

SPECIFICATIONS

FOR

Greenhouse Utilities Connection
Lake Land College District Number 517
Mattoon, Illinois 61938

PROJECT NO. 2022-009

Bid Date: April 6, 2022

Community College District Number 517
Mattoon, Illinois

SECTION 00010

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ADVERTISEMENT FOR BIDS

Bids: April 6, 2022
LAKE LAND COLLEGE DISTRICT #517
MATTOON, ILLINOIS
Project No. 2022-009

The Lake Land College District Number 517 Board of Trustees will receive sealed bids for Greenhouse Utilities Connection located within the Joliet Treatment Center, Joliet, IL.

Bids will be received until 1:00 PM Central Standard Time on Wednesday, April 6, 2022 in the office of the Vice President for Business Services, in the Board and Administration Center on the campus of Lake Land College, 5001 Lake Land Boulevard, Mattoon, IL. Bids received after this time will not be accepted. Bids will be opened and publicly read immediately after the specified closing time. All interested parties are invited to attend. Obtain bidding documents/requirements at the office of the Vice President for Business Services, phone (217) 234-5224, gnuxoll1@lakelandcollege.edu.

The Board of Trustees reserves the right to waive irregularities and reject all bids or parts of bids.

Successful Bidders shall have the sole responsibility of complying with all aspects of existing Prevailing Wage Policies.

Lake Land College actively promotes continuing economic development in compliance with the Business Enterprise for Minorities, Females, and Persons with Disabilities Act (30 ILCS 575) . Successful Prospective Vendors shall have the sole responsibility of complying with all aspects.

Mike Sullivan
Chairperson - Lake Land College Board of Trustees

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INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.01 DEFINITIONS

- A. Lake Land College Board of Trustees will be hereafter referred to in this Specification as "Owners" and all correspondence shall be addressed to: Vice President for Business Services, Lake Land College, 5001 Lake Land Blvd., Mattoon, IL 61938.
- B. A Bidder is a person or entity who submits a Bid to the Owner.
- C. Bidding Documents include the Advertisement for Bid, Instructions to Bidders, Bid Forms and supplements, and Addenda.
- D. Contract Documents include any Contract forms, Specifications, Drawings, Addenda, and modifications.
- E. An Agreement is a written agreement between the Owner and Contractor setting forth the obligations of the parties thereunder, including but not limited to the provision of the specified goods and materials, the basis of payment and the contract time.
- F. A Bid is a complete and properly signed proposal to provide the goods and services for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- G. The Base Bid is the sum stated in the Bid for which the Bidder offers to provide the goods and services described in the Bidding Documents as the base, to which items may be added or from which items may be deleted for sums stated in Alternate Bids.
- H. An Alternate Bid is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding changes in the items, as described in the Bidding Documents, are executed.
- I. A Unit Price is an amount stated in the Bid as a price per unit of measurement for goods or services as described in the Bidding Documents or in the proposed Contract Documents.

1.02 DOCUMENTS

- A. Copies of the Bidding Documents may be obtained at the Office of the Vice President for Business Services, 5001 Lake Land Boulevard, Mattoon, Illinois 61938, (217) 234-5224, gnuxoll1@lakelandcollege.edu.

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1.03 EXAMINATION OF DOCUMENTS

- A. Bidders shall examine all documents. Failure to do so will not relieve a successful bidder of his obligation to provide all labor and materials necessary to carry out the provision of his contract for the sum stated thereon.
- B. Each Bidder, by submitting his bid represents that he has read and understands the bidding documents.

1.04 EXAMINATION OF PREMISES

- A. Before submitting proposals for this work, each bidder will be held to have examined the premises and satisfied himself as to the conditions existing and under which he will be obliged to operate, or that will in any manner, affect the work of this contract.
- B. No allowance will be made subsequently in this connection in behalf of the contractor for any error or negligence on his part. The contractor agrees to accept the existing conditions as found at the time of signing of contract.

1.05 VISITING THE SITE

- A. Each bidder may visit the site and examine it as stipulated above. Special arrangements are required to make this visit.

1.06 AREAS, QUANTITIES AND MEASUREMENTS

- A. The contractor shall be responsible for all areas, quantities, and measurements related to the work to be performed under this contract. No extra charge or compensation shall be allowed the contractor for any error or negligence on his part. The contractor shall visit the job site and acquaint himself with all conditions concerning this work.

1.07 INTERPRETATIONS DURING BIDDING

- A. If any Bidder is in doubt as to the meaning of any part of the Bidding Documents, they may submit a written request to: Vice President for Business Services, 5001 Lake Land Boulevard, Mattoon, Illinois 61938; for an interpretation of that part.
- B. Written requests for interpretations or clarifications must be made no later than three (3) working days prior to the Bid Date specified in the Advertisement for Bids.
- C. Any interpretation or change will be made only by Addenda numbered, dated, and issued by the Owner to each Bidder on record as having received a set of Bidding Documents and will be available for inspection wherever the

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Bidding Documents are kept available for that purpose. Lake Land College will not be responsible for any other explanations or interpretations of the Bidding Documents.

1.08 SUBSTITUTION OF PRODUCTS

- A. Manufacturer's trade names are used in specifications for the express purpose of establishing a standard of quality and coordination of design, not for the purpose of limiting competition.
- B. All sizes of equipment must be as specified, and all pieces of equipment must include or have those features which are set forth in the specifications.
- C. No substitution will be considered unless a written request has been submitted with their bid.
- D. Bidders proposing substitutions in writing must submit detailed specifications with catalog cuts or manufacturer's literature, pictorially portraying that on which they are bidding for comparison to specified items by the Owner.
- E. Any additional explanation or statement which the Bidder wishes to make must be placed in the same envelope and attached to the proposal. Unless the Bidder so indicates, it is understood that the Bidder has bid in strict accordance with the specifications and drawings and has made no substitutions, modifications or additional stipulations.
- F. Bids shall not contain any recapitulation of the work to be done and no oral, telephone, facsimile or email proposals or modifications will be considered.

1.09 QUALIFICATION OF BIDDERS

- A. Bidders may be disqualified and their Bids not considered for any of the following specific reasons:
 - 1. Reason to believe collusion exists among Bidders.
 - 2. The Bidder being interested in any litigation against the Owner.
 - 3. The Bidder being in arrears on any existing contract or having defaulted on a previous contract.
 - 4. Lack of competency as revealed by the financial statement, experience, and equipment, questionnaires, or qualification statement.
 - 5. Uncompleted work, which in the judgment of the Owner will prevent or hinder the prompt completion of additional work if awarded.

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- B. If requested, a Bidder shall submit to the Owner a confidential Financial Statement in a sealed envelope.

1.10 PREPARATION OF BID:

- A. All bids must be submitted on the bid form contained herein. Oral, telephone, facsimile, electronic mail, or telegraph bids will not be accepted.
- B. The Bidder shall base the bid on materials complying with the Bidding Documents, and shall list all information where the bid form requires.
- C. The blank spaces in the bid form shall be filled in correctly with ink or typewritten. A bid form containing an alteration or erasure of any price contained in the bid which is used in determining the lowest responsible bid shall be rejected unless the alteration or erasure is corrected as herein provided:
 - 1. An alteration or erasure must be crossed out and the correction printed in ink or typewritten adjacent to the alteration or erasure.
 - 2. The person signing the bid must initial the correction in ink.
 - 3. In the event that any price used in determining the lowest responsible bid is expressed by the Bidder in both written and numerical form, the written representation shall govern in all cases.
- D. If the bid form includes alternates, each Bidder shall bid on each alternate. Failure to comply may be cause for rejection.
- E. If an individual submits Bid, he or his duly authorized agent must sign his name. If a firm, association or partnership submits the Bid, the name, address and title of each member must be given, and an official or duly authorized agent must sign the Bid. Powers of attorney authorizing agents or others to sign Bids must be properly certified and must be in writing and submitted with the Bid.
- F. Bids from individuals or partnerships, if signed by an attorney-in-fact, shall have attached to the bid the power of attorney, evidencing the authority to sign the bid. If the bid is signed by any other legal entity, the authority of the person signing shall be attached to the bid.
- G. A W-9 Form is required with each bid submittal.

1.11 EXEMPTION FROM SALES TAX ON MATERIALS

- A. The Owner is exempted by Section Three of the Illinois Use Tax Act (Sec 3, House Bill 1610 approved July 31, 1961. IL. Rev. Stat. 1961, Chap. 120 Sec 439.3) from paying any of the taxes imposed by that act and sales to the Owner

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are exempt by Section Two of the Illinois Retailer's Occupation Tax Act (Section 2, House Bill 1609, Approved July 31, 1961 IL. Rev. Stat. 1961, Chap. 120 Sec. 441) from any of the taxes imposed by that Act.

1.12 IDENTIFICATION AND SUBMITTAL OF BID

- A. Each bid and all papers bound and attached to it shall be placed in an envelope and securely sealed therein. The envelope shall be plainly marked with the following:
 - 1. The word "BID"
 - 2. Name and address of the Bidder.
- B. The envelope of the bid shall be addressed to:

Vice President for Business Services
Lake Land College
Greenhouse Utilities Connection Project #2022-009
5001 Lake Land Boulevard
Mattoon, Illinois, 61938
- C. Bids shall be delivered before the time set for the opening of the bids. Bids arriving by mail or otherwise after the time designated for the opening of bids will be returned unopened. Oral, telephone, facsimile, electronic mail, or telegraph bids shall not be accepted.

1.13 MODIFICATION OR WITHDRAWAL OF BID

- A. A bid may not be modified after submittal. Bidders may withdraw a bid at any time before opening. A Withdrawal of a Bid must be made in writing or in person by a bidder or his duly authorized agent. If a firm, association or partnership wishes to withdraw a bid, an official or duly authorized agent must sign the written request or appear in person.
- B. Once withdrawn, the bidder must submit a new bid prior to the opening in order to be considered.
- C. No Bid may be withdrawn or modified after the Bid opening except where the award of the Contract has been delayed beyond 60 days after date of Bid.

1.14 OPENING OF BIDS

- A. The Bids submitted will be opened at the time and place stated in the Advertisement for Bids and publicly read aloud and thereafter shall remain on file with the Owner.

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- B. After Bids are opened, the Bids will be tabulated for comparison on the basis of the Bid prices and quantities shown on the Bids.
- C. The Owner reserves the right to withhold the award of the Contract for a period of 60 days from the date of the opening of Bids and no award will be made until the Owner is satisfied as to the responsibilities of the low Bidders.
- D. Until final award of the Contract, the Owner reserves the right to reject any or all Bids or proceed to do the work otherwise in the best interest of the Owner.

1.15 EVALUATION AND CONSIDERATION OF BIDS

- A. The Owner reserves the right to reject all bids or parts of bids, and to waive informalities therein.
- B. For the purpose of determining the lowest responsible bidder in the consideration of all bids submitted, the Owner reserves the right to accept or reject any or all alternates in the numerical order in which they appear on the bid form.

1.16 DISQUALIFICATION OF BIDDERS

- A. Bids will not be considered if they show any omissions, additions, alterations of form, conditions not requested unauthorized alternate Bids or irregularities of any kind. However, the Owner reserves the right to waive any irregularities and to make the award in the best interest of the Owner.
- B. The Bidder acknowledges the right of the Owner to reject any or all Bids and to waive any informality or irregularity in any Bid received. In addition, the Bidder recognizes the right of the Owner to reject a Bid if the Bidder fails to submit the data required by the Bidding Documents.
- C. For the purpose of determining the lowest responsible bidder in the consideration of all bids submitted, the Owner reserves the right to accept or reject any or all alternates in the numerical order in which they appear on the bid form.

1.17 APPLICABLE LAWS

- A. All applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the Work shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.
- B. Bidder's signatures shall be construed as acceptance of and willingness to comply with all provisions of the acts of the General Assembly of the State of Illinois relating to the Department of Human Rights Act, previously the Illinois

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Fair Employment Practices Act, Prevailing Wage Act for workers in our area, preference to citizens of the United States and residents of the State of Illinois, and discrimination and intimidation of employees. Provisions of said acts are hereby incorporated by reference and become a part of this proposal and specification.

1.18 EXECUTION OF THE AGREEMENT

- A. The successful Bidder, if awarded the Project, shall sign the necessary Agreements with the Owner and furnish Payment and Performance Bonds and Certificates of Insurance, if required elsewhere in this document, but no such Agreement shall be in force and effect until it is executed by all parties, and the Payment and Performance Bonds and Certificates of Insurance have been approved.
- B. Failure to execute and return the Agreement within ten (10) calendar days may result in the rescinding of the Contract award.

1.19 RECORDS:

- A. The Contractor shall maintain, for a minimum of 5 years after the completion of the contract, adequate books, records and supporting documents to verify the amounts, recipients, and uses of all disbursements of funds passing in conjunction with the contract; the contract and all books, records and supporting documents related to the Contract shall be available for review and audit, and the Contractor agrees to cooperate fully with any audit conducted and to provide full access to all relevant materials.

END OF SECTION

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BID FORM

PROJECT

IDENTIFICATION: Greenhouse Utilities Connection, Project # 2022-009
BID TO: Board of Trustees
C/O Vice President for Business Services
Lake Land College District Number #517
5001 Lake Land Boulevard
Mattoon, Illinois, 61938

BID FROM:

The undersigned Bidder agrees, if this Bid is accepted, to enter into an Agreement with the Owner, in the form included in the Bidding Documents, to perform and furnish all materials, labor and equipment as specified or indicated in the Bidding Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the terms and conditions of the Contract Documents.

In submitting this Bid, Bidder represents that:

- A. This Bid will remain subject to acceptance for 60 days after the day of the bid opening.
B. The Owner has the right to reject this bid.
C. Bidder will sign and submit the Agreement with the Bonds and other documents as required by the Bidding requirements within 15 days after the Owner's Notice of Award. A W-9 Form is required.
D. Bidder has copies of all the Bidding Documents.
E. Bidder is familiar with federal, state and local laws and regulations.
F. Bidder has correlated the information known to Bidder with the Bidding Documents.
G. This Bid is genuine and not made in the interest of or on the behalf of an undisclosed person, firm or corporation and is not submitted in conformity with an agreement or rules of a group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited another Bidder to submit a false or sham Bid; Bidder has not solicited or induced a person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself an advantage over another Bidder or over the Owner.
H. Bidder has received the following addenda receipt of which is hereby acknowledged.

Date _____ Number _____

Bidder will provide all materials, labor and equipment as specified in accordance with the Contract Documents for the following price(s):

STIPULATED-SUM BID PRICE
(Greenhouse Utilities Connection) _____ Dollars (\$) _____
(use words) (figures)

Bidder agrees to provide all materials, labor and equipment, as specified.

SUBMITTED on _____, 2022

Company _____, (Seal)

Address _____

Signed _____

(Printed Name)

Phone _____

Fax _____

Email _____

END OF SECTION

SECTION 00600

BONDS & CERTIFICATES

PART 1 GENERAL

1.01 BID DEPOSIT AND CONTRACT SECURITY

- A. No bid security will be required for this project.

1.02 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

- A. Performance Bond required for bids over \$50,000.
- B. Contractors shall be required to furnish, in duplicate, a Performance Bond and a Labor and Material Payment Bond in strict conformance to, and submitted on A.I.A. Document A-312 equal to the full amount of their Contract covering the faithful performance of the Contract and the payment of all obligations arising thereunder in such form as the Owner may prescribe and with such sureties as he may approve.
- C. The Contractor's Bonding Agency shall carry either a Rating of "A-VIII" on the AM Best Rating System or be able to show Comparable Financial Status and Bonding Volume. Acceptance of Bonding Agency qualification shall be approved by the Owner.
- D. NOTE: This Performance Bond, and Labor and Material Payment Bond, shall be furnished and in effect before any work is started under this Contract.
- E. The life of the Bond and guarantee shall extend twelve (12) months beyond the day on which final payment under the Contract falls due, or the date of which the Owner accepts the work as completed whichever comes first. If final acceptance is by mutual agreement, a proper date shall be determined.
- F. If before the expiration of the twelve (12) month guarantee period, a Contractor has been notified by the Owner regarding any work to be completed or corrected, any unpaid bills presented to the Owner, or any other unfinished business, the expiration of the twelve (12) month period does not relieve the Contractor or his bondsmen of the proper execution of such items.
- G. The Contractor or his bondsmen shall pay any lien or court costs and attorney's fee of the Owner, and cost that any creditor may incur in the forced collection of any just claim, and interest from date of filing lien until payment is made.
- H. In the event the Contractors should default and it becomes necessary for the sureties to complete the Contract, the Owner reserves the right to approve all Contractors and Subcontracts obtained by the sureties.

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- I. The General Conditions of this Contract shall govern all issued, and any provisions of the bonds in conflict with these general conditions shall be waived.

1.03 FAILURE TO FURNISH PERFORMANCE BOND

- A. Should the successful Bidder fail or refuse to sign a formal written Contract with the Owner, or fail or refuse to furnish a Performance Bond satisfactory to the Owner and the Director within ten (10) days after written notification of the acceptance of the proposal by the Owner, the Bidder will be considered to have abandoned the proposal. In such event the Owner shall retain all proceeds of the Bid Security (Bid Bond or Certified Check) in order to secure a "Successful Bidder". The term "Successful Bidder" shall be deemed to include any bidder whose proposal is accepted by the Owner.

1.04 COMPENSATION AND PUBLIC LIABILITY INSURANCE

- A. Principal Contractors shall carry sufficient insurance on their workmen to absolutely protect the Owner from any liability or damage resulting to the workmen as provided under the "Workmen's Compensation Act", and "Structural Works Act".
- B. The Principal Contractors and all Subcontractors performing services on said site shall take out and furnish to the Owner, and maintain during the life of this Agreement, complete Owner's Protective Liability Insurance in the amounts as specified herein for bodily injury, property damage, liability, or damage resulting to the Workmen as provided under the Workmen's Compensation and Structural Works Act of the State of Illinois as shall protect the Owner, Principal Contractor, and any Subcontractor performing work covered by this Agreement from claims for damages of personal injury including accidental death, as well as, from claims for property damage which may arise from operations under this Agreement, whether such operations be by the Principal Contractors or by any Subcontractors or by anyone, directly or indirectly employed by either of them, and the amounts of such insurance shall not be less than:
 1. Comprehensive Automobile Liability:
 - a) \$1,000,000 Bodily Injury per person.
 - b) \$1,000,000 Bodily Injury per occurrence.
 - c) \$ 500,000 Property Damage per occurrence.
 - d) \$1,000,000 Combined Single Limit coverage for bodily injury and property damage per occurrence in the same aggregate limit will be accepted in lieu of the separate limits specified above.
 2. Workman's Compensation: Statutory Limits
 - a) Employer's Liability: \$500,000 Bodily Injury per person.

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- b) The Contractor may use a Self-Insured plan for Workman's Compensation Insurance if the plan is approved by the State of Illinois. For approval, the Contractor shall obtain a Certificate from the Illinois Industrial Commission, Office of Self-Insurance Administration, Springfield office.

3. Comprehensive general Liability:

- a) \$1,000,000 Bodily Injury per person.
- b) \$2,000,000 Product and Completed Operations Aggregate
- c) \$1,000,000 Bodily Injury aggregate limit.
- d) \$1,000,000 Property Damage per occurrence.
- e) \$2,000,000 Property Damage aggregate limit.
- f) \$1,000,000 Combined Single Limit coverage for bodily injury and property damage per occurrence in the same aggregate limit will be accepted in lieu of the separate limits specified above.

4. Umbrella

- a) \$1,000,000 Umbrella

- B. The above Comprehensive General Liability Insurance shall be specifically endorsed to cover the terms of Liability Insurance for the Owner as set forth hereinafter.
- C. The Contractor shall cause Certificates of Insurance to be deposited with the Owner.

1.05 LIABILITY INSURANCE FOR OWNER

- A. The Contractor shall purchase and maintain public liability insurance naming the Owner and his agents and employees as insured with respect to any claim that may be made against the Owner or his agents and employees arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense shall be covered by such insurance only if (a) it is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and (b) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable regardless of whether or not the claimant contends that the Owner or his agents or employees are in part negligent or otherwise legally culpable with regard to the loss.

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- B. Such insurance shall provide a defense for the Owner and his agents and employers, including the cost of defense counsel and other expenses of litigation.
- C. Principal Contractors shall carry the insurance of their Subcontractors or shall require their Subcontractors to carry their own insurance in the amounts stated above.
- D. This insurance shall cover all Agreements and any extra work connected with the construction of this Project.
- E. Contractors shall instruct their Insurance Companies to supply the Owner with Certificates of Insurance showing that such insurance is kept in force until completion of the Agreement. These Certificates of Insurance shall be provided before Contractors start any work under this Agreement.

1.06 BUILDERS RISK INSURANCE (Owner)

- A. Immediately after the signing of construction contracts or at such time as construction materials become situated upon the construction site or sites, the Owner will effect and maintain upon the entire structure on which work of this Contract is to be done, and upon all materials, on or adjacent thereto, intended for use thereon, to 100 percent of the insurable value thereof, an All-Risk Coverage Insurance Policy.
- B. This insurance will not cover Contractor's equipment, tools, or storage sheds and temporary buildings.
- C. Any loss is to be made adjustable with and payable to, the Owner, Contractors, Subcontractors, and Material Dealers as their interests may appear at the time of loss.
- D. The Owner, Contractor, and all Subcontractors waive all rights of action, each against the others, for damages caused by fire or other perils covered by insurance provided for under the terms of this Contract, except such rights as they may have to the proceeds of insurance held by the Owner as trustee.

END OF SECTION

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SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.01 DEFINITIONS

- A. Where the term "Owner" is used throughout these specifications same shall mean the Lake Land College Board of Trustees or the Lake Land College Vice President for Business Services as their agent.
- B. Where the term "Director" is used, it shall refer to the Joliet Treatment Site Director.
- C. Where the term "Contractor", "Prime Contractor", or "Principal Contractor" is used, it refers to anyone having a Principal Contract with the Owner.
- D. Where the term "Subcontractor" is used, it refers to anyone having a Contract for labor or material with any of the Principal or Prime Contractor on the job.

