



## HAMILTON COUNTY PUBLIC HEALTH

PREVENT. PROMOTE. PROTECT.

July 19, 2018

Timothy Ingram, Health Commissioner  
250 William Howard Taft Road  
Cincinnati, OH 45219  
Phone: 513.946.7800 Fax: 513.946.7890  
hcuph.org

Dear Property Owner,

Hamilton County Public Health (HCPH) recently pre-approved you at 85% grant funding through the Water Pollution Control Loan Fund (WPCLF) to help in the sewage treatment system (STS) replacement project at your primary residence. The WPCLF requires at least three bids or quotes be submitted to Hamilton County Public Health for each eligible project. HCPH recently reviewed and approved the STS replacement plan for your property at 3165 Timberview Drive. Attached you will find a copy of the approved plan which you will need to use in order to solicit bids/quotes on behalf of HCPH.

Using the attached forms, sample contract, approved STS design plan for your property and the guidance provided in this letter, you will need to contact registered STS installers individually for quotes/bids. Attached is a list of registered STS installers you may contact. Any contractors interested in your project will need to submit a bid/quote for the total cost for all work needed to install the approved STS using the form provided. This will include all items specified on the approved STS design plan, any needed connection of plumbing into the building sewer, disconnection and re-routing of any clear water from the plumbing system or STS, any needed electrical service upgrade if required to accommodate the replacement STS components, any other eligible and justified items, finished grading, seed and straw, and proper abandonment of the existing STS components.

To keep the process moving forward, by September 7, 2018, at least three bids/quotes must be obtained by you on behalf of HCPH. Keep in mind that returning bids/quotes sooner will better help your chances of receiving the WPCLF funding. Bids/quotes will be reviewed by a team of individuals at HCPH. The contract will be awarded to the qualified applicant based on the lowest and best bid and will be dependent upon bidder's availability to complete the requested work in a timely fashion. Awarded contracts are strictly between HCPH and the selected contractor. Any attempt to enter into separate contract, addendum, modification, invoice or other contractual agreement, except for the property owner's matching percentage to be paid directly by the owner to the contractor, without prior approval by HCPH may disqualify the bidder.

If selected to complete the STS installation, the contractor will be contacted directly by HCPH. At that time, they will be required to sign a site specific version of the attached contract and submit all required contract paperwork to HCPH. Once verified, a Notice to Proceed will be issued to the contractor by HCPH allowing the selected contractor to begin the installation. All work required must be completed (including final inspection) by December 21, 2018 and following receipt of the Notice to Proceed.

It should be noted that any unexpected changes and/or alterations needed during the performance of work, requires a Contract Change Order (see Contract - Attachment B). Payment for any changed or extra services will not occur without pre-approval using this method. Also note that the contract has special insurance and bid bonding/financial guarantee requirements that must be followed.



Healthy choices. Healthy lives. Healthy communities.



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For the WPCLF portion of the payment to occur, HCPH must approve the final STS installation. After which, the contractor must submit to HCPH an invoice, by December 27, 2018, to document the incurred costs for the repair/replacement along with an approval certificate issued by HCPH. Upon verification of this information, HCPH will send a request to Ohio EPA for reimbursement of the eligible system repair/replacement costs. After confirmation by Ohio EPA, the Ohio Water Development Authority will distribute the funding to HCPH, who will then pay the contractor the approved amount. Any portion of the approved bid amount not covered by the WPCLF must be paid directly by the property owner to the contractor.

At this time, if you would like to remain eligible for the WPCLF, you must solicit quotes/bids, on behalf of HCPH, for your STS replacement project. When submitting each bid/quote, the contractor must include a completed, signed and dated copy of the following attachments:

- i Hamilton County Bid Proposal Form
- i Contractor Equal Employment Opportunity (EEO) Certification Form
- i Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form
- i American Iron and Steel (AIS) Form

At least three bids/quotes should be collected by you and be submitted together to HCPH with the items listed above and below, on or before September 7, 2018, to:

Hamilton County Public Health  
Attn: Chris Griffith  
250 William Howard Taft  
Cincinnati, OH 45219

With the required quotes, please include documentation of payments made for any eligible costs which you have already paid toward the STS design. Those eligible costs can be counted as part of the matching percentage which you may owe toward the total STS replacement cost.

If you have any questions concerning this program, please feel free to contact me directly at 946-7866.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Griffith" followed by the initials "RS".

Christopher M. Griffith, RS  
Director of Water Quality

Hamilton County Bid Proposal Form

Contractor Name: \_\_\_\_\_

Contractor Address: \_\_\_\_\_

Contractor Phone(s): \_\_\_\_\_

Project Address: \_\_\_\_\_

Bid Due Date: \_\_\_\_\_

Total Amount of Bid: \_\_\_\_\_

Total Amount in Written Words: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Signature, Printed Name, Contractor

\_\_\_\_\_  
Date

I will begin the work within upon receipt of the written Design Contract and Notice to Proceed Order, and will complete the work within 45 days, unless otherwise agreed to by Hamilton County Public Health.

The above total price includes all materials, labor and other costs such as overhead, permits, sales tax and profit. This bid is valid for a period of 30 days after the date this proposal is received by Hamilton County Public Health.

Mail Bid Packet to: Hamilton County Public Health

Attn: Chris Griffith  
250 William Howard Taft  
Cincinnati, OH 45219

## Contractor Equal Employment Opportunity Certification

During the performance of this contract, the undersigned agrees as follows:

1. The undersigned will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The undersigned will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The undersigned agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this equal opportunity (federally assisted construction) clause.
2. The undersigned will, in all solicitations or advertisements for employees placed by or on behalf of the undersigned, state the all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
3. The undersigned will send to each labor union or representative of workers, with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the undersigned's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The undersigned will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The undersigned will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and relevant orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency of the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the undersigned's non compliance with the equal opportunity (federally assisted construction) clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part, and the undersigned may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No 11246 of September 24, 1965, or by rules, regulations, or order of the Secretary of Labor, or as provided by law.
7. The undersigned will include this equal opportunity (federally assisted construction) clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No 11246 of September 24, 1965, so that such provision will be binding upon each subcontract or vender. The undersigned will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor, as a result of such direction by the administering agency the undersigned may request the United States to enter into such litigation to protect the interest of the United States.

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(Signature)

(Date)

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(Name and Title of Signer, Please type)

(Firm Name)

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification;
- (d) Have not within a three year period preceding this application / proposal had one or more public transactions (Federal, State, or local) terminated for cause or default; and
- (e) Will not utilize a subcontractor or supplier who is unable to certify (a) through (d) above.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

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Type Name & Title of Authorized Representative

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Signature of Authorized Representative

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Date

I am unable to certify to the above statements. My explanation is attached.

Certification Regarding Debarment, Suspension, and Other Responsibility Matters  
INSTRUCTIONS

Under Executive Order 12549 an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program or a subagreement thereunder for \$25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or subagreement participant thereunder must complete the attached certification provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants' responsibilities, in the attached regulation.

Go to <https://www.sam.gov/portal/SAM/##11> to access the Excluded Parties List System (EPLS). The EPLS includes information regarding entities debarred, suspended, proposed for debarment, excluded or disqualified under the nonprocurement common rule, or otherwise declared ineligible from receiving Federal contracts, certain subcontracts, and certain Federal assistance and benefits. This information may include names, addresses, DUNS numbers, Social Security Numbers, Employer Identification Numbers or other Taxpayer Identification Numbers, if available and deemed appropriate and permissible to publish by the agency taking the action.

Where To Submit

The prospective EPA grant, loan, or cooperative agreement recipient must return the signed certification or explanation with its application to the appropriate EPA Headquarters, Regional office, or Ohio EPA, as required in the applications.

A prospective prime contractor must submit a complete certification or explanation to the individual or organization awarding the contract.

Each prospective subcontractor must submit a complete certification or explanation to the prime contractor for the project.

Applicants may reproduce these materials as needed and provide them to their prospective prime contractor, who, in turn, may reproduce and provide them to prospective subcontractors.

Additional copies / assistance may be requested from:

Ohio EPA  
Division of Environmental and Financial Assistance  
P.O. Box 1049  
Columbus, Ohio  
43216 1049 (614)  
644 2798

<http://epa.ohio.gov/defa/EnvironmentalandFinancialAssistance.aspx>

American Iron and Steel Acknowledgement

The Contractor acknowledges to and for the benefit of \_\_\_\_\_  
("Purchaser") and the State of Ohio (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Name and Title of Authorized Signatory, Please Print or Type \_\_\_\_\_

Bidder's Firm \_\_\_\_\_

Check here if the WPCLF or WSRLA applicant will be requesting an individual waiver for non-American made iron and steel products. Please note that the waiver box does not need to be marked for nationwide waivers.

CONSTRUCTION CONTRACT  
HAMILTON COUNTY PUBLIC HEALTH  
With xxxxxxxxxxxxxxxx  
xxxx xxxxxxxxxxxxxxxx Road  
Dated xxxx, xx 2018

PROJECT: HOUSEHOLD SEWAGE TREATMENT SYSTEM REPAIR/REPLACEMENT PROJECT

This CONTRACT, made and entered into at HAMILTON COUNTY, Ohio, on xxxx xx, 2018 by the HAMILTON COUNTY PUBLIC HEALTH, hereinafter referred to as "HCPH"); and xxxxxxxxxxxxxxxx (hereinafter referred to as "CONTRACTOR").

WITNESSETH, the HCPH and the CONTRACTOR hereby agree as follows:

1. CONTRACT DOCUMENTS

The Contract consists of this document, the Contractor's Bond, the Contractor's Bid, the Design Drawings, the Design Specifications, all Addenda issued prior to execution of this Contract, the Notice To Proceed (Attachment A), all Change Orders (Attachment B) issued subsequent thereto and Federal, State, and/or Local Regulations; and when specified: Labor and Material Bond, Affirmative Action and Equal Opportunity Requirements, Contractor Equal Employment Opportunity Certification Form (Attachment C), Certification Regarding Debarment, Suspension and Other Responsibility Matters Form (Attachment D), and American Iron and Steel Acknowledgement Form (Attachment E).

2. CONTRACT REGULATIONS

Terms and conditions of this Contract shall be governed by the provisions of Chapters 153 and 4115 and Section 149.53 of the Ohio Revised Code, and all applicable local, State and Federal Ordinances, Statutes and Regulations.

The CONTRACTOR agrees not to discriminate against any employee or applicant for employment because of race, creed, sex, handicap, or color, including, but not limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. All records, manuals, forms, drawings, schedules, lists, surveys, specifications, designs, and other data pertaining to the work specified in this contract are and shall remain the sole property of the HCPH. The use of any Subcontractor must be reported to the HCPH and they shall be bound by the same requirements as the CONTRACTOR.



3. BONDING

A bond or other form of financial guarantee shall be submitted by the CONTRACTOR in accordance with Sections 153.54/307.89 of the Ohio Revised Code and Section 3.4 of the Water Pollution Control Loan Agreement for the full amount of the Contractor's Bid.

4. THE WORK

The CONTRACTOR shall perform and complete all work of the Project required by the Contract Documents for xxxx xxxxxxxx Road, supplying all the labor, materials, supervision, tools and equipment required by the Installation Permit, Design, Project and Contract Documents; shall proceed in a prompt and diligent manner, and shall do the several parts thereof at such times and in such order as the HCPH may direct, and shall execute, construct, finish, and test when required, the Project in an expeditious, substantial and workmanlike manner to the satisfaction of HCPH, and to the final acceptance of the Project by HCPH

5. TIME OF COMMENCEMENT AND COMPLETION

The CONTRACTOR shall commence work upon receipt of the written Notice To Proceed (Attachment A) issued by HCPH. The CONTRACTOR shall complete the Project work by xxxxxx xxxx, 201x and following the Notice To Proceed.

6. RIGHTS OF ACCESS

The signatories agree to ensure that the Director or its duly authorized agents shall have the right at all reasonable times to enter upon the Project Site(s) and Project Facilities, and to examine and inspect the same and to exercise the Director's rights pursuant to the WPCLF Assistance Agreement.

7. CONTRACT CONFLICTS

In the event of a conflict between the contract and the WPCLF Assistance Agreement, the provisions of the WPCLF Agreement shall prevail.

8. CONTRACT SUM

Hamilton County Public Health, utilizing OHIO EPA funding, shall pay the CONTRACTOR for the performance of the Work, up to the sum of \$xx,xxx.xx (xx% of eligible costs paid by HCPH with xx% covered by the property owner) subject to additions and deductions by Change Orders (Attachment B) properly approved and executed. All properly approved and executed Change Orders for increases will be paid by HCPH, utilizing

OHIO EPA funding, and/or homeowner contribution. Neither HCPH nor OHIO EPA will responsible for additional reinspection fees.

9. PAYMENTS

Based upon Applications for Payment submitted to the HCPH by the CONTRACTOR, and after installation approval by HCPH, the contractor shall submit an invoice that documents costs all incurred to HCPH. The invoice shall detail the services rendered, including charge rates, number of hours, materials or supplies consumed, and other information needed to support the invoice to HCPH. Upon verification of this information, HCPH will send a request to Ohio EPA for reimbursement of the eligible costs. After confirmation by Ohio EPA, the Ohio Water Development Authority will distribute the funding to HCPH, who will then pay the Contract Sum to the CONTRACTOR as provided in Chapter 153 of the Ohio Revised Code and after payment is received from the Ohio EPA.

10. NEGLECT, DEFAULT, DELAY, ETC.

Hamilton County Public Health or Hamilton County Board of Health shall not be liable to the CONTRACTOR for any neglect, default, delay, or interference of or by another contractor, nor shall any such neglect, default, delay, or interference of or by another contractor, or alteration which may be required in said Work within the time aforesaid, or from the damage to be paid in default thereof. The CONTRACTOR shall pay HCPH \$200.00 for each and every calendar day of completion the Project is delayed beyond the date fixed for completion in Section 3 herein.

11. INSURANCE

The Insurance Specifications for Contractors and their subcontractors are as follows:

- A. All insurance required herein shall be issued by companies licensed to do business in Ohio, and which are rated not less than A: VII by A. M. Best.
- B. Commercial General Liability insurance with commercial general liability form GC 00 01 or its equivalent, with limits of at least \$1,000,000 per occurrence and \$1,000,000 in the aggregate covering death, bodily injury, and property damage. Coverage must include premise and operations, contractual liability, third party property damage, severability of interest, completed operations coverage, maintained for at least three years beyond the date of the contractor's

completion of the work, waiver of subrogation, and waiver of "cross claim exclusion between insured's".

- C. Business auto liability insurance of at least \$1,000,000 combined single limit, on all owned and non-owned leased and hired automobiles.
- D. Umbrella and excess liability policies of at least \$1,000,000, per occurrence and in the aggregate, above the underlying General Liability and business auto policies. Coverage must include drop down features, concurrency of effective dates; aggregates in the primary apply in the Umbrella, waiver of subrogation.
- E. The Commercial General Liability and business auto policies must endorse the Board of Health of Hamilton County, Ohio, their employees, officials, agents and volunteers as additional insureds. Further these policies must waive subrogation claims against the aforesaid individuals.
- F. Owner shall require its contractors and subcontractors to provide Workers' Compensation Insurance coverage at the statutory limits required by the Ohio Revised Code. The Contractor shall provide Workers Compensation Insurance for all employees engaged in Work who may come within the protection of the workers compensation law, and, where applicable, employer's General Liability Insurances for employees not so protected and shall require all Subcontractors to provide corresponding insurance. The Contractor shall indemnify the Owner, Hamilton County Board of Health, their employees, officials, agents and volunteers and the Consulting Engineer against any and all liabilities, cost and expenses due to accidents or other occurrences covered by the workers compensation law.
- G. Each policy required herein may not be canceled or materially changed except upon thirty days prior written notice given to: Hamilton County Public Health, 250 William Howard Taft, Cincinnati, Ohio 45219.
- H. Maintenance of the insurance required hereunder is a material element of this Agreement. Material changes of the required coverage or cancellation of the coverage in violation of subsection G, above, is a material breach of this Agreement.
- I. Builders Risk: In addition to such fire and other physical damage insurances as the Contractors

elects to carry for his own protection, he shall also secure and maintain in the name of the Owner, the government agency sponsoring the Project, Subcontractors, the Consulting Engineer and any other parties having an interest in the Project, as named insured as their interest may appear; a builders' risk policy for fire, extended coverage, vandalism and malicious mischief in the amount of one hundred (100) percent of the value of the complete parts of the Project and Materials in storage, except that such coverage shall not be required in connection with sewer, water main or paving construction. Pump or lift station construction shall not be considered sewer or water main construction for purposes of this paragraph.

J. Contractor's Public Liability and Property Damage Liability Insurance:

Contractor's Public Liability Insurance providing a limit of not less than \$500,000 for all damages arising out of bodily injuries, including accidental death to one person, and a total limit of 1,000,000 for all damages arising out of bodily injuries, including accidental death, to two or more persons in any one occurrence. Contractor's Property Damage Liability Insurance providing for a limit on not less than \$500,000 for all damages to or destruction of property.

Coverage under this policy shall include, to the limits indicated above, the collapse or damage to any structure, building or its contents, public or private utility, or pavement during construction and for two (2) years thereafter.

Whenever Work under the Contract is to be done in the vicinity of existing underground utilities or structures, coverage under the policy shall also include, to the limits indicated, all damages to said underground utilities or structures during construction and for a period of two (2) years thereafter. Whenever Work under the Contract is to be done by blasting, coverage under the policy shall also include, to the limits indicated above, all damages of any kind whatsoever caused by blasting.

K. Contractor's Protective Public Liability and Property Damage Liability

Insurance: Contractor's Protective Public Liability and Property Damage Liability Insurance for operations performed by Subcontractors providing for coverage and limits corresponding to those described in subparagraph J.

- L. Owner's (HCPH) Protective Public Liability and Property Damage Liability  
Insurance: Regular Owner's Protective Public Liability and Property Damage Liability Insurance for operations performed by the Contractor or any Sub-contractor providing for coverage and limits corresponding to those specified elsewhere herein.
- M. Railroad Protective Liability Insurance: In any of the Work under this Contract is on railroad R/W, the Contractor shall at its sole cost and expense, procure and provide, for and in behalf of each railroad company. Protective Liability Insurance (AARAASHO form) with minimum limits per occurrence of not less than \$2,000,000 for bodily injury, death and/or property damage, subject to an aggregate limit of \$6,000,000 per annum. The policy shall name each railroad company as the insured and be issued to the Contractor. Each railroad company shall be provided with a copy of each policy of insurance prior to commencement of any work.

