



ENGLISH SEWAGE DISPOSAL

Professional Septic System Inspection, Service and Repairs Since 1969

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CESSPOOL REHABILITATION ———— THE SOLUTION ————

THE SOLUTION TO THE MOST COMMON CAUSE OF BLOCK CESSPOOL FAILURE

(For purposes of reference, “Cesspool” will be used meaning both the first block pit (cesspool) and all subsequent pits (seepage pits))

Organic clogging of the soil behind the cesspool block is the largest single cause of cesspool failure. The second is physical deterioration.

Offensive odors, plumbing back-ups into the home, frequent pumping and high levels of sewage in the cesspool are indicators that organic clogging exists. Organic clogging is the gradual formation of an impermeable clogged layer in the soil immediately outside of the cesspool block. This is similar to the organic biomat buildup in a standard septic system disposal field. This layer is referred to as the organic mat or biomat — a black slimy substance that can totally block proper wastewater percolation into the soil.

The biomat is formed by fine suspended material in the waster, organic matter, greases, dead bacterial cells and slime-producing bacteria contained in the effluent. This material collects in the soil voids on the floor and in the soil outside of the cesspool, resulting in a gradual decrease in the percolation rate. The continued clogging will lead to frequent backup into the home, necessitating increasingly frequent pumping.

Both physical cleaning and chemical treatment of the cesspools can be utilized to regain some of the original percolation. The more aggressive the approach, the more dramatically the hydraulic capacity can be restored to the cesspool.

Chemical Treatment: HOW DOES IT WORK?

The two most common chemical treatments are Sulfuric Acid and Caustic Soda. These chemicals can cause severe skin burns so only trained and authorized technicians should handle them. These same chemical properties are also what makes them so effective. Both will attack organic material and destroy it. The caustic soda is more aggressive against greases and the sulfuric acid against the more biological byproducts found in the soil. Our approach utilizes both chemicals in combination.

The three basic steps in the treatment process are:

- 1) *Pumping the cesspool and sludge removal:* This first step is essential in order to clean the system and assure that none of the chemical is wasted reacting with residual material in the cesspool water. It involves pumping the wastewater, use of high-pressure water jetting to remove the sludge buildup on the

concrete surface of the cesspool and most importantly, inside the weep holes of the cesspool block. This both removes organic matter which otherwise would exhaust the chemicals before they can reach the soil as well as physically clearing a path to the soil for more immediate and dramatic improvement in the cesspool drainage capability.

- 2) *Allowing the water to refill the cesspool before adding any treatment.* Normally 7 – 10 days is required to refill the cesspool to its highest operating level. This step is critical since the area of the cesspool least blocked is in the upper levels (last portion of the system to fail). This is the area that will respond most favorably to the treatment. Step 1 will increase drainage to a point below the level found before the cleaning step.
- 3) *Applying the first chemical treatment:* The technician adds the appropriate amount of 100% dry flake caustic soda chemical treatment at an application rate of 100# / 1000 gallons cesspool capacity. This step, which attacks greasy wastes trapped in the soil, occurs once the desired operating level is achieved (see item 2 above).
- 4) *Applying the second chemical treatment:* The technician adds 750# of 98% sulfuric acid to the cesspool. This Step, which attacks the remaining organic buildup in the soil completes the process and provides the greatest benefit. Without the preceding steps, this step is limited in its success.

Remember that Safety is critical in the cleaning and chemical application process and that appropriate safety gear is necessary. Usually safety goggles, face shield (liquid chemicals only), and chemical resistant gloves. These are collectively referred to as PPE – Personal Protective Equipment.

PHYSICAL PRESSURE CLEANING: ITS NOT JUST PRESSURE WASHING – ITS IN THE DETAILS

Since the means to restoring hydraulic capacity in a cesspool is to remove as much of the organic biomat as practical, high pressure – high volume cleaning is very effective and an essential step for success. In this approach, a high-pressure stream of water is generated at between 3000 – 4000 PSI at a rate of 25-30 gallons per minute. This is directed perpendicular to the wall of the cesspool that removes organic material from inside the cesspool, the weep holes in the cesspool block and if properly executed a portion of the soil behind the cesspool block. A vacuum truck is used to remove all wastes produced during the cleaning.

LIMITATIONS

If the cesspool block is deteriorated, the pressures involved will strip away some of the cement from the block. If seriously deteriorated, it could precipitate a cesspool collapse (it was going to happen anyway – often just pumping the cesspool can initiate a collapse due to the water pressure in the surrounding soil pressing on the block and washing away rotten concrete as it drains back into the cesspool). To reduce this more dramatic effect of the cleaning process, careful examination of the physical condition of the block is essential once the individual cesspools are emptied of their contents.

Moreover, it is important to recognize that every cesspool and septic system will someday fail. Hydraulic overloading occurs when the wastewater generated from the building (home or business) exceeds the capacity of the system to dispose of the amount of water generated from the household. Another failure is when the structure of the system components simply collapses due to normal corrosive failure.

Testing

Before deciding on whether to treat or replace a cesspool, it is important that a professional evaluate the ability of the

system to withstand the chemical and physical stress of the process.

Since these tests require direct access to the interior of the cesspool for both physical and visual examination, the cesspool must be pumped and all sludge removed at the time of pumping and evaluation. If the physical integrity of the block is in question then rehabilitation is not warranted. Heavy grease buildup may be a possible reason to bypass rehabilitation, as it is very difficult to remove the grease that has penetrated into the soil.

The success of any approach is in the details. Proper preparation will optimize the overall success of the project.

SYSTEM SUITABILITY FOR TREATMENT

The treatment approach have been field tested by English Sewage under a variety of field conditions. There are factors, however, that can affect the long-term effectiveness of the treatment.

- 1) *The Original Condition of the System:* The treatment will relieve only a portion of the organic clogging in the system, but it cannot compensate for a system that is poorly constructed or too small for the amount of usage.
- 2) *The Original Condition of the Soil:* The treatments can restore only a portion of the porosity of the soil and is only recommended as a temporary means of increasing the life of the system. When the original condition of the soil is poor or heavily clogged with grease, the treatment improvement is limited and the problems are likely to occur again quickly.
- 3) *Improper Application:* If a chemical application is performed incorrectly, it will not be effective as it might be. The most crucial factor is the proper dewatering and de-sludging of the cesspool to make certain that the chemical is not wasted on material, which would be better removed through physical methods. English Sewage

Disposal takes great care in the proper selection of rehabilitation techniques based on our years of field experience.

COMBINATION APPROACH TO REHABILITATION

It is a combination of physical cleaning, preparation and application of chemical agents which yield the optimum results. Use of Enzymes to aid the native bacteria to digest the organic wastes can produce satisfying results.

COST AND PRICING FACTORS

Physical Cleaning is based upon a time and materials approach. For a simple system of one cesspool, the cost is \$600 for the mechanical cleaning process in addition to the cost of pumping the cesspool and the materials removed during the cleaning process. The cost normally falls into the \$1800 - \$2000 range. Add 50% for each additional cesspool to be cleaned. Chemical cleaning adds \$700 per cesspool.

Our approach to cesspool rehabilitation includes the best of all of the aforementioned methods.

High pressure jetting removes the maximum amount of organic contaminants, High strength caustic soda further breaks down the organics which remain in the soil and the cesspool is modified to allow easy applicaiton of enzymes to the cesspool on a long term basis.

While no approach short of full system replacement will make the system like new, for most applications, cesspool rehabilitation is a very effective approach at a minimum cost

ENGLISH SEWAGE DISPOSAL: A HISTORY

Established in 1972, English began as a family-based septic tank cleaner/wastewater hauler. It expanded to include septic system care products, system repair and installation. Engineering support services were added to facilitate the delivery of cost effective and efficient engineering solutions to the homeowner and small business.

Through the 1990's, in addition to the other services already provided, English became a distributor for package treatment plants for home and small business.

English Sewage Disposal is a close partner with BECA Environmental Consultants. The partnership brought new environmental and technical expertise across a range of environmental areas, including expanded wastewater, water, air and system operations. The changes allowed English to offer complete on-site and community wastewater management services — from maintenance, rehabilitation of failing systems, to complete turn-key customized wastewater treatment systems. Now with the additional technical support services available, new services are on the horizon.

In 2003, with the advent of the New Jersey On-Site Septic System Inspection Standards, English immediately adopted them in order to provide the most up to date and complete inspection services available in New Jersey to protect both the home seller and buyer from the prospects of an uninformed purchase of a failed or failing septic system.

Included with this direction are homeowner tailored on site septic system management contracts and system warranty programs both for new and qualifying existing septic systems.

English has developed a network of local service providers and can collectively bring a significant level of resources to bear to ensure timely response to and correction of any septic system related problems.

Our depth of services has resulted in our motto: If water flows through it – We do it.

There is no water related project too large for our team of professionals. From engineering to implementation and operation, we bring together the resources to provide you with septic peace of mind.

For additional information regarding your septic system or related services, contact:

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To Order your next septic service, inspection or portable toilet on line 24/7, visit us at www.englishsewage.com