NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

PROVISIONAL WASTEWATER SYSTEM APPROVAL

PROVISIONAL APPROVAL NO: PWWS-2002-01-R3

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For:	Treatment Standard II for the following BioMicrobics, Inc. MicroFAST® and HighStrengthFAST® Wastewater Treatment Systems MicroFAST® Models 0.5, 0.625, 0.75, 0.9, 1.5, 3.0, and 4.5 HighStrengthFAST® Models 1.0, 1.5, and 3.0

Approval Dates:	April 22, 2002	
	February 24, 2009	Re-issuance of approval with updated design criteria
	November 2, 2020	Removal of NSF-40 and TS-I systems

In accordance with G.S. 130A-343 and 15A NCAC 18A .1969, an application by BioMicrobics, Inc., for a revised approval for onsite wastewater systems utilizing the MicroFAST® and HighStrengthFAST® systems has been reviewed, and found to meet the requirements of a Provisional System when all of the following conditions are met:

I. General

A. Scope of this Provisional Approval
   1. Use, design, and construction requirements for the specified models of MicroFAST® and HighStrengthFAST® Treatment Systems to meet TS-II effluent standards pursuant to 15A NCAC 18A .1970(a) Table VII.
   2. Operation, maintenance, and monitoring of these MicroFAST® and HighStrengthFAST® Treatment Systems and associated onsite wastewater systems to ensure the treatment standards are met.
   3. Proposal for evaluation of this Provisional System.

B. This Provisional Approval is applicable to wastewater systems utilizing MicroFAST® and HighStrengthFAST® Treatment Systems designed to meet TS-II effluent standards and that have

a design flow less than or equal to 3,000 gallons per day (gpd).

C. The MicroFAST® systems are approved to treat domestic strength (non-industrial) wastewater. HighStrengthFAST® systems are approved to treat wastewater from food service facilities or other commercial establishments generating similar high strength wastewater.

D. Influent waste strength to the MicroFAST® Treatment System shall not exceed domestic septic tank quality effluent standards pursuant to Rule.1970(b). In addition, the following requirements shall be met:
   1. The BioMicrobics, Inc. authorized designer (designer) or North Carolina Professional Engineer (PE) shall verify that the system influent has sufficient alkalinity to meet TS-II nitrogen performance standards.
   2. The blower must remain on at all times unless otherwise recommended by BioMicrobics, Inc.
   3. The influent to the MicroFAST® Treatment System shall not have a pH or toxins that significantly inhibit microbial growth. Please see the company's Owner's Manual for a list of prohibited products.

E. Design flow and influent BOD and TSS limits must be established on case-by-case basis for projects using HighStrengthFAST® systems, depending upon the facility served and desired effluent limitations. A PE shall design the system and BioMicrobics, Inc. shall certify the design of each project using a HighStrengthFAST® system. A set of support design calculations shall be provided for each system. The State shall review and approve proposals on a case-by-case basis prior to permitting by the local health department (LHD).

F. This Provisional Approval is initially limited to 50 systems with design flows of up to 3,000 gpd.

G. MicroFAST® and HighStrengthFAST® Treatment Systems may be used for applications with a design daily flow greater than 3,000 gpd if designed by a PE and approved by the State on a case-by-case basis. Design shall be in accordance with the Large Systems State Review/Approval Process and 15A NCAC 18A .1938.

II. System Description

The MicroFAST® and HighStrengthFAST® systems are an aerobic wastewater treatment system that utilizes a completely submerged fixed film process to treat organics and nitrify, and a passive recycle system for denitrification. Each model contains submerged media specific to the application. Microorganisms grow on the media and remove soluble contaminants from the wastewater, utilizing them as a source of energy for growth and production of new microorganisms. The inserts for the MicroFAST® and HighStrengthFAST® systems consist of a liner around the media and an airlift to provide aeration and mixing within the confines of the liner. The area outside the liner in the septic tank remains anoxic for denitrification. A passive recirculation system moves the aerated wastewater to the outside of the liner to obtain denitrification. The aeration and circulation inside the liner are provided by a blower that pumps air into a draft tube that extends down the center of the media. Treated effluent passes out of the aerobic zone of the treatment plant through a pipe connected directly to a baffled quiescent area in the liner. Final effluent is discharged to a holding tank with an effluent filter or directly to a dosing tank meeting the capacity requirements of Section VI.J. and then to an ultraviolet (UV) system for disinfection. When a separate holding tank is used, the UV system may be installed in the gravity flow path between the holding tank and dosing tank or final point of

discharge. The effluent ultimately discharges to a dispersal field.