#### Certificates of Insurance

The Contractor shall file a Certificate of Insurance for all coverage required in these Insurance Specifications on the ACORD 25 Form (preferred), and a copy of his current Worker's Compensation Certificate, with the Hamilton County Public Health before starting work on the project, and shall keep such Certificates current and on file with the County for the life of this Contract.

#### Indemnification Clause

The Contractor agrees to indemnify and save The Board of County Commissioners, Hamilton County Ohio, Hamilton County Board of Health, HCPH, their officials, officers, agents, and employees harmless from any and all losses, claims, actions, costs, expenses, judgments, subrogation's, or other damages resulting from injury to any person (including injury resulting in death), or damage (including loss or destruction) to property of whatsoever nature of any person, firm, or corporation arising out of the errors, omissions or negligent acts of the Contractor in the performance of the terms of this Contract by the Contractor, including but not limited to the Contractor's employees, agents, subcontractors, sub-subcontractors, and others designated by the Contractor to perform work or services in, about, or attendant to, the work and services under the terms of this contract.

#### Notice To Proceed

The Contractor shall not commence work under this contract until he has obtained all the insurance required herein, has submitted appropriate Certificates of Insurance to and received approval of the County as evidenced by a Notice to Proceed (Attachment A).

#### Subcontractors

The Insurance Specifications apply equally to all subcontractors and sub-subcontractors at any tier during the period of their work on the project. The Prime Contractor shall be solely responsible for his subcontractor's liability if he permits the Sub to work on the project without the Sub having been issued a Notice to Proceed by the County.

#### 12. FAILURE TO COMPLY

If the CONTRACTOR shall fail to comply with any of the terms, conditions, provisions or stipulations of this Contract, HCPH may avail itself of any and all remedies provided in their behalf in the Contract, and shall have the right and power to proceed in accordance with the provisions thereof.

#### 13. RESOLUTION OF DISPUTES

In the event of a dispute covering additional costs, claims and any other matter arising out of or relating to this Contract, or the breach thereof, such disputes shall be decided by submission to a court of competent jurisdiction within one (1) year of the date upon which HCPH accepts and approves the project for use. The CONTRACTOR hereby waives any right to rely upon the statute of limitations for actions on contracts.

Failure to bring an action within one year of the above date shall constitute a bar to such action. If, however, within ten (10) days of the specific event giving rise to the disputed matter, the CONTRACTOR gives HCPH, by written notice, a request to submit the matter to arbitration, HCPH and the CONTRACTOR may agree, within sixty (60) Days of receipt of the above notice, to submit the matter to arbitration as set forth below.

If the parties agree, by written change order signed by HCPH, the Ohio EPA, and the CONTRACTOR, to submit such dispute to arbitration, all proceedings shall be according to Ohio Revised Code Chapter 2711, and, unless waived, the Ohio Rules of Civil Procedure and the Ohio Rules of Evidence. HCPH and the CONTRACTOR shall each choose one arbitrator. The two arbitrators shall agree upon and choose a third arbitrator, who shall preside over the proceedings.

Compensation of the arbitrators shall be as agreed upon by HCPH, the CONTRACTOR and the arbitrators. Payment for the arbitrators shall be shared equally by HCPH and the CONTRACTOR. The CONTRACTOR shall deposit, as a precondition to commencement of the hearing, its equal share of the compensation of the arbitrators with HCPH to be placed in an account for that purpose, or with an escrow agent suitable to both parties. The hearing or the arbitration shall commence within sixty (60) days of the agreement to arbitrate. If the hearing is not commenced within sixty (60) days of the agreement to arbitrate, said agreement shall be void and the dispute shall be resolved by submission to a court of competent jurisdiction as herein before specified. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof. All questions with regard to the rights and authority of the arbitration panel shall be resolved pursuant to Chapter 2711, of the Ohio Revised Code.

14. IN FORCE AND EFFECT

Subject to the applicable provisions of law, this contract shall be in full force and effect from and after the date when a fully executed and approved counterpart hereof is forwarded to the CONTRACTOR, but the CONTRACTOR shall not start work on the Project until written notification to proceed is received from HCPH.

15. Executive Order 11246 Sec.202

Except in contracts exempted in accordance with Section 204 of this Order, all Government contracting agencies shall include in every Government contract hereafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

- A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment, or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause.

- B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- C. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of this notice in conspicuous places available to employees and applicants for employment.
- D. The contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- E. The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, or by rule regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- G. The contractor will include the provisions of Paragraphs (A) through (G) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as



a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

16. Violating Facilities Clause

The Contractor agrees to comply with all applicable standards, orders or requirements under Section 306 of the Clean Air Act, 42 USC 1857 (h), Section 508 of the Clean Water Act, 33 USC 1368, Executive Order 11738, and EPA regulations, 40 CFR Part 32, which prohibits the use under non-exempt Federal contracts, grants, or loans of facilities included on the EPA List of Violating Facilities.

17. Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The Contractor certifies to the best of its knowledge and belief that it and its principles:

- A. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or Agency;
- B. Have not within a year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
- C. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph (B) of this certification;
- D. Have not within a three year period preceding this application / proposal had one or more public transactions (Federal, State, or Local) terminated for cause or default' and
- E. Will not utilize a subcontractor or supplier who is unable to certify (A) through (D) above.

IN WITNESS WHEREOF, the County and the Contractor affix their signatures:

WITNESS:

HAMILTON COUNTY PUBLIC HEALTH

\_\_\_\_\_

\_\_\_\_\_  
Health Commissioner

\_\_\_\_\_  
Date

WITNESS:

CONTRACTOR: \_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

\_\_\_\_\_  
Title

Contractor to complete applicable paragraph below:

\_\_\_\_\_ A Corporation organized under the Laws of \_\_\_\_\_ and qualified  
to do business in the State of Ohio.

\_\_\_\_\_ Co-partners trading and doing business under the firm name and style of  
\_\_\_\_\_

\_\_\_\_\_ List names of all Partners \_\_\_\_\_

Or Joint Venture Participants \_\_\_\_\_

\_\_\_\_\_ An individual doing business under the firm name and style of  
\_\_\_\_\_

ATTACHMENT A  
HAMILTON COUNTY PUBLIC HEALTH  
NOTICE TO PROCEED

Date \_\_\_\_\_  
Contractor Name  
Street Address  
City, State, Zip Code

Notice To Proceed With: \_\_\_\_\_

Enclosed is your copy of the completely executed contract in the amount of \$\_\_\_\_\_ to be paid from the \_\_\_\_\_ fund.

You are hereby authorized and notified to PROCEED with the repair or replacement of the household sewage treatment system located at \_\_\_\_\_ in accordance with all terms and conditions of your contract with HCPH. This includes by reference the specifications upon which you bid.

Sincerely,

Tim Ingram  
Health Commissioner, Hamilton County Public Health

ATTACHMENT B  
*State of Ohio*  
 WATER POLLUTION CONTROL LOAN FUND (WPCLF/SRF) HSTS

**CONTRACT CHANGE ORDER**

RECIPIENT \_\_\_\_\_ CHANGE ORDER NBR \_\_\_\_\_  
 LOAN NUMBER \_\_\_\_\_ CONTRACT \_\_\_\_\_  
 OWDA PROJECT No. \_\_\_\_\_ DATE \_\_\_\_\_

---

Description of Change  
 (include address):

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 (Health Department Representative)

ACCEPTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 (Contractor)

\_\_\_\_\_ (Company)

Original Contract Amt		
Previous Changes (+ / --)		
This Change (+ / --)		
Adjusted Contract Amt		
Ohio EPA Acceptance	Date	

## ATTACHMENT B

### CHANGE ORDER INSTRUCTIONS:

All Change Orders for this work, regardless of costs, must be submitted to Ohio EPA for review.

#### Changes Requiring Prior Approval

Any change which substantially modifies the Project Facilities as specified in the Ohio EPA approved Facilities Plan and Final Permit to Install or Final Plan Approval (when applicable) or alters the direct or indirect impact of the Project Facilities upon the environment must be incorporated into a Change Order. One copy of the Change Order prior to execution is to be submitted to Ohio EPA for review and prior approval of the acceptability of the change. "Prior to execution" means before the Change Order is signed by the Owner.

Ohio EPA will review the Change Order and inform the Owner of the technical, environmental and operational acceptability of the change, and give the Owner permission to proceed with the proposed work.

#### All Other Changes

Change Orders not requiring prior approval as described above must be submitted to Ohio EPA within one (1) month of the time at which they are approved by the Owner. Change Orders for WPCLF projects should be submitted to the Division of Environmental and Financial Assistance (DEFA).

#### Change Order Approval Process

After the Change Order is executed, one (1) copy of the Change Order, including the supporting documentation, is to be sent to Ohio EPA for final review. The HSTS Change Order form must have original signatures.

Health Departments should submit change orders electronically to the DEFA Engineer who reviewed and approved their project.

After the Change Order is accepted and eligible costs determined, Ohio EPA will return a signed copy of the HSTS Change Order form.

#### Payments for Change Order Work

The Owner is precluded from submitting to the OWDA payment requests for Eligible Project Costs associated with the Change Orders until the Ohio EPA's approval of the Change Orders has been obtained.

ATTACHMENT C  
Contractor Equal Employment Opportunity Certification

During the performance of this contract, the undersigned agrees as follows:

8. The undersigned will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The undersigned will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The undersigned agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this equal opportunity (federally assisted construction) clause.
9. The undersigned will, in all solicitations or advertisements for employees placed by or on behalf of the undersigned, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
10. The undersigned will send to each labor union or representative of workers, with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the undersigned's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
11. The undersigned will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
12. The undersigned will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and relevant orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency of the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
13. In the event of the undersigned's non compliance with the equal opportunity (federally assisted construction) clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part, and the undersigned may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rules, regulations, or order of the Secretary of Labor, or as provided by law.
14. The undersigned will include this equal opportunity (federally assisted construction) clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provision will be binding upon each subcontract or vendor. The undersigned will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non compliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor, as a result of such direction by the administering agency the undersigned may request the United States to enter into such litigation to protect the interest of the United States.

---

(Signature)

---

(Date)

---

(Name and Title of Signer, Please type)

---

(Firm Name)

ATTACHMENT D

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (f) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (g) Have not within a three year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (h) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification;
- (i) Have not within a three year period preceding this application / proposal had one or more public transactions (Federal, State, or local) terminated for cause or default; and
- (j) Will not utilize a subcontractor or supplier who is unable to certify (a) through (d) above.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

---

Type Name & Title of Authorized Representative

---

Signature of Authorized Representative

---

Date

I am unable to certify to the above statements. My explanation is attached.

## ATTACHMENT D

### Certification Regarding Debarment, Suspension, and Other Responsibility Matters INSTRUCTIONS

Under Executive Order 12549 an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program or a subagreement thereunder for \$25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or subagreement participant thereunder must complete the attached certification provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants' responsibilities, in the attached regulation.

Go to <https://www.sam.gov/portal/SAM/##11> to access the Excluded Parties List System (EPLS). The EPLS includes information regarding entities debarred, suspended, proposed for debarment, excluded or disqualified under the nonprocurement common rule, or otherwise declared ineligible from receiving Federal contracts, certain subcontracts, and certain Federal assistance and benefits. This information may include names, addresses, DUNS numbers, Social Security Numbers, Employer Identification Numbers or other Taxpayer Identification Numbers, if available and deemed appropriate and permissible to publish by the agency taking the action.

#### Where To Submit

The prospective EPA grant, loan, or cooperative agreement recipient must return the signed certification or explanation with its application to the appropriate EPA Headquarters, Regional office, or Ohio EPA, as required in the applications.

A prospective prime contractor must submit a complete certification or explanation to the individual or organization awarding the contract.

Each prospective subcontractor must submit a complete certification or explanation to the prime contractor for the project.

Applicants may reproduce these materials as needed and provide them to their prospective prime contractor, who, in turn, may reproduce and provide them to prospective subcontractors.

Additional copies / assistance may be requested from: Ohio EPA  
Division of Environmental and Financial Assistance  
P.P. Box 1049  
Columbus, Ohio  
43216 1049 (614)  
644 2798

<http://epa.ohio.gov/defa/EnvironmentalandFinancialAssistance.aspx>



ATTACHMENT E

American Iron and Steel Acknowledgement

The Contractor acknowledges to and for the benefit of \_\_\_\_\_ (“Purchaser”) and the State of Ohio (the “State”) that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name and Title of Authorized Signatory, Please Print or Type

\_\_\_\_\_  
Bidder’s Firm

Check here if the WPCLF or WSRLA applicant will be requesting an individual waiver for non- American made iron and steel products. Please note that the waiver box does not need to be marked for nationwide waivers.



250 William Howard Taft, 2<sup>nd</sup> Floor  
 Cincinnati, Ohio 45219  
 Phone: (513) 946-7800  
 Fax: (513) 946-7890  
 Web: www.hamiltoncountyhealth.org

Sub./Lot Review: \_\_\_\_\_ Fee Paid: \$390.00  
 Complaint: \_\_\_\_\_ Receipt #: 2141  
 Other: \_\_\_\_\_ Received By: DB

HAMILTON COUNTY GENERAL HEALTH DISTRICT

APPLICATION TO CONSTRUCT OR REPLACE A SEWAGE TREATMENT SYSTEM

NEW  REPLACEMENT (Plumbing Permit Required If All Wastewater Is Not Directed To Septic System)

Address of Construction Site: 3165 Timberview Drive Political Subdivision: Green Twp  
 Owner(s) Name: Brian Lammers Tax Parcel #: 550-0063-0078-00 Lot Size: 0.578 acre(s)  
 Phone Number: \_\_\_\_\_ System To Serve:  Single Family  Public (Water Supplier GCUW)  
 Mailing Address: 3165 Timberview Drive  Duplex  Private  
Cincinnati, Ohio 45211  Triplex  Well  Cistern  Hauled Water  
 Plumbing Under Basement  Ejector Pit  Hung Sewer  Other: \_\_\_\_\_

Number of Bedrooms: 5 Number of People in Structure: 10 Monthly Water Usage: 6415 gallons  
 Watersoftener  Garbage Disposal  Whirlpool Style Tub  High Capacity Shower  
 Other Large Water Usage Fixtures: \_\_\_\_\_

Soil Type / Characteristic: See Soils Report  
 STS Daily Design Flow: 600 STS Average Design Flow: 360 Soil Absorption Rate: N/A Linear Loading Rate: N/A

Sewage Treatment System Type: See Soils Report  
 Primary Treatment Tank:  Building Sewer Replace with 4" sch 40 PVC  
 Controls Jet 197 + 197D Auto-Divide  
 Trash Trap \_\_\_\_\_ Gallons \_\_\_\_\_ Compartment(s) \_\_\_\_\_  
 Septic Tank \_\_\_\_\_ Gallons \_\_\_\_\_ Compartment(s) \_\_\_\_\_  
 Dosing Tank \_\_\_\_\_ Gallons \_\_\_\_\_ Compartment(s) \_\_\_\_\_  
 Dosing Septic Tank \_\_\_\_\_ Gallons \_\_\_\_\_ Compartment(s) \_\_\_\_\_  
 Dosing Basin \_\_\_\_\_ Depth \_\_\_\_\_ Diameter or \_\_\_\_\_ x \_\_\_\_\_  
 Effluent Filter \_\_\_\_\_  Pump \_\_\_\_\_  
 Screen Vault Filter \_\_\_\_\_  Siphon \_\_\_\_\_  
 Other \_\_\_\_\_  Gravity \_\_\_\_\_

Comments: Tank shall be watertight. Properly abandon the existing treatment tank. Permit + Report Required.  
Attached email from Jet states manufacturer states system will handle waste strength from this household

Secondary Treatment Unit:  
 Intermittent Sand Filter \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_  
 Recirculating Gravel Filter \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_  
 Recirculating Sand Filter \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_  
 Recirculating Textile Filter \_\_\_\_\_ Manufacturer \_\_\_\_\_ Unit(s) \_\_\_\_\_  
 Peat Biofilter \_\_\_\_\_ Manufacturer \_\_\_\_\_ Unit(s) \_\_\_\_\_  
 Aerobic Treatment Unit Jet J-800 PLT Manufacturer Jet GPD  
 Other Re-Aeration  
 Filter Following Treatment Unit \_\_\_\_\_  Pump \_\_\_\_\_  
 Dosing Basin \_\_\_\_\_ Depth \_\_\_\_\_ Diameter or \_\_\_\_\_ x \_\_\_\_\_  Siphon \_\_\_\_\_  
 Soil Absorption (See Below) \_\_\_\_\_  Gravity \_\_\_\_\_

Comments: Installation conform to design specs. Anti-buoyancy measures Required per Design.  
Follow inspection protocol found in HCPH HSTS Installers Manual.

Soil Absorption Component:  
 Gravel Pad \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_ Depth \_\_\_\_\_  
 Leaching Trenches \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_ Depth \_\_\_\_\_ Total Ln. Ft. \_\_\_\_\_  
 Leach Bed \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_ Depth \_\_\_\_\_  
 At-Grade \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_  
 Modified Mound \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_ Sand Thickness \_\_\_\_\_  
 Wisconsin Mound \_\_\_\_\_ ft x \_\_\_\_\_ ft = \_\_\_\_\_ ft<sup>2</sup> \_\_\_\_\_ Sand Thickness \_\_\_\_\_  
 Other \_\_\_\_\_

Gravity Distribution \_\_\_\_\_  
 Drip Distribution \_\_\_\_\_  
 LPP Distribution \_\_\_\_\_

Drainage Enhancement:  Gradient Drain \_\_\_\_\_ Depth \_\_\_\_\_  
 Interceptor Drain \_\_\_\_\_ Depth \_\_\_\_\_  
 Diversion Swale \_\_\_\_\_  
 Other \_\_\_\_\_  
 Pump \_\_\_\_\_

Disinfection Device:  Chlorinator \_\_\_\_\_  
 Chlorine Contact Chamber \_\_\_\_\_  
 De-Chlorinator \_\_\_\_\_  
 UV Jet Model 952  
 Other sample well

Comments: Connect to the existing discharge pipe. Re-direct discharge location per plan to maintain 10' setback from neighboring properties.

Remarks: A pre-construction meeting is required at the site. Installer must have system laid out prior to meeting. Electrical approval from IBE required.  
 Refer to Site Plan 3165-A For Additional Details And Install System Per HCGHD Manual.

