NORTH CAROLINA DEPARTMENT
OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

EXPERIMENTAL WASTEWATER SYSTEM APPROVAL

EXPERIMENTAL WASTEWATER SYSTEM NO.: EWWS-98-2

ISSUED TO: Dr. A.R. "Bob" Rubin, Professor
Department of Biological and Agricultural Engineering
North Carolina State University, Box 7625,
Raleigh, N.C. 27695-7625

FOR: Evaluation of 15" P.E. Tubing for use in Gravelless Nitrification Application for Sewage Disposal

DATE: August 20, 1998

In accordance with 15A NCAC 18A.1969, an application by Dr. A. R. "Bob" Rubin of North Carolina State University for evaluating the use of 15" P. E. tubing for the subsurface disposal of sewage and a comparative analysis with conventional and chambered trench technologies has been found to meet standards to warrant approval. The following conditions shall be met for systems installed in accordance with this experimental system protocol.

I. SYSTEM DESCRIPTION

A. General:
The experimental system to be evaluated is a 15 inch diameter corrugated plastic pipe properly bedded in a gravelless trench without a geotextile wrap as commonly used in 8 and 10 inch diameter gravelless tube systems and will receive septic tank effluent in measured quantities. The pipe has to be manufactured in compliance with ASTM F-667.

B. Specific System to be Tested and Evaluated:

Up to 4 test sites may be permitted with at least one site in a Group I (sandy soil) and one in a Group IV (clayey soil). Each test site shall be configured so that equal lengths of a conventional trench, chamber system, and 15 inch diameter corrugated plastic pipe will be installed in similar soil and site conditions. Further, each system of trenches shall receive a measured flow using a tipping distribution device with a counter or similar approved method.

The monitoring shall include effluent flow, ponding levels, and rainfall measured at least weekly and within 48 hours of a rainfall event of 1 inch or more. The ponding levels shall be measured with a device that is accurate within one sixteenth

of an inch.

Water quality monitoring is not required but may be included optionally.

Except as provided herein the requirements of test and evaluation protocol submitted by A. R. Rubin shall be met.

II. PERMITTING AND INSTALLATION:

The local health department may issue an Improvement Permit, Construction Authorization, and an Experimental System Operation Permit (ESOP) for an experimental system installed in accordance with this approval and the referenced test protocol provided the provisions of .1969 (4)(c) are met. Please note that this rule requires that these permits be reviewed by this office and found to be consistent with the approved research or testing program prior to issuance by the local health department. Further, the installation shall be under the direct full time supervision of the North Carolina State University representative.

The installation of the graveless 15 inch diameter nitrification trench experimental system shall be in accordance with the attached specifications. The installation of the conventional 3 feet wide trenches and the chamber trenches shall be in accordance with Rule .1955 and the applicable innovative approval, respectively. The ESOP shall be valid for a period not to exceed five years.

III. OPERATION AND MAINTENANCE MONITORING:

The monitoring requirements in the attached specifications shall be met.

The monitoring is proposed to be implemented for a period of one year from the date the system is installed.

IV. REPORTING:

The principle researcher shall submit to this office a progress report 6 months after the date of this experimental approval and at 6 month intervals until completion. Upon completion of the research and evaluation at this experimental site, a written report is to be provided to the On-Site Wastewater Section, Division of Environmental Health reporting the findings, results, conclusions and recommendations for the future use of tire chips as an aggregate substitute in nitrification trenches.

Approved by:_____ Date: 8/20/98

Steve J. Steinbeck, Head
On-Site Wastewater Services