III. Siting Criteria

A. A Provisional System may be installed at sites that meet the requirements of this Section and the soil and siting criteria for a conventional, modified, alternative, innovative, or accepted wastewater system. The site shall have sufficient area to install a replacement advanced pretreatment system and 100 percent dispersal field repair area. The manufacturer agrees to provide another approved system if the Provisional System fails to meet performance standards specified in Rule .1970(a) Table VII. Exceptions to the repair area requirement are as set forth in Rule .1969(f)(3) and (4).

B. MicroFAST® and HighStrengthFAST® systems and associated dispersal fields shall be sited and sized in accordance with Rule .1970 for TS-II systems. Drip dispersal systems used with MicroFAST® and HighStrengthFAST® systems shall be sited and sized in accordance with the manufacturer specific drip approval.

IV. Dispersal Field Sizing

The dispersal field sizing criteria shall be based upon the long-term acceptance rate (LTAR) specified in the rules or the specific dispersal field system approval.

V. Special Site Evaluation

A special site evaluation may be required based on the proposed in accordance with Rule .1970(p) or a manufacturer specific drip approval.

VI. Design Criteria

A. A MicroFAST® system designed for flows less than or equal to 1,500 gpd shall utilize models of Residential Wastewater Treatment Systems (RWTS's) that have been preapproved by the State in addition to meeting the requirements listed below. For MicroFAST® systems designed for flows greater than 1,500 gpd, and for HighStrengthFAST® units, a modified state-approved septic tank shall be used sized in accordance with 15A NCAC 18A .1952(b). Tank modifications to accommodate the MicroFAST® or HighStrengthFAST® unit shall be pre-approved by the State prior to Construction Authorization (CA) issuance.

B. Tables 1 and 2 provide the minimum unit sizing required for the MicroFAST® and HighStrengthFAST® unit based on design flow and full time or seasonal use.

Table 1 – Sizing for Full Time Residential Installations

System Model	Design Flow Limit	Settling Zone Size (gallons)	Treatment Zone Size (gallons)	Total Tank Size (gallons)
MicroFAST 0.5	500 gpd	500	750	1,250
MicroFAST 0.625	625 gpd	500	900	1,400
MicroFAST 0.75	750 gpd	500	1,000	1,500
MicroFAST 0.9	900 gpd	725	1,250	1,975
MicroFAST 1.5	1,500 gpd	1,075	1,875	2,950
MicroFAST 3.0*	3,000 gpd	2,145	3,750	5,895

HighStrengthFAST 1.0*	Design flow and influent BOD and TSS limits must be established on a case-by-case basis, depending upon the facility served and the desired effluent limitations. A PE shall design and BioMicrobics, Inc. shall certify the design of each project for High Strength wastewater or with a design daily flow greater than 1,000 gpd. A set of support design calculations shall be provided for each system. * See Number F in Design Criteria
HighStrengthFAST 1.5*	
HighStrengthFAST 3.0*	

Table 2 – Sizing for Seasonal Use Residential Installations

System Model	Design Flow Limit	Settling Zone Size (gallons)	Treatment Zone Size (gallons)	Total Tank Size (gallons)
MicroFAST 0.75	500 gpd	500	1,000	1,500
MicroFAST 0.9	750 gpd	725	1,250	1,975
MicroFAST 1.5	900 gpd	1,075	1,875	2,950
MicroFAST 3.0*	1,500 gpd	2,145	3,750	5,895
MicroFAST 4.5*	3,000 gpd	See Note 1	4,220	See Note 1
HighStrengthFAST 1.0*	Design flow and influent BOD and TSS limits must be established on a case-by-case basis, depending upon the facility served and the desired effluent limitations. A PE shall design and BioMicrobics, Inc. shall certify the design of each project for High Strength wastewater or with a design daily flow greater than 1,000 gpd. A set of support design calculations shall be provided for each system. Note 1: The MicroFAST 4.5 is installed in a separate tank from the Settling Zone tank. The size of the Settling Zone tank should be in accordance with State and Local rules. * See Paragraph E in Design Criteria			
HighStrengthFAST 1.5*				
HighStrengthFAST 3.0*				

C. Grease traps or grease interceptors designed and sized in accordance with 15A NCAC 18A .1955(k) shall be used prior to HighStrengthFAST® units.