ODH System Type:  Pretreat SDC  Pretreat SDC & Drip  
 Below Grade  Drip Only  
 At or Above Grade  Spray/Surface App.  
 NPDES Discharge  None of the Above

By my signature below I certify that I have read, I understand, and I agree to comply with the conditions set forth on the reverse hereof.  
 Owner's/Owner's Agent Signature: F. Daniel Brennan Date: 4/23/18

Field Inspection By: Robert Gallagher, P.E. Date: 4-27-18 Approved By: Theresa Curran, R.S. Date: 7/16/18  
 This Application Expires One Year From The Approved By Date. Replacement Systems Must Be Installed Within 120 Days of Approval Date.

RECEIVED APR 25 2018

Address of Construction Site: 3165 Timberview Dr Political Subdivision: Green Twp File #: PT12018038

# Soil and Site Evaluation for Sewage Treatment and Dispersal

County: Hamilton

Township/Sec.: Green

Property Address/Location: 3165 Timberview

Cincinnati, OH 45211

Parcel # / Subdiv. Lot #: #550-0063-0078-00 and lot south

Applicant Name: Lammers

Address: c/o SCS 2060 Reading Road Suite 200

Cincinnati, OH 45202

Phone #: 513-375-0586

Lot #:

Test Hole #: 1,2,5,6,7,8,9,10,11,12 not S3 or S4

Latitude/Longitude:

Method: Pit  Auger  X Probe

Land Use/Vegetation: Wooded brush and some grass

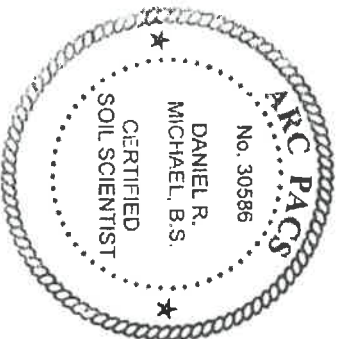
Landform: upland

Position on Landform: side slope

Percent Slope: 17% mostly but 4% at SE corner

Shape of Slope: linear

Coord. Method/Accuracy: GPS - 3 ft.



Approval Date: 8/9/2017

Evaluator: Dan Michael

903 North Broadway

Lebanon, OH 45036

Certification Stamp or Certification # 30586

Signature: *Dan Michael*

Phone #: 513-934-1040

Soil Profile	Estimating Soil Saturation				Estimating Soil Permeability				Other Soil Features		
	Munsell Color (hue, value, chroma)	Redoximorphic Features		Texture	Structure		Consistence				
Horizon	Depth (inches)	Matrix color	Concentrations	Depletions	Class	Approx. % clay	Approx. % Fragments	Grade	Size	Type (shape)	Consistence
Ap	0 - 8	dark grayish brown 10YR 4/2			silt loam	15%	0%	3 - strong	f	gr	friable
Bt1	8 - 16	dark yellowish brown 10YR 4/6			silty clay loam	27%	0%	2 - moderate	f	SBK	friable
Bt2	16 - 34	dark yellowish brown 10YR 4/4	10YR 3/1 1%	10YR 5/2 20%	silty clay loam	28%	0%	2 - moderate	m	SBK	frable to firm
Bt3	34 - +	dark yellowish brown	10YR 3/1 1%	10YR 5/2 40%	clay loam	35%	1%	2 - moderate	m	SBK	firm

Limiting Conditions	Depth to (in.)	Descriptive notes	Remarks/Risk Factors:
Perched Seasonal Water Table	16 to 24 in.		S4 is shallower to mottles but is nearly off the lot.
Ground Water/Aquifer	> 50 in.		Avoid filled area near the house.
Highly Permeable Material (range)	> 50 in.		
Bedrock	> 50 in.	Fractured - Karst (circle one)	There is a small walking trail in the rear woods. It is about 2 foot wide.
Flow Restrictive Layer	34 in.	Highly Weathered Soil with slow permeability	This is usable if care is taken to remove the gravel and remove any compaction.
Highly Weathered Soil	34 in.		
Fractured Glacial Till	> 50 in.		S3 spot has thick compacted fill
Other High Risk Limiting Conditions	> 50 in.		

3165-7A

Table 3. Soil Infiltration Loading Rates.

Soil Characteristics		Soil Infiltration Loading RRate (gpd/ft <sup>2</sup> )		Row
Structure		CBOD5		
Texture	Shape	Grade	>25mg/L (septic tank effluent)	<=25mg/L (pretreated effluent)
COS, S, LCOS, LS FS, VFS, LFS, LVFS	--	0SG	0.8	1.6
	--	0SG	0.4	1
	--	0M	0.2	0.6
CSL, SL	PL	1	0.2	0.5
		2, 3	0	0
		1	0.4	0.7
FSL, VFSL	PR/BK/GR	2, 3	0.6	1
		0M	0.2	0.5
		PL	0	0
L	PR/BK/GR	1, 2, 3	0.4	0.6
		1	0.6	0.8
		2, 3	0.4	0.8
SIL	PR/BK/GR	0M	0.2	0.5
		1, 2, 3	0	0
		1	0.4	0.6
SCL, CL, SICL	PR/BK/GR	2, 3	0.6	0.8
		0M	0	0
		1, 2, 3	0	0
SC, C, SIC	PR/BK/GR	1	0.2	0.3
		2, 3	0.4	0.6
		0M	0	0
SC, C, SIC	PR/BK/GR	1, 2, 3	0	0
		1	0	0
		2, 3	0.2	0.3



3165-A



Soil Characteristics		Hydraulic Linear Loading Rate (gpd/ft)											
		Slope 0-4%				Slope 5-9%				Slope >10%			
Texture	Structure	Shape	Grade	Infiltrative Distance, (Inches)			Infiltrative Distance, (Inches)			Infiltrative Distance, (Inches)			Row
				8 - 12	12 - 24	24 - 48	8 - 12	12 - 24	24 - 48	8 - 12	12 - 24	24 - 48	
COS, S, LCOS, LS	--	OSG	4.0	5.0	6.0	5.0	6.0	7.0	6.0	7.0	8.0	8.0	1
	--	OSG	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	7.0	2
	--	OM	3.0	3.5	4.0	3.6	4.1	4.6	5.0	6.0	7.0	7.0	3
CSL, SL	PL	1	3.0	3.5	4.0	3.6	4.1	4.6	4.0	5.0	6.0	6.0	4
		2, 3											5
	PR/BK/GR	1	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	7.0	6
FSL, VFSL	GR	2, 3	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	7.0	7
	--	OM	2.0	2.3	2.6	2.4	2.7	3.0	2.7	3.2	3.7	3.7	8
	PL	1, 2, 3											9
L	PR/BK/GR	1	3.0	3.5	4.0	3.3	3.8	4.3	3.6	4.1	4.6	4.6	10
	GR	2, 3	3.3	3.8	4.3	3.6	4.1	4.6	3.9	4.4	4.9	4.9	11
	--	OM	2.0	2.3	2.6	2.4	2.7	3.0	3.2	3.2	3.7	3.7	12
SIL	PL	1, 2, 3	-	-	-	-	-	-	-	-	-	-	13
	PR/BK/GR	1	3.0	3.5	4.0	3.3	3.8	4.3	3.6	4.1	4.6	4.6	14
	GR	2, 3	3.3	3.8	4.3	3.6	4.1	4.6	3.9	4.4	4.9	4.9	15
SCL, CL, SICL	--	OM	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	3.4	16
	PL	1, 2, 3											17
	PR/BK/GR	1	2.4	2.7	3.0	2.7	3.0	3.3	3.0	3.5	4.0	4.0	18
SC, C, SIC	GR	2, 3	2.7	3.0	3.3	3.0	3.5	4.0	3.3	3.8	4.3	4.3	19
	--	OM											20
	PL	1, 2, 3											21
SCL, CL, SICL	PR/BK/GR	1	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	3.4	22
	GR	2, 3	2.4	2.9	3.2	2.7	3.0	3.3	3.0	3.5	4.0	4.0	23
	--	OM	in the flatter area			in the steeper area							24
SC, C, SIC	PL	1, 2, 3											25
	PR/BK/GR	1											26
	GR	2, 3	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	3.4	27





John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Craig W. Butler, Director

May 17, 2018

BRIAN LAMMERS  
3165 TIMBERVIEW DR  
CINCINNATI, OH 45211

RE: Approval of coverage under Ohio EPA NPDES General Permit for Household Sewage Treatment Systems (NPDES Permit No. OHK000003 )

Dear Permittee:

The Ohio Environmental Protection Agency has received the Notice of Intent (NOI) for coverage under the general permit for:

Property Location: 3165 TIMBERVIEW DR  
County: HAMILTON  
City(ies) and Township(s): CINCINNATI

Facility Permit Number: 1GK00898\*AG

This property is approved for coverage under the Ohio EPA general permit. Please use your Ohio EPA Facility permit number in all future correspondence. Enclosed is a copy of the homeowner factsheet outlining homeowner responsibilities under the general permit.

You may obtain a copy of the General NPDES Permit No. OHK000003 , current Notice of Intent (NOI), Notice of Termination (NOT) and permit transfer forms at:

[http://epa.ohio.gov/dsw/permits/GP\\_HouseholdSewageTreatmentPlants.aspx](http://epa.ohio.gov/dsw/permits/GP_HouseholdSewageTreatmentPlants.aspx)

Please read and review the permit carefully. The permit contains requirements and prohibitions with which you must comply. Coverage remains in effect until after a renewal general permit is issued. We will contact you on how and when to reapply for continuing coverage.

If you need to speak to someone directly, you should call a representative of your local general health district or Household Sewage Treatment System staff of the Ohio EPA Division of Surface Water at (614) 644-2001.

Sincerely,

Craig W. Butler,  
Director

HAMILTON

Health Department



# 2' GIS Contours Shown

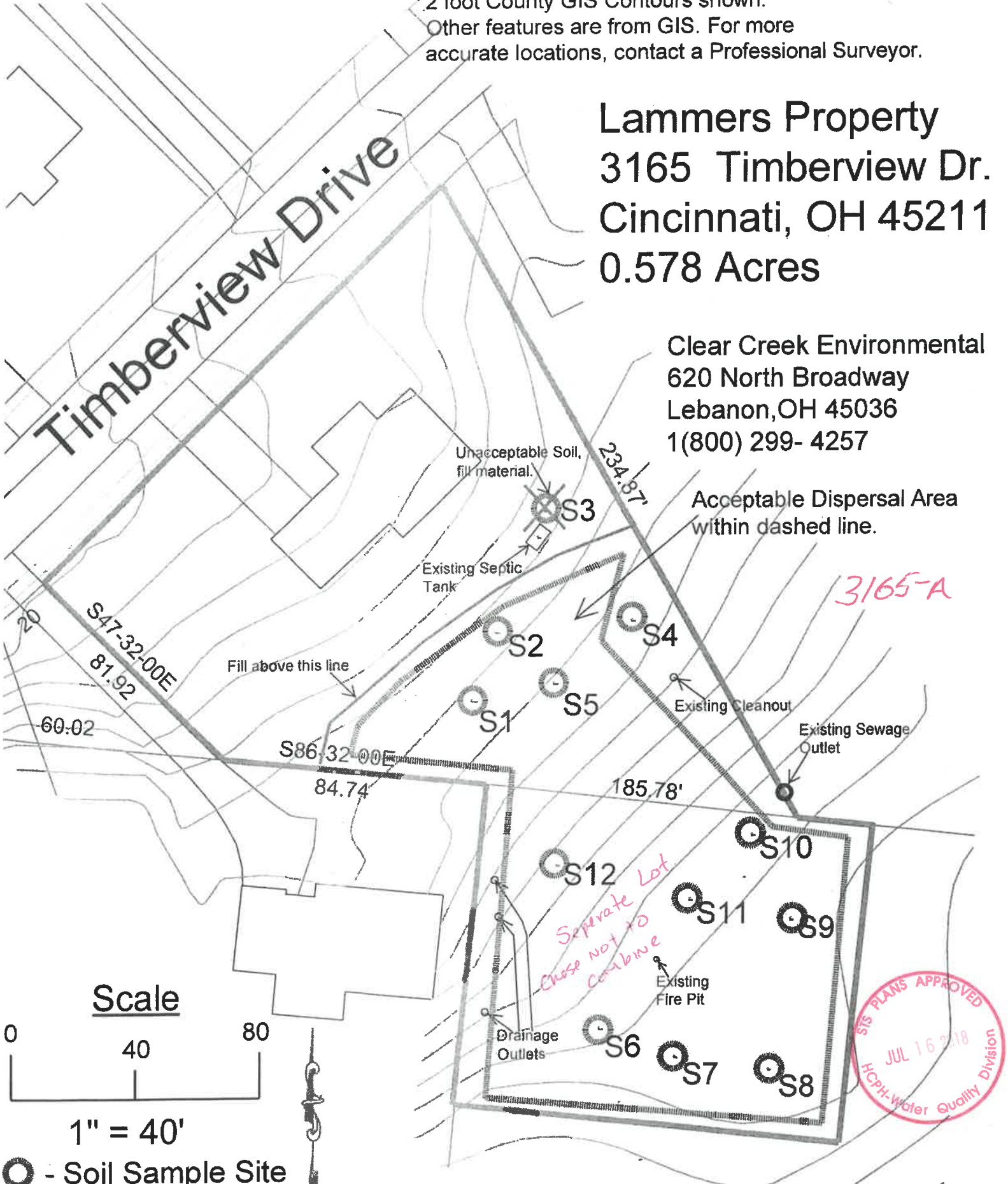
This is not a site plan. For a site plan with accurate feature locations, contact a Professional Surveyor.

2 foot County GIS Contours shown.  
Other features are from GIS. For more accurate locations, contact a Professional Surveyor.

## Lammers Property

3165 Timberview Dr.  
Cincinnati, OH 45211  
0.578 Acres

Clear Creek Environmental  
620 North Broadway  
Lebanon, OH 45036  
1(800) 299- 4257



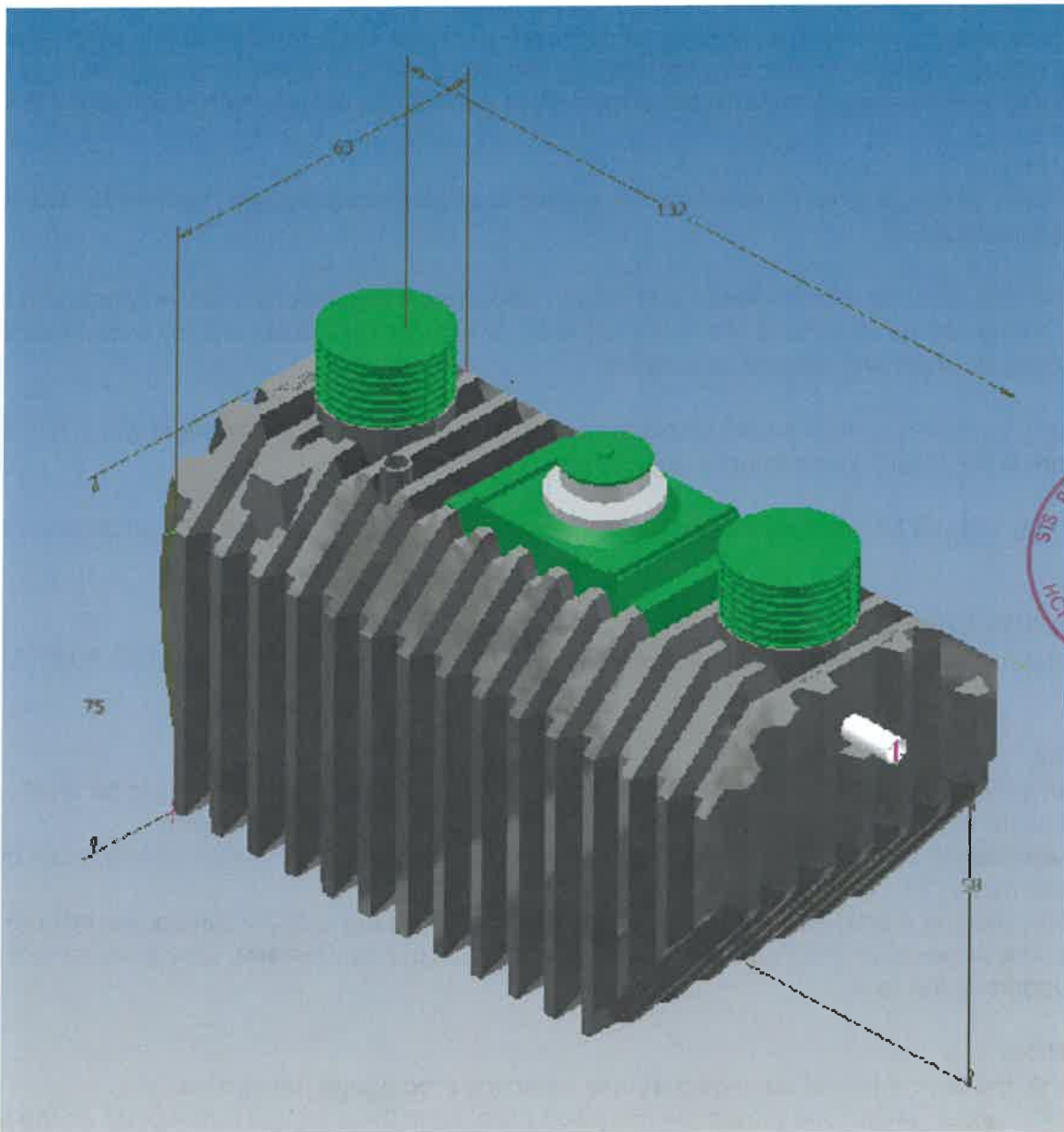
# Installation - Tank & Aerator J-500PLT – 800 PLT Series

## NSF LISTED PLANTS

These instructions apply to J-500PLT – 800PLT plants. This series includes a 500, 750 and 800 GPD plant.

J-500 PLT – 800 PLT plants have been tested and meet NSF Standard 40 criteria for a Class I NSF Listing.

J-500 PLT – 800 PLT media installation is done by the distributor before the tank is delivered. There are 2 different sets of media that can be installed depending on total flow.



3165-A



## TANK INSTALLATION

### IMPORTANT NOTES:

#### DO NOT:

1. Install tank in water saturated clay or in a high water table.
2. Install tank under areas where there is motorized traffic.
3. Backfill with clay soil

#### ALWAYS:

1. Completely fill the tank with water after installation.
2. Refill the tank with water immediately after pumping.



Only residential wastewater should be permitted to enter the system. The plant is not designed to receive flow from footer drains or roof downspouts or other storm water sources. The system should be located in an area which provides protection of the air intake from snow, ice or debris which may accumulate.