1.02 THEFT, ETC.

- A. The Contractors shall be responsible for any damage or loss resulting to the work, materials, or tools due to theft, or in any manner not covered by the insurance called for elsewhere in these Specifications. Payments on account of Contract do not relieve Contractors of this obligation. Contractors may carry Theft Insurance at their own option.

1.03 SOCIAL SECURITY, UNEMPLOYMENT INSURANCE

- A. The Contractors shall keep records and pay, all social security, withholding tax, unemployment insurance, and other taxes imposed by the various governmental authorities and laws.

1.04 MATERIAL AND WORKMANSHIP

- A. The owner or his agent shall have full power to reject any material or workmanship which, in their opinion, do not conform with these specifications or drawings, and cause same to be immediately removed and reconstructed without additional cost to the Owner

1.05 PERMITS

- A. The Owner will obtain and pay for all permits required by Local Law, except as indicated otherwise in these specifications.

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1.06 CLEANING OF GROUNDS AND BUILDINGS

- A. At the completion of the project and before final acceptance by the Owner, the area shall be cleared of all rubbish, materials, and debris which accumulate during the process of work under this Contract. See section 01110 – Summary of Work, of these Specifications.

1.07 SUBCONTRACTORS

- A. The Principal Contractors shall be responsible for any and all Subcontractors working under them, and shall carry insurance for them or see that they are carrying it themselves so as to relieve the Owner of any and all liability.
- B. Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the Owner.
- C. The Owner assumes no responsibility for the overlapping or omission of parts of the work by various Subcontractors in their Contracts with the Principal Contractors.

1.08 PATCHING

- A. The expense of any undue alterations, cutting, patching, or repairing of damage due to carelessness or neglect caused by any trade shall be borne by the Contractor for that trade. The work shall be done by the workmen of the Contractor whose work was damaged so that such patching will be least conspicuous.

1.09 OTHER WORK NOT IN CONTRACT

- A. The Owner reserves the right to let separate Contracts for other work in connection with this project, but agrees that such work shall not interfere with the work of the Contracts previously made.

1.10 EXTRAS AND CHANGES

- A. Should any extra work or changes be required during the work, the Owner and Contractor shall agree upon the price for such extra work or changes and the Owner shall issue a change order to the Contractor for such work as agreed upon. Payment shall be made under same conditions as for original Contract.
- B. No payment shall be made for extra work or materials unless a formal written change order is issued by the Owner.

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1.11 CORRECTION OF WORK AFTER FINAL PAYMENT

- A. Neither the final Certificate, nor payment, nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship discovered to be not as specified or shown on the Drawings.
- B. The Contractor shall remedy any defects due thereto, and pay for, any damages to other work resulting therefrom, which shall appear within a period of one year from the date of acceptance.
- C. The Owner shall give notice of observed defects with reasonable promptness. The Owner shall judge the defects as to maintenance, workmanship, or material defects.
- D. All questions arising under this article shall be decided by the Owner subject to arbitration.

1.12 LOCAL LABOR

- A. It is the desire of the Owner that the Contractors make use of all local labor, material, insurance, etc., if possible, as long as it does not work a hardship on the Contractors.

1.13 PRECEDENCE OF DOCUMENTS

- A. The Contract Documents shall be given precedence in the following order, provided they are in existence at the time of the closing of the Contracts:
 - 1. Agreement
 - 2. General Conditions of the Contract
 - 3. Any Valid Building Code
 - 4. Specifications
 - 5. Full Sized Detail Drawings
 - 6. Large Scale Drawings
 - 7. General Drawings

1.14 PROTECTION OF GENERAL PUBLIC

- A. All Contractors shall provide protection of the general public at all times, providing protection devices as prescribed by laws having jurisdiction.

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- B. The Contractor will, at all times, take all reasonable precautions for the safety of employees on the project, and of the public and all other persons who may be affected, and will comply with all applicable provisions of Federal, State, and Municipal Safety Laws and Building and Construction Codes.
- C. If applicable, Bidder shall provide a list of all toxic substances proposed for use in service at the institution. Before any service, the Material Safety Data sheets shall be supplied for all listed toxic substances. This will keep the institution in compliance with the Illinois Toxic Substance Disclosure to Employees Act which states, "Employees must obtain a Material Safety Data Sheet for each toxic substance used, produced, or stored in the work place to which employees may be exposed."
- D. While on Institutional grounds, all unattended vehicles must be locked at all times and at no time shall any vehicle be left unattended with the motor running or the key in the ignition.
- E. All security rules at the Joliet Treatment Center will apply to employees of Bidder including vehicles, machinery and hand tools. An Outside Contractor Booklet will be issued for all on-site Bidder employees to review and acknowledge receipt of prior to the start of the project.
- F. Bidders/Vendors shall submit names; dates of birth and Social Security Numbers of all on-site employees that will perform on-site services for security background checks. Bidder or Bidder's/Vendor's employees must pass a security background check prior to being allowed on the premises.
- G. All applicants for positions covered under this contract may be required to provide a urine sample as part of their background investigation. In addition, all Bidder Personnel who perform on-site services may be required to undergo a Urinalysis or Blood Test if there is reasonable suspicion to believe that they are under the influence or using controlled substances or marijuana. Any contractual personnel that do not pass the urinalysis and/or blood test will not be allowed on-site at the facility.
- H. Employees and vehicles of Bidder will enter and exit through the Sally Port gate. (Vehicles are to be cleared prior to start of work.)
- I. All persons entering the facility at the start of the work day shall complete a medical questionnaire on COVID-19 and complete a temperature check. Persons who have a fever (100.4° F) or greater or who are screened out through medical questionnaire shall not be allowed on-site at the facility.

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- J. The Contractor shall provide immediate notice to Joliet director if any individual on the project sites has: 1). Tested positive for COVID-19; 2). Had direct contact with someone known to have tested positive for COVID-19 or exhibiting symptoms consistent with COVID-19; 3). Been sent home (or did not come to project) because they have symptoms of acute respiratory illness, signs of a fever, or any other symptoms consistent with COVID-19; 4) Complete a trip to a CDC—Categorized Warning Level 1, 2, 3 locations.
- K. The Contractor will, at all times, follow social distancing requirements: 1). Social distancing of at least six-foot from others individuals must be maintained when feasible; 2). Face covers are recommended to be worn where six-foot social distancing cannot be maintained; 3). Special attention should be made to limit the number of individuals in close contact or in small confined spaces so that maximum amount of space between individuals can be maintained.
- L. The Contractor will be responsible for the frequent environmental cleaning of tools, equipment, and break areas.
- M. The Bidder and their personnel, including volunteers, and sub-Bidders shall be subject to a complete background investigation of the Illinois Department of Corrections prior to the execution of this Bid, before any personnel, volunteers or subcontractors begin to provide service within the IDOC post-execution of this Bid, and at periodic times during this contract as determined by the Department pursuant to Administrative Directive 01.02.107.
- N. The requestor shall complete in its entirety the appropriate Request for Background Investigation Information as determined by the IDOC Central Screening Unit. This request for information includes but is not limited to the disclosure of the name, date of birth and social security number of the Bidder and Bidder's employees, volunteers, and sub-Bidders to facilitate background checks of individuals before any service by that individual is rendered within the Joliet Treatment Center. Lake Land College shall provide the requestor with the appropriate background investigation packet for completion.
- O. In addition, all contractual personnel may be required to undergo a urinalysis or blood test if there is reasonable suspicion to believe they are under the influence of or using alcohol, controlled substances including marijuana and shall be subject to random drug testing.

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1.15 GUARANTEE & WARRANTIES

- A. All Prime Contractors shall guarantee their work and the work of their Subcontractors for a period of one year from the date of acceptance of their work, unless stipulated for a longer period of time under specific sections of the specifications.
- B. All items requiring a warranty certificate from the manufacturer shall be executed and the certificate delivered to the Owner before final payment can be approved.

1.16 SHOP DRAWINGS

- A. Shop drawings of greenhouse will be made available upon request.
- B. The Owner and Engineers will review shop drawings to see that they conform to the original drawings and specifications, and will endeavor to correct errors, but it shall be the responsibility of the Contractors to see that work complies with the Contract Documents, and fits to project conditions and to materials installed. Contractor shall be responsible for dimensions and quantities.

1.17 SUPERINTENDENT

- A. The General Contractor shall keep a capable superintendent on the job site at all times when major work is in progress. This Superintendent shall lay out all work required under the Contract and also assist other Contractors in laying out and planning their work.
- B. The Contractors, or his Superintendent, shall also notify other Contractors when it will be necessary to install certain work and take complete responsibility for co-ordination of construction.

1.18 REQUIREMENTS

- A. All Contractors shall comply with all laws, rules and regulations governing the work under this Contract.
- B. Should the Contractor observe anything in the contract documents that is contrary to any code requirement, he shall notify the Owner immediately in writing. The Owner shall issue all changes required to correct the variance, and be responsible for code interpretations.

1.19 OCCUPATIONAL SAFETY AND HEALTH

- A. It shall be each Contractor's responsibility to comply with all local, state and federal laws and regulations governing job safety and health standards, and the requirements of the "Occupational Safety and Health Act of 1970" enacted by Congress and signed into law on December 29, 1970 and all applicable changes, revisions, and amendments.

SECTION 00800

1.20 FAIR EMPLOYMENT PRACTICES

- A. All Contractors agree that, in accordance with an Act to prohibit discrimination and intimidation on account of race or color in employment and Contracts for public buildings or public works, approved July 8, 1933, as amended, no person will be refused or denied employment in any capacity on the grounds of race or color, nor be discriminated against in any manner by reason thereof in connection with the performance of the work set forth in the attached drawings and specifications; nor will any unfair employment practice, as defined in the Fair Employment Practices Act, approved July 21, 1961 and all applicable changes, revisions, and amendments, be committed by the said Contractor.

1.21 PREVAILING WAGE POLICY

- A. The Owner has established a general prevailing rate of hourly wage in said District, as determined by the Illinois Department of Labor.
- B. All Contractors and Subcontractors shall comply with the following and any later amendments thereto:
- C. "Illinois Statutes, as amended by Act approved August 8, 1961, (SB No. 250) (Rev. State Chap. 48, Sec. 39S-1 et.seq.) declared to be the policy of the State of Illinois that a wage of no less than the general prevailing hourly rate as paid for work of a similar character in the locality in which the work is performed, shall be paid to all laborers, workmen and mechanics employed by or on behalf of any and all public bodies engaged in public works, exclusive of maintenance work."
- D. Contractors shall have the responsibility of complying with all aspects of the Prevailing Wage Policy.
- E. Certified payroll documentation must be provided to the college by the 15th of the following month.

1.22 BUSINESS ENTERPRISE FOR MINORITIES, FEMALES, AND PERSONS WITH DISABILITIES ACT

- A. On August 25, 2015, Governor Rauner signed into law the Business Enterprise for Minorities, Females, and Persons with Disabilities Act (30 ILCS 575), effective immediately. The Act stipulates certain requirements regarding the use of businesses owned by minorities, females and persons with disabilities for the procurement of goods and services by State agencies, universities, and community colleges.

SECTION 00800

- B. The College recognizes the importance of increasing the participation of businesses owned by minorities, females and persons with disabilities in public contracts in an effort to overcome the discrimination and victimization such firms have historically encountered. It is the College's policy to promote the economic development of businesses owned by minorities, females and persons with disabilities by setting aspirational goals to award contracts to businesses owned by minorities, females, and persons with disabilities for certain services as provided by the Business Enterprise for Minorities, Females and Persons with Disabilities Act, 30 ILCS 575/0.01 et seq. (the "Act") and the Business Enterprise Council for Minorities, Females, and Persons with Disabilities (the "Council").
- C. Certified Business Enterprise Contractors
 - 1. In determining whether a business is owned by a minority, female, or person with disabilities, the College shall require the business to provide proof of certification by the Business Enterprise Council, an entity delegated the authority to make certifications by the Business Enterprise Council, or by a state agency with statutory authority to make such a certification, that the business entity is owned by a minority, female, or person with a disability, or by submitting an ownership affidavit provided by the College.
- D. Subcontractors and Suppliers
 - 1. The College's aspirational goals are based on the total dollar amounts awarded to businesses owned by minorities, females, and persons with disabilities. All funds awarded to any certified subcontractors and/or suppliers shall be included for the College's aspirational goals, so long as the expenditures are direct, necessary, and proximately related to the work or service of the contract.
- E. Evaluation of Contracts to Facilitate Aspirational Goals
 - 1. These procedures shall not eliminate, alter, reduce, alleviate or modify in any way the College's procedures for purchasing. However, in addition to the College's purchasing procedures, the College shall evaluate all contracts, except those subject to federal reimbursement, to determine whether the bidder or contracting party assists the College in meeting its aspirational goals as set forth above, and increase the participation of businesses owned by minorities, females, and persons with disabilities in contracts with the College.
- F. Bidding Requirements.
 - 1. Bid Documents
 - a. When the College procedures and/or state law require the College to competitively bid a contract, the College shall state in its bid documents the College's aspirational goal for the contract. The College's bid documents shall also require each bid submitted for a contract to include: (i) the bidder's name, (ii) the bid amount, and (iii) a business enterprise program utilization

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plan indicating the percentage of disadvantaged businesses that will be awarded by the bid.

2. Lowest, Responsive and Responsible Bidder
 - a. As required by state law and the College's purchasing procedures, the College shall award contracts subject to state public bidding requirements to the lowest, responsive and responsible bidder. A bidder's failure to complete a utilization plan or submit necessary certifications shall be an issue of "responsiveness" which may make the bidder ineligible to receive the contract. In awarding contracts, the College shall also consider that the definition of "lowest responsible bidder" is broader than "lowest bidder" or "financially responsible", and that in proper circumstances, certain public interests can be considered as "responsible" in the College's discretion as allowed by applicable state laws, rules or regulations.

3. Opportunity to Cure
 - a. In the event that a bidder offers the lowest, responsive and responsible bid but fails to meet the contract's aspirational goals, the College shall notify the bidder of this deficiency and give the bidder no more than ten (10) days to cure that deficiency. The College may provide the bidder with sufficient information necessary to obtain the Business Enterprise Council's list of certified businesses owned by minorities, females and persons with disabilities. The bidder may only cure this deficiency by subcontracting with businesses that are certified as provided in these procedures.

4. Good Faith Effort Procedures
 - a. If the bidder cannot meet the contract's aspirational goal, the bidder must document in the utilization plan its good faith efforts that could reasonably have been expected to meet the goal. The College shall consider the quality, quantity, and intensity of the bidder's efforts, and may evaluate the bidder's:
 - i) Solicitation through all reasonable and available means of certified subcontractors, suppliers, and/or vendors that have the capability to perform the work required by the contract. The bidder must solicit this interest to give certified businesses sufficient time to respond to the solicitation, must provide adequate information about the plans, specifications, and contract requirements in a timely manner, and must take appropriate steps to follow up initial solicitations.
 - ii) Use of resources from the College, the Business Enterprise Council, and any other business or community groups that provide assistance in the recruitment and placement of certified businesses.
 - iii) Selection of portions of the contract work to be performed by certified vendors to increase the likelihood that the goal will be achieved. This includes, where appropriate, breaking out contract work items or services into economically feasible units to facilitate participation by certified businesses, even when the bidder might otherwise prefer to perform the work or services with its own employees.
 - iv) Negotiation in good faith with interested certified businesses. In order to show good faith efforts, the bidder's utilization plan shall include the names,

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- addresses, and telephone numbers of certified businesses that were considered, and an explanation for why an agreement could not be reached.
- v) Thorough investigation of the capabilities of certified businesses and not rejecting them as unqualified without sound reasons.
 - vi) Efforts to assist interested certified businesses in obtaining contract required lines of credit, insurance, equipment, supplies, materials, or other related assistance or services.
5. Award of Contract
- a. If the College determines that the bidder is the lowest, responsive and responsible bidder and has either met the contract's aspirational goals or has made a good faith effort to meet the goal, the College may award the contract to the bidder. The College shall have the right to reject all bids and re-bid the contact in its sole discretion.
6. Incorporation into Contract
- a. The successful bidder's utilization plan shall become part of the awarded contract and shall not be modified or amended without the College's written consent.

END OF SECTION

SECTION 01110

1.01 LOCATION

- A. This project is located at the Joliet Treatment Center in Joliet, Illinois.

1.02 COMMENCEMENT AND COMPLETION DATE

- A. All work on this project is subject to the Center's schedule and circulation needs, which are as follows:
 1. Coordinate Work schedule with the Center. This project and bid will be taken to the Board of Trustees meeting on April 18, 2022 for approval. Coordination of the work schedule can begin after Board approval is granted with completion and invoice received no later than June 1, 2022.
 2. Two days' notice is required for schedule changes.
 3. Saturdays are available with prior approval from the Center.
 4. Any alternate dates MUST be coordinated with the Center.
 5. PROVIDE PROPOSED SCHEDULE WITH BID.

1.03 COORDINATION WITH OWNER

- A. The center will be occupied by the Owner and the general public during all phases of construction. It shall be the Contractors responsibility to coordinate the work with the Owner to maintain access to roadways, parking and buildings during normal hours of operation, and to minimize conflict with the Center's schedule.
- B. Sequence of work shall be coordinated with the Center and be scheduled to minimize inconveniences for the Center students and staff.
- C. A copy of the State calendar is available upon request.
- D. The Contractor shall notify the Owner three (3) working days prior to commencing work on site.

1.04 CONTRACTOR'S RESPONSIBILTIES

- A. The General Contractor on this project regardless of whether he has a Contract for the General Construction or complete Construction Work shall have the responsibility of coordinating and directing the work. This shall include the scheduling and/or co-ordination of all other Prime Contractors having a contract with the Owner and shall include assistance to these

SECTION 01110

Contractors in the layout of their work when it must be coordinated with work the General Contractor is performing. The General Contractor shall include the cost of performing this co-ordination in his Bid.

- B. The remaining Prime Contractors and Subcontractors on the project will be charged with scheduling their own work so that it can be coordinated with the General Contractors schedule. They shall give the General Contractor their full co-operation.

1.05 UTILITY SERVICE DISRUPTION

- A. This project will not require interruption of utility service.

1.06 BUILDING PROTECTION

- A. The Contractor shall be responsible for protecting the existing buildings and contents from damage from any cause as a result of work to be performed under this Contract. Any damaged to buildings or contents shall be repaired or replaced to equal the original condition of the damaged area or contents.
- B. All damaged buildings or contents shall be repaired or replaced at the Contractor's expense and to the satisfaction of the Owner.

1.07 SITE PROTECTION

- A. The Contractor shall be responsible for protecting the adjacent site from damage from any cause as a result of work to be performed under this Contract. Any damaged areas, including yard areas and plants, walks, steps, paved areas, irrigation system, etc., shall be repaired or replaced to equal the original condition of the damaged areas.
- B. All damaged areas shall be repaired at the Contractor's expense and to the satisfaction of the Owner.

1.08 MATERIAL STORAGE

- A. The Owner will allocate certain areas of the site for the purpose of storing materials and equipment and locating Contractor's temporary office. The Contractor shall contact the Owner before any materials are situated in the building or on the site and determine a general plan for storing materials.
- B. Materials are shall be placed on the site in a neat and orderly manner.

SECTION 01110

1.09 CLEANING OF GROUNDS

- A. The site shall be maintained free of unnecessary debris and clutter during all phases of construction.
- B. At the completion of the project and before final acceptance by the Owner, the site shall be cleared of all rubbish, materials, and debris which accumulated during the process of construction.

1.10 WEATHER CONDITIONS

- A. Work shall be performed only when weather permits.

PART 2 PRODUCTS

2.01 WARRANTY

- A. All materials shall carry full manufacturer's warranties.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Application shall be performed according to manufacturer's recommendations.
- B. Vehicles shall be kept in good repair so that no excessive noise or emissions are created.
- C. Contractor shall take all necessary precautions to protect existing paving, buildings, structures, landscaping etc., from damage. Care shall be exercised to prevent staining or splattering surrounding surfaces with construction materials.
- D. All materials shall be installed according to manufacturer's recommendations to assure validity of manufacturer's warranty.

END OF SECTION

SECTION 01290

PAYMENT PROCEDURES

PART 1 GENERAL

1.01 PAYMENTS

- A. The Owner will make payment on account of the Contract as follows:
1. Upon completion of all work as directed in these specifications the Contractor shall request payment in full. Payment made via ACH is strongly encouraged.
 2. Payment will be made provided Director certifies that the work meets all requirements of these specifications. Successful bidder must provide a W-9 for processing of payment.
 3. The Contractor shall provide an invoice for the work which will satisfy the following:
 - 1) Itemize separate line item cost for each major division of work, using specifications Table of Contents as basis for format for listing cost of work.
 - 2) List all major subcontracts and subcontractors.
 - 3) All forms must be typed and all sections of the forms completed.
 - 4) All forms must have ORIGINAL SIGNATURE and be NOTARIZED.

1.02 PAYMENTS WITHHELD

- A. The Owner may withhold, or on account of subsequently discovered evidence, nullify the whole or part of any payment to such an extent as may be necessary to protect the Owner from loss on account of:
1. Defective work not remedied.
 2. Claims filed or reasonable evidence indicating probable filing of claims.
 3. Failure of the Contractor to make payment properly to Subcontractors for materials and/or labor.
 4. A reasonable doubt that the Contract can be completed for the balance then unpaid.
 5. Damage to another Contractor.

SECTION 01290

- B. When the above conditions are remedied payment will be made for the amounts withheld.
- C. Should the Contractor fail to perform any work according to the drawings and specifications, or should he refuse to correct any work not done according to the drawings and specifications, the Owner may, after having given the Contractor ten days written notice, construct such work or make repairs necessary to meet the requirements of the Contract. The cost of such work shall be deducted from the final payment due the Contractor.