D. The MicroFAST® and HighStrengthFAST® systems shall gravity discharge to the dispersal component (pump tank, gravity drain field, etc.).

E. MicroFAST® systems designed for domestic wastewater flows less than or equal to 1,000 gpd shall be designed by a designer or a PE. MicroFAST® systems designed for flows greater than 1,000 gpd and all HighStrengthFAST® units shall be designed on a case-by-case basis by a PE. Design certification shall be provided by BioMicrobics, Inc. verifying acceptance of the PE's design criteria, plans, and component specifications. The company shall provide this written certification to the applicant for submittal with the application.

F. The MicroFAST® or HighStrengthFAST® Treatment System shall not be placed in driveways, parking areas, or areas subject to vehicular traffic, unless designed by a PE and approved by the State on a case by case basis

G. A vent for the MicroFAST® and HighStrengthFAST® units must be provided at the treatment unit. The house vents may not be the only vent.

H. A State approved septic tank sized at a minimum of 25 percent of the capacity required in Rule .1952(b) shall be provided after the MicroFAST® and HighStrengthFAST® treatment unit. This tank can also be used as a dosing tank as long as the 25 percent minimum liquid storage capacity is provided at all times in the tank.

I. A UV system, such as "The Disinfector", Salcor 3G UV Unit, or other UV system proposed by the company and approved by the State shall be provided for all MicroFAST® and HighStrengthFAST® Treatment systems. The UV system shall be rated for the discharge rate from the MicroFAST® and HighStrengthFAST® treatment units. Audible and visible alarms for bulb failure will be provided.

J. MicroFAST® and HighStrengthFAST® Treatment Systems will utilize the BioMicrobics, Inc. control panel. The control panel is in a NEMA 4X enclosure and located within 50 feet and in line of sight of the MicroFAST® or HighStrengthFAST® treatment unit. Separate control and alarm circuits shall be provided. The Operator in Responsible Charge (ORC) of the system authorized in writing by BioMicrobics, Inc. must be able to access the panel directly on site and shall be available to the LHD with 24-hour notice in the event that the LHD needs to access the control panel.

K. All access riser hatches shall be secured by approved tamper-resistant stainless-steel bolts supplied by the manufacturer. Riser construction, attachment to tanks, and security systems shall be pre-approved by the State for septic tank and pump tank risers, as applicable.

L. Buoyancy calculations shall be completed by a PE on sites where a soil wetness condition is present within five feet of the top of the ground surface. The PE shall make appropriate design modifications as needed.

M. BioMicrobics, Inc. will utilize a device for the recording of daily water flows. The device shall provide a means for determining at least the daily, 7-day, and 30-day flow monitoring requirements of Rule .1970. This information will be stored in the data logger which will be downloaded by the ORC.

N. Dispersal field dosing tanks shall be state-approved tanks sized in accordance with Rule .1952(c).

O. Effluent from MicroFAST® and HighStrengthFAST® Treatment Systems may be discharged to a gravity dispersal field or to a dosing tank for an LPP field, drip dispersal field, or any other dispersal field type.

P. An example of the pretreatment layout is provided in Attachment A.

VII. Installation and Testing Procedures

A. A preconstruction conference shall be required to be attended by the designer, PE (if applicble), installer authorized in writing by BioMicrobics, Inc. (installer), and LHD prior to beginning construction of the MicroFAST® and HighStrengthFAST® Treatment System.

B. MicroFAST® and HighStrengthFAST® Systems shall be located in compliance with the horizontal setback requirements of 15A NCAC 18A .1950(a) and Rule .1970 and shall be located

to prevent surface/subsurface water inflow/infiltration.

C. All MicroFAST® and HighStrengthFAST® systems shall be installed according to directions provided in the BioMicrobics, Inc. "Installation Manual". Tankage and instructions found on BioMicrobics, Inc. CAD drawings of each system shall be used. Additionally, all MicroFAST® and HighStrengthFAST® systems and components used with, but not manufactured by BioMicrobics, Inc., shall be installed in accordance with all applicable regulations

D. All individuals/companies installing MicroFAST® and HighStrengthFAST® systems shall be in possession of all necessary permits and licenses before attempting any portion of an installation. The individual/company must be a level IV installer and BioMicrobics, Inc. authorized.