It is important that all local and state laws and plumbing codes regarding the plant installation process be followed. Appropriate installation permits are required for all installations. Items such as the connection of plumbing fixtures to the tank inlet line, position of inlet and discharge lines, grade and any other aspects of plant or plant related plumbing should be checked with the appropriate contractors to make sure all work conforms to local and state regulations. A pre-construction conference with all interested parties is strongly suggested.

This system is not designed to be installed above ground. Special procedures are required for above ground or partially buried installations.

Location of the tank must be in accordance with Health Department regulations in accordance with site design plans. Ideal location will be on ground which will not flood, which provides adequate fall and allows installation of lines which are as short and straight as possible.

There are many considerations in proper installation of a tank and the most important of which is that the tank installation meets the Health Department's regulations.

Jet systems may only be installed by authorized installers, who must be present during all phases of installation.

#### ANTI-FLOTATION DEVICE:

Note: It may be necessary to secure the tank with anti-flotation devices. Refer to the J-500-800PLT Bouyancy Tech Sheet.

#### EXCAVATION:

1. Verify the excavation is free of sharp stones and debris. The excavation should be level.
2. Allow for 9" to 24" of earth cover over the top of the tank. (approx. 7'-8' depth)
3. There should be sufficient over dig to allow for at least 12" of clearance on all four sides of the tank. (approx. 7'x13')
4. Verify there is a solid earthen pad to sit the tank on. Consider using a compacted mixture of sand and gravel (6" minimum in soil and 12" minimum in rocky terrain). Clay soils are not suitable for supporting the tank.

#### TANK SETTING:

1. Verify the tank is free of damage that may have occurred during transportation.
2. Verify rubber gasket and plastic tee has been installed in the inlet and outlet ports on the tank.
3. Place the tank in the excavation site and level to within 1" end to end and side to side.
4. Install extension risers if necessary, be sure to seal with mastic sealing and appropriate hardware.

5. If required, attach additional aerator risers to the center cover. Seal with mastic sealing and appropriate hardware.
6. Install inlet and outlet sewer lines and seal in place. Sewer lines should be 4" diameter PVC.
7. Cover all openings.

#### BACKFILLING TANK:

1. Fill 1/3 of the tank with water before backfilling begins to ensure tank will not shift during process.
2. Begin to backfill under the sloped clarifier.
3. The sloped clarifier wall must be supported to reinforce the tank walls. A mixture of sand and/or gravel must be used to backfill the inlet and outlet side walls of the tank. Jet recommends the backfill mixture consist of material no larger than 1 1/2" in diameter. The backfill should be added while compacting every 12" to ensure all void space under the sloped walls and around the inlet side walls has been completely filled.
4. Once the tank has been backfilled to the center line (above the sloped wall) the upper half of the tank can be backfilled with suitable native, preferably loose, soil;. **Never backfill with clay soils.** Be sure the backfill is free of rocks and sharp objects.
5. Tamp and compact backfill mixture under the inlet and outlet pipes.
6. Fill the tank with water to the outlet.
7. Test for Proper Drainage - Be sure tank is full to the flow line. Fill bathtub, laundry sinks, and any other fixtures that drain into system. Then, simultaneously drain all these fixtures and flush toilets. Observe any rise in water level of tank. If the water rises over 3" and does not go down immediately, inform contractor that aerator cannot be installed until this situation is corrected.
8. Backfill the rest of the excavation to a maximum of 24" above the top of the tank with earth fill material. The final grade should slope away from the tank to help with surface runoff.



#### AERATOR INSTALLATION

##### IMPORTANT

- When installing the aerator be extremely careful of aspirator shaft. It has a very critical straightness tolerance. Don't ever let it touch anything except liquid. Also remember that the fit between coupling and aspirator shaft is quite close. Be careful not to burr or dirty the ends of either part.
- Jet aerators have been carefully designed and built to give years of trouble-free operation. To assure this long, trouble-free life, it is absolutely necessary to carefully follow the aerator installation and handling instructions.
- Life of the aerator depends on a straight shaft. Never lift aerator by the shaft or subject the shaft to any bending, bumping, or strain. Never let the shaft contact anything but liquid.
- You can eliminate well over 50% of your service calls if you always inspect the system and test for proper drainage at installation time.
- Jet Floodproof model aerators are sealed to protect them from water damage by flooding. It is, however, not designed to operate under water. Do not disassemble it or remove plugs or bolts.
- The "Control Panel Installation and Users Manual" contain a wiring diagram and detailed wiring instructions. An electrical specification and requirements chart, is located on the inside of each Control Panel.

##### INSTALLATION STEPS

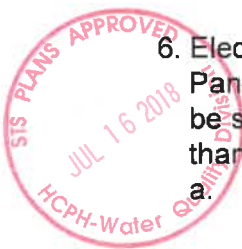
1. Turn Off Power - Turn the aerator Control Panel switch to "OFF". Next turn power that controls this circuit at main panel "OFF".
2. Check Aerator/Flow Line Measurements - Location of aerator to flow line is very important. Measure distance from ledge in the aerator riser to liquid level in tank. Tank must be full to flow line. If it is between 25" to 27", aerator location is correct. If it is not, aerator riser may not be installed correctly.
3. Check Vent Position - Check position of vent cap in cover. It must be installed in center of cover as shown in illustration. If vent cap is not centered, the outside-air-hose will bend and air to the aerator will be cut off. 3

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4. Inspect Outlet - Inspect final discharge point of system to insure it is not and cannot become blocked. If there is a chance that it may become blocked in the future, inform owner and contractor that this situation must be corrected before you can install aerator. Tell them blockage will lead to improper drainage and repeated stoppages - this can be avoided by preventive action now. (DO NOT INSTALL AERATOR IF SUCH A SITUATION EXISTS.)
5. Unpack Aerator –
  - a. Remove all manuals and paperwork. These should be left with the system or given directly to the homeowner.
  - b. Carefully remove aspirator shaft. Slide foam restrictor onto shaft so that side of foam restrictor labeled “This side toward motor” faces away from aspirator. Set this down gently in a safe place.
  - c. Remove parts bag, owner’s manual, and aerator. Because the aerator fits tightly into carton, it helps to grip the bottom of carton with your feet when pulling it out.
  - d. Inspect all parts for shipping damage. Notify the carrier immediately if there is any damage.
  - e. When handling the shaft be careful not to burr the ends of the coupling and aspirator shaft because the fit is quite close.
  - f. Exposing aerator to severe cold, such as the back of a truck or an unheated storage area, could cause circuit breaker to trip when power is first applied due to the drag from cold bearing grease. To prevent this problem, place aerator in a warm area (cab of truck) for a short time before installation. After the aerator is initially started, cold weather will not affect its operation.
6. Electrical Connection - Before proceeding, make sure power is “OFF” at both the aerator Control Panel and at the main electrical panel in the house. Test all three leads of cable with a multi-meter to be sure power is “OFF”. Check the dimension of the underground cable to make sure it is not smaller than 23/64” x 11/64”. If it is smaller, the grommet will not be watertight.
  - a. Factory-installed cord & connector.
    - i. Install female half of electrical connector on end of cable, in mounting casting, coming from facility. Connect two halves of connector.
    - ii. Strip the jacket of cable coming from facility approximately 1 1/4”. Strip 1/4” of insulation from black and white lead wires.
    - iii. Connect wire to internal connectors on Female half of electrical connector, note color coded terminals designate power, neutral, and ground (brass, silver, green)
    - iv. Connect two halves of connector.
7. Install Foam Restrictor and Aspirator Shaft
 

**NOTE:** An aerator lying on its side would rest on the foam restrictor and bend the aspirator shaft or motor shaft. For this reason, it is necessary to either block up lower end of the aerator, or allow it to overhang an object during installation of aspirator shaft.

  - a. Slide foam restrictor down shaft until it stops at ground-step on aspirator shaft. Tighten set screw firmly. The Allen key should spring, but do not tighten it so much that it slips and rounds out the hex socket.
  - b. Slide aspirator shaft into coupling already attached to aerator motor shaft until foam restrictor stops against coupling. Firmly tighten the two set screws closest to foam restrictor. The Allen key should spring, but do not tighten it so much that it slips and rounds out hex socket.
  - c. To ease future disassembly, many distributors apply a light coating of lubricant, petroleum grease, to end of motor and aspirator shaft. If lubricant is applied do not use too much or allow it to get into the hollow end of the connector or shaft.
8. Fit Brackets - If the bumpers on the bottom brackets do not press against all sides of aerator riser, remove aerator and spring brackets out until all of them touch the sides. The fit should be snug, but not tight enough to push bumpers off when aerator is installed.
9. Install aerator in riser. If extension risers are used, it is easier to install or remove an aerator using a lift fork that is supplied in distributor’s tool kit. The lift fork can be screwed onto a piece of 1” threaded pipe (supplied by distributor). A 5’ length should be adequate for most installations. The lift fork should be positioned under the aerator lift handle.
10. Install Drip Loops. Once aerator is installed, push cable down below connector an inch or two. This forms a “drip loop” which channels any water running down the cable away from the aerator.
11. Rotate Aerator Clockwise. Looking down at installed aerator, rotate it clockwise until one of the mounting brackets engages the anti-rotation bolt. This prevents cutting off the air supply by twisting of the air hose and also eliminates electrical problems caused by twisted cables.



12. Place 4 ½" Outside-Air-Hose on hose adapter attached to aerator.

**IMPORTANT:** Hose must be in place to insure fresh air for optimum treatment and plant performance.

If one or more risers are used, a longer hose is required. Remove the air hose from the top of the aerator and cut a piece from a bulk coil (sold separately) and install it. It must be long enough to fit completely on the plastic hose adapter (top, center of aerator - over shaft) and go straight up into the center of the vent. Be sure hose is properly installed in vent cap. It must not be bent or kinked when the riser cover is replaced. After the riser cover is in place, remove the vent cap and check position of hose. It should be in the vent body but not close enough to the vent lid to restrict air flow.

13. Perform Electrical Test. The control panel installation and user's manual is provided with every Jet control panel. Read these before proceeding.

- a. Check to be sure the Control Panel installed is the correct one for the system and ensure that it includes an autodialer and pump lockout feature to disable discharge in the event of an alarm condition if required by local and state codes.
- b. Check the wiring to be sure all the above instructions have been followed. If necessary, have the electrical contractor correct the work.
- c. Set the Control Panel switch to the "OFF" position. Turn the power to the Control Panel circuit "ON" at the main panel. With the aerator installed and operational, there should be no audible or visual alarms.
- d. Test for power to the panel. Use a multi-meter to confirm proper voltage to the panel and components. Operating voltages for the control circuit and aerator are 120 volts +/- 10%.
- e. Check each circuit for proper polarity by placing one prod of the multi-meter on terminal and the other prod to the common wire in the Control Panel.
- f. If the Control Panel is equipped with an auto dialer, program the autodialer according to the instructions provided. Trigger an alarm to confirm that the autodialer is functional and the land line has been activated.
- g. Test the power to the pump circuit. If equipped with lock-out feature, initiate an alarm condition and confirm that the pump circuit power has been disabled. Return the alarm condition to normal setting.
- h. If these tests or checks are not satisfactory, correct the wiring or contact an electrician.
- i. When all checks are completed, make sure the Control Panel switch is in the "ON" position. Close and secure the Control Panel cover.

14. Observe Aerator Operation. It should be quiet and free from excessive vibration. Heavy vibration indicates shaft damage. If heavy vibration occurs, install a new shaft and return the shaft that is damaged to the factory.

15. Install aerator riser cover.

16. Final Steps.

- a. Completely fill in label on front of Control Panel cover.
- b. Remove the red "Notice to Occupant" tag from Control Panel.
- c. Fill in "Installation and Service Record" card.
- d. Explain "Owner's Manual" to owner and wire manual to the Control Panel. Instruct owner to fill in "Owner Warranty Registration" card and mail it.
- e. Record all installation information including address, date of start up, permit number, and status of contracts on the "Install Checklist".
- f. Complete start up inspection and checklist and submit copies to Jet Inc. and the local administrative authority.



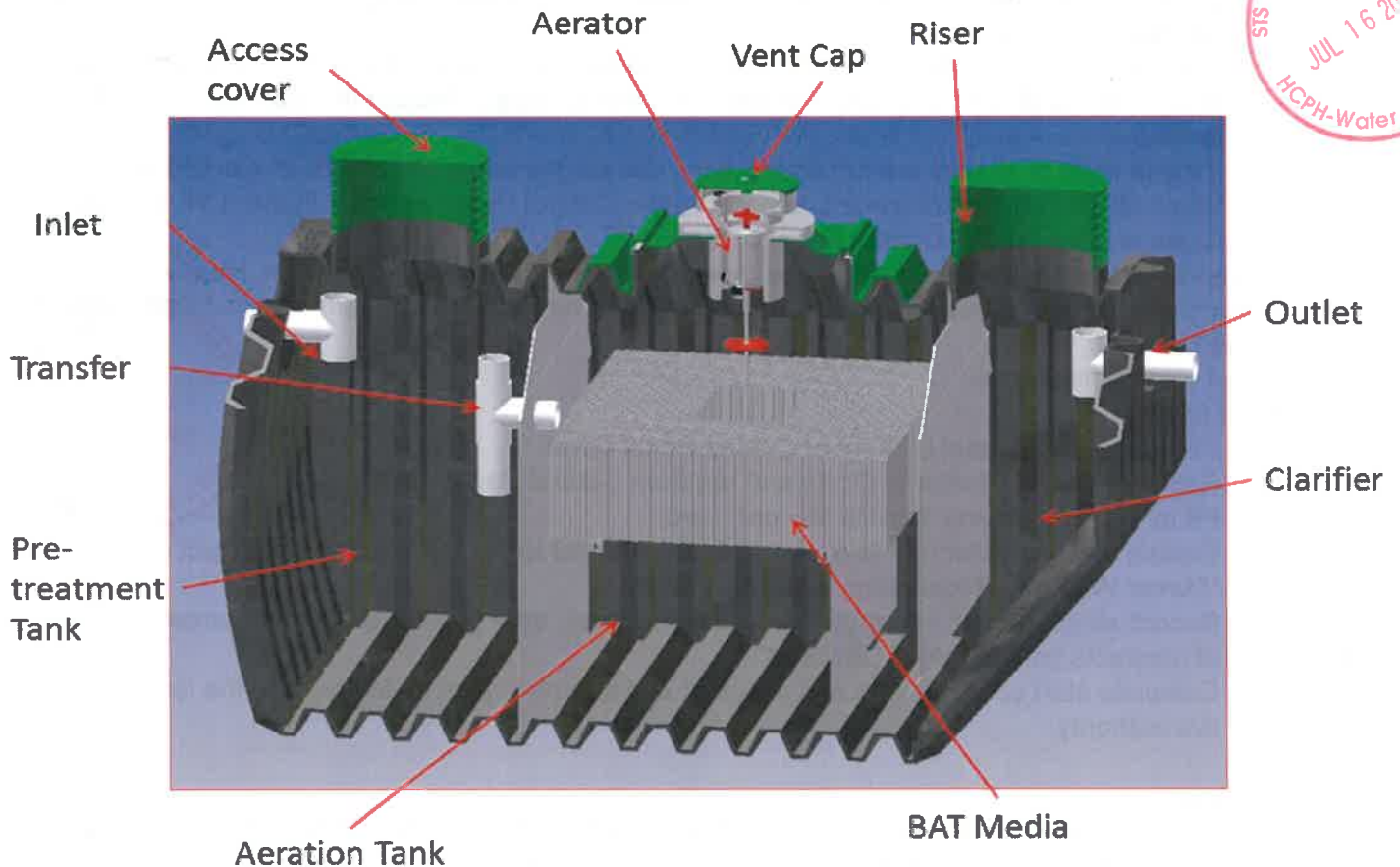
#### **TANK PUMPING:**

1. Always pump down the pre-treatment tank first. The transfer tee in the baffle wall between the pre-treatment and treatment tank will allow water to move freely into the pre-treatment tank.
2. After the pumping of the pre-treatment tank is complete, pump remaining liquid from the treatment tank and the clarifier.
3. Fill the tank with water immediately after pumping, starting with the pre-treatment.



## EFFLUENT TESTING:

1. Effluent Sample Means - Collection and assessment of effluent samples is required for all NSF Listed plants. There are four sample taking means from which samples may be taken. One of these methods must be chosen prior to plant installation and necessary arrangements made during installation to incorporate this method into the overall system. For information on "Collecting & Assessing Samples" see "Plant Inspection & Service" instructions. The means are as follows:
  - a. Final Outlet Samples - Can be taken at the final outlet point if it is accessible. The final outlet must be elevated sufficiently to allow a free-flowing sample to be taken.
  - b. Sample Cross Samples - The cross must be as close as possible to the discharge end of the tank. One horizontal arm of the cross should act as the first section of the discharge line from the tank. The other horizontal arm acts as a continuation of the discharge line. One vertical arm of the cross extends downward and the other extends up to grade. The arm to grade should be covered with a removable cover.
  - c. Distribution Box Samples - To use this method the box must have an inlet line high enough above the box floor so that a free-flowing sample can be taken. Also the top of the box must be slightly above grade and covered with a removable cover. If the box doesn't meet these qualifications it must be modified so that it does or this method of sample collection cannot be used.
  - d. Baffled Outlet Samples -- A sample from inside the plant outlet baffle may be taken. The outlet must have an open top and the plant discharge line must lead directly to it. It must also be accessible from grade and covered with a removable cover. Baffles are usually constructed with a plastic tee.



## 1-YEAR LIMITED WARRANTY

Jet Inc. warrants all new system components supplied by Jet against defective materials and workmanship, under normal service for one year commencing upon date of shipment from the factory. To make a claim under this warranty, you should notify your Jet Distributor or notify Jet Inc., Customer Service Department by phone at 1-800-321-6960 or by mail at 750 Alpha Drive, Cleveland, Ohio 44143. If a component or part is proven defective during this warranty period there shall be no charges for labor or materials required for the repair or replacement of the defective component. Jet shall have the option to require the defective part be returned, freight prepaid, for evaluation at the factory before allowing a claim. All components must be returned by an authorized Jet distributor who is in good standing with Jet Inc. Jet Inc. may, at its option, elect to repair or replace the defective components, or refund the purchase price of the defective component(s). The system owner shall assume all responsibility for freight charges to and from Jet Inc. This warranty does not cover system components or parts that have been (I) damaged due to disassembly by unauthorized persons, improper installation, misuse, or lightning, (II) subjected to external damage, (III) damaged due to improper or altered wiring, or overload protection, or (IV) damaged by failure to follow the suggestions outlined in any associated product documentation or Owners Manuals. Items normally consumed in service such as fuses, filter cartridges, spin plates, grease, oil, etc. are not warranted. This warranty applies only to the Jet system components supplied by Jet Inc. and does not include any of the wiring, plumbing, drainage, or any other part of the disposal system.