LIEN WAIVERS

- A. Before final payment, the Contractor shall submit Lien Waivers marked "FINAL" from all Subcontractors and Material Suppliers covering all labor and materials furnished on the job. All Lien Waivers shall have ORIGINAL SIGNATURES and be NOTARIZED.
- B. If any Lien or unpaid bills should be presented to the Owner after full payment has been made to a Contractor, the Contractor or his bondsmen shall refund to the Owner all the money the latter may be compelled to pay in discharging such obligations, including all court costs and reasonable attorney's fees.
- C. During the course of construction should there be any doubt regarding whether or not the Contractor has been paying his bills or subcontractors promptly, Waivers of Lien - Partial may be requested and shall be submitted.

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 TEMPORARY ELECTRICAL ENERGY

- A. Temporary electrical energy is not required for this work.

1.02 WATER FOR CONSTRUCTION WORK

- A. Water for construction purposes is available at the site, and shall be paid for by the Owner. Contractors shall arrange for their own distribution. Temporary distribution apparatus shall not be allowed to interfere with normal functions of the Owner.

1.03 TEMPORARY SANITARY FACILITIES

- A. Toilet facilities in the existing buildings may be used by Contractor's personnel during performance of the work. Coordinate the use of existing toilet facilities with the building officials.
- B. Maintain toilet facilities used by Contractor's personnel in a clean and sanitary condition.

END OF SECTION

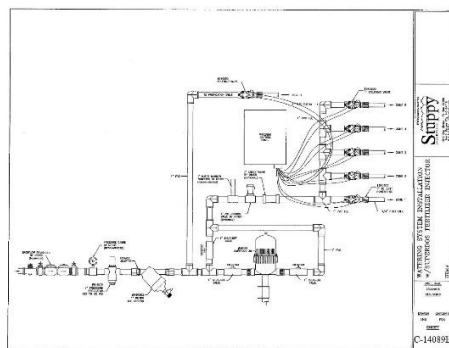
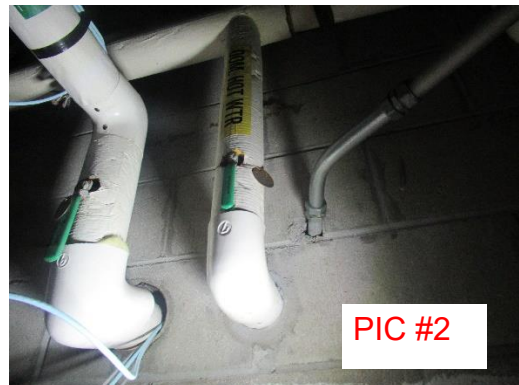
The work under this section includes the furnishing of all labor, material, equipment, and services necessary for the execution and completion of all items of Greenhouse Utilities Connection as shown on the drawings and as herein specified.

A. PLUMBING SCOPE OF WORK

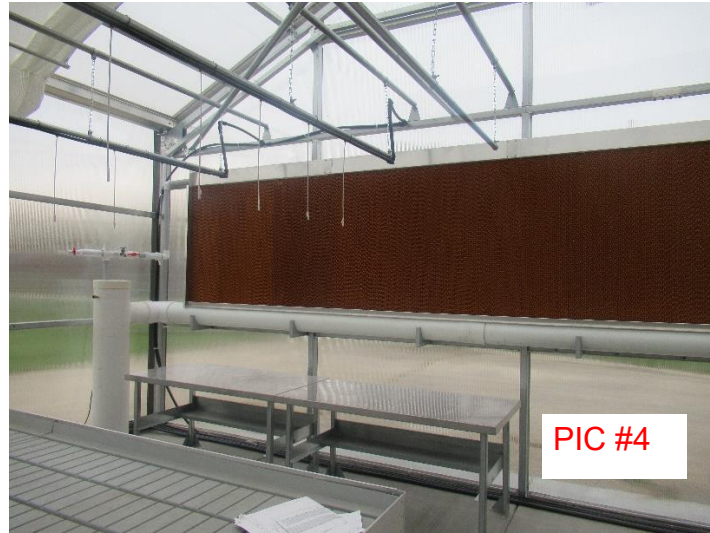
I. PLUMBING AND NATURAL WORK DETAILS

1. TIE-IN DOMESTIC WATER PIPING FROM EXISTING BUILDING LOCATION SHOWN IN PICTURE #1 AND PICTURE #2 OFF DOMESTIC WATER FEED IN A HALLWAY 60 FEET FROM GREENHOUSE (FINAL LOCATION VERIFIED IN THE FIELD) TO CONNECTION POINTS AT THE GREENHOUSE WATER SYSTEMS SHOWN IN PICTURE # 3 (FINAL LOCATION V.I.F) REFER TO SECTION D, PLAN SHEET C-14089B:

- PIPING SIZE TO MATCH EXISTING AND GREENHOUSE NEW CONNECTION
- INSULATE PIPE WITH 2" FIBERGLASS PER APPLICABLE PLUMBING CODES AND STANDARDS
- FURNISH AND INSTALL BACKFLOW PREVENTER PER PLUMBING CODES AND STANDARDS
- FURNISH AND INSTALL PRESSURE REGULATOR
- PLUMBING CONTRACTOR IS RESPONSIBLE FOR WORK INVOLVING WALL PENETRATION AND LOCATION
- PROVIDE ALL CUTTING, CORES AND PATCHING IN FLOORS AND WALLS AS REQUIRED



2. TIE-IN WATER PIPING TO SPRAY SYSTEM IF NEEDED (PICTURE #4).



3. FURNISH AND INSTALL UTILITY SINK INSIDE THE GREENHOUSE ON THE WEST WALL NEAR THE GREENHOUSE ENTRANCE PICTURE #5. COORDINATE FINAL LOCATION WITH OWNER.

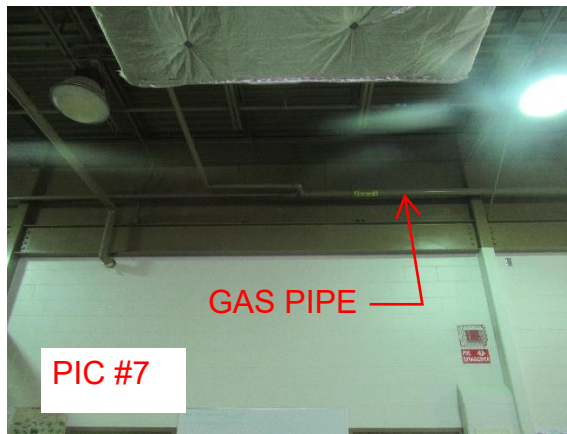


4. FURNISH AND INSTALL SPIGOT NEXT TO THE UTILITY SINK

5. RELOCATE AND REROUTE THE EXISTING DOWN SPOUTS ALONG THE WALL SIDE OUT OF GREENHOUSE. SEE PICTURE #6



6. ADD TWO (2) NEW DOWNSPOUTS ON THE EXISTING BUILDING (WEST WALL OF THE GREENHOUSE) TO DRAIN OUTSIDE THE GREENHOUSE.
7. TIE-IN NATURAL GAS PIPING FROM EXISTING BUILDING LOCATION SHOWN IN PICTURE #7 (FINAL LOCATION VERIFIED IN THE FIELD) TO THE CONNECTION POINTS ON THE TWO (2) UNIT HEATER AS SHOWN PICTURE #8 AND PICTURE #9. PROVIDE APPLIANCE/EQUIPMENT GAS REGULATOR, VENT REGULATOR TO OUTSIDE.



II. PLUMBING AND NATURAL GAS GENERAL NOTES:

1. PLUMBING NOTES ON THE SCOPE OF WORK ARE PART OF THIS CONTRACT.
2. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AUTHORITIES HAVING JURISDICTION INCLUDING ADA GUIDELINES. THESE CODES SHALL BE FOLLOWED AS MINIMUM PROVIDING HIGHER GRADES OF MATERIAL AND WORKMANSHIP WHERE REQUIRED.
3. PLUMBING CONTRACTOR MUST BE LICENSED AS REQUIRED BY THE STATE OF ILLINOIS AND OBTAIN ALL REQUIRED BONDS.
4. PLUMBING CONTRACTOR SHALL OBTAIN AND PAY ALL FEES AND TAXES FOR NECESSARY PLUMBING PERMITS AND INSPECTIONS. ALL FEES AND TAXES SHALL BE INCLUDED IN BID PROPOSAL.
5. NEW WORK AND MATERIAL SHALL CONFORM TO ALL APPLICABLE STATE AND CITY CODES AND ORDINANCE
6. THE INTENT OF THE SCOPE OF WORK IS TO FURNISH THE OWNER A PLUMBING INSTALLATION READY FOR USE AND COMPLETE IN EVERY ASPECT.
7. FURNISH AND INSTALL A COMPLETE AND OPERABLE SYSTEM OF DOMESTIC HOT AND COLD WATER TO EACH AND EVERY PLUMBING FIXTURE, APPLIANCE AND OUTLET WITH THE FINAL CONNECTIONS THERETO, CONNECTIONS TO WATER SERVICES, PIPE FITTINGS, VALVES, AIR CHAMBERS, INSULATION, DI-ELECTRIC UNIONS, HANGERS AND SUPPORT MEMBERS SHALL BE PROVIDED.
8. FURNISH AND INSTALL A COMPLETE AND OPERABLE SANITARY, WASTE AND VENT SYSTEM INCLUDING CONNECTIONS TO EACH AND EVERY PLUMBING FIXTURE, APPLIANCE, TRAPS, DRAIN AND OUTLET WITH FINAL CONNECTIONS THERETO AND CONNECTIONS TO THE SOIL, WASTE, AND VENT STACKS.
9. FURNISH AND INSTALL ALL PLUMBING FIXTURES, COMPLETE WITH TRAPS, SUPPLIES, STOPS, HANGERS, CARRIERS AND OTHER RELATED ITEMS AS HEREINAFTER SPECIFIED. PROVIDE AIR CHAMBERS, FULL SIZE, 12" LONG FOR EACH HOT AND/OR COLD WATER SUPPLY AT EACH FIXTURE.
10. ALL PIPING TO BE SUSPENDED FROM STRUCTURAL MEMBERS OF THE BUILDING, OR AS APPROVED BY THE OWNER'S REPRESENTATIVE. FOR PIPES 1" DIAMETER OR LESS, UTILIZE EITHER SOLID OR SPLIT RING TYPE HANGERS: FOR LARGER PIPES, UTILIZE A STANDARD WEIGHT CLEVIS TYPE HANGER: ALL HANGERS SHALL BE AT MAXIMUM OF 8'-0" ON CENTER.
11. PLUMBING CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE FULL EXTENT OF WORK PRIOR TO BIDDING. (ARRANGE WITH THE OWNER).

12. WORK SHALL BE INSTALLED TO MEET FIELD CONDITIONS AND EQUIPMENT SELECTED.
13. PLUMBING CONTRACTOR SHALL COORDINATE ALL WORK REQUIRED, AND VERIFY EXACT SIZES, LOCATIONS, CONDITIONS, ETC. OF RELATED ITEMS FROM FIELD MEASUREMENTS AND FIELD OBSERVATIONS, AND FROM MANUFACTURER RECOMMENDATION AND SPECIFICATIONS.
14. PLUMBING CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES AND MAKING ANY NECESSARY MODIFICATIONS TO HIS WORK AT NO ADDITIONAL COST, INCLUDING ALL OFFSETS.
15. PLUMBING CONTRACTOR SHALL COORDINATE WITH STRUCTURAL PRIOR TO CORING OR CUTTING FOR NEW PIPING PENETRATIONS AS TO AVOID ANY CONFLICTS.
16. PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL SLEEVES A MINIMUM OF ONE PIPE SIZE LARGER, UNLESS NOTED OTHERWISE, FOR ALL PIPING PENETRATING WALLS, SHAFTS, MASONRY WALLS, BEAMS, ETC.
17. SITE CONDITIONS ARE A PART OF THIS CONTRACT. PLUMBING CONTRACTOR IS RESPONSIBLE TO CHECK AND VERIFY DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE PRIOR TO PROCEEDING WITH THEIR WORK.
18. PROVIDE ALL CUTTING AND PATCHING IN FLOORS AND WALLS AS REQUIRED CONTRACTOR SHALL COORDINATE ALL AREAS OF WORK REQUIRED WITH THE OWNER.
19. CONTRACTOR SHALL PROVIDE FIRESTOPPING AROUND ALL WALL AND FLOOR PENETRATIONS TO MAINTAIN THE RATING OF WALLS AND FLOORS. ALL HOLES THROUGH FLOORS SHALL BE CAULKED AND SEALED AIR AND WATERTIGHT TO RESTRICT PASSAGE OF SMOKE, SOUND OR FLAMES.
20. THE CONTRACTOR SHALL DO ITS OWN CUTTING AND PATCHING -TRENCHING AND BACKFILLING.
21. PLUMBING CONTRACTOR SHALL FURNISH WRITTEN GUARANTEE OF ALL FREE FROM DEFECTIVE WORK- MANSHIP AND MATERIALS FOR ONE YEAR FROM DATE OF FINAL CERTIFICATE AND OWNER'S SUBSTANTIAL COMPLETION ACCEPTANCE. ANY REPAIRS OR REPLACEMENT DURING THIS PERIOD SHALL BE MADE WITHOUT COST TO THE OWNER.

22. CLEANING UP REQUIRED AS JOB PROGRESSES. KEEP PREMISES AND PUBLIC WAYS BROOM CLEAN.
23. CLEAN, TEST AND BALANCE ALL SYSTEMS TO CONFORM TO CAPACITIES. MAKE ALL REQUIRED ADJUSTMENTS.
24. UNLESS OTHERWISE REQUIRED BY LOCAL CODE PIPING MATERIALS SHALL BE:
 - SOIL WASTE & STORM - UNDERGROUND INSIDE BUILDING TAR COATED SERVICE WEIGHT CAST IRON, BELL & SPIGOT CAST IRON DRAINAGE FITTING WITH COMPRESSION GASKET.
 - VENT, SOIL, WASTE - ABOVE GROUND 2 1/2" AND LARGER: TAR COATED SERVICE WEIGHT CAST IRON, BELL & SPIGOT CAST IRON DRAINAGE FITTINGS WITH LEAD & OAKUM CAULK, 2" AND SMALLER: TYPE "K" COPPER TUBE WITH SOLDERED WROUGHT.
 - DOMESTIC WATER: ABOVE GROUND INSIDE BUILDING: SEAMLESS TYPE "L" COPPER WITH WROUGHT COPPER FITTINGS SOLDERED. SOLDER SHALL CONFORM TO LOCAL CODE REQUIREMENTS AND ASTM B-32-LATEST REVISION.
25. DOMESTIC HOT AND COLD-WATER PIPING SHALL BE TYPE 'M' COPPER WITH WROUGHT SOLDER FITTINGS AND TYPE 'K' SOFT DRAWN COPPER WITHOUT JOINTS FOR UNDERGROUND PIPING. PROVIDE DIELECTRIC FITTINGS WHEN JOINING OR ABUTTING DISSIMILAR METALS.
26. ENTIRE INSTALLATION SHALL BE PERFORMED IN A FIRST-CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEMS SHALL BE FULLY OPERATIVE. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCES,
27. PROVIDE AND INSTALL SHUT-OFF VALVES IN THE SUPPLY PIPING TO EVERY FIXTURE.
28. INSULATE HOT AND COLD-WATER PIPING RUNNING ABOVE CEILING WITH 1/2" THICK FIBERGLASS INSULATION WITH NON-COMBUSTIBLE U.L. RATED VAPOR BARRIER.
29. INSTALL CLEAN OUTS AS REQUIRED BY APPLICABLE CODES AND LANDLORDS' REQUIREMENTS.
30. ALL CLEAN OUTS SHALL TERMINATE FLASH WITH THE FINISH FLOOR OR WALL.
31. PROVIDE VACUUM BREAKER TO PLUMBING FIXTURES REQUIRED BY THE APPLICABLE CODES.
32. FIXTURE AND EQUIPMENT CONNECTIONS SHALL BE MADE WITH CHROME PLATED SUPPLIES WITH STOPS. EXPOSED WATSE PIPING SHALL BE CHROME PLATED.
33. WHERE COPPER PIPE CONNECTS TO FERROUS PIPE USE ISOLATING UNIONS.

34. FLASH WENTS THRU ROOF AND ROOF DRAINS AS REQUIRED TO MAINTAIN ROOF WARRANTY

35. PROVIDE 24" AIR CHAMBERS (TYP.) @ TOP OF EACH RISER

36. ALL HOT WATER SUPPLY PIPES SHALL HAVE SWING JOINT OR EXPANSION LOOP.

37. NATRUAL GAS PIPING NOTES:

1. NATURAL FUEL GAS PIPING AND CONTROLS SHALL CONFORM TO THE INTERNATIONAL FUEL GAS CODE (IFGC) CHAPTER 4 (WITH MODIFICATIONS AS NOTED IN ARTICLE 14).
2. NATURAL GAS PIPING SHALL BE SCHEDULE 40 STANDARD WEIGHT BLACK STEEL PIPE WITH STANDARD WEIGHT BLACK THREADED MALLEABLE IRON FITTINGS 2" OR SMALLER AND STANDARD WELDING FITTINGS 2-1/2" AND LARGER OR 11" WC.
3. PROVIDE GAS COCK UNION AND DIRT LEGS AT EVERY CONNECTION. TEST GAS PIPING AT 25 PSI-REPAIR LEAKS AND RETEST. PRV'S SHALL BE PIETRO FLORENTINI, MODEL 31XXX PRESSURE INDEPENDENT REDUNDANT DIAPHRAGM BALANCED VALVE GOVERNORS WITH FILTER AND RELIEF VENT PIPED TO OUTDOORS WHERE REQUIRED. REFER TO MFG. RECOMMENDATION FOR FLOW RATES OF EACH AND SIZE ACCORDINGLY. USE OF ANY NON-PRESSURE INDEPENDENT REGUALTORS WILL RESULT IN LARGER PIPE SIZE.
4. VENTING OF ALL GAS FIRED APPLIANCES SHALL CONFORM TO INTERNATIONAL FUEL GAS CODE (IFGC).
5. GAS PIPING SHALL BE SIZED IN ACCORDANCE WITH IFGC TABLES 402.(1) THROUGH 402.3(34).
6. GAS PIPING MATERIALS SHALL CONFORM TO THE GAS PIPING & TUBING MATERIAL MATRIX (IFGC 403 REQUIREMENTS).
7. GAS PIPING IN CONCEALED LOCATIONS SHALL CONFORM TO THE IFGC 404.3. LOCATION OF OUTLETS SHALL CONFORM TO IFGC 404.13.
8. GAS PIPES SHALL BE SLOPED AT 1/8 INCH EVERY 15 FEET.
9. EQUIPMENT SHUT-OFF LOCATIONS SHALL CONFORM TO IFGC 409.5.
10. EXPOSED PIPE AT 12" ABOVE FINISHED GRADE
11. PROVIDE GAS TRAIN AT EACH GAS APPLIANCE WITH SHUT-OFF VALVES AND DIRT LEG

2. FURNISH AND INSTALL ONE (1) 200 AMP 120/240 SINGLE PHASE ELECTRICAL CIRCUIT BREAKER PANEL. REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION. FINAL LOCATION VERIFIED IN THE FIELD.
3. INSTALL ONE (1) PROVIDED CONTROL PANEL – REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION. FINAL LOCATION VERIFIED IN THE FIELD
4. INSTALL FOUR (4) OUTLETS FOR H.A.F FANS. REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION.
5. INSTALL TWO (2) OUTLETS FOR THE TWO PAD PUMPS – PICTURE #14 AND #15



6. CONNECT POWER TO TWO (2) MODINE UNIT HEATERS #1 AND #2 - REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 10/11 FOR LOCATION.
7. CONNECT POWER TO ONE (1) HIGH GABLE SHUTTER LRW39– SOUTH WALL - REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION.
8. CONNECT POWER TO SIX (6) PAD SHUTTERS LRW51 - REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION.
9. CONNECT POWER TO ONE (1) GABLE FAN #1 -COOLAIR MAL24G - REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION.
10. CONNECT POWER TO TWO (2) EXHAUST FANS #2 AND #3 – COLLAIR MAL36K - REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION.
11. CONNECT POWER TO ONE (1) OVERHEAD CURTAIN - REFER TO SECTION C GREENHOUSE ELECTRICAL DIAGRAM SHEET 11/11 FOR LOCATION.
12. FURNISH AND INSTALL EIGHT (8) 1000W GROW LIGHTS AND TWO (2) LED 150 W GROW LIGHTS

II. ELECTRICAL GENERAL AND INSTALLTION NOTES

1. PROVIDE COMPLETE ELECTRICAL SYSTEM READY FOR USE AS ITEMIZED NOT LIMITED TO AS FOLLOWS
 - a. DEMOLITION, REMOVAL AND ALTERATION OF EXISITNG SYSTEMS AND EQUIPMENT AS REQUIRED.
 - b. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FULLY INFORM THEMSELVES AS TO ALL CONDITIONS AND MATTERS THAT CAN IN ANY WAY AFFECT THE WORK OR THE COST THEREOF. SHOULD THE CONTRACTOR FIND DISCREPANCIES IN OR OMISSIONS FROM THE SCOPE OF WORK OR BE IN DOUBT AS TO THEIR MEANING, NOTIFY THE OWNER AT ONCE IN WRITING OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THE NEW WORK, OR BETWEEN ELECTRICAL WORK AND THE WORK OF OTHER TRADES PRIOR AND OBTAIN CLARIFICATION PRIOR TO SUBMITTING ANY BID.
 - c. NEW ELECTRIC PANEL, BREAKERS, CONDUIT, WIRING AND BRANCH CIRCUITS CONNECTING FIXTURES, DEVICES AND EQUIPMENT.
 - d. CONNECTION OF PLUMBING AND MECHANICAL EQUIPMENT.
 - e. LIGHTING FIXTURES AND FANS
 - f. FUSES DISCONNECT, STARTERS (EXCEPT WHERE PART OF OEM) DEVICES, PLATES AND OTHER REQUIRED EQUIPMENT.
 - g. EMPTY CONDUIT SYSTEM FOR TELEPHONE AND DATA
 - h. EXTEND FULLY ADDRESSABLE FIRE ALARM SYSTEM.
 - i. CONTROL PANELS AND CONTROL WIRINGS.
2. THE EQUIPMENT, MATERIAL AND INSTALLTION SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE LOCAL CODES AND REGULATIONS.
3. COORDINATE WORK WITH OTHER TRADES AND INSTALL CONDUITS AND CONDUIT BOXES TO CLEAR PIPES, DUCTS & OTHER STRUCTURAL FEATURES.
4. ALL ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND DRAWINGS RELATED TO THE PERFORMANCE OF THIS PROJECT.
5. ALL GROUNDING MUST BE PER THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE AND LOCAL CODE REQUIREMENTS.
6. FURNISH AND INSTALL EQUIPMENT DISCONNECT SWITCHES IN STRICT COMPLIANCE WITH CODE REQUIREMENTS..
7. ALL WIRE TO BE COPPER, 600 VOLT, TYPE "THHN/THWN", 75° C RATED, SIZED PER DRAWING, SIZE 12 AWG MINIMUM AND OUTDOORS OR WET AREAS SHALL BE NO. 12 AWG. MINIMUM THWN COPPER. HOMERUNS 75 FEET AND LONGER SHALL BE NO. 10 AWG. MINIMUM.