E. Watertightness of the tanks shall be tested by either of the following protocols: 24-hour hydrostatic test or a vacuum test.
   1. Hydrostatic Test[1, 2]
      a. Temporarily seal the inlet and outlet pipes.
      b. Fill tank with clean water to a point at least two inches above the pipe connections or the seam between the tank and the riser, whichever is highest.
      c. Measure the water level.
      d. Allow the tank to sit for 24 hours.
      e. Re-measure the water level.
      f. If the water level change is ½-inch or less or one percent of the liquid tank capacity, the tank passes the leak test.
      g. If the water level change is greater than ½-inch, any visible leaks can be repaired, and the tank may be topped off with water and allowed to sit for a minimum of one hour.
      h. The tank passes the leak test if there are no visible leaks (flowing water or dripping in a steady stream) and no measurable drop in water level after one hour. Otherwise, the tank fails the leak test.
   2. Vacuum Test[3]
      a. Temporarily seal the inlet and outlet pipes.
      b. A vacuum of four inches of mercury should be pulled on the tank and held for five minutes.
      c. During the testing, the tank manufacturer or their representative can seal the tank if it is found to be leaking.
      d. If the tank is repaired, the vacuum must be brought back up to four inches and held for five minutes.

F. The distribution of flow to the MicroFAST® or HighStrengthFAST® treatment unit and to associated treatment components shall be measured during start-up and set in accordance with the system design with start-up settings recorded.

G. Specified site preparation steps and construction specifications for the dispersal field shall be strictly adhered to, including specified depth of trenches in relation to site limiting conditions, cover material specifications (if needed), trench installation method, etc.

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1 Victor D'Amato and Ishwar Devkota, *Development of Prefabricated Septic and Pump Tank Construction and Installation Standards for North Carolina.*

2 National Precast Concrete Association, *Best Practices Manual Precast Concrete On-Site Wastewater Tanks*, Second Edition, October 2005, 24.

3 National Precast Concrete Association, *Best Practices Manual Precast Concrete On-Site Wastewater Tanks*, Second Edition, October 2005, 24.

H. Prior to Operation Permit (OP) issuance, the installer, designer or PE, and the ORC shall conduct a system start-up of the MicroFAST® or HighStrengthFAST® Treatment System and all associated system components. The LHD will attend and observe the system start-up. An acceptance letter from the installer and designer or PE shall be provided to the LHD prior to issuance of the OP.

I. Each BioMicrobics, Inc. control panel shall have a label as shown in Attachment B.

J. Prior to OP issuance, the LHD inspection shall include the following checks at a minimum:
   1. Observing positive airflow out of the vent by placing a bag on the vent and observing it filling.
   2. Confirming the blower is no more than 100 feet from the MicroFAST® and HighStrengthFAST® system.
   3. Observing the leak testing.
   4. Testing of the blower and UV system alarms.
   5. Inspecting the blower outlet pipe to ensure that the first 12 inches are galvanized steel pipe.
   6. Confirming all vents are installed.
   7. Confirming that the control panel is set for continuous blower operation.
   8. Recording all pump model numbers and time clock settings.

VIII. Operation, Maintenance and Testing

A. MicroFAST® and HighStrengthFAST® Treatment Systems shall be classified, at a minimum, as a Type Va system according with Table V(a) of 15A NCAC 18A .1961(b). Management and inspection shall be in accordance with Rules .1961 and .1970.

B. All MicroFAST® and HighStrengthFAST® Treatment Systems require an operation and maintenance agreement between the system owner and BioMicrobics, Inc., or its authorized representative, as per Rule .1970. The ORC shall be a certified subsurface operator. Systems with a design daily flow greater than 1,500 gpd shall have an ORC who is a certified subsurface operator and has a Grade II biological wastewater treatment certification. The ORC shall be either an employee of BioMicrobics, Inc. or authorized in writing by BioMicrobics, Inc. to operate and maintain the system. The operator must have the proper equipment and training to access and program the control panels on site.

C. HighStrengthFAST® units shall have a minimum frequency inspection of monthly.

D. All MicroFAST® and HighStrengthFAST® Treatment Systems shall be operated and maintained according to the latest version of BioMicrobics, Inc., O&M manual.

E. The ORC report shall be submitted to the LHD within 30 days of the date of the system inspection and shall include all the information specified in VIII.G at a minimum.

F. At each MicroFAST® and HighStrengthFAST® Treatment System inspection, the ORC shall, at a minimum, observe, monitor, and record:
   1. Blower operation making sure to take note of unusual aspects involving sound, function, and physical appearance of parts such as the steel inlet air filters and activity such as the air flow rate.