**JET INC. SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGES CAUSED BY DEFECTIVE COMPONENTS OR MATERIALS, OR FOR LOSS INCURRED BECAUSE OF THE INTERRUPTION OF SERVICE, OR ANY OTHER SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES OR EXPENSES ARISING FROM THE MANUFACTURE, SALE, USE OR MISUSE OF THE COMMERCIAL TREATMENT PLANT. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW, INCLUDING FITNESS IS IN EFFECT ONLY FOR THE ONE YEAR WARRANTY PERIOD SPECIFIED ABOVE. (SOME STATES DO NOT ALLOW EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR ALLOW LIMITATIONS OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.)**

Jet Inc. reserves the right to revise, change, or modify the construction and design of the Jet system components or any component part or parts thereof supplied by Jet, without incurring any obligation to make such changes or modifications in present equipment. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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Jet Inc. 750 Alpha Drive Cleveland, OH 44143 [www.jetincorp.com](http://www.jetincorp.com) 800.321.6960

# Jet J-500-800PLT BUOYANCY



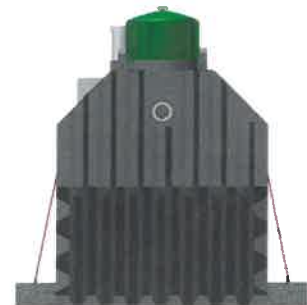
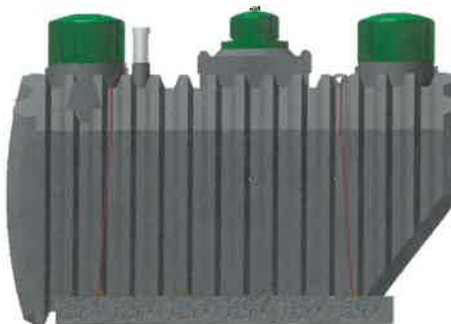
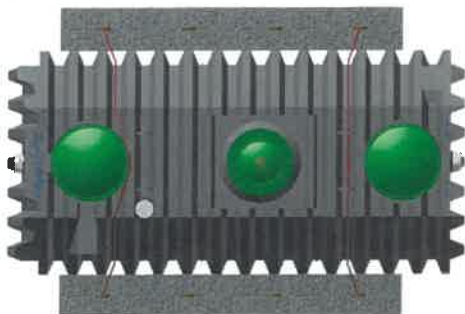
When the J-500-800 PLT is to be installed in areas where high water tables are common, additional anti-buoyancy measures should be installed. Jet recommends using concrete anchors placed beside the tank in the excavation and secured to the tank with properly rated corrosion resistant straps. Straps may be routed through the lifting lugs on the tank to ensure they will not shift during installation and backfilling.

Use the chart below to determine the amount of additional hold down weight needed for the burial depth of the installation and soil density from a registered soil scientist's report. When installed, the total weight of the anchor and the soil above the anchor must be greater than the weight shown in the table. For maximum effectiveness, the anchors should be installed as low as possible in the excavation.

\*an asterisk in the table indicate that no additional weight is required.

Note: the table shows the required weight to hold a tank in place if it is filled with water. Do NOT leave a plastic tank empty if high water level is a concern.

Soil Density (lb per cubic ft)	80	90	100	110	120	130
Depth of Soil Over Tank (in)	Extra Weight Needed (lbs)					
6	1327.7	1106.424	885.1472	663.8709	442.5945	221.3182
8	737.6296	442.5945	147.5595	*	*	*
10	147.5595	*	*	*	*	*
12	*	*	*	*	*	*
14	*	*	*	*	*	*



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## Jet Inc. Model 197 Control Panel Installation and Users Manual

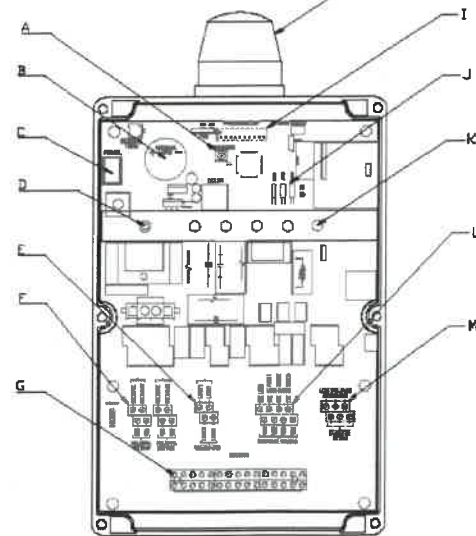
The Jet Incorporated Aerator control panel monitors and controls the operation of Jet system aerators and additional components. The panel can be configured to control single or dual aeration systems. A single aerator system controls the operation of one aerator. A dual aerator system can control two aerators, or one aerator and one re-aeration compressor.

In addition to the aerator control circuits, the control panel also contains the following circuits or features:

- Two aerator/compressor control circuits
- Three auxiliary output circuits
- Three auxiliary input circuits with normally open or normally closed selection
- One power indicator LED, and four additional error indicator LED's
- An alarm buzzer with circuit board provision for an alternate or externally mounted buzzer
- A 9-position DIP switch for selection of configuration options
- User accessible reset switch and circuit board master reset switch
- Alarm mode Auto-Dialer power and control interface
- RS232 interface circuit
- Circuit board mounted power switch and fuse

### Control Panel Features

- A. Master Reset Button
- B. Internal Horn
- C. On/Off Switch
- D. External Reset Button
- E. Pump Power Supply Contacts
- F. Alarm and Aerator Power Supply Contacts
- G. Ground Buss
- H. Central Alarm Beacon
- I. DIP Switch Array
- J. Auxiliary Alarm Settings (NC/NO)
- K. Indicator Light Array
- L. Auxiliary Alarm Contacts
- M. Auxiliary Alarm Contacts



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## Safety Instructions

**WARNING:** Hazardous voltage can shock, burn or cause death.

**TO AVOID SERIOUS OR FATAL PERSONAL INJURY OR MAJOR PROPERTY DAMAGE, READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN THE MANUAL FOR THE CONTROL PANEL.**



This is a **SAFETY ALERT SYMBOL**. When you see this symbol on the pump or in the manual, look for one of the following signal words and be alert to the potential for personal injury or property damage.

- Warns of hazards that **WILL** cause serious personal injury, death or major property damage.
- Warns of hazards that **CAN** cause serious personal injury, death or major property damage.
- Warns of hazards that **CAN** cause personal injury or property damage.

**BOLD FACE FONT INDICATES SPECIAL INSTRUCTIONS WHICH ARE VERY IMPORTANT AND MUST BE FOLLOWED.**



**THIS MANUAL IS INTENDED TO ASSIST IN THE INSTALLATION AND OPERATION OF THIS UNIT. THOROUGHLY REVIEW ALL INSTRUCTIONS AND WARNINGS PRIOR TO PERFORMING ANY WORK ON THIS CONTROL PANEL.**



**MAINTAIN ALL SAFETY DECALS.**



Install, ground and wire according to local and National Electrical Code Requirements. Disconnect and lockout electrical power before installing or servicing the control panel. Electrical supply must match nameplate specifications inside of the control panel. Incorrect voltage can cause fire, damage control panel and void the warranty.



All single phase pump motors and aerators attached to model 197 Control Panels must be equipped with an automatic thermal protector, which opens the motor's electrical circuit when an overload condition exists. This can cause the pump to start unexpectedly.

### **Important Precaution:**

All electrical work must be performed by a qualified technician. Always follow the National Electric Code (NEC), or the Canadian Electrical Code, as well as local, state and provincial codes. Code questions should be directed to your local electrical inspector. Failure to follow electrical codes and OSHA safety standards may result in personal injury or equipment damage. Failure to follow manufacturer's installation instructions may result in electrical shock, fire hazard, personal injury or death, damaged equipment, provide unsatisfactory performance, and may void manufacturer's warranty.

## Wiring at the Jobsite

1. All cable and conduit should be installed from the tank to control panel location by the system installer.



**USE ONLY NON-METALLIC CONDUIT WITH THE MODEL 197 CONTROL PANEL. METALLIC CONDUIT IS NOT APPROVED FOR INSTALLATION WITH THE MODEL 197 CONTROL PANEL.**

2. Use only UL listed Direct Burial and non-metallic conduit and wiring for control and aerator installation.
3. Cable should be carefully measured; cables and wiring must not be spliced. Spliced connections could result in aerator or alarm sensing malfunctions.
4. When ordering and measuring cable be sure to:
  - a. Leave ample cable in aerator mounting casting to install aerator at desired depth
  - b. If direct burial cable is used it must be encased in conduit from the aerator mounting casting to the edge of the concrete tank. It should not cross over any access covers or panels
  - c. If direct burial cable is used leave slack in the line to allow for possible settling in the trench or tank
  - d. Above grade entrance to the house is recommended if the control panel is mounted inside the dwelling. If direct burial cable is used conduit should be in place from the beginning of the foundation to the entrance of the dwelling.
5. Jet recommends burying cable and conduit at least two feet deep to prevent accidental damage to the external wiring
6. Proper procedures and solvents must be used to protect the integrity of the external wiring.



## Control Panel Installation

The control panel should be given to the electrician on site for installation. The installer or distributor must make sure that the control panel settings are correct for the type of system and components being installed. Refer to control panel settings section for more information on desired system configurations.

1. Mount the control panel in a location that will be easily accessible, clearly visible from at least 50 feet and out of reach from children. The panel is weather proof and can be mounted outdoors. If outdoor installation is required consideration should be taken to minimize the impact of climate on the panel. If possible do not mount the panel in direct sunlight.
  - a. To mount panel remove the panel cover by removing the four Philips head screws, the panel can then be mounted with the four

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- screw points adjacent to the corner screw receivers for the panel cover.
- b. Additional mounting brackets are supplied if larger mounting hardware is desired.
  2. After mounting the control panels determine the location of conduit and wiring for the control panel. Make sure to check local codes and regulations regarding power requirements.
  3. The Jet model 197 control panel is not equipped with knockouts for electrical conduit connections. Pilot holes must be drilled in the enclosure to allow conduit access into the panel. For best results use a GreenLee<sup>®</sup> punch for the conduit access holes. Make sure the holes are the proper size for the type of conduit selected. Ideally conduit should enter from the bottom of the enclosure to increase protection from water infiltration into the panel. Be sure to avoid damaging the internal components of the control panel when drilling conduit access holes.

**Refer to the Conduit Location Template for conduit entry locations.**

4. Attach all conduit and cable connectors to the control panel. Be sure to follow the manufacturer's instructions for proper connection installation.
- ONLY UL APPROVED WATERTIGHT HUB AND FITTINGS CAN BE USED WHEN ATTACHING CONDUIT AND WIRING TO THE CONTROL PANEL.**  
**Jet recommends using Carlon or T&B liquidtight non-metallic conduit and fittings for field installations. Sample instructions have been provided, refer to the proper model connector fitting instructions provided by the manufacturer for exact installation instructions.**
5. Assure that all connections are properly installed and watertight.
  6. Pull all cables and wiring through the conduit and connectors into the control panel. Make sure to allow sufficient wiring to make all connection within the control panel.
  7. Make all the appropriate connections to the control panel terminal blocks as required for the system. If several connections are required it may be useful to label the inbound and outbound wiring according to the system design to aid in future maintenance and troubleshooting.
  8. The control panel is designed to operate on up to four separate circuits, depending on the system configuration and local regulatory requirements. Each individual circuit should be a separate 115-volt, single phase, 60 Hertz AC circuit. Alarm, aerator, and compressor circuits should not exceed 15 amp breakers from the central breaker panel. The pump circuit may operate on either 115V or 220V circuit with a 15 amp breaker.
  9. Power supply wiring should be at least #14 AWG solid copper wires.
  10. A grounding conductor should be installed from the ground buss bar to the main breaker panel in the dwelling. All system component grounds should then be connected to the grounding buss.



**Failure to connect system components or the model 197 to proper ground will void any product warranties.**

11. Individual power sources should be connected to the control panel according to the wiring diagram provided on page 9 of this manual.
12. Additional alarm return and external relay contacts are provided to monitor and control additional components of the system:
  - a. Auxiliary Alarm Inputs – there are three additional alarm inputs that can be operated in either a normally closed (N/C) or normally open (N/O) alarm state. The alarm state can be reversed by moving the jumper directly above each alarm input to the desired setting. The N/O alarm operates on 12 volts AC low amperage circuit.
  - b. Auxiliary Relay Outputs – there are two additional 120 volt relay outputs designed to control external relays for operation of external components. These outputs are 120 volt low amperage and are not designed to carry any significant electrical load, or to directly control external pumps or other devices
  - c. Smaller gauge wire (#16 or #18 AWG) may be used for additional alarm and relay inputs depending on the proximity of the system components and the panel.
13. If an integrated pump control is desired the model 197 control panel is equipped with an internal pump control relay. The pump should always be operated on an independent circuit. The pump control relay is designed to supply continuous power to the pump circuit provided there is not an active alarm condition. In the event of an alarm state the pump control relay will deactivate power to the pump circuit.
14. Make sure all power supply connections have been fastened securely; recommended torque for terminal connections is 4 to 5 ft/lbs.
15. Perform an initial power supply test on all available circuits. Ensure that power from the dwelling is sufficient to properly operate all system components. All circuits should have 120 volts or equivalent available.



**All wiring must be in accordance with local and national electric codes. Contact your local electrical inspector for more information regarding proper wiring procedures.**

16. Typically the aerator and system components will not be installed at the time of initial wiring for the system control. The current sensing ability of the panel will create an alarm condition if there are no components active during standard operation. The control panel should be left in the off position until the entire system has been installed.



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## SAMPLE HUB AND CONNECTOR INSTALLTION INSTRUCTIONS

# Carflex Fittings Installation Instructions

### **LT43C-CAR, LT43F thru J, LT20C-CAR, LT20F thru J.**

1. Cut the end of the Carflex conduit or Carflex® X-Flex™ tubing square.
2. Install compression nut and sealing gland ring over the end of the conduit or tubing.
3. Insert the ferrule end of the fitting into the conduit using a clockwise twisting action.
4. Screw fitting body into compression nut.
5. When installation is completed, use a wrench, tighten compression nut one-quarter (1/4) turn past hand-tight. Do not over tighten fitting.

\*To prevent damage to conductors, conduit and fittings, do not twist Carflex during installation.

### **LT43D-New, LT43E-New, LT20D-New, LT20E-New.**

1. Cut the end of the Carflex conduit or Carflex® X-Flex™ tubing square.
2. Install compression nut over the end of the conduit or tubing.
3. Insert the ferrule end of the fitting into the conduit using a clockwise twisting action. (Be sure conduit is fully inserted to the bottom of the fitting shoulder).
4. Screw compression nut onto fitting body.
5. Use a wrench, and tighten compression nut one (1) full turn past hand-tight. Do not over tighten fitting.

\*To prevent damage to conductors, conduit and fittings, do not twist Carflex during installation.





## Control Panel Settings an Functions

The Jet model 197 control panels are designed to be used with several system configurations. The primary selection of control panel operation is selected by the array of DIP switches located at the top of the circuit board. Refer to the following chart which outlines the function of the separate DIP switches and their corresponding system controls:

<b>Aerator Timer Control</b>			
Switch One *	Switch Two *	Switch Three *	Aerator Run Time *
Off	Off	Off	Continuous Run
On	Off	Off	On 50 min. / Off 10 min.
Off	On	Off	On 45 min. / Off 15 min.
On	On	Off	On 40 min. / Off 20 min.
Off	Off	On	On 35 min. / Off 25 min.
On	Off	On	On 30 min. / Off 30 min.
On	On	On	Continuous Run
Switch Four	<b>Inactive</b>		
<b>Auxiliary Output Control</b>			
Switch Five	Switch Six	Auxiliary Alarm Function	
Off	Off	All Outputs Inactive	
On	Off	Output One Active	
Off	On	Outputs One and Two Active	
On	On	All Outputs Active	
<b>Multiple Aerator Controls</b>			
Switch Seven	Toggle multiple aeration alarm sensing		
Off	Single Aerator System		
On	Dual Aerator System		
Switch Eight	Toggle high/low current sensing		
Off	Aerator 2 circuit high current sensing for Aerator		
On	Aerator 2 circuit low current sensing for Compressor		
<b>Test Mode Control</b>			
Switch Nine	On/Off	Toggle Test Mode	

\* - DIP switches one, two, and three will be fused in the ON position for 197 controls used with NSF Listed J-1500 series treatment systems which must have continuous aeration



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### **Aerator / compressor monitoring and control**

The aerator 1 circuit is always active and is intended to operate an aerator motor. The aerator 2 circuit is enabled by DIP switch settings and can be configured to operate an aerator motor or a compressor. DIP switch settings also configure the hourly on-time duty cycle of the aerator circuits, which can range for 30 minutes on / 30 minutes off, to continuous run (note – NSF listed J-1500 series systems must operate on continuous run). The current of each aerator circuit is controlled by an independent relay. A current transformer in each aerator circuit is used to monitor the aerator / compressor current. While in normal operation mode, in the event of an over current or under current condition of any of the critical treatment components (aerator / compressor) the system will shut down the affected circuit and enter an automated reset program. The automated reset program will attempt to re-start the affected circuit after a five minute delay cycle. If the circuit then functions properly the system returns to normal status, if the circuit does not function properly then the program enters another five minute delay cycle. If after the second five minute delay cycle the circuit is will not function properly the program enters a one hour delay cycle. If the circuit cannot function properly after the one hour delay cycle the power control relay for the corresponding aerator circuit is turned off, and the panel enters the alarm condition, which is indicated by a flashing LED and central alarm beacon, and an audible signal. If so equipped, the panel will also signal an auto-dialer or modem to transmit the alarm condition. The over-current or under-current conditions can be distinguished by different flash rates of the LED and beep rate of the buzzer. While in test mode the automated reset program will be deactivated. The control panel may be left in test mode if instantaneous alarm function is required.

### **Pump motor control**

The pump motor control circuit is always active, and the pump motor control relay will be on. In the event of an alarm condition the pump circuit will turn off power to the pump.

