follows: 305 mg/L for the wastewater going into the chamber; and successive values of 16.8 mg/L, 6 mg/L and <6 mg/L at lateral distances of 0.6 metres, 1.8 metres and 3.0 metres from the side of the chamber. This gradient shows firstly, that secondary treatment (BOD_5 <30mg/L) is achieved in less than 0.6 metres of sand filter, and secondly, that it improves in quality to background levels in less than three metres of sand. The test was conducted on a 5-year old system with a capacity of 10,000 litres per day. Wastewater is domestic and includes a food services facility. The operation is seasonal; the tests were conducted on September 27, 2010 from a May 1, 2010 opening of the 2010 season.

From the foregoing, it is concluded that the effluent that will be infiltrating into the native soil will have the quality of secondary treatment or better.

As shown in the Drawing C02 in Appendix B, the native soil will be left in place under the base area of the mounds. It will be scarified as required to facilitate percolation of the filtered effluent into the soil.

Sand Mound Filter

The sand mound filter is designed according to the area sizing calculations provided in the Sand Mound Design – Worksheet (Chapter 9 – Province of Manitoba Onsite Wastewater

Management Installers Training Manual, First Edition, 2011). The filter sand of each unit is proposed to be 0.3 m (1 ft.) in minimum thickness (requirement of the Regulation) and will have a base area of 5.4 m wide by 70.4m long, 380.0 square metres per unit and 2280.0 square metres for the six units combined. The top area of the sand will be 3.0m wide by 68.0m long, 204.0 square metres per unit and 1224.0 square metres for the six units combined. The filter sand will be ASTM C-33, which is typical of medium graded sand used for Portland cement concrete. This is as required in the July 2005/January 2008/July 2010 Director Variance. An estimated 87 cubic metres of sand will be required for each filter unit for a total of 522 cubic metres for the six units combined.

The top of the sand filter will be covered with a 0.05m or 50 mm thickness of coarse gravel to provide erosion protection to the sand filter from the trickling wastewater and to assist with uniform distribution over the surface of the sand. While sand filters are often installed with side slopes at the natural angle of repose, we recommend a side slope 4:1 to facilitate linear loading within the sand treatment mound and a more uniform distribution over the entire footprint. With the chambers, covers and berm in place, the outer side slopes will be 4:1 (minimum) as required.

Along with the chambers, the sand filter will provide good aerobic and filtration treatment of the effluent from the wastewater settling tanks, as indicated in the foregoing example of an existing system and the USEPA reference. The treated and filtered effluent is more readily absorbed into the underlying soil than typical septic tank effluent

Chambers

The chambers will be placed on top of the gravel layer covering the top of the sand mound filters. It is proposed to divide each sand filter unit into two zones as shown in the plan view of the disposal field in Drawing C02. It is proposed to install three rows of Infiltrator Quick4 Equalizer 36 chambers in each zone. Each row would consist of 55 sections of chamber for a total length of 67.1m. A spacing of 0.5m (20”) between rows, plus a minimum space of 0.15m (6”) along the outside provides a total width of 3.0m for the three rows in each sand mound. A total of 1980 chamber sections will be required plus 72 end caps for the twelve zones in six units. A product sheet from Infiltrator is included in Appendix E.

Alternating Valve and Distribution Headers

In order to provide for a modest pumping volume and to optimize the performance of the proposed pump, the effluent will be distributed into each field in two zones. Each of the zones will be comprised of one-half of each sand filter unit with three rows of chambers. In order to facilitate this distribution, a valve chamber will be located within the disposal field as shown in the Plan View of Drawing C01. The valve chamber will consist of a Barkman (or equivalent), 1200mm diameter, precast well cribbing with a total height of 1200mm and lid for easy access. It will house an automatic indexing (alternating) valve, such as the K-Rain Hydrotek Series 6400 with a 4-zone cam (the 4000 series, all-plastic model is not considered to be sufficiently robust for Manitoba's temperature conditions and is not recommended). The valve automatically alternates the outlet port between two effluent header pipes, one to each of the two zones of the sand filter and disposal field (two of the four ports of the valve will be plugged). The valve shall be accessible for servicing once every year or as needed. The valve chamber is to be insulated with 50mm thickness of water resistant polystyrene insulation on the sides and top to minimize the risk of freezing of the valve and piping. Covering the valve chamber with about 0.5 metres of straw before each winter is also recommended. Product information on the alternating valve is included in Appendix E to this report.

Effluent pipes shall be inserted into the valve chamber. It shall be connected to the valve inlet, using a reducer and adapter as required. A 38mm, Sch 40 PVC header pipe shall connect to each of the 2 outlets from the indexing valve to its respective sand filter zone. Header pipes shall be buried at a minimum of 1.2 metres of depth within the treatment mound as shown in the drawing details. Laterals will direct the effluent flow from each header pipe into each of three rows of chambers in each zone. All 90° bends shall be long radius elbows or successive 45° elbows.

Distribution Lateral Pipes

The distribution lateral pipes shall be 38mm diameter, Sch 40 PVC and shall be suspended within the chambers. It is recommended that the pipes be suspended using pressure-dosing pipe supports (product literature attached in Appendix E). Each of the pipes shall be drilled with 4.8 mm (3/16") holes at 1.5m (5.0') spacing, starting at 1.0 metres from the inlet end. The holes shall be at the 12:00 o'clock position except that the second hole from each end shall be at the 6:00 o'clock position to facilitate drainage of the pipe after each pumping

cycle. The 6:00 o'clock holes shall be covered with an orifice shield to prevent erosion in the sand filter below (product literature attached in Appendix E).

The distribution lateral pipes shall be fitted with a 90° long-radius elbow (or two 45° elbows in sequence) at the far end of the chambers. A pipe shall be extended to the surface of the soil cover, with a removable cap for inspection and cleanout when necessary.

Cover Material

The chambers shall be loosely enclosed in sand material similar to that of the filters. The entire system shall then be covered or encased in a berm of loamy sand or sandy loam to a height at which the top of the chambers has a cover of 300mm in thickness as shown in Drawing C02. The top of the cover material shall match the outer top dimensions of the sand filter, 3.0m wide by 68.0m long. The outer dimensions shall extend a minimum of 1.0 metre horizontally beyond the base of the sand filters. The entire surface of the mound shall be covered with a layer of topsoil, minimum thickness of 50mm, and seeded to prairie vegetation. The valve chamber and pipe headers shall also be backfilled with native soil to match the level of the top of the filter mounds. The access hatch of the valve chamber shall be flush with the top of the soil backfill.

Monitoring Tubes

Monitoring tubes shall be placed in the side slopes of the sand filter mound units as shown in Drawing C01. The tubes shall be 100mm diameter perforated PVC pipe enclosed in a geotextile sleeve. The tubes shall be 1.5m in length and project out of the top of the filter by about 0.3m. The tubes shall be capped at the top with a removable cap to permit observation of the water level in the disposal field.

5.0 ENVIRONMENTAL IMPACTS

5.1 ODOUR CONSIDERATIONS

The new onsite wastewater management systems is designed for the projected flows and consist of primary settling tanks and sand filter treatment mounds and a disposal field. It is expected that no unpleasant odours will be associated with the proposed onsite wastewater management system as the off gases from the process will be captured and sent into the soil for removal and conversion to non-greenhouse gases.

5.2 LAND IMPACT

The land intended for proposed development is currently seasonal recreational. Limited native land and habitat will be disturbed by the proposed development.

5.3 SURFACE WATER

Surface water resources and fisheries will not be affected by the proposed onsite wastewater management system, as there is no discharge to surface waters.

5.3.1 Fuel Storage on Site

The proposed facility does not require the onsite storage of gasoline or diesel fuel. During construction and upgrading, the contractor will be required to ensure that all equipment is properly maintained to prevent leaks and spills of fuel and motor fluids. Refuelling of equipment will not be within 100 metres of a water body, stream or wetland.

5.4 GROUNDWATER

The overburden in the aquifer which is the water source for the Cherry Hill Estate water supply consists of about 40 metres of calcareous clay till. The aquifer is in a yellow carbonate rock formation. Most of the wells in the area are developed into the aquifer. Surface water does not influence the aquifer. All of the wells located on Cherry Hill Estate are located 100 metres or more from the existing and proposed on site wastewater disposal systems. Additionally, the wastewater effluent from the sand treatment mounds will be treated to secondary treatment quality or better. A copy of the Well Drillers Report is attached in Appendix C. Groundwater monitoring will be performed as required by Manitoba Conservation.

5.5 SPECIES IMPACT

A file search with the Biodiversity Conservation Wildlife and Ecosystem Protection Branch of Manitoba Conservation resulted in no occurrences found near the development site. Correspondence is included in Appendix D.

5.6 FORESTRY

There is no known forestry activity in the development area. The construction of the onsite wastewater management system will not affect any forested area.

5.7 HERITAGE RESOURCES

Historic Resources Branch has found no areas of potential concern regarding heritage recourses for this project. Correspondence is included in Appendix D.

5.8 SOCIO-ECONOMIC IMPACTS

The onsite wastewater management system construction will result in a short-term boost to the construction industry in the area.

5.9 PUBLIC INVOLVEMENT

Comments from concerned members of the public will be solicited as part of Manitoba Conservation review prior to issuing a licence.

6.0 MANAGEMENT PRACTICE

The new onsite wastewater management system is specifically designed to provide wastewater treatment for the proposed RV Site expansion. The proposed combined systems are designed to treat wastewater up to an average loading of 60,000 L/d. Treated effluent will be pumped for final disposal to adjacent Pressurized Sand Treatment Mound System Disposal Fields for infiltration into the underlying soil.

6.1 RECORD KEEPING AND INSPECTION ROUTINE

A record book, organized in three sections, should be maintained:

1) Daily Records – Pumping records for the pump station should be collected and retained for future estimation of flows to the wastewater treatment facility, i.e. elapsed time meter readings on the station pumps or flow meter.

2) Weekly Records - The weekly summer inspection would consist of recording the following: water level and presence of odours and their source. The Weekly Winter Inspection would consist of inspecting for frozen piping, checking if the water level in the septic tank is as it should be.
3) Service Records - The pump station and septic tank pumps should be serviced according to the manufacturer's instructions.

7.0 SCHEDULE

It is anticipated that the Environment Act Licence process will be finalized by the fall of 2013 and construction will begin in 2014. It is further anticipated that the development of Cherry Hill Estate will occur in stages from 2014 to 2016.

8.0 FUNDING

No public funding is associated with the Cherry Hill Estate Recreational Vehicle Park Expansion.

Submitted by:
GENIVAR

Prepared by: Iain Pimlott, B. Sc., C.Tech.
Senior Environmental Scientist

Reviewed by: A.J. Poetker, P. Eng.
Senior Project Consultant

APEGM
Certificate of Authorization
Genivar Consultants Limited Partnership
No. 4318 Date: March 22, 2013

APPENDIX A

CERTIFICATE OF TITLE

DATE: 2013/03/25
TIME: 14:32

MANITOBA

STATUS OF TITLE

TITLE NO: 1585426/1

PAGE: 1

STATUS OF TITLE..... ACCEPTED
ORIGINATING OFFICE... WINNIPEG
REGISTERING OFFICE... WINNIPEG
REGISTRATION DATE.... 1998/07/07
COMPLETION DATE..... 1998/07/28

PRODUCED FOR.. NA
ADDRESS.....