2. Inspection of the MicroFAST® and HighStrengthFAST® chamber to confirm wastewater is being aerated when the blower is on and the wastewater level is approximately two inches above the media when the blower is off.
3. Clarity of effluent (e.g. color and evidence of suspended solids).
4. Wastewater levels in all tanks.
5. Sludge and scum levels in all tanks.
6. Watertightness of tanks, risers, and pipe connections at tanks.
7. Operation of pumps, floats, valves, electrical controls, and alarms, including record of alarms since last visit and troubleshooting actions.
8. Average and maximum readings for 7-day and 30-day flows.
9. Dispersal field pump delivery rate (drawdown test), determination of the average pump run time, and dispersal field dosing volume.
10. Any structural damage, accessibility issues, adequate ventilation, excess odors, ponding of effluent, insect infestations, vegetative growth over the dispersal field, or surfacing of effluent on the dispersal field area.
11. Sample of MicroFAST® and HighStrengthFAST® system influent and effluent, as required.

G. The ORC shall also conduct other observations, measurements, monitoring, and maintenance activities as specified in the OP and as recommended by the manufacturer.

H. Sampling and Testing
1. All sampling shall be done in accordance with Rule .1970(n)(3) and (5). MicroFAST® and HighStrengthFAST® systems shall be sampled at least twice per year. Systems with a design daily flow greater than 1,500 gpd and less than or equal to 3,000 gpd shall be sampled four times a year.
2. All systems shall be tested for effluent $CBOD_5$, TSS, NH_4-N, TN, and fecal coliform bacteria. Influent shall be tested for BOD_5 and TKN.
3. Additional sampling of effluent or influent may be determined to be necessary by the ORC during a system inspection to assist with troubleshooting or to verify system performance.
4. Influent samples shall be taken at a point prior to entry into the MicroFAST® or HighStrengthFAST® treatment unit. This can be done using a sludge judge to take the sample from the inlet of the first settling tank and collecting the sample below the scum layer and above the settled solids. Care shall be taken to collect the sample with as little solids as possible.
5. Effluent samples shall be collected from a free flowing effluent stream after the final settling chamber and UV system or from an approved sampling port immediately following the final settling chamber and UV system. Effluent samples for drip dispersal systems or other pressurized dispersal systems shall be collected from a tap on the dispersal field force main (prior to spin filters for drip systems). The preferred location of the tap is in the pump tank discharge assembly after the UV system. The sampling shall not commence until at least 30 seconds of continuous discharge through the sample tap has been completed.
6. Flow will be measured by using a control panel that includes a data logger to measure periodic and cumulative effluent pump run times for systems that incorporate a pressurized effluent dispersal system. Where effluent flows are by gravity, the method of flow measurement will be done on a case-by-case basis with approval by the State.

I. Notification and Performance of Maintenance and Repairs
1. The ORC shall alert BioMicrobics Inc., the LHD, and the system owner within 48 hours of

needed maintenance or repair activities including, but not limited to, landscaping, tank sealing, tank pumping, pipe or control system repairs, and adjustment of any other system component.

2. Tanks will be pumped as needed upon ORC recommendation and in accordance with the BioMicrobics, Inc. Treatment System Operation and Maintenance Manual. At a minimum, the septic tank will be pumped whenever the solids level exceeds 25 percent of the tank's total liquid working capacity or the scum layer is more than four inches thick.
3. The tanks shall be pumped by a permitted septage management firm, and the septage handled in accordance with 15A NCAC 13B .0800.
4. System troubleshooting and needed maintenance shall be provided to maintain the pump delivery rate and average pump run time within 25 percent of the initial measurements obtained during the system start-up. The ORC shall notify the system owner, BioMicrobics, Inc, and the LHD whenever the pump delivery rate efficiency or average pump run times are not within 25 percent of the initial measurements.
5. The ORC shall notify the LHD, BioMicrobics, Inc., and the system owner in writing whenever repairs are indicated. All maintenance activities shall be recorded in the ORC reports provided to the system owner, BioMicrobics, Inc. and the LHD.