### **Auxiliary output control**

The active auxiliary output circuits are selectable with the DIP switches. Relays in the auxiliary output circuits control switching of 120VAC to the output terminal blocks. The 120VAC is fused on the circuit board and switched by the circuit board power switch. As currently configured, auxiliary output 1 is intended for control of the alarm signal beacon mounted to the top of the enclosure, and causes the beacon to flash in an alarm condition. If Auxiliary outputs 2 & 3 are enabled, the outputs are on during normal operation and off in an alarm condition.



### **Auxiliary inputs**

The auxiliary inputs are intended for sensing the open or closed condition of additional system components and sensing switches. Typically the auxiliary inputs are expected to be connected to float switches for sensing water levels. The active auxiliary input circuits are selectable with the DIP switches. Each auxiliary input circuit has a jumper selection for normally closed or normally open operation. The sensing signal at the auxiliary input terminal block is a current limited 12VAC. Note: Auxiliary contact three will be interlocked with the pump relay and will deactivate the pump circuit. Do not use this contact for high water floats in pump tanks.

### **Indicator LEDs**

There is a blue power indicator LED that is lit when power is applied and the microcontroller is running. There is a one red LED for indication of aerator over or under current conditions. There are three red LEDs for indication of input error conditions on the auxiliary inputs. In normal operation, with no error conditions present, only the blue power indicator LED will be on. Auxiliary alarm circuits should be properly labeled on the wiring diagram or control panel cover.

### **Alarm buzzer**

The alarm buzzer sounds when an error condition exists. There is circuit board provision for an externally mounted or alternate model buzzer. When power is initially turned on, the buzzer will sound for ½ second to confirm that the buzzer is operational. For purposes of testing or servicing, the buzzer can be silenced for alarm conditions by DIP switch setting.

### **Reset switch and master reset switch**

The user accessible reset switch has dual functionality. If no alarm condition exists, and the reset switch is held down for at least two seconds, the microcontroller will perform a self-reset. If an alarm condition has been triggered, the reset switch will clear the alarm state. However, if the error condition is still present, the alarm may immediately re-trigger. After the third reset press with a continuing alarm condition, the buzzer will be silenced, but the LED error conditions will not be cleared and no further operation is possible until the panel is reset by the master reset switch or by removal and reapplication of main power. The circuit board mounted master reset switch causes a microcontroller reset.

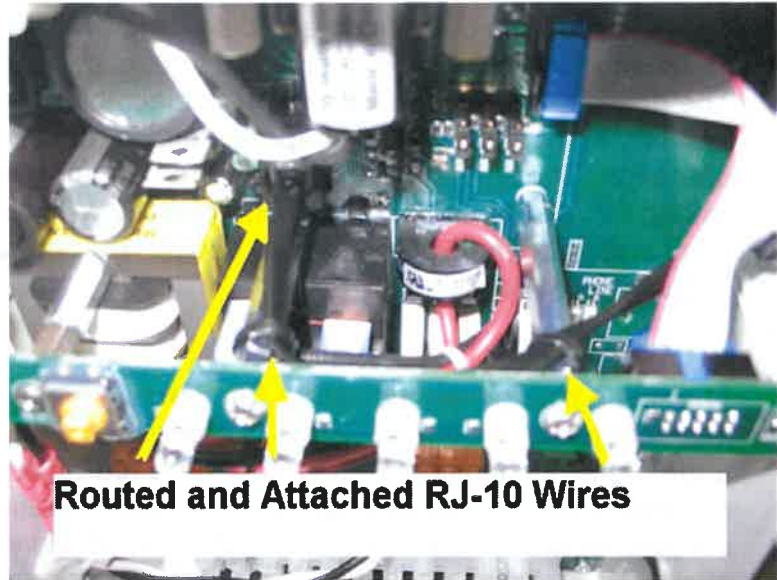


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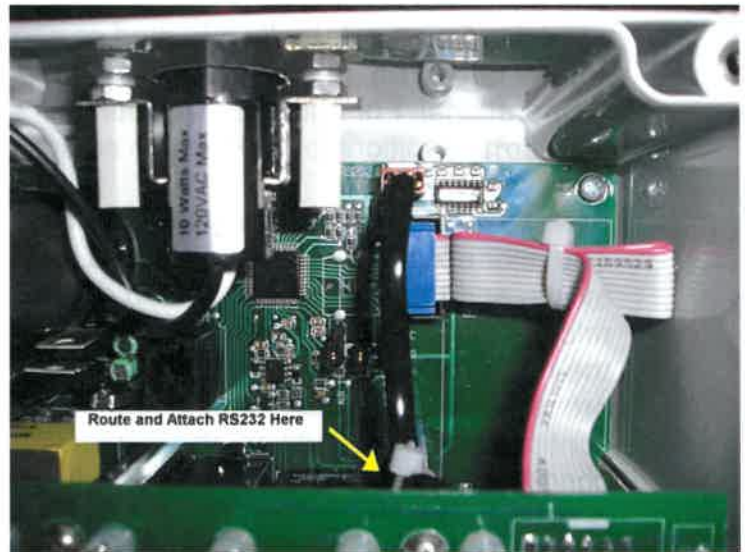
### Auto-dialer interface

The circuit board has a connector configured to provide power and a triggering signal to select models of commercial, automatic telephone voice dialers. If an Auto-Dialer is installed on the model 197 Control Panel use wire ties to secure RJ-10 cable to LED array mounting posts to **ensure there is no contact between the RJ-10 cable and 197 control panel printed circuit board or components** (see image at right)



### RS232 interface circuit

An interface circuit for RS232 communications allows for connection of the panel to a computer or other data logging equipment. If this equipment is connected to the model 197 Control Panel use wire ties to secure RS232 cable to LED array mounting posts to **ensure there is no contact between the RS232 cable and 197 control panel printed circuit board or components** (see image at below).



### Fuse and power switch

The power to the on-board circuitry and to the auxiliary outputs is fused and there is an on-board power switch for use by service or maintenance personnel.



## Start Up Check List

These procedures should be performed by the Jet installer after all of the system components and aerators have been connected to the system. This test should only be conducted after the electrician has completed the panel installation and before occupation of the dwelling. Refer to the control panel settings and functions section to review that the proper DIP switch configuration is appropriate for the system installed.

- ✓ Make sure that the settings and pump controls are appropriate for the system configuration and comply with local regulations.
- ✓ Check the system wiring to ensure the installation instructions have been followed correctly.
- ✓ Check to make sure all aerator, pump, and auxiliary connections are watertight. Ensure there is no exposed wiring prior to turning on the system.
- ✓ Set the control panel power switch to the "Off Position", and then turn power on at the main breaker panel for all of the system circuits.
- ✓ Turn on the control panel power, the self test should alarm for two seconds then all alarms should return to normal state. The blue indicator light should now indicate that there is power to the panel and circuits.
- ✓ Check to make sure all system components are operational. If a pump is connected to the system it may not immediately function depending on additional float and timer control settings.
- ✓ Test all inbound and outbound power with a multi-meter. All circuits should have between 105 and 132 volts AC power supplied to the aerator, compressor, and pump circuits.
- ✓ If aerator circuits are set for timer intervals the cycle will begin with the on aerator condition. To observe aerator timer intervals additional time will need to be spent on site, or use the "Test Mode" to accelerate the timer cycles.
- ✓ If tests are not satisfactory recheck and correct the system wiring as needed.
- ✓ Once all checks are completed return the "Test Mode" to its normal position and reset the control panel with the "Master Reset" switch.
- ✓ Make sure to correct distributor information is on the front of the panel and complete the control panel warranty card with the appropriate information.



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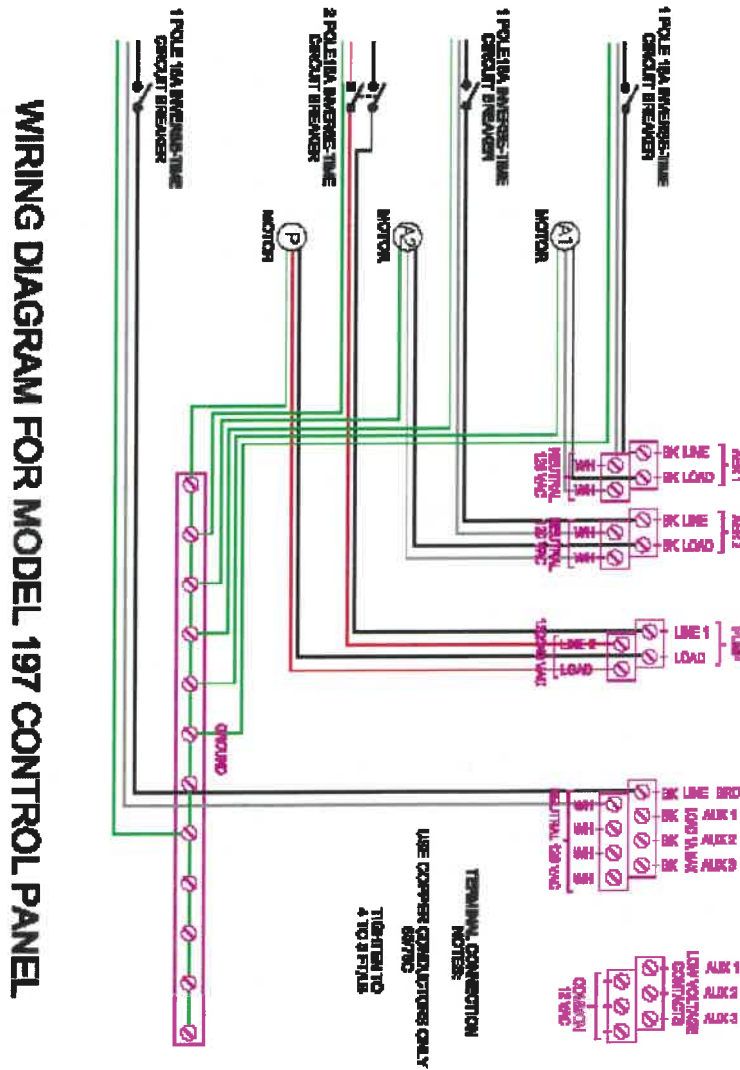
## Troubleshooting Guide

Problem	Probable Cause	Solution
No Power to Panel	<ul style="list-style-type: none"> <li>No power from main breaker panel</li> <li>Internal panel power switch in off position</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring and main breaker panel</li> <li>Check on/off switch</li> </ul>
Aerator Alarm After Start Up	<ul style="list-style-type: none"> <li>Aerators not connected and running</li> <li>DIP aerator selection incorrect</li> <li>Aerator/Compressor DIP setting incorrect</li> </ul>	<ul style="list-style-type: none"> <li>Check aerator(s) and connections</li> <li>Confirm DIP settings are correct for system design</li> </ul>
Auxiliary Alarm After Start Up	<ul style="list-style-type: none"> <li>Alarm settings incorrect (NO/NC)</li> <li>Alarm or float condition is active</li> </ul>	<ul style="list-style-type: none"> <li>Check alarm setting jumpers for proper NO/NC</li> <li>Check external devices and floats</li> </ul>
No Power to Aerators	<ul style="list-style-type: none"> <li>Inbound power inactive</li> <li>Timer setting in "Off" cycle</li> </ul>	<ul style="list-style-type: none"> <li>Check connections and main breaker panel</li> <li>Reset panel to override "Off" cycle</li> </ul>
No Power to Pump	<ul style="list-style-type: none"> <li>Inbound power inactive</li> <li>Alarm condition active</li> </ul>	<ul style="list-style-type: none"> <li>Check connections and main breaker panel</li> <li>Resolve alarm conditions</li> </ul>
Auxiliary Outputs Inactive	<ul style="list-style-type: none"> <li>DIP settings incorrect</li> <li>Excessive load on external device</li> </ul>	<ul style="list-style-type: none"> <li>Check DIP settings</li> <li>Confirm power requirements for external device</li> </ul>
Aerator Timer Not Functioning	<ul style="list-style-type: none"> <li>Incorrect DIP settings</li> </ul>	<ul style="list-style-type: none"> <li>Check DIP settings</li> </ul>
Aerator Reset Not Functioning	<ul style="list-style-type: none"> <li>External reset locked out</li> <li>External toggle not contacting button</li> </ul>	<ul style="list-style-type: none"> <li>Reset panel with Master Reset button</li> <li>Adjust depth of external toggle</li> </ul>
Aerator Alarm with Compressor	<ul style="list-style-type: none"> <li>DIP not set to compressor function</li> </ul>	<ul style="list-style-type: none"> <li>Check DIP setting</li> </ul>
Alarms not Functioning	<ul style="list-style-type: none"> <li>Automated reset program active (Normal Function)</li> </ul>	<ul style="list-style-type: none"> <li>Toggle test mode "ON" if instant alarms desired</li> </ul>



**Electrical Wiring Diagram**

Refer to the wiring diagram below when connecting aerators, compressors, pumps, and auxiliary equipment to the Jet model 197 control panels. (Note: The location of the terminal blocks has been re-formatted for this manual and does not exactly correspond to the location of the terminal blocks on the circuit board)



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## 1-YEAR LIMITED WARRANTY

Jet Inc. warrants all new system components supplied by Jet against defective materials and workmanship, under normal service for one year commencing upon date of shipment from the factory. To make a claim under this warranty, you should notify your Jet Distributor or notify Jet Inc., Customer Service Department by phone at 1-800-321-6960 or by mail at 750 Alpha Drive, Cleveland, Ohio 44143. If a component or part is proven defective during this warranty period there shall be no charges for labor or materials required for the repair or replacement of the defective component. Jet shall have the option to require the defective part be returned, freight prepaid, for evaluation at the factory before allowing a claim. All components must be returned by an authorized Jet distributor who is in good standing with Jet Inc. Jet Inc. may, at its option, elect to repair or replace the defective components, or refund the purchase price of the defective component(s). The system owner shall assume all responsibility for freight charges to and from Jet Inc. This warranty does not cover system components or parts that have been (I) damaged due to disassembly by unauthorized persons, improper installation, misuse, or lightning, (II) subjected to external damage, (III) damaged due to improper or altered wiring, or overload protection, or (IV) damaged by failure to follow the suggestions outlined in any associated product documentation or Owners Manuals. Items normally consumed in service such as fuses, filter cartridges, spin plates, grease, oil, etc. are not warranted. This warranty applies only to the Jet system components supplied by Jet Inc. and does not include any of the wiring, plumbing, drainage, or any other part of the disposal system.

JET INC. SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGES CAUSED BY DEFECTIVE COMPONENTS OR MATERIALS, OR FOR LOSS INCURRED BECAUSE OF THE INTERRUPTION OF SERVICE, OR ANY OTHER SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES OR EXPENSES ARISING FROM THE MANUFACTURE, SALE, USE OR MISUSE OF THE COMMERCIAL TREATMENT PLANT. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW, INCLUDING FITNESS IS IN EFFECT ONLY FOR THE ONE YEAR WARRANTY PERIOD SPECIFIED ABOVE. (SOME STATES DO NOT ALLOW EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR ALLOW LIMITATIONS OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.)

Jet Inc. reserves the right to revise, change, or modify the construction and design of the Jet system components or any component part or parts thereof supplied by Jet, without incurring any obligation to make such changes or modifications in present equipment. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.





# JET Model 952 UV Disinfection Device Installation Instructions

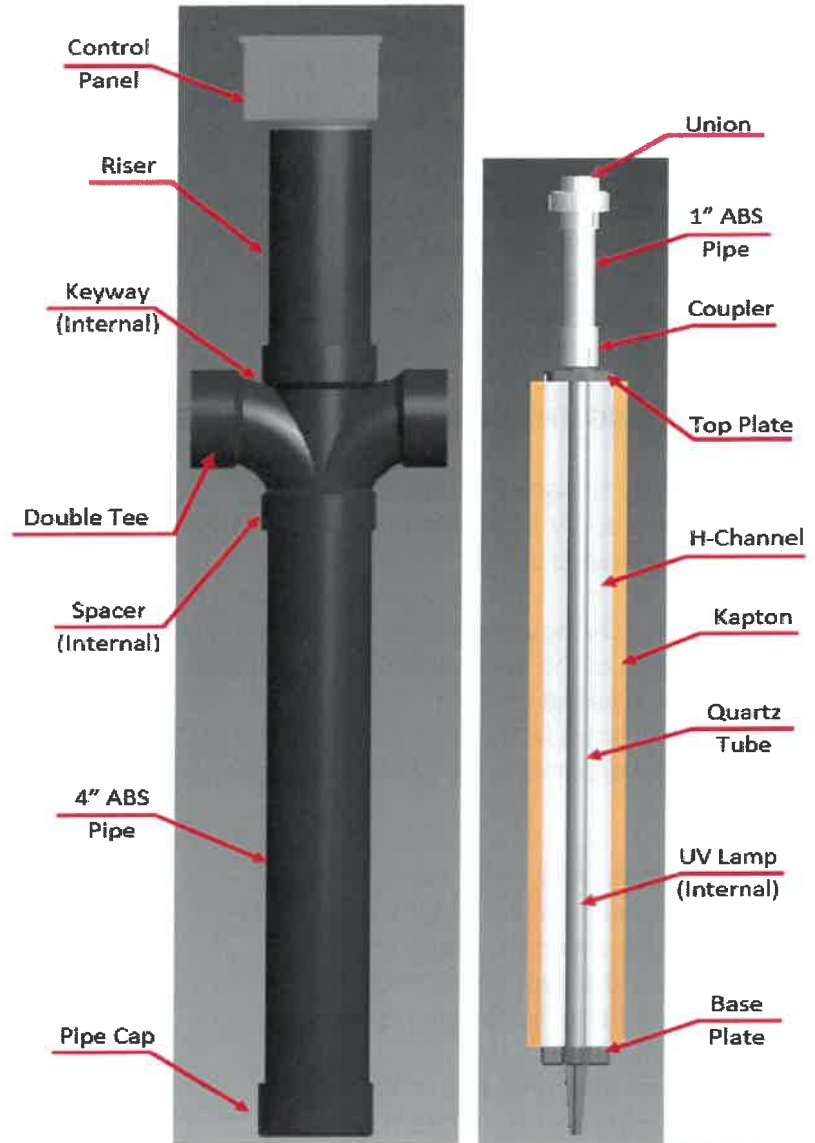
## COMPONENTS

The following components are supplied in the disinfection system:

1. Control Panel
2. 4" ABS riser pipe
3. UV Housing with 4" ABS cap, 4" ABS pipe, 4" double sanitary tee, spacer insert and keyway
4. UV Insert with top and bottom plates, H-Channel risers, quartz tube and lifting handle
5. UV lamp - 37 Watts

The following components should be supplied by the installer:

1. All-Purpose Cement
2. Clear Cleaner for plastics
3. Drill with Universal Bit
4. Clean soft cloth
5. Isopropyl alcohol
6. Small slotted screwdriver
7. Wire strippers
8. Phillips Screwdriver
9. Water tight conduit connectors
10. Conduit and Wiring



**WARNING:** Exposure to UV light is harmful. Immediate or prolonged exposure to UV light can result in painful eye injury, skin burn, premature skin aging, or skin cancer. Do not remove an active UV lamp from the UV housing or attempt to activate lamps which are not installed within the UV housing.





