

PUBLIC WORKS, ENGINEERING AND WASTEWATER TREATMENT

Wastewater Treatment Facility



Berlin's Pollution Control Facility processed 765.71 million gallons of sanitary sewer flows last year; in addition, we accepted and treated almost 287,615 gallons of septage waste from outlying communities not on their own sewer systems (i.e., septic tanks). In the process, we produced 1509.28 tons of dried municipal sludge which we trucked to the AVRRDD landfill for disposal. The treatment process removed 93.8% of the BOD (Biochemical Oxygen Demand) and 96.6% of the TSS (Total Suspended Solids) which came in with the sanitary sewer flows. Average monthly power usage at the Main Plant decreased minimally to 108.9 KW/day, reflecting lower flows through the plant.

We recondition one of No. 2 Centrifuge because of mechanical issues and will recondition No. 1 Centrifuge.

We also purchased one new lift station pump for the Armory Pump Station and reconditioned both pumps so that we have a reliable spare pump. We continue to learn how to use the new instrumentation we acquired in the Phase I rebuild, and look forward to the Phase II improvements once financing is in place.

We had to replace the Variable Frequency Drive for #3 Raw Sewage Pump at the Watson Street Pump Station.

Work on Inflow and Infiltration (I&I) is a priority to reduce the water load that the sewer system and the treatment plant carry. As a simple way to think about it, the amount of water Berlin Water Works supplies to the City daily should be the amount of water Berlin Pollution Control Facility treats. In the same time period (FY2009) BWW produced 511.3 million gallons of water for City use; BPCF on the other hand treated 765.7 million gallons or 50% more than BWW produced!

Some sources for this extra water we treat are: roof drains that flow into the sewer system, broken manholes and sewer lines that allow groundwater to infiltrate the sewers, and "Combined" sewers that catch surface runoff on paved areas and direct this flow into the sewer pipes. We have hired Wright- Pierce engineering for this project and plan to do this massive project in phases. The first phase will target the largest known sources which are the Community College cross country line and the East side.

Phase II upgrade to the Waste Water Treatment is in progress with (Wright-Pierce) the engineering consultants looking at what will be needed to incorporate the new federal prison into the waste water plant. The contract was signed in late June 2009.

East Milan Road Sewer Project and Pump Station was Awarded to Sargent Corporation in June 2010 for \$5,422,080.

Solid Waste

The East Milan Road Landfill closure was substantially completed in October of 1996. Closure of the landfill launched the 39 year post-closure monitoring program. Groundwater quality and methane gas production is being monitored in accordance with the program.

The Cates Hill Landfill Closure project was completed in August of 2006. The project

was awarded to the low bidder, Paragon Construction, Inc. of Orford, NH. Paragon's bid for the work was \$572,020. Work was started in the spring of 2003. Groundwater quality and methane gas production is being monitored in accordance with the program. The cost for engineering services, lab testing services, gas monitoring, administrative services and grounds maintenance is almost \$18,000.

Public Works Services



The Public Works Department provides a number of services to the citizens of Berlin. They include: the maintenance of over 60 miles of streets and many more miles of sidewalks that need to be swept, patched and pavement overlaid. We also provide snow removal, street striping, street marking, and the fabrication and installation of street and traffic signs. We construct retaining walls, install guard rails and guard fence. We provide citizens with weekly garbage removal. We maintain sewer and storm water collection systems. We provide equipment maintenance for all of the Public Works, Fire, Recreation, Health, Police and Engineering Departments as well as the Berlin Municipal Airport. We maintain gas and fuel distribution system for all City

Departments. We also provide and maintain 146 sand and salt barrels for winter use.

The Public Works Department collects paper, glass, plastics, tin, aluminum and cardboard for recycling. We periodically seal concrete sidewalks, retaining walls and bridge abutments. Members of the Department also provided utility information and project inspection for water and sewer capital improvement projects

Transportation

Street Markings. Center lines, edge lines, railroad crossings and crosswalks were painted as they are every year. We excluded three exempt railroad crossings this year. The cost of this work was approximately \$11,000. The work included approximately 216,458 linear feet of striping and 11 railroad crossings. PWD crew paints 130 crosswalks throughout the City, all the stop bars, yellow no parking zones and handicap parking areas.

Projects Completed in the 2009-2010 Season:

- Portland Street Storm Drain Expansion
- Spring Street Retaining Wall Repair & Railing Replacement.
- High Street Retaining Wall and Railing
- Box Culvert Repair Coos and Gendron Streets
- Replaced over 100' of 12" RCP on storm system by Enman Hill and Grafton Street
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- Work with NH Trails Bureau and ATV clubs on ATV trails cross town connection on installing signs, road markings, fencing and a Kiosh built by Berlin High School Trades
- Purchased new Garbage Truck- \$158,990
- Purchased new Road Sweeper- \$129,711
- Retaining Wall and Railings on High Street
- Community Field Parking Lot-Joint Project with Recreation and Parks

Sidewalks and Curbs

Park Street; Willard Street

Joint Projects with Berlin Water Works

In joint projects with Berlin Water Works the following streets were done:

Jolbert Street, Madigan and Willard Street where water, storm and sewer lines were replaced and repaired street; PWD provided the paving services for the trenches this season;

Install a new bridge over the Dead River by Memorial Field for equipment access for new high pressure loop tie-in.

ITEMIZED LIST OF VARIOUS WORK AND MATERIAL ITEMS

WORK DESCRIPTION	INCIDENCES	QUANTITY OF MATERIAL
Frozen sewer service calls	0	
Frozen drain service calls	2	
Frozen main drain lines	0	
Frozen culverts	0	
Frozen trench lines	2	
Frozen catch basins	15	
Main sewer lines jet cleaned	20	
Main sewer line calls	4	
Sewer service calls	11	
Sewer services replaced	4	66' of 4" WW repairs 18
Drain service connections	2	
Main sewer lines replaced	2	139 feet
Main drain lines replaced	5	657 feet
New sewer service connections	2	100feet
Main drain lines jetted	20	On Regular Basis
Manhole frames reset	10	
Manholes rebuilt	5	Enman Hill
Manholes repaired	10	4-WW Dept.
Catch basin frames reset	10	
Catch basins rebuilt	2	
Catch basins repaired	20	
New catch basins installed	4	
Salt for winter use		1194 tons
Sand for winter sand		1482tons

Respectfully Submitted,

Michael Perreault,
Public Works Director