J. Reporting
   1. The ORC shall provide a completed written report to the system owner, the LHD and BioMicrobics, Inc. within 30 days after each inspection. At a minimum this report shall specify:
      a. The date and time of inspection.
      b. System operating conditions according to VIII.G, VIII.H, and VIII.I.
      c. Results from laboratory analysis of influent and effluent samples.
      d. Maintenance activities performed since the last inspection report.
      e. An assessment of overall system performance.
      f. A list of any improvements or maintenance needed.
      g. A determination of whether the system is malfunctioning, and the specific nature of the malfunction.
      h. Any changes made in system settings based on recommendations of the manufacturer.
   2. Proposal for Evaluation and Reporting
      a. The manufacturer shall maintain a contract for evaluation of the performance of the Provisional System with an independent third party laboratory, consultant, or other entity that has expertise in the evaluation of wastewater system and that is approved by the State.
      b. The third party shall review the site-specific sampling and flow-monitoring protocol, collect and analyze the ORC inspection reports, sampling and monitoring data, and prepare Semi-Annual Reports summarizing all data for all the sites. These reports are due by January 31 and July 31 of each year and shall include all data gathered through December 31 and June 30 of the previous six-month period, respectively. These reports shall provide information to the State based upon the monitoring data and observations made from the Provisional Systems installed pursuant to this Approval. This should include an assessment of system performance in relation to the established treatment performance standards; an assessment of physical and chemical properties of the materials used to construct the system, in terms of strength, durability, and chemical resistance to loads and conditions experienced; recommended areas of applicability for the system; and any conditions and limitations related to the use of the system.
      c. Upon completion of the research and testing protocol, and prior to completing any

application by BioMicrobics, Inc., to the State for reclassification of the MicroFAST® and HighStrengthFAST® Treatment System as an Innovative System, and within a maximum of five years of the effective date of the first OP issued pursuant to this approval, the approved third party shall prepare a Final Report to the State that includes the results from all of the systems installed during the Provisional Approval, including sampling results, flow-monitoring information, ORC reports, etc., and provide recommendations on future use of the system. The Final Report shall be in electronic format and may be published on the On-Site Water Protection Section's website without confidentiality. The contents of the interim and final reports shall not be altered from the original document without approval from BioMicrobics, Inc.

d. A minimum of 50 data points is required, including data from a minimum of 15 sites, with a minimum of two data sets per site collected over at least a 12-month period.
e. For coastal resort communities, the two samples shall take place between June 1 and September 8 of each year. The samples must be taken at least six weeks apart.
f. Other seasonal homes shall be sampled during the times of greatest use.
g. A copy of the sample results will be provided from the laboratory directly to the On-Site Water Protection Section.
h. The State of North Carolina and BioMicrobics, Inc., agree that any systems that are out of compliance due to owner intervention, i.e. excessive flows, chemical disposal, or high strength waste, etc., shall not be considered in the Provisional Approval and any test results from those systems shall not be held against BioMicrobics, Inc.

K. Compliance of each site and the system shall be in accordance with requirements set forth in Rule .1970. Consideration shall be given for the system to be reclassified as an approved Innovative System when the requirements of Rule .1969(g)(2) for Fast Track approval and system compliance requirements of Rule .1970(o)(2) have been met.

IX. Responsibilities and Permitting Procedures

A. Prior to the installation of a MicroFAST® or HighStrengthFAST® Treatment System at a site, the owner or owner's agent shall fill out an application at the LHD for the proposed use of this system. After the LHD conducts a soil and site evaluation, the LHD may issue an Improvement Permit (IP) or a CA CA or amend a previously issued CA allowing for the use of a MicroFAST® or HighStrengthFAST® Treatment System. Up to 50 MicroFAST® and HighStrengthFAST® Treatment Systems can be installed statewide upon a finding that all the provisions of this approval and all other applicable rules are met.

B. The IP and CA shall contain all conditions the site approval is based upon, including the proposed use of the Provisional wastewater system. The OP will include all conditions as specified in the IP and CA. Notification of the issuance of all OP by the LHD, pursuant to this Provisional Approval, shall be submitted to the On-Site Water Protection Section.

C. When a special site evaluation is required pursuant to Rule .1970(p)(1) or a drip approval, as applicable, an evaluation and written, sealed report from a Licensed Soil Scientist (LSS) regarding the site shall be provided to the LHD. The report shall contain the information specified in Rule .1970(p)(2) and "Requirements for Submittals of Soil Reports and Pretreatment and/or Dispersal System Designs". The LHD may request the assistance of their Regional Soil Scientist in evaluating

this report prior to IP issuance.