CLIENT FILE... NA
PRODUCED BY... L.WILZER

LEGAL DESCRIPTION:

3718426 MANITOBA LTD.

IS REGISTERED OWNER SUBJECT TO SUCH ENTRIES RECORDED HEREON
IN THE FOLLOWING DESCRIBED LAND:

N 1/2 OF LEGAL SUBDIVISIONS 9 AND 10 AND ALL OF LEGAL SUBDIVISIONS 15
AND 16 OF SECTION 5-7-7 EPM
EXC FIRSTLY: LOT 1 PLAN 17727 WLTO AND
SECONDLY: LOT 1 PLAN 23542 WLTO AND
THIRDLY: ALL MINES AND MINERALS

ACTIVE TITLE CHARGE(S):

3148492/1 ACCEPTED MORTGAGE **REG'D:** 2005/06/21
FROM/BY: 3718426 MANITOBA LTD.
TO: PAUL LUCIEN VIELFAURE
CONSIDERATION: $200,000.00 **NOTES:**

CHARGES AFFECTING THIS INSTRUMENT:
3183449/1 ACCEPTED POSTPONEMENT OF RIGHTS
NOTES: TO MTGE 3166943
3340274/1 ACCEPTED AMENDING AGREEMENT
3441111/1 ACCEPTED POSTPONEMENT OF RIGHTS
NOTES: TO MTGE 3433163

3183449/1 ACCEPTED POSTPONEMENT OF RIGHTS **REG'D:** 2005/09/02
FROM/BY: PAUL LUCIEN VIELFAURE (M. 3148492)
TO: STEINBACH CREDIT UNION LIMITED (M. 3166943)
CONSIDERATION: **NOTES:**

3340274/1 ACCEPTED AMENDING AGREEMENT **REG'D:** 2006/08/23
FROM/BY: PAUL LUCIEN VIELFAURE
TO: 3718426 MANITOBA LTD.
CONSIDERATION: **NOTES:**

3433163/1 ACCEPTED MORTGAGE **REG'D:** 2007/04/04
FROM/BY: 3718426 MANITOBA LTD.
TO: BUSINESS DEVELOPMENT BANK OF CANADA
CONSIDERATION: $2,000,000.00 **NOTES:**

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA
STORAGE SYSTEM ON 2013/03/25 OF TITLE NUMBER 1585426/1

********** STATUS OF TITLE 1585426/1 CONTINUED ON NEXT PAGE **********

STATUS OF TITLE..... ACCEPTED
ORIGINATING OFFICE... WINNIPEG
REGISTERING OFFICE... WINNIPEG
REGISTRATION DATE.... 1998/07/07
COMPLETION DATE..... 1998/07/28

PRODUCED FOR.. NA
ADDRESS.....

CLIENT FILE... NA
PRODUCED BY... L.WILZER

ACTIVE TITLE CHARGE(S):

3441110/1 ACCEPTED PERSONAL PROPERTY SECURITY NOTICE **REG'D:** 2007/04/24
DESCRIPTION: INTEREST EXPIRES JULY 28, 2029 AGENT:ROBERT P. SMITH
FROM/BY: BUSINESS DEVELOPMENT BANK OF CANADA
TO:
CONSIDERATION: **NOTES:**

3441111/1 ACCEPTED POSTPONEMENT OF RIGHTS **REG'D:** 2007/04/24
FROM/BY: PAUL LUCIEN VIELFAURE (MTGE 3148492)
TO: BUSINESS DEVELOPMENT BANK OF CANADA (MTGE 3433163)
CONSIDERATION: **NOTES:**

ADDRESS(ES) FOR SERVICE:

EFFECT	NAME AND ADDRESS	POSTAL CODE
ACTIVE	3718426 MANITOBA LTD. BOX 3629 STEINBACH MB	ROA 2AO

ORIGINATING INSTRUMENT(S):

REGISTRATION NUMBER	TYPE	REG. DATE	CONSIDERATION	SWORN VALUE
2278922/1	T	1998/07/07	$275,000.00	$275,000.00

PRESENTED BY: SMITH, NEUFELD, JODOIN
FROM: ABRAM FRANK WARKENTIN AND MYRNA AGNES WARKENTIN
TO: 3718426 MANITOBA LTD.

FROM TITLE NUMBER(S):

1088053/1 ALL

LAND INDEX:

LOT	QUARTER SECTION	SECTION	TOWNSHIP	RANGE
	NE	5	7	7E

NOTE: LS 9,10,15,16 EX LOT 1 PL 17727, LOT 1 PL 23542EX M&M

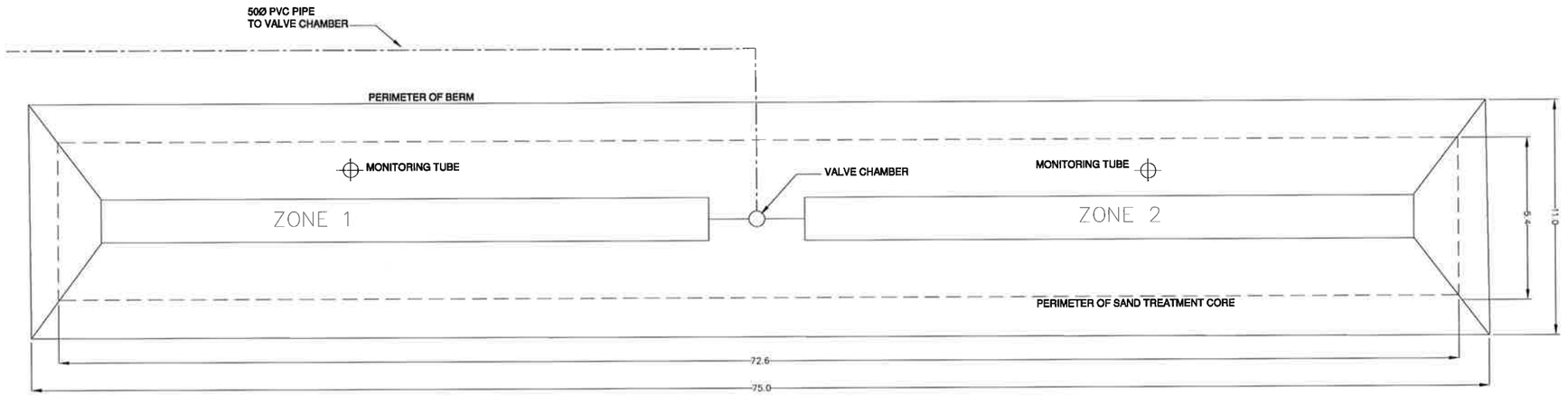
**ACCEPTED THIS 7TH DAY OF JULY, 1998
BY D.MOONEY FOR THE DISTRICT REGISTRAR OF
THE LAND TITLES DISTRICT OF WINNIPEG.**

CERTIFIED TRUE EXTRACT PRODUCED FROM THE LAND TITLES DATA
STORAGE SYSTEM ON 2013/03/25 OF TITLE NUMBER 1585426/1.

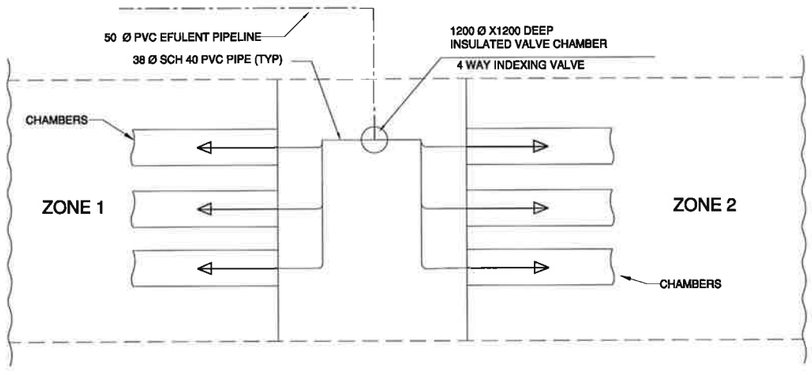
********** **END OF STATUS OF TITLE 1585426/1** **********

APPENDIX B

PLANS AND DETAILS



SAND TREATMENT MOUND - PLAN VIEW



EFFLUENT DISTRIBUTION TO CHAMBERS

GENIVAR
10 PRAIRIE WAY
WINNIPEG, MB R2J 3J8
Tel: (204)477-6650
Fax: (204)474-2864

Seals

APEGM
Certificate of Authorization
GENIVAR Inc.
No. 5079 Date March 22, 2013

Consultants

Not For Construction

INCOMPLETE TASKS OR WORK IN PROGRESS

ID	(provide brief notation of key work & dwg tasks yet to be shown)
☐	
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* Table to remain on drawing until completion of QA-QC

CHERRY HILL ESTATE

R.M OF STE. ANNE MANITOBA

ISS.	REV.	DATE (YY/MM/DD)	APP.	DESCRIPTION
0	0		AJP	

CHERRY HILL ESTATE

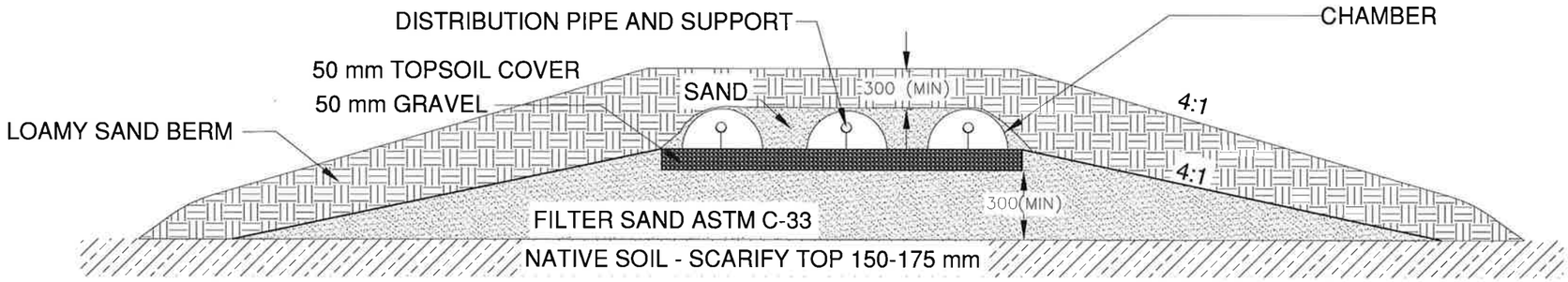
ONSITE WASTE WATER MANAGEMENT SYSTEM

SAND TREATMENT MOUND PLAN VIEW

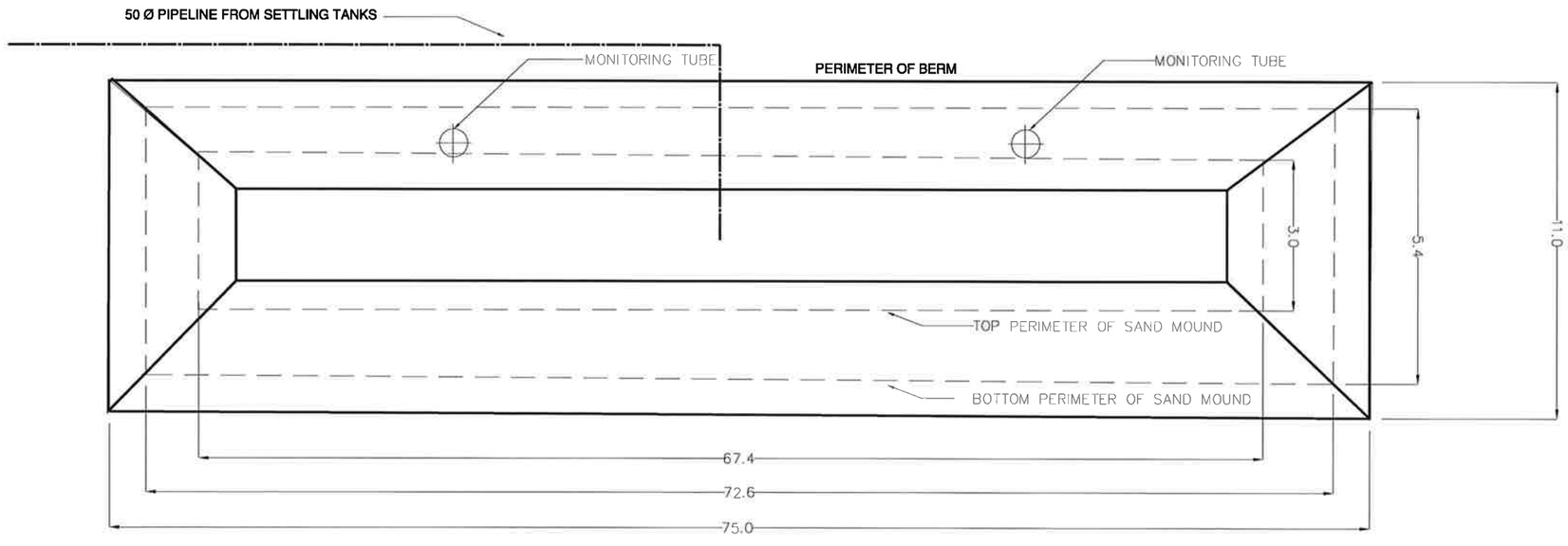
DESIGNED	I.P.	APPROVED	A.P.
DRAWN	I.P.	SCALE	NTS
CHECKED	A.P.	DATE (YY/MM/DD)	