8. LIGHTING FIXTURES ARE TO BE LOCATED AS REQUIRED ON THE JOB TO CLEAR DUCTS, PIPING AND MECHANICAL EQUIPMENT.
9. COORDINATE ALL EXACT LOCATIONS WITH A SITE VISIT BEFORE BIDDING THE JOB.
10. THE ELECTRICAL CONTRACTOR SHALL SUBMIT QUESTIONS TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION.
11. CONDUIT RUNS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. ACTUAL FIELD CONDITIONS PREVAIL.
12. EXPOSED CONDUITS TO BE PARALLEL OR PERPENDICULAR TO WALLS, CEILINGS AND FLOORS.
13. CONSULT WITH THE OWNER PRIOR TO ROUGHING IN FOR WORK SUCH AS LIGHTING, OUTLETS, SWITCHES AND OTHER DEVICES TO AVOID FIELD CONDITIONS.
14. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS, APPROVALS AND CERTIFICATES OF INSPECTION FOR ALL EQUIPMENT AS REQUIRED.
15. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A ONE-YEAR GUARANTEE ON THE ELECTRICAL WORK AND MATERIAL.
16. ALL EQUIPMENT SHALL BE MANUFACTURED AND/OR CONFORM TO THE STANDARDS OF NEMA, IES, ANSI, AND IEEE AND SHALL BE UL OR NRTL LISTED
17. WIRING DEVICES SHALL BE STANDARD GRADE, AS MANUFACTURED BY HUBBELL OR EQUAL 15 AMP, 120 V. FLOOR OUTLETS SHALL BE INSTALLED RECESSED, BRONZE FINISH WITH COVER AND CARPET FLANGE WHERE REQUIRED. FLOOR RECEPTACLE OUTLETS SHALL BE OF DUPLEX TYPE.
18. FOR EACH PANEL BOARD PROVIDE TYPEWRITTEN DIRECTORY AND SECURE TO INTERIOR OF PANEL DOOR.
19. WIRE ALL NEW HVAC AND PLUMBING EQUIPMENT PER MANUFACTURER RECOMMENDATION AND AS REQUIRED.
20. TEMPERATURE CONTROL WIRING SHALL BE FURNISHED AND INSTALLED BY MECHANICAL TRADES UNLESS OTHERWISE NOTED ON THE DRAWINGS. THIS CONTRACTOR SHALL PROVIDE 120/240 VOLT POWER WHERE REQUIRED.
21. ALL MATERIALS AND EQUIPMENT SHALL BE NEW APPROVED BY U.L. OR EQUAL.
22. LIGHT SWITCHES, OUTLETS, ETC., SHALL NOT BE INSTALLED BACK-TO-BACK.

C. GREENHOUSE ELECTRICAL DIAGRAMS



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GREENHOUSE ELECTRICAL DIAGRAMS

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GENERAL NOTES

EQUIPMENT MOUNTING NOTES:

NOTE:
IT IS CUSTOMARY TO MOUNT THE VERSISTEP AND SATELLITE PANEL TO ALLOW COMFORTABLE READING OF THE MAIN SCREEN AND EASY ACCESS TO OVERRIDE SWITCHES.

NOTE:
VERSISTEP SATELLITE PANEL MUST TO BE MOUNTED WITHIN 10' OF THE VERSISTEP MAIN PANEL.

NOTE:
DO NOT COMPROMISE STRUCTURAL MEMBERS WHEN DRILLING HOLES OR SCREWS FOR MOUNTING ELECTRICAL EQUIPMENT. CHECK WITH GREENHOUSE MANUFACTURER WHEN IN DOUBT.

WADSWORTH CONTROL SYSTEMS, INC. WILL NOT BE HELD LIABLE FOR PRODUCTS THAT HAVE BEEN SUBJECT TO: (A) MODIFICATIONS, ALTERATIONS, TAMPERING, OR INSTALLATION, TESTING, OR USE NOT IN ACCORDANCE WITH ANY USER'S GUIDE, ENGINEERED DRAWINGS, OR OTHER INSTRUCTIONS PROVIDED BY WADSWORTH CONTROL SYSTEMS; (B) IMPROPER MAINTENANCE OR REPAIRS, HANDLING, STORAGE; (C) ABUSE OR MISUSE OF THE PRODUCT; (D) BREAKDOWNS, FLUCTUATIONS, OR INTERRUPTIONS IN ELECTRIC POWER OR THE TELECOMMUNICATIONS NETWORK. REFER TO PRODUCT USER'S GUIDE AND WADSWORTH CONTROL SYSTEMS WEBSITE FOR FULL WARRANTY.

CAUTION:
MOUNT PANELS TO PREVENT DOORS FROM SWINGING SHUT WHILE WORKING INSIDE THE PANELS.

NOTE:
WHEN MOUNTING ASPERATOR WITHIN DIRECT CONTACT TO WATER SPRAY, INSTALLER SHALL PROVIDE MEANS TO BLOCK SPRAY FROM DIRECT CONTACT OF THE ASPERATOR.

PLEASE CONTACT WADSWORTH CONTROLS FOR PROPER INSTALLATION EXAMPLES IF NEEDED.

QUESTIONS? CONTACT TECHNICAL SUPPORT AT TECH@WADSWORTHCONTROLS.COM, 800-521-5829, FOR AFTER-HOURS EMERGENCY TECHNICAL SUPPORT 720-879-3956.

ELECTRICAL INSTALLATION NOTES:

NOTE:
FOR 18/2, 18/3, ETC. WIRE DO NOT USE THERMOSTAT WIRE. USE CAROL #C-2830 SERIES OR EQUIVALENT 80' 300V UL2484 CSA#-1 STRANDED TINNED COPPER W/ 300V P.V.C. JACKET.

NOTES:

- 1) PROTECT EACH MOTOR WITH A SAFETY DISCONNECT SWITCH IN COMPLIANCE WITH NEC STANDARDS 430.109 & 430.110.
- 2) ALL CONDUCTORS ARE SPECIFIED TO BE THHN CU STR. WIRE.
- 3) WIRING PRACTICES TO CONFORM TO NEC STANDARDS AND LOCAL ELECTRICAL CODES.

IMPORTANT!
ROUTE ALL SYSTEM SENSOR CABLES AWAY FROM LINE VOLTAGE.

NOTE:
IF SENSOR OR COMMUNICATION CABLES ARE INSTALLED UNDERGROUND, OUTSIDE OF BUILDINGS, IT MUST BE IN STEEL CONDUIT. CONDUIT MUST BE BOLTED TO BUILDING STEEL ON BOTH ENDS.

**** IMPORTANT NOTE ****
NO CONDUITS OR CABLES TO ENTER THROUGH THE TOP OF WADSWORTH CONTROL PANELS

IT IS THE INSTALLING ELECTRICIAN'S RESPONSIBILITY TO MAKE ALL CONNECTIONS TO THE CONTROL RELAYS

POWER CIRCUIT FIELD WIRING TERMINALS USE THHN CU, 90° C CONDUCTORS.
TORQUE SCREWS TO 7.1 lbs. in.
ENTIRELAC: 4.4 TO 7.1 lbs. in. > 4/8MM

ONE LINE POWER AND CONDUIT & WIRING DIAGRAMS ARE FOR INFORMATION ONLY. INSTALLATION LABOR AND ELECTRICAL MATERIALS (BREAKER PANELS, CONDUITS, WIRE, CABLES, TRIGGERS, DISCONNECTS ETC.) TO BE PROVIDED BY ELECTRICAL CONTRACTOR OR OTHERS. THE CABLES FOR ASPERATOR SENSORS AND WEATHER STATION ARE NORMALLY SUPPLIED BY WADSWORTH CONTROLS AND ARE SO DESIGNATED ON THE PRINTS

NOTE:
VERSISTEP SATELLITE PANEL PROVIDED WITH 10' CONTROL CABLES. DO NOT EXTEND.

NOTE:
DO NOT SPLICE ASPERATOR CABLES. DO NOT CUT ASPERATOR CABLES. INSTALLER TO PROVIDED ANY EXTRA CABLE LENGTH TO ALLOW GROWER THE ABILITY TO RELOCATE THE ASPERATOR AROUND CROP.

NOTE:
CONNECT ALL MOTORS WITH SUFFICIENT FLEX-CONDUIT TO ALLOW FOR MOTOR SERVICING AND ADJUSTMENTS.

WARNING:
ALWAYS DE-ENERGIZE WADSWORTH PRODUCTS WHEN SERVICING.

MOTOR INSTALLATION NOTES:

WADSWORTH CONTROLS VENT MOTORS ARE SUPPLIED WITH TEMPORARY CORDS USED TO SET LIMIT SWITCHES. DO NOT USE THIS CORD FOR PERMANENT INSTALLATION.

WARNING:
DO NOT OPERATE MOTORS WITHOUT PROPERLY SETTING THE LIMIT SWITCHES. RISK OF DAMAGE TO YOUR EQUIPMENT COULD OCCUR.

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VersiSTEP LOAD SCHEDULE & SWITCH ASSIGNMENTS

GREENHOUSE EQUIPMENT LOAD SCHEDULE								
QTY	DESCRIPTION	HP	φ	VOLTS	AMPS	I φ A	I φ B	I φ C
2	UNIT HEATERS - MODINE PTP250 (GAS)	1/3	1	120	7.7	7.7	7.7	-
4	H.A.F. FANS - ACME 20A	1/10	1	120	1.0	-	4.0	-
1	HIGH GABLE SHUTTER - COOLAIR LRW39	-	1	120	0.3	0.3	-	-
6	PAD SHUTTERS - COOLAIR LRW51	-	1	120	0.3	-	1.8	-
1	GABLE EXHAUST FAN - COOLAIR MAL24G	1/3	1	120	4.8	-	4.8	-
2	EXHAUST FANS - COOLAIR MAL36K	3/4	1	120	6.8	6.8	6.8	-
1	PAD PUMP - COOLAIR	1/6	1	120	5.0	5.0	-	-
1	CURTAIN - WADSWORTH POWERPULL SYSTEM	1/5	1	120	2.5	2.5	-	-
8	GROW LIGHTS - 1000W	-	1	120	9.5	38.0	38.0	-
2	GROW LIGHTS - LED 150W	-	1	240	1.25	2.5	2.5	-
1	WADSWORTH VersiSTEP COMPUTER CONTROL	-	1	120	2.0	2.0	-	-
120/240VAC CONNECTED LOAD 14.1				KW @ 90% P.F.		65	66	-

ADDITIONAL EQUIP. / SOFTWARE SHIPPING WITH VersiSTEP	
<input type="checkbox"/>	WEATHER STATION
<input checked="" type="checkbox"/>	ALARM MANAGER -- ETHERNET
<input checked="" type="checkbox"/>	SOFTWARE PROGRAM
LATITUDE/LONGITUDE	TIME ZONE
41° 31'N/88° 5'W	-6
SOFTWARE VERSION:	3.3.3
FIRMWARE VERSION:	19.1

* ALL SOFTWARE TO BE EQUAL TO OR GREATER THAN VERSION INDICATED.

FACTORY DEFAULT SETPOINT

DAY: HEAT 64° COOLING 70° R.H. 70°
NIGHT: HEAT 62° COOLING 68° R.H. 70°

VersiSTEP SWITCH ASSIGNMENT CHART						
SWITCH	ZONE	EQUIP. CODE	PROGRAMMED NAME	SWITCH NAME	FUNCTIONAL DESCRIPTION	EMPTY TEMP RELATIVE TO SETPOINT ON OFF
1	1	11	UNIT HEATER #1	UNIT HEATER 1	UNIT HEATER #1 'ON'	-1 1
2	1	11	UNIT HEATER #2	UNIT HEATER 2	UNIT HEATER #2 'ON'	-2 0
3	1	19	HAF FANS #1	HAF FANS	HAF FANS 'ON' / 'OFF' WITH FIRST EXHAUST FAN OPERATES BASED ON VENT POSITION	100 200
4	1	8	LOUVER #1	GABLE SHUTTER	GABLE SHUTTER 'OPEN' OPERATES BETWEEN SETPOINTS	0 -1
5	1	27	SHUTTER #1	PAD SHUTTERS	PAD SHUTTERS 'OPEN'	0 0
6	1	4	EXHAUST FAN #1	GABLE EXHAUST FAN #1	GABLE EXHAUST FAN #1 'ON' MIN VENT POSITION = 0%	1 -1
7	1	4	EXHAUST FAN #2	EXHAUST FAN #2	EXHAUST FAN #2 'ON' MIN VENT POSITION = 0%	3 1
8	1	4	EXHAUST FAN #3	EXHAUST FAN #3	EXHAUST FAN #3 'ON' MIN VENT POSITION = 0%	4 2
9	1	2	PAD PUMP #1	PAD PUMP	PAD PUMP 'ON'	5 3
10	1	10	HLD #1	GROW LIGHTS #1	GROW LIGHTS #1 'ON' OPERATES BASED ON LIGHT & TIME	
11	1	10	HLD #2	GROW LIGHTS #2	GROW LIGHTS #2 'ON' OPERATES BASED ON LIGHT & TIME	
12	1	10	HLD #3	GROW LIGHTS #3 (LED)	GROW LIGHTS #3 'ON' OPERATES BASED ON LIGHT & TIME	

VersiSTEP SWITCH ASSIGNMENT CHART						
SWITCH	ZONE	EQUIP. CODE	PROGRAMMED NAME	SWITCH NAME	FUNCTIONAL DESCRIPTION	EMPTY TEMP RELATIVE TO SETPOINT ON OFF
13	1	16	CURTAIN #1 OPEN	CURTAIN UNCOVER	CURTAIN 'UNCOVER' OPERATES BASED ON TIME, TEMP. & LIGHT	3
14	1	16	CURTAIN #1 CLOSE	CURTAIN COVER	CURTAIN 'COVER'	7
15					SPARE	
16					SPARE	
17					SPARE	
18					SPARE	
19					SPARE	
20					SPARE	
21					SPARE	
22					SPARE	
23					SPARE	
24					SPARE	

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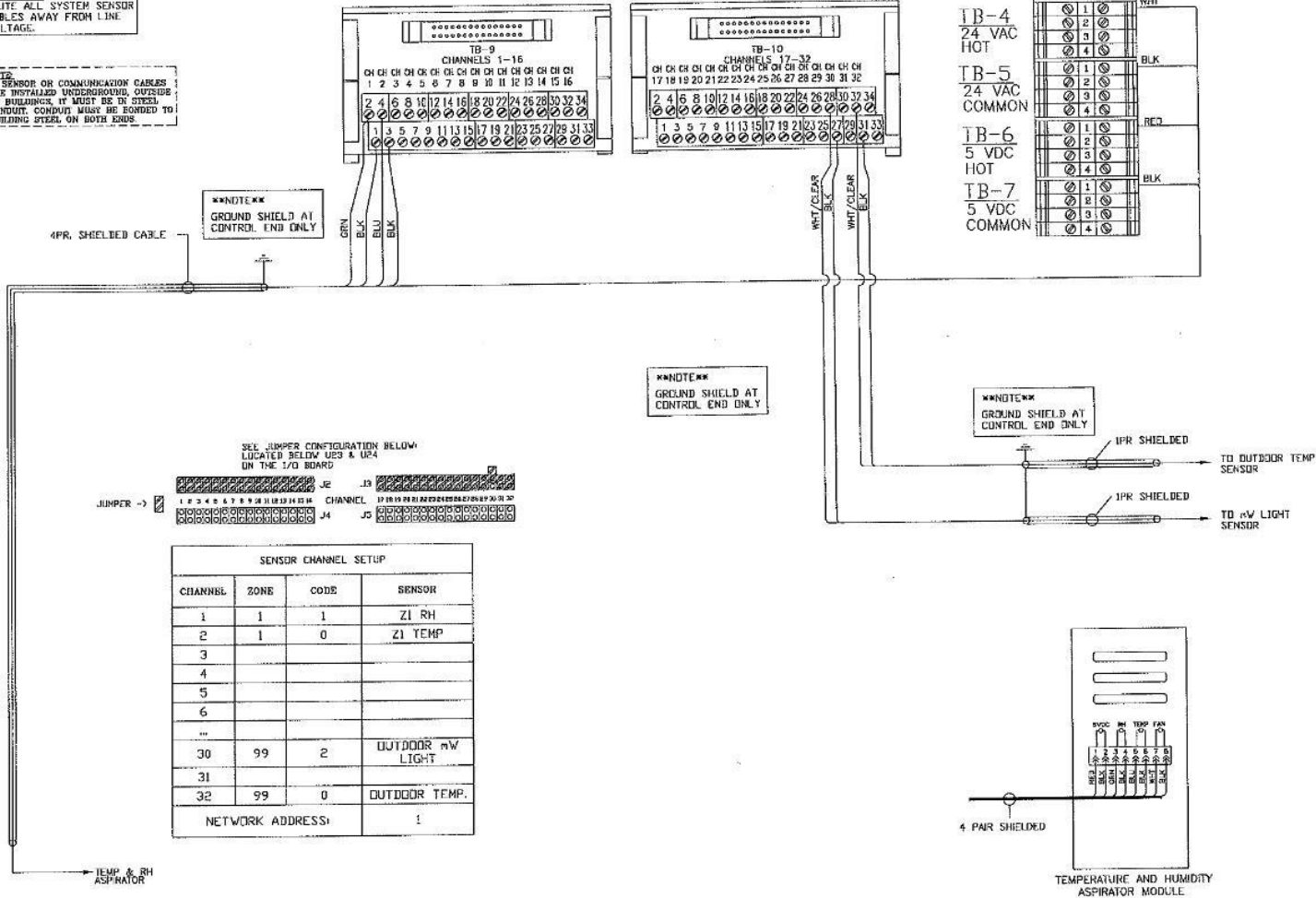
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VersiSTEP COMPUTER SENSOR DETAIL

IMPORTANT:
ROUTE ALL SYSTEM SENSOR CABLES AWAY FROM LINE VOLTAGE.

NOTE:
IF SENSOR OR COMMUNICATION CABLES ARE INSTALLED UNDERGROUND, OUTSIDE OF BUILDING, IT MUST BE TO STEEL CONDUIT. CONDUIT MUST BE BONDED TO BUILDING STEEL ON BOTH ENDS.