D. The MicroFAST® system shall be designed by one of the following: a designer or a PE. Systems over 1,000 gpd, treating High Strength wastewater, or as otherwise required for drip dispersal systems shall be designed by a PE. All design submittals shall be accompanied by a certification letter from BioMicrobics, Inc. or its North Carolina authorized representative.

E. Prior to the issuance of a CA for a MicroFAST® and HighStrengthFAST® Treatment System, a design submittal prepared by a designer or PE shall be submitted for review and approval by the LHD. The design submittal shall include the information specified in "Requirements for Submittals of Soil Reports and Pretreatment and/or Dispersal System Designs".

F. It is recommended that local authorized environmental health practitioners attend a design training session offered by the manufacturer or its approved representative prior to permitting the system. Also, at the request of the LHD, a Regional Engineer will review the design.

G. The installer and designer must certify in writing that the system was installed in accordance with the approved design prior to OP issuance.

H. A PE must certify in writing that a system required to be designed by an PE was installed in accordance with the approved plans and specifications prior to OP issuance.

I. For sites required to be evaluated by an LSS or Licensed Geologist (LG) (see Section V and IX.C), the LHD may specify as a condition on the IP and CA that an LSS or LG oversee critical phases of the site improvements and dispersal field installation and certify in writing that the installation was in accordance with their specified site/installation requirements prior to the OP issuance.

J. The ORC shall be present during the final inspection of the system prior to the issuance of the OP. The ORC shallt be certified as a subsurface operator and an authorized BioMicrobics, Inc. system operator. For systems with a design flow greater than 1,500 gpd, the ORC must also have a Grade II biological wastewater treatment certification.

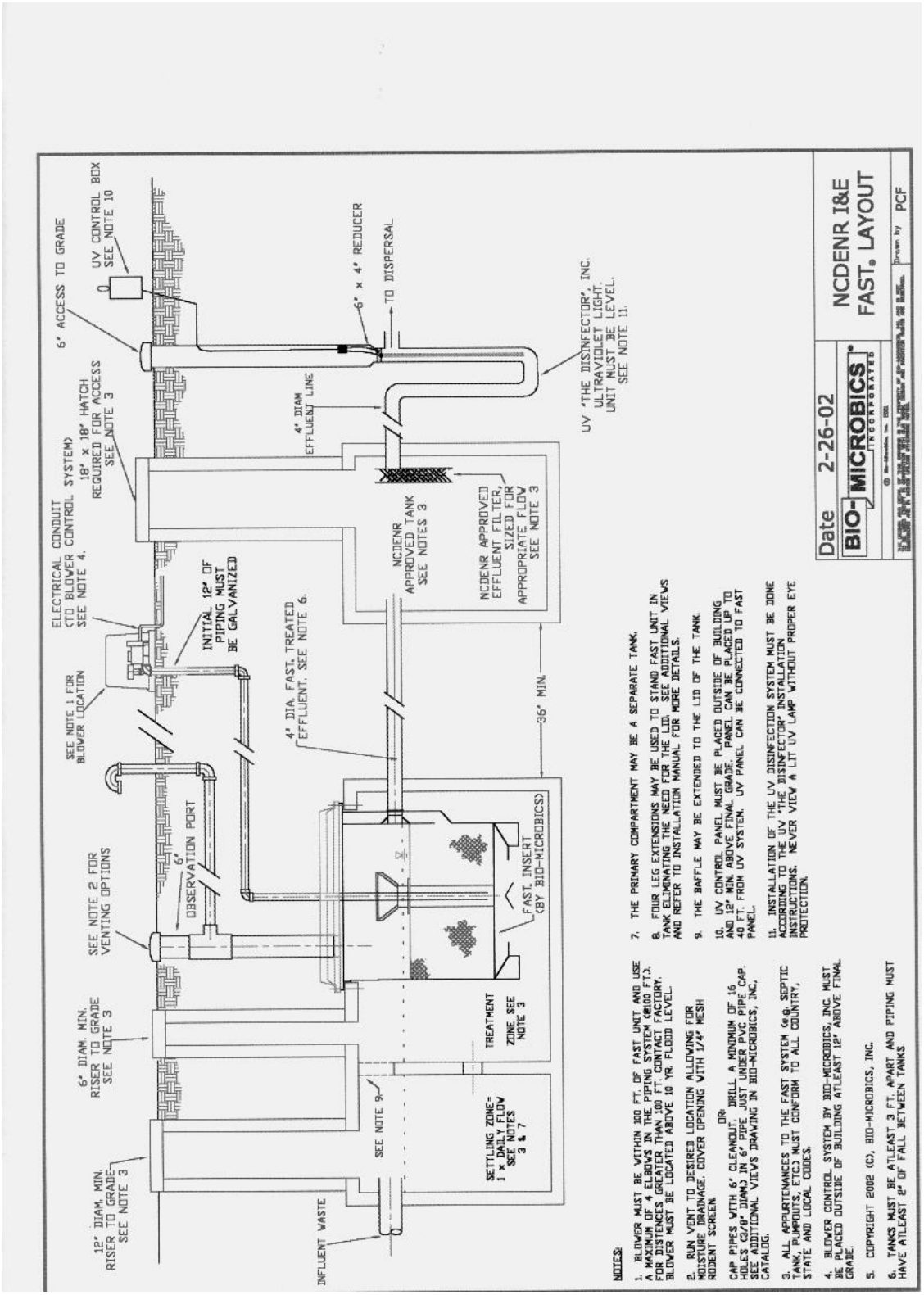
K. The LHD issues the OP after the following:
   1. Field verification of installation completed;
   2. Receipt of written documentation from the designer or PE, as applicable, that the system has been designed, installed, and is operating in accordance with the approved plans; and
   3. All necessary legal documents have been completed, including the contract between the system owner and the ORC.