PROJECT NO. 091-15117-01 | DRAWING NO. CO1 | REV 0

ACAD No. 101-17628-01



SAND TREATMENT MOUND -SECTION VIEW



SAND TREATMENT MOUND - PLAN VIEW

GENIVAR
10 PRAIRIE WAY
WINNIPEG, MB R2J 3J8
Tel: (204)477-6650
Fax: (204)474-2864

Seals

APEGM Certificate of Authorization GENIVAR Inc. No. 5079 Date: March 22, 2010

Consultants

Not For Construction

INCOMPLETE TASKS OR WORK IN PROGRESS

(a)	(provide brief notation of key work & dwg tasks yet to be shown)
☐	
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*Table to remain on drawing until completion of QA-QC

CHERRY HILL ESTATE

R.M OF STE. ANNE MANITOBA

ISS.	REV.	DATE (YY/MM/DD)	APP.	DESCRIPTION
0	0		AJP	

CHERRY HILL ESTATE

ONSITE WASTE WATER MANAGEMENT SYSTEM

SAND MOUND PLAN VIEW AND SECTION VIEW

DESIGNED	I.P.	APPROVED	A.P.
DRAWN	I.P.	SCALE	NTS
CHECKED	A.P.	DATE (YY/MM/DD)	
PROJECT NO. 091-15117-01		DRAWING NO. CO2	REV 0

ACAD No. 101-17928-01

APPENDIX C

DRILLERS REPORT & SOIL ANALYSES RESULTS

Driller's Report

Well Location	QTR NE SEC 5 TWP 7 RGE 7E [X] W [ ] R. Lot Parish Remarks	GPS Reading
Well Owner	Name Cherry Hill Estates (3718426 Manitoba Ltd.) Address Box 20640 Steinbach, MB. R5G 1S1 Phone	Location Sketch of Well
Well Identification		
Well Use	Production [X] Test Well [ ] Recharge [ ] Observation [ ]	
Water Use	Domestic [ ] Livestock [ ] Industrial [X] Irrigation [ ] Air-condition [ ] Other [X] Specify Fire Protection	
Date well completed	2004	

Depth Below Ground in Feet		DESCRIPTION WELL LOG	Water Record
0	135	Mostly Till	
135	143	Broken Rock	
143	170	Yellow Limestone	
170	200	Solid Buff Limestone	

WELL CONSTRUCTION

Depth Below Ground Level		Casing	Open Hole	Perforations	Gravel Pack	Casing Grout	Inside Diameter	Outside Diameter	Screen Slot size	TYPE	MATERIAL	MAKE
0	143	X						12		Black Iron		
143	200		X				11					

Top of Casing 2 Feet above [X] Below [ ]

REMARKS:

Well must be vented

PUMPING TEST

Date of Test:			2004		
Pumping [X]	Flowing [ ]	Rate	542 I.G.P.M.		
Water level before pumping	6	Above [ ]	Below [X]		
Pumping level at end of test	88	Above [ ]	Below [X]		
Duration of test	4 HRS		Minutes		
Recommended pumping rate	530 100		I.G.P.M.		

CONTRACTOR

License Number 595 5

Name Friesen Drillers Ltd.

Address Box 1, Grp. 15, R.R.#1
Steinbach, MB. R5G 1L9

Drill Operator James Friesen

E-MAILED
OCT 16 2012
NP

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street, Winnipeg, Manitoba, R2J 0K4
Phone: (204) 233-1694 Fax: (204) 235-1579
E-mail: eng_tech@mts.net
www.eng-tech.ca

File No.: 12-035-02

October 09, 2012

Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

ATTENTION: Alf Poetker, P.Eng

RE: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Dear Mr Poetker,

ENG-TECH Consulting Limited (ENG-TECH) has completed the requested analyses of the soil samples from the above project. The laboratory soil analyses consisted of the following:

- Particle Size Analysis (3)
- Moisture Content (3)

The above tests were conducted in accordance with the current ASTM Standard Test Methods D 422, and D 2216.

The grain size distribution and insitu moisture content results are shown on the attached Particle Size Analysis Reports (Ref. 12-35-2-2, 12-35-2-4 and 12-35-2-7).

The particle size analysis reports were reviewed and soils classified in accordance with the Soil Texture Classification as per Manitoba Conservation's *Supplementary Information for Onsite Wastewater Management System Installation*, dated July 2005.

The soils from TH1, TH2 and TH3, 102 Cherry Hill (Ref. No. 12-35-2-2, 12-35-2-4 and 12-35-2-7) were classified as Sand, Loamy Sand and Silt Loam respectively.

ENG-TECH trusts this is all the information you require. If you have any questions, please contact the undersigned.

Sincerely,
ENG-TECH Consulting Limited

Sunny Deboch, EIT
Materials Engineer

Sincerely,
ENG-TECH Consulting Limited

Danny Holfeld, Principal
Manager of Operations

Attachments: Particle Size Analyses Reports (Ref. No. 12-35-2-2, 12-35-2-4 and 12-35-2-7)
Email: apoetker@shaw.ca
Email:alfpoetker@genivar.com
P:\2012\Projects\035(Genivar)\02(Cherry_Hill_Owns)\Septic Field Cover Letter-102-Oct 9, 2012.doc

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

E-MAILED OCT 16 2012

PARTICLE SIZE ANALYSIS REPORT

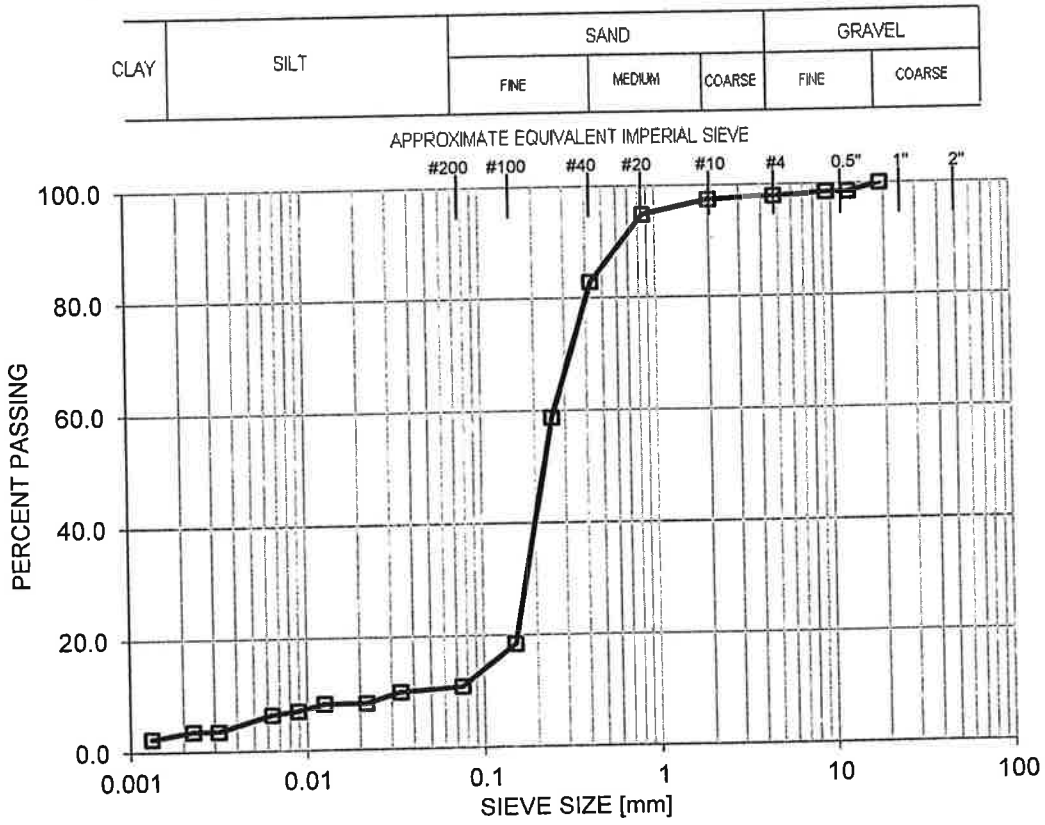
Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

File No.: 12-035-02
Ref. No.: 12-35-2-2

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTE WATER MANAGEMENT SYSTEM (OWMS)

Test Hole No.	TH1	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	102 Cherry Hill
Date Sampled:	Sep 28/12	**Date Received:**	Sep 28/12	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
19.0	100.0
12.5	98.5
9.5	98.5
4.75	98.0
2.0	97.5
0.850	94.9
0.425	82.9
0.250	58.8
0.150	18.5
0.075	10.9
0.0338	10.2
0.0217	8.3
0.0125	8.3
0.0090	7.1
0.0063	6.5
0.0031	3.6
0.0023	3.6
0.0013	2.4

Percent of: GRAVEL (2.0 %), SAND (87.0 %), SILT (7.7 %), CLAY (3.3 %)
Sample Description:

COMMENTS: Insitu Moisture content is 2.1%.