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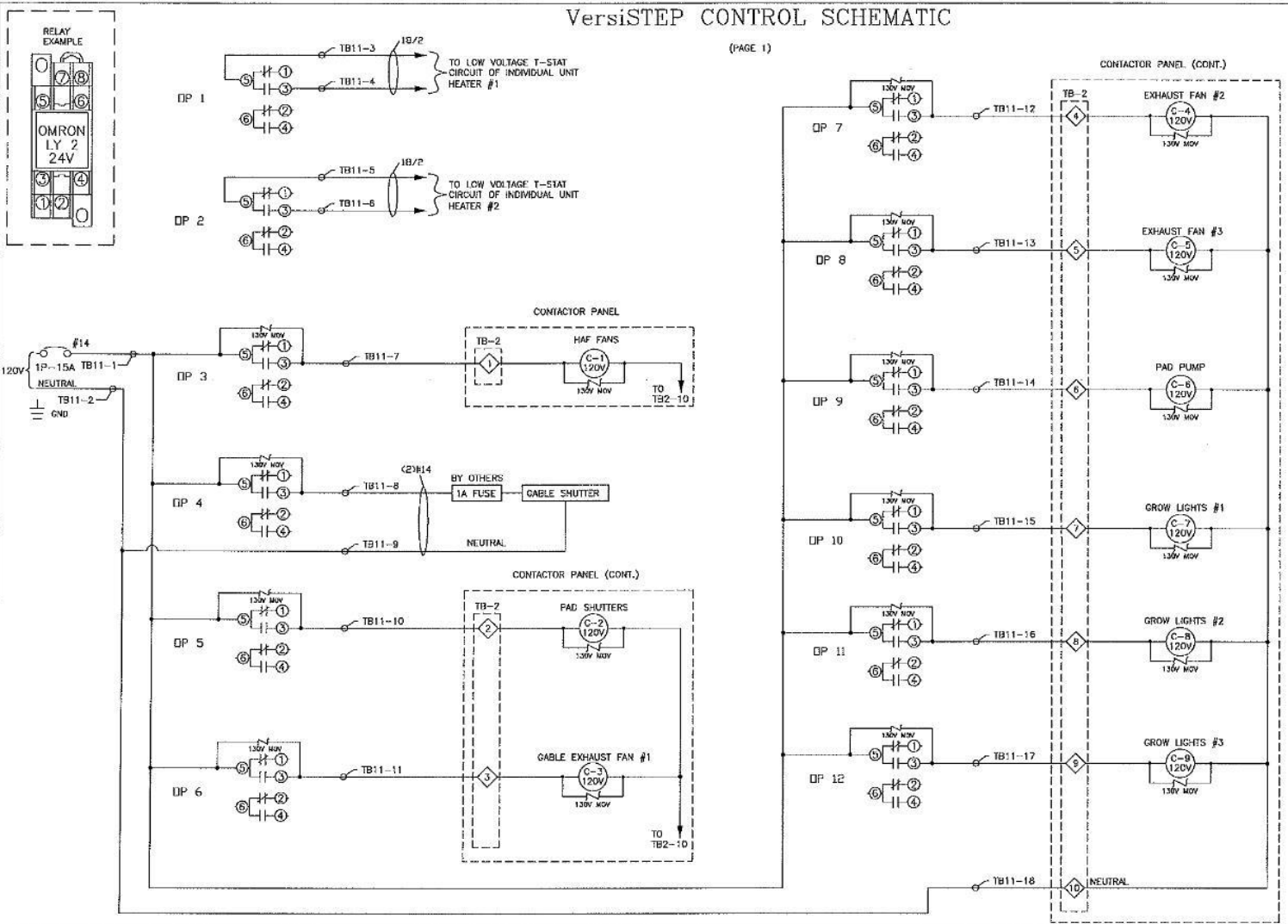
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VersiSTEP CONTROL SCHEMATIC

(PAGE 1)



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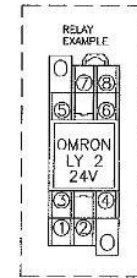
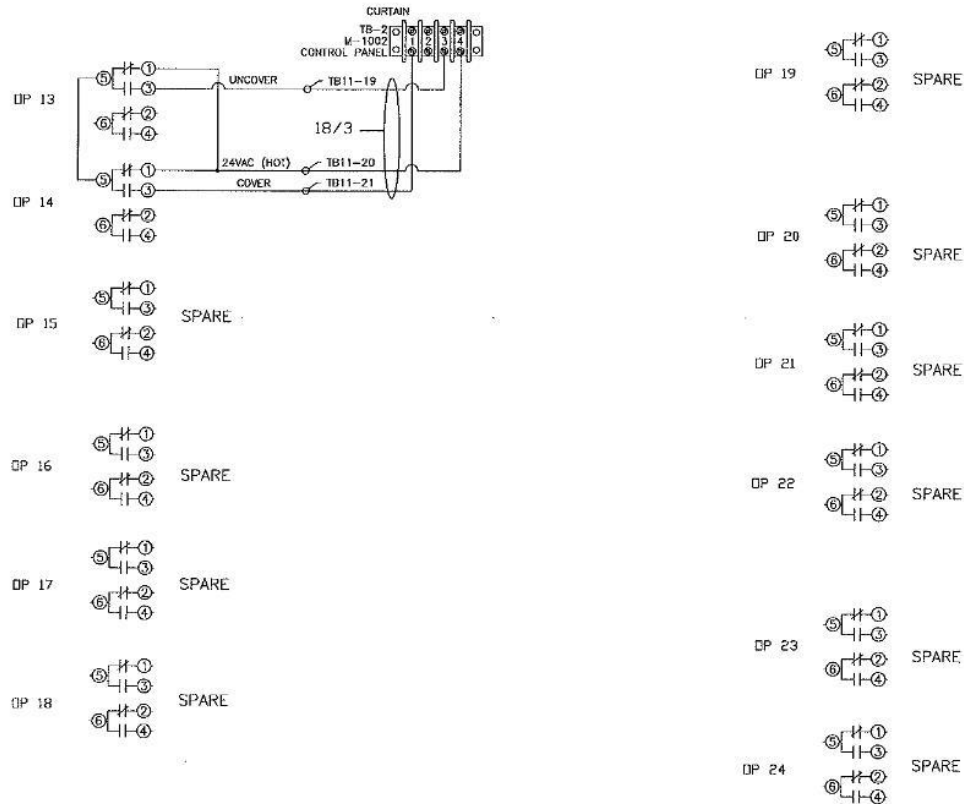
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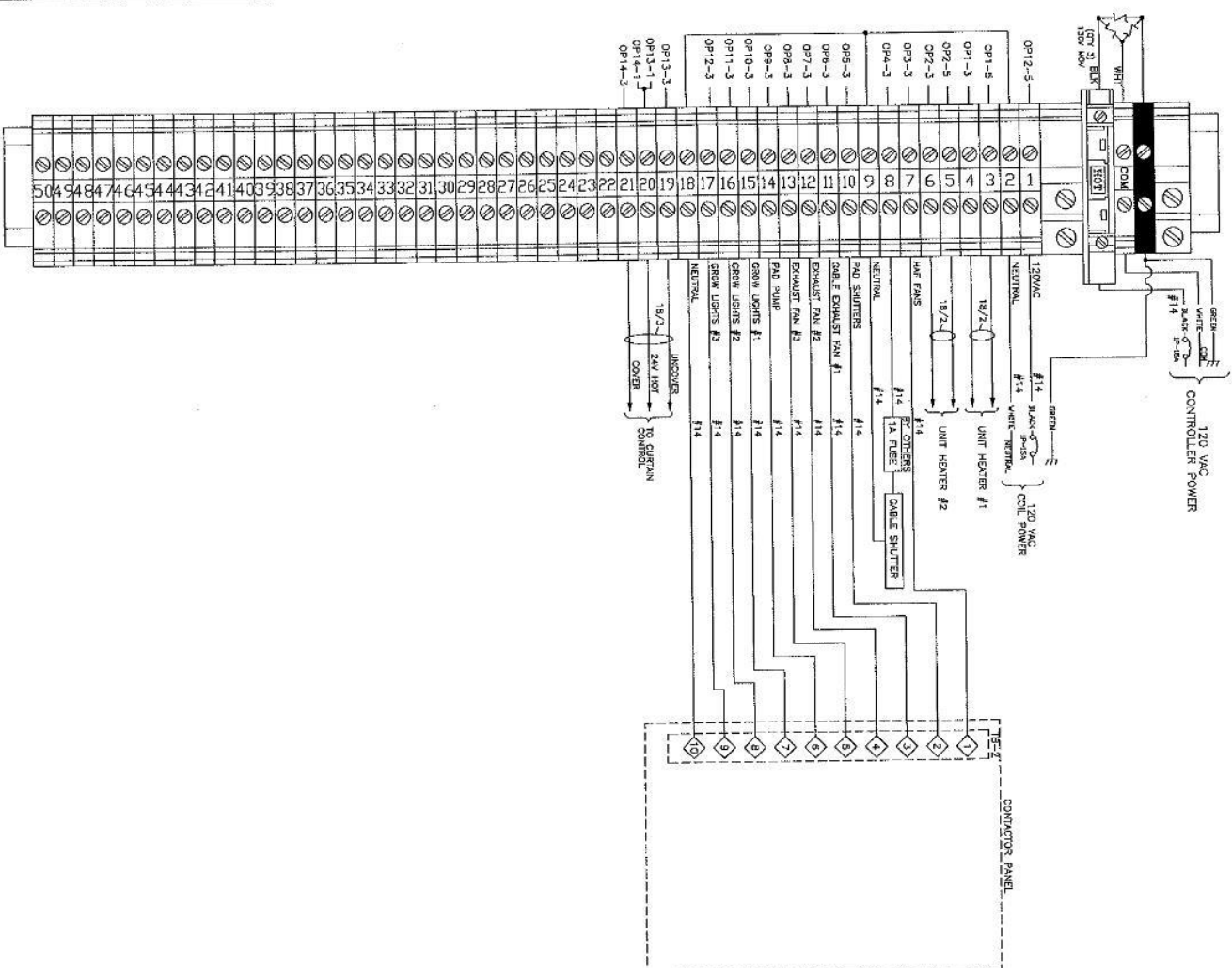


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B. LANE	6/28/19	G. DRAN		125427-8	8/11
DRAWN BY	DATE	APPROVED	DATE	SCALE	TRG NUMBER
					PAGE NUMBER

VersiSTEP TB-11 LAYOUT



NOTE:
 1. SYSTEM OR COMPENSATION CABLES
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 50. SYSTEM OR COMPENSATION CABLES

CONNECTION BY WIRE:
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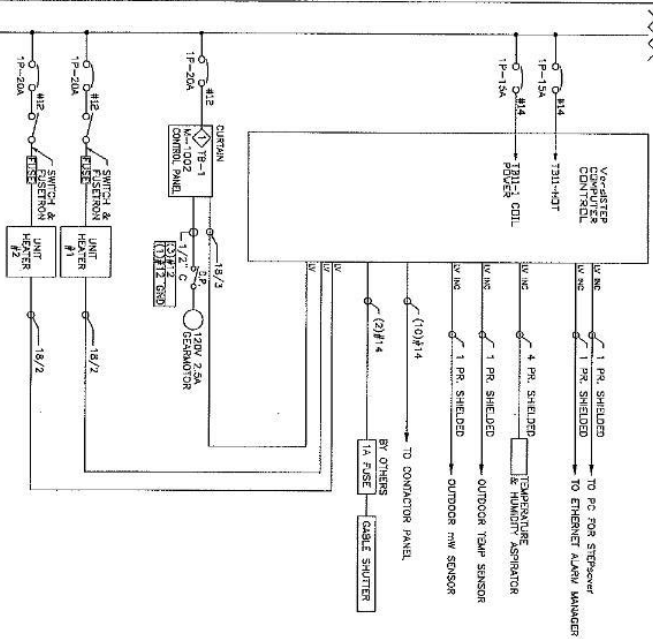


8541 MARSHALL ST.
 ARVADA, CO. 80002
 PH: 303-424-4481
 FAX: 303-424-6812
 WWW.WADSWORTHCONTROLS.COM

JOLIET TREATMENT CENTER • JOLIET, IL VersiSTEP TB11 LAYOUT STUPPY, INC. • P.O. # 30911							
D. LANE	6/29/18	G. DEAN	1/8"=1'-0"	10542Y.7			7/01
DRAWN BY	DATE	APPROVED	DATE	SCALE	PLS NUMBER	PLAK NUMBER	PAGE

POWER SUPPLY
120/240V 1ϕ
BREAKER PANEL

Versistep ONE LINE POWER (PAGE 1)



LEGEND
LV = LOW VOLTAGE
INC = INCLUDED

WARRANTY NOTICE:
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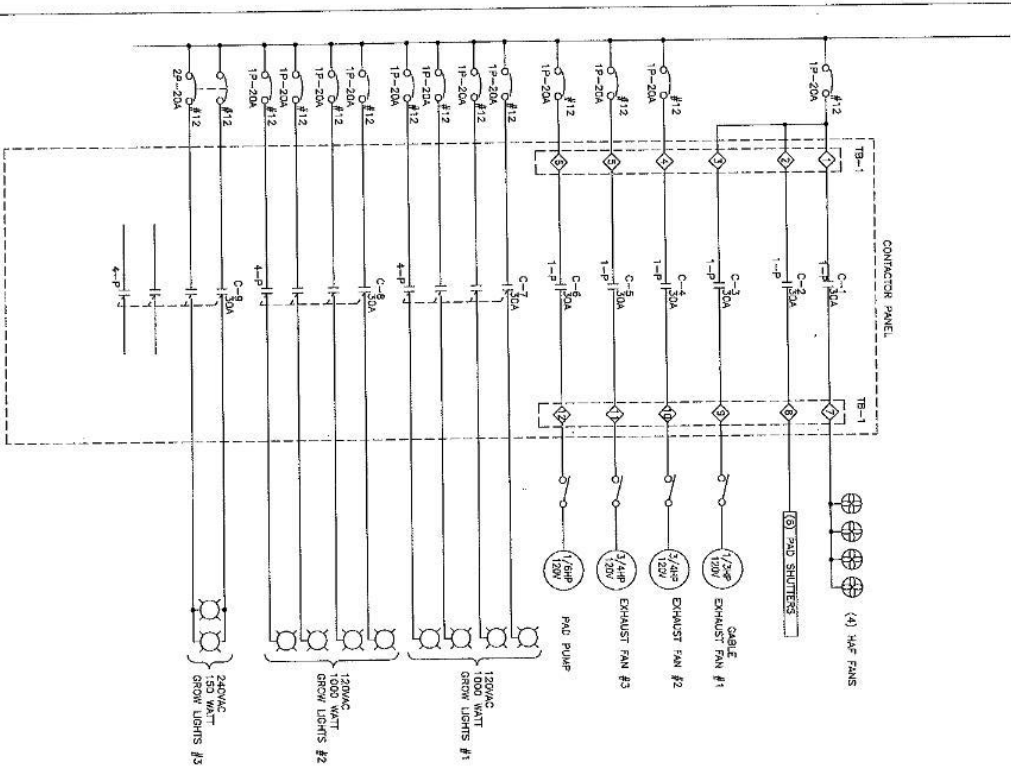
5641 MARSHALL ST.
ARVADA, CO. 80009
TEL: 303-424-4461
FAX: 303-424-6012
WWW.WADSWORTHOUTDOORS.COM

JOLIET TREATMENT CENTER • JOLIET, IL
Versistep ONE LINE POWER (PAGE 1)
STUPPY, INC. • P.O.# 30911

DRAWN BY	DATE	APPROVED	DATE	SCALE	FILE NUMBER	PLAN NUMBER	PAGE
	6/26/78	C DEAN			425427_8		8/11

POWER SUPPLY
120/240V 1ϕ
BREAKER PANEL

VERSISTEP ONE LINE POWER
(PAGE 2)



CONTRACTOR PANEL

WADSWORTH
Control Systems

300 WADSWORTH ST.
ARVADA, CO. 80002
TEL. 303-424-4461
FAX 303-424-6012
WWW.WADSWORTHCONTROL.COM

DATE: 05/27/03
TIME: 11:57 AM
PROJECT: NEW FAC. 600
DRAWING: 4.4 TO 7.1 (M, S, & 4/11)

DATE: 05/27/03
TIME: 11:57 AM
PROJECT: NEW FAC. 600
DRAWING: 4.4 TO 7.1 (M, S, & 4/11)

NOTE: TERMINATE CONDUIT
TO CONTRACTOR PANEL WITH
A NEMA 4 RATED HUB

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WADSWORTH CONTROL SYSTEMS

300 WADSWORTH ST.
ARVADA, CO. 80002
TEL. 303-424-4461
FAX 303-424-6012
WWW.WADSWORTHCONTROL.COM

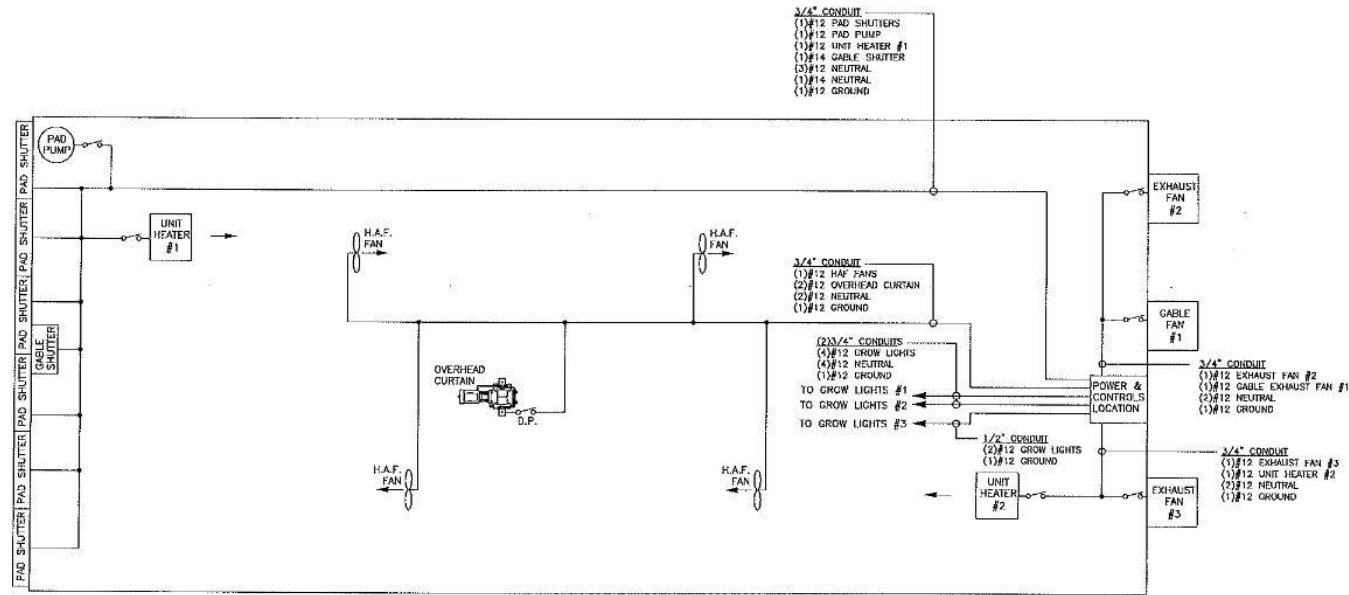
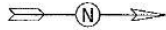
NGMA

WADSWORTH
Control Systems

JOLIET TREATMENT CENTER • JOLIET, IL
VersiSTEP ONE LINE POWER (PAGE 2)
STUPPY, INC. • P.O.# 30811

DESIGNED BY	DATE	APPROVED	DATE	SCALE	FILE NUMBER	PLAN NUMBER	PAGE
M. LANE	6/18/10	G. DEAN			125427_0		8/11

LINE VOLTAGE CONDUIT & WIRING LAYOUT



IMPORTANT NOTE 1
NO CONDUITS OR CABLES TO ENTER THROUGH THE TOP OF WADSWORTH CONTROL PANELS

IT IS THE INSTALLER'S RESPONSIBILITY TO MAKE ALL CONNECTIONS TO THE CONTROL RELAYS

D.P. = DOUBLE POLE DISCONNECT SWITCH

ONE LINE POWER AND CONDUIT & WIRING DIAGRAMS ARE FOR INFORMATION ONLY. INSTALLATION LABOR AND ELECTRICAL MATERIALS (BREAKER PANELS, CONDUITS, WIRE, CABLES, TUBINGS, DISCONNECTS, ETC.) TO BE PROVIDED BY ELECTRICAL CONTRACTOR OR OTHERS. THE CABLES FOR ASPERATOR SENSORS AND WEATHER STATION ARE USUALLY SUPPLIED BY WADSWORTH CONTROLS AND ARE SO DESIGNATED ON THE PRINTS

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TEL. 303-424-4401
FAX: 303-424-4012
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JOLIET TREATMENT CENTER • JOLIET, IL
VersiSTEP LINE VOLTAGE CONDUIT & WIRING LAYOUT
STUPPY, INC. • P.O.# 30911

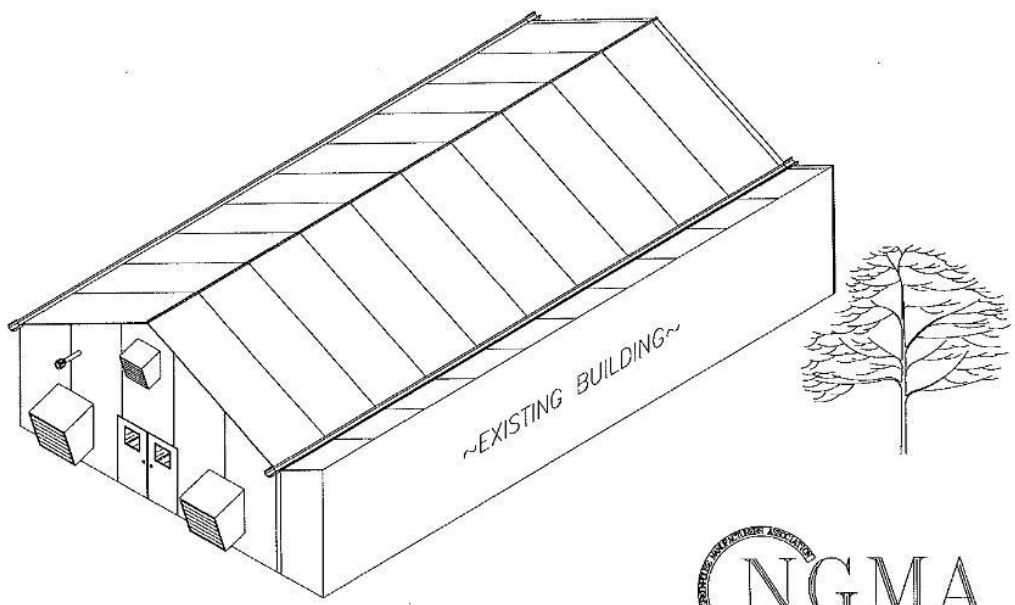
DATE	BY	APPROVED	SCALE	FILE NUMBER	PLAN NUMBER	PAGE
8/29/18	B. LARK	C. DEAN		J20487_31		11/1

D. REFERENCE DOCUMENTS

JOB:
JOLIET TREATMENT CENTER
JOLIET, IL

SIZE	SIDEWALL	SPACING
30' x 60'	10'	10' O.C.
PROJECT	DATE	STYLE
16827	05/01/2019	CS3

- CONSTRUCTION SEQUENCE**
1. Site Preparation
 2. Column Layout & Installation
 3. Gutter Installation
 4. Truss Assembly & Installation
 5. Roof Purlin Installation
 6. Bottom Purlin Installation
 7. Sidewall Diagonal & Roof Cable Bracing
 8. Sidewall Girt Framing
 9. Endwall Construction
 10. Aluminum Extrusion Installation
 11. Equipment & Accessories



CAREFULLY REVIEW EVERY DRAWING BEFORE STARTING CONSTRUCTION

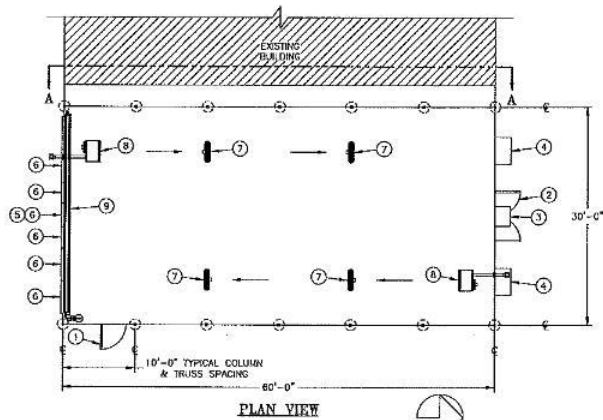
Stuppy
CREATING

1212 Day Street, PO Box 11208
Ft. Lauderdale, FL 33324
www.stuppy.com

CS3 FREE STANDING COVER SHEET

PROJECT # 16827

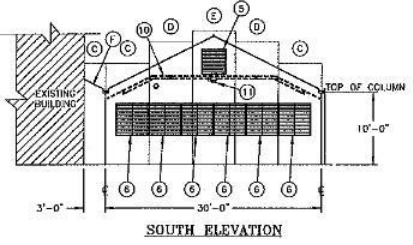
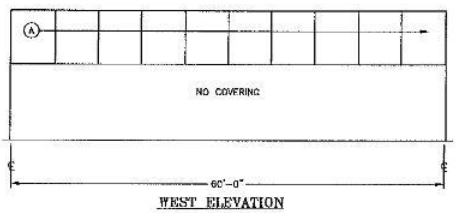
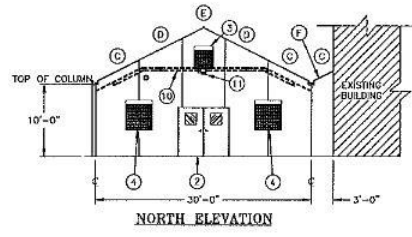
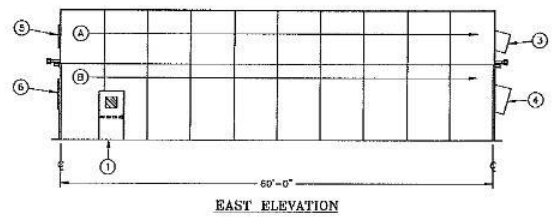
ISSUE DATE	
REVISIONS	
DRAWN	CHECKED
BCP	
SHEET	
COVER	



ITEM #	MATERIAL LIST - PART DESCRIPTION	QTY
1	3' x 6'-8" DOOR BY AJ	1
2	DOUBLE DOOR BY AJ	1
3	33000 WALZAG 115/230/1 FKG 1/4 HP, W REAR GUARD	1
4	33009 WALZAG 115/230/1 FKG 3/4 HP, W REAR GUARD	2
5	330614 SHUTTER 39" X 39" DO DOUBLE	1
6	330816 SHUTTER 51" X 51" DO DOUBLE	6
7	32805 ACME 19AF 2DA4 FAN 1/15HP-1	4
8	446527 MUN PTP 250 SS NG 110V	2
9	330769 FC 4' x 8' BA # ON FAN, S&P #, BANG 02, 1-1/2" x 1" DWS 22F	2
10	STUPPY SLOPE-FLAT-SLOPE SHADE SYSTEM	1
11	34520 WY 6500 39V NO LMT WIR CLR NUM 1-3/8" NO CONTRL	1

ITEM #	MATERIAL LIST - PANEL DESCRIPTION	QTY
A	233203 ANLX 1015 CLEAR TW 71.25' BWX 1706GR x 10'-0"	20
B	233203 ANLX 1015 CLEAR TW 71.25' BWX 1706GR x 11'-0"	10
C	233203 ANLX 1015 CLEAR TW 71.25' BWX 1706GR x 14'-0"	6
D	233203 ANLX 1015 CLEAR TW 71.25' BWX 1706GR x 17'-0"	4
E	233203 ANLX 1015 CLEAR TW 71.25' BWX 1706GR x 18'-0"	2
F	233203 ANLX 1015 CLEAR TW 71.25' BWX 1706GR x 3'-0"	10

- NOTES:
- CHECK WITH CUSTOMER FOR EXACT LOCATION OF DOORS AND ALL EQUIPMENT.
 - REFER TO ENDWALL FRAMING DRAWINGS FOR ASSEMBLY OF ENDWALLS.
 - IN THE EVENT OF UNINTENDED CONFLICT OF EQUIPMENT PLACEMENT & CODE STRUCTURE, WHEN APPLICABLE, PRIORITY WILL BE GIVEN TO CODE STRUCTURE.



JOLIET TREATMENT CENTER
JOLIET, IL

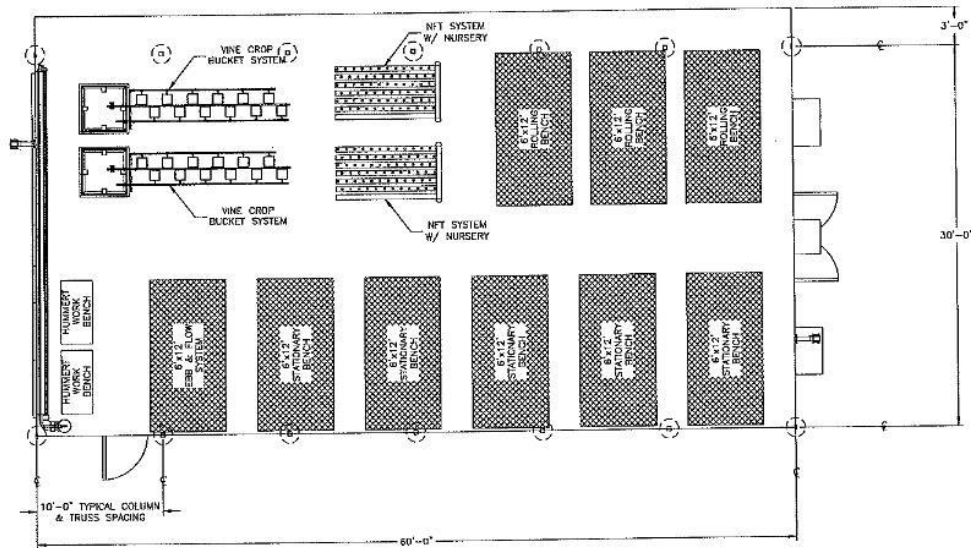
PROJECT # 15827

ISSUE DATE
04/18/2019
REVISIONS

DRAWN CHECKED
GMD BCP

SHEET

C-14350
EQUIPMENT LAYOUT



PLAN VIEW

NOTES:

1. CHECK WITH CUSTOMER FOR EXACT LOCATION OF DOORS AND ALL EQUIPMENT.
2. REFER TO ENDWALL FRAMING DRAWINGS FOR ASSEMBLY OF ENDWALLS.
3. IN THE EVENT OF UNINTENDED CONFLICT OF EQUIPMENT PLACEMENT & CODE STRUCTURE, WHEN APPLICABLE, PRIORITY WILL BE GIVEN TO CODE STRUCTURE.



JOLIET TREATMENT CENTER
JOLIET, IL

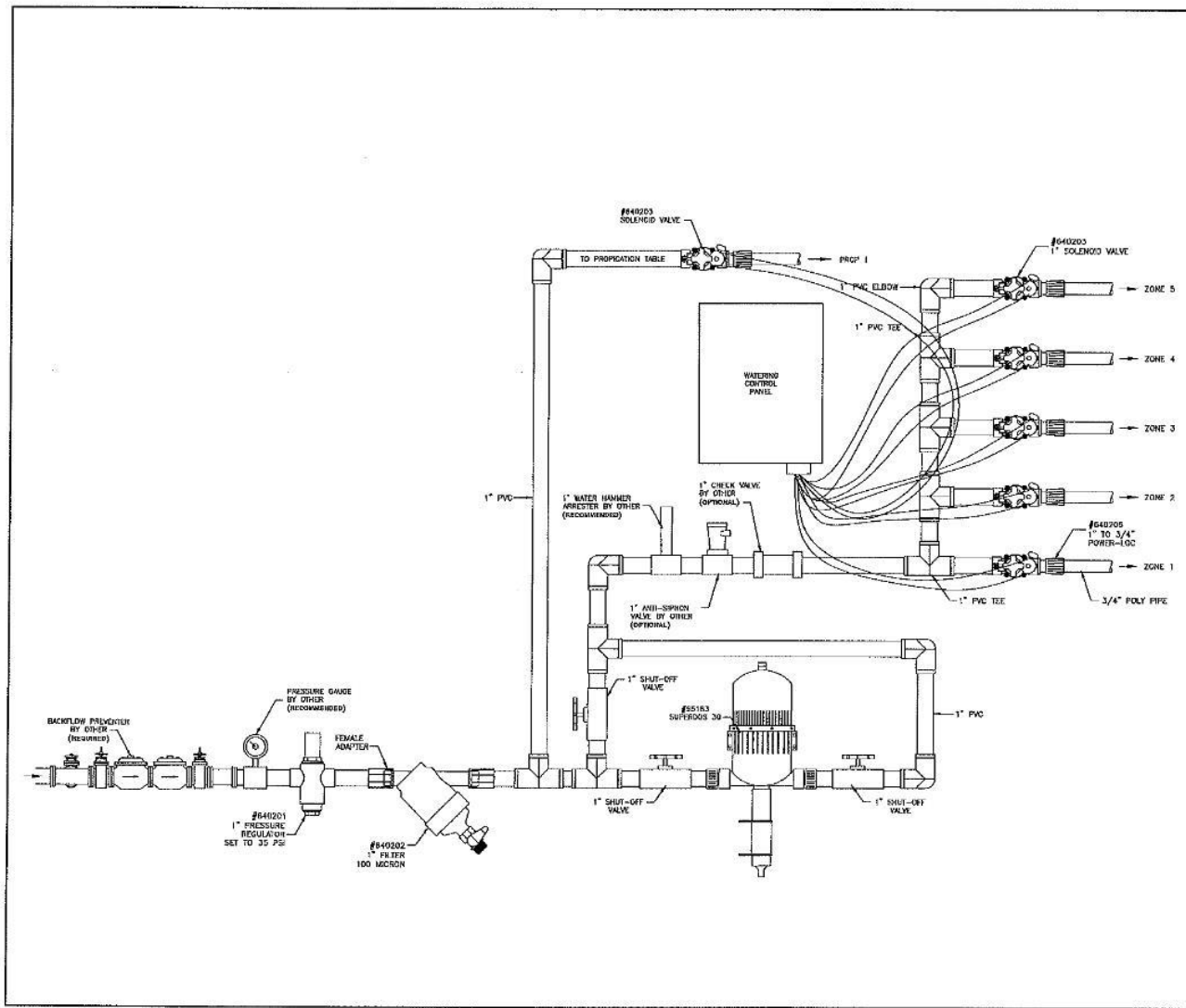
PROJECT # 19827

ISSUE DATE
04/02/09
REVISIONS

DRAWN CHECKED
FON HCP

SHEET

C-14350A
BENCH LAYOUT



WWW.STUPPY.COM
Stuppy
 GIERHOUSE
 1912 City Street, PO Box 13688
 Dallas, TX 75213
 416.342.3371 Fax 416.342.3372

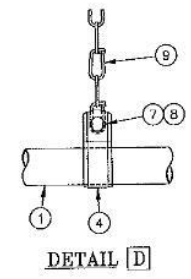
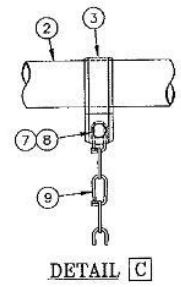
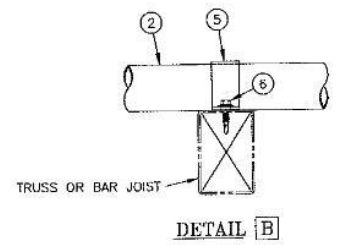
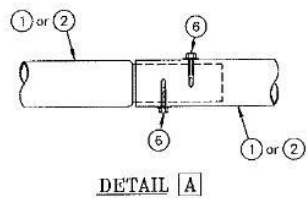
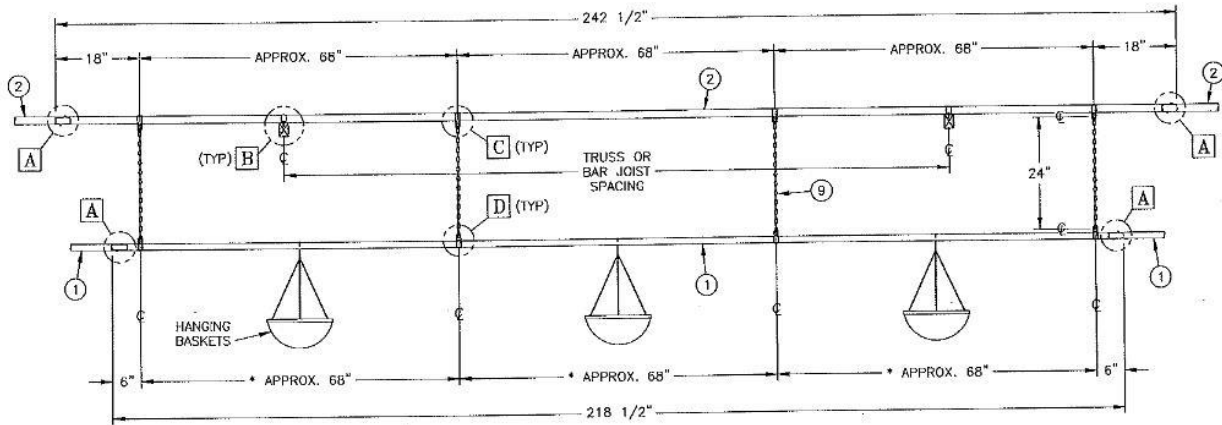
**WATERING SYSTEM INSTALLATION
 W/SUPERDOS FERTILIZER INJECTOR**

ITEM #

ISSUE DATE
 10/22/2018
 REVISIONS

DRAWN CHECKED
 TNB PQH
 SHEET

C-14089B

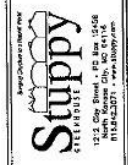


#	ITEM #	MATERIAL LIST - PART DESCRIPTION	QTY
1	136	1.315-16GA x 218.5" SWEDGED	1
2	165	1.66-15GA x 242.5" SWEDGED	1
3	15263	1.66 BRACE BAND	4
4	27753	1.315 BRACE BAND	4
5	1530	1.66 PIPE STRAP 1" WIDE	2
6	1231	#12 x 1" TEC W-9/16" WASHER	10
7	1341	5/16-18 x 1-1/4" GR5 HEX BOLT CAD	8
8	1346	5/16-18 HEX LOCK NUT-SRTD FLANGE	8
9	64820	LINK CHAIN	10FT

* SUGGESTED CHAIN SPACING. YOU MAY NEED TO INCREASE THE SUPPORT FOR YOUR APPLICATION.

NOTES:
 1. 1.66-15GA IS SHIPPED LONG TO REACH YOUR TRUSSES. FIELD CUT WHERE REQUIRED.
 2. HANGING BASKET REQUIRES ADEQUATE TRUSS FOR BASKET LOAD.

~ APPLICATION MAY VARY ~



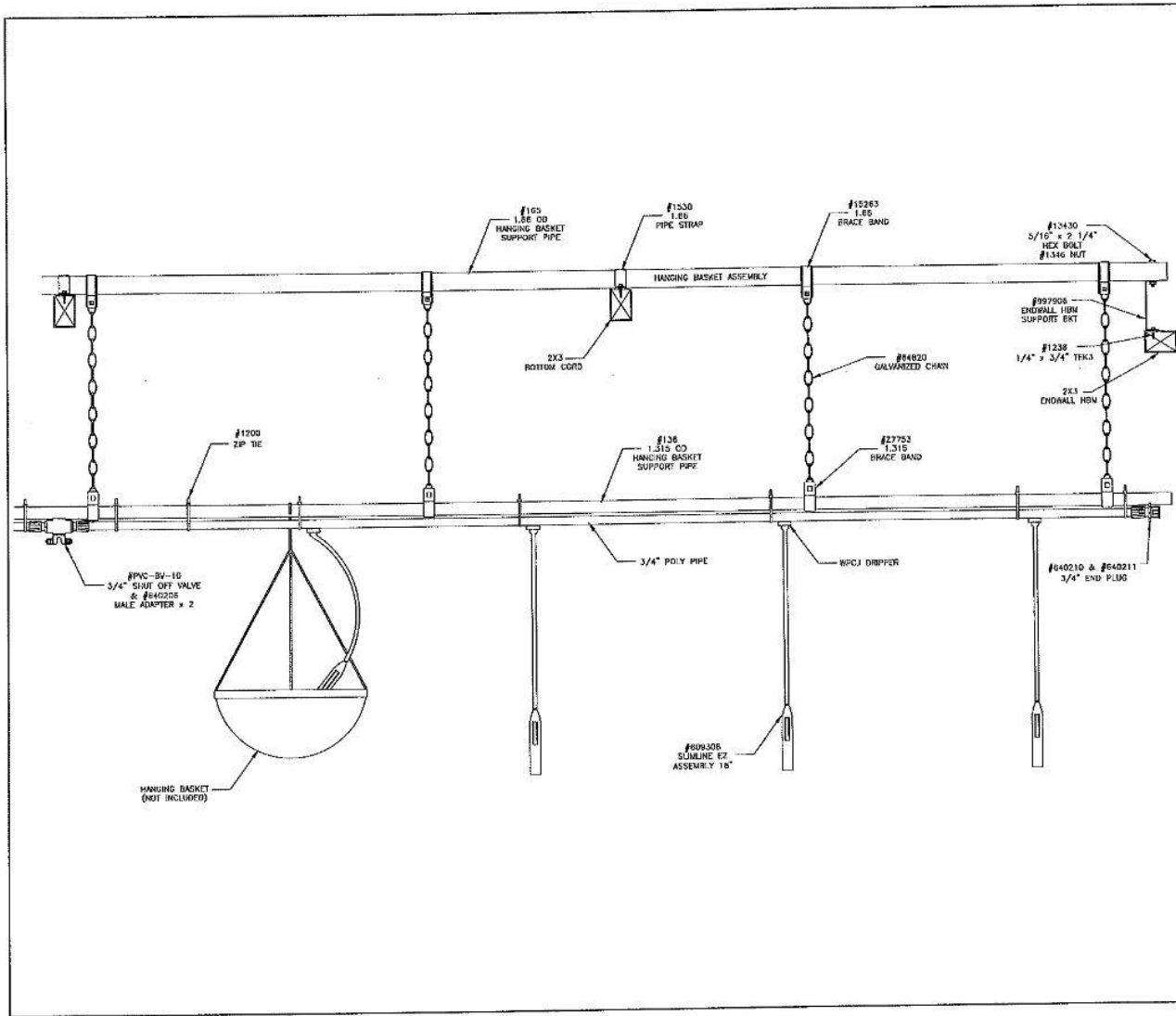
CS3 HANGING BASKET INSTALLATION
 18" SECTION w/24" DROP

ITEM # 64000

REVIS DATE
 11-29-2011
 REVISIONS

DRAWN CHECKED
 TRS CD

SHEET
 C-10986



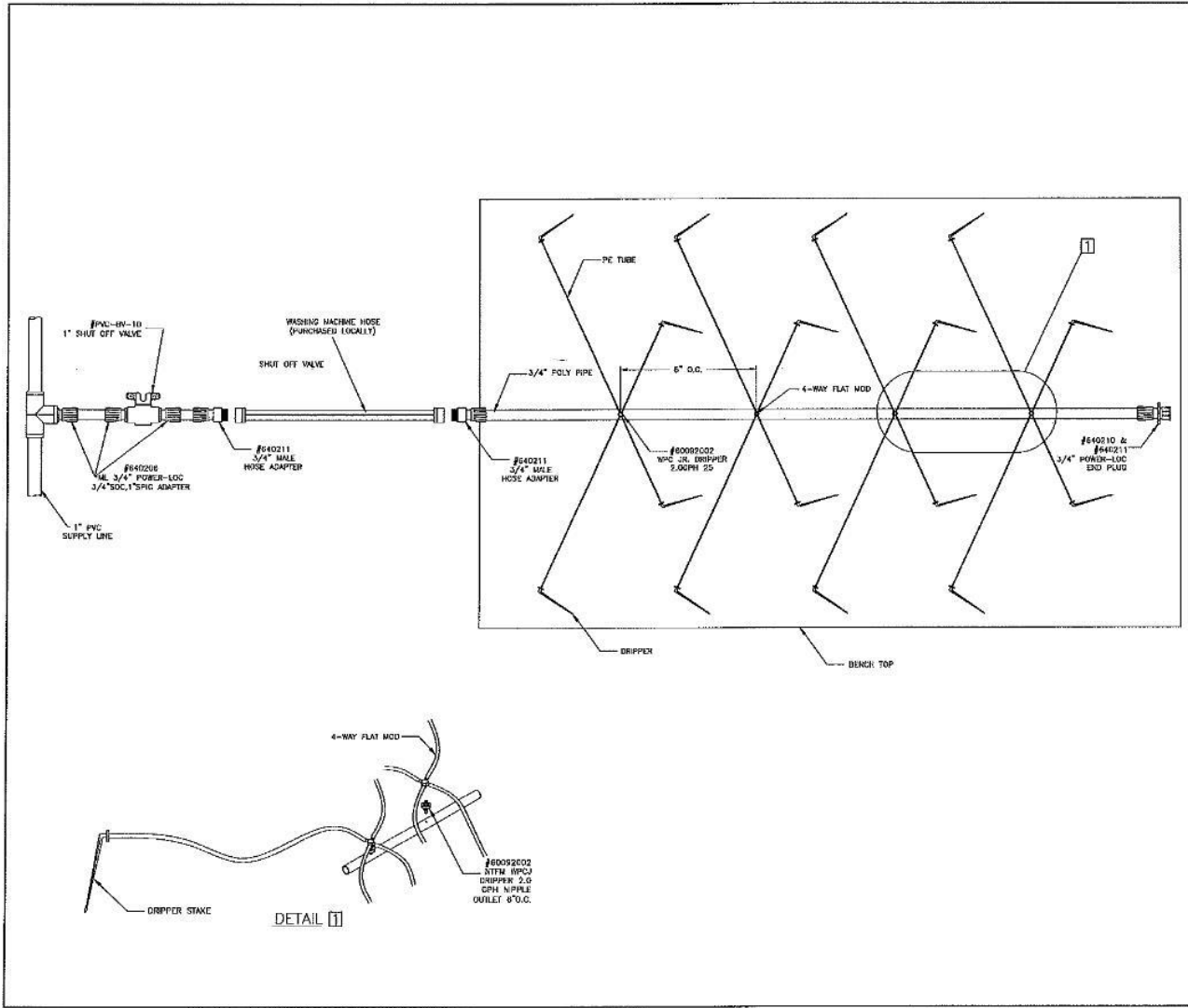
Any Questions call
Stuppy
 STEEL & PIPE
 1312 City Blvd - PO Box 17448
 North Haven, CT, 06418
 P: 860.237.1177 • www.stuppy.com

NETAFIM
 HANGING BASKET DRIPPERS

ISSUE DATE
 10/3/2018
 REVISIONS

DRAWN THE
 CHECKED PQR
 SHEET

C-14088B



www.stuppy.com
Stuppy
 GREENHOUSES
 1312 Clay Street, P.O. Box 17458
 Portland, OR 97217
 503.251.2999

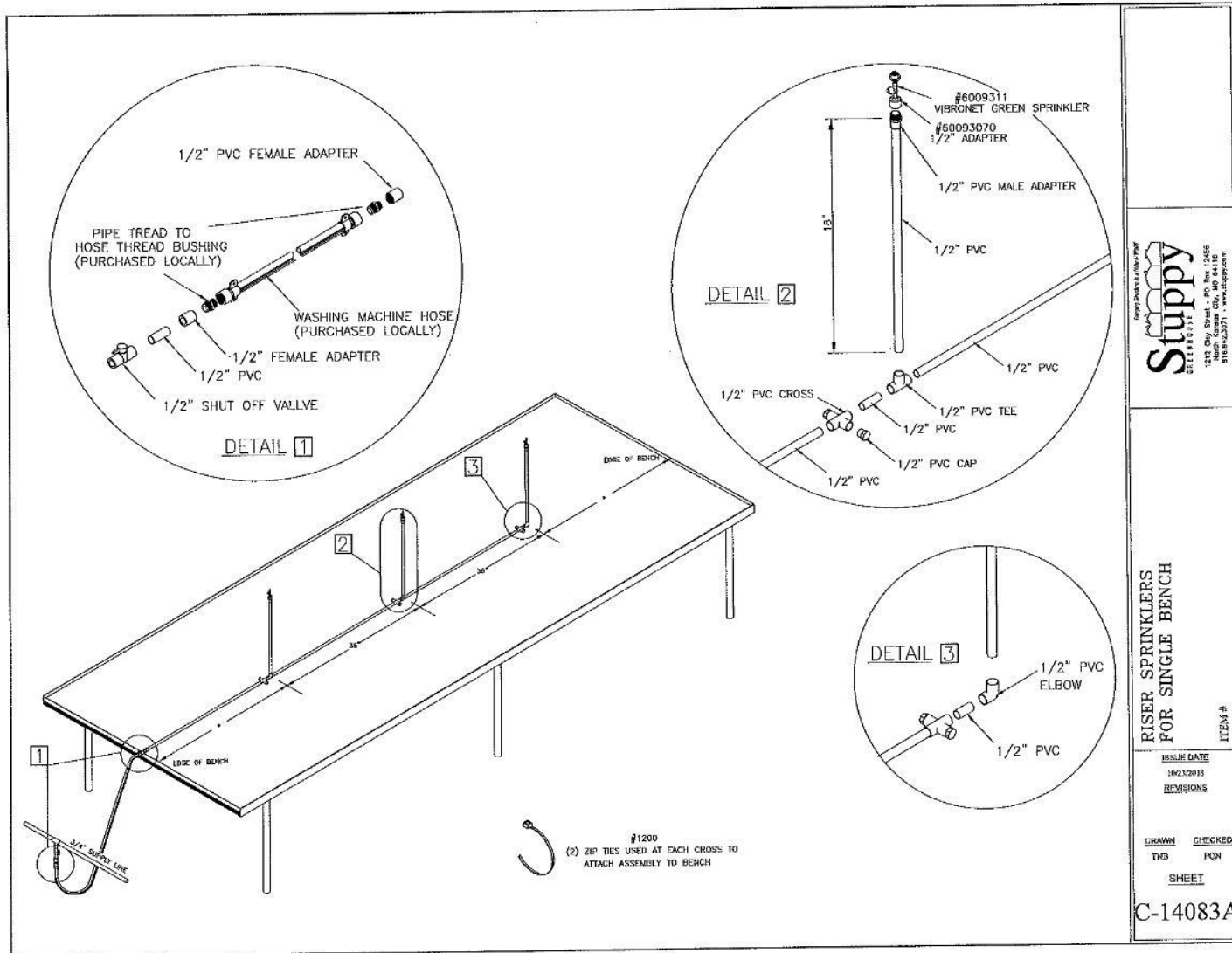
NETAFIM
 POT WATERING LAYOUT

ITEM #

ISSUE DATE
 10/2/2018
 REVISIONS

DRAWN CHECKED
 THB FOR

SHEET
 C-14086A





 133 Old Street - P.O. Box 12455

 North Haven City, CT 06418

 818-832071 - www.stuppy.com

RISER SPRINKLERS

 FOR SINGLE BENCH

 ITEM #

ISSUE DATE

 10/23/2018

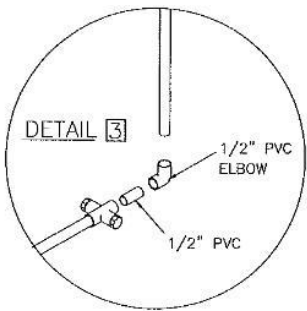
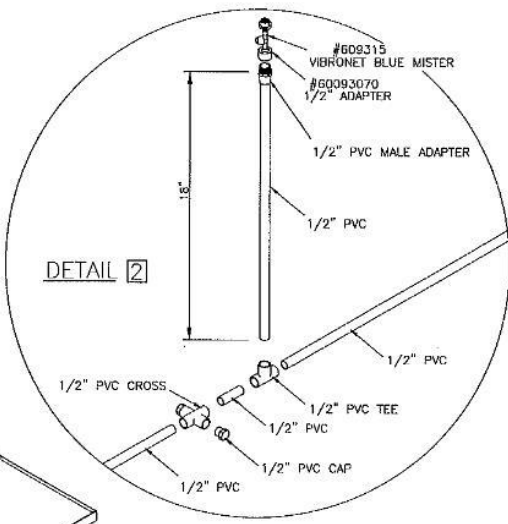
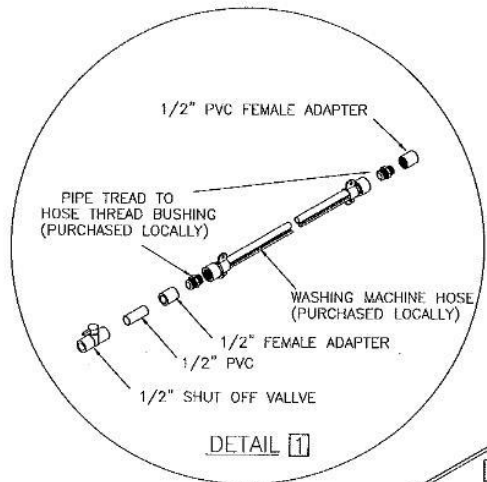
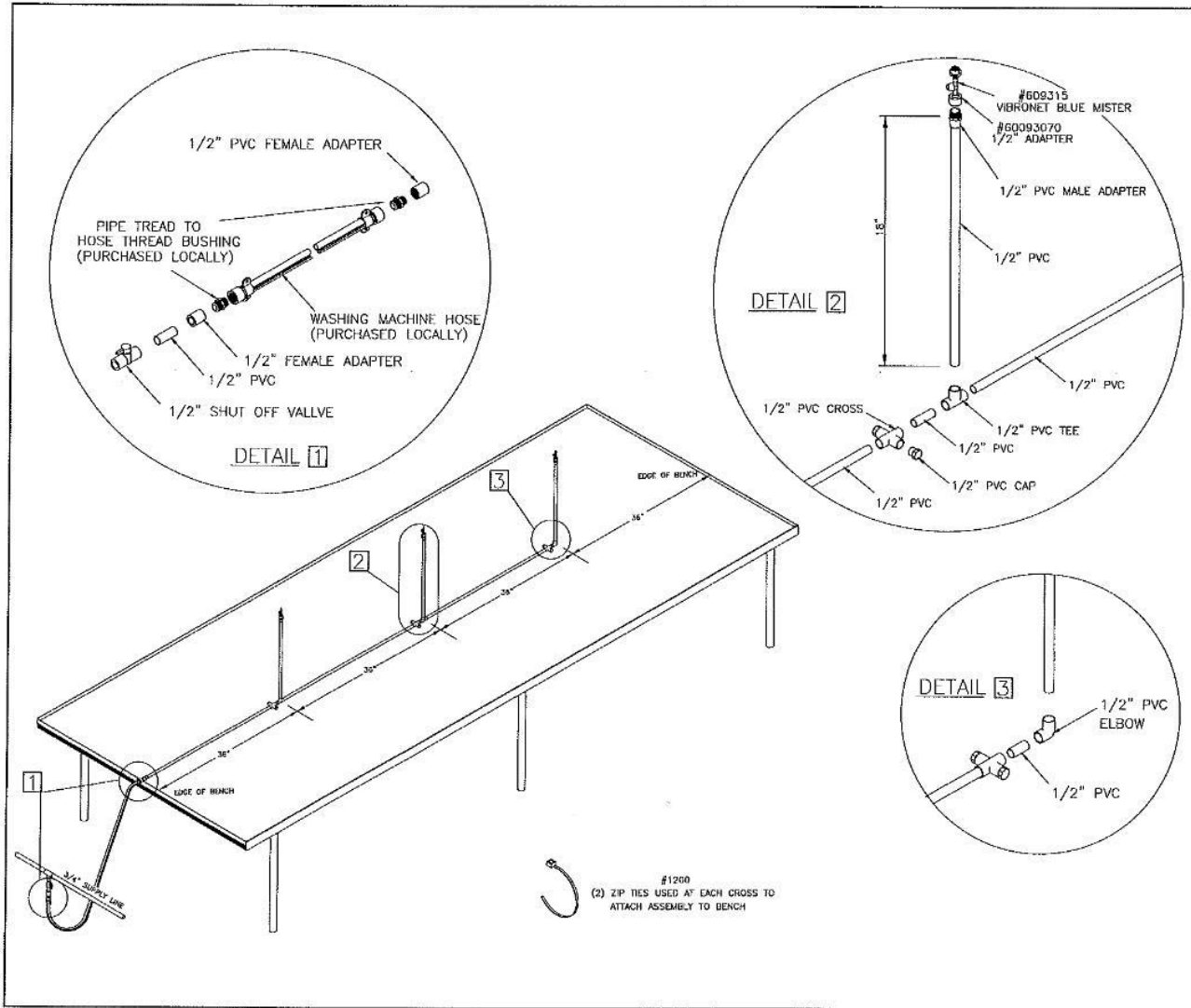
 REVISIONS

DRAWN CHECKED

 TWS PCH

 SHEET

C-14083A



#1200
 (2) ZIP TIES USED AT EACH CROSS TO ATTACH ASSEMBLY TO BENCH



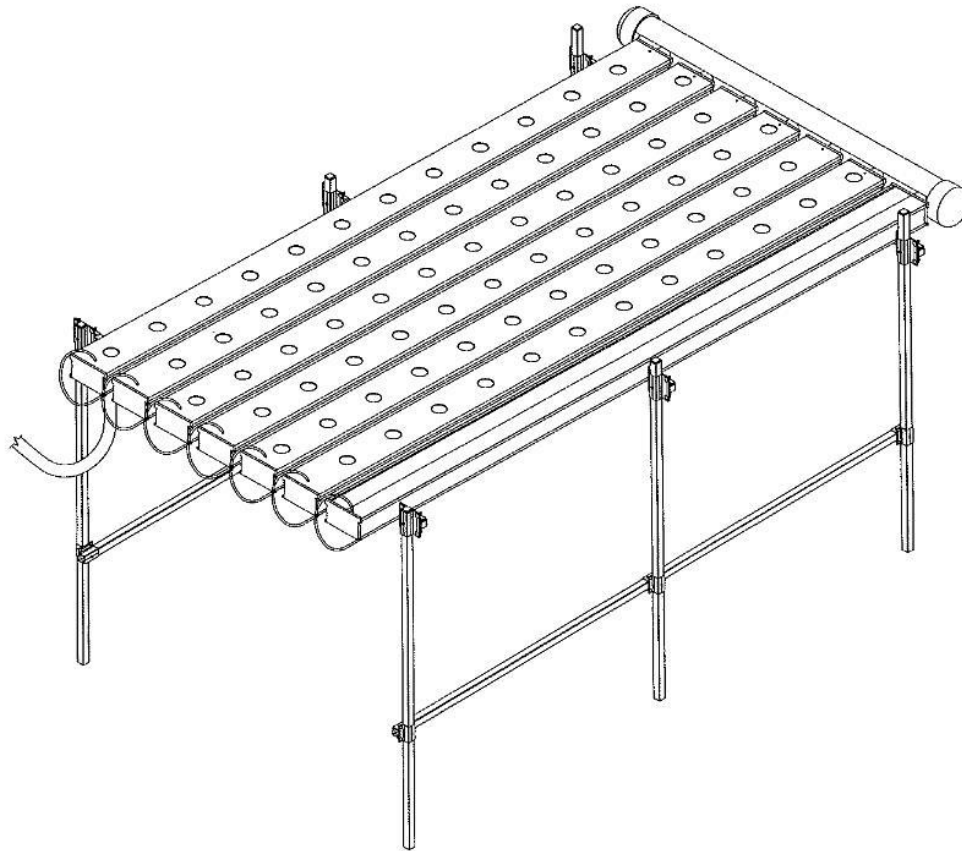
 1512 E. 9th Street, P.O. Box 12458
 #15124582011 • www.stuppy.com

RISER MISTERS FOR SINGLE BENCH

ISSUE DATE: 10/23/2018
 REVISIONS:

DRAWN: TMS CHECKED: PGM
 SHEET:

C-14085G



NFT SYSTEM COVER SHEET

ESTABLISHED 1978
Stuppy
STEEL BUILDING
 1912 Clay Street - P.O. Box 12455
 North Kansas City, MO 64116
 (816)421-2121 • www.stuppy.com

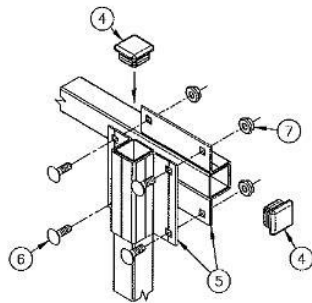
AQUAPONICS
 NFT SYSTEM COVER SHEET

ITEM # 123287

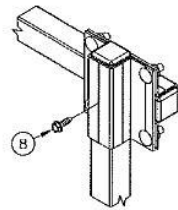
ISSUE DATE
 04/29/2019
 REVISIONS

DRAWN CHECKED
 PMB TNB
 SHEET

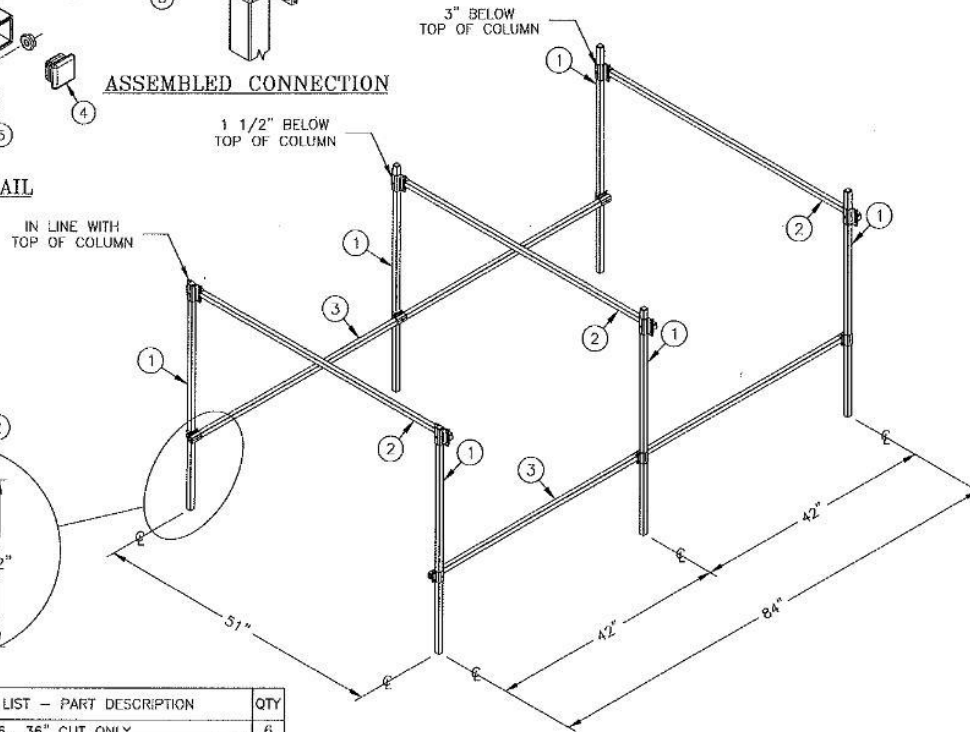
C-13562B



CONNECTION DETAIL



ASSEMBLED CONNECTION



QTY	ITEM #	MATERIAL LIST - PART DESCRIPTION	QTY
6	998109-03600	1.0"SQ-16 36" CUT ONLY	6
3	998109-05408	1.0"SQ-16 54-1/2" CUT ONLY	3
2	998109-08600	1.0"SQ-16 86" CUT ONLY	2
16	65088	1" SQ. RIBBED PIPE PLUG	16
24	P8915	1" SQ. CROSS CONNECTOR	24
48	12775	1/4-20 x 3/4" GR5 CARRIAGE BOLT	48
48	1303	1/4-20 TENSIL LOCK NUT	48
12	103405	#12 x 3/4" TEC NO WASHER	12

CL = CENTER LINE

127 Day Street, PO Box 12408

 Philadelphia, PA 19112

 800-825-2077 • www.stuppy.com

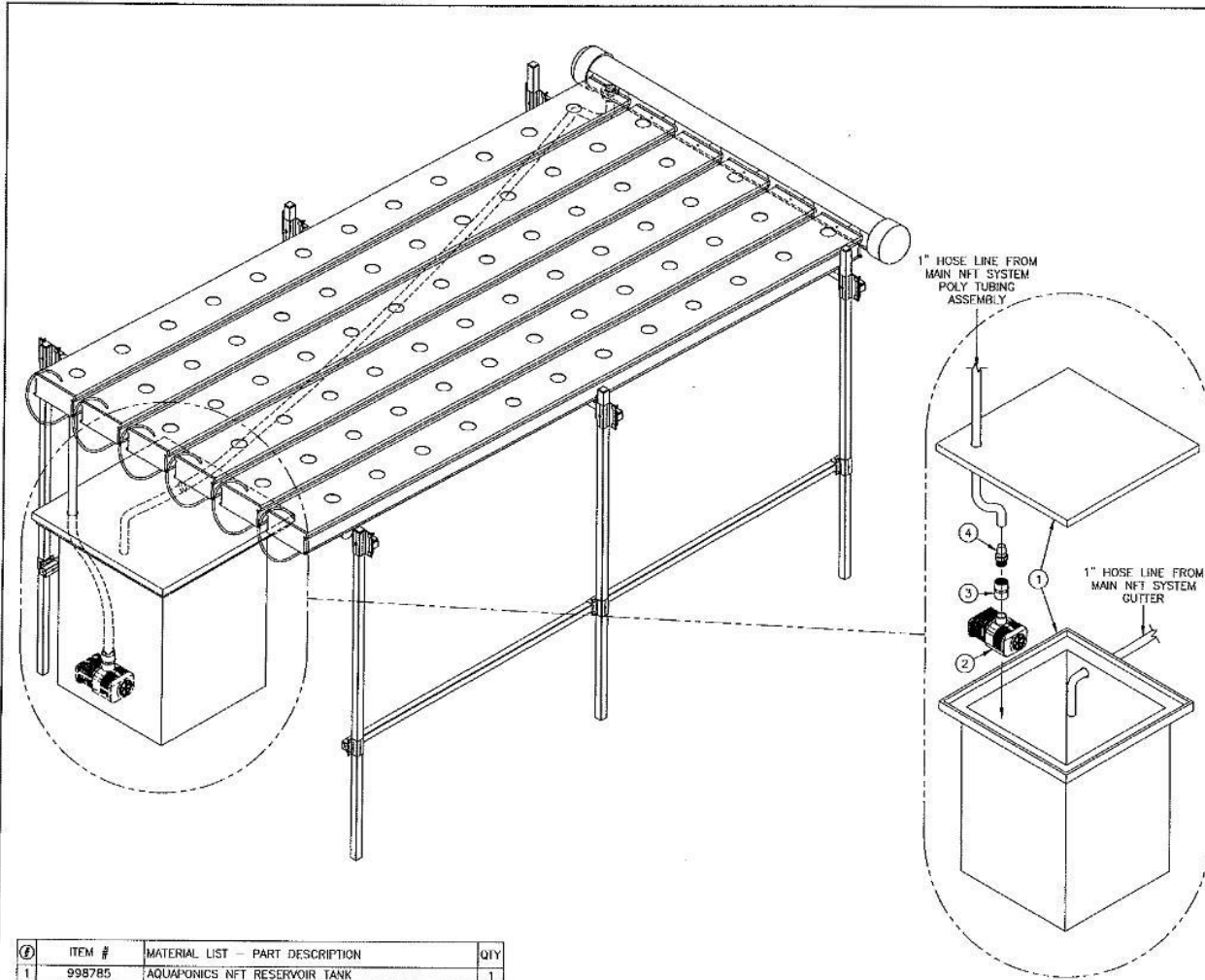
NFT SYSTEM BENCH ASSEMBLY

ITEM #

ISSUE DATE
 12/27/2016
 REVISIONS

DRAWN CHECKED
 PJB TMB
 SHEET

C-13535
 NFT BENCH



④	ITEM #	MATERIAL LIST - PART DESCRIPTION	QTY
1	998785	AQUAPONICS NFT RESERVOIR TANK	1
2	3395	QUIET ONE 4000 FOUNTIAN PUMP PRO SERIES	1
3	PVC-FIP-10	PVC SCH 40 FIPXFIP 1" COUPLING	1
4	PVC-INSERT10-F	PVC IPS INSERT X MIP ADAPTER	1

OPTIONAL RESERVOIR TANK INSTALLATION

ANALOG SENSOR KIT REQUIRED

 1812 Day Street, PO Box 12456
 BIRMINGHAM, AL 35202

AQUAPONICS NFT SYSTEM
 OPTIONAL RESERVOIR TANK
 ITEM # 1332NR

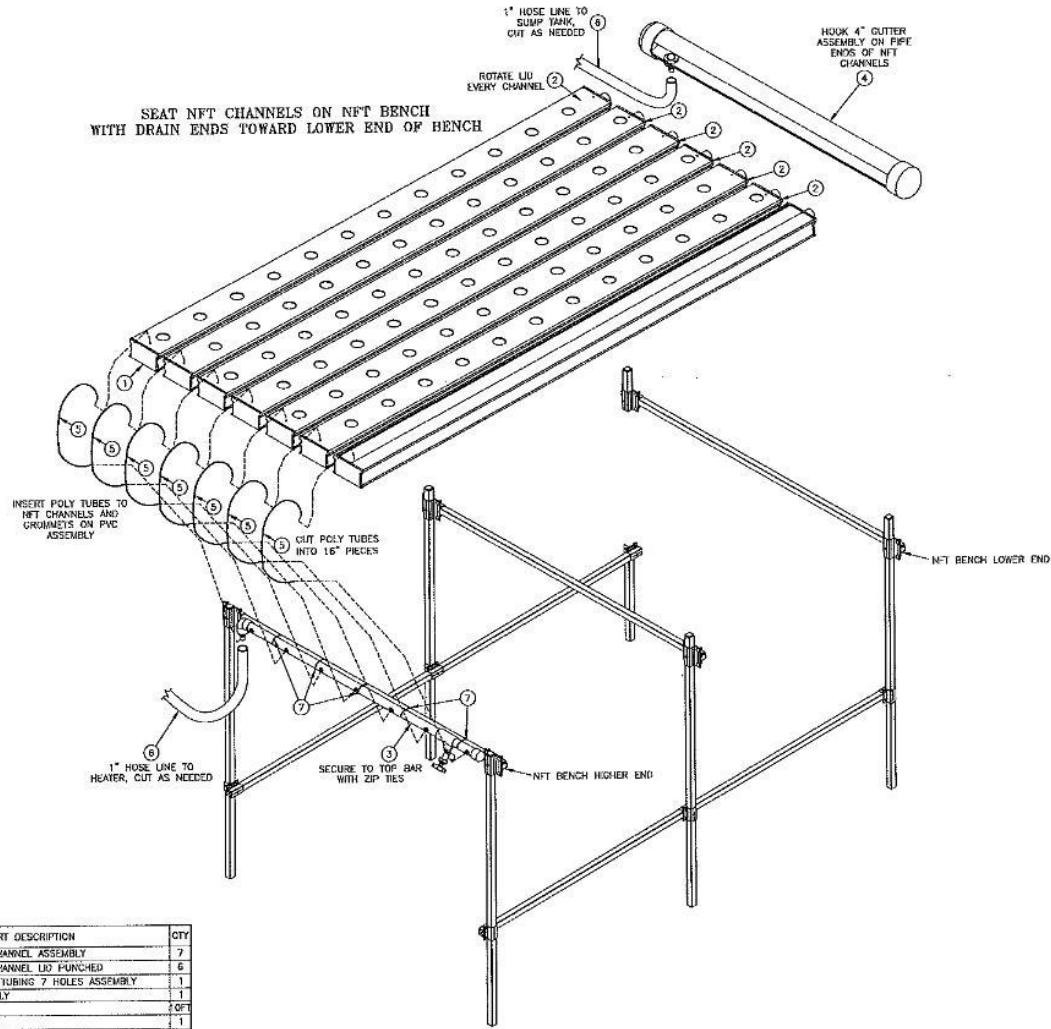
ISSUE DATE	09/07/2017
REVISIONS	1.3 02/01/2018

DRAWN	CHECKED
PKM	TND

SHEET

C-13773

SEAT NFT CHANNELS ON NFT BENCH
WITH DRAIN ENDS TOWARD LOWER END OF BENCH



AS INCLUDED
INSTALL ON POLY
TUBES IF DESIRED

CUT OUTSIDE POLY
TUBES IN HALVES TO
INSERT BARBED SHUT
OFF VALVES

ITEM #	MATERIAL LIST - PART DESCRIPTION	QTY
1	588887 NFT 4 3/4" x 8" CHANNEL ASSEMBLY	7
2	588888 NFT 4 3/4" x 8" CHANNEL LID PUNCHED	6
3	PVC-A54 NFT AIRSTONE POLY TUBING 7 HOLES ASSEMBLY	1
4	PVC-A14 NFT GUTTER ASSEMBLY	1
5	148155 FLEX TUBE 3/16 ID	1
6	6305 POLYPIPE 1" X 20'	1
7	12008 ZIP TIES #16 BLACK UV SOF	25
8	339188 1/4" SHUT OFF VALVE - BARBED	3

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AQUAPONICS
NFT SYSTEM INSTALLATION

ITEM #

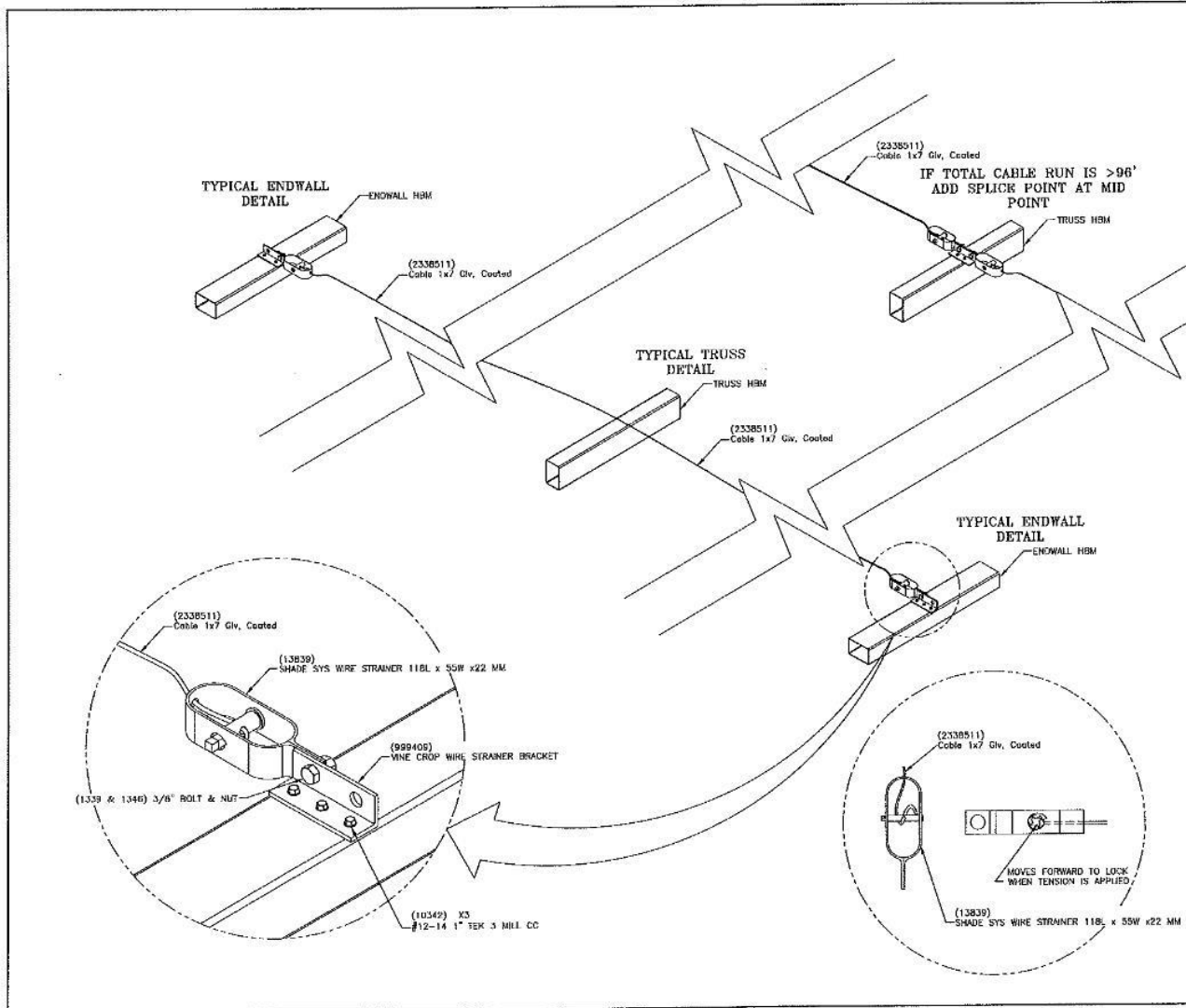
ISSUE DATE
04/20/2019

REVISIONS

DRAWN CHECKED
KCN BCP

SHEET

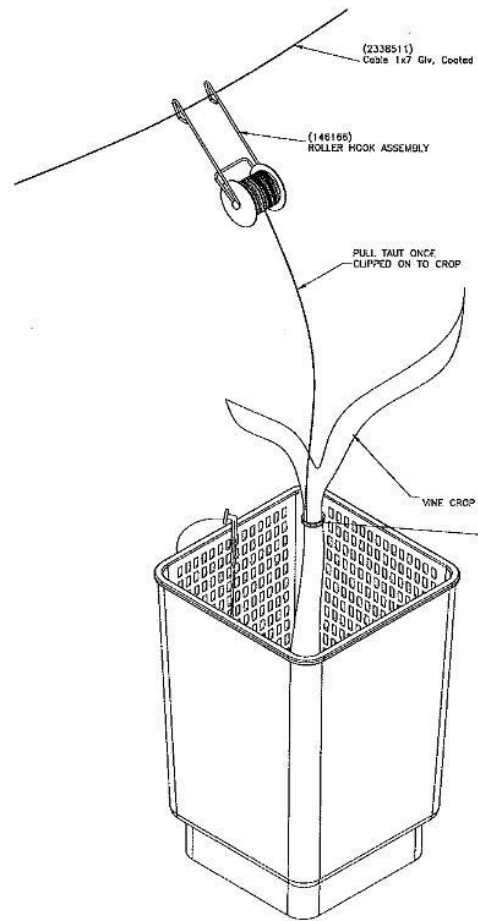
C-13563B



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VINE CROP SYSTEM

ISSUE DATE	04/29/2019
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SHEET	
C-14355	



THINGS TO NOTE:

1. KEEP SPOOL TAUT AT ALL TIMES
2. VINE CLIPS SHOULD CLIP TO MAIN PLANT STEM STRUCTURE FOR BEST PLANT SUPPORT.
3. RECOMMENDED SPACING OF VINE CLIPS IS 12" ALONG MAIN VINE STEM. IF VINE SEEMS TO SAG OR DOES NOT SEEM WELL SUPPORTED BY SPOOL TWINE, INCREASE INTERVAL OF VINE CLIP USE.
4. IF VINE CROP REACHES SPOOL HEIGHT, SLIDE SPOOL HORIZONTALLY ALONG SUPPORT CABLE AND UNRAVEL TWINE SPOOL UNTIL SUITABLE VINE CROP HEIGHT. BE SURE TO KEEP VINE CROP SPOOL RELATIVELY TAUT DURING MOVING THE PROCESS.
5. VINE CROP SYSTEM CAN BE USED IN DUCKETS (AS SHOWN) OR THROUGH THE USE OF ANY OTHER GROWING MECHANISM BEING USED.


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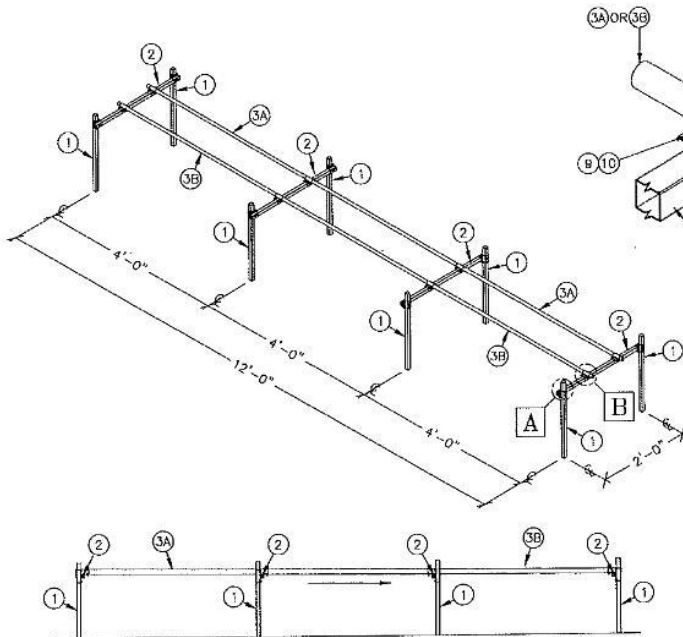
VINE CROP SYSTEM

PROJECT #

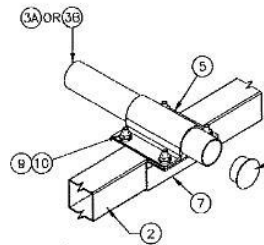
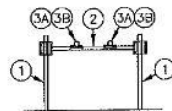
ISSUE DATE
 04/06/2019
 REVISIONS

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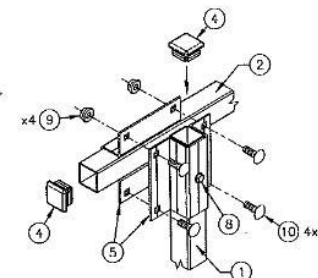
C-14355A



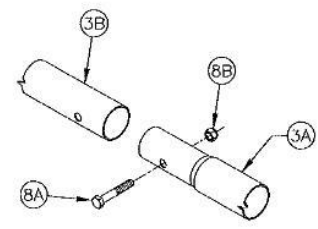
SLOPE 1.315 TOWARD TANK
LOCATION 1" MINIMUM



DETAIL A



DETAIL B



SPICE DETAIL

①	ITEM #	MATERIAL LIST -- PART DESCRIPTION	QTY
1	998109-02000	1.0" SQ-16 20" CUT ONLY	8
2	998109-02R0R	1.0" SQ-16 28 1/2" CUT ONLY	4
3A	999441	1.315-16 75" SWG DRILLED	2
3B	999442	1.315-16 75" CUT & DRILLED	2
4	65088	1" SQ. RIBBED PIPE PLUG	24
5	P8915	1" SQ. CROSS CONNECTOR	24
6	13132	PIPE PLUG 1.315 RIBBED	4
7	1528	1.315 CROSS CONNECTOR	8
8	103405	#12 x 3/4" TEC NO WASHER	8
9	12775	1/4-20 x 3/4" GR5 CARRIAGE BOLT	64
10	1303	1/4-20 TENSIL LOCK NUT	64
11	13425	5/16-18 x 2" GR5 HEX BOLT	2
12	13921	5/16-18 LOCKNT NYLON INSERT ZP	2

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DUTCH BUCKET SYSTEM
BENCH ASSEMBLY

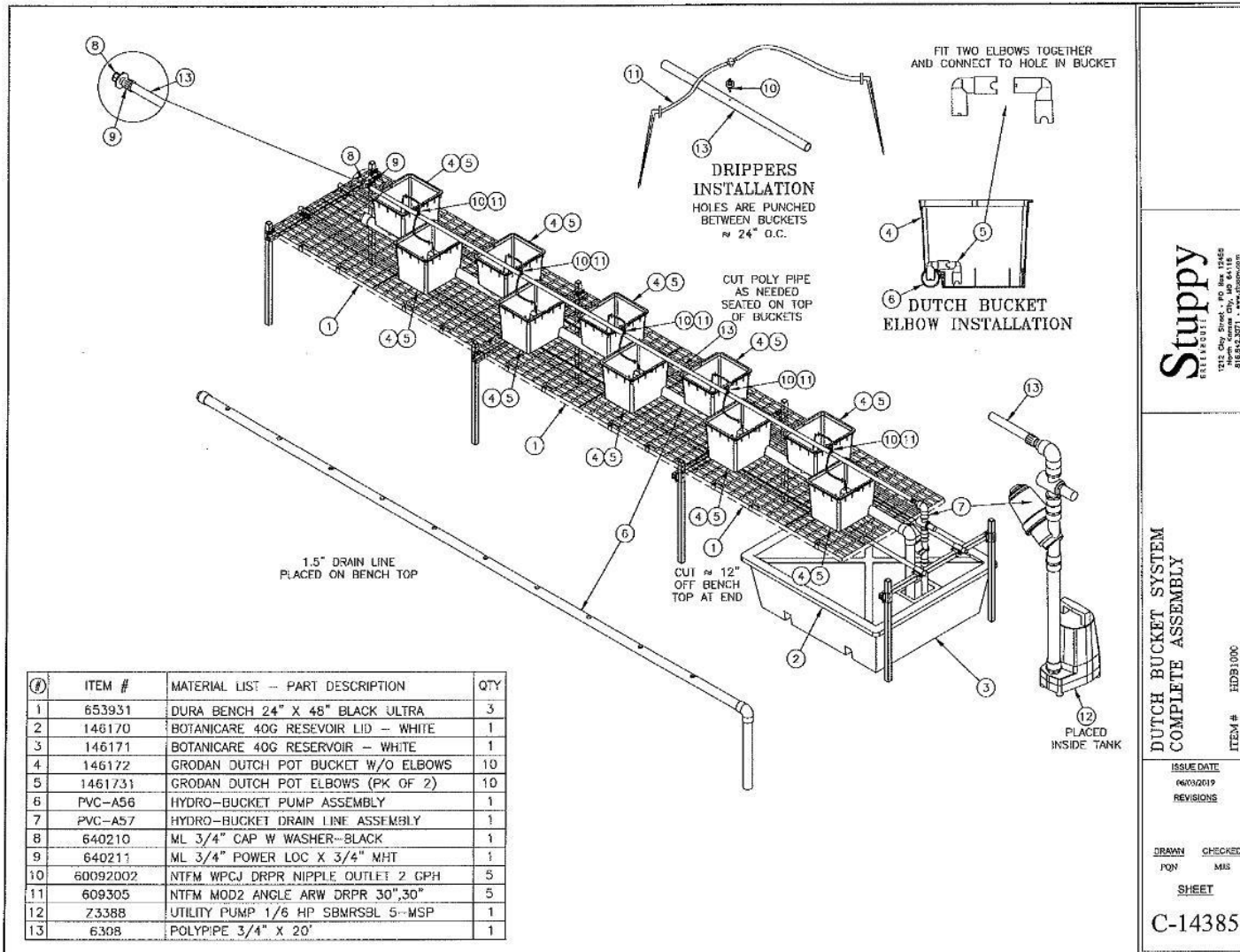
ITEM # 12334B

ISSUE DATE
06/09/2019
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C-14377



ITEM #	MATERIAL LIST -- PART DESCRIPTION	QTY
1	653931 DURA BENCH 24" X 48" BLACK ULTRA	3
2	146170 BOTANICARE 40G RESEVOIR LID -- WHITE	1
3	146171 BOTANICARE 40G RESEVOIR -- WHITE	1
4	146172 GRODAN DUTCH POT BUCKET W/O ELBOWS	10
5	1461731 GRODAN DUTCH POT ELBOWS (PK OF 2)	10
6	PVC-A56 HYDRO-BUCKET PUMP ASSEMBLY	1
7	PVC-A57 HYDRO-BUCKET DRAIN LINE ASSEMBLY	1
8	640210 ML 3/4" CAP W WASHER--BLACK	1
9	640211 ML 3/4" POWER LOC X 3/4" MHT	1
10	60092002 NTFM WPCJ DRPR NIPPLE OUTLET 2 GPH	5
11	609305 NTFM MOD2 ANGLE ARW DRPR 30",30"	5
12	73388 UTILITY PUMP 1/6 HP SBMRS3L 5--MSP	1
13	6308 POLYPIPE 3/4" X 20'	1

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**DUTCH BUCKET SYSTEM
 COMPLETE ASSEMBLY**

ITEM # HD91000

ISSUE DATE: 06/03/2019
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C-14385