X. Repair of Systems

The provisions of 15A NCAC 18A .1961 (c) shall govern the use of the MicroFAST® and HighStrengthFAST® Treatment System for repairs to existing malfunctioning wastewater systems.

Approved By: _____ Date: _____

Attachment A.



NOTES:

1. BLOWER MUST BE WITHIN 100 FT. OF FAST UNIT AND USE A MINIMUM OF 4 ELBOWS IN THE PIPING SYSTEM (@100 FT.). FOR DISTANCES GREATER THAN 100 FT. CONTACT FACTORY. BLOWER MUST BE LOCATED ABOVE 10 YR. FLOOD LEVEL.
2. RUN VENT TO DESIRED LOCATION ALLOWING FOR MOISTURE DRAINAGE. COVER OPENING WITH 1/4" MESH RODENT SCREEN.
   OR
   CAP PIPES WITH 6' CLEANOUT. DRILL A MINIMUM OF 16 HOLES (3/8" DIAM.) IN 6" PIPE JUST UNDER PVC PIPE CAP. SEE ADDITIONAL VIEWS DRAWING IN BIO-MICROBICS, INC. CATALOG.
3. ALL APPURTENANCES TO THE FAST SYSTEM (e.g. SEPTIC TANK, PUMPOUTS, ETC) MUST CONFORM TO ALL COUNTRY, STATE AND LOCAL CODES.
4. BLOWER CONTROL SYSTEM BY BIO-MICROBICS, INC. MUST BE PLACED OUTSIDE OF BUILDING ATLEAST 12" ABOVE FINAL GRADE.
5. COPYRIGHT 2002 (C), BIO-MICROBICS, INC.
6. TANKS MUST BE ATLEAST 3 FT. APART AND PIPING MUST HAVE ATLEAST 2' OF FALL BETWEEN TANKS.
7. THE PRIMARY COMPARTMENT MAY BE A SEPARATE TANK.
8. FOUR LEG EXTENSIONS MAY BE USED TO STAND FAST UNIT IN TANK ELIMINATING THE NEED FOR THE LID. SEE ADDITIONAL VIEWS AND REFER TO INSTALLATION MANUAL FOR MORE DETAILS.
9. THE BAFFLE MAY BE EXTENDED TO THE LID OF THE TANK.
10. UV CONTROL PANEL MUST BE PLACED OUTSIDE OF BUILDING AND 12" MIN. ABOVE FINAL GRADE. PANEL CAN BE PLACED UP TO 40 FT. FROM UV SYSTEM. UV PANEL CAN BE CONNECTED TO FAST PANEL.
11. INSTALLATION OF THE UV DISINFECTION SYSTEM MUST BE DONE ACCORDING TO THE UV 'THE DISINFECTOR' INSTALLATION INSTRUCTIONS. NEVER VIEW A LIT UV LAMP WITHOUT PROPER EYE PROTECTION.

Attachment B

Label is 4.75” long by 1.5” tall.

NON-TYPICAL SEPTIC SYSTEM
FAST
PROVISIONAL APPROVAL.
ANY PROBLEMS, CONTACT HEALTH
DEPT AT