



New England Biosolids Case Studies*

Merrimack Biosolids: Nourishing Greener Parks and Fairways

***biosolid** n. (1990): solid organic matter recovered from a sewage treatment process and used esp. as fertilizer.

--Merriam-Webster's Collegiate Dictionary

Background

The Merrimack Wastewater Treatment Facility, located on the Merrimack River in Merrimack, NH, began operations in 1970. The facility sits on 27 acres of land abutting commercial and industrial properties off of the Daniel Webster Highway. The nearest residential area is over a mile away in Nashua.

The Merrimack facility treats wastewater from commercial, industrial, and residential users in Merrimack, as well as the septage from five other area communities. The Merrimack composting facility treats its local wastewater solids, as well as the wastewater solids of Durham and Henniker. With a capacity of 5 million gallons per day (MGD), the fully computerized, state-of-the-art facility currently processes 3.8 MGD. The organic strength of the wastewater is five times that of typical residential wastewater, due, in large part, to the contribution of the largest user, the Anheuser-Busch commercial brewery, which contributes more than half (2 MGD) of the Merrimack facility's total flow and about sixty percent of the organic matter in the wastewater. The wastewater output from the brewery is equivalent to the output from an additional 60,000 people! Fortunately, the brewery and the Merrimack facility began operations on the same day, and the facility was specifically designed to handle the load.

The wastewater facility utilizes a multi-stage process which includes an innovative and highly effective trickling filter technology. The trickling filter removes 60-70 percent of the organic waste from the wastewater through bacterial activity. The purified wastewater is disinfected before it is discharged into the Merrimack River. The Merrimack facility is self-supporting and charges very competitive customer rates--about half of the state average.

Biosolids Recycling

As a community, Merrimack was ahead of its time in pursuing biosolids recycling. Seeking an alternative to incineration, the town pilot-tested biosolids recycling in 1977, and in 1982 the Merrimack facility began formal composting operations. Today, 100% of the 16,000 wet tons of wastewater solids collected each year is recycled into 23,000 cubic yards of finished biosolids compost. To make the compost, dewatered sewage sludge is mixed with sawdust and compost and loaded into long covered bins. The developing compost is repeatedly mixed and monitored by computerized systems to ensure full pathogen treatment and uniform compost quality. The compost facility operates year-round. Finished compost is stockpiled in open-air piles during the winter to meet peak planting season demand in the spring.

The U.S. Environmental Protection Agency (EPA) sets standards on allowable levels of certain metals and pathogens in biosolids. The State of New Hampshire sets even stricter compliance standards for biosolids. To ensure compliance with the regulations, an independent laboratory regularly tests the Merrimack biosolids for all regulated components. The Merrimack facility professional staff is dedicated

to applying the highest quality standards in their daily operations and, as a result, their biosolids products have consistently tested well within federal and state standards.

Beneficial Use: Central Park Project & New England Golf Courses

The Merrimack biosolids facility produces material that meets all of the highest quality standards for biosolids compost and can be used anywhere, including as a component of topsoil in commercial and private gardening and landscaping projects. The facility offers free compost seven days a week to residents of Merrimack--a popular program. The facility also contracts with Agresource Inc. of Amesbury, MA, to market Merrimack biosolids throughout New England and New York. Agresource only sells compost that meets EPA exceptional quality standards. They have sold Merrimack biosolids throughout the northeast for use in nurseries, the manufacture of top soil, athletic field construction, golf courses, and general landscaping.



Agresource President Geoff Kuter has found that the Merrimack biosolids has a specific identity as a high quality, consistent product and enjoys a loyal clientele. According to Kuter, customers are dedicated to the Merrimack product and don't want to switch. The compost is fine-textured because of the use of sawdust and is good as an organic mix for golf courses. In fact, half of the applications of Merrimack biosolids are on sports turf, golf course construction, and New York City's Central Park (photo above).

The Central Park Project: Merrimack compost is used on the Great Lawn in New York City's Central Park. About 4,000 cubic yards of Merrimack compost was used for the Great Lawn restoration, the largest public works project in Central Park since its construction in the mid-19th-century. Merrimack compost met the strict standards set by the State of New York and the specific requirements of the Central Park Conservancy. Each year, hundreds of thousands of people enjoy activities on the Great Lawn, such as the annual summer performances of the Metropolitan Opera and the New York Philharmonic Orchestra and thousands of softball games on the park's ball fields. Merrimack compost was specifically selected for this project because of its consistency, nutrient value, and high organic matter content.

New England Golf Courses: High quality biosolids compost, such as that produced at Merrimack, has proven to be an excellent environmental choice for construction and maintenance of golf course greens and tees and other turfgrass applications. More than 100 New England golf courses have utilized biosolids



composts. Research has shown that the biological activity in biosolids compost--with its high percentage of organic matter and nutrients--helps suppress plant diseases and improve plant health in turfgrass applications. A rootzone rich in organic matter and nutrients holds water, nutrients, and trace pollutants, reducing the impacts of drought and any potential contamination of groundwater. In addition to golf courses, many New England sports fields and parks, including Springer Park in Manchester, NH, and parts of the Boston Common, have been built with Merrimack biosolids compost.



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