

Lyle Architects

Green Building Systems

for Rural Applications
Powassan On May 3 2014

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B.Arch, OAA

CONCEPT

- ▶ NEW TECHNOLOGY CAN:
- ▶ INCREASE LAND VALUE,
- ▶ MAXIMIZE LAND USE,
- ▶ INCREASE TAX BASE FOR MUNICIPALITIES,
- ▶ MINIMIZES IMPACTS ON THE ENVIRONMENT

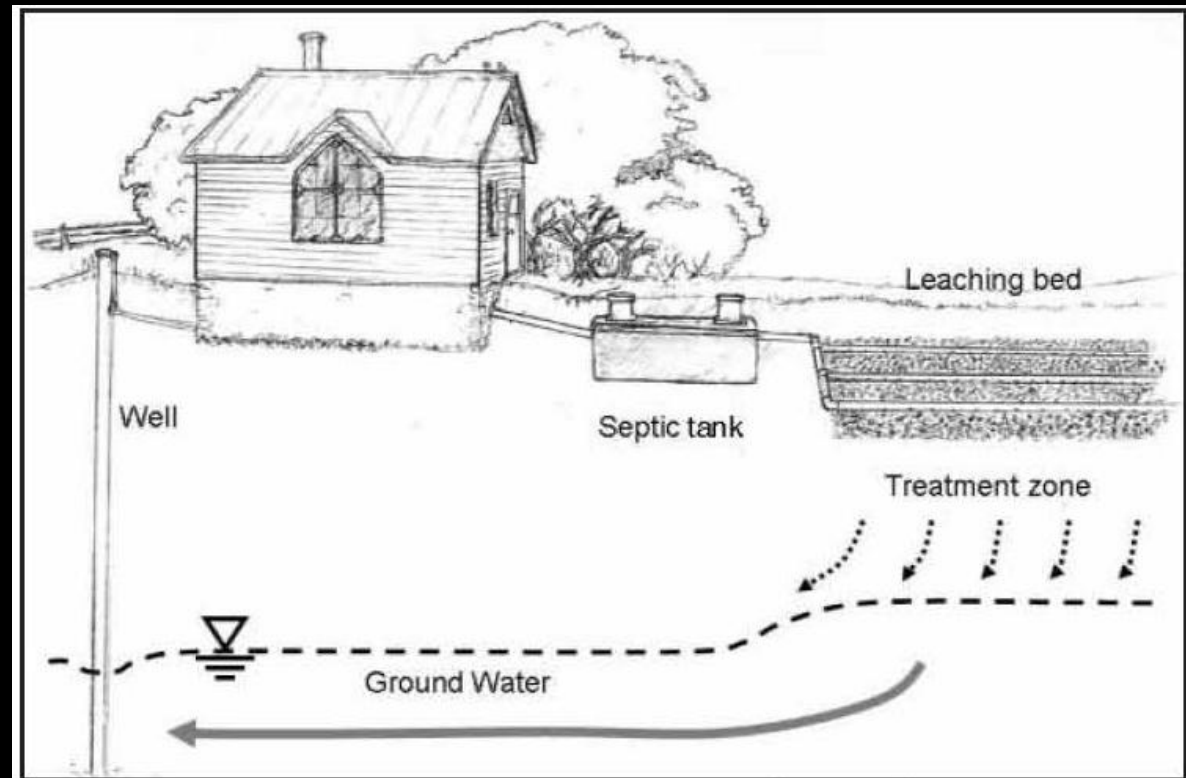
OVERVIEW

3 TECHNOLOGIES

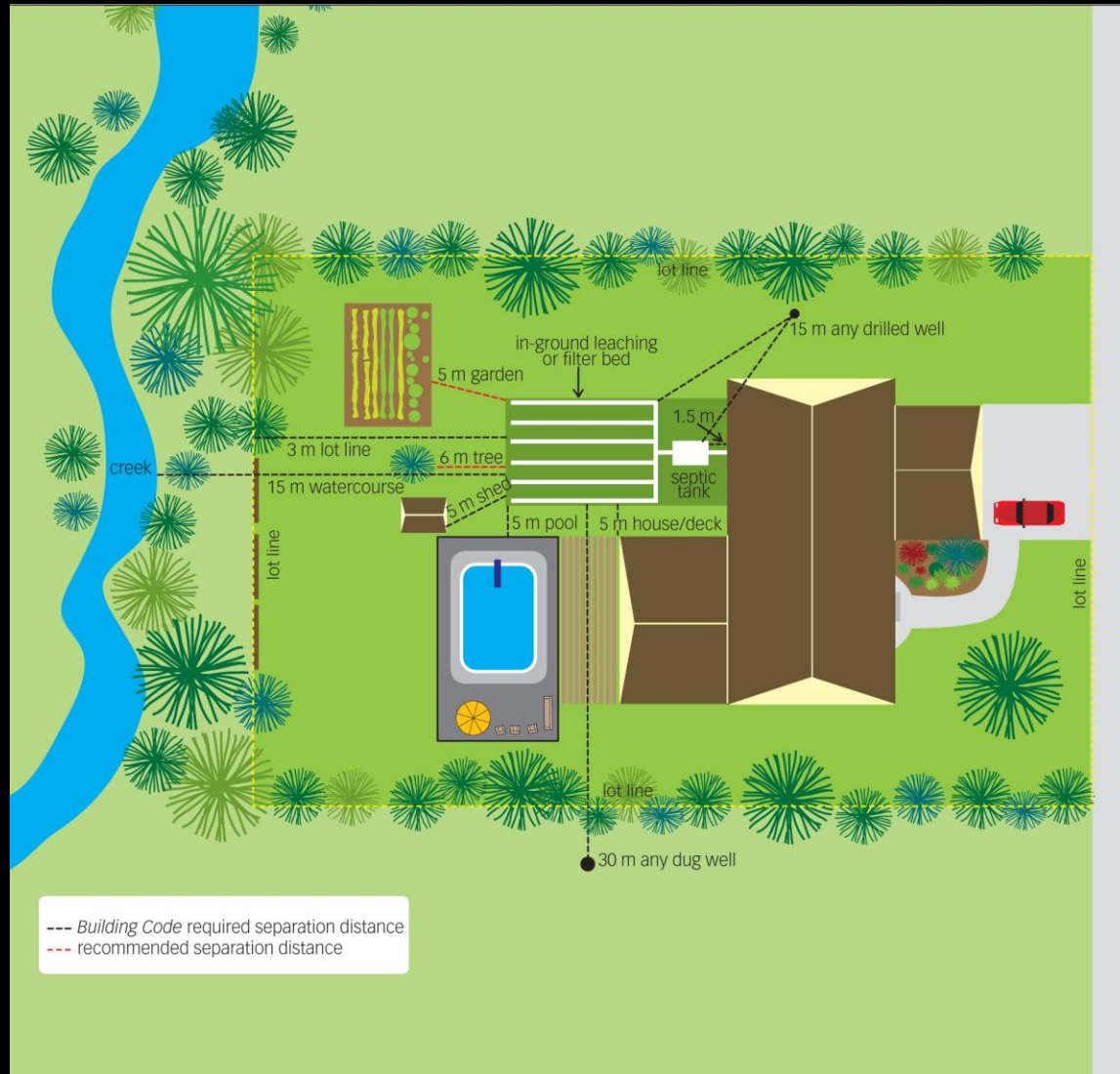
- ▶ ENHANCED SEPTIC SYSTEMS
- ▶ SOLAR HOT WATER & SPACE HEATING
- ▶ WELL BASICS POWASSAN
- ▶ THE ROAD AHEAD 2010
- ▶ THE ROAD AHEAD 2014

WASTE WATER TREATMENT ON SITE SEPTIC FUNDAMENTALS

- ▶ WASTE WATER GRAVITY FED AND PUMPED TO TANK AND DRAINAGE FIELD – RECYCLED TO WELL



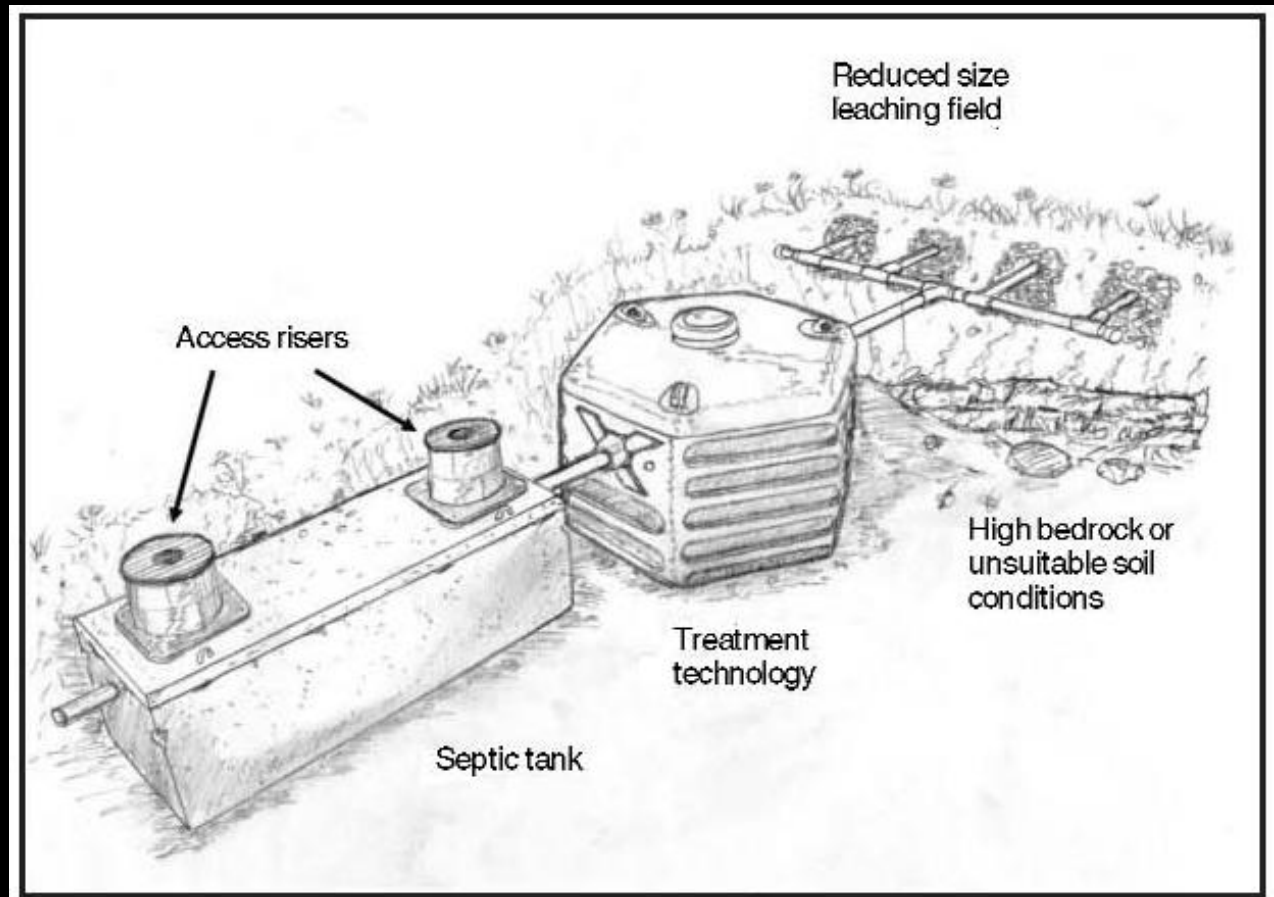
Typical OBC Septic Setbacks



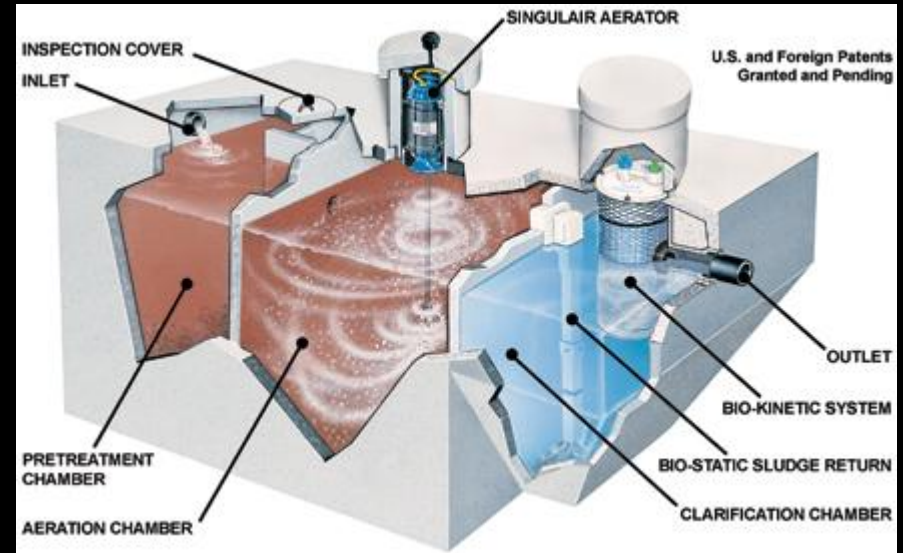
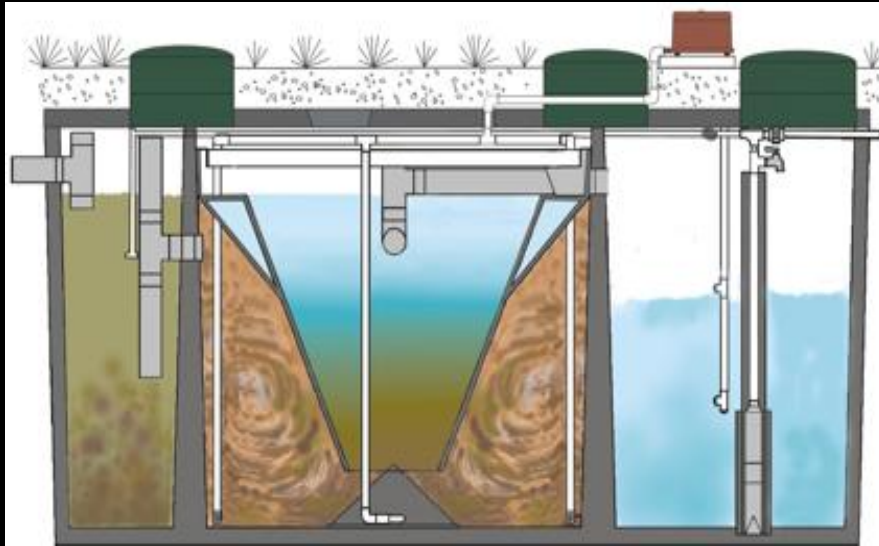
WASTE WATER TREATMENT ON SITE

SCEPTIC FUNDAMENTALS

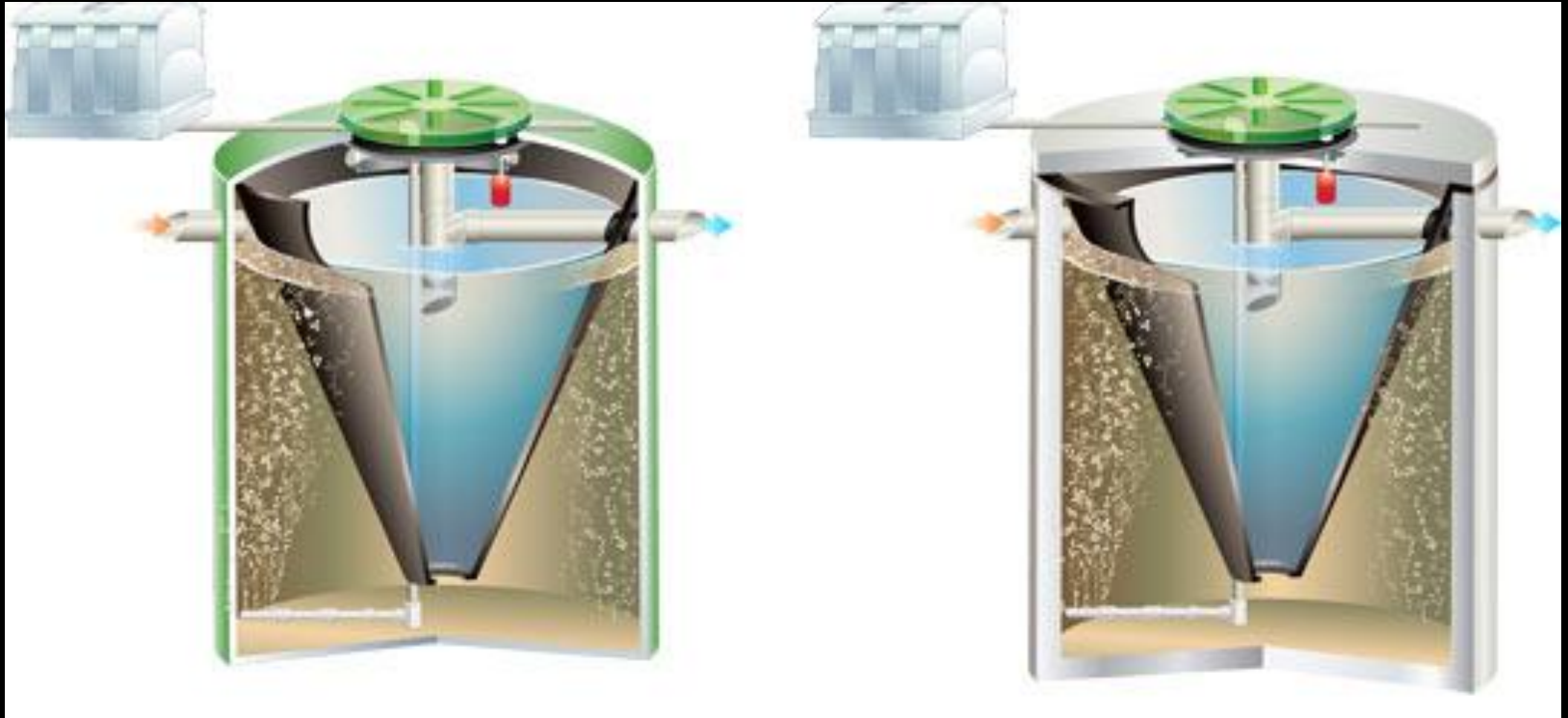
- ▶ APPROVALS
- ▶ NBMCA



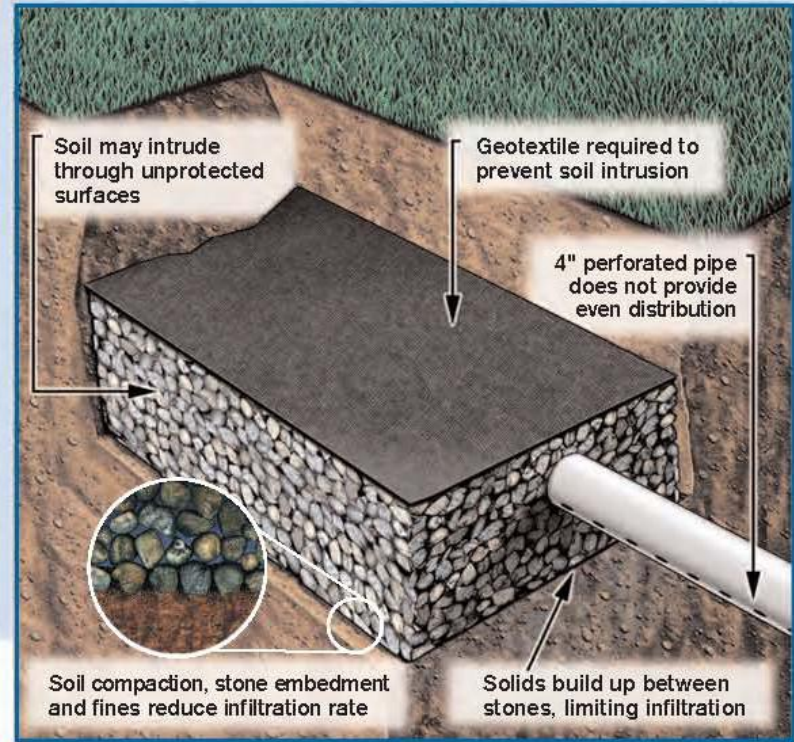
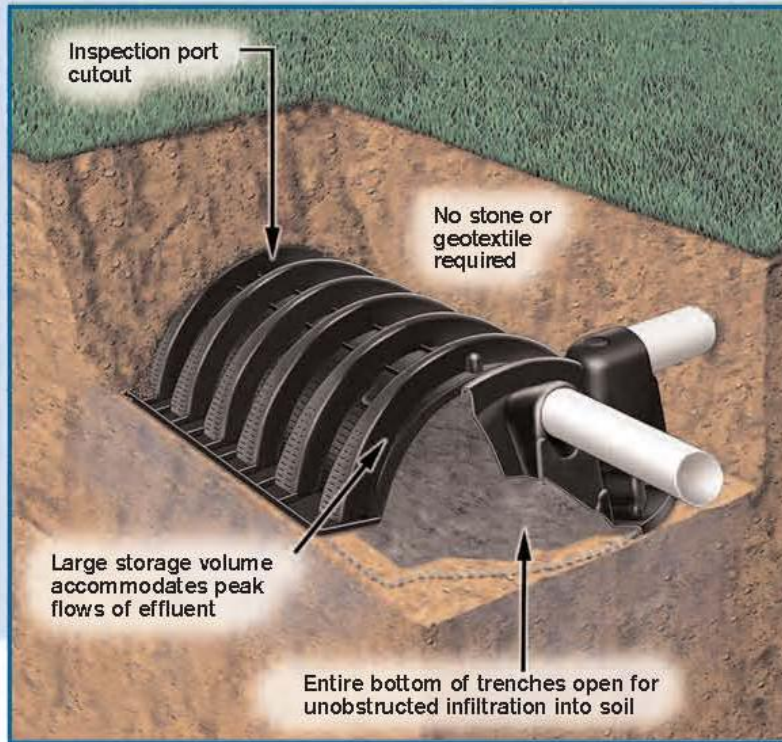
SCEPTIC SYSTEMS – TANK AGITATORS



SCEPTIC SYSTEMS – TANK AERATION



SCEPTIC SYSTEMS – ENHANCED DRAINAGE FIELDS

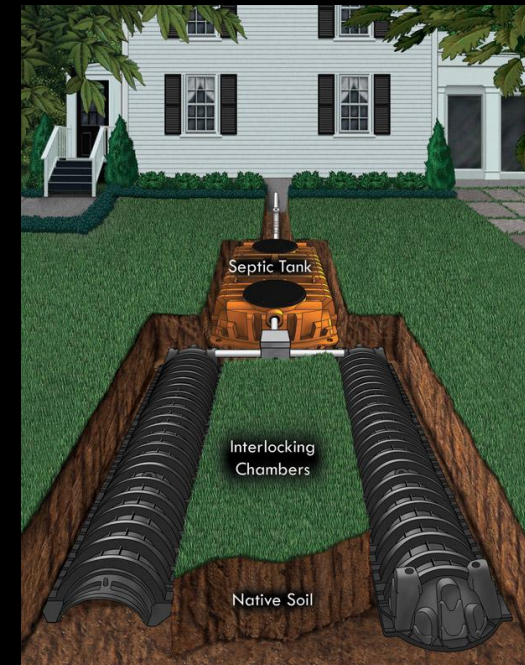


CHAMBER TECHNOLOGY

NEW SCEPTIC TECHNOLOGIES – FACTORS TO CONSIDER

- ▶ SMALLER AREAS REQUIRED
- ▶ HIGHER TREATMENT CAPACITIES
- ▶ COST

Column Diameter at Top.....	12"
Column Diameter at Base.....	15"
Total Height.....	36"
Weight.....	38 lbs
Flow Rate.....	600 GPD / 4 Bedroom House
Air Pump Weight.....	13 lbs
Air Pump Dimensions (W x L x H).....	6.8" x 8.2" x 7.5"
Minimum Depth of Tank.....	40"
Maximum Depth of Tank.....	84"



ENHANCED MICROBIAL BIOFILTER

- ▶ BACTERIA ENHANCE TREATMENT
PROCESS



VARIOUS COMMERCIAL & HIGH DENSITY APPLICATIONS

Below Ground & Out of Sight



Maximize Treatment Capacity

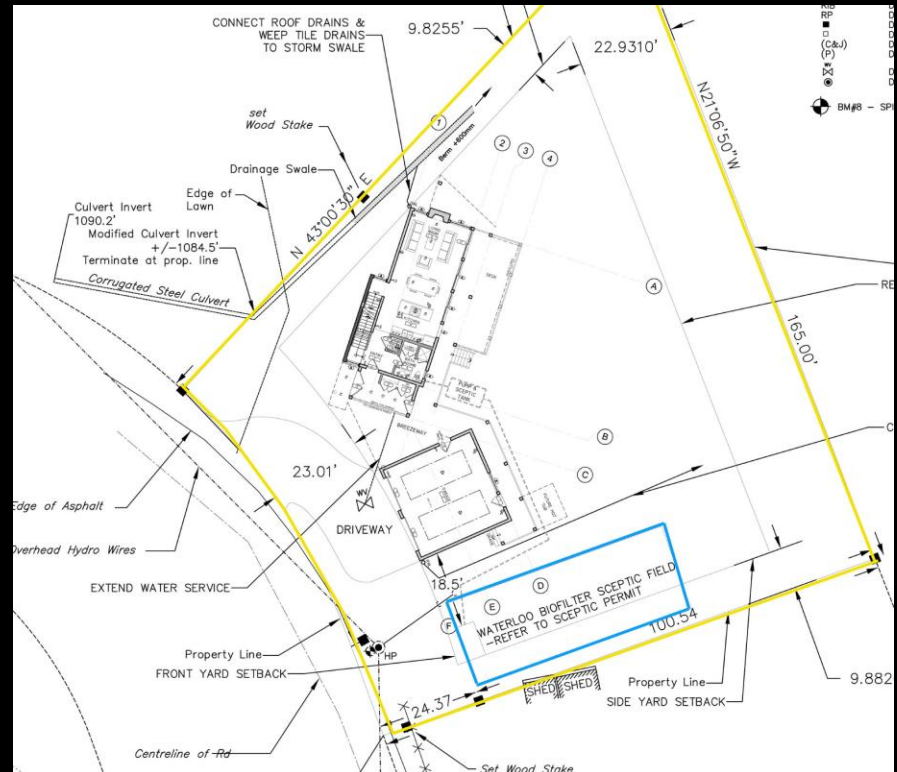


Expandable Treatment Plant



CASE STUDIES – RESIDENTIAL

- ▶ REDUCED SETBACKS ALLOWED FOR PROJECT
- ▶ NEW TECHNOLOGY INCREASED LAND VALUE
- ▶ NEW TECHNOLOGY INCREASED TAX BASE
- ▶ NEW TECHNOLOGY MINIMIZES IMPACTS

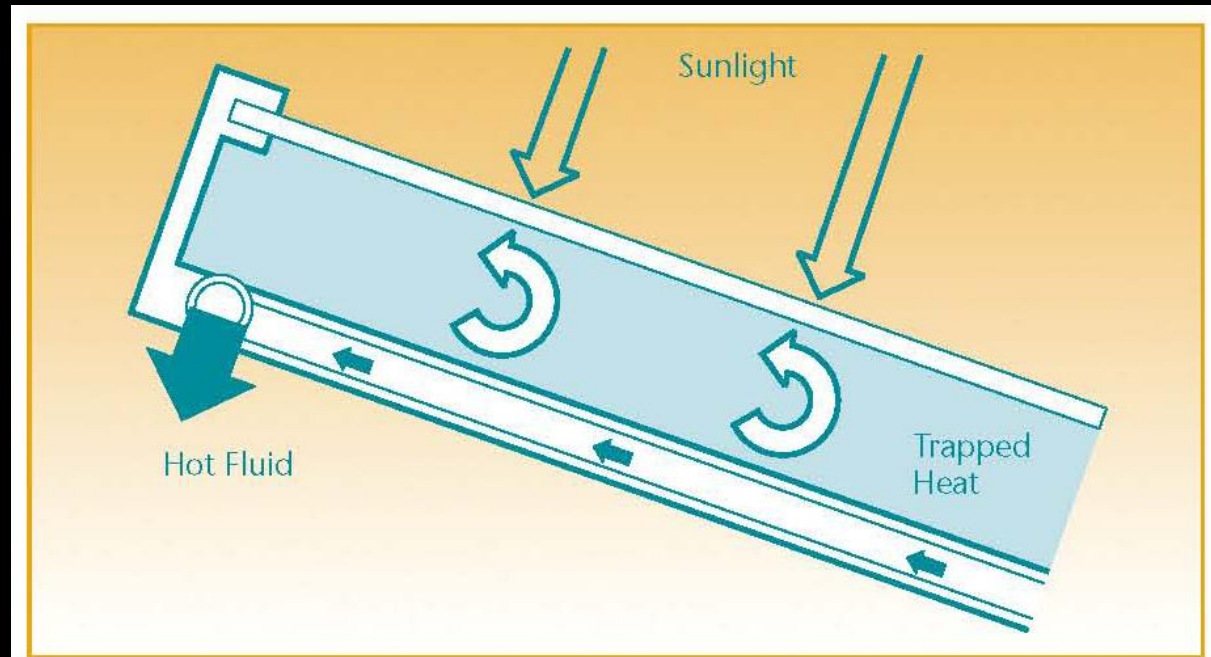


OBC 2012 SB-5

- ▶ 16 ENHANCED TANK MANUFACTURERS
- ▶ DOZENS OF PRODUCTS
- ▶ 6 ENHANCED CHAMBER SYSTEMS
- ▶ TOOLS FOR MANY DIFFICULT SITES

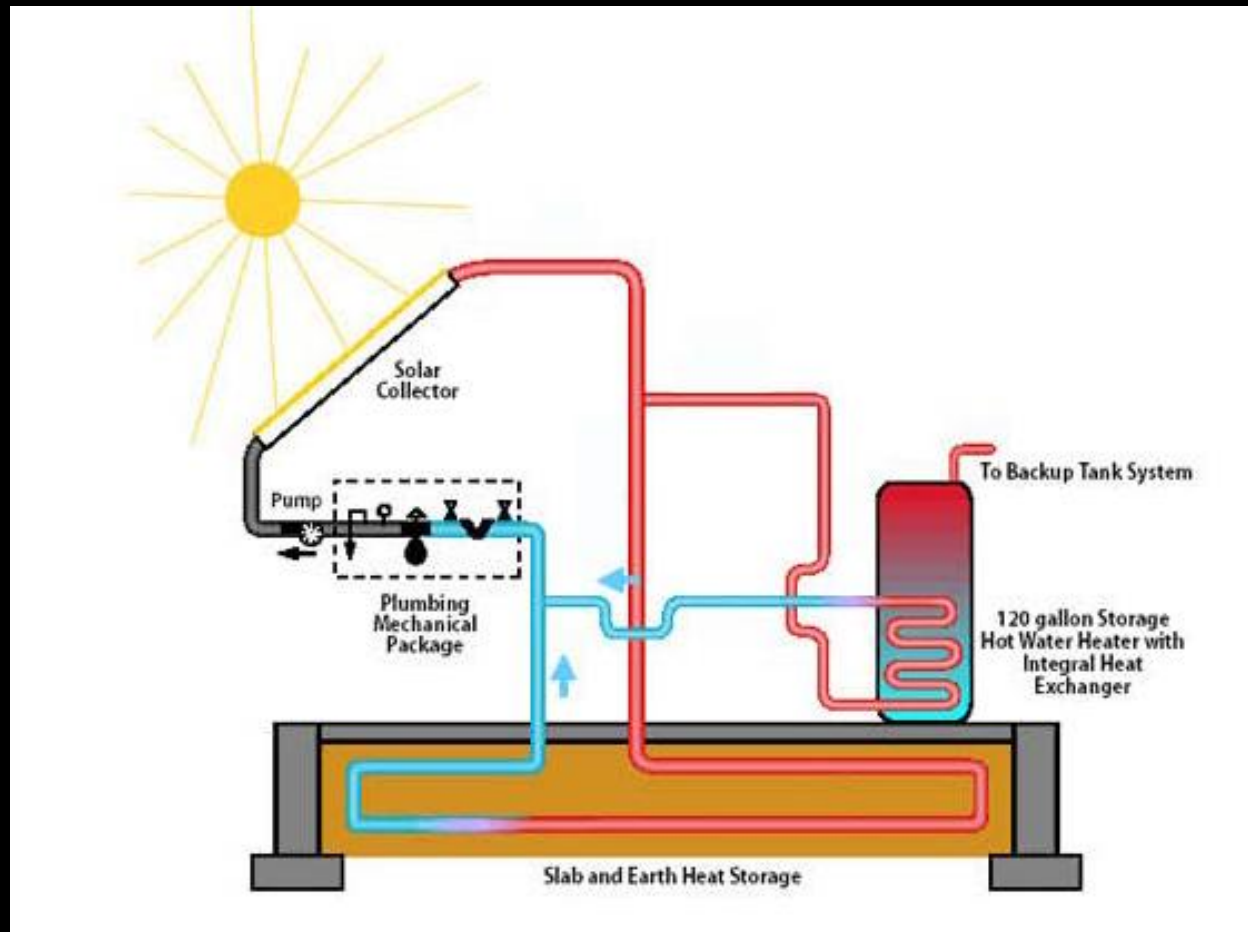
- ▶ www.oowa.org
- ▶ www.ontarioseptictank.ca/

FLAT PLATE SOLAR COLLECTOR FOR SOLAR HOT WATER / HEATING

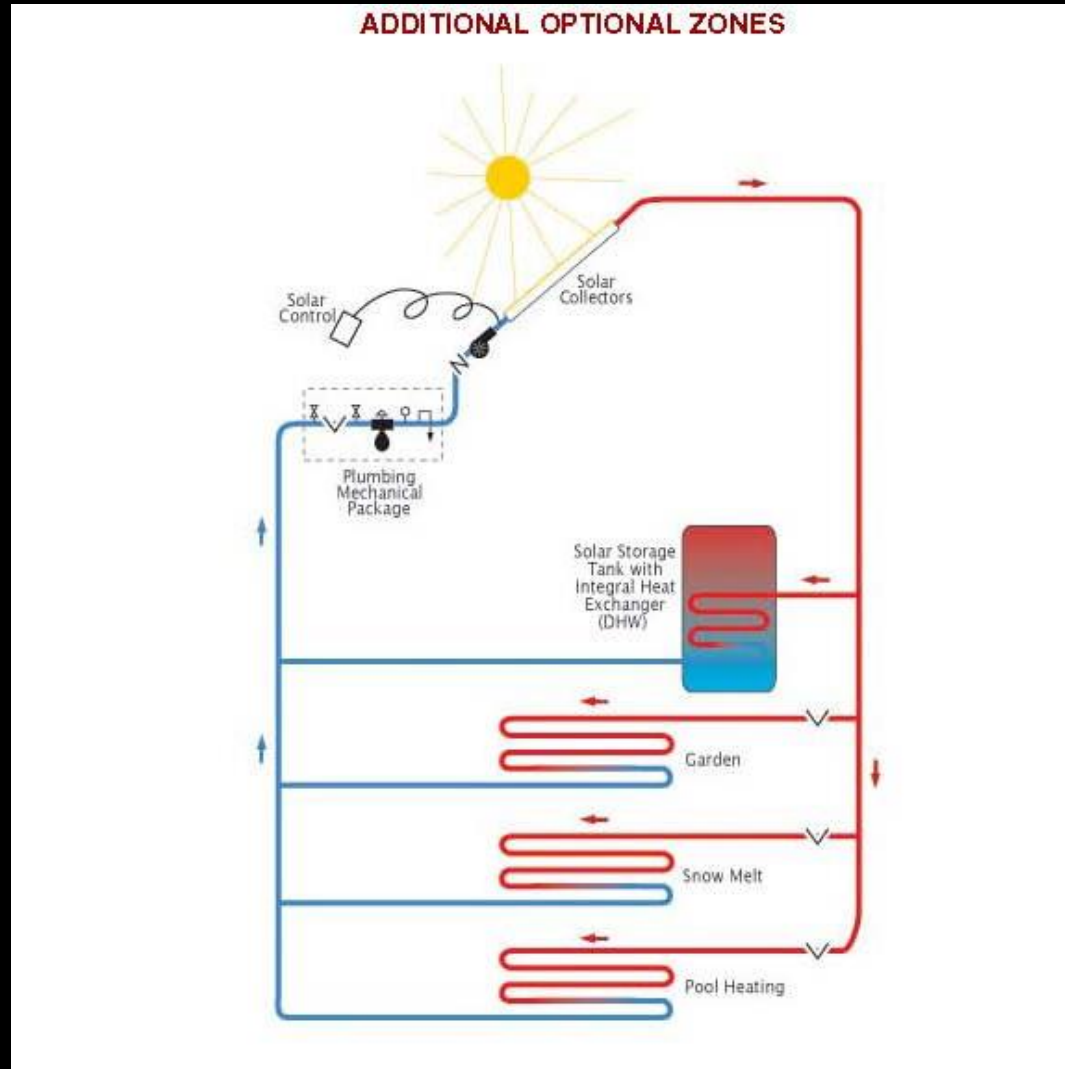


▲ In a flat plate collector, sunlight is converted to heat and trapped by the "greenhouse effect".

SOLAR HOT WATER USE FOR HYDRONIC HEATING AND THERMAL STORAGE



MULTI-ZONED SOLAR HOT WATER HEATING



OPEN DIRECT SOLAR HYDRONIC HEATING TANKS AND DISTRIBUTION



SOLAR HOT WATER - RESIDENTIAL APPLICATION



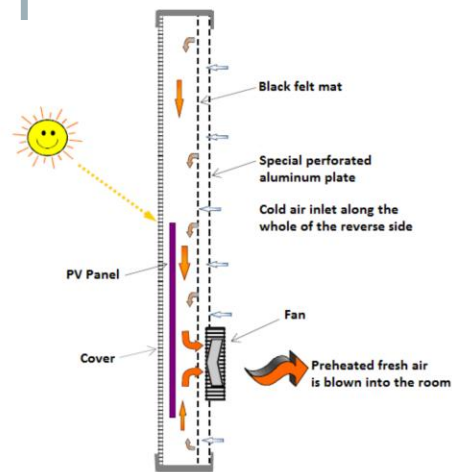
WINDHORSE FARM WITH REMOTE SOLAR COLLECTORS



SOLAR AIR FURNACE

- ▶ SOLAR THERMAL AIR FURNACES
- ▶ GREAT FOR OUT BUILDINGS
- ▶ EMERGING TECHNOLOGY
- ▶ www.wsetech.com
- ▶ www.enerconcept.com

Luba GLR - Operating principle



Air from the outside is sucked in through the whole area side of the collector. When the sun shines, the built-in solar cell sends power to the built-in fan and the air is blown into the house as warm and dry air and the stale indoor air disappears.

Components



The collector is robust, light, maintenance free and can be installed within a few hours. Full, simple instructions for installation are provided as well as assembly parts.

Use the Luba GLR instead of:

- Any dehumidifying systems which are costly to install and operate
- Electric or gas-powered heating on empty buildings
- Opening your windows thus creating cold air drafts
- Installing expensive ventilation systems

US patent number: 7,694,72
Canada patent number: 2,467,078



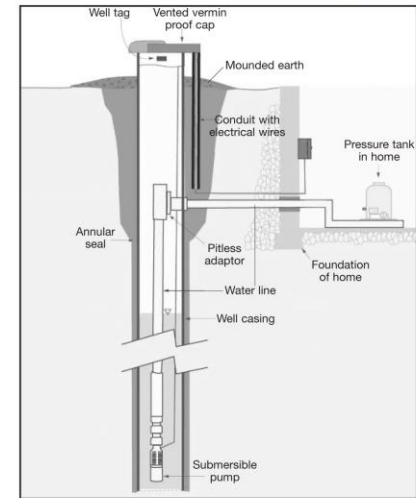
3 WELL TYPES

- ▶ DRILLED WELL
- ▶ DRIVEN POINT WELL
- ▶ COMMON DUG WELL

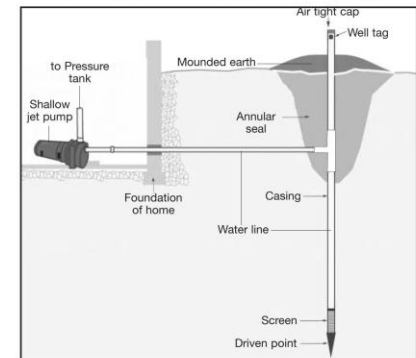
▶ www.ontariogroundwater.com

▶ www.wellaware.ca

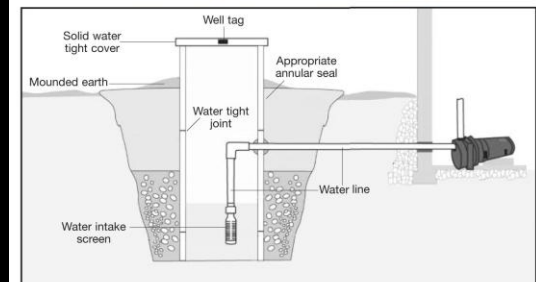
Common drilled well with submersible pump



Driven point well with shallow lift pump



Common dug well with shallow lift pump



Three common wells in Ontario which are constructed to protect the groundwater.

REGISTERED WELLS



[DOWNLOAD KMZ](#)

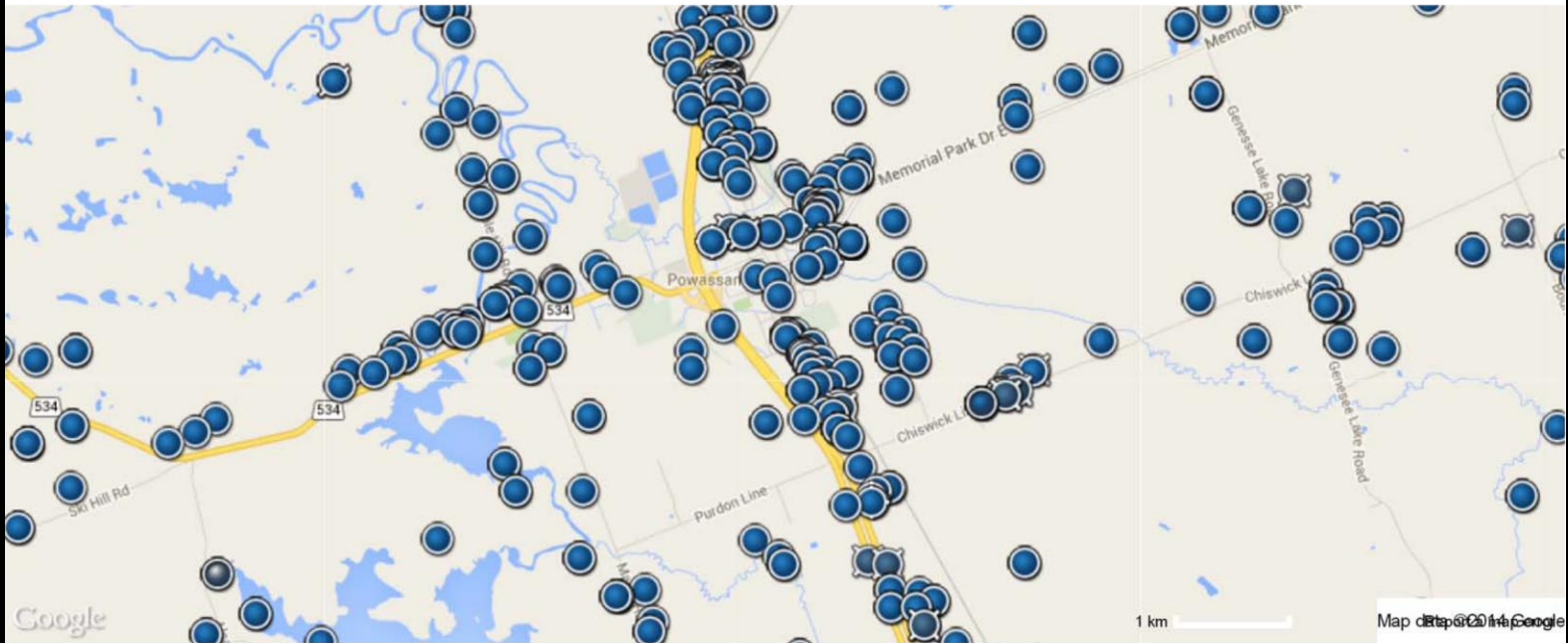
View Wells in *Google Earth*

[FULLSCREEN MAP](#)

Open Map Fullscreen

[ID LOOKUP](#)

BHID:



[Zoom In](#) [Zoom Out](#) [Get my GPS Coordinates](#) [Zoom to GPS Location](#)

MOPED – THE ROAD AHEAD

2010

- ▶ DIVERSE & INCLUSIVE
- ▶ WIDE RANGING USES
- ▶ GENERATING IDEAS & DISCUSSION

LEGEND

- 1 SERVICE STATION
- 2 RESTAURANT
- 3 MOTEL
- 4 FARMER'S MARKET
- 5 WIND & SOLAR ENERGY
- 6 COMMUNITY GARDEN
- 7 REGIONAL SPORTS PARK
- 8 MUNICIPAL OFFICE
- 9 FIRE STATION
- 10 BIO FUEL STATION
- 11 BUSINESS PARK
- 12 LIGHT INDUSTRIAL PARK

COMMERCIAL
RECREATIONAL
GREEN SPACE
LIGHT INDUSTRIAL
BUSINESS PARK

The Road Ahead: Vision 2015
July 1, 2010

The Municipality of
Powassan
The Heart of Good Living
www.powassan.net
MoPED
ECONOMIC DEVELOPMENT

MAIN STREET EXTENSION MASTER PLAN
CONCEPT DRAWING #2a
VIEW FROM SOUTH

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For more information, please contact the Municipal Office at 705-724-2813 or roadahead@powassan.net

MOPED 2014 – COMMUNITY VISION

- ▶ FOCUSED & SIMPLIFIED
- ▶ SCALED TO THE COMMUNITY



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