# JET Model 952 UV Disinfection Device Installation Instructions

## INSTALLATION INSTRUCTIONS

### EXCAVATION

1. Excavation should be made as close as possible to the effluent end of the treatment plant.
2. Excavation(s) should be as minimal as possible to reduce settling of backfill.
3. Verify the horizontal hubs of the double sanitary tee are able to line up with the treatment plant outlet and effluent line.
4. The UV disinfection device must be level upon installation.

### CONNECTING THE INLET & OUTLET LINES

1. Carefully unpack the UV disinfection device. Verify all pieces are present and in good condition.

**NOTE:** The UV housing has to be installed so that the flat edge of the keyway is on the inlet side. If this is not installed correctly the treatment plant effluent will not flow through the device correctly and the UV disinfection will not be effective. See Figure 1.

2. Clean the ends of the upstream and downstream piping and the hubs of the UV cross with clear plastic cleaner.
3. Connect the inlet end of the UV housing to the upstream piping using All-Purpose Cement.
4. Connect the outlet end of the UV housing to the downstream piping using All-Purpose Cement.



FIGURE 1

### BACKFILLING AND RISERS

1. Once the UV housing is installed and level, backfill up to the bottom of the inlet and outlet hubs.
2. Fit the 4" ABS riser pipe into the top hub of the UV housing. The recommended riser should not be more than 6" above the final grade. The riser may need to be cut to fit properly.
3. Once the riser pipe has been cut, and both the pipe and hub have been cleaned, glue them together using All-Purpose Cement.

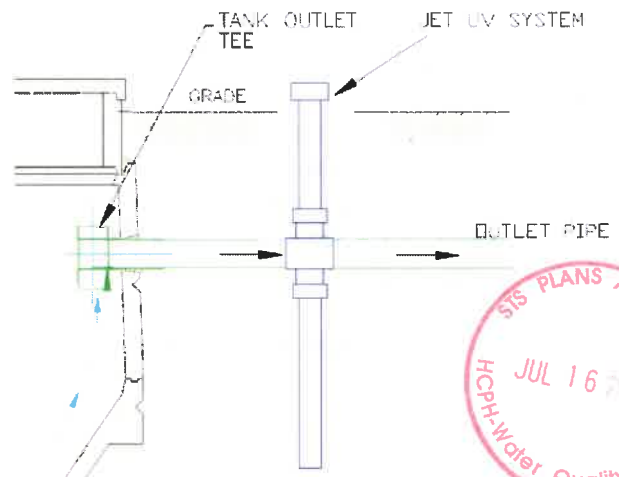


FIGURE 2



# JET Model 952 UV Disinfection Device Installation Instructions

## UV INSERT INSTALLATION

1. Place the 1" Schedule 40 PVC pipe in the coupler of the UV insert to help determine where the 1" pipe should be trimmed so that it is easily reached when in the riser.
2. Remove the 1" Schedule 40 PVC pipe from the coupler and trim it.
3. Glue the single side of the union to one end of the 1" PVC pipe. See figure 3. The opposite end will already be glued to the bushing on the control panel UV lamp wire.
4. Glue the other end of the 1" PVC pipe into the coupler that is on the UV insert.
5. Using a soft clean cloth moistened with isopropyl alcohol wipe off the quartz tube.
6. Gently set the UV insert in the UV housing using the lifting handle. Be sure that the Kapton edges curl into the openings in the keyway shown in Figure 4.

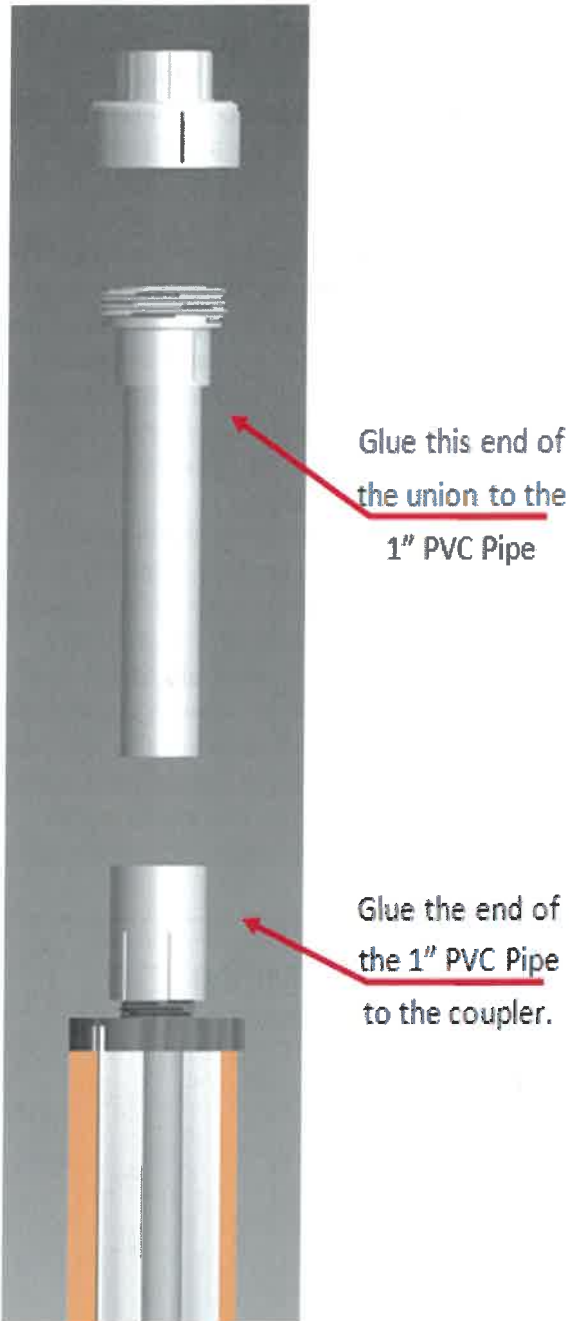


FIGURE 3



FIGURE 4



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# JET Model 952 UV Disinfection Device Installation Instructions

## WIRE THE CONTROL PANEL

1. The UV unit operates on 120 VAC single-phase power. A 15 amp circuit breaker on the main electrical panel should be used for the UV disinfection device. Make sure the breaker is "OFF" before continuing.
2. Install at least a #14 AWG copper wire cable from the specified breaker in the main electrical panel to the UV control panel.
3. The UV control panel is not equipped with knockouts for electrical conduit connections. Drill a properly sized hole in the UV control panel enclosure for the chosen conduit. Ideally the conduit should enter from the bottom of the enclosure to increase protection against water infiltration into the panel.

**NOTE:** Flexible conduit is ideal for UV device

4. Attach all conduit and cable connectors to the control panel. Follow the conduit manufacturer's instructions for proper connection installation.

**NOTE:** ONLY PROPER SIZE WATERTIGHT HUB AND FITTINGS CAN BE USED WHEN ATTACHING CONDUIT AND WIRING TO THE CONTROL PANEL.

Jet recommends using Carlon or T&B liquidtight non metallic conduit and fittings for field installations.

5. Verify all connections are properly installed and watertight.
6. Pull all cables and wiring through the conduit and connectors into the control panel. Allow sufficient wiring to make all connections in the control panel.

7. Use the wiring diagram schematic on the inside of the control panel cover to help wire the panel. The incoming power wires are outlined in green on the wiring diagram. Attach the incoming hot (black) lead to the terminal block corresponding to "L" in the UV control panel. Attach the common (white) lead to the terminal block corresponding to "N" in the control panel. The ground (green) lead is to be attached to the terminal block corresponding to "GND" in the control panel.
  - a. The terminals are spring loaded, insert a small flat head screw driver into the square opening of the terminal and use to lever terminal open (pry away from round opening) while inserting wire into round opening.
  - b. Once wire is seated in round opening release terminal by removing screwdriver from square opening.
8. **OPTIONAL:** The Alarm Relay terminals can be used if desired. Drill a properly sized hole in the UV control panel enclosure for a correctly sized conduit to be used with the auxiliary alarm leads. The conduit should follow the same rules applied to the incoming power wiring. Connect one alarm lead to either the normally open (NO) or normally closed (NC) terminal based on the type of signal required by the alarm panel. Connect the remaining lead to the common (C) terminal.

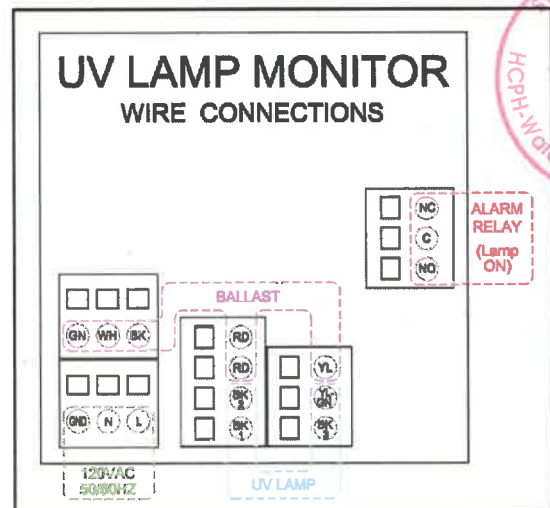


FIGURE 5



# JET Model 952 UV Disinfection Device Installation Instructions



**WARNING:** Exposure to UV light is harmful. Immediate or prolonged exposure to UV light can result in painful eye injury, skin burn, premature skin aging, or skin cancer. Do not remove an active UV lamp from the UV housing or attempt to activate lamps which are not installed within the UV housing.

## UV LAMP INSTALLATION

1. Apply dielectric grease onto the face of the four pin connector of the power cable to protect against moisture and corrosion.
2. You do not want to touch the UV lamp surface with your hands. Use a clean, soft cloth to hold the UV lamp and insert it into. The four pin connector being sure to align the two red prongs on the UV lamp with the two red holes on the four pin connector.
3. Carefully insert the UV lamp into the quartz tube of the UV subassembly.

**NOTE: Both the quartz tube and UV lamp are very fragile. HANDLE WITH CARE.**

4. After verifying the UV lamp is seated properly in the UV insert and the cord is the correct length, tighten the cord grip that is attached to the bushing. This must be done to ensure a watertight enclosure.
5. Verify the union on the lifting handle has been fastened.
6. Fill the UV housing with water up to the outlet piping. Be careful not to get water in the UV insert.
7. Place excess UV lamp cable in the riser.
8. Clean the top of the riser pipe and the ABS fitting on the bottom of the control panel. The control panel fitting should not be glued inside the riser.
9. Align the "Lamp Active" port on the control panel cover with the LED inside the control panel and

secure the cover on the control panel using the four screws provided.

10. Continue to back fill around the disinfection chamber and riser until even with the final grade being no more than 6" below the bottom of the control panel.
11. Turn the UV disinfection device on at the main electrical panel.
12. The "Lamp Active" light should be illuminated to indicate the system is operating.

## SERVICE PROCEDURES

Jet recommends servicing the UV system at a minimum every six months.

1. Inspect condition of UV and note that "Lamp Active" indicator light is active.
  - a. If "Lamp Active" light is not lit and alarms are not working refer to troubleshooting guide
2. Turn off main power from alarm panel (indicator light should now be off.)
3. Remove control panel assembly and UV Insert.
4. Clean quartz tube with soft cloth and alcohol wipe.
5. Inspect UV insert assembly for any damage, water infiltration, or worn components.
6. Re-install UV Insert and control panel assembly.
7. Turn on main power and observe that "Lamp Active" indicator light is lit and system is functioning.
  - a. If "Lamp Active" light is not lit or if alarms activate after service refer to troubleshooting guide pg.
8. Replace the UV lamp every other year. Refer to UV lamp installation section for instructions on replacing lamp.



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## Troubleshooting Guide for Jet Model 952 UV Disinfection Device

Problem	Probable Cause	Solution
Excess Wire Tension On Union	<ul style="list-style-type: none"> <li>Excess wire between cord grip and UV lamp connector</li> </ul>	<ul style="list-style-type: none"> <li>Loosen cord grip and adjust length of wire to match Lamp Insert handle</li> </ul>
Control Panel Not Seating	<ul style="list-style-type: none"> <li>Excess wire not stored in UV housing</li> <li>Lamp Insert handle too long</li> </ul>	<ul style="list-style-type: none"> <li>Reposition wire in UV housing</li> <li>Trim and reconnect Lamp Insert handle</li> </ul>
Lamp Insert Not Seating	<ul style="list-style-type: none"> <li>Check alignment of keyway and top plate</li> <li>Check for debris in UV housing</li> </ul>	<ul style="list-style-type: none"> <li>Re-position top plate</li> <li>Flush debris from UV housing with hose</li> </ul>
Water in Enclosure	<ul style="list-style-type: none"> <li>Enclosure cover not secure</li> <li>Conduit hub not secure</li> </ul>	<ul style="list-style-type: none"> <li>Align and tighten enclosure cover</li> <li>Tighten conduit hub</li> </ul>
"Lamp Active" Light Not Lit	<ul style="list-style-type: none"> <li>No power from main breaker panel</li> <li>No power to UV Lamp</li> <li>The "Lamp Active" bulb has burned out</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring and main breaker panel</li> <li>Check internal wiring to UV Lamp</li> <li>Check internal wiring to UV Lamp</li> <li>Check orientation of control panel cover</li> </ul>
UV Lamp Not Lit	<ul style="list-style-type: none"> <li>Inbound power inactive</li> <li>UV Lamp burned out</li> </ul>	<ul style="list-style-type: none"> <li>Check wiring to UV Lamp</li> <li>Check UV Lamp</li> </ul>
Auxiliary Alarm After Start Up	<ul style="list-style-type: none"> <li>Alarm settings incorrect</li> <li>Alarm condition is active</li> </ul>	<ul style="list-style-type: none"> <li>Check alarm setting jumpers for proper NO/NC</li> <li>Check external devices</li> </ul>





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**SEWAGE TREATMENT SYSTEM (STS) DESIGN FOR:**

**Brian & Elizabeth Lammers**  
**3165 Timberview Drive**  
**Cincinnati, Ohio 45211**  
**Par# 550-0063-0078-00**  
**0.578 Acres**

*Designed By:*  
**SCS ENGINEERS**  
 2060 Reading Road, #200  
 Cincinnati OH 45202  
 513-421-5353  
*Design Date: March 27, 2018*  
*Site Visited on August 9, 2017*

Design Details:

Existing building sewer will be routed to a new Jet J-800-PLT-RAD 800 GPD aerobic treatment unit (ATU) containing a pretreatment chamber, an aeration chamber, a settling chamber, re-aeration and Jet 952 UV disinfection device. Because the system is gravity fed and will not have a pump discharge, an active phone line will be required for telemetry within the control panel.

Design Rationale:

This system design is for an existing 5 bedroom home with a Daily Design Peak Flow of 600 GPD. The peak flow should not be reached on a routine basis. Average flows of 360 GPD can be accommodated routinely with typical residential wastewater strength as specified in Ohio Administrative Code (OAC) 3701-29 for households.

Not enough sufficient available area with acceptable soil quality is the main limiting factor on site. A large portion of the yard has fill within it that appears to have been used to smooth out the grade. The majority of the area consists of shallow soil with a seasonal water table at 16" - 24" and flow restrictive layer of high clay at 34" below the surface. Conditions require an 18" Vertical Separation Distance with 8" In Situ Soil. The owner chose a Jet J-800-PLT ATU for this project.

Owner will obtain a NPDES discharge permit through OEPA (owner currently does not have a permit).

System Installation, Operation And Maintenance (O&M)

All system devices and components must be operated and maintained in accordance with the Ohio Department of Health (ODH) product approval and Hamilton County Public Health Operation Permit Terms and Conditions. System devices and components must be installed per ODH product approval, Hamilton County Installation Manual and this design. Where conflicts exist, consult HCPH or designer for guidance before proceeding.

Jet ODH Product O&M: <http://ow.ly/YUxGX>

Jet 952 UV and O&M: <http://ow.ly/4mHXcl>

Polylok 20" D-Boxes: <http://ow.ly/LhrC308Rhwh>

Hamilton County Installation Manual: <http://ow.ly/YUIW30dOkV6>

This installation will require an electrical inspection(s) and approval by IBI (513) 381-6080, <http://www.inspectionbureau.com/> Means for O&M is provided by the driveway which is within standard distances and elevations for a service truck.

Changes and Use of This Design

This plan is the sole ownership of the designer and may not be altered, changed, used or manipulated without approval of HCPH and SCS Engineers. SCS Engineers is available to make adjustments and address questions about the system design.

It is the responsibility of the contractor to verify that the system can be installed as designed, based on their preliminary lay-out of the job. It is the responsibility the installer and property owner to inform the designer of any field or other conditions that may affect the installation, operation or maintenance of the STS, including site disturbances that may affect the performance of a soil absorption component. If design changes are needed, redesign fees may apply.

System Protection

It is the owner and installation contractors responsibility to locate underground utilities. If utilities interfere with the designed system, construction shall not proceed without approval from HCPH and SCS Engineers.

No clearwater connections (downspouts, pool/spa water, footer tiles, cisterns, etc) shall be connected to this STS.

All system components must meet the horizontal isolation distances specified in OAC 3701-29-06(G)(3).

System Cost Information

The property owner has been informed of system options and briefed on cost factors. According to OAC 3701-29-10(B)(5), designers of STS systems must include approximate installation costs and operational costs of STS options to assist the homeowner in the selection of the STS options.

SCS Engineers estimates costs as follows :

\$15,000 - 24,400 Installation cost\*

\$1,200 annual operational cost\*

\*This is a general estimate of costs for this system. It is not a bid to install or service the STS. Contact a licensed installer and service provider or distributor for actual bids.

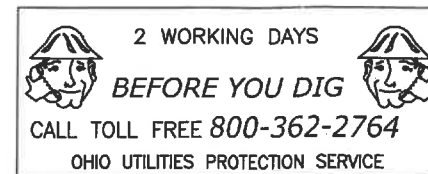
Disclaimer

This plan set is not a site plan to be used for constructing anything other than the Sewage Treatment System. If an accurate legal site plan is required, contact a professional surveyor. This plan offers no guarantee as to the accuracy of information provided. This plan offers no guarantees for site stability. If site stability may be an issue, a geotechnical engineer should be consulted. Plan is only as accurate as the information provided by the property owner to the designer. Easements, right-of-ways, hidden objects or information not communicated to the designer invalidates the design. It is the property owner's responsibility to review this plan and information provided to verify all site conditions and design assumptions are correct. If conflicts are found or additional information must be supplied, the owner shall contact the designer and installation shall not proceed until the approval is granted. This design shall in no way be taken as guarantee that the system will function in a satisfactory manner for any given period of time, or that SCS Engineers or any of its agents or employees assume any liability for damages, consequential or direct, which are caused, or which may be caused by a malfunction of the STS.



3165-A

REV.	DATE	DESCRIPTION	CK. BY
△			
△			
△			



**SCS ENGINEERS**  
 CONSULTING ENGINEERS, INC.  
 2060 READING ROAD SUITE 200 CINCINNATI, OHIO 45202  
 PH. (513) 421-5353

PROJ. NO. 27217008.35	CADD FILE: Lammers Septic V1	DATE: March 2018	SCALE: N.T.S.
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SHEET 1

GENERAL NOTES AND DESIGN BASIS

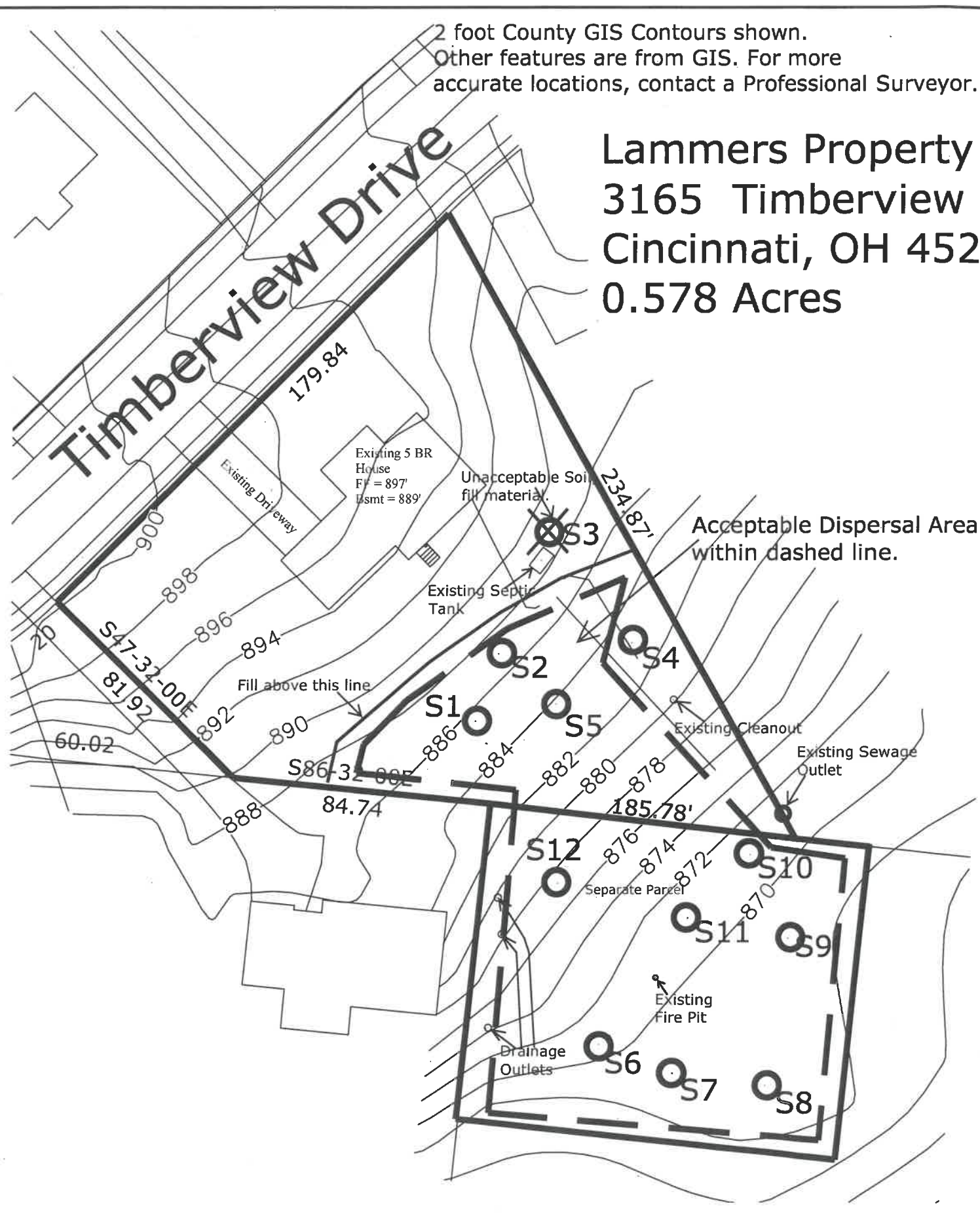
3165 TIMBERVIEW DRIVE - LAMMERS RESIDENCE  
 PARCEL NUMBER: Par# 550-0063-0078-00  
 HAMILTON COUNTY OHIO - 0.578 ACRES

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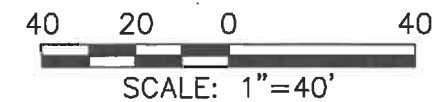
2 foot County GIS Contours shown.  
Other features are from GIS. For more  
accurate locations, contact a Professional Surveyor.

# Lammers Property

3165 Timberview Dr.  
Cincinnati, OH 45211  
0.578 Acres



○ SOIL SAMPLING LOCATIONS

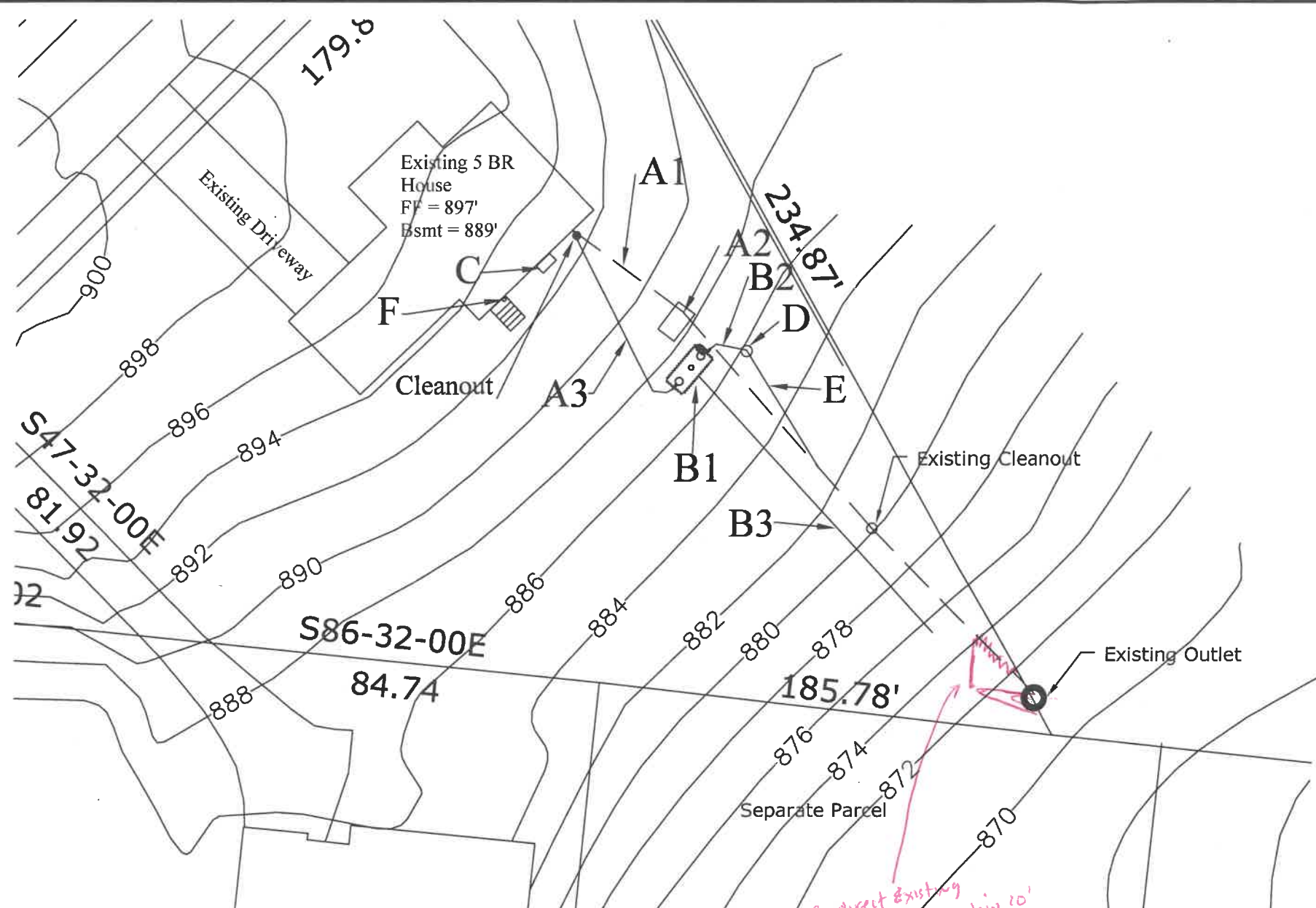


3165-A

<b>SCS ENGINEERS</b> CONSULTING ENGINEERS, INC. 2060 READING ROAD SUITE 200 CINCINNATI, OHIO 45202 PH. (513) 421-5353				SHEET 2 <b>SOIL LOCATIONS AND REPLACEMENT AREA</b> 3165 TIMBERVIEW DRIVE - LAMMERS RESIDENCE PARCEL NUMBER: Par# 550-0063-0078-00 HAMILTON COUNTY OHIO - 0.578 ACRES	
PROJ. NO. 27217008.35	CADD FILE: Lammers Septic V1	DATE: March 2018	SCALE: AS SHOWN		



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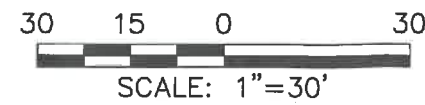


*Re-direct existing discharge to maintain 10' from neighboring properties. develop swale if needed. to existing drainage way*



- A1 - Existing building sewer.
- A2 - Existing septic tank. Tank is to be disconnected and abandoned per OAC 3701-29-21, and HCPH permitting and reporting requirements.
- A3 - New 4 inch Schedule 40 PVC Sewer pipe with minimum 1% grade. Cleanout to be installed at point where plumbing exits the foundation. No pipe elbows greater than 45° will be used in Building Sewer or other gravity sewer lines.
- B1 - Jet J-800-PLT-RAD ATU with re-aeration and Jet 952 UV disinfection device (See Sheet 4 for detail).
- B2 - 4 inch Sch 40 PVC pipe with minimum 1% grade. Gravity flow from ATU (B1) to sample well (D).
- B3 - Tank Cavity Drain (See Sheet 4 for detail)
- C - Jet Model 197 control panel with Jet Model 197D autodialer/telemetry control panel. Panel shall be preceded by an electrical disconnect switch. Control panel and disconnect to be installed by a licensed electrician. Permanent phone line will be required for telemetry panel.
- D - Sample well, see detail on Sheet 4.
- E - 4 inch Schedule 40 PVC discharge pipe. Tie into existing 4" SCH40 PVC discharge pipe before existing cleanout. *Maintain 10' from neighboring property line.*
- F - Existing floor drain to be field inspected. Floor drain cannot be connected to new septic system piping and must drain separately from septic system.

**NOTE:**  
ALL PIPE SHALL BE SCHEDULE 40 PVC MEETING ASTM D1785



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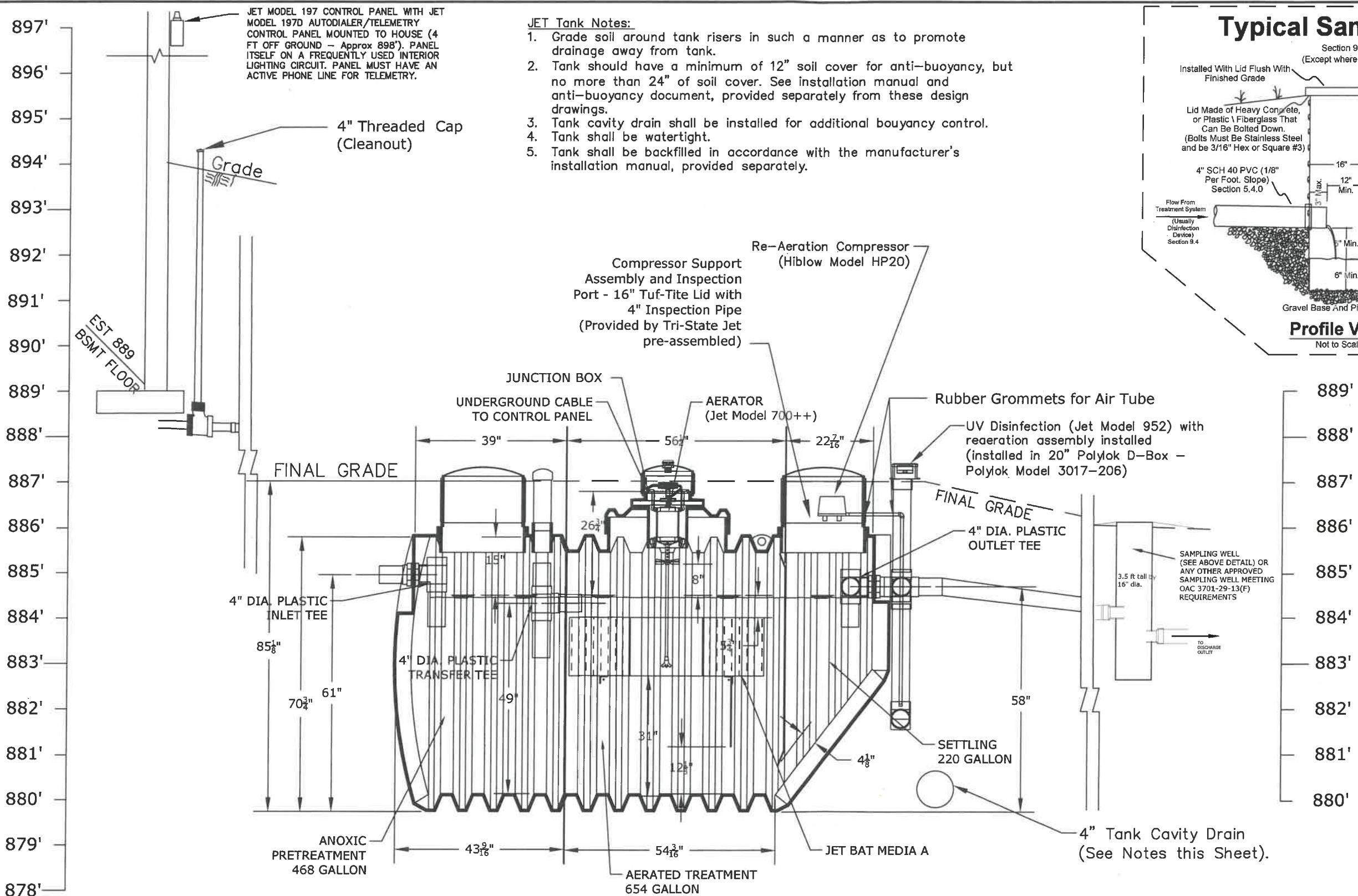
SHEET 3

**SEPTIC SYSTEM LAYOUT AND COMPONENTS**

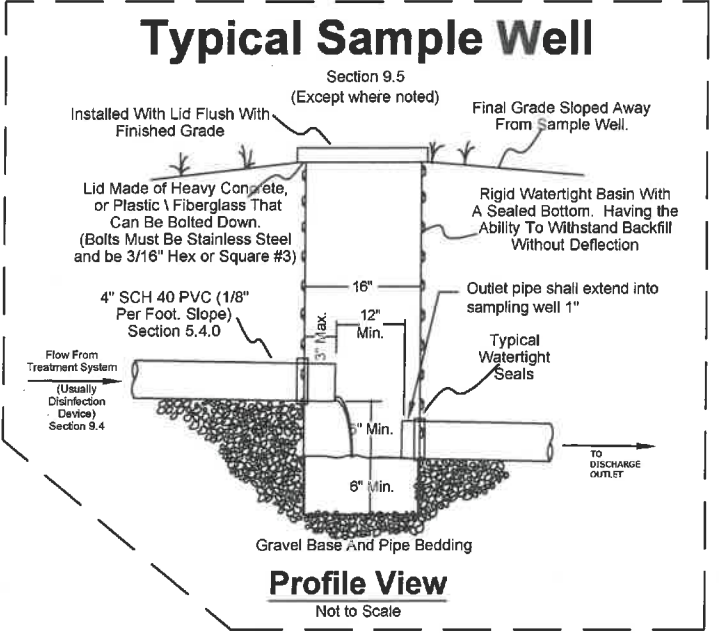
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- JET Tank Notes:**
1. Grade soil around tank risers in such a manner as to promote drainage away from tank.
  2. Tank should have a minimum of 12" soil cover for anti-buoyancy, but no more than 24" of soil cover. See installation manual and anti-buoyancy document, provided separately from these design drawings.
  3. Tank cavity drain shall be installed for additional buoyancy control.
  4. Tank shall be watertight.
  5. Tank shall be backfilled in accordance with the manufacturer's installation manual, provided separately.



- Tank Cavity Drain Notes:**
1. Pipe within tank excavation cavity shall be perforated SDR35 PVC with cap wrapped in 2 layers of geotextile fabric or 4" slotted corrugated PE pipe. Once it leaves the excavation cavity, it should transition to solid wall SDR35 PVC. The last 10 feet of pipe shall be solid wall SCH40 PVC pipe with animal guard.
  2. Tank cavity drain pipe shall slope minimum 1/8" per foot until daylight.



3K65-A

**Jet J-800-PLT-RAD with UV and Re-Aeration**

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SHEET 4

**SEPTIC SYSTEM LAYOUT AND COMPONENTS**

3165 TIMBERVIEW DRIVE - LAMMERS RESIDENCE  
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ALL SECTION NOTATIONS REFERENCE THE HAMILTON COUNTY INSTALLER'S MANUAL