ENG-TECH Consulting Limited

per _____
Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

P:\2012\Projects\035(Genivar)\02(Cherry_Hill_Owns)\HYD\12-35-2-2hyd

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

PARTICLE SIZE ANALYSIS REPORT

NP

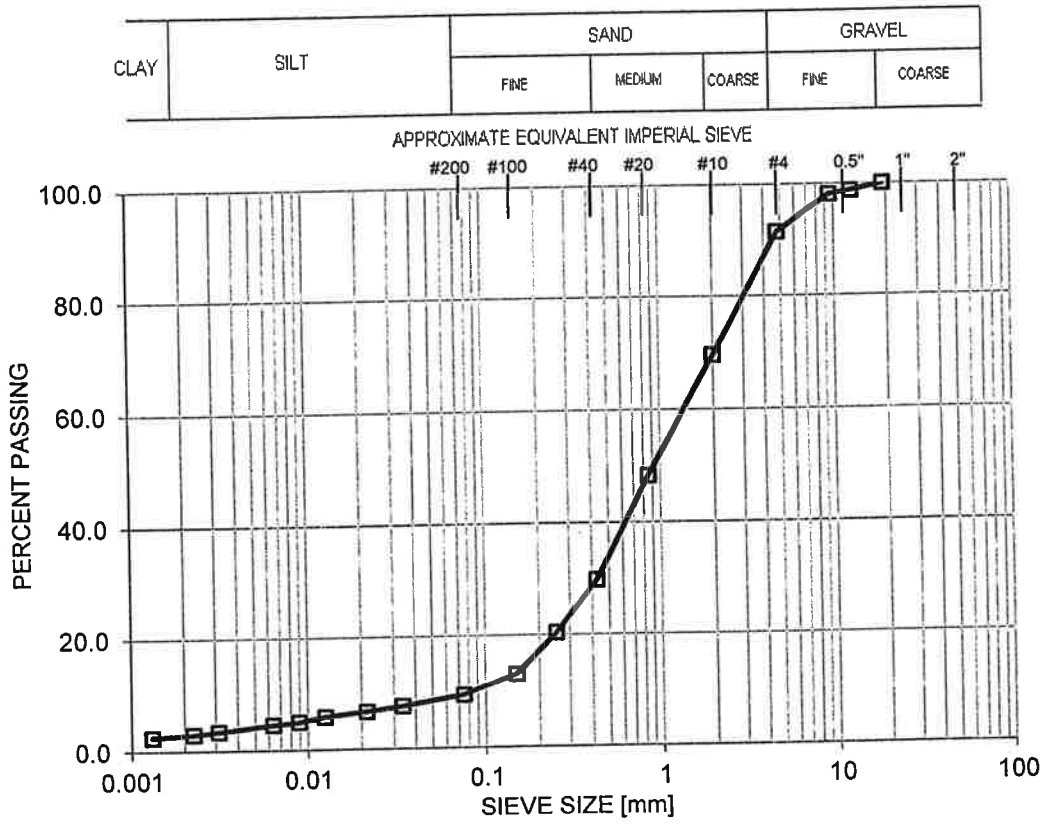
File No.: 12-035-02
Ref. No.: 12-35-2-4

Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Test Hole No.	TH2	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	102 Cherry Hill
Date Sampled:	Sep 28/12	**Date Received:**	Sep 28/12	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
19.0	100.0
12.5	98.8
9.5	98.1
4.75	91.5
2.0	69.7
0.850	48.3
0.425	29.8
0.250	20.4
0.150	13.3
0.075	9.5
0.0338	7.7
0.0215	6.8
0.0125	5.9
0.0090	5.0
0.0063	4.6
0.0031	3.4
0.0023	3.0
0.0013	2.6

Percent of: GRAVEL (8.5 %), SAND (82.0 %), SILT (6.6 %), CLAY (2.9 %)
Sample Description:

COMMENTS: Insitu Moisture content is 3.7%.

ENG-TECH Consulting Limited

per _____
Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

P:\2012\Projects\035(Genivar)\02(Cherry_Hill_Owns)\HYD\12-35-2-4hyd

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

E-MAILED OCT 16 2012

PARTICLE SIZE ANALYSIS REPORT

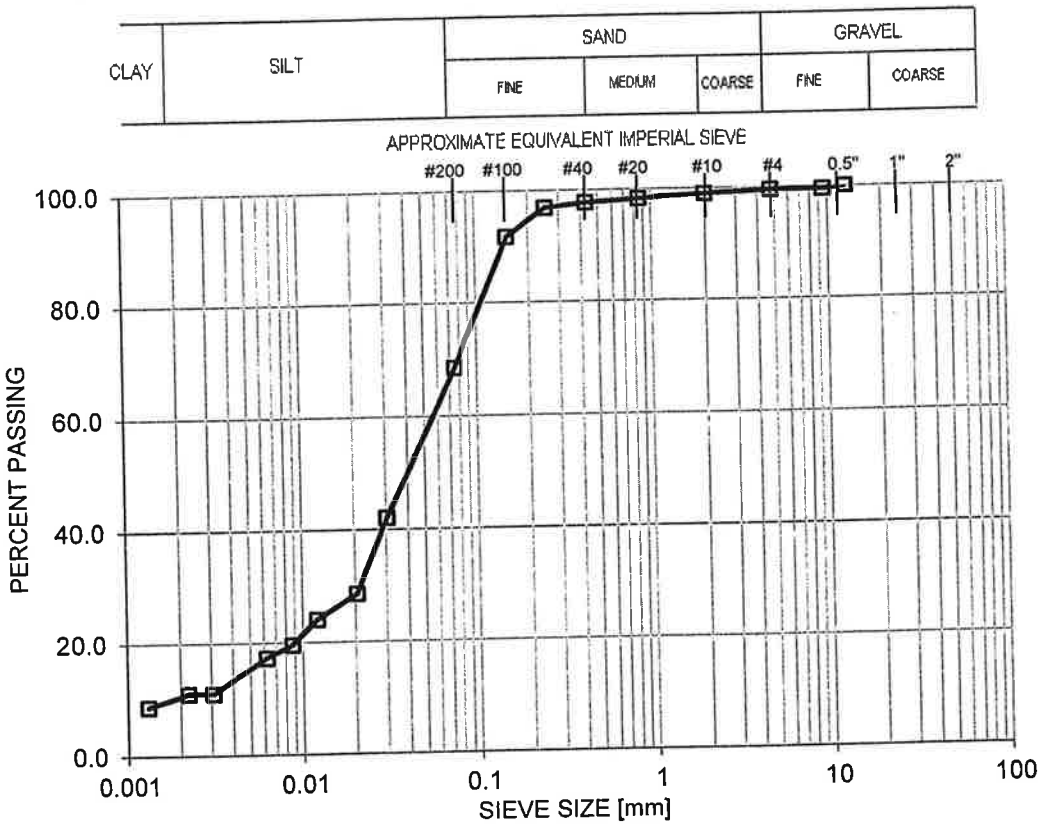
File No.: 12-035-02
Ref. No.: 12-35-2-7

Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Test Hole No.	TH3	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	102 Cherry Hill
Date Sampled:	Sep 28/12	**Date Received:**	Sep 28/12	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
12.5	100.0
9.5	99.5
4.75	99.5
2.0	99.0
0.850	98.3
0.425	97.7
0.250	96.9
0.150	91.8
0.075	68.5
0.030	42.1
0.0205	28.6
0.0121	24.1
0.0087	19.6
0.0062	17.3
0.0031	11.0
0.0022	11.0
0.0013	8.8

Percent of: GRAVEL (0.5 %), SAND (31.0 %), SILT (58.0 %), CLAY (10.6 %)
Sample Description:

COMMENTS: Insitu Moisture content is 9.8%.

Silty Loam

ENG-TECH Consulting Limited

per _____

Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

ENG-TECH CONSULTING LIMITED

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Phone: (204) 233-1694 Fax: (204) 235-1579
E-mail: eng_tech@mts.net
www.eng-tech.ca

October 09, 2012

File No.: 12-035-02

Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

ATTENTION: Alf Poetker, P.Eng

RE: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Dear Mr Poetker,

ENG-TECH Consulting Limited (ENG-TECH) has completed the requested analyses of the soil samples from the above project. The laboratory soil analyses consisted of the following:

- Particle Size Analysis (3)
- Moisture Content (3)

The above tests were conducted in accordance with the current ASTM Standard Test Methods D 422, and D 2216.

The grain size distribution and insitu moisture content results are shown on the attached Particle Size Analysis Reports (Ref. 12-35-2-1, 12-35-2-3 and 12-35-2-6).

The particle size analysis reports were reviewed and soils classified in accordance with the Soil Texture Classification as per Manitoba Conservation's *Supplementary Information for Onsite Wastewater Management System Installation*, dated July 2005.

The soils from TH1, TH2 and TH3, 101 Cherry Hill (Ref. No. 12-35-2-1, 12-35-2-3 and 12-35-2-6) were classified as Sand, Loamy Sand and Loam respectively.

ENG-TECH trusts this is all the information you require. If you have any questions, please contact the undersigned.

Sincerely,
ENG-TECH Consulting Limited

Sunny Deboch, EIT
Materials Engineer

Sincerely,
ENG-TECH Consulting Limited

Danny Holfeld, Principal
Manager of Operations

Attachments: Particle Size Analyses Reports (Ref. No. 12-35-2-1, 12-35-2-3 and 12-35-2-6)
Email: apoetker@shaw.ca
Email:alfpoetker@genivar.com
P:\2012\Projects\035(Genivar)\02(Cherry_Hill_Owns)\Septic Field Cover Letter-101-Oct 9, 2012.doc

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

PARTICLE SIZE ANALYSIS REPORT

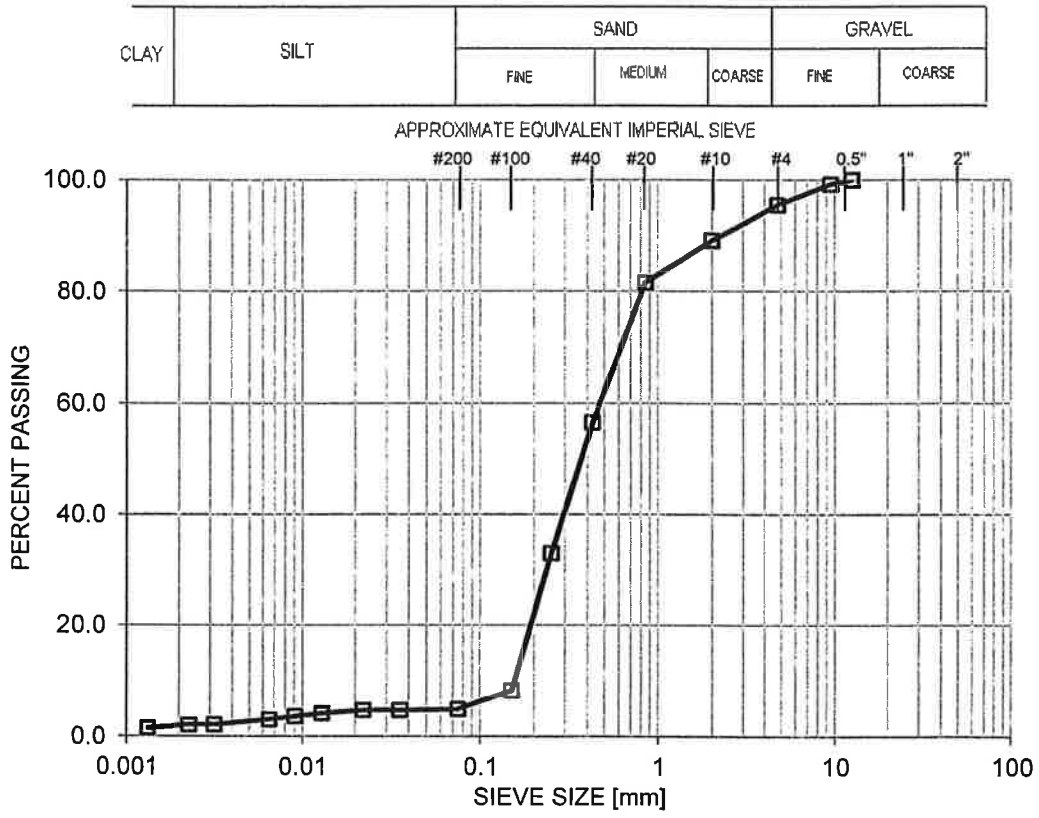
Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

File No.: 12-035-02
Ref. No.: 12-35-2-1

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Test Hole No.	TH1	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	101 Cherry Hill
Date Sampled:	Sep 28/2012	**Date Received:**	Sep 28/2012	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
12.5	100.0
9.5	99.2
4.8	95.5
2.0	89.1
0.850	81.6
0.425	56.6
0.250	33.0
0.150	8.4
0.075	4.9
0.036	4.8
0.0221	4.8
0.0129	4.2
0.0091	3.6
0.0065	3.1
0.0032	2.2
0.0023	2.2
0.0013	1.6

Percent of: GRAVEL (4.5 %), SAND (90.6 %), SILT (2.9 %), CLAY (2.0 %)
Sample Description:

COMMENTS: Insitu Moisture content is 2.6%.

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

ENG-TECH Consulting Limited

per

Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

PARTICLE SIZE ANALYSIS REPORT

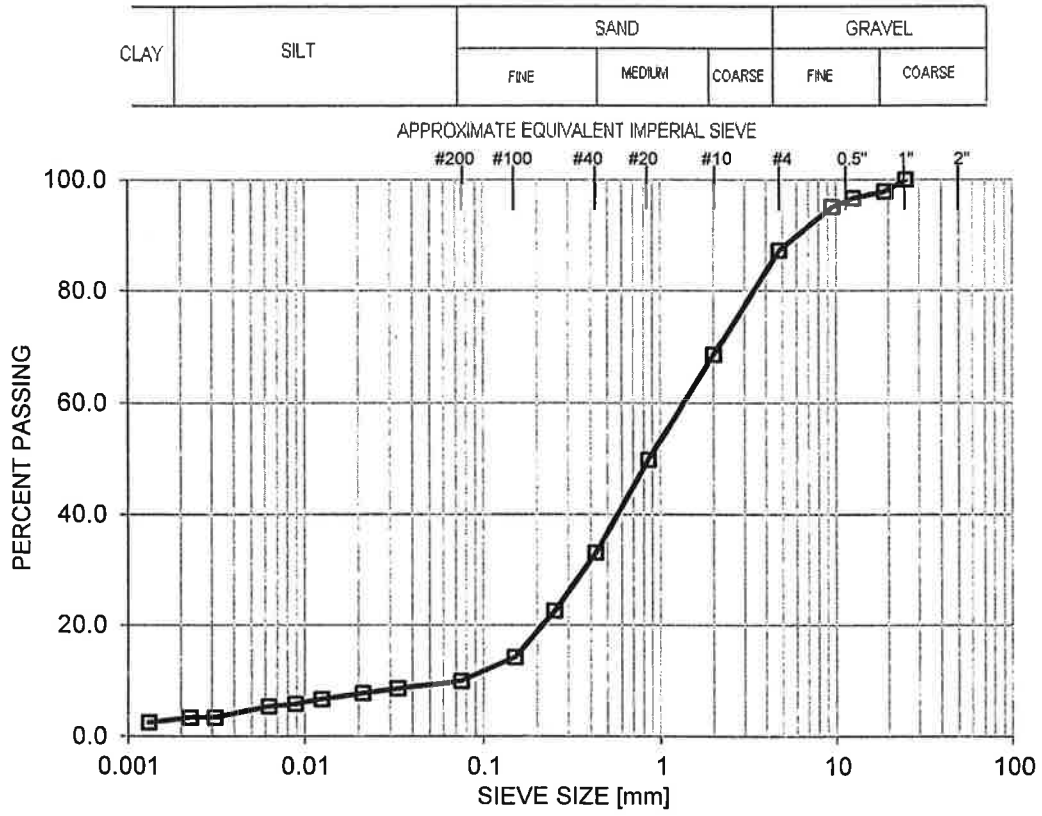
Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

File No.: 12-035-02
Ref. No.: 12-35-2-3

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTEWATER MANAGEMNET SYSTEM (OWMS)

Test Hole No.	TH2	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	101 Cherry Hill
Date Sampled:	Sep 28/12	**Date Received:**	Sep 28/12	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
25.000	100.0
19.000	97.9
12.500	96.7
9.500	95.1
4.750	87.3
2.000	68.7
0.850	49.8
0.425	33.1
0.250	22.6
0.150	14.3
0.0750	10.0
0.0330	8.7
0.0211	7.8
0.0124	6.7
0.0089	5.9
0.0063	5.4
0.0031	3.4
0.0023	3.4
0.0013	2.5

Percent of: GRAVEL (12.7 %), SAND (77.3 %), SILT (6.8 %), CLAY (3.2 %)
Sample Description:

COMMENTS: Insitu Moisture content is 3.2%.

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

ENG-TECH Consulting Limited

per _____

Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

PARTICLE SIZE ANALYSIS REPORT

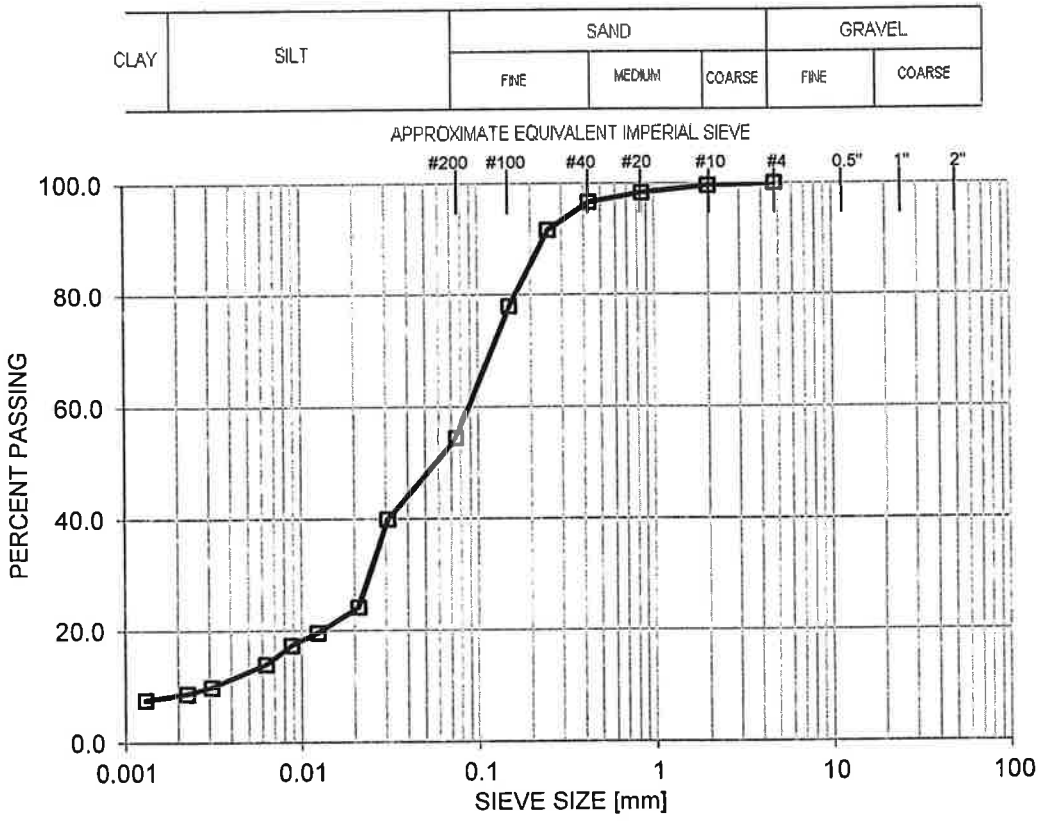
Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

File No.: 12-035-02
Ref. No.: 12-35-2-6

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Test Hole No.	TH3	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	101 Cherry Hill
Date Sampled:	Sep 28/12	**Date Received:**	Sep 28/12	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
4.75	100.0
2.0	99.6
0.850	98.3
0.425	96.6
0.250	91.6
0.150	78.0
0.075	54.4
0.031	40.0
0.021	24.2
0.012	19.6
0.0088	17.4
0.0063	14.0
0.0031	9.9
0.0023	8.8
0.0013	7.7

Percent of: GRAVEL (0.0 %), SAND (45.6 %), SILT (45.8 %), CLAY (8.6 %)
Sample Description:

COMMENTS: Insitu Moisture content is 11.8%.

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

ENG-TECH Consulting Limited

per _____

Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

E-MAILED
OCT 16 2012

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street, Winnipeg, Manitoba, R2J 0K4
Phone: (204) 233-1694 Fax: (204) 235-1579
E-mail: eng_tech@mts.net
www.eng-tech.ca

October 09, 2012

File No.: 12-035-02

Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

ATTENTION: Alf Poetker, P.Eng

RE: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Dear Mr Poetker,

ENG-TECH Consulting Limited (ENG-TECH) has completed the requested analyses of the soil samples from the above project. The laboratory soil analyses consisted of the following:

- Particle Size Analysis (2)
- Moisture Content (2)

The above tests were conducted in accordance with the current ASTM Standard Test Methods D 422, and D 2216.

The grain size distribution and insitu moisture content results are shown on the attached Particle Size Analysis Reports (Ref. 12-35-2-5 and 12-35-2-8).

The particle size analysis reports were reviewed and soils classified in accordance with the Soil Texture Classification as per Manitoba Conservation's *Supplementary Information for Onsite Wastewater Management System Installation*, dated July 2005.

The soils from TH2 and TH3, 103 Cherry Hill (Ref. No. 12-35-2-5 and 12-35-2-8) were classified as Loamy Sand and Silt Loam respectively.

ENG-TECH trusts this is all the information you require. If you have any questions, please contact the undersigned.

Sincerely,
ENG-TECH Consulting Limited

Sunny Deboch, EIT
Materials Engineer

Sincerely,
ENG-TECH Consulting Limited

Danny Holfeld, Principal
Manager of Operations

Attachments: Particle Size Analyses Reports (Ref. No. 12-35-2-5 and 12-35-2-8)
Email: apoetker@shaw.ca
Email:alfpoetker@genivar.com
P:\2012\Projects\035(Genivar)\02(Cherry_Hill_Owns)\Septic Field Cover Letter-102-Oct 9, 2012.doc

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

PARTICLE SIZE ANALYSIS REPORT

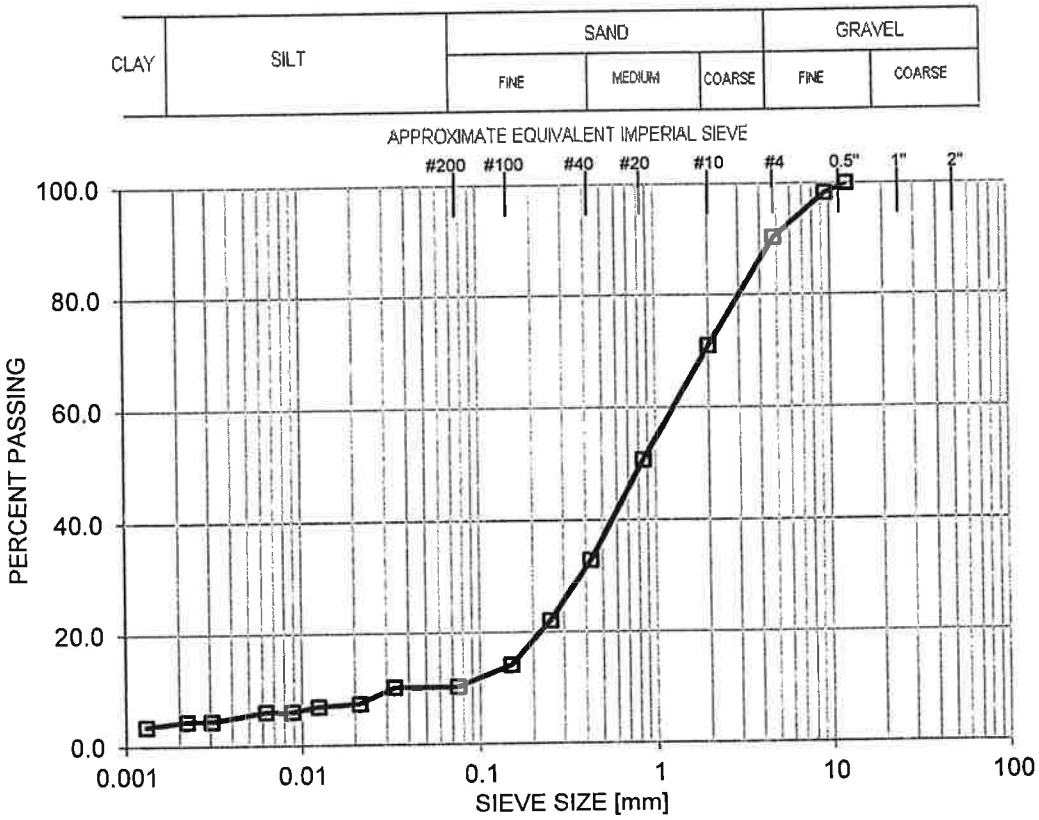
File No.: 12-035-02
Ref. No.: 12-35-2-5

Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Test Hole No.	TH2	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	103 Cherry Hill
Date Sampled:	Sep 28/12	**Date Received:**	Sep 28/12	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
12.5	100.0
9.5	98.3
4.75	90.3
2.0	71.0
0.9	50.7
0.425	32.8
0.250	22.1
0.150	14.2
0.075	10.4
0.033	10.3
0.0214	7.4
0.0124	7.0
0.0089	6.1
0.0063	6.1
0.0031	4.4
0.0022	4.4
0.0013	3.5

Percent of: GRAVEL (9.7 %), SAND (80.0 %), SILT (6.1 %), CLAY (4.3 %)
Sample Description:

COMMENTS: Insitu Moisture content is 5.2%.

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

ENG-TECH Consulting Limited

per _____
Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

ENG-TECH CONSULTING LIMITED

Unit 6 - 854 Marion Street
Winnipeg, Manitoba
R2J 0K4
eng_tech@mts.net
www.eng-tech.ca

PARTICLE SIZE ANALYSIS REPORT

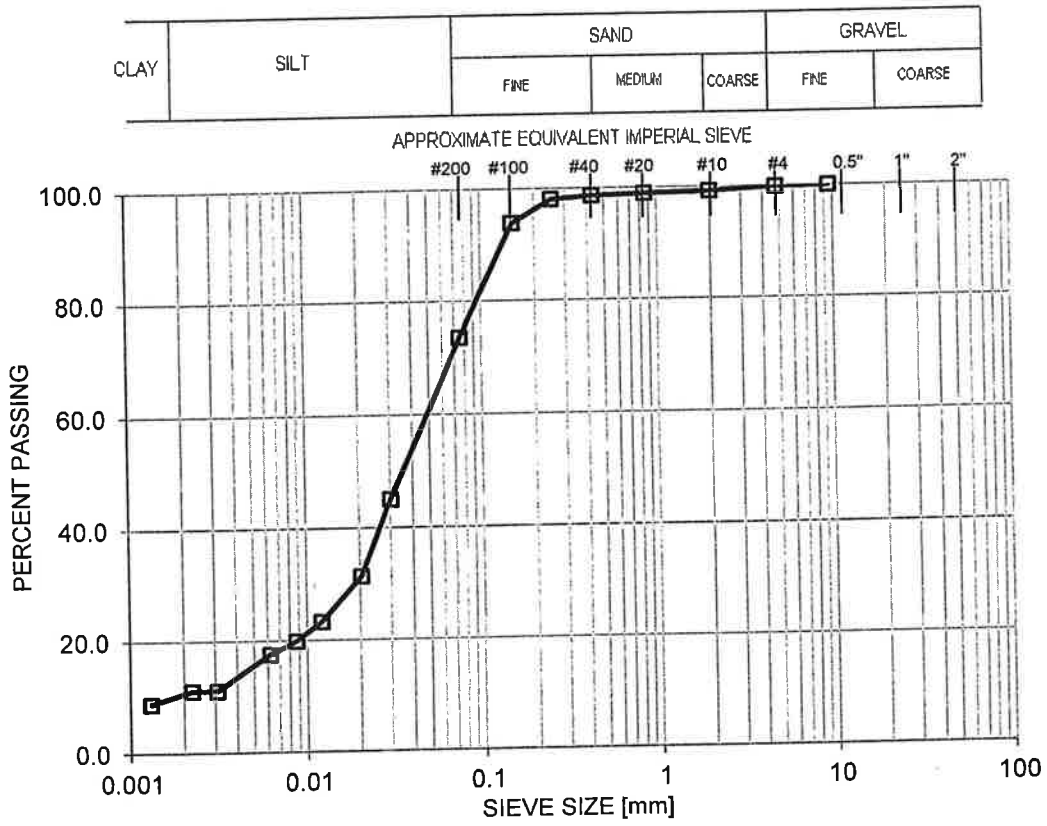
File No.: 12-035-02
Ref. No.: 12-35-2-8

Genivar Inc.
10 Prairie Way
Winnipeg, Manitoba
R2J 3J8

ATTENTION: Alf Poetker, P.Eng

PROJECT: CHERRY HILL ONSITE WASTEWATER MANAGEMENT SYSTEM (OWMS)

Test Hole No.	TH3	**Sample No.**	-	**Depth:**	18"
Sampled By:	Client	**Type of Sample:**	Grab	**Source:**	103 Cherry Hill
Date Sampled:	Sep 28/12	**Date Received:**	Sep 28/12	**Date Tested:**	Oct 2/2012



SIEVE SIZE (mm)	PERCENT PASSING
9.5	100.0
4.8	99.9
2.0	99.2
0.850	98.9
0.425	98.6
0.250	98.0
0.150	93.9
0.075	73.6
0.030	45.1
0.020	31.3
0.0121	23.3
0.0087	19.9
0.0062	17.6
0.0031	11.2
0.0022	11.2
0.0013	8.9

Percent of: GRAVEL (0.1 %), SAND (26.3 %), SILT (62.8 %), CLAY (10.7 %)
Sample Description:

COMMENTS: Insitu Moisture content is 10.2%.

ENG-TECH Consulting Limited

per

Contact: Danny Holfeld, Principal
Ph: (204) 233-1694 Fax: (204) 235-1579

Email: apoetker@shaw.ca
Email: alfpoetker@genivar.com

APPENDIX D

GENERAL CORRESPONDENCE

Iain Pimlott

From: Friesen, Chris (CON) <Chris.Friesen@gov.mb.ca>
Sent: Friday, March 01, 2013 1:18 PM
To: Iain Pimlott
Subject: Onsite Wastewater Management Project

Iain

Thank you for your information request. I completed a search of the Manitoba Conservation Data Centre's rare species database and found no occurrences at this time for your area of interest.

The information provided in this letter is based on existing data known to the Manitoba Conservation Data Centre at the time of the request. These data are dependent on the research and observations of CDC staff and others who have shared their data, and reflect our current state of knowledge. An absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present; in many areas, comprehensive surveys have never been completed. Therefore, this information should be regarded neither as a final statement on the occurrence of any species of concern, nor as a substitute for on-site surveys for species as part of environmental assessments.

Because the Manitoba CDC's Biotics database is continually updated and because information requests are evaluated by type of action, any given response is only appropriate for its respective request. Please contact the Manitoba CDC for an update on this natural heritage information if more than six months pass before it is utilized.

Third party requests for products wholly or partially derived from Biotics must be approved by the Manitoba CDC before information is released. Once approved, the primary user will identify the Manitoba CDC as data contributors on any map or publication using Biotics data, as follows as: Data developed by the Manitoba Conservation Data Centre; Wildlife and Ecosystem Protection Branch, Manitoba Conservation.

This letter is for information purposes only - it does not constitute consent or approval of the proposed project or activity, nor does it negate the need for any permits or approvals required by the Province of Manitoba.

We would be interested in receiving a copy of the results of any field surveys that you may undertake, to update our database with the most current knowledge of the area.

If you have any questions or require further information please contact me directly at (204) 945- 7747.

Chris Friesen
Biodiversity Information Manager
Manitoba Conservation Data Centre
204-945-7747
chris.friesen@gov.mb.ca
http://www.gov.mb.ca/conservation/cdc/

From:
Sent: Thursday, February 21, 2013 10:12:04 AM
To: +WPG1212 - CDC_Wildlife (CON)
Subject: WWW Form Submission
Auto forwarded by a Rule

Below is the result of your feedback form. It was submitted by WWW Information Request () on Thursday, February 21, 2013 at 10:12:04

DocumentID: Manitoba_Conservation

Project Title: Onsite Wastewater Management Project

Date Needed: 2013/03/05

Name: Iain Pimlott

Company/Organization: GENIVAR

Address: 10 Prairie Way

City: Winnipeg

Province/State: Manitoba

Phone: 204-477-6650

Fax: 204-474-2864

Email: iain.pimlott@genivar.com

Project Description: It is proposed to develop more RV sites and recreational facilities in the NE ¼ Section 05-07-07 EPM. The plan is to increase the number of available RV sites from the current 136 to an estimated 500 sites. The sites would be distributed in various places in Cherry Hill Estate. In order to facilitate this expansion, it is necessary to provide additional capacity to the Onsite Wastewater Management facilities on the property.

Information Requested: Please provide a listing of rare species for the identified area.

Format Requested: Letter via email

Location: Cherry Hill Estate located in NE 05-07-07 EPM, R.M. of Ste. Anne

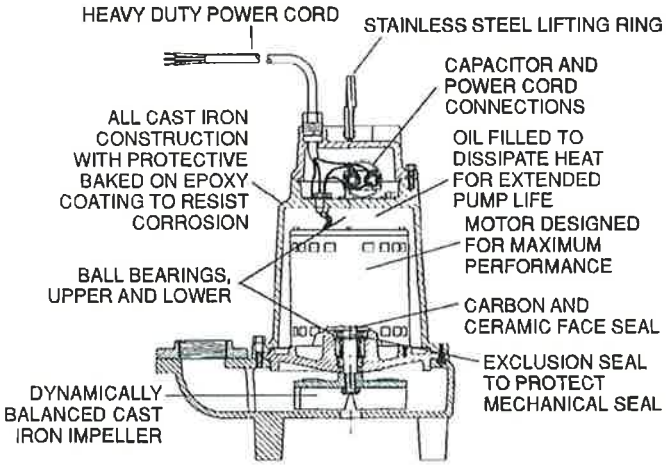
action: Submit

APPENDIX E

PRODUCT SPECIFICATIONS

SE-100 Series

1 HP Manual Submersible High Head Effluent Pump, 3/4" Solids

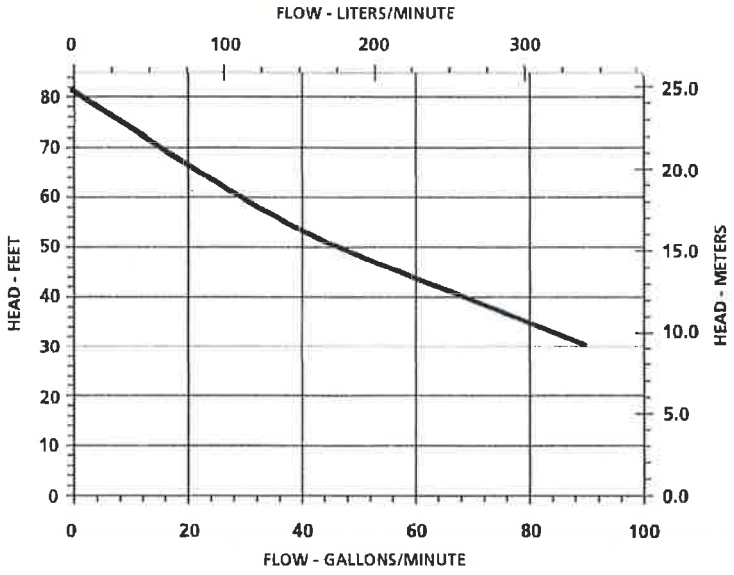


Features

- Handles liquids and solid waste materials up to ¾" diameter.
- Cast iron pump housings with protective epoxy coating for corrosion and rust resistance.
- Oil-filled motor housings for lifetime lubrication and rapid heat dissipation.
- Stainless steel screws, bolts and lifting ring.
- Mechanical seal (stainless steel spring, nitrile parts, carbon and ceramic faces) for long life and reliability.
- Secondary exclusion seal to help protect mechanical seal.
- High speed, 3450 RPM, 1 hp, ball bearing motor and thermal overload protection.
- Permanent split capacitor design.
- Capacitor and power cord connections isolated from oil-filled housing for ease of field maintenance.
- Dynamically balanced, two-vane, non-clogging impeller with pump-out vanes extend life of pump.
- Franklin Electric wastewater pumps are rated continuous duty as long as they are run within the published ratings for these pumps.

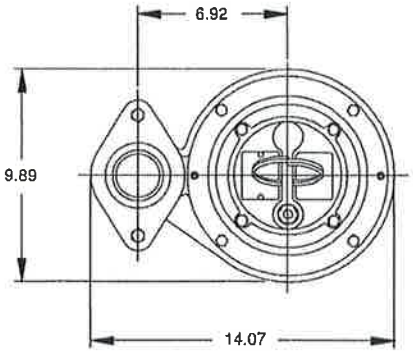
SE-100 Series

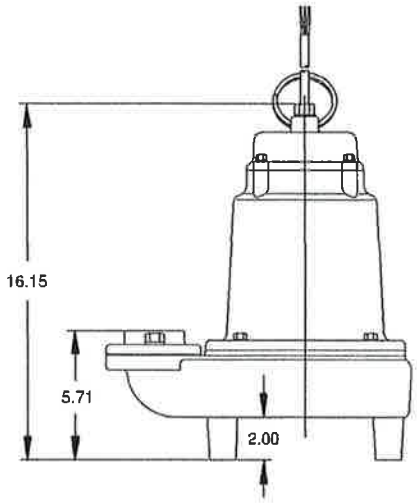
1 HP Manual Submersible High Head Effluent Pump, 3/4" Solids



Construction

Motor Housing	Epoxy Coated Cast Iron
Impeller Material	Epoxy Coated Cast Iron
Impeller Type	Non-Clog
Volute	Epoxy Coated Cast Iron
Power Cord	16/3, STW
Mechanical Shaft Seal	Carbon/Ceramic
Fasteners	Stainless Steel
Shaft	Stainless Steel
Bearings	Ball Bearings





Specifications

MODEL NO.	ITEM NO.	HP	VOLTS	PHASE	DISCHARGE SIZE	RUNNING AMPS/WATTS	PERFORMANCE (GPM) 30'	PERFORMANCE (GPM) 40'	SHUT-OFF FEET	SHUT-OFF PSI	CORD LENGTH	WEIGHT (LBS)
SE-100	514521	1	230	1	2" FNPT	10.2/2200	90	70	81.0	35.1	20'	82.0
	514531	1	208-240	3*	2" FNPT	6.6/1350	90	70	81.0	35.1	20'	82.0
	514541	1	460	3*	2" FNPT	3.2/1350	90	70	81.0	35.1	20'	82.0
	514551	1	575	3*	2" FNPT	2.5/1350	90	70	81.0	35.1	20'	82.0

*3-phase pumps require a control panel to operate.

BARNES®

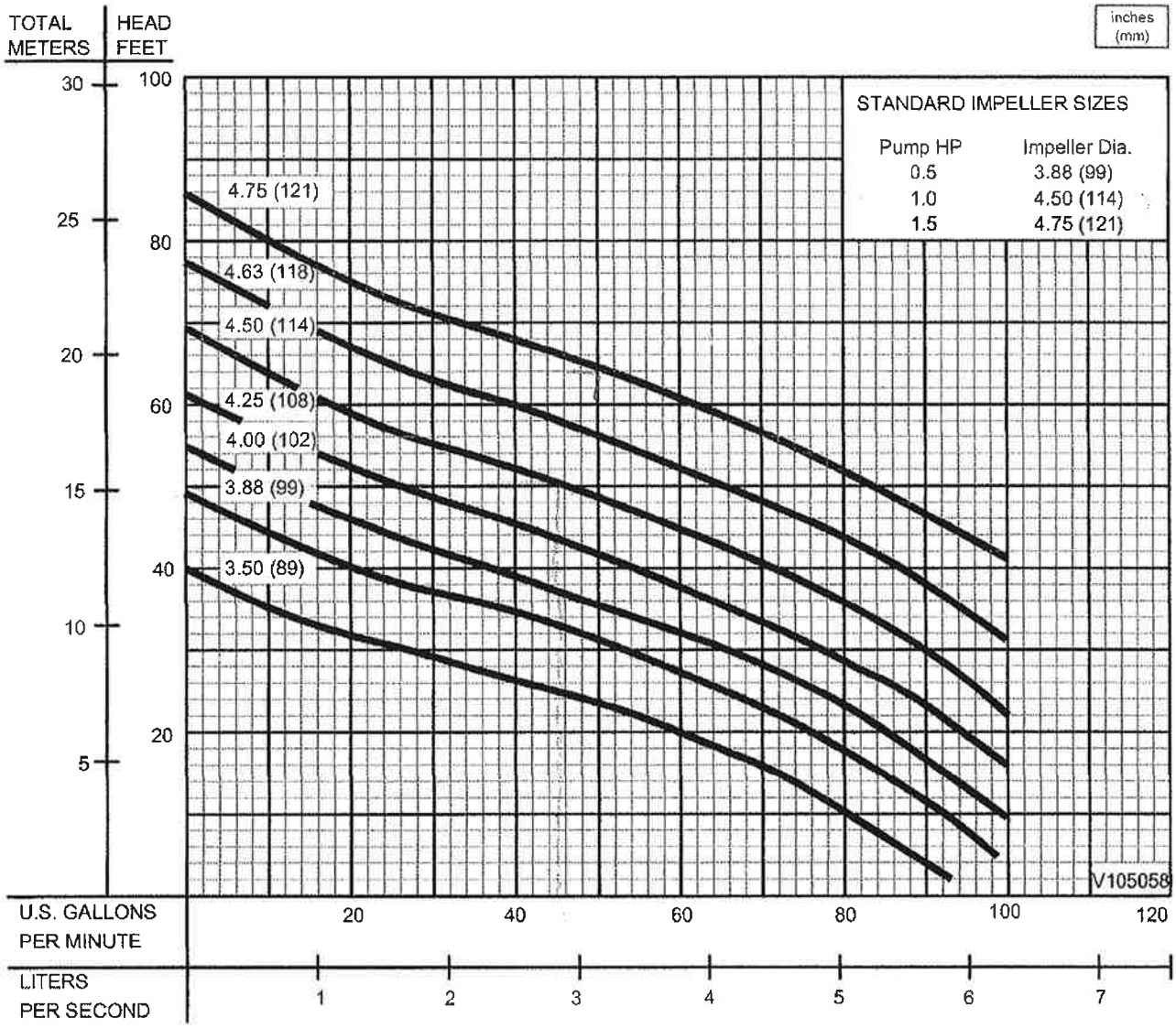
www.cranepumps.com

Series EH-L

Performance Curve

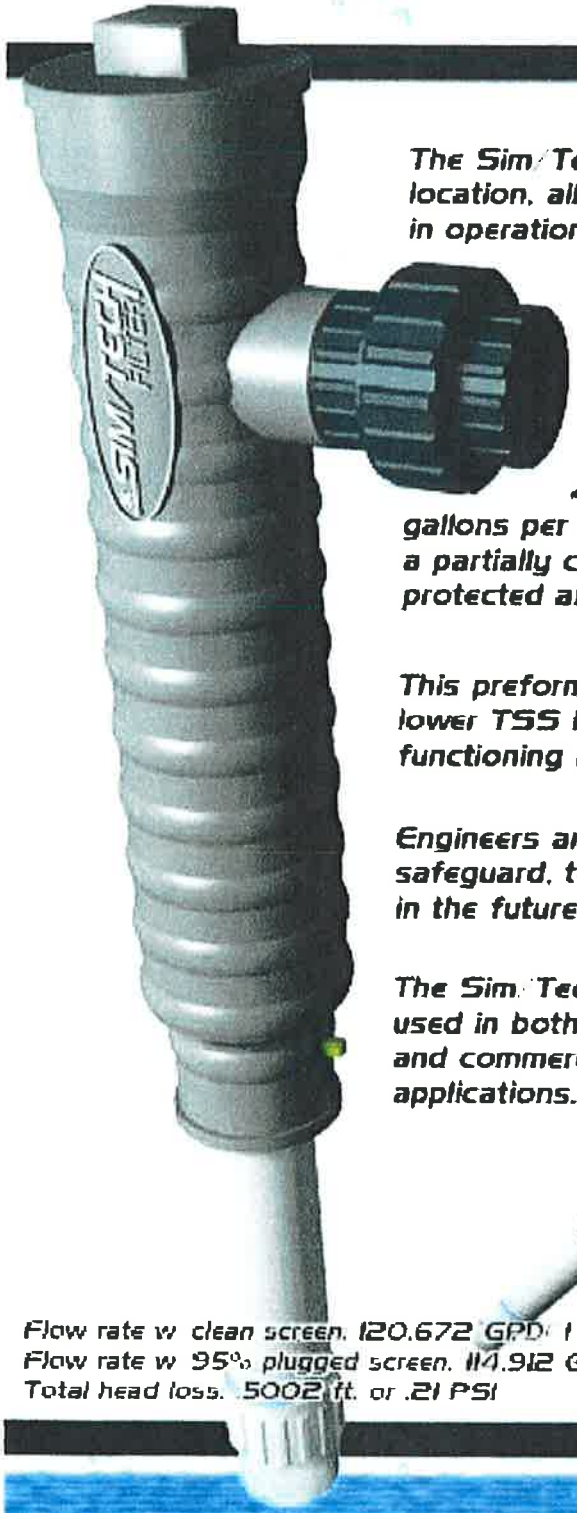
.5, 1.0 & 1.5HP, 3450RPM, 60Hz

Submersible Effluent Pumps



Testing is performed with water, specific gravity 1.0 @ 68° F @ (20°C), other fluids may vary performance

SIM/TECH Solutions



The Sim/Tech filter, with it's unique design and mounting location, allows the filtering screen to be scrubbed while in operation, providing maximum maintenance intervals with unmatched performance capabilities.

The filter screen is a type 347 stainless steel with .062 diameter holes. It is 3 inches in diameter and 18 inches long with a 69.52 square inch open area This large 41% open area allows the filter to pass 83.8 gallons per minute at 1 psi. With features like these even a partially clogged screen will keep the system well protected and working properly.

This preformance product assures quality effluent with lower TSS levels, keeping your pressurized system functioning at 100% efficiency.

Engineers and designers now have the ability to offer a simple safeguard, to assure systems will function as designed now and in the future.

The Sim/Tech filter can be used in both residential and commercial applications.

STF-100

STF-100A2

Commercial manifold assembly

Flow rate w/ clean screen, 120.672 GPD, 1 PSI
Flow rate w/ 95% plugged screen, 114.912 GPD, 1.8 PSI
Total head loss, .5002 ft. or .21 PSI

www.gag-simtech.com 888-999-3290 simtech@freeway.net

MODELS

4000-RCW Four Outlet Models

4400-RCW	No Cam
4402-RCW	Cammed for 2 Zone Operation
4403-RCW	Cammed for 3 Zone Operation
4404-RCW	Cammed for 4 Zone Operation

4000-RCW Six Outlet Models

4600-RCW	No Cam
4602-RCW	Cammed for 2 Zone Operation
4603-RCW	Cammed for 3 Zone Operation
4604-RCW	Cammed for 4 Zone Operation
4605-RCW	Cammed for 5 Zone Operation
4606-RCW	Cammed for 6 Zone Operation

6000-RCW Four Outlet Models

6402-RCW	Cammed for 2 Zone Operation
6403-RCW	Cammed for 3 Zone Operation
6404-RCW	Cammed for 4 Zone Operation

6000-RCW Six Outlet Models

6605-RCW	Cammed for 5 Zone Operation
6606-RCW	Cammed for 6 Zone Operation

6000-RCW INDEXING VALVE

The 6000 line of indexing valves offers exceptional reliability and durability even under the dirtiest water conditions.

4000-RCW INDEXING VALVE

The 4000 offers a reliable, economical way to automate multiple zoned residential and small commercial irrigation systems.

FEATURES/BENEFITS

Available in 4 and 6 Outlet Models–Can quickly and easily change from two to six watering zones.

Simplicity of Design–Valves are easily maintained and serviced for long product life.

The 4000 RCW Indexing Valve

ABS Polymer Construction–High-strength, non-corrosive body for long product life.

Operates at Low 10 GPM at Pressures of 25-75 PSI– Reliably automates multiple zoned residential and small commercial wastewater systems.

The 6000 RCW Indexing Valve

Metal Die-Cast Body–Durable, long lasting, and capable of high pressure applications.

Operates at 15 GPM at Pressures of 25-150 PSI – Ideal for onsite pump-fed wastewater and effluent water applications.

Built-in Atmospheric Vacuum Breaker–Releases any vacuum created between the pump and the valve on shut down.

K-RAIN INDEXING VALVES FOR RECLAIMED WATER

The 4000-RCW Indexing valve offers a reliable, economical way to automate multiple zoned residential and small commercial wastewater systems. The simplicity of design and a minimum of moving parts ensures ease of maintenance and long service life.

These patented valves allow for the number of watering zones to be changed quickly and easily. They are ideally suited for pump applications, onsite wastewater or effluent water applications.

The 6000-RCW Indexing valve offers exceptional reliability and durability even under the dirtiest water conditions. With a metal die-cast body, the 6000-RCW valves are capable of high pressure applications and are recommended to be used on pump fed systems. The 6000-RCW series is ideal for onsite wastewater and effluent water applications.

The **Quick4® Equalizer® 36** Chamber

INFILTRATOR systems inc.

The evolutionary patent-pending Quick4® Equalizer® 36 Chamber fits in a 24" wide trench and is ideal for curved or straight systems. It features the patent-pending Contour Swivel Connection™ which permits 15-degree turns, right or left. The MultiPort™ end cap allows multiple piping options and eliminates pipe fittings. The chamber's four-foot length provides optimal installation flexibility.

The Quick4 Equalizer 36 Chamber Offers You These Unique Benefits:

- Advanced contouring connections swivel 15-degrees, right or left
- Latching mechanism allows for quick installation
- Compact nesting provides more trench length in an equivalent stack height
- Four-foot chambers are easy to handle and install
- The Quick4 Equalizer 36 Chamber supports wheel loads of 16,000 lbs/axle with only 12" of cover
- Certified by the International Association of Plumbing and Mechanical Officials (IAPMO)

The MultiPort End Cap Offers These Unique Benefits:

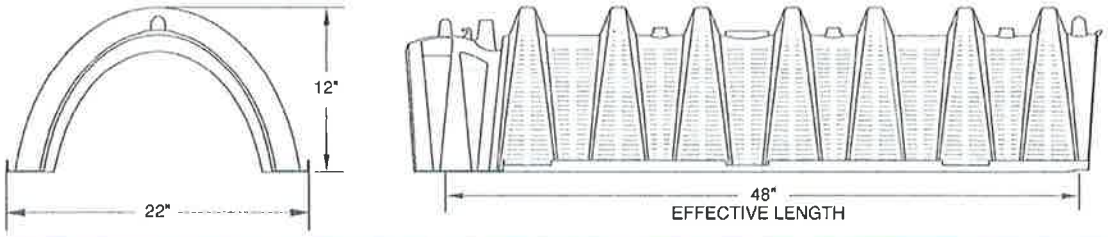
- Patent-pending tear-out seals on inlet ports provide a tight fit to the pipe
- Six molded-in inlets/outlets allow for maximum piping flexibility
- Multiple ports eliminate pipe fittings and make looping ends easy
- Patent-pending MultiPort end cap fits on either end of the Quick4 Equalizer 36 Chamber

Infiltrator is the number-one septic leachfield chamber system in the onsite industry, with over 42 million units in-ground in all 50 states and 24 countries.

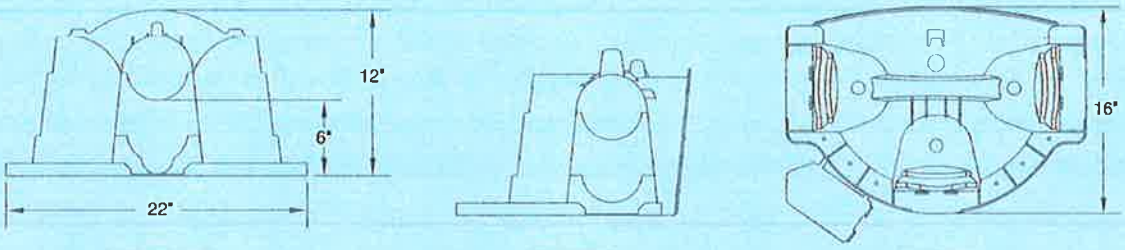
Approved in _____

The Quick4® Equalizer® 36 Chamber

The Quick4 Equalizer 36 Chamber



MultiPort End Cap



FRONT VIEW | SIDE VIEW | TOP VIEW

Quick4 Equalizer 36 Chamber Specifications

Size (W x L x H) .....22" x 53" x 12" (56 cm x 135 cm x 31 cm)	Louver Height .....10" (25.4 cm)
Effective Length .....48" (122 cm)	Invert Height.....6" (15 cm)

INFILTRATOR SYSTEMS, INC. STANDARD LIMITED WARRANTY

(a) The structural integrity of each chamber, end cap and other accessory manufactured by Infiltrator ("Units"), when installed and operated in a leachfield or on-site septic system in accordance with Infiltrator's instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date that the septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required by applicable law, the warranty period will begin upon the date that installation of the septic system commences. To exercise its warranty rights, Holder must notify Infiltrator in writing at its Corporate Headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for Units determined by Infiltrator to be covered by this Limited Warranty. Infiltrator's liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(c) This Limited Warranty shall be void if any part of the chamber system is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units, the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions, failure to maintain the minimum ground covers set forth in the installation instructions, the placement of improper materials into the system containing the Units, failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation, or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.

Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes, all other applicable laws, and Infiltrator's installation instructions.

(d) No representative of Infiltrator has the authority to change or extend this Limited Warranty. No warranty applies to any party other than the original Holder.

* * * * * *

The above represents the Standard Limited Warranty offered by Infiltrator. A limited number of states and countries have different warranty requirements. Any purchaser of Units should contact Infiltrator's Corporate Headquarters in Old Saybrook, Connecticut, prior to such purchase to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.

INFILTRATOR® systems inc.

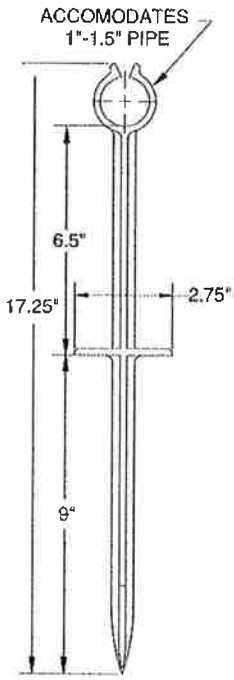
6 Business Park Road • P.O. Box 768
Old Saybrook, CT 06475
860-577-7000 • FAX 860-577-7001

1-800-221-4436
www.infiltratorsystems.com

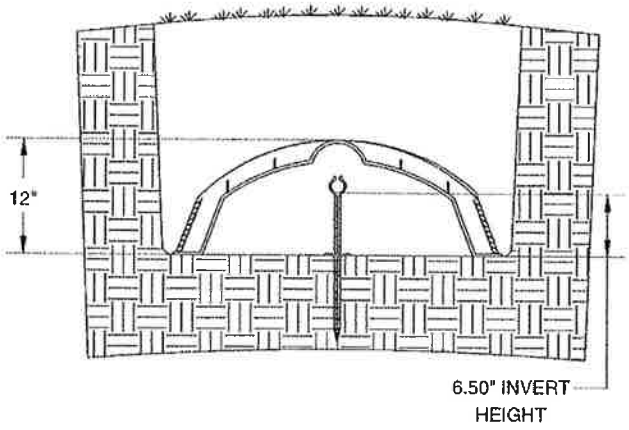
For technical assistance, installation instructions or customer service, call Infiltrator Systems at 1-800-221-4436.

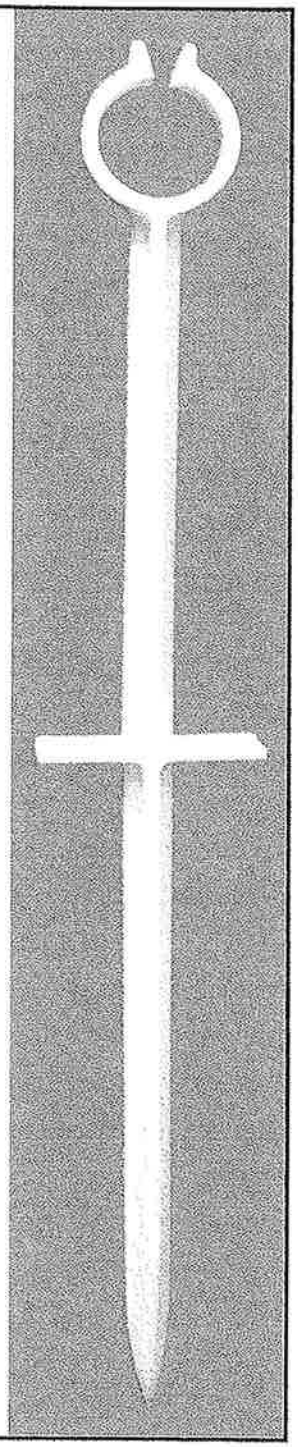
U.S. Patents: 4,759,661; 5,017,041; 5,156,488; 5,336,017; 5,401,116; 5,401,459; 5,511,903; 5,716,163; 5,588,778; 5,839,844
Canadian Patents: 1,328,959; 2,094,564 Other patents pending.

The
Pressure Dosing
Pipe Support



Cross Section View





The Pressure Dosing Pipe Support allows you to construct a pressure manifold above the trench bottom, perform head tests, and complete a trench installation with minimal to no disruption of the trench infiltrative surface. Pressure dosed installations can be installed with the precision and accuracy that is not available with current practices.

INFILTRATOR®
systems inc.

6 Business Park Road
P.O. Box 768
Old Saybrook, CT 06475
860-577-7000
FAX 860-577-7001
www.infiltratorsystems.com

1-800-221-4436

The Pressure Dosing Pipe Support Offers You These Unique Benefits:

- The ability to pre-construct pressure dosing manifold and perform pressure head tests with minimal trench bottom disruption.
- Rigid stake supports a pressure pipe 6 ½" off the trench bottom.
- Flexible pipe clamp accommodates pipe diameters of 1", 1¼" and 1½" Schedule 40 pressure pipe.
- Injection molded from polypropylene makes it structurally sound and chemically resistant to degradation.
- Easily installed by driving the support into the trench bottom and snapping in the specified pipe. Simply lay the chamber over the pipe manifolds once the head test and inspection (if necessary